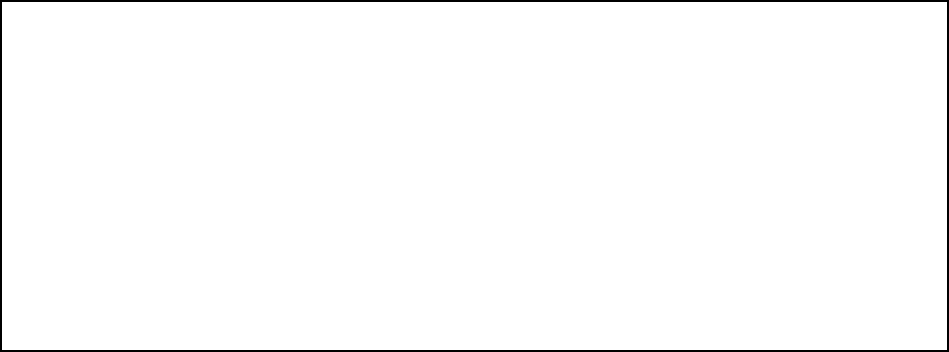
It wasn’t me - Empirical Insights on Managers’ Perception of Responsibility in People Analytics-guided decision-making

*Completed Research Paper*



Abstract

*Algorithmic technologies in human resource management, such as people analytics, can pose several risks to employees. While employees become the subject of the systems' data analyses, managers however face quite distinct risks when using people analytics. Overconfidence in the systems' accuracy and impartiality, for example, may cause them to unlearn how to make sound management judgements by themselves over time. Another concern is that managers might lose employees' trust, as responsibility for negative outcomes can be obscure. We explore, conducting a vignette study, how the use of people analytics might affect managers’ perception of both responsibility and responsible behaviour in algorithm-supported decision-making. Thus, we provide empirical insights on the interplay between algorithmic management and leadership in traditionally office-based jobs. The results suggest, that xxx*

*Keywords: Algorithmic Leadership, People Analytics, Algorithmic Management, Vignette Study.*

# Introduction

Headlines about how new technologies and automation will force many people out of work have been around for over a century. Currently, narratives regarding the impact of artificial intelligence (AI), notably generative AI, on occupations are popular in the media. Yet there is one new part of the debate that was previously absent: the perceived threat of being replaced by automation no longer relates just to manual labour, but might now even concern white-collar professions including managers. Companies all across the world are beginning to plan staffing decisions based on current AI breakthroughs. For the time being, IBM, for example, has indicated that they will limit hiring of new staff to an absolute minimum in those departments whose jobs could potentially be automated by (generative) AI in the near future (Ford, 2023). IBM is specifically referring to HR operations, which have been in upheaval for several years due to the usage of algorithmic technology. Besides supporting recruiting processes and general human resources (hr) operations, algorithmic systems in personnel management – also referred to as people analytics (PA) – are intended to assist managers to optimise decision-making (Giermindl et al., 2022; Tursunbayeva et al., 2022). PA systems continuously capture data generated by employees, such as log-in times, the number of emails sent or phone calls made, or the number of meetings held (Giermindl et al., 2022; Marler and Boudreau, 2017; Tursunbayeva et al., 2022). In the United States of America, systems go so far as to capture regular screenshots of the work computer screen or even use the front camera to take images of employees seated at their desks (Kantor and Sundaram, 2022). The obtained data is then combined with data sets historically grown within the organisation to perform descriptive, predictive, or prescriptive analytics that provide actionable insights for management (Jarrahi et al., 2021; Meijerink et al., 2021; Wissuchek and Zschech, 2023). In addition to the fast evolving technological possibilities, one driver of the increased use of such systems is the shift in the world of work towards decentralisation, as the systems promise to enable leadership and supervision of remote teams (Bryce et al., 2022; Leonardi, 2021). Some of the systems are now equipped with generative AI functions (i.e., *Microsoft Copilot*, *SAP Digital Assistant*). These technologies enable users to search through enormous volumes of data using natural language input and have charts and graphs generated automatically, compose inspirational messages for internal company social media feeds, and obtain virtual meeting minutes that include additional information.

Aside from possible benefits, PA systems pose various concerns, particularly to employees. The systems' underlying algorithms may contain human biases, reinforcing socially existing prejudices and discrimination (Benlian et al., 2022; Giermindl et al., 2022; Köchling et al., 2021). Some features of available PA systems have also been criticised for potentially acting as surveillance software (Manokha, 2020; Tursunbayeva et al., 2022). In total, literature debates more negative than positive consequences for employees (Parent-Rocheleau and Parker, 2021). With this in mind, various studies have emerged that investigate the influence of algorithmic systems in the workplace, particularly from the standpoint of employees (Höddinghaus et al., 2021; Klöpper, 2023; Tomprou and Lee, 2022; Zhu et al., 2021).

On the other side, there is a prominent research gap, as empirical evidence on the impact of algorithmic systems on leaders and leadership in traditionally office-based work settings is currently scarce. Nonetheless, the literature already addresses the importance of studies dealing with the managerial perspective. The vast majority of research covering the perspective of managers are literature reviews, thus, for example, Peifer (2022) and colleagues pose the important question about the impact of AI on leadership and leaders, Becker (2023) and colleagues investigate which management functions can already be performed by algorithms, Höddinghaus (2023) and colleagues examine the literature on leadership in virtual teams, which is currently highly relevant, and Klöpper and Köhne (2023) investigate the impact of algorithmic systems on workplace hierarchies and the possible consequences for both employees and managers. These literature reviews provide crucial insights into the links between algorithmic systems and leadership; however, empiricism that can support these links remains scarce.

The literature mentions risks that the use of PA systems poses for managers, such as an erosion of trust from their employees (Jörden et al., 2021) or an erosion of tactical thinking skills (Giermindl et al., 2022; Jarrahi et al., 2021). An uninformed approach to using the systems on the part of managers could result in recommendations for action by the systems being adopted unquestioningly, even if the recommendations are potentially incorrect. Biases in the systems, for example, might therefore go unnoticed. This could also be the case if managers share the biases prevalent in the systems. In this instance, not only could discriminatory or unfair decisions be implemented, but the bias may even be reinforced in the managers' mindsets. If algorithmic systems are perceived to be neutral and omniscient, and they reach the same results as a biased management, the management might perceive the bias to be well-founded and correct (Giermindl et al., 2022; Köchling et al., 2021; Miceli et al., 2022). By constantly consulting decision-support tools whose mode of operation and arguments for proposed actions are not well understood by them, managers may over time even lose their own capacities. Further, even in the instance that harmful decisions are implemented, managers might not feel responsible for negative outcomes any longer. Thus, algorithmic decision-making can obscure responsibilities (Breidbach and Maglio, 2020). Nevertheless, literature also suggests that there are significantