



Algorithmic Management and its impact on workers in HR

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Abstract: With the world changing due to rapid technological advancements, the utilization of artificial intelligence (AI) and algorithmic management (AM) in businesses seems to be on the rise. The workers in any organization form the backbone for successful operation and need to be considered when implementing new systems, including algorithmic ones. Therefore, this study investigates how AM affects workers in the HR field to provide professionals and scholars insights into the employees' perspectives regarding the changes taking place in organizations. While research attention has been given to AM being utilized in platform businesses, studies into organizations with traditional business models have been lacking. Thus, the focus of this study is on traditional organizations (not ones operating on a platform) and the HR area, to fill an apparent gap in the literature. This study focuses on three key areas, which come up in existing literature: wellbeing, autonomy, and fairness. The empirical data consist of eight semi-structured interviews where HR workers and professionals voice their thoughts and experiences regarding AM. The data is analyzed using critical discourse analysis (CDA) to explore the respondents' underlying experiences about the new dynamic(s) that AI is bringing into work life. The findings paint an interesting picture of the current situation regarding how AM affects workers. Wellbeing seems to be improving as manual and routine tasks are automated and the workload is lightened, meaning that the remaining tasks are more meaningful and lead to increased work satisfaction and motivation. Potential frustration and dissatisfaction may be experienced when algorithms are overly trusted. Autonomy has mostly increased as AM systems support the decision-making process and the control given to the algorithms is limited (i.e., human workers still make the final decisions). Fairness and ethicality are emphasized, and a lack of transparency is seen as a big point of concern. While AM implementation is generally perceived as being fair, open communication about the utilization of algorithms could be improved, which would in turn increase the workers' trust towards AM.	
Keywords: Algorithmic management, algorithmic decision-making, artificial intelligence, machine learning, human resources	

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Sammandrag: Medan världen förändras till följd av snabba teknologiska framsteg, verkar användningen av artificiell intelligens (AI) och algoritmiskt ledarskap (AL) i företag vara på uppgång. Arbetstagarna utgör kärnan i organisationer och måste beaktas vid implementering av nya system, inklusive algoritmiska. Därför undersöker denna studie hur AL påverkar arbetstagare inom HR-sektorn för att yrkesverksamma och forskare skall få insikt i hur förändringar inom organisationer ser ut ur de anställdas perspektiv. Trots att forskningsuppmärksamhet har ägnats åt AL i plattformsföretag har studier inom organisationer med traditionella affärsmodeller varit få. Detta är orsaken till att studien fokuserar på AL i mer traditionella organisationer (vilka inte opererar på en plattform) och HR-området för att fylla en tydlig lucka i litteraturen. Studien fokuserar på de tre huvudområden som framkommer i befintlig litteratur, nämligen välbefinnande, autonomi och rättvisa. Data samlades in genom åtta semistrukturerade intervjuer där HR-personal och yrkesverksamma fick möjlighet att uttrycka sina tankar och erfarenheter om AL. Data analyserades med hjälp av kritisk diskursanalys för att utforska respondenternas underliggande upplevelser av de nya dynamiker som AI för med sig in i arbetslivet. Resultaten ger en intressant bild av den nuvarande situationen om hur AL påverkar arbetare. Välbefinnandet verkar förbättras när manuella uppgifter automatiseras och arbetsbelastningen minskar, vilket innebär att de återstående uppgifterna är mer meningsfulla och leder till ökad arbetsnöjdhet och motivation. Potentiell frustration och missnöje kan framkomma om man upplever att kolleger överdrivet litar på algoritmer. Autonomi har ökat till en del eftersom AL-system kan stödja beslutsfattandet och på grund av att kontrollen som ges till algoritmerna är begränsad, dvs. de slutliga besluten fattas fortfarande av människor. Rättvisa och etik betonas samtidigt som brist på transparens orsakar stor oro. Även om AL-implementering generellt sett uppfattas som rättvis, kunde öppen kommunikation om användningen av algoritmer förbättras, vilket i sin tur skulle öka arbetarnas tillit.	
Nyckelord: Algoritmiskt ledarskap, algoritmiskt beslutsfattande, artificiell intelligens, maskininlärning, personalresurser, HR	

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1 INTRODUCTION

The utilization of Artificial Intelligence (AI) and Machine Learning (ML) algorithms is becoming increasingly more common in all kinds of organizations around the globe. Moreover, the recent developments and advancements in technology have resulted in algorithms that are able to learn from data to tackle tasks that formerly required human judgement. This progress might be one of the most meaningful and momentous to work and organizing since the start of what is referred to as the ‘digital age’ (Faraj, Pachidi & Sayegh, 2018). As digitization is continuously developing and a digital transformation is taking place in companies, it is crucial to consider the implications for work and employment (Baiocco, Fernandez-Macías, Rani & Pesole, 2022). Depending on what these implications are, and whether they are positive or negative (or perhaps both), organizations can take note of them as they implement and deploy algorithms and AI in their processes.

While these (digital) changes that are occurring do affect the total employment and type of work to be conducted by humans, they also have an impact on how work is monitored, assessed, coordinated, and undertaken (Baiocco et al., 2022; Jarrahi, Newlands, Lee, Wolf, Kinder & Sutherland, 2021). In situations where it is possible for digital technologies to gather and process data for the planning and coordination of work, it is very likely that some form of *algorithmic management (AM)* is used, and that the ways in which it is implemented will have an impact on how work is organized as well as the quality of the job (Baiocco et al., 2022; Mateescu & Nguyen, 2019). Resulting from these effects (on the organization of work and job quality) and the subsequent (procedural) changes, workers will in turn be impacted in various ways as well.

Digital communication and collaboration are currently a part of most people’s daily lives; however, it is crucial to consider the fact that these technologies are increasingly affecting wider aspects of society. For instance, algorithms can measure the readership of digital newspaper articles and thus result in the media and press having a narrow focus on news stories that have a higher likelihood of becoming popular (Faraj, Pachidi & Sayegh, 2018). Moreover, the availability of algorithmic technologies makes digital platforms and a move to short-term employment possible. Algorithms also lead to various benefits for companies, such as increasing economic profit by enhancing targeting capacities, minimizing costs, and improving productivity (Newell & Marabelli, 2015; Faraj, Pachidi & Sayegh, 2018). However, it is unclear what the repercussions will be in the future. According to some predictions, learning algorithms will probably take over significant aspects of the knowledge economy, meaning that up to half of the full-time jobs in the United States (US) are at risk of being eradicated within two decades (Frey & Osborne, 2017; Faraj, Pachidi & Sayegh, 2018).

Concerns regarding the ethical aspects of AM (algorithmic management) have also been recently voiced to an increasing extent. Examples of these concerns include bias in recruitment, discriminatory algorithmic (non-transparent) systems being used in various HR processes, as well as the absence of human judgement and morality in decision-making and management (see e.g., Chan & Wang, 2018; Yarger, Payton & Neupane, 2020). Furthermore, the extent to which algorithms are allowed to make decisions on an individual and organizational level, what kinds of decisions, and with what consequences is a developing concern for scholars and policy officials alike (Faraj, Pachidi & Sayegh, 2018). As the implementation of AM keeps on accelerating in organizations, it is crucial to consider the worries that employees (and society in general) have about AM and its ethicality.

Algorithms are already transforming the workplace, allowing all facets of an individual's performance to be measured, compared to others, and controlled according to an algorithmic model. These changes are likely to bring about unforeseen transformations that require further understanding (Faraj, Pachidi & Sayegh, 2018; Orlikowski & Scott, 2016). The development of AM could be viewed as several managerial decisions made by humans to change work processes. Each choice is influenced by a variety of factors and has repercussions, which means that it does not take place in a vacuum. The in-situ interactions between employees, managers, and algorithms in typical work situations are, however, still mostly unknown (Duggan, Sherman, Carbery & McDonnell, 2020; Jarrahi et al., 2021).

Among other fields and sectors, AM has become a popular trend in the field of human resources (HR) over the past few years, as it uses AI and ML to automate various HR tasks and decision-making processes (Cappelli, Tambe & Yakubovich, 2019). For instance, algorithms can be used in recruitment through algorithmic assessments of video or telephone interviews and resume screening (Köchling & Wehner, 2020). They can also assist HR to terminate warehouse employees who work too slowly and boost employee morale through precise people analytics (Gal, Jensen & Stein, 2020). Thus, standard organizations can adopt AM by utilizing a variety of data-driven technical infrastructures, such as automated scheduling, personnel analytics, or recruitment tools (Jarrahi et al., 2021). While these technological advancements have the potential to improve human resource management (HRM) efficiency and accuracy (Chowdhury et al., 2023; Langer & König, in press), it also raises concerns about how they may impact the employees who are managed by them.

1.1 Background of algorithmic management & problem area

The discussions around the features and ramifications of AM have to this day mostly taken place in the context of online labour platforms (OLPs) (Baiocco et al., 2022). Similarly, prior research on AM has mainly focused on these OLPs as well as the gig economy, with platforms such as Uber and food-delivery (e.g., Deliveroo) being highlighted (Jarrahi et al., 2021). However, the constant developments that are occurring in the digitization of the economy, which was also advanced by the Covid-19 pandemic, has resulted in the implementation of AM processes in more “traditional” working environments, such as offices, retail, and factories. Thus, it is crucial to gather insight into how the new characteristics of AM interrelate with the already existing organizational attributes and structures (Baiocco et al., 2022).

While an increasing amount of literature is being written on the topic, the more traditional work settings and fields are currently experiencing somewhat of a lack of empirical studies being conducted in this regard, and HR is one of them. This means that there exists a gap in the research, and this study is one contribution that attempts to fill it. It can be stated that the evidence that has already been collected regarding the characteristics and implications of AM in the context of OLPs offers a valuable starting point for a deeper understanding of what is happening, however, novel research on how AM is being deployed beyond online platforms is very necessary, as it would offer a more detailed and complete picture of this phenomenon (Baiocco et al., 2022).

Some existing literature has examined the ways that AM impacts the workers, for instance, how it affects their motivation (Gagné, Parent-Rochelleau, Bujold, Gaudet & Lirio, 2022; Jabagi, Croteau, Audebrand & Marsan, 2019) and the more general effects of it (Lee, Kusbit, Metsky & Dabbish, 2015). However, this has also mostly been in the context of OLPs and the empirical research is still very limited when it comes to standard organizations (Jarrahi et al., 2021; Gagné et al., 2022; Baiocco et al., 2022; Wood, 2021). Investigating the impact in other contexts (in this case the HR field), and in further detail, will offer some valuable insights that would result in a highly useful contribution to the research field and to practitioners as well as scholars alike.

Existing research highlights questions related to three aspects, in particular wellbeing, autonomy, and fairness. For instance, research has shown that AM can lead to increased surveillance and control of workers, which can have negative effects on job satisfaction and work motivation (Gagné et al., 2022; Lee et al., 2015). Moreover, AM can create a sense of uncertainty and insecurity among workers, as they may feel that their jobs are at risk of

being replaced by automation (Malone, 2004; Faraj, Pachidi & Sayegh, 2018; Frey & Osborne, 2017). Additionally, AM can lead to biases in hiring and promotion decisions, as algorithms may reflect the biases of the data they are trained on (Chan & Wang, 2018; Köchling & Wehner, 2020; Yarger, Payton & Neupane, 2020). This study is going to continue the exploration of these topics and gather additional information.

1.2 Purpose of the study

As such, the purpose of the research is to explore the impact of AM on workers in the HR field. Ultimately, this research aims to provide insights into the effects of AM on the workforce, which can inform the development of best practices for implementing and managing these algorithmic systems. By identifying potential risks and benefits of AM, this research aims to give guidance for HR professionals in navigating this emerging field while ensuring that the workers they manage are supported, engaged, and productive. It also seeks to inform the development of policies and practices that promote ethical and fair use of AM in the HR field. Furthermore, it answers the call for research about AM from the workers' perspectives in a more standard work setting and serves as an attempt to fill in the knowledge gap that currently exists in the literature.

The main research question in this study is:

- *How does algorithmic management in HR-related practices affect workers' general experiences?*

There are also three sub-questions that this study will address:

- *How does algorithmic management affect workers' wellbeing?*
- *What are the implications of algorithmic management for workers' autonomy?*
- *How does algorithmic management affect workers' perceptions of fairness?*

The research questions are answered through conducting an empirical study that investigates all the different aspects that are mentioned in each of the questions. This study examines how AM affects, for instance, workers' job satisfaction, engagement, and overall wellbeing. It also explores how it impacts workers' perceptions of fairness, including for instance, transparency and accountability in the AM systems that manage them or that they themselves utilize in HR processes. Additionally, perceptions of autonomy and control are investigated. In other words, by analyzing the attitudes and experiences of workers who are affected by and have interacted with algorithms, as well as thoughts from managers who

utilize these systems, this research aims to provide a comprehensive understanding of the impact of AM on the workforce regarding aspects such as wellbeing, autonomy, and fairness.

1.3 Limitations and scope

This thesis has its limitations. The topic is limited in terms of the organizational department or field that is being focused on, which is in this case HR. The organizations that were selected to participate (i.e., the respondents who were interviewed are employed by these types of organizations) in this research project are either fully operating in the HR field or are operating in other fields, but it is the *HR departments* that have been approached. This means that no matter what the case may be, the emphasis is always on various HR functions (e.g., recruitment, personnel assessment, talent management, workforce planning, employee scheduling, training and development, and succession planning) and the ways that AM is implemented in these processes. More specifically, workers' experiences are highlighted regarding the effects of AM in HR. Other functions and processes in organizations that may incorporate AM are not considered in this thesis. In addition to the workers who are directly being affected by the algorithms used in management, some insight is also provided into how the employees (managers) that are operating and utilizing these systems view the effects from their perspectives. This will ensure a more holistic picture, which is important if we are to fully understand the phenomenon that is occurring. The more empirical limitations of the study and its findings are described in Chapter 5.

1.4 Definitions

There are a couple of important concepts that are used in this thesis, and they are defined in this section. The theory chapter (Chapter 2) offers a more detailed background and descriptions as it reviews the existing literature.

An **algorithm** is typically defined in computer science as a set of instructions that are designed to solve a specific computational problem or perform a particular task. Simply put, it transforms input data into output data in a finite amount of time and is a fundamental concept in computer science. (IIG, n.d.) The term can also be used to refer specifically to a computational formula that can make decisions independently, based on statistical models or decision rules, without the need for explicit human intervention. This specifying definition is in line with recent advances in the autonomous decision-making capabilities of algorithms from the fields of AI (Artificial Intelligence) and ML (Machine Learning). (Lee, 2018) Thus, this thesis refers to the more specific and narrow definition of the term, which is described here.

Artificial Intelligence (AI) and **Machine Learning** (ML) are frequently used synonymously to describe various computational methods that support modern “smart” computer systems. AI is a general term that encompasses the field, and ML is a subset that includes techniques like Deep Learning and Random Decision Forests. To avoid confusion, if not referring to a specific ML technique, the more general term “algorithm(s)” is used in this thesis. (Jarrahi et al., 2021; Noponen, 2019)

Algorithmic management (AM) is an emerging phenomenon and is increasingly being utilized by various organizations. Generally, AM is interpreted as delegating managerial activities and functions to algorithms. It thus involves the use of algorithms to, for instance, manage, coordinate, and monitor work activities. Algorithms can also be used in decision-making overall, which is called **algorithmic decision-making**. (Jarrahi et al., 2021; Lee, 2018; Noponen, 2019) AM often plays a complementary role in organizations with traditional business models, meaning that it does not completely replace human managers, but instead offers technology-enabled tools to help managers in managing subordinates (Wiener, Cram, & Benlian, 2021). From a perspective that focuses more on digital labor platforms and the gig economy, AM can be defined as the process of collecting and utilizing large amounts of data on a platform to create and enhance learning algorithms that carry out tasks related to coordination and control, which are traditionally performed by managers. AM differs from traditional management approaches in that it relies on intelligent algorithms in combination with digital technologies (such as mobile applications and smartphone sensors) not only to support or inform decision-making but also to automate coordination and control tasks with minimal human intervention. (Benlian, Wiener, Cram et al., 2022)

Human resource management (HRM) is a comprehensive and consistent approach to the employment and growth of personnel and can be seen as a philosophy for managing people. The primary objective of HRM is to improve organizational efficiency through people, but it should also be focused on the ethical dimension, for instance, how individuals ought to be treated according to moral principles. HRM entails implementing policies and practices in areas such as organizational design and development, staffing, training and development, performance evaluation and compensation, and providing services to improve employee wellbeing. These policies are built on **human resource** (HR) strategies that are interconnected and aligned with the overall business strategy. (Armstrong & Taylor, 2020)

1.5 Structure of the thesis

This thesis is structured in various parts. In this chapter, an introduction has been provided and the problem area, purpose, research question(s), limitations and scope, as well as relevant definitions have been described. In the following chapter, the theoretical framework is presented, in which literature and research about the topic in question are dealt with in more detail. The methodology chapter is the third chapter, in which the chosen research methods are presented and discussed. Thereafter, there is an “Empirical Findings”-chapter where the results and findings are described. That chapter presents what the study has concluded regarding how AM affects workers in the HR field and how the findings compare to prior research. Finally, conclusions are drawn from the results of the study, which are tied to the collected data. Moreover, implications, limitations of the study and recommendations for future research are also provided in the concluding chapter.

2 THEORETICAL FRAMEWORK

In this part of the thesis, some relevant literature about the topic of AM and its impact on workers are reviewed. Thus, a theoretical framework is offered in this chapter, and it gives a better understanding of what has, in fact, been researched and studied in this area. It therefore examines the current state of research on AM in HR(M), and more generally, with a focus on the various effects that AM has on employees. The chapter starts by framing the topic of AM in an organizational context and briefly touches upon its history. Next, the benefits and drawbacks of AM are discussed. Thereafter, three topics, which are all seemingly connected to AM, are presented in the following order: wellbeing, autonomy, and fairness. These topics have been in the centre of literature about how AM impacts employees and have all been frequently mentioned and highlighted in previous research findings. They are also important in the context of HR as any changes and (technological) developments happening in this people-oriented area can have major implications for overall wellbeing, level of autonomy, and perceived fairness among staff. After this, literature about AM in HR is presented to further solidify the context of this study and discuss what has been concluded by researchers. In the section that follows this, some research findings about AM and its effects on workers in the context of platform businesses are briefly touched upon, as they offer some additional valuable insights to this theoretical framework. Thereafter, some aspects of the theorized future of AM are presented and, finally, a summary of the theoretical framework is provided.

2.1 The organizational context of algorithmic management

While AM has quite recently increased in popularity, the underlying ideas as well as mechanisms of it have been present for a longer period (Baiocco et al., 2022). More specifically, AM can be viewed as an extension of the historical movements towards bureaucratization or rationalization of economic processes as well as the organisatory procedures of work. For instance, it could be interpreted as having derived from scientific management (Taylorism) and its more contemporary digitized versions that include just-in-time (JIT) production, among other techniques and mechanisms (Baiocco et al., 2022; Gautié, Jaehrling & Perez, 2020; Jarrahi et al., 2021). Several essential elements of AM have indeed prevailed in our society for a (surprisingly) long time and have existed already before the digital revolution. This can especially be noticed when erasing the factor in the definition that encompasses digitalization, as it then becomes quite clear that the main ideas of AM and its related systems have been historically present for even as long as millennia. Both scientific management and bureaucracy could be considered as being historical examples of (earlier) forms of AM, but without the digital feature. (Baiocco et al., 2022)

The impersonal nature of bureaucracy (Weber, 2015, originally 1922) can be seen in AM, as the rules that are decided upon need to be explicitly encoded so that it is even possible to execute them in an algorithmic manner (Faraj et al., 2018; Vogl, Seidelin, Ganesh & Bright, 2019). However, impersonality does not equal fairness since the rules themselves can incorporate biases and unfairness, which in turn can result in the algorithm-based decisions to suffer from unethical features and thus be unfair as well as biased (Baiocco et al., 2022; Pääkkönen, 2021). Additionally, accountability and transparency may become extremely difficult to ensure. This is because the rules for decision-making can be unfamiliar even to the ones that operate the AM system due to the computer being the one that derives these rules (based on input and data from operators), which are then to be executed in an algorithmic way (Baiocco et al., 2022). The topic of fairness in connection to AM is presented in more detail later in a sub-chapter (2.5).

Scientific management (Braverman, 1974) can also be connected to AM. Similarly, as to what was suggested in scientific management, the functions of AM need to be somewhat rationalized as well as standardized in order for them to be effective (Baiocco et al., 2022). As it turns out, the utilization of AM systems has been connected to the term “digital Taylorism” (Gautié, Jaehrling & Perez, 2020; Jarrahi et al., 2021). This distinction was made due to the need for a reorganization of work procedures, as they had become too complicated to be constructed based on the basic principles of scientific management. These changes resulted in increased usage of digital appliances to standardize functions as well as AM to consolidate decision-making and authority. Another similarity between these two systems is that it can lead to a decreased level of autonomy that respective workers have over the manufacturing process. (Baiocco et al., 2022) However, AM can also in some cases be connected to an increased degree of power and control as well as to lower standardization from the employees’ perspective, for instance, in the context of online labor platforms (Wood et al., 2019). Autonomy (in the context of AM) is discussed more thoroughly in an upcoming sub-chapter (2.4).

2.2 The benefits and drawbacks of algorithmic management

AM is an emerging phenomenon that has gained significant attention in recent years and is taking place in all kinds of organizations. It refers to the use of algorithms and data analytics to automate and optimize various aspects of management, such as scheduling, performance evaluation, and decision-making overall (Jarrahi et al., 2021). Previous research reveals that AM has its benefits and drawbacks, and both ethical and legal implications are involved. These factors are discussed next in order to provide an overview of the existing literature.

Managers play a crucial role in businesses. They are in charge of important duties like goal-setting, planning, organizing, leading, and controlling. In terms of employee productivity and wellbeing, managers' work has an impact on performance results both at the organizational level and at the individual level; increasing the pressure on managers (Benlian et al., 2022). However, since managers are flawed individuals with both strengths and weaknesses, there are personality quirks that can lead to both excellent and bad management decisions. Thus, given the significance of management overall, it is not shocking that the provision of information technology (IT) systems and solutions for the target group of managers has a long history in both studies and practice (Benlian et al., 2022). Business intelligence and analytics systems that support tactical, operational, and strategic choices are two notable examples (Chen, Chiang, & Storey, 2012). Therefore, it could be reasonable to state that AM has been a “natural” progression of management in relation to the digitization of the modern world and the rapid developments that we have witnessed in the past few decades.

Learning algorithms are likely to take over routine cognitive tasks that are clearly defined and can be reduced to sets of patterns and rules (Faraj, Pachidi & Sayegh, 2018). More specifically, up to 30% of tasks could be performed by algorithms instead of humans in most of the jobs that require tacit knowledge (Manyika et al., 2017). Understanding which aspects of work are most likely to be automated, how that affects the remaining tasks, and how to handle the tension that arises from people and algorithms becoming increasingly entwined could be considered a challenge for both workers and organizations (Faraj, Pachidi & Sayegh, 2018).

Nowadays, digital information is gathered by a range of devices capable of monitoring an individual's daily activities down to the smallest details. Algorithms are often used to process this data, which support or influence decision-making. While the collected data is incredibly valuable to businesses for analysis and strategic purposes, the impact on individuals and society as a whole is less certain (Galliers, Newell, Shanks & Topi, 2017). There exists a conflict between businesses, which are increasingly profiling customers and customizing products and services, and individuals who are often unaware of how their data is being used or by whom. This raises concerns regarding privacy, control, and reliance, indicating the importance of considering the ethical and social issues related to the way businesses are using digital technologies to support our everyday activities. (Newell & Marabelli, 2015) Similarly, workers are often not being told directly how data about them is being used by algorithms and how algorithmic monitoring takes place in the organization (Jarrahi et al., 2021).

2.2.1 Effects on work processes and job design

Algorithms enable new ways of organizing work, categorized into optimizing-oriented and open-ended systems based on numerical or textual/visual data. Optimizing-oriented systems are used for smarter control of defined tasks, including AM of human labor. Open-ended systems provide answers to managerial questions, allowing for more effective organizing and allocation of resources. Algorithms can also process conversations within organizations, leading to increased transparency but also potential threats. These developments are causing innovation in organizational design and changes to workplace norms. (Schildt, 2017) Thus, it is important for (traditional) organizations to keep up with the changes and make sure that their workers are not overwhelmed by all the shifts and developments.

Parent-Rocheleau and Parker (2022) explore how AM shapes job design in the workplace. The authors argue that algorithms function as "work designers" by influencing task allocation, workflow, and decision-making. They also highlight the potential for AM to lead to deskilling, work intensification, and a reduction in job autonomy. They recommend that organizations need to consider the impact of AM on job design and work quality to ensure a more positive work environment for employees. The consequences of AM for work organization and working conditions are examined by Wood (2021). The author reviews existing literature on the topic and identifies three key areas of impact: (1) the fragmentation of work and the emergence of new forms of work, (2) the intensification of work and the erosion of work-life balance, and (3) the increasing surveillance and control of workers. It is suggested that AM creates a new form of "digital Taylorism" that reduces workers to inputs in a production process (Wood, 2021). In addition, AM can be used to hide specific decisions made about how a system should operate, distancing businesses from the results of their decisions (Mateescu & Nguyen, 2019). This can have detrimental effects on accountability in organizations.

On OLPs (online labor platforms), AM systems automate managerial decision-making while removing the human manager from the process. By doing this, they not only bridge the gap between managerial decision-making and subsequent action-taking based on insights from various data, but they also make it possible for determined strategies and company models to be executed efficiently and effectively (Benlian et al., 2022). Thus, algorithms are an appealing substitute for people in this sense due to a number of features they possess and the benefits they offer (Schneider & Gersting, 1995). Modern AM systems do, however, come with a variety of issues. In this case, the exploitative business models and strategies of the platform providers that are inscribed in opaque AM systems, rather than the systems themselves, are often the main issues (Benlian et al., 2022). In other words, platform

providers should re-evaluate the ways that they are implementing AM systems and look at the processes from the workers' viewpoints, subsequently taking suitable action to make these systems more transparent and comprehensible.

The article by Basukie, Wang, and Li (2020) explores the topic of big data governance and AM in the context of sharing economy platforms. The authors argue that big data governance and AM are critical for the effective functioning of sharing economy platforms, as they enable the platforms to efficiently match service providers and customers, improve service quality, and reduce transaction costs. The authors also discuss the challenges and opportunities associated with big data governance and AM in sharing economy platforms, such as the need for transparency and accountability, the potential for bias and discrimination, and the role of regulatory frameworks. These themes are also echoed in most of the literature in this review.

New forms of flexible work, such as crowdwork and mobile work have been enabled by information and communication technology (ICT) in recent years. These developments are seen as beneficial for their ability to offer high flexibility in terms of work hours and location, and for providing employment opportunities to different groups, such as people with disabilities, individuals with care responsibilities, and workers in developing countries (Rani & Furrer, 2021). Rani and Furrer (2021) investigate how AM and platform design are utilized to allocate, monitor, and assess low-skilled work when it is outsourced to crowdsourcing platforms. The authors contend that these platform features affect elements like access to tasks, compensation, and flexibility in work hours, which influence working conditions. The results emphasize the significance of platform architecture, design, and algorithm transparency in ensuring that workers are safeguarded from the hazards involved with digital labor.

2.2.2 *Effects on leadership*

Wesche and Sonderegger (2019) explore the possible impact of AI on the role of leadership in organizations. The authors argue that AI has the potential to automate many of the traditional tasks and functions of leadership, such as decision-making, problem-solving, and communication. They also highlight the potential benefits and drawbacks of automated leadership, such as improved efficiency and accuracy versus loss of human judgement and ethical concerns. Similarly, Harms and Han (2019) propose a new concept of "algorithmic leadership," which refers to the use of algorithms and machine learning to optimize leadership decision-making. The authors suggest that algorithmic leadership could improve the accuracy and fairness of decision-making, but also highlight potential ethical issues, such as bias and lack of human judgement.

It has been suggested that AI can enhance the capabilities of managers and organizations, but also lead to some challenges, such as the need for new skills and knowledge, and the risk of unintended consequences (Noponen, 2019). Ferrás-Hernández (2018) argues that AI and other emerging technologies will transform the way managers work and make decisions. He suggests that managers will need to adapt their skills and competencies to keep up with these changes.

2.2.3 *Effects on workers*

In an article by Jarrahi et al. (2021), the authors focus on the practical implications of AM for workers, including the impact on relationships with managers, work processes, and perceptions of fairness. They discuss possible benefits, such as improved productivity and efficiency, but simultaneously raise concerns about the impact on job security, privacy, and autonomy. The authors call for greater transparency and worker participation in the development and implementation of these systems. The impact of algorithmic decision-making on human perceptions of fairness, trust, and emotion in response to AM is explored by Lee (2018). The findings reveal that individuals tend to view algorithmic decisions as being less fair, less reliable, and more likely to elicit negative emotions when it comes to tasks that are perceived to require exclusively human abilities. Thus, the research provides initial evidence to support the argument that algorithmic decision-makers trigger dissimilar beliefs and associations among employees as opposed to human managers. The author suggests that in addition to transparency, explainability and human oversight are important factors in ensuring fairness and trust in algorithmic decision-making.

After reviewing what has been studied about AM and offering insight into the current state of research, it becomes quite clear that the phenomenon of AM can have large implications for the workers in organizations. The various opportunities and challenges that algorithmic decision-making entail for an organization are bound to affect the employees and, for instance, their job satisfaction and degree of autonomy. Therefore, in the next sections an overview on research about the ways that AM can impact workers' wellbeing, autonomy, and their perceptions of fairness is provided.

2.3 Wellbeing

AM and its impact on worker wellbeing, including for instance, motivation and job satisfaction has been investigated in previous literature reviews and studies. It is often argued that it is crucial for organizations to understand these effects and take them into consideration to successfully design and implement AM systems. Thus, existing literature about the topic is presented in this section.

Utilization of AM has been connected to increased effectiveness, enhanced coordination, and improved decision correctness (e.g., Kellogg, Valentine, & Christin, 2020). However, as algorithms begin to take over organizational structures and procedures, critics point out a variety of unexpected effects that start to emerge. Additionally, numerous stakeholders are advocating for greater organizational transparency and accountability when it comes to the use of algorithms because their effects on workers remain unclear (Benlian et al., 2022). Thus, receiving answers regarding this matter is of broad interest, not just from the employees' perspective but more generally as well.

The importance of meeting fundamental psychological needs for employees' performance, motivation, and wellbeing is supported by a substantial body of research (Deci, Olafsen, & Ryan, 2017). Simultaneously, a widespread proliferation of AI applications may unintentionally have an impact on workers' fundamental psychological demands. For instance, research has increasingly uncovered a complicated web of complexities when attempting to comprehend how AM affects employees' autonomy. On the one hand, it has been demonstrated that platform economy employees have, for instance, more scheduling freedom. (Möhlmann et al., 2021) However, AM has in some instances given businesses unparalleled levels of control over their staff. The widespread use of AI-based assistants is also calling into question the competence of workers (Benlian et al., 2022). It is significant to note that these consequences do not just apply to low-skilled work. Numerous studies have already shown that AI performs in numerous fields at a level equal to or even above that of the workers themselves, such as doctors (Shen et al. 2019). While these developments offer various benefits, they also necessitate that employees adopt new and varied mindsets and skillsets, including higher psychological resilience while interacting with AI (Benlian et al., 2022).

2.3.1 Motivation

Gagné et al. (2022) examine the influence of AM on worker motivation using Self-Determination Theory. Their findings suggest that AM can negatively affect worker motivation when it is perceived as controlling, but it can also be motivating when it is perceived as providing support for autonomy, competence, and relatedness. Jabagi, Croteau, Audebrand & Marsan (2019) similarly explore gig-workers' motivation but take a broader perspective that goes beyond traditional reward and punishment mechanisms. They identify four categories of gig-workers' motivation (also based on self-determination theory): autonomy, relatedness, competence, and purpose. The authors suggest that gig-workers are motivated by a desire for flexibility, personal growth, having control of their work, contributing to a larger purpose, and social connections.

The influence of AM practices on workplace wellbeing in European organizations is studied by Kinowska and Sienkiewicz (2023). Their study finds that AM practices, such as monitoring and surveillance, can negatively affect wellbeing by increasing workload, creating uncertainty, and decreasing job security. Their results also point to these AM practices being associated with increased stress, anxiety, and burnout. However, they also find that well-designed AM practices can positively affect wellbeing by increasing job satisfaction and providing opportunities for learning and development.

Overall, the literature suggests that AM practices can have both positive and negative effects on worker wellbeing. The negative effects of AM tend to be related to perceptions of control, fairness, transparency, and autonomy. On the other hand, well-designed AM practices that provide support for autonomy, competence, and relatedness can positively affect worker motivation, satisfaction, and wellbeing in general.

2.4 Autonomy

AM and electronic monitoring in the workplace can have crucial impacts on the workers' perceptions of autonomy and control, as already mentioned in some articles that are discussed above. In this part of the literature review, the themes of control, surveillance, and autonomy in the context of AM are delved deeper into.

2.4.1 Control

Employees often feel manipulated and treated unfairly by algorithmic decisions because they believe they are unpredictable, unjust, and erroneous (Lee et al., 2015; Wiener et al., 2021). This is because algorithmic control mechanisms, such as incentive systems that have been gamified, frequently reinforce the perception of an unstable and opaque system where decisions are actively not made in a transparent manner (Rosenblat & Stark, 2016). It is generally established that how fair workers' supervisors and workplace seem to them has a significant impact on their wellbeing (Zhang, Boltz, Wang, & Lee, 2022). By taking these findings into consideration and applying them to an algorithmic control system, and thus making it fairer, the optimal result would be favorable employee evaluations and improved worker wellbeing in general (Benlian et al., 2022).

Algorithmic control is sometimes viewed as being excessively invasive and controlling, which can have several negative repercussions. Already the fact that it involves an inanimate, non-transparent system acting as the manager and automatically issuing commands is difficult for most employees to accept (Benlian et al., 2022). The primarily coercive management method is probably going to make people feel frustrated, which might eventually lead to a wide spectrum of resistance in terms of workers' behaviors and actions (Pregenzer, Remus &

Wiener, 2021a). This can take a variety of forms, from minor ones like avoiding monitoring and discovering loopholes to moderate forms like actively manipulating the system and gaming it to more extreme forms like protests and strikes (Kellogg et al. 2020). The impacts of algorithmic control are therefore everything but simple to explain or foresee because of the many interconnections between the algorithm and the human worker (Benlian et al., 2022).

Traditional control systems involve a human controller in some capacity to manage the feedback loops. On the other hand, algorithmic control completely automates the feedback loop and detaches it from human controllers, giving the impression that real-time tracking is ongoing (Kellogg et al. 2020). Additionally, the usual human dispute resolution strategies of dialogue and compromise are made ineffective. This makes actual opposition to algorithmic control challenging because a non-human opaque algorithm's automatic answers can cause more aggravation and emotions of helplessness and defenselessness, promoting (the frequently unsuccessful) resistance behavior. However, new knowledge about feedback loops could serve as the foundation for creating algorithmic control systems that are more socially acceptable and morally correct. (Benlian et al., 2022)

Kellogg, Valentine, and Christin (2020) explore the potential impact of algorithms on organizational control through summarizing interdisciplinary research on algorithms at work. They discover that algorithmic control in the workplace functions through six key mechanisms that they refer to as the “6 Rs”: employers can use algorithms to lead workers by *restricting* and *recommending*, assess workers by *recording* and *rating*, and discipline workers by *rewarding* and *replacing* them. The authors conclude that given the generally positive perspective of algorithms at work, labor process theory aids in highlighting any potential issues. Moreover, unlike the technical and bureaucratic management that employers have used for the previous century, algorithmic systems’ technical skills provide a kind of rational control. In addition, they find that firms’ use of algorithms is encouraging the creation of new jobs in the field. Lastly, the authors suggest that through a variety of newly developing strategies that they refer to as “algoactivism,” employees are both individually and collectively fighting algorithmic control.

Muldoon and Raekstad (2022) discuss how concerns regarding new algorithms used to manage workers and how they change the structural conditions of their job have been raised by empirical investigations of the gig economy. The authors provide a theoretical account of algorithmic domination and a framework for comprehending how it may be used in ride hail and food delivery services in the on-demand economy. They contend that some algorithms

can support a socio-technical system in which business owners and managers dominate employees, hence facilitating new relationships of dominance.

2.4.2 Compliance and acceptance

Bucher, Schou, and Waldkirch (2021) explore the concept of anticipatory compliance in the gig economy, where workers anticipate the requirements of AM to conform and maintain a positive reputation on the platform. The authors argue that workers accept AM as a trade-off for job flexibility and income stability. Wood, Graham, Lehdonvirta, and Hjorth (2019) also examine the autonomy-control dichotomy in the gig economy, highlighting how AM shapes workers' experiences of work and employment relations. They come to the conclusion that control is often exercised through AM techniques that can reduce worker autonomy and intensify work. Similarly, Pignot (2021) argues that algorithmic control can have dark and unexpected effects, such as disempowering workers, creating surveillance, and reinforcing existing power dynamics. The article by Jarrahi and Sutherland (2019) discusses the concept of AM and algorithmic competencies in the context of gig work as well. The authors argue that while AM can improve efficiency and productivity, it can also result in dehumanization and the erosion of workers' autonomy.

The role of attitudes, functions, and perceived control for the acceptance of tracking technologies is investigated by Abraham, Niessen, Schnabel et al. (2019). They highlight the importance of employees' perception of control over the monitoring process and suggest that HR departments will have to consider the interests and wellbeing of employees, which could enhance both performance and the acceptance of the technologies. Galière (2020), on the other hand, takes a Foucauldian perspective to examine the consent of food-delivery platform workers to AM, demonstrating how power relations and disciplinary techniques influence workers' compliance with the system. The author argues that workers' consent to AM is not merely a passive acceptance but a strategic response to the platform's discourse and practices.

In summary, while AM may offer benefits such as efficiency and objectivity, it might also raise concerns about compliance and control. The literature highlights, among other factors, the importance of employees' perception of control, the use of disciplinary techniques, and the role of anticipatory compliance in shaping employees' behavior in response to AM and digital monitoring in the workplace. The need for further research to understand the implications of AM and control for employees, organizations, and society is emphasized in the various articles.

2.5 Fairness

The use of algorithms in organizational decision-making and, for instance, hiring practices has increased over the past few years. However, there is growing concern about the potential for algorithmic decision-making to perpetuate discrimination and bias. This section reviews literature that explores the impact of algorithmic decision-making on fairness and equity in organizations and in their employee selection, and the various ways in which algorithms can maintain or resist discrimination, bias, and gender stereotypes.

2.5.1 *In recruitment*

In the article by Chan and Wang (2018), the authors investigate hiring preferences in online labor markets and provide evidence of a female hiring bias. They find that employers showed a preference for female candidates, particularly in tasks that were perceived to be more feminine. It is suggested by the authors that algorithms could intensify this bias if they are trained on biased data, which means that algorithmic decision-making could perpetuate gender stereotypes and bias overall. To argue that the biases work both ways, an article by Reuters (2018) reports that Amazon abandoned an AI recruiting tool that favored men for technical jobs. The tool was found to be biased against women and disadvantaged candidates with resumes that included gender-specific terms. The article highlights the importance of addressing the potential biases in algorithm-based HR decision-making, as these biases can lead to discrimination and hinder diversity in the workplace.

Kleinberg, Ludwig, Mullainathan, & Sunstein (2018) examine how algorithms can be used to discriminate against certain groups in the recruitment process, and the ethical and legal implications of this discrimination. They argue that algorithmic decision-making can perpetuate and amplify discrimination if not properly regulated. Similarly, Köchling and Wehner (2020) provide a systematic review of the literature on algorithmic decision-making in HR recruitment and development, exploring how algorithms can perpetuate discrimination and what strategies can be used to mitigate these effects. The authors find that algorithms can reproduce and even amplify discrimination and bias, particularly against underrepresented groups. They recommend that HRM practitioners be aware of these biases and take steps to minimize them, such as using diverse data sources and testing algorithms for fairness.

Yarger, Payton and Neupane (2020) examine algorithmic equity in the hiring of underrepresented IT job candidates. The authors suggest that algorithms can help reduce bias in the hiring process by removing human subjectivity and decision-making. However, they argue that algorithms themselves can be biased if they are not designed to promote

equity and are based on biased data from the beginning. According to the authors, it is crucial to ensure that algorithms used in HR decision-making are designed and trained to promote equity and fairness in hiring. They mention that this could be achieved, for instance, by using diverse data sets and incorporating equity metrics into their algorithmic decision-making processes, which is comparable to the recommendations by Köchling and Wehner (2020). The practical implications of algorithmic hiring from the perspective of recruiters and HR professionals are examined by Li, Lassiter, Oh and Lee (2021). The results indicate that while these HR professionals and recruiters generally view AI as a useful tool for HR management, they also have concerns about the potential for bias and the need for human oversight.

2.5.2 Importance of task characteristics and integrity

According to research by Lee (2018), people's perceptions towards algorithmic versus human-made decisions are greatly influenced by whether a task demands more "human" or "mechanical" talents. The study finds that people prefer to view both algorithmic and human judgements as equally fair when the task primarily requires mechanical ability. The degree of perceived fairness is particularly affected by the lack of bias in algorithmic decisions and the supervisory authority in human-made decisions (Lee, 2018). Therefore, while examining how AM influences employees' perceptions of fairness in HR, it is equally important to take into account the peculiarities of a task.

Leicht-Deobald, Busch, Schank et al. (2019) discuss the challenges associated with algorithm-based decision-making for personal integrity. The authors argue that algorithmic decision-making is quite often biased and can lead to discrimination, which could violate personal integrity. Additionally, algorithm-based decision-making can threaten personal integrity by reducing the agency and autonomy of workers. The authors suggest that a more transparent and inclusive approach to algorithmic decision-making is necessary to ensure ethical and fair treatment of employees.

2.5.3 Transparency

One of the most significant issues regarding fairness in AM is algorithmic opacity (Benlian et al., 2022). Given that AM is more opaque than its non-algorithmic counterpart, (platform) personnel frequently struggle to comprehend the inner workings of the algorithms (Kellogg et al., 2020; Möhlmann et al., 2023). On the one hand, real-time data inclusion makes machine-learning algorithms' algorithmic instructions highly complex and subject to rapid modification (Faraj et al., 2018). On the other side, several (platform) businesses are hesitant to make explicit disclosures to the public about their algorithms (Benlian et al., 2022).

Platforms can participate in secretive nudging, deliberate manipulation, and surveillance due to the limited understanding of external stakeholders in the underlying logic of algorithms, which in turn leaves little room to identify algorithmic bias and unfairness (Zuboff, 2019). The workers who are exposed to AM systems may find algorithmic opacity to be extremely frustrating because it leaves them uncertain about their monetary compensation, job responsibilities, or even the fairness and accuracy of the algorithmic instructions they receive (Gal et al., 2020; Jarrahi et al., 2021).

Workers are frequently left wondering why algorithmic control pushed them towards a particular action because of opaque algorithms, which breeds uncertainty (Cheng & Foley, 2019; Mittelstadt, Allo, Taddeo, Wachter & Floridi, 2016). Due to the lack of knowledge, sense-making processes take place, and various "theories" are created to make up for it (Pregenzer, Wieser, Santiago Walser & Remus, 2021b). The results of previous research in the field of algorithmic transparency paint a conflicting picture. Positive impacts have been discovered on beliefs in competence, compassion, and contentment (Gedikli, Jannach & Ge, 2014; Wang & Benbasat, 2007), although negative effects, including lower performance, (Schmidt, Biessmann & Teubner, 2020) have also been noted. Additionally, those who tend to value algorithms might perceive the information offered by computers and algorithmic systems as being more objective (Sundar, 2020). On the other hand, recent research in the area of gig work also issues a warning against perceiving transparency as a universal cure because user reactions are too varied (Cram et al., 2022). Some workers may prefer to be steered by very ambiguous information cues instead of having all information (Zhang et al., 2022). Transparency may thus even backfire in the form of countervailing tactics (Welch, 2011). The "algorithm as manager" connection (Möhlmann et al., 2021) prevents results from conventional control research from being easily applied to algorithmic control. Instead, we must carefully examine the intricate connections between transparency, algorithmic control, and employee-level effects (Benlian et al., 2022). From there it could become clearer what the underlying issues are, and what type of potential solutions exist for the negative impacts on workers due to AM and its opacity.

Overall, the literature highlights the challenges and potential risks associated with decision-making based on algorithms, including biases and discrimination. While AM has the potential to remove the subjectivity of human judgement and offer objectivity into various processes, it is important to remember the possible imperfections as well. The articles emphasize the need for transparency, inclusivity, and fairness in AM and algorithmic decision-making to ensure ethical and equitable treatment of job candidates and employees alike.

After discussing what existing literature has covered regarding the effects of AM on workers' wellbeing, autonomy, and their perceptions of fairness, it is time to shift the focus onto the field of HR. All these three aspects are very relevant in this specific field and should not be ignored as they can indeed have large implications for employees in an HR organization or an HR department of a company. Thus, AM in the HR field is focused on in the next section of this literature review.

2.6 Algorithmic management in HR

The use of AI and algorithms in HRM has become increasingly prevalent in recent years. The existing literature discusses the challenges and opportunities associated with AI in HR management, as well as the practical implications of algorithm-based decision-making in HR. An overview of the research and literature about the topic is provided in this subsection.

Cappelli, Tambe, and Yakubovich (2019) provide an overview of the challenges that organizations face when implementing AI in HRM, such as concerns around data privacy and ethics, the difficulty of integrating AI with existing HR systems, and the potential for bias and discrimination. The authors propose a path forward that involves developing a better understanding of how AI can be used to augment rather than replace human decision-making and involving HR professionals and other stakeholders in the development and implementation of AI systems.

Langer and König (in press) introduce a multi-stakeholder perspective on the opacity and transparency of algorithm-based HRM systems and propose strategies for reducing opacity and increasing transparency. The authors argue that greater transparency can help to build trust among stakeholders, while reducing opacity can help to mitigate the potential risks of bias and discrimination. They also propose several strategies for improving transparency, including involving workers in algorithm design and providing explanations for algorithmic decisions.

The duality of AM, which refers to the potential for algorithms to both enhance and constrain worker autonomy and value creation, is discussed by Meijerink and Bondarouk (2023). A possible challenge is that AM may lead to new forms of control and exploitation. The authors propose a research agenda that explores the complex interactions between algorithms and human actors in the workplace, and the implications of AM for worker autonomy, wellbeing, and performance. They argue that a better understanding of the duality of AM is necessary to develop ethical and effective HRM practices in the age of AI and automation.

An AI capability framework for HRM that can help organizations to unlock the value of AI and effectively implement AI-based HRM systems is proposed by Chowdhury et al. (2023). The framework includes four key capabilities: data and analytics, AI technology, process automation, and talent management. The authors argue that by developing these capabilities, organizations can improve HR processes and decision-making, and enhance the employee experience while avoiding potential pitfalls and risks.

In conclusion, the articles highlight the potential benefits and risks of AM in HRM. While AM can improve efficiency and objectivity, it can also have negative effects on transparency, fairness, wellbeing, and autonomy. As the various scholars also state, HRM practitioners should be aware of these potential risks and take steps to mitigate them, such as involving workers in algorithm design and providing explanations for algorithmic decisions. The importance of AM in the gig economy and its impact on employment relations, workplace wellbeing, and HRM practices is also a large part of the current literature and research about the topic in question. Thus, the next sub-section discusses some insights from the context of platform businesses.

2.7 Insights from platform businesses

The gig economy has become a significant part of the contemporary workforce, and technology has played a pivotal role in its development, with several platform businesses having emerged. Consequently, research has mainly focused on platform businesses regarding AM and its effects on workers. One reason for this might be the advanced use of algorithms on platforms, such as Uber or Deliveroo. The existing literature that focuses on these types of platforms have offered some insight into how employees may react to being managed by algorithms instead of humans, which provides valuable perspectives to the context of HR and “traditional” companies as well. Thus, this sub-section reviews key findings from these studies to build a theoretical framework that incorporates some aspects that, while being connected to another context, are still relevant.

2.7.1 Platform businesses: algorithmic management & wellbeing

AM may disrupt the social structure of organizations, potentially making it more difficult to satisfy desires for relatedness. A notable illustration of workers’ alienation in the platform economy is the dispersed workforce of ride-sharing platforms, such as Uber (Möhlmann et al., 2021). In addition, monitoring and analyzing employee communication may have alarming consequences, causing employees to express themselves less honestly, potentially stifling social interaction and harming interpersonal connections over time (Benlian et al., 2022). If basic psychological requirements are not met in the long run, workers may perform

poorer, be less motivated and experience worsened wellbeing (Deci, Koestner, & Ryan, 1999; Deci, Olafsen, & Ryan, 2017), which eventually affects the organization as well (Benlian et al., 2022).

Platforms are gathering a lot of data to enhance the learning algorithms that execute the coordination and control tasks that managers normally perform (Möhlmann et al., 2021). According to examples like the ride-hailing app Uber, AM often benefits platform companies while it creates tensions in the workplace that may be harmful to employees' wellbeing (Gal et al., 2020; Jarrahi et al., 2021; Wiener et al., 2021; Möhlmann et al., 2022). Theoretically, it could be argued that AM can be created in a way that benefits the platform provider, employees, and customers in equal measure (even though many real-life examples indicate that we are not there just yet) (Benlian et al., 2022).

Algorithms used by online labor platforms can increase control over the labor process, resulting in higher work requirements and pressure for workers (Sun, 2023). This can limit workers' autonomy and have a significant impact on their labor psychology and wellbeing. A study by Sun (2023) reveals that platform workers (in food-delivery) experienced psychological tensions related to work satisfaction, compensation, and belonging due to the conflict between work autonomy and AM. Indeed, AM can affect various aspects of job quality that are linked to worker health, including task importance, workload, work stress, income security, occupational safety, schedule consistency, task importance, socioemotional rewards, interpersonal relationships, decision authority, and organizational trust (Vignola, Baron, Abreu Plasencia, Hussein & Cohen, 2023).

2.7.2 Platform businesses: algorithmic management & autonomy

In platform work, workers are often depicted as autonomous entrepreneurs who take advantage of flexible work options, which has a good impact on efficiency, flexibility, autonomy, and self-improvement (Benlian et al., 2022; Waber & Kane, 2015; Wood et al., 2019). The fact that workers are using apps that support algorithmic control is essential for producing such advantageous results. For instance, they support employees' ability to maintain flexibility regarding set working locations and schedules (Benlian et al., 2022). Additionally, apps that offer behavioral nudges or real-time feedback on user performance might gently guide employees in a beneficial direction without pressuring them (Möhlmann et al., 2021). They may even be regarded as inspiring and directing, offering advantageous challenges to employees in terms of opportunities for skill development and performance (Cram, Wiener, Tarafdar, & Benlian, 2022). However, there are negative sides to this as well,

which have been discussed by several authors (see e.g., Zuboff, 2019; Möhlmann et al., 2021).

Algorithmic nudging, a crucial component of many AM practices, could in fact be considered as one of the main problems in certain instances (Zuboff, 2019). For instance, (platform) businesses are increasingly adopting gamification and push notifications to control and persuade their employees towards actions that are advantageous to the business but potentially unfavorable to the employees (Möhlmann et al., 2021). However, as stated, algorithmic nudges can be created ethically and improve the welfare of employees or society in general (Benlian et al., 2022).

Möhlmann and Zalmanson (2017) investigate the experiences of Uber drivers with AM. The authors argue that Uber's AM system creates a "digital panopticon" (Muldoon & Raekstad, 2022) that surveils drivers and controls their behavior. They suggest that drivers respond to this system in various ways, including through creative resistance and attempts to game the algorithm. Similarly, an article by Woodcock (2020) examines the role of AM in terms of surveillance and control in platform work from the viewpoint of the worker, using a workers' inquiry technique that incorporates observation, interviewing, and co-research. From the "panopticon" in the factory to the "electronic panopticon" in the call center, it charts the evolution of supervision and then applies it to Deliveroo as an "algorithmic panopticon". The research draws attention to the twofold insecurity present for both the platform and the workers by demonstrating how this managerial strategy relies on notions of freedom and control that are often based on delusions. As such, cost-effective methods of control include the appearance of a pervasive and automated system for monitoring and correcting employees, however, the participants in the study demonstrate that this appearance, at least in the case of Deliveroo, was far from complete and were not always "fooled" by it. (Woodcock, 2020)

Möhlmann, Zalmanson, Henfridsson, and Gregory (2021) explore how AM operates in online labor platforms, emphasizing the dual role of algorithms in matching workers with tasks and controlling their work processes. They highlight the importance of balancing these two functions and suggest that algorithms may be effective for matching tasks but are less effective in tasks requiring social and emotional intelligence. Thus, the authors suggest that AM might lead to value creation but also to challenges related to power asymmetries, transparency, and accountability. These suggestions are in line with several other scholars regarding the topic of AM in online labor platforms (see e.g., Duggan, Sherman, Carbery & McDonnell, 2020).

2.7.3 Platform businesses: algorithmic management & HRM

AM has emerged as a core feature of the gig economy, and it is transforming employment relations and HRM practices (Jarrahi & Sutherland, 2019). The article by Duggan, Sherman, Carbery and McDonnell (2020) focuses on the gig economy and the use of AM in app-based work. While AM can improve efficiency, the authors highlight the challenges that arise from the use of these systems, such as the lack of transparency and accountability, and the potential for workers to be exploited as well as the creation of new forms of control. They introduce a research agenda for employment relations and HRM that can help to address these challenges and ensure that AM is used in a fair and ethical manner.

Meijerink and Keegan (2019) propose a platform ecosystem perspective on HRM in the gig economy, which takes into account the various actors and stakeholders involved in the gig economy ecosystem. They argue that traditional HR practices may not be suitable for gig work and that HRM in the gig economy involves managing not only workers, but also customers, platform owners, and regulators. The authors suggest that a platform ecosystem perspective can help organizations to better understand the complexities of HRM in the gig economy and develop more effective HRM strategies.

After gaining some insight from the context of platform businesses, the next section presents what researchers have to say about the future of AM.

2.8 Future of algorithmic management

It is safe to state that AM is an example of a current use of AI that is likely to endure and expand in the future (Benlian et al., 2022). While platforms such as Uber serve as the standard cases to use for AM, many other managerial tasks, such as analytics (Gal et al., 2020), recruiting, firing, and promoting (Ajunwa, 2020), or coaching and providing performance feedback (Luo, Qin, Fang & Qu, 2021) have already been performed by algorithms. These advancements demonstrate how AM is evolving along a promising path with increasing performance and reach (Berente, Gu, Recker & Santhanam, 2021). This is similar to what other types of AI have done and are still doing. This is since AM, like other types of AI, relies on data-driven learning algorithms to perform coordination, control, and other administrative tasks in a way that is autonomous (Benlian et al., 2022).

It is important to think of AM as a frontier of computational breakthroughs that address increasingly difficult administrative decision-making issues in ways that mimic or even surpass human managers, rather than as a set (however big) of algorithmic systems, gadgets, or tools (Benlian et al., 2022). The dimensions of autonomy (the capacity to act without

human intervention), learning (the capacity to independently produce models from data and experience), and inscrutability (the capacity to produce algorithmic outputs that are understandable only to a select audience) define, constrain, and shape this evolving field of AI (Berente et al. 2021).

However, the current trajectory of the frontiers of autonomy, learning, and inscrutability prevents AM from employing empowering leadership with an emphasis on participative decision-making, demonstrating concern, interacting with the team, leading by example, informing, and coaching (Arnold, Arad, Rhoades & Drasgow, 2000). The design within these frontiers should be reoriented towards social learning rather than (un)supervised learning, less autonomy rather than more, and the consideration of elusiveness as a motivational component that requires careful design rather than something that can be completely removed or threatened (Benlian et al., 2022).

While algorithmic opacity often induces sentiments of uncertainty and social unfairness, the specifics and scope of adverse effects on employees vary widely. Demotivation, dehumanization, and even replacement may result from the undermining of autonomy (e.g., through monitoring or unethical digital nudging), the impairment of competence (e.g., through deskilling and learned helplessness), and the social isolation of workers (e.g., through AM-induced individualization). (Benlian et al., 2022) Even though these factors have mostly come up in research about AM in platform businesses, it is also important to be wary of these risks in more “traditional” organizations where AM is implemented.

A reorientation of algorithmic design towards incorporating ethics, fairness, accountability, and transparency principles throughout the whole lifecycle of AM systems, supported by regulatory guidelines and incentive programs, is important. In conclusion, the application of AM techniques in an expanding variety of distinct work contexts raises several significant difficulties and problems, not the least of which are those related to data protection and morality (Benlian et al., 2022). However, to simply interpret the move towards AM as something inherently bad would be quite reckless. This claim is supported, among other things, by recent research that demonstrates how the application of corresponding processes allows novel workplace interactions that are well received, at least by some employees, such as the opportunity to receive ongoing guidance and performance feedback (Wiener et al. 2021). Thus, the future of AM seems to be quite bright, however, challenges and difficulties have also been identified, and they need to be addressed properly if successful implementation of algorithmic systems is to be ensured in organizations.

2.9 Summary of the theoretical framework

In summary, the existing research and literature emphasizes three specific aspects of how AM can affect workers, and these are in terms of wellbeing, autonomy, and fairness. They incorporate various important issues that are all relevant in organizations that are using AM and should not be ignored. Moreover, it is crucial to be aware of both the benefits and drawbacks that are involved when utilizing algorithms in management and decision-making in general. Additionally, as AM is also becoming increasingly popular in the HR field, the potential opportunities and challenges are of great importance for practitioners and researchers alike when considering the implications. The future of AM depends to a large extent on these factors and how well we can answer the various concerns that have been voiced. Thus, providing insight into AM and how it affects the workers in the HR context is a valuable contribution to the research field in question. In the upcoming chapters, the methodology, results, a final discussion, and conclusions of this study are presented. Figure 1 summarizes the theoretical framework.

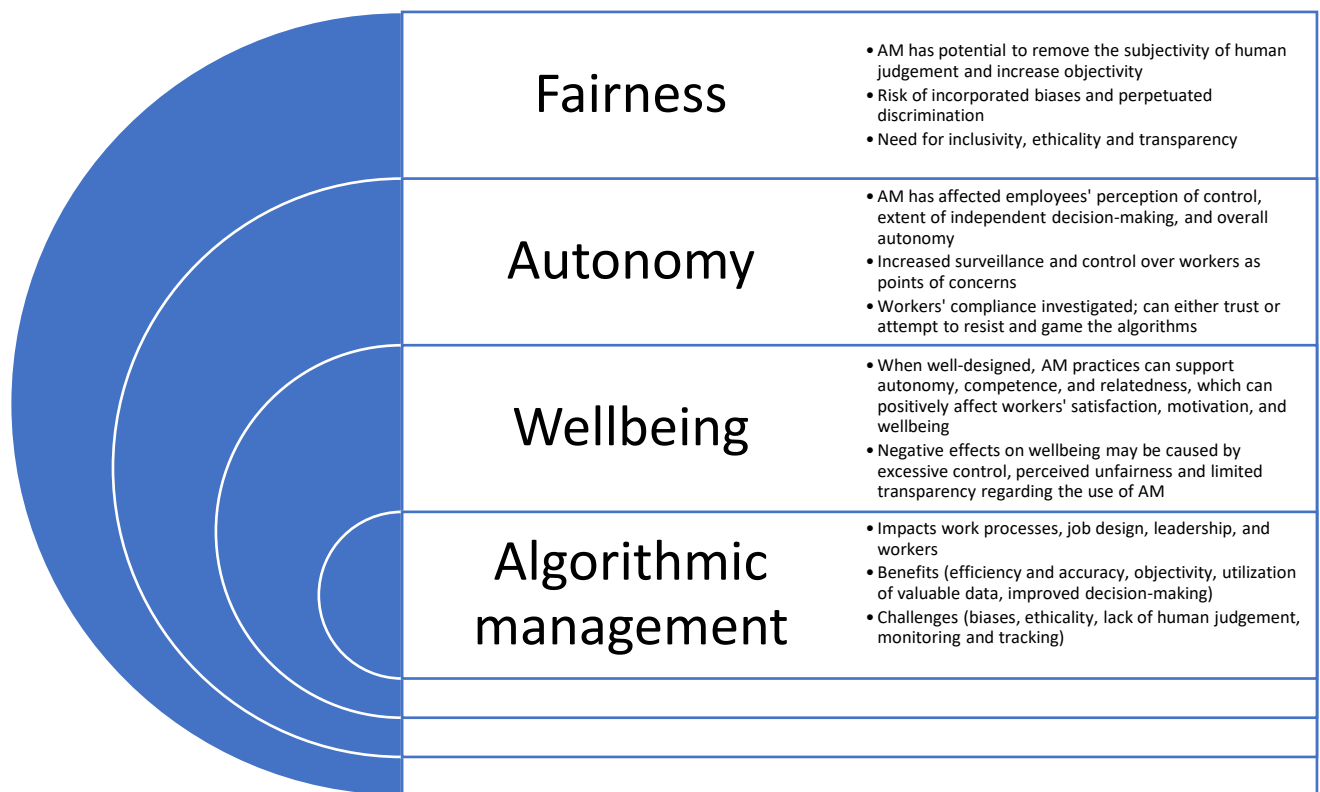


Figure 1 Summary of the theoretical framework

3 METHODOLOGY

The choices of methods for the research project are described in this part of the thesis. Therefore, the research and sampling strategy for the study are presented in detail. Moreover, the methods that are used for both data collection as well as for data analysis are explained. The quality of the research and ethical considerations are discussed in the last sections.

3.1 Research strategy

Research philosophy is an essential part of research as it guides researchers in selecting the most appropriate approach to conducting their research. For instance, it helps researchers identify the assumptions and beliefs that underpin their research questions and aids them in selecting the most suitable research methods to address those questions (Saunders, Thornhill & Lewis, 2016). The philosophy that this research builds upon is the interpretivist approach in regard to epistemology. The interpretivist philosophy views knowledge as subjective and as being shaped by the experiences as well as perspectives of individuals. Additionally, the research uses a constructionist approach, which is based on the view that reality is socially constructed through, for instance, language and culture. (Saunders, Thornhill & Lewis 2016).

When it comes to research methods, a researcher can choose either a qualitative, quantitative, or mixed method. In this specific study, a qualitative method is the most suitable since the research question is exploratory, quite complex and focuses on gaining an in-depth understanding of peoples' experiences. Qualitative research methods are mostly used when the research question requires the researcher to explore complex phenomena and social processes that cannot be easily measured or quantified, to investigate individuals' subjective experiences and attitudes, to examine how individuals and groups interpret their experiences, and to explore sensitive or controversial topics (Bryman & Bell, 2011). Thus, this study aims to investigate the impact of AM on workers in the HR field using a qualitative research approach.

Qualitative research is generally used to collect non-numerical, textual, verbal, and visual data that can be analyzed through interpretation and various analysis techniques for data of qualitative nature (Bryman & Bell, 2011; Saunders, Thornhill & Lewis, 2016). It normally utilizes interviews and observations (e.g., ethnography) in the data collection process (Bryman & Bell, 2011). The data is often analyzed through techniques such as thematic analysis and coding to identify themes, patterns, and relationships in the collected data. The

qualitative approach does not necessarily aim to generalize findings to other contexts, but instead has the goal to provide a detailed and rich description of a specific context or phenomenon (Saunders, Thornhill & Lewis, 2016). On the other hand, quantitative research is typically used to gather numerical data that can be analyzed statistically. Surveys and experiments are mostly utilized as data collection methods when choosing a quantitative approach (Saunders, Thornhill & Lewis, 2016; Bryman & Bell, 2011). The mixed method incorporates both quantitative and qualitative aspects in the research design (Bryman & Bell, 2011; Patton, 2015).

One important task of a researcher is to relate and connect theory and empirical data. There are three main ways of reasoning when conducting research, and these are deductive, inductive, and abductive (Saunders, Thornhill & Lewis, 2016; Patel & Davidson, 2011). The abductive approach combines elements of both deduction and induction, and it involves a more iterative process and is used most often in exploratory research (Saunders, Thornhill & Lewis, 2016). The approach of this research is abductive since the author moved back and forth between the theory and the collected data. The research is not based on any specific theory or hypothesis like deductive studies are, and it is not purely inductive either as it does not lead to a new theory. However, the study is exploratory in nature, which, along with the other points mentioned, further assures the suitability of the abductive approach. Deduction is when the research is based on a specific theory and tests it through observations. In other words, it uses existing theories or concepts to develop a hypothesis that can then be tested through empirical observation, and thus it moves from theory to data. (Bryman & Bell, 2011; Patel & Davidson, 2011) The inductive way of reasoning, on the other hand, starts with observations and then develops a theory that can explain the observations, which means that it shifts from empirical data to theory. (Bryman & Bell, 2011; Saunders, Thornhill & Lewis, 2016)

3.2 Data collection

Conducting interviews is one of the data collection methods that can be used in qualitative research. Qualitative interviews are especially useful when studying individuals' perceptions, experiences, attitudes, and beliefs (Bryman & Bell, 2011; Patel & Davidson, 2011). Interviews can be structured, unstructured or semi-structured. In structured interviews, the interviewer asks a set of predetermined questions in a fixed order, while unstructured interviews allow the interviewer to explore the research question in a more open-ended manner. In order to find out what is important for the respondent, it is ideal that the researcher lets the interview move in various directions during the process. In general, qualitative interviews can generate rich and nuanced data when carefully planned and executed. (Bryman & Bell, 2011)

This study uses semi-structured interviews to gather data from HR workers who have experience with algorithmic management systems. HR professionals who are responsible for implementing, utilizing, and overseeing these systems were interviewed, and the total number of interviews that were conducted was eight. Semi-structured interviews involve asking open-ended questions while allowing the raising of follow-up questions and exploration of the respondent's answers. This type of interview is useful when researchers want to explore a research question in depth and do not want to restrict the participants' answers. It also involves an interview guide that includes a list of topics to be covered, but the questions are not necessarily fixed, for instance, in order or wording. (Bryman & Bell, 2011) The semi-structured interview was chosen as the data collection method because it allows for an in-depth exploration of the workers' experiences and perceptions of AM, as well as the potential effects on their overall wellbeing, sense of autonomy and perceptions of fairness. A certain degree of flexibility is also assured, while still maintaining some structure regarding the topics and themes that should be covered during the interview.

The interview guide was designed to explore the main research question as well as all the sub-questions. The guide includes open-ended questions that encourage participants to share their experiences and opinions in their own words. Probing questions were used to clarify or expand on the participants' responses. Additionally, the questions were phrased in a neutral manner so that they did not lead the respondents in any particular direction, ensuring that they could answer them freely and truthfully.

The interviews were conducted in-person or online using video conferencing tools (Microsoft Teams), depending on the participants' preferences. In the end, six of the eight interviews were conducted via Teams, and two were in-person at the respective companies' offices. The interviews were (audio-)recorded with the participants' consent and transcribed verbatim for detailed analysis. All the interviews were in Finnish except for one, which was in Swedish, meaning that the quotes included in the "Empirical Findings" chapter have been translated to English. During the translation process, it was made a priority to keep the translated quotes and ideas as close to the original ones as possible. The Finnish and Swedish versions of the interview guide can be found in appendix 2 and 3. The data collection took place during the summer and fall of 2023 (from May to October). The interviews varied in length as the shortest one only took about 20 minutes, while the longest lasted for 55 minutes (34 minutes in average). These variations were a result of some respondents being more talkative and others more straight to the point. Moreover, the different degrees of experience between the respondents and levels of implementation in the organizations regarding algorithms and

AI naturally affected the length of the responses and therefore also the interviews in general. However, every interview was valuable, and each respondent had a unique perspective to offer, no matter the level of experience with the utilization of algorithms.

3.3 Participant selection and sampling

The choice of the sampling technique depends, for instance, on the research question(s), the resources available, and the required level of precision. Sampling in qualitative research involves selecting participants who can provide meaningful data for the research question, with non-probability sampling techniques often being used. Qualitative research also typically involves smaller sample sizes than quantitative research, as the focus is on obtaining in-depth and nuanced information rather than generalizability. (Saunders, Thornhill, & Lewis, 2019) This study recruited participants primarily through purposive sampling, which involves selecting respondents based on specific criteria related to the research question or objectives (Bryman & Bell, 2011). Purposive sampling was chosen because it allowed for the most suitable data to be gathered, which in turn made it possible to answer the research questions and thus also to fulfill the purpose of the study. Therefore, considering the nature and character of the research, purposive sampling was the most appropriate sampling technique in this case.

Participants were selected based on their experience with AM systems in the HR field. HR workers were approached from a variety of organizations that operate in different sectors to ensure diversity in the collected data. Participants were contacted through e-mail and asked if they would like to take part in the study. Meaning that various HR workers in several organizations were contacted to find out whether these companies in fact use AM, since it is not self-evident that all organizations currently utilize these technologies and were then asked if they could participate as interviewees. The final sample consisted of eight participants as this sample size created saturation in the collected data, meaning that interviewing more people would most likely not have altered the conclusions that were drawn. However, according to Bryman and Bell (2011) it is challenging to know beforehand what sample size will create data saturation in the case of interviews, but after the seventh and eighth interview no major new themes were coming up anymore. The fact that using AI and algorithms in management and decision-making is still in its beginning stages also affected the sample size as most contacted companies and employees did not feel like they had enough to offer and chose not to participate. More detailed information about the sample can be found in Table 1.

Table 1 Information about the sample

Respondent	Job title	Sector/field	How long the respondent has had their current job title
1	Technical consultant	Workforce Management	5 years
2	VP of products, (COO & CIO)	Recruitment	1,5 years (19 years in the company)
3	Advisor/headhunting consultant	HR/Recruitment	19 years
4	HR people partner	IT	3 months (17 years in HR)
5	Senior talent acquisition partner	Software	1,5 years (13 years in recruitment)
6	Senior manager (talent acquisition)	Software	8 months (3,5 years in the company)
7	Manager (HR systems & reporting)	Engineering	6 years
8	Country HR leader	IT	Ca. 3 years (20+ years in HR in the company)

3.4 Data analysis

The interviews were recorded and then transcribed afterwards. For the interviews that took place through Microsoft Teams, the transcription function was utilized. For any interview that was conducted face to face, the transcription was done manually. Any potential errors made by the Microsoft Teams transcription tool were corrected when listening to the interviews again. After the transcriptions had been corrected and were complete, they were all read through again in preparation for the analysis.

Discourse analysis is a method for analyzing communication in social contexts, including organizational contexts, and can be especially useful in uncovering identity constructions, power relationships, and other social processes that influence organizational practices (Grant & Iedema, 2005). Alvesson and Kärreman (2000) argue that discourse analysis can provide a unique perspective on organizational processes, as it focuses on the social construction of reality through communication and language. Organizations could also be interpreted as discursive constructions that are shaped by the communication practices of organizational members (Fairhurst & Putnam, 2004).

Discourse can be defined in various ways, and some approaches view it as micro level textual practices that are more limited in terms of, for instance, linguistic features. On the other hand, some approaches view it as macro level ways of discussing and talking about

phenomena and experiences. (Alvesson & Kärreman, 2000; Souto-Manning, 2014) There are also approaches that argue it can be both and are thus less restricting in terms of the definition and what it incorporates (Fairclough, 2003; Souto-Manning, 2014). Some argue that discourses occur within particular contexts and that if we are to make sense of them, both the discourses and contexts need to be analyzed in combination with each other (Souto-Manning, 2014). In this thesis, discourse is viewed as involving attitudes, beliefs, values, and social identities, along with words. Moreover, it is not only interpreted as textual practices, but also as more broad ways of talking about social phenomena. In particular, the discursive constructions of wellbeing, autonomy, and fairness are emphasized.

The collected data was analyzed using critical discourse analysis (CDA). CDA is an interdisciplinary approach to discourse analysis that provides a framework for analyzing and understanding the ways in which language is used to construct and maintain social reality and power relations. CDA can be a valuable tool in qualitative research because it can help researchers analyze various forms of discourse, such as texts, conversations, and speeches, to uncover the underlying meanings, power relations, ideologies, and social practices that are embedded in them. (Bryman & Bell, 2011; Eriksson & Kovalainen, 2008; Johnson & McLean, 2020) For instance, it can help to identify themes in the ways we use language, as CDA provides a framework for analyzing and categorizing different types of language use and can help researchers to identify patterns and themes in the data (Bryman & Bell, 2011; Vaara & Tienari, 2008). This can help to reveal the dominant discourses and ideologies that are prevalent in a particular social context (Souto-Manning, 2014).

CDA can be particularly useful in business research when analyzing issues related to, for instance, organizational change, employee relations, leadership, and strategic decision-making. By critically analyzing the discursive practices used in these processes, researchers can gain a better understanding of the social structures and power relations that shape organizational behavior and reality. (Chouliaraki & Fairclough, 2010; Eriksson & Kovalainen, 2008) Thus, CDA is a suitable way of analyzing the data in this study and in the context of workers' experiences regarding the new dynamic that AI is bringing into work life. It allows the exploration of the potential tensions between the benefits and challenges that were brought up in the theory chapter (Chapter 2), and to capture the potential worries and discrepancies that might exist in how AI and the utilization of it is perceived.

3.4.1 Application of CDA

This sub-section describes how CDA was applied on the collected data and explains the process in more detail. The aim is to make the data analysis as transparent as possible and emphasize

the validity of the reached conclusions and findings. This section includes a brief description of the different phases of analysis that were done to arrive to the findings. Thus, the process of coding the data and categorizations are presented.

To start the process, a preliminary thematic analysis was conducted as a basis for the CDA to identify the most compelling themes that came up frequently (or indirectly) during the interviews. Thematic analysis is a qualitative analysis method that can be used to recognize, analyze and report particular patterns, or themes, within the dataset (Braun & Clarke, 2006). Transcribing the interviews formed the foundation for the analysis process, as it allowed the creation of preliminary codes. Colorcodes were used in this instance, meaning that different concepts and themes that were mentioned during the data collection (i.e., the interviews) were provided with their own colors. Thus, the collected data were carefully analyzed to identify relevant and important elements to incorporate in the different colorcodes. (Braun & Clarke, 2006) Already at this stage, the respondents' experiences, thoughts, emotions, ideas and potential worries were focused on, as well as how they reflect or shape the ongoing discourse about AM implementation in HR.

Following the creation of codes, prevalent themes were searched for and identified within and across these codes. For instance, the parts where improved wellbeing was incorporated or caused (e.g., via decreased workload due to automatization, support from algorithms, more meaningful tasks) were highlighted with a green color. These points could then be gathered under the theme "improved wellbeing". This was the procedure for each of the different colorcodes and allowed for the identification of themes. Emphasis was placed on the underlying aspects of the interviewees accounts since not everything was always stated directly and some "reading between the lines" was necessary to receive a clear picture of the respondents' experiences and thoughts. Attention was also given to the general tone that the respondents were speaking in and their overall demeanor. This was done critically and carefully, as part of the goal was to reach an understanding of how the interviewees' narratives fit (or do not fit) into the general discourse and how they compare to the existing body of research and its findings about AM and its effects on workers. Therefore, the themes were examined to expose what they and the ways that the respondents talk about them reveal regarding the experiences connected to AM. Things that were analyzed were, for example, whether the interviewees seemed excited, nervous, alarmed, or if there seemed to be tensions or things left unsaid. Furthermore, potential power issues that were either directly or indirectly brought up were also explored.

The identified themes and interpretations of the respondents' statements were further examined and reviewed comprehensively to ensure that they were logical. Preliminary

conclusions were also drawn based on them and the interviewees' perspectives were further highlighted to fulfill the purpose of the research. The analysis process culminated in the production of the "Empirical Findings" chapter where the results (with the support of direct respondent quotations) are presented in detail (see Chapter 4).

3.5 Quality of the research

Assessing the quality of the research is an important part of any research project. Qualitative studies can be assessed based on credibility, dependability, transferability, and confirmability. These different aspects are supposed to give insight into the authenticity and trustworthiness of the research. (Bryman & Bell, 2011) In this section, the quality of the study is addressed using these factors.

Credibility, or internal validity, has been ensured by having questions in the interview guide that give the respondents space to freely voice their own opinions and their experiences regarding AM. Follow-up questions were also asked to ensure that the responses were accurately understood and interpreted. Deviant comments have been encouraged if they happened to emerge during the interviews and they have been considered in the analysis. For instance, it was not always the case that employees had been directly affected by AM and this has also been identified in the analysis part of the thesis. Alternative explanations for these phenomena have even been identified and considered. To make sure that the respondents have a similar understanding about the term "algorithmic management", one question was about how the interviewee perceives the term and was asked to define it in their own words (see appendix 1). The interviews were also recorded and transcribed in a precise manner as a way of increasing the credibility.

Several questions asked during the interviews are based on prior research about AM and its effects. These questions are mostly focused on wellbeing, autonomy, and fairness. The existing research has connected the abovementioned themes as factors that are being impacted by AM. This study has therefore focused mostly on these themes when the questions have been formulated to ensure that the aim and purpose of the research are fulfilled. Additionally, this was done to make sure that the research questions are answered as accurately as possible and with connections to the existing literature and thus reach a higher degree of credibility.

Transferability means that the finding(s) can be deemed as relevant in other contexts as well. However, in qualitative studies it is rarely the case that, for instance, the building of generalizations would be the goal. Qualitative research focuses often on reaching a certain

degree of depth and detail, meaning that the sample size is often relatively small, and topics are tied to specific contexts. Thus, it is rather challenging to reach transferability in studies that are of qualitative nature. However, through providing detailed and transparent descriptions of the study and its context it is possible to address transferability in qualitative research as well. By doing this, readers can assess the degree of transferability of the study to various other contexts if needed. (Bryman & Bell, 2011; Saunders, Thornhill & Lewis, 2016) While this study has a relatively small sample, it is important to note that it can be justified due to purposive sampling being used. This is because it allows the selection of respondents who are best suited to provide answers to the research questions, and thus making it possible to reach the aim of the study. And once again, the goal was not to achieve generalizations, but to dive deeper into the phenomenon in a specific context.

Dependability refers to the reliability of research. More specifically, it is about the degree of transparency of the research process and detailed depictions of the various phases, as well as the reasonings behind certain decisions. (Bryman & Bell, 2011) Dependability has been reached as this methodology chapter describes the research process in depth. To ensure transparency and trustworthiness, notes were taken during the whole process. All the various research processes and phases have been described in detail. For instance, sampling, data collection, and analysis have all been outlined transparently and comprehensively.

Confirmability entails the objectivity of research. In other words, whether the researcher has been able to objectively study the topic and not let their own opinions and values impact the research (Bryman & Bell, 2011). As a way of ensuring confirmability and objectivity, the author strived to stay neutral during the interviews and be self-aware of their own attitudes and potential personal biases that could have an impact on the study's objectivity. Additionally, confirmability has been considered by not asking any leading questions during the interviews, meaning that the risk of the questions having impacted the results of the study has been minimized. Thus, the respondents were allowed to answer in any way that they themselves wanted and were not led to a particular direction.

3.6 Ethical considerations

It is extremely important for researchers to prioritize the ethical considerations that are involved in academic research (Bryman & Bell, 2011). Thus, this study adhered to ethical guidelines for this type of research. For instance, participants were informed of the purpose of the study, that participation is voluntary, and that they had the right to withdraw from the study at any time if they wanted to. Participants were also assured that they remain anonymous, and that the data is handled with confidentiality. For example, the respondents'

names were redacted while writing the transcriptions. The collected data has been stored securely in a cloud service offered by the university and it has only been accessible by the author. All the personal data will also be erased twelve months after the thesis has been graded and approved, at the latest. The participants were also transparently informed of this. The GDPR guidelines of the university have been carefully followed. Each interviewee was asked for permission to record the interview either in an e-mail before each interview or at the beginning of an interview. To make sure that the participants remained anonymous, some of the job titles introduced in table 1 (information about the sample) were altered to depict a broader area of work and job assignments.

3.6.1 Use of AI-powered tools

In this thesis, the following AI-powered writing tools were utilized to enhance the language and flow of the text: ChatGPT (OpenAI, 2023) and QuillBot (Learneo Inc., 2023). ChatGPT is a language model that can generate text based on prompts while QuillBot is a paraphrasing, summarizing, translating, and citation generating tool, however, it can also be used to check for errors in grammar. The purpose of using these tools was to improve different aspects of the thesis, such as the structure, grammar, clarity, and vocabulary. The goal was to ensure that the quality of the text remained at a high level, without removing the author's own voice (altering the intended and original meanings). While ChatGPT and QuillBot gave suggestions on how to enhance the writing and maintain a clear structure, these suggestions were assessed by the author and implemented only if they were deemed suitable and appropriate.

QuillBot was used to receive some suggestions on how to paraphrase and summarize different texts. The tool offered up alternate ways of structuring sentences and various synonyms that could be used. These recommendations were then further developed and revised to fit the general style and tone of the thesis, as well as the context and intent. The Grammar Checker feature of QuillBot was also utilized to check for mistakes in grammar, spelling, and punctuation. ChatGPT was used through inserting written text with determined prompts that were related to the enhancement of the language, structure, and clarity of the inserted text. Examples of these can be found in Table 2. In a similar way to Quillbot, these recommendations could improve the text overall and were of value during the writing and revision processes.

As a final note regarding this matter, these tools were only used to offer suggestions as well as assistance during the various stages of both writing and revising the thesis. The author decided what was and what was not included in the final text, with the goal of ensuring that their own voice could still be heard. Simultaneously, it was a priority to maintain a strong

focus on the main context as well as transparency of the content itself. Nonetheless, AI was a helpful tool and contributed as an assistant that helped to enhance the writing and thus further improved the content of this thesis.

Table 2 Prompts used in AI-powered tools (ChatGPT)

Type of prompt	The script of the prompt
Enhance the language and vocabulary used in the text	The text I am about to give you is a part of my master's thesis in [name of the section/chapter]. Please enhance the language and vocabulary used in the text so that it is easy to understand but remains academic in style/tone. Keep the content unchanged as well as the references in place. This is the text in question: [section of text]
Improve the structure and logic ("red thread") of the text	The text I am about to give you is a part of my master's thesis in [name of the section/chapter]. Please help to enhance the structure and logic of the text and give me recommendations on how to achieve an improved version of the text with these aspects in mind. If you detect any unnecessary or repetitive words/parts, please underline them. Keep the content unchanged, the references in place and the academic tone/style. This is the text in question: [section of text]

4 EMPIRICAL FINDINGS

This part of the thesis consists of two parts. In the first part, the findings of the CDA analysis, which focused on analyzing (positive, neutral, or negative) thoughts, experiences, and attitudes as well as emotions and potential concerns about AM are presented. Thus, emphasis is placed on these underlying aspects in the interviewees' accounts. By doing this, the posed research questions are answered, meaning that the ways that AM impacts workers in the HR field are explored. The results are discussed according to the various themes and topics that came up during the data collection, but which were also mentioned in the theoretical framework. The three major themes in existing literature are wellbeing, autonomy, and fairness, and their importance was echoed during the data collection phase. However, various sub-themes were also brought to light when interviewing the participants and these are discussed as well. As a note, all the three key topics are interconnected and overlap in some ways, however, they are discussed separately to enhance analytical clarity.

This chapter is structured in two different parts. The first part begins by setting the scene and presenting the current situation regarding how relevant AM is in the organizations from the interviewees' perspectives, and how familiar the respondents themselves are with AM. This sub-section also summarizes how the participants defined the concept of AM and discusses the potential benefits of AM in HR that were uncovered during the interviews. The second, third and fourth sub-sections cover the ways in which wellbeing, autonomy, and fairness have been impacted in the eyes of the respondents. The first part concludes with a summary of the findings.

In the second part, the research findings in light of existing literature are discussed. Here, similarities, differences and a general overview of comparisons and connections are presented. The goal is to provide insight into the extent that the theoretical framework and the findings agree and disagree. Thus, it determines the contribution of the research, which is describing how AM is experienced by workers in the specific field of HR.

4.1 Setting the scene: general perspectives of algorithmic management

During the interviews, it became clear that most of the organizations where the respondents worked at were still at the beginning stages of implementing AM, at least in their HR processes. This was emphasized quite frequently.

“It [AM] is quite relevant; however, it is still only just entering our organization and we are in the process of setting up the first pilot systems [...]” (Respondent 1)

Most of the respondents were aware that there are a lot of possibilities and unrealized potential, and that AI and algorithms could be utilized to a much greater extent, which could

improve various (HR) processes. They viewed the topic as highly relevant and important for the development of organizations.

“This [using algorithms/AI] is a very relevant topic and you come across it pretty much everywhere, and we are continuously thinking how we can do things smarter and better.” (Respondent 4)

A couple organizations, however, were already more advanced in this area than others and had incorporated various systems in their daily activities. The degree of implementation was expected to grow in the future as the utilization of AM was perceived as important.

“It [AM and utilizing algorithms] is very important and a high priority for us. [...] We do not even really understand how much AI is incorporated in our daily activities. [...] Our CEO has stated that 30% of HR staff will be replaced by AI and automation in the future.” (Respondent 8)

Automatization and AI replacing staff can sound bad from the perspective of workers, as it may entail some people losing their jobs. However, the respondents pointed out that the automatization of certain cumbersome manual tasks can be seen as beneficial for the employees as they can focus on “more important” work as a result. Moreover, it does not have to necessarily mean that people will lose their jobs completely, rather, their tasks and roles may change and develop accordingly. Thus, re-training and upskilling will not only be important from the employees’ perspectives (as proactive workers), but it is also crucial for the organizations to support the workers’ progress and development.

Because most of the organizations were still only beginning their journey with AM and AI, it made sense that several respondents did not (yet) personally have that many detailed experiences of utilizing algorithms in their everyday activities and work tasks. However, some of them had gained experience and knowledge from their previous workplaces and roles. This further assured the idea of different organizations being in different implementation stages and respondents having varying degrees of experiences.

“I have quite a lot of experience since I was involved with it [using algorithms] in my previous workplace and we had different projects, in which we were thinking about what types of algorithms are needed to support management and how they can help us.” (Respondent 4)

Each interviewee defined AM quite similarly and they all emphasized the use of enormous amounts of collected data. Mentions about utilizing various systems and collecting data about performance were also frequent. Several respondents viewed algorithms as valuable tools that help to lighten the workload and can save time when implemented correctly, and that it has the role of an assistant, not the decision-maker. The fact that the definition is extremely broad was also mentioned several times by various interviewees, and that there are endless possibilities in using algorithms in management. The possibility to predict things with the help of algorithms and data was also brought up by a couple participants.

“It [AM] probably involves a lot of things that I have not even thought about, but in my world, it implies being able to predict things differently than before [...] and offering more flexibility and freedom to workers and an opportunity to take various factors into consideration that we might have not been able to do previously.” (Respondent 1)

It became apparent that the definition was difficult to wrap into one neat package, however, some key aspects were present in most of the definitions, such as supporting the decision-making process, simplifying work tasks, making procedures more efficient (if implemented correctly), and smart utilization of large amounts of collected data.

4.1.1 *The impact of algorithmic management on work processes*

Although AM has not yet been implemented to a large extent in most of the organizations' HR processes, the respondents still identified some ways in which it has affected their own work. Quite frequently mentioned was the fact that recruiters can use algorithms to screen applicants when recruiting, which has lightened the workload as it does not have to be done manually anymore.

“It [the use of algorithms] has removed a lot of routine reading and I read CVs less than I did before because they have often been pre-screened and it has made processes simpler. However, it has also highlighted the challenge of responsible recruitment and it is important for me that each candidate is assessed on equal terms [...] an equal candidate experience means that, for instance, a restricted level of linguistic expression should not lead to the dismissal of this person because of this one dimension since it might not even be that relevant when considering the role and its tasks.” (Respondent 3)

While it is beneficial to simplify the processes and automate them to a certain degree, the respondents highlighted how this should not happen at the cost of the applicants, meaning that equality and fairness should still be prioritized and not forgotten. The answers describe how, in general, the use of algorithms has removed several routines and that it is possible to receive valuable recommendations based on data that can be taken into consideration when making decisions in various (HR) processes.

“[...] for instance, in our compensation processes where we globally plan pay raises to teams, our algorithms give very precise suggestions based on performance and other factors and considers historical data and aims to predict things. [...] I do utilize these provided suggestions quite often [...] but in no instances do the algorithms make the final decision, however, I cannot deny that they would not impact me as a decision-maker in these processes.” (Respondent 7)

The interviewees continuously emphasized that the algorithms are not used to make the final decisions, but they could not deny that these systems affect decision-makers (including the interviewees themselves).

“[...] I (and other managers) currently receive suggestions from the system of who to promote. It collects datapoints according to parameters and you do not yourself have to visit several different systems to check the relevant information, but it can collect the data and even make conclusions and offer recommendations based on it. Obviously, we are the ones who make the final decision, but it has made the job easier as we do not have to do as much work, and it simplifies the task [...]” (Respondent 8)

The respondents wanted to clarify that humans are still the ones making the decisions and that algorithms are only used to support them during the processes. This was interesting as it

gave the impression that it would be perceived as perhaps immoral or wrong to give algorithms the power to be the ones making the decisions. However, the interviewees' answers could be interpreted as mostly positive in nature and that work processes have become more simplified and more straightforward, which was viewed as beneficial from their perspectives.

4.1.2 Potential benefits of algorithmic management in HR

Admittedly, the respondents saw a lot of possibilities and benefits regarding the implementation of AM in HR processes. In general, a lot of the discourse around the theme of algorithms and AI was really positive in nature and the interviewees emphasized the amount of potential that the utilization of AM incorporates. The major pros that were brought up frequently was that it decreases the need for manual planning, which is positive for both companies and workers, that it can assist in routine tasks and can make the workload lighter and simplify the tasks.

“The algorithm is, above everything, a tool and it simplifies work, and at best it decreases the workload. [...] It [using algorithms] will be very helpful in routine tasks [...] it will definitely lighten the amount (if not simplify) the work.” (Respondent 3)

Letting algorithms do the manual routine tasks while human workers focus on more people-centered complex cases was viewed as logical use of resources within HR. This further strengthens the argument that algorithmic systems should not perhaps be perceived as threats in that they would completely “take over” all the work.

“[...] tasks related to metrics, data, and predictions can be done with the help of algorithms and I think that this is sensible use of resources within HR. Meanwhile, the people hired in HR will focus on more complicated cases that require human contact.” (Respondent 4)

Moreover, being able to predict, for instance, who is about to leave or is not satisfied with their work is a possibility and several respondents mentioned that there are plenty of internal data that could be made use of. The potential for proactive actions was also highlighted.

“[...] It [using algorithms] also makes it possible to identify people who are dissatisfied and might be thinking about leaving the organization, which means that it will be easier to react to these types of situations early on and proactively.” (Respondent 1)

Even though the consensus seemed to be that AM mostly results in positive changes and can be very beneficial for both organizations and workers, some plausible risks and challenges were also identified by the respondents. For instance, forgetting the human aspects that are often very important, as it is easy to get sidetracked and not remember to incorporate ethics.

“I see it as being extremely beneficial. [...] we have been doing manual and, so to speak, unnecessary work for decades and centuries, but I think that while it is important to incorporate technology and algorithms, we also need to keep ethics constantly in mind.” (Respondent 8)

Themes such as fairness and autonomy are discussed more comprehensively in the following sub-sections, as well as other areas in which potential concerns were brought up among the interviewees. It appears that AM has affected the wellbeing of the respondents and workers, at least to some degree, and this topic is presented next.

4.2 The impact on wellbeing

The effects of AM on wellbeing were discussed during the interviews and it turned out that several respondents had not been directly impacted by AM, at least not extensively, and did not really have detailed personal experiences about this. However, most of the interviewees did still have thoughts about themes connected to the topic of wellbeing and were open to share them. The positive side of AM was often stated as being its potential to lighten the workload and the required amount of work, as well as time-saving and increased efficiency. This could in turn lead to improved work satisfaction and motivation.

“What I have heard from others is that people are excited about the new developments and are thinking about where they may take us next. Creativity and innovation flourishes when employees get to work with something new, and while some people think that it might be satisfying to build Excels, others do not feel this way and feel like there must be an easier way to do things. [...] it [the use of algorithms] has saved peoples’ time and several employees have enjoyed the visuals [...]. At least for me it has impacted [work satisfaction and motivation] very positively [...]” (Respondent 4)

The decreasing need for manual work as it can be automated was mentioned repeatedly, which paints the picture that these aspects are interpreted as being very important by the interviewees and the organizations that they work for. It was often the case that AM was not experienced as having decreased wellbeing or increased stress, and that there were more positive impacts than negative. There seemed to be a lot of excitement for the new and for where the developments will lead the organizations. This excitement became not only clear through the words that were said, but also by listening to *how* the interviewees spoke as they were mostly very positive and cheerful in tone.

“[...] I see it [AM] as having more of a positive than negative effect [on wellbeing], especially since I have not had any negative experiences as someone who represents the majority of the population [i.e., not a part of a minority].” (Respondent 3)

The fact that Respondent 3 mentioned that they themselves represent the majority highlights the potential discrepancies and different experiences that minorities may have in contrast to people belonging to the majority population. This points to awareness from the respondent about their own accounts and experiences and how they may be privileged to some degree.

The impact of increased effectivity and the reverse effects of in-effectivity, which often leads to overload and decreased wellbeing was also mentioned. As a result, there seems to be potential in the use of algorithms to positively impact workers’ wellbeing and health. Often

decision-making and problem-solving takes time, but AM could make it more effective and faster, as well as have it be based on collected data.

“[...] it [AM] could improve efficiency since, alternatively, in-efficiency causes overburden and unwellness, and I believe that there is potential (that is still untapped in our company) that [AM] could affect wellbeing and health by removing specific work stages and simplifying decision-making.” (Respondent 6)

One interviewee talked about how the simplified work processes have led to improved work wellbeing and satisfaction because the tasks are becoming more meaningful. The algorithms can take care of the manual and routine tasks, while employees can focus on other “more important” work.

“[...] the fact that I do not have to collect data from several places [because the algorithmic system does it instead] does enhance my work wellbeing and satisfaction. I feel like the tasks that remain for me to do are more meaningful and meaningfulness is extremely important for work satisfaction. I think that most colleagues agree that the level of meaningfulness increases when you do not have to do all the collecting and manual tasks, and instead you can focus on making valuable decisions based on the data.” (Respondent 8)

While most of the thoughts and experiences regarding this matter were positive, there were still some negative ones. For instance, when other colleagues did not find the use of algorithms as important and doubted its relevance, it led to one interviewee feeling frustrated at times. The respondent also felt that HR people can be quite cautious when it comes to data and AI, which can lead to frustration. These feelings seemed to be based on certain co-workers’ attitudes and priorities not aligning with the respondent’s own ones. Opposing views about the importance of using algorithms that are based on data can thus cause fractions in the overall wellbeing at work. This can potentially result in feeling that you are alone in seeing the potentials of AM and have a lack of support from other employees.

“[...] it [AM] may result in frustration and thoughts like “is this really important?” and “shouldn’t we take care of the people and not look at data and numbers [...]” among some colleagues. We perhaps as HR people are shunning data a little bit, which causes [...] maybe some frustration [...] and demotivation as well as small cracks in work wellbeing and satisfaction because others do not see the point of it [using algorithms].” (Respondent 6)

Another respondent brought up how dissatisfaction and frustration may result from interpreting the conclusions that algorithms have drawn based on data as ultimate facts. However, there may be other reasons and explanations to things, for instance, when a worker has not been performing well. This may result in feelings of restricted power and concerns about having organizations value algorithmic decision-makers over human ones. The risk of forgetting humanity and morality and having algorithms make decisions solely based on data can evoke fear in employees.

“I have to say that I have experienced some dissatisfaction [...] when algorithms have concluded something, for instance that some employees have not performed well based on the data and it is seen as an ultimate fact [...]. However, while someone might have performed poorly based on different indicators [...], a human co-worker may know that there are reasons and a clear explanation for this. [...] we cannot

only trust the data and we must remember the human side and that there may be other things going on in the background [...] I believe that we need humans that look more broadly at the data and identify cause-and-effect relationships. [...]" (Respondent 8)

Based on what seemed to be the consensus among the interviewees, the effects on wellbeing were mostly seen as positive. However, some potential risks were also brought up and feelings of frustration and dissatisfaction were voiced. These risks incorporated elements of power and control, which are discussed next in more detail.

4.3 The impact on autonomy

The effects that the utilization of AM and algorithms in general have on autonomy was a topic that was somewhat conflicting among respondents. According to some participants, when algorithms are correctly optimized, they should improve autonomy. Moreover, the validation of an algorithm can be interpreted as further confirmation about something.

"[...] if I have had a feeling that this is the way that something is and then one of our algorithms has agreed with me then it has in a way confirmed it. Because the algorithms and tools have often been transparent, it has not just been me who sees it [the result] and it has been accessible to others as well, meaning that it has been clearer and has brought openness [to the decision-making process]." (Respondent 4)

One of the respondents talked about how it is the recruiter's responsibility to assess everyone, but the use of algorithms still definitely does guide the actions to some extent. As the algorithms provide suggestions and recommendations, it makes sense that they will steer workers actions, which is important to be aware of.

"In that sense, I feel like it [use of AM] has been against it [autonomy], especially when talking about recruitments where I should have unbiased assessments about people, but if I use a lot of algorithms in my work then it might primarily offer me specific types of candidates. We should still be able to assess them without any biases [...] and it is obviously the recruiter's responsibility to assess everyone, but it most likely does guide the actions to some extent." (Respondent 5)

While some interviewees thought that the degree of autonomy had increased, others felt like the use of algorithms may have decreased it to some degree. One participant explained that the level of autonomy has both increased and decreased as a result of AM and that it depends on the area.

"In some areas it [the use of algorithms] has clearly increased it [the level of autonomy] because I have the data and I can justify my decisions better and I have strong grounds for them [...]. However, it has also decreased it as people believe that it [the conclusion of the algorithm] is the ultimate truth, and you are not given the opportunity to act otherwise. Thus, I would say both [increased and decreased the feeling of autonomy] as it is difficult to say one or the other, it depends on the matter." (Respondent 8)

Although algorithms can provide a solid ground to base your arguments and decisions on, it can also work against the workers in certain situations and contexts. This causes quite a conflicting view of AM in terms of its effects on autonomy and independent decision-making, with most of the interviewees still maintaining positive attitudes towards the progression.

When asked about whether AM has impacted the level of control and surveillance, several respondents saw it as a big concern and that it is possible that the degree of control and surveillance may have increased in some ways. For instance, one interviewee (Respondent 3) stated that while the means of surveillance/tracking might have changed, it is very likely that it has increased.

“I would say that it is very possible and very likely [that the level of surveillance and control has increased]. [...] in several organizations they currently do not have a physical key or card that is shown to a reader which is connected to a system that tracks work hours. Instead, it depends on when you open your laptop, log in to the system [...] and I believe that it has very likely increased [surveillance and control].” (Respondent 3)

It was pointed out that perhaps the general culture is against control and surveillance, but it is still possible to use algorithms and AI for controlling if one wants to. Remote work was also brought up as an example of organizations perhaps trusting their employees, however, there exist ways to monitor workers even if they work remotely.

“Maybe in some fields [surveillance and control might have increased], for instance in work shift planning that is executed algorithmically [...] and in a way employee time tracking is also data that conclusions could be based on. However, perhaps the general trend is against it [surveillance and tracking] and with remote working becoming increasingly normalized you could say that employees are being trusted. The general culture is probably against controlling, but it [AM] can be used for that as well if someone wants to.” (Respondent 5)

Although most of the interviewees were concerned about the increased degree of surveillance and control, they did not think that it was happening in their organization. There were not really any examples of cases where this might have happened, nonetheless, the respondents did state that there is a possibility that it still has occurred.

“[...] We are continuously fighting with this because we want to be a transparent organization and flexible as well as trust our employees. [...] we do not want the collecting and utilization of data in the decision-making process to result in the feeling of being surveilled or tracked. We really try to avoid this, and I cannot come up with a situation within these five years where this could have directly happened, however, it is possible that it [feelings of being surveilled/tracked] has occurred, but I have not at least been aware of it.” (Respondent 6)

When listening to the answers, it became clear that the participants took this concern seriously, and that the organizations they work for are actively addressing it. The respondents emphasized how it is important to be aware of the risks related to micromanagement and tracking.

“We should do the right things to reach the right goals, and not, for instance, micromanage our employees for the sake of tracking what they are doing just because it would be possible with the help of the technological tools, because that would not be right. [...] There is a risk in many instances, and everyone needs to be aware of it [increased surveillance and control], but I do not think that it has happened in our company” (Respondent 8)

While there seemed to be some worries about the potential increase of surveillance, no one had concrete evidence of this, and the interviewees were mostly trusting of their organizations. However, this topic might have been quite sensitive for the respondents as, naturally, it is not

often a positive thing to be perceived as an organization that surveils and monitors its employees. Some things may thus have been left unsaid, or perhaps the interviewees genuinely were not aware of this happening. In any case, the answers remained quite vague and often dared not to go more in-depth about the issue, and statements such as “it is possible” were surprisingly frequent. Thus, most of the respondents neither completely denied nor confirmed that the degree of surveillance and control had increased, leaving this question partly unanswered.

When discussing a possible power shift from workers to algorithms, the respondents had quite different answers. There were respondents who did not feel like a shift is happening, and, for instance, one interviewee said that automatization and AM should improve both employees’ and employers’ opportunities if they are utilized correctly and thus not lead to a power shift.

“Automatization will most likely have a big impact but in our world it [AM] should improve both the employees’ and the employers’ opportunities if it is being implemented in a good way. [...] It might perhaps be about using it [AM] in a suitable way rather than a power shift taking place.” (Respondent 2)

It was pointed out how the tasks will change, but it does not necessarily mean that human workers’ power is lost. In other words, some work tasks will be automated, and workers may be replaced to some degree but not completely. Thus, these developments may cause a shift in the type of work that is done by employees, rather than the power shifting entirely from workers to algorithms. Confidence in the necessity of human workers was continuously highlighted.

“[...] There are roles that will change because of AM and algorithmic systems [...], meaning that the tasks will change, and it will be important to be able to use these tools. [...] it will replace some tasks in the future, but I believe that it will be more of a shaping companion than a conquering force. The world changes, work changes a lot, but there will always be something that requires a human. This is something I am confident of.” (Respondent 5)

Some respondents did think that it is likely that a shift in power will happen to some degree. However, as one of the respondents puts it, the one who makes the decision has the ultimate power and while a lot is already controlled and performed by algorithms, the extent of the control has been set by humans.

“[...] the one who makes the decisions is the one with the utmost and the ultimate power. [...] but the question of whether the power as such has been transferred to the algorithms, well of course it has within the boundaries that we have determined for them.” (Respondent 3)

There was speculation about how HR functions might not experience a drastic shift due to its people-centeredness and high involvement of human/psychological aspects. However, a more overarching phenomenon of trusting algorithms over your own reasoning was still deemed as a possibility.

“I think that we will end up somewhere in the middle. When discussing about HR, where the management of people and psychological factors are so strong that it [a power shift] will not fully happen [...] Very

likely in the overall company, as decision-making can be difficult and may result in trusting algorithms over rational thinking. This involves risks when we want to trust facts based on data instead of our own reasoning and we do not really trust ourselves.” (Respondent 6)

This could be interpreted as employees minimizing their own power and control in a sense, although the pressure to value the conclusions made by algorithms over their own reasoning may still originate from the organization that they work at. Meaning that the conclusion based on data must be correct, and your own reasoning is often flawed, which is an oversimplified logic. Thus, workers may end up unintentionally extending the limits of the power that the algorithms have been given while restricting their own level of control. The easier way of externalizing the decision-making process in its entirety to an algorithm may seem increasingly tempting. However, the power of the algorithm(s) is currently very limited (at least in the organizations where the interviewees work) and these threats are only hypothetical.

On the other hand, there are possible benefits of giving algorithms more power in the decision-making processes and this can lead to employees being left with more meaningful tasks, which could improve work wellbeing in general.

“I do not think that it [a power shift] has happened yet, but I think that it will happen to some extent. I like to think that the shift will be very positive if it is done correctly as it will externalize routine decision-making processes [...]. I believe that it will have a positive impact on the meaningfulness and enjoyment of the work in the long run.” (Respondent 7)

The interviewees provide conflicting perspectives regarding the matter, however, when the algorithmic systems are implemented correctly and carefully, the benefits seem to outweigh the challenges as per the respondents’ accounts.

4.4 The impact on fairness

The topic of fairness and several sub-themes related to the topic came up a lot during all of the interviews, even before the respondents were asked specifically about them. This solidified the importance and concerns regarding ethics when utilizing algorithms in management processes. One potential reason for this, in the specific context of HR, might be the conflict of using machines and algorithms in such a people-oriented area. There seems to exist a challenge of using machines and digitization while still maintaining humanity and morality. The topic of fairness in this study has incorporated sub-themes of transparency, justice, unfairness, trust, and broader ethical aspects.

A lack of transparency was evidently one of the biggest points of concern and most of the respondents felt like the use of algorithms and AI could be more open and transparent towards the staff and internally in their organizations.

“It [the use of AM] is attempted to be made transparent, but in our day-to-day work, it is not that transparent. It could be more transparent in that sense.” (Respondent 8)

The statements gave the impression of self-awareness and the participants recognized the challenge of transparency regarding the utilization of algorithms in HR. While the answers remained quite vague and the extent of the transparency (or lack thereof) was not specified in detail, the respondents seemed to acknowledge the issue and felt that improved transparency is necessary as it does affect the general perception of fairness among employees. Communication was emphasized as open communication is often connected to a higher level of transparency.

“[The use of AM is] probably not very transparent and if you look at it from a worker perspective, they only see the results and they may be better or worse than before. But they do not participate in the process or understand what happens in it [...]. It probably depends on the organization and how much it is opened for employees [...]. Also, the [workers’] experiences depend on how it is communicated.” (Respondent 1)

While transparency was interpreted as something that causes major worry, some of the interviewees did see the use of AM as being quite transparent in their own organization and thought that it was being communicated openly. However, the general use of AM was still often viewed as non-transparent (opaque) among these respondents.

“It [the use of AM inside the organization] is transparent and is communicated well in my opinion. Employees know what it entails and how results are interpreted and what they are based on. Generally, I would say [that the use of AM is] maybe not that transparent, for instance, how much automatization is used in companies when you are applying for a job [is not transparently communicated].” (Respondent 2)

With such emphasis on the importance of transparency and openness, it is of relevance to know how the respondents think transparency could be ensured. Most of the suggestions were quite straightforward (i.e., to just be more transparent and open).

“[...] In the companies that I have worked for we have wanted to be transparent and facilitate trust among our employees [...]. Proactive communication is one of the most important things [...] and being able to explain things in a simple way so that anyone in the company can understand how it [the system] works [...].” (Respondent 4)

“[...] It is crucial to protect data, follow GDPR, as well as explain and communicate to the employees how the data is used, for what and why.” (Respondent 5)

These statements give the impression that clearly explaining processes and systems to employees through open communication is something that needs to be prioritized if transparency is to be ensured, which makes sense. However, it seems like work remains to be done to make the use of algorithms and AI more transparent in most of the organizations. The respondents were all quite serious in tone when talking about this topic and seemed to be taking it very seriously, as they were aware that transparency and open communication is not always easy when it comes to AM and were honest about this fact. The complicated nature of the inner workings and technology can even be a bit of a question mark for the

designers, a "blackbox" as one of the interviewees stated, which naturally makes it even more difficult to explain to the staff.

"The process [where algorithms are used] should be transparent and employees should be aware of how the algorithm makes its decisions and what aspects they are based on [...]. I have heard that algorithms are often seen as "blackboxes" and even their developers do not really know what is happening inside them anymore. [...] It would be important to explain and open it up to the workers and let them understand the inner workings of the process/algorithm, at least in cases where someone thinks that a decision is biased or otherwise incorrect [...]. However, I do not know how possible this is." (Respondent 1)

The issues of explainability and understandability became very apparent while listening to the interviewees' answers. However, there were concerns about to what extent it is even *possible* to open these systems up for the workers due to the abovementioned factors, further assuring that this is a very complex problem in the organizations and causes quite a bit of concern.

The aspect of overall perceived fairness and justice regarding the use of AM in the respondents' organizations was mostly viewed in a positive manner. All the interviewees thought that the utilization of algorithms in various decision-making processes in HR was fair and justified, while still having awareness of the potential risks that exist.

"I think it [the use of AM] is very fair in our company, and it is not used to make decisions, but to support them and the process." (Respondent 2)

Once again, the algorithm's role as an assistant (not as a decision-maker) was emphasized, which further strengthens the feeling of algorithms not being perceived as fair on their own, but only if there are humans in charge and making the final decision. This is in slight conflict with the notion that algorithms remove human subjectivity since it is still present to some degree and has a chance to slip in during the process. Meaning that while AM can minimize the amount of subjectivity, it does not completely remove it.

"It [an algorithmic system] is one good tool but should not be the only deciding factor. It is usually stated that data is objective and neutral in principle, but it is not because someone has always designed and defined what it is based on. It should lead to the best decision and AM may help in doing that, but it cannot be the one and only deciding factor." (Respondent 4)

The interviewees frequently mentioned how AM should decrease the amount of subjectivity and biases, but also were aware that, if not carefully designed, the systems can also perpetuate and maintain these factors. Thus, there are opportunities as well as risks (and slight conflicts) involving the actual and perceived level of fairness when it comes to the use of algorithmic systems in HR processes.

"I think that it [use of AM] increases fairness because decisions are based on facts and not arbitrary factors, such as hiring someone because they are your friend. However, there is a risk that biases are incorporated in the algorithm/data. We are extremely careful and aware about this. In general, I think that it improves fairness and equality, but there are always risks in the background and it can be used incorrectly." (Respondent 8)

There might exist biases already in the data, but there is also the risk of biases and subjectivity creeping in at a later stage in the decision-making process when humans are checking and validating the data and results. It is therefore a bit conflicting, with AM both having the risk of increasing biases and discrimination if, for instance, the data is flawed but also potentially minimizing these issues if implemented correctly from the beginning. As it turns out, the mere perception that decisions based on data are automatically fair is very likely an oversimplistic one, as there are several factors that have an impact. The interviewees seemed to be aware of these potential conflicts and risks, however, they did also highlight how they thought that data-based decisions were fairer than the ones only made by humans (if the AM system has been correctly optimized).

“In recruitment, I feel like fairness is based on diversity and AM should remove the biases that humans can have. However, I have understood that there may be subjectivity and gendered roles in the background of algorithms as well. But I do want to trust that if something is based on data, it will be fairer because the human subjectivity and assessment is removed.” (Respondent 5)

“[The use of AM is] very fair as things are based on logic and determined rules. Biases, expectations etc. are removed, which makes it much fairer and more equal.” (Respondent 7)

When asked about whether AM has resulted in unfairness, the respondents did not have any concrete examples to offer, however, several of them did say that it is possible that it has happened but they themselves had not come across it.

“[Cases of unfairness because of AM] have not come up yet, but there probably exists cases where this has happened [...]. It is very possible that wrong parameters have been used or the data has been incorrect [...].” (Respondent 1)

The interviewees thus identified the possibility of AM leading to unfairness, but they had personally very limited encounters and experiences of it. Stating that it is possible that it has happened rather than completely denying it gives space to differing experiences among employees in the organizations.

“[AM has led to perceived unfairness] sometimes, but it has been the user’s fault in my opinion. They have not understood how to use it [the system]. Not knowing what it [the algorithmic output] is based on and making your own interpretations from the results can lead to errors. The risk exists if the user is not trained well enough in this area.” (Respondent 2)

Blaming the perceived unfairness on “user error” highlights how the algorithms themselves are not at fault, but the people using them not having enough knowledge of how to properly use them. The algorithmic systems are still viewed as useful and beneficial, but the workers should be trained on how to operate them correctly, so that the utilization will not cause feelings of unfairness among staff.

Fairness and justice are quite subjective in nature, and it can be quite difficult to reach definite conclusions as everyone can perceive things in different ways. Someone might think that a certain decision has been fair and justified, while another employee may view it as unfair. The

interviewees seemed to agree that if a decision is based on data (collected from the right sources) it is often perceived as being fairer than a decision that is based on other non-factual or non-databased factors. The data must, however, be reliable, valid and non-biased from the start, which may not always be the case as the respondents also mentioned. Biases, stereotypical attitudes and discriminatory perspectives that may be present in human decision-making processes could be removed, if algorithmic systems are optimized and implemented correctly as well as are based on the correct type of data. Transparency would also strengthen the general perception of fairness, which was acknowledged by the respondents.

Trust in the algorithms was a bit divisive among the participants. Most of them did feel like they trusted them but not completely, as they still thought that a human should check and validate what the algorithm has concluded (at least to some extent).

“[I trust the algorithms] for the most part, yes. The final decision is still made by humans, in the sense that someone with experience always checks and validates the results/outputs of the algorithm. [...] I would not fully trust algorithms, meaning that decisions would go straight from algorithms to implementation, and I think that a check made by humans is still necessary.” (Respondent 1)

Once again, the algorithmic system’s role was often restricted to that of an assistant or seen as a helpful tool to support the decision-makers during the process, and the final decision was always made by humans, which resulted in a higher level of trust. Therefore, giving algorithms more power in the decision-making process might cause a lower degree of trust among employees since the algorithms themselves are seemingly not always trusted (only when checked and validated by humans).

“I trust them if they [the algorithms] have been explained and I understand how they work and what they are based on. I use them myself as tools and as an aid.” (Respondent 4)

The importance of explaining how the algorithms work and having employees understand them was (once again) stated as a way of enhancing trust. Not surprisingly, when the interviewees were asked about the most important ethical aspects, transparency and openness were most frequently mentioned as well as being aware of potential biased and discriminatory AI systems, and not basing decisions on employees’ personal background information. This would not only raise the interviewees’ and other employees’ level of trust in algorithms, but also the perception of fairness in general.

“Nothing personal should be considered [...] and we should only focus on performance, experience, knowledge, and skills. No personal background information, such as about ethnicity is necessary [...]. I think that transparency and openness is vital from an ethical perspective as well as the fact that everything that we do is openly communicated [...].” (Respondent 8)

The characteristics of the data were also highlighted by the interviewees and how the organizations should ensure that no biases are incorporated.

“[The most important ethical aspects are] the correctness of the data [...] and coaching staff to use it [the algorithm] right and without biases and prevent discrimination. [...] In general, transparency and openness are crucial.” (Respondent 5)

While unbiased, cleansed, objective data and transparent and open communication about AM implementation is the goal, it seems to be a challenge to reach it completely. Identifying the factors that would lead to increased trust is one thing, but it is another thing to implement them in practice. This is where most of the struggle seems to occur and will most likely have an impact on the future of AM.

4.5 Summary of the findings

A lot of interesting points came up during the interviews, but some themes and thoughts were mentioned very frequently and were emphasized by the respondents. Therefore, this subsection offers a summary of the most notable findings. To start things off, it became quite clear that all the three main topics (wellbeing, fairness and autonomy) are interconnected and overlapping in some way. For instance, an increase in perceived fairness often leads to improved overall worker wellbeing. Furthermore, if the sense of autonomy is enhanced because of AM, it may lead to a greater feeling of fairness and thus result in increased work motivation and satisfaction. Figure 2 visualizes this relationship with the help of a simple Venn diagram.

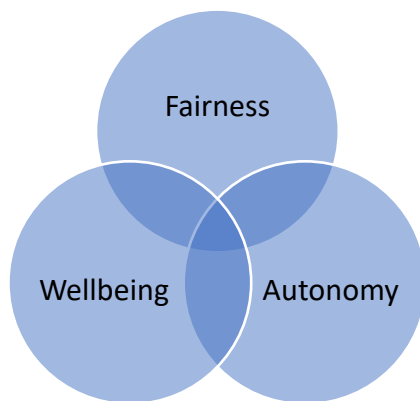


Figure 2 Relationship between the three main topics: fairness, wellbeing, and autonomy

While the topics overlap, they were analyzed separately to maintain clarity and cohesion, as was also mentioned in the introduction to this chapter. Each topic also has some individual and characterizing sub-themes that were incorporated to some extent, meaning that it was beneficial to gather deeper insights into them as separate topics.

The most notable findings regarding how workers' wellbeing is affected have to do with AM decreasing the workload by automating routine tasks and processes, which can in turn lead to improved wellbeing and work motivation, as the remaining tasks are often more meaningful.

Some dissatisfaction and frustration may surface when organizations and decision-makers are being overly trusting of algorithms and take their outputs and conclusions at face value, making it difficult to question and criticize them.

Algorithms may offer support for the workers and back up their decisions and arguments, further strengthening their autonomy. On the other hand, surveillance and control may or may not have increased as it is seemingly possible, but the respondents did not voice any personal experiences. However, it is interesting to note that even though control and surveillance might have *potentially* increased, the respondents' general wellbeing seems to still have improved. Perhaps not everyone perceives aspects such as monitoring or control as inherently negative things, as long as the right reasons are in the background. It is also likely that power will be shifted to algorithms in some degree, however, human workers are seen as always necessary (especially in HR) and remain as the ones with the ultimate power and decision-making control. The interviewees view the lack of transparency as a big concern when discussing factors that affect the perception of fairness and most of them call for greater transparency regarding the utilization of algorithmic systems. In general, the use of AM is still considered as being fair in the organizations. However, the respondents are aware of the risk that biases might be incorporated in the AM systems, which may lead to discrimination. Furthermore, the algorithms are trusted to some extent but not fully, as the interviewees feel like humans should still be the ones making the final decisions while algorithms are utilized as supportive and helpful tools. Figure 3 summarizes these most notable empirical findings.

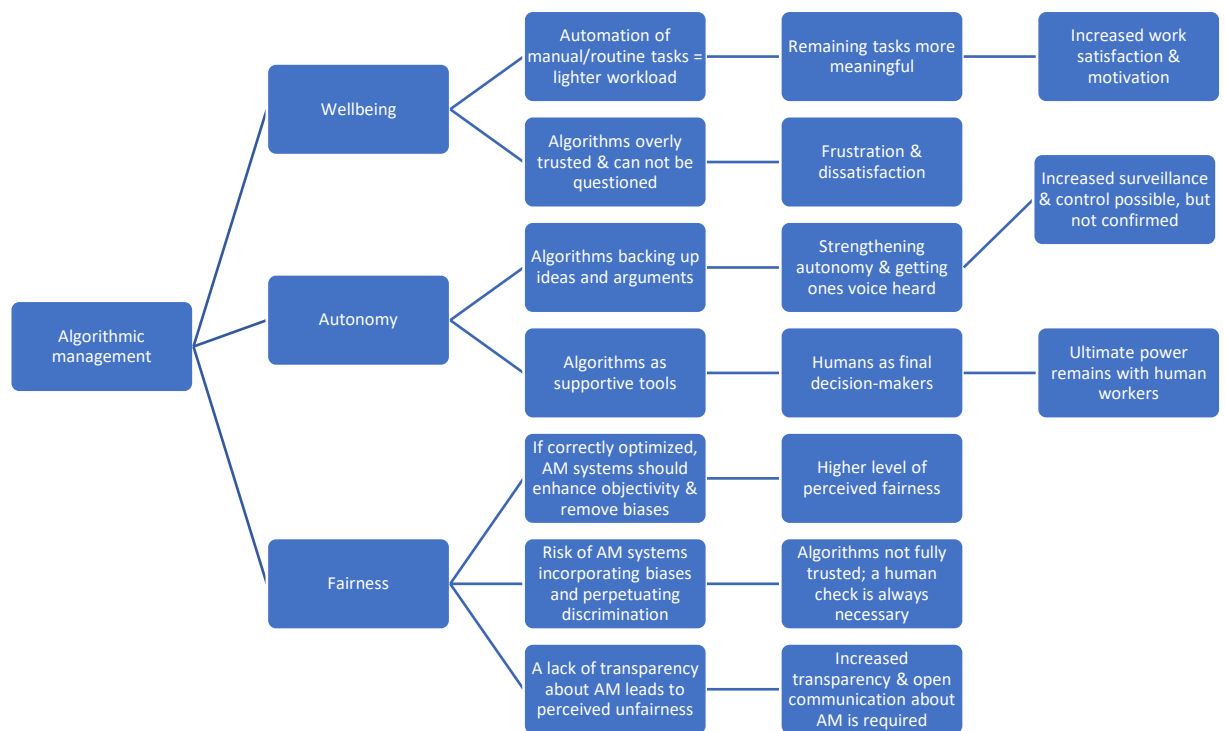


Figure 3 Summary of the empirical findings

4.6 Connections to existing theory

In this section, connections are made between the findings that were described in detail in the previous section and existing research findings. Therefore, the theoretical framework is compared with the results of this thesis. Similarities and differences are explored and discussed more in depth, especially to research conducted in different empirical contexts. Thus, the differing contexts of the current study and the prior ones are addressed, and some preliminary conclusions are drawn.

4.6.1 Wellbeing

Research conducted in other empirical contexts, particularly in platform/gig work indicate more drastic employee reactions and wary experiences of AM. These reactions and experiences have impacted the wellbeing of workers in several ways, which are detailed next.

Insights into what Uber drivers dislike about being managed by algorithms are provided by Möhlmann and Henfridsson (2019). Their study identifies several issues related to AM, including a lack of transparency, unfairness, and a perceived lack of control. The findings suggest that drivers feel disempowered and dehumanized by the algorithmic system, which limits their control over their work and reduces their ability to make decisions. These negative effects, according to the authors, may in turn result in lower motivation, less engagement, and a higher turnover rate for drivers. While the different contexts should be considered, these findings differ to some extent from the results of this study. The respondents did not feel dehumanized, however, a couple of them did state that they felt a bit frustrated and disempowered if, for instance, the algorithmic system's conclusion was viewed as an ultimate fact and could not be questioned. On the other hand, the algorithms could also support the decision-making process, further confirm ideas, and be used to base arguments on, which in turn increases the feeling of autonomy and control among the respondents. In most cases, the algorithmic system increased control over the interviewees' work and enhanced their ability to make decisions that they perceived as being better than they would have been if they were only based on human judgement. Meaning that, on the contrary to the findings of Möhlmann and Henfridsson (2019), the interviewees' motivation and engagement often improved. This may have to do with the study focusing on the context of HR processes in organizations that operate according to a "traditional" business model and are thus not based on platforms.

Kinowska and Sienkiewicz (2023) find that certain AM practices, such as monitoring and surveillance, can negatively impact wellbeing by increasing workload, creating uncertainty, and decreasing job security. These factors can in turn lead to increased stress, anxiety, and

burnout. When comparing these findings to the results of the present study, the interviewees did not generally think that monitoring and surveillance had increased significantly because of AM (they had no personal experiences to share) and did not mention the negative aspects that were emphasized by Kinowska and Sienkiewicz (2023). However, the authors also find that well-designed AM practices and systems can positively impact wellbeing by increasing job satisfaction and offering opportunities for further learning and development. These findings are, on the contrary to the first ones, very similar in this study and the interviewees brought up these more positive comments quite frequently and saw the potential benefits of utilizing AM for workers' wellbeing.

In the context of service workers, AM can positively impact workers' service behavior by increasing efficiency, reliability, and customer focus, but it can also have negative consequences, such as impersonal service, frequent service recovery, and additional workload, according to Wu, Liu, Qu, and Wang (2023). To cope with AM, workers may use both problem-focused strategies (such as flexibility, compliance, and resistance) and emotion-focused strategies (such as relief). Workers might also connive with others to resist the algorithms, in addition to individual resistance. (Wu et al., 2023) Increased efficiency was also mentioned by the interviewees since the utilization of algorithms would lead to the automatization of manual tasks, making processes more effective and less time-consuming for workers. Moreover, the data and outputs will become more reliable if the data sources themselves are reliable and the algorithmic systems are implemented correctly. If the utilization is not optimized or the data is incorrect, it may in turn lead to increased workload. As the contexts are different, some of the results by Wu et al. (2023) do not apply to the findings of the present study. For instance, there were no discussions about strategies used to cope with AM or resisting algorithms individually or together with other colleagues. As stated, this might depend on the differing contexts (service work vs. HR work) or perhaps the different levels of implementation, as it is in its beginning stages in most HR-related areas and may be more advanced in service-oriented work.

4.6.2 *Autonomy*

In addition to the topic of wellbeing, the workers' sense of autonomy in the context of platform/gig work is explored in existing studies. They show that the feeling of, for instance, increased monitoring and control is a lot more pronounced in that specific empirical context, perhaps because those aspects are almost inherently entrenched in the business models of online labor platforms. Connections and differences to these studies are explored in this subsection.

The impact of algorithmic and data-driven management on human workers in the context of crowdwork platforms is investigated by Lee et al. (2015). They find that AM can lead to a shift in power from workers to algorithms, which may reduce workers' sense of autonomy, control, and satisfaction. This can result in workers feeling, once again, devalued, disempowered, and frustrated when managed by algorithms. Additionally, AM may lead to a loss of social connections and an erosion of trust between workers and management (Lee et al., 2015). The respondents of this current study did for the most part think that a shift in power from workers to algorithms may take place, however, they saw it as a positive thing since they would take over the manual and routine tasks. Thus, the remaining tasks would be more meaningful, which will likely increase the workers' motivation and satisfaction. According to the respondents, human employees would still have the ultimate power as they would be making the final decisions and the algorithms would just act as supportive tools during the processes. As the workers are not directly 'managed' by the algorithms, the feelings of devaluation, disempowerment and frustration are perhaps not as pronounced in the context of more traditional organizations. While some frustration may have occurred in some instances, the consensus was that the employees' sense of autonomy and work satisfaction would be enhanced because of AM, which is quite different from the findings of the study by Lee et al. (2015). The interviewees highlighted that social connections and trust between workers and managers could be further improved by being more transparent, which is most likely the case in both contexts.

As a result of the gig economy and platform providers like Uber and Lyft, AM—and particularly algorithmic control—is expanding into new fields (Benlian et al., 2022), including the HR field. The Corona crisis caused a spike in the sales of apps used to track home-office performance and, for instance, Amazon heavily utilizes surveillance tools to surveil their personnel and has announced a plan to sell algorithmic control tools as add-ons to businesses' monitoring camera networks (Morse, 2020). A debate has been sparked by similar situations, and algorithmic systems are often either viewed as helpful “side-kicks” or as tools for complete monitoring (Muldoon & Raekstad, 2022). In the context of the current study, the interviewees viewed these systems as the former, as their role was restricted to that of a supportive tool or assistant. The interviewees saw major issues in using AM to surveil and monitor employees, emphasizing the importance of ethical considerations. Therefore, the respondents' organizations have not taken the same route as Amazon seemingly has, and aspects of fairness and transparency were taken seriously. While an increasing number of employees work from home, the interviewees felt like their organizations trust their workers and that there is no need for algorithmic surveillance tools or monitoring to track performance.

Abraham, Niessen, Schnabel et al. (2019) highlight the importance of workers' perception of control over the monitoring process and suggest that HR departments will have to consider the interests and wellbeing of employees, which could enhance both performance and the acceptance of the technologies. These things were also considered as being very important by the respondents that participated in the present study, as they emphasized how the focus should be on the workers and their needs should be prioritized. They should not feel like outsiders and should understand the algorithmic systems and what decisions are based on.

Felix, Dourado and Nossa (2023) discuss the importance of considering the broader implications of AM, which means moving beyond a simplistic view that categorizes it as either solely beneficial or harmful to workers. They emphasize the necessity of considering both the benefits and drawbacks to gain a deeper understanding of the complex dynamics between gig-workers and their work conditions. Similarly in the context of traditional organizations, it is important to be aware of both the positive and negative sides of AM. Although the work conditions are not similar when comparing gig-workers and "regular" workers, the implementation of AM should still not be labeled as strictly "bad" or "good" for the employees. As the utilization of algorithmic systems and the effects are not black and white, it is crucial to acknowledge the opportunities as well as the risks of using algorithmic systems. The interviewees seemed to be aware of this and highlighted the importance of understanding the background and inner workings of the systems.

4.6.3 Fairness

Fairness is a major topic and concern in existing research and its importance has been echoed in the current study. Therefore, this sub-section provides a comparison between prior findings and this study's findings regarding workers' general perceptions of fairness and equity.

Li, Lassiter, Oh and Lee (2021) find that while HR professionals and recruiters generally view AI as a useful tool for HR management, they also have concerns about the potential for bias and emphasize the need for human oversight. Similarly in the present research project, the interviewees discussed the helpful nature of algorithmic systems as support in various processes but shared the concerns of biases being incorporated in these systems. They also highlighted how humans are still an integral part of the processes and should be the ones making the final decisions.

The findings by Lee (2018) reveal that employees are inclined to view algorithmic decisions as being less fair, less reliable, and more likely to elicit negative emotions regarding tasks

that are perceived to require exclusively human abilities and skills. These ideas seemed to be similar in the current study as respondents highlighted the people-oriented nature of HR in general and did not trust the algorithms to make decisions on their own. Moreover, Lee (2018) suggests that transparency, explainability and human oversight are important factors in ensuring fairness and trust in algorithmic decision-making, which was echoed by the respondents in this study as well.

According to Lee (2018), employees tend to view both algorithmic and human judgements as equally fair when the task primarily requires mechanical ability. This was also the case in the present study since manual and routine tasks were trusted to be performed by algorithms and the utilization of AM was perceived as fair in these cases. However, the tasks that require more “human” skills were not seen as suitable for algorithms and AI. The people-centered area of HR was still strictly viewed as a plethora of processes that require humans as the ultimate decision-makers. These human workers may in turn potentially utilize algorithmic systems as helpful tools along the way.

Positive impacts of algorithmic transparency have been discovered on beliefs in competence, compassion, and contentment (Gedikli, Jannach & Ge, 2014; Wang & Benbasat, 2007), although negative effects, including lower performance, (Schmidt, Biessmann & Teubner, 2020) have also been noted. Additionally, those who tend to value algorithms might perceive the information offered by computers and algorithmic systems as being more objective (Sundar, 2020). In the context of the current study, the respondents thought that increased transparency would lead to a higher level of perceived fairness and work satisfaction. In a similar vein to the prior research, several of the respondents also felt like outputs and conclusions by algorithms are fairer and more objective when the implementation is transparently communicated and explained.

In general, existing research suggests that platforms should be encouraged to be more transparent about their data collection and storage (Kellogg et al., 2020), and the GDPR (General Data Protection Regulation of the European Union) could perhaps set a good standard and baseline for this (Benlian et al., 2022). Similarly, the respondents that participated in this present study frequently brought up how organizations could be more transparent about using algorithms in various processes. They also emphasized the GDPR and how it should be followed to ensure ethicality in terms of the workers’ data protection.

Perhaps the quite simple solutions of “just be more open and transparent, and explain how the system works” are not the most sustainable ones because the algorithmic systems are usually far from simple and easily understandable, which is most likely why they are often not

explained in the first place. Thus, oversimplifying the solutions may be something that needs more awareness. Moreover, asking why the use of AM has not been transparent in organizations from the beginning is something that could be useful. The respondents' answers gave the impression that the reason for non-transparency might be the fear of employees getting concerned and "ignorance being bliss". In other words, the more you know, the more questions you also have and the use of algorithms in HR, which is arguably people-centered, can potentially evoke fears in employees. Thus, an overly positive attitude from the interviewees may result from oversimplifying potential problems that are inherently connected to the process of using algorithms in HR processes, but also in general. The degree of required transparency and openness is also something that needs to be considered. It requires less effort if it is "good enough" that employees only know the surface-level facts about the systems, but a lot more if the provided information is detailed and in-depth. The vague answers made it difficult to determine the degree of aimed transparency.

Continuing with the topic of transparency, recent research calls for platforms to disclose the logic of the algorithm to their employees (Möhlmann, 2021) as this will help in designing AM in a more ethical manner (Benlian et al., 2022). Scholars state that platform companies could use counterfactual justifications as one possible strategy since these enable them to reveal what a decision's algorithmic conclusion would have been if various workers had particular qualities or traits (Benlian et al., 2022). Explaining how the algorithms work and disclosing their logic to the workers was also echoed by the interviewees in the context of traditional organizations. This type of open communication and transparency would in turn increase the level of trust and general fairness perception of the workers regarding the use of algorithmic systems. For instance, explaining how a change in one criterion may affect the conclusion of an algorithm could be a starting point for improving AM transparency and enhancing the level of workers' perceived fairness of the systems. Similarly, this could be a potential solution for issues related to AM opaqueness in the context of more traditional organizations, not only platform businesses. The interviewees' statements give the impression that clearly explaining processes and systems to employees through open communication is something that needs to be prioritized if transparency is to be ensured.

4.6.4 HRM processes and strategies

Various HR(M) processes have been impacted by AM, which is emphasized in existing literature as well as by the interviewees, and suggestions and strategies have been offered to achieve effectiveness. This topic is explored next.

Langer and König (in press) suggest several strategies for improving transparency of using AM in HR processes, including involving workers in algorithm design and providing

explanations for algorithmic decisions. Similar strategies and ideas were mentioned by the respondents in the current study, as they emphasized the importance of explainability and understandability of the algorithmic systems that are implemented in various processes.

Meijerink and Bondarouk (2023) propose a research agenda that explores the complex interactions between algorithms and human actors in the workplace, and the implications of AM for worker autonomy, wellbeing, and performance. They argue that a better understanding of the duality of AM is necessary to develop ethical and effective HRM practices. Following a similar sentiment, the respondents in this present study also frequently mentioned how it is important to be aware of both the possibilities and the risks of AM implementation. Especially, the ethical aspects were highlighted and the importance of not forgetting the human side when utilizing algorithms in HR.

4.6.5 Future of algorithmic management

The future of AM in HR seems to be bright if organizations are vigilant and optimize the use of these systems carefully and suitably, at least this is one of the conclusions that could be made, based on the findings of this study, and reflected on existing research. Moreover, the workers and their perspectives should be in the center, as the priority should not just be making money without considering anything else. According to the interviewees, ignoring all other aspects except for generating revenue will not end well. However, there needs to be a balance so that companies stay afloat without forgetting the human aspects. The interviewees highlighted how the world will most likely look quite different in a couple years.

The consensus was that the utilization of algorithms in HR management processes (and in general) is going to grow extensively in the future. One of the respondents stated that organizations should be aware of the potential risks and threats, while courageously embracing the development and utilizing the advanced systems optimally in various HR processes. The respondents emphasized how the data will become more trustworthy, valid, and accurate if the utilization of AM is optimized correctly. However, a human is still required to be present somewhere in the process to ensure that everything has been done correctly and is based on correct data, meaning that algorithms do not completely take over jobs, just support them. The interviewees felt like HR will develop a lot as well because of this and they emphasized how organizations should be more courageous, fearless, and bold, while keeping ethics and possible threats in mind and not look at the world through rose-colored glasses. Similarly, Benlian et al. (2022) discuss the importance of a reorientation of algorithmic design towards incorporating ethics, fairness, accountability, and transparency aspects throughout the whole lifecycle of AM systems, supported by regulatory guidelines and incentive programs. Thus, the application of AM techniques in an increasing number of distinct work contexts

raises several significant challenges, many of them being related to data protection and morality (Benlian et al., 2022).

Respondents highlighted the fact that, for now, the algorithms are viewed as assistants and helpful tools, and that human managers are still the ones making the final decisions. While the algorithms can provide valuable support during the processes and give suggestions based on enormous amounts of data, their role is still quite restricted and have limited power. In other words, they have not been given the possibility to make decisions on their own without human supervision. Therefore, the human workers remain as the ones having the ultimate control as they make the decisions in the end, maintaining their autonomy and sense of power (at least for now).

Prior literature points out how, already, a plethora of managerial tasks, such as recruiting, firing, and promoting (Ajunwa, 2020), or coaching and providing performance feedback (Luo, Qin, Fang & Qu, 2021) have been performed by algorithms. This demonstrates how AM is evolving along a path with increasing performance and reach (Berente, Gu, Recker & Santhanam, 2021). Research emphasizes how AM relies on data-driven learning algorithms to perform tasks involving coordination, control, and general administration in a way that is autonomous and does not depend on human judgement (Benlian et al., 2022). When juxtaposing the findings of the current study to previous research about cases where power has already been given to the algorithms, a feeling emerges that people (and organizations) are on different wavelengths regarding the matter. This might depend on the contextual differences, for instance, the greater advancement of algorithmic utilization in platform businesses in comparison to more traditional organizations and fields, the specific area of work (HR vs. service), or the variations between countries (e.g., Finland vs. the US). The Finnish organizations are seemingly only beginning to implement AM while US companies seem to be further along the road of utilizing algorithmic systems in various processes. The respondents seemed very wary of giving full control to algorithms and stated that it will not be happening any time soon, however, prior research points to the direction that it has already happened to some extent in other contexts.

Wiener et al. (2021) state that viewing the move towards AM as something that is only negative is not sensible. The claim is supported by research that demonstrates how the implementation of algorithmic support in processes allows novel workplace interactions that are well received, at least by some workers, such as the opportunity to receive ongoing guidance and performance feedback (Wiener et al., 2021). Thus, the future of AM seems to be quite bright and promising. More specific opportunities in HR processes were discussed during the interviews and how utilizing algorithms would make it possible to take better care

of staff and offer perhaps more individualized assistance to employees regarding, for instance, their development and satisfaction at work. In general, the respondents saw enormous possibilities since the organizations are continuously collecting data about workers, and they could anonymize it and use it to make decisions that are, for instance, connected to individual development and development of benefits. Moreover, the interviewees discussed the possibility of being able to predict how long someone will stay in the company, how they will develop, and being able to identify weaknesses in training systems, as these were currently mostly based on just a gut feeling.

These predictions and opportunities could improve workers' overall wellbeing and enhance the way HR procedures are conducted. However, as the respondents made clear, there are several factors to consider and challenges to address if the organizations are to successfully implement AM systems and reap the rewards. For instance, according to Benlian et al. (2022), algorithmic opacity (non-transparency) can cause uncertainty and social unfairness, and the scope of negative effects on employees vary quite a lot. Demotivation, dehumanization, and even replacement may be a result of a decreased sense of autonomy (e.g., via monitoring or unethical digital nudging), a halt in personal development (e.g., through deskilling and learned helplessness), and the social isolation of workers (e.g., through AM-induced individualization) (Benlian et al., 2022). The interviewees highlighted the importance of transparency and echoed the sentiment that opacity and limited communication decreases the workers' level of trust and perceived fairness regarding the use of AM. The risk of increased monitoring and control was also considered by the respondents, as well as the crucial aspect of upskilling and maintaining personal development. The social isolation of workers was not mentioned by the interviewees, probably because the implementation of AM is still quite limited, the context is companies with traditional business models and the focus is specifically on HR. In conclusion, there are several benefits and opportunities that may result from the implementation of algorithmic systems and utilizing them in decision-making processes, however, there are also various risks and challenges that should not be forgotten.

4.7 Summary of the empirical findings

To conclude this section, there are several differences but also similarities when comparing the findings of this study to prior research. The contextual variations may affect some aspects, as most prior studies focus on platform businesses instead of "traditional" ones. Still, several existing findings are comparable to the results of the current study, meaning that some themes and effects are not dependent on the context and more so inherently connected to the implementation of AM in organizations. These remarks offer an interesting

background for a summarizing discussion and the conclusions of this study, which are presented in the next chapter.

5 DISCUSSION & CONCLUSIONS

In this final part of the thesis, a brief summarizing discussion is held, and conclusions based on the findings are offered. Moreover, the implications of the research are described more exclusively. The limitations that exist in the thesis are mentioned and, finally, some suggestions for future research about the topic are presented.

5.1 Summarizing discussion & conclusions

In this study, AM and its different effects on workers in the HR area have been investigated. The aim of this research was thus to explore the impact of AM on workers in the HR field and identify potential risks and benefits of AM from the perspective of employees, which has been achieved. Based on the research aim, the main research question was "*How does algorithmic management in HR-related practices affect workers' general experiences?*" and was supported by three sub-questions about the effects of AM on workers' wellbeing, autonomy, and perceptions of fairness. The research questions were answered by conducting semi-structured interviews with eight HR professionals. The collected data was then analyzed using CDA and concrete findings were formed as a result.

Several interesting findings were discovered, and the interviewees had some valuable insights and thoughts to share. The results show that while there are many similarities to experiences regarding AM in other contexts already studied, there is also something unique and worth focusing on in the particular context of HR and organizations with traditional business models. With the three main topics being wellbeing, autonomy and fairness, this study has offered quite a broad perspective and covered several aspects. The collected data, analysis of it, and interpretation of it to form concrete findings have ensured that the research questions have been answered. Several factors impact workers' general experiences regarding the implementation of AM in HR, but by receiving detailed information directly from the workers themselves regarding how their overall wellbeing, sense of autonomy and perception of fairness have been impacted, one gets a good general idea of what their experiences look like. Thus, answering the three sub-questions has in turn led to the first overarching research question also being answered, meaning that this study has fulfilled its purpose and filled the knowledge gap that was identified at the outset. A valuable contribution to the research field has therefore been created in the form of this study.

The findings paint a picture that is mostly positive in terms of employees' perceptions of AM, although the utilization of algorithmic systems in decision-making is arguably in its beginning phases in organizations in Finland. The outlook is thus cheerful in nature and the participating respondents expect great things resulting from implementing algorithmic systems to an even

larger degree in the future. While considering the context of the current situation in Finland, it was found that overall wellbeing has been improved in the form of less stress and increased work motivation and satisfaction due to automatization of routine tasks. Thus, workers can instead focus on more meaningful work tasks as well as ones requiring human abilities. Some potential frustration and dissatisfaction are also recognized as a result of being overly trusting of algorithmic conclusions, which is something that organizations need to be wary about.

Autonomy is maintained in this specific context as human workers are the ones making the final decisions and algorithms are more so used to support various processes and to confirm ideas. In other words, in the context of organizations with traditional business models, AM plays a complementary role and does not completely replace human managers, but instead provides advanced technological tools to assist managers in managing subordinates and in the decision-making processes. It may guide workers to some degree, but it does not remove autonomy or independent decision-making altogether. Therefore, a shift in power from workers to algorithms may happen to some extent, but only within the boundaries that are determined by the people designing them and the ultimate power and decision-making ability lays in the hands of humans. The interviewees highlighted how this is particularly the case in HR, as it is such a people-focused field and requires certain skills that only humans can possess.

Fairness and general ethical considerations are of great importance, which makes sense since the HR area is so inherently connected to people and managing them successfully, but also fairly. Therefore, ethicality and morality are crucial aspects in this context, but also more generally when discussing the topic of AM and AI. The consensus has been for quite some time that machines are "cold and calculated", and lack any kind of empathy or similar feelings that humans experience (Rodrigues, 2020; Lee, 2018), potentially evoking fear in people when discussions about giving machines more power and control arise. While they can be extremely helpful in some processes and tasks, they are still ultimately only computers and may also incorporate biases and other errors. This was also frequently mentioned by the respondents, and they emphasized the need for a balance between utilizing the algorithms to lighten the workload, but also ensuring that they are bias-free and do not lead to discrimination, and should not be blindly trusted. When correctly optimized, the algorithmic systems should be objective and neutral, increase fairness in decision-making procedures and remove the biases and subjectivity that may be present in human reasoning. There are thus great opportunities and a lot of potential, but also risks that need to be considered if successful implementation is to be achieved.

The level of perceived fairness and trust towards algorithms also seemingly increases when the implementation of AM is communicated in an open and transparent manner, greatly emphasizing the importance of transparency in connection to AM and ethicality. Currently, it seems like transparent communication is lacking to some extent and the inner workings of algorithms could be explained a lot more extensively to the employees. Although the algorithmic systems may be extremely complex, it would be beneficial for organizations to be able to explain them to workers in ways that are easy for anyone to understand. While this might be easier said than done, taking initiative, and communicating transparently is already a good start. Explainability and understandability naturally also requires that the algorithms do not simply become "blackboxes" for everyone (including the designers), as then they will in turn be impossible to explain and understand. In general, transparency and open communication are crucial elements in any organization as they enhance the feeling of connectedness, fairness, and overall wellbeing for workers. On the other hand, keeping workers in the dark and offering only limited communication often leads to dissatisfaction, de-motivation, and feelings of unfairness as well as a more general sense of unethicity. Thus, organizations should prioritize transparency if they want to prosper and keep their workers satisfied and motivated to keep on working.

In conclusion, the research area of AM is rapidly expanding as the use of AI is increasing in organizations around the globe. This study has delved into the thoughts and experiences of workers in the HR field to provide information about how they have been affected by AM and what their general feelings are towards the matter. As the world is changing and technology is continuously developing and new systems are being implemented in organizations, it is important to raise awareness about the impacts of these changes and developments on human workers. It may be easy to get excited about the new possibilities and opportunities, so much so that the potential risks and challenges might be overlooked. This study has proven that there are a lot of great things to be expected when utilizing algorithmic systems (in HR), however, there are also a plethora of threats that organizations need to be aware of. Not the least of these are ethical aspects, which are a big point of concern in the eyes of workers and society in general. Ideally, one can be bold, excited about the future and embrace the opportunities, while keeping oneself grounded and level-headed, as there are always some potential challenges that need to be considered and overcome. With that being said, the future will most likely look very different as technology paves the way for a variety of (exciting) new things, but sometimes also alarming ones.

5.2 Implications of the research

The findings of this research offer implications for practitioners and professionals in the field. By answering the main research question *"How does algorithmic management in HR-related practices affect workers' general experiences?"* and the three sub-questions regarding wellbeing, autonomy and fairness, this study has provided valuable insights into the current situation of workers' perspectives about the matter. The utilization of AM is increasing and in addition to platform businesses, even other "traditional" businesses are beginning to implement algorithmic systems in various organizational processes. While the effects of using AM on workers has been studied already to some degree in the context of platform businesses, there has been a call for more research about the impact on employees in other types of businesses. This study has answered that call and focused on the context of HR and knowledge workers working in "traditional" organizations. Thus, data has been collected that is very important if we are to understand the broader phenomenon of AM and its various effects on workers.

No matter the case and context, employees are the backbone of any organization, and no company could operate without them. Therefore, it is always crucial for businesses to be aware of whether the workers are satisfied, motivated and happy. If any changes are made in the organization, it is important to keep track of how these changes affect the employees and whether any actions need to be taken to ensure work satisfaction and successful performance. In a similar vein, when implementing AM into their processes, it is vital to know what type of implications it incorporates for the workers. This is what this research has done, as it offers information from workers themselves about the potential benefits and risks that may be caused when utilizing algorithmic systems.

The findings are thus very valuable and provide practitioners insights into the most important aspects that should be considered if wanting to ensure that the effects on workers remain positive and beneficial. Furthermore, the results may even give guidance to organizations as well as HR professionals, and a roadmap could be illustrated to pave the way for optimized AM utilization that embraces the pros and negates the cons. In other words, the findings can inform the development of best practices for implementing algorithmic systems and promote ethical use of AM in HR. Even though the context of the study is the HR area, professionals and scholars from other fields and areas can also make use of the findings (at least to some degree) and implement them to fit their own specific contexts. While this study offers some key points that are important to consider, it is also beneficial to be proactive and think about the context at hand and explore other potential

aspects that may be affected, especially from the perspective of the employees, as each situation is unique.

5.3 Limitations of the study

Like any other study, this one has its limitations that need to be considered. One of the most evident ones is the sample size, which is quite small due to the (limited) scope of a master's thesis. While the sample and the number of participants were motivated in the Methodology chapter, it still needs to be mentioned that eight respondents are not that many. However, several factors did still ensure that the sample size was suitable for this specific study as the goal was not generalizability, but more in-depth insights into the phenomenon (that is still evolving) and receiving detailed information regarding the respondents' personal experiences. Another limitation is the specific area of HR that was focused on, meaning that other areas or fields where AM may be used were not considered in this study. As already stated, this does not mean that the findings could not be valuable for other fields, more so that they perhaps cannot be directly translated, and the HR-lens needs to be acknowledged if implemented or applied in other contexts. The global perspective may also be a bit limited as the situation in Finland was in the center, meaning that the more international insights might provide additional or perhaps different information. For instance, organizations in Finland often have quite flat power hierarchies, which could have impacted the findings. Perhaps if AI is implemented in much more hierarchical contexts, it would result in different experiences and findings. It may be found that AM further strengthens the existing power relations and hierarchies, or on the other hand, works against them and changes them.

Moreover, as the developments in technology and especially AI are continuously moving forward and shifting, it is important to consider the fact that this study only offers a snapshot of the current situation and things may look very different in, for instance, only a couple of months or one year. Therefore, the findings may be quite different if a similar study was to be conducted in the future and might provide some completely new aspects and ideas. This makes the research area and topic extremely interesting, as it is shifting and evolving with rapid speed, and this study can be looked back at and work as a point for comparison and showcase the technological developments as well as their effects on employees.

5.4 Recommendations for future research

There are several paths that future research can take since the topic is so broad and constantly evolving. One suggestion is taking a more global approach and including companies from several countries to collect data about whether workers' experiences are similar or different across international borders. It could be interesting to know if (and to what extent) culture

and other country-specific factors have an impact on the implementation of AM and its effects on employees. For instance, it already became quite apparent that US businesses are generally further along regarding the use of AM and AI (Faraj et al., 2018; Benlian et al., 2022; Waber & Kane, 2015). These types of comparative studies could be helpful to understand the variations in the ways that AM impacts workers in HR. Additionally, these studies could identify best practices as well as challenges connected to the implementation of algorithmic systems in various organizational settings. Moreover, shifting the focus to other contexts than HR might be beneficial as this gives the opportunity to look at the phenomenon through various lenses and gain a better understanding of it via a wider perspective.

The contexts of retail, marketing, logistics or financial administration could, for instance, be interesting areas to explore in future studies and are likely to already utilize AM to some degree. Conducting a similar study that focuses on HR in a year or so could also be a good idea, as the implementation of algorithmic systems is continuously developing in organizations and the findings could be quite different in comparison to the ones in this study. Additionally, as ethical considerations were of great importance in the current study, it could be recommended to dedicate a research project to examine the ethical implications of AM in HR. Taking the opportunity to assess whether the use of algorithms aligns with determined ethical guidelines and standards would be valuable. Furthermore, investigating potential biases in algorithmic decision-making and how they may impact diversity and inclusion within the staff is something for scholars to consider putting more research effort into.

Since the respondents in this study emphasized the supportive nature of algorithms, a recommendation would be to explore how collaboration and cooperation between human HR practitioners and algorithms could be enhanced. This could include, for instance, analyzing how AM systems can be designed and optimized to complement human skills, reasoning, and decision-making rather than replace them entirely, encouraging a harmonious relationship. Furthermore, studying the impact of AM on skill requirements for HR professionals could be another path to explore. This might incorporate identifying new competencies and knowledge sets needed to successfully cooperate with AM systems. A bit further along in the future, the long-term effects of AM on employment within the HR area could be investigated. For instance, exploring whether the implementation of algorithmic systems leads to job displacement or, on the contrary, creates new work opportunities for HR workers. These were just a couple of suggestions, however, there are so many other contexts and research paths for researchers to choose from.

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Appendix 1 Interview guide (In English)

Theme 1: The interviewee

1. What is your current job title and for how long have you worked in this specific job position?
2. How relevant is algorithmic management (AM) in the organization that you work for?
3. How familiar are you with AM?
4. How do you understand AM? (How would you *define* AM?)

Theme 2: AM in the HR field

5. Do you think that AM can benefit the HR field/departments? If yes, in what type of ways? If no, why not?
6. How has AM impacted your own work/ways of working? Please give some examples.

Theme 3: Wellbeing

7. Have you noticed changes in your job satisfaction or motivation due to the implementation of AM? If yes, what have these changes looked like (give examples)?
8. Have you noticed an impact on your general wellbeing (and health) due to AM? If yes, in what ways has it been affected (both the positive and negative ways if applicable)?
9. Have you ever felt devalued or frustrated because of AM? If yes, please give examples of the situations when this has occurred.

Theme 4: Autonomy

10. How do you think that AM has affected your autonomy and the extent of independent decision-making at work? Please give examples.
11. Do you think that AM has led to increased control and surveillance of workers in the organization? If yes, in what ways?
12. Do you feel like a power shift from workers to algorithms has taken place or will happen in the future? If yes, describe what this shift has looked like (or will look like) and your experience with it.

Theme 5: Fairness

13. According to you, how transparent is the use of AM in the organization?
14. How fair do you think that the use of AM in the organization is? What factors are impacting your perception of the fairness level?
15. Have you ever felt that the implementation of AM has resulted in injustice or unfairness? If yes, please give examples.
16. Do you trust the algorithms that are used in management? If yes, why? If no, why not? What are the factors that affect your level of trust?
17. According to you, what are the most important ethical considerations that should be considered when using AM in HR?

18. How do you think that both transparency and accountability could be ensured when utilizing algorithms in management? What are the key factors that come to your mind?

Theme 6: The organization & the future of AM in HR

19. Has the organization (to your knowledge) taken steps to address any concerns raised by workers about AM? If yes, what kinds of steps?
20. How do you envision the future of AM in the HR field? What steps do you think should be taken to maximize the benefits while minimizing the possible negative effects on workers?

Theme 7: Closing question

21. Is there anything that you would still like to add? Something that you feel like is important, but I did not ask about.

Appendix 2 Interview guide (In Finnish)

Teema 1: Haastateltava

1. Mikä on nykyinen tehtävänimikkeesi ja kuinka kauan olet työskennellyt tässä positiossa/näiden tehtävien parissa?
2. Kuinka relevanttia/olennaista algoritmisen johtaminen on organisaatiossa missä työskentelet?
3. Kuinka tuttua algoritmisen johtaminen on sinulle? (Onko siitä paljon/vähän kokemuksia?)
4. Miten sinä määrittelist algoritmisen johtamisen? (Mitä kaikkea se sisältää sinun mielestäsi?)

Teema 2: Algoritmisen johtaminen HR-alalla

5. Uskotko, että algoritmisen johtaminen voi olla hyödyllinen HR-alalla/osastoilla? Jos kyllä, millä tavoilla? Jos et, mikset?
6. Miten algoritmisen johtaminen on vaikuttanut omaan työhösi/työtapoihisi? Anna esimerkkejä, jos vain mahdollista.

Teema 3: Hyvinvointi

7. Oletko huomannut muutoksia työtyytyväisyydessäsi tai motivaatiossa johtuen eri algoritmisen johtamisen toimeenpanoista? Jos olet, minkälaisia nämä muutokset ovat olleet (anna mielellään esimerkkejä)?
8. Oletko huomannut vaikutuksia yleiseen hyvinvointiisi (ja terveyteesi) johtuen algoritmisen johtamisesta? Jos olet, minkälaisia nämä vaikutukset ovat olleet (sekä positiiviset että negatiiviset puolet, jos molemmista on kokemuksia)?
9. Oletko koskaan tuntenut itseäsi aliarvostetuksi tai turhautuneeksi/tyytymättömäksi algoritmisen johtamisen takia? Jos olet, anna mielellään esimerkkejä tilanteista, joissa näin on tapahtunut.

Teema 4: Autonomia

10. Uskotko, että algoritmisen johtaminen on vaikuttanut autonomiaasi/itsehallintoosi ja itsenäisen päätöksentekosi laajuuteen töissä? Jos kyllä, millä tavoilla? (Anna mielellään esimerkkejä)
11. Uskotko, että algoritmisen johtaminen on johtanut työntekijöiden valvomisen ja kontrolloimisen kasvamiseen organisaatiossa? Jos kyllä, millä tavoilla?
12. Tuntuuko sinusta siltä, että vallan siirtyminen työntekijöiltä algoritmeille on tapahtunut/tapahtumassa? Jos kyllä, kuvaile miltä tämä siirtyminen on näyttänyt ja sinun kokemuksestasi siitä (tai miltä uskot, että se tulee näyttämään).

Teema 5: Tasapuolisuus/oikeudenmukaisuus

13. Kuinka läpinäkyvää algoritmisen johtamisen (ja tekoälyn/algoritmien ylipäättänsä) käyttö on sinun mielestäsi organisaatiossasi?

14. Kuinka oikeudenmukaista algoritmisen johtamisen käyttö on mielestäsi organisaatiossa? Mitkä tekijät vaikuttavat sinun käsitystäsi oikeudenmukaisuuden tasosta?
15. Oletko koskaan tuntenut, että algoritmisen johtamisen eri toimeenpanot ovat johtaneet epäoikeudenmukaisuuteen? Jos kyllä, anna mielellään esimerkkejä.
16. Luotatko algoritmeihin, joita käytetään johtamisessa? Jos kyllä, miksi? Jos et, mikset? Mitkä tekijät vaikuttavat sinun luottamustasosi?
17. Mitkä ovat sinun mielestäsi kaikista tärkeimmät eettiset näkökohdat, jotka pitäisi ottaa huomioon, kun algoritmista johtamista käytetään HR:ässä?
18. Millä tavalla uskot, että sekä läpinäkyvyys että vastuuvollisuus voidaan varmistaa ja taata, kun algoritmeja käytetään johtamisessa? Mitkä ovat avaintekijät, jotka tulevat mieleesi?

Teema 6: Organisaatio ja algoritmisen johtamisen tulevaisuus HR-alalla

19. Onko organisaatiosi (tietääksesi) yrittänyt jollakin tavalla käsitellä työntekijöiden huolenaiheita liittyen algoritmiseen johtamiseen? Jos kyllä, millä tavalla/tavoilla?
20. Minkälaisena sinä näet algoritmisen johtamisen tulevaisuuden HR-alalla?
Minkälaisia askeleita uskot, että pitäisi ottaa, jotta potentiaaliset edut/hyödyt maksimoitaisiin ja samalla mahdolliset negatiiviset vaikutukset työntekijöihin minimoitaisiin?

Teema 7: Lopetus

21. Onko vielä jotain mitä haluaisit lisätä? Jotain, joka on mielestäsi tärkeää, mutta mistä en kysynyt.

Appendix 3 Interview guide (In Swedish)

Tema 1: Respondenten

1. Vad är din nuvarande arbetstitel och hur länge har du jobbat med dessa arbetsuppgifter?
2. Hur relevant är algoritmiskt ledarskap (AL) i den organisationen som du arbetar för?
3. Hur bekant är du med algoritmiskt ledarskap?
4. Vad innebär algoritmiskt ledarskap för dig? Hur skulle du definiera det?

Tema 2: Algoritmiskt ledarskap inom HR

5. Tror du att AL kan vara till nytta för HR arbetsområdet/avdelningarna? Om ja, på vilka sätt? Om nej, varför inte?
6. Hur har AL påverkat ditt eget arbete/sätt att arbeta? Ge gärna exempel.

Tema 3: Välmående

7. Har du märkt förändringar i din arbetstillfredsställelse eller motivation på grund av implementeringen av AL? Om ja, hur har dessa förändringar sett ut (ge exempel)?
8. Har du märkt att ditt generella välmående (och din hälsa) har påverkats av AL? Om ja, på vilka sätt har den blivit påverkad (både positiva och negativa sätt ifall du har erfarenhet av båda)?
9. Har du någonsin känt dig underskattad eller frustrerad på grund av AL? Om ja, ge gärna exempel på situationer då detta har hänt.

Tema 4: Autonomi

10. Hur tycker du att AL har påverkat din autonomi/självbestämmanderätt och graden av självständigt beslutsfattande i arbetet? Ge gärna exempel.
11. Tycker du att AL har lett till ökad kontroll och övervakning av arbetstagarna inom organisationen? Om ja, på vilka sätt?
12. Känns det som att ett maktskifte från arbetarna till algoritmerna har ägt rum? (eller tror du att det kommer att hända?) Om ja, beskriv hur detta skifte har sett ut och din erfarenhet med det? (eller hur du tror att det kommer att se ut ifall du anser att det kommer att hända?)

Tema 5: Rättvisa

13. Hur transparent tycker du att användningen av AL är i organisationen?
14. Hur rättvist tycker du att användningen av AL är i organisationen? Vilka faktorer påverkar din uppfattning av nivån för rättvishet?
15. Har du någonsin känt att implementeringen av AL har resulterat i orättvisa? Om ja, ge gärna exempel.
16. Litar du på de algoritmerna som används inom ledarskap (eng. management)? Om ja, varför? Om nej, varför inte? Vilka faktorer påverkar graden av hur mycket du litar på dessa algoritmer?

17. Vilka är enligt dig de viktigaste etiska överväganden som borde tas i beaktande då AL används i HR?
18. På vilket sätt tror du att både transparens och ansvarsskyldighet kunde försäkras då algoritmer används i ledarskap? Vilka nyckelfaktorer kommer du att tänka på?

Tema 6: Organisationen och framtiden för AL inom HR

19. Har organisationen (enligt din kännedom) tagit steg för att ta itu med potentiella bekymmer från arbetstagarna gällande AL? Om ja, hurudana steg?
20. Hur föreställer du dig att framtiden kommer att se ut för AL inom HR? Vilka steg tycker du att borde tas för att kunna maximera fördelarna/nyttan medan de potentiella negativa effekterna på arbetstagarna minimeras?

Tema 7: Avslutande fråga

21. Finns det något som du ännu skulle vela tillägga? Något som du tycker att är viktigt men som jag inte frågade om.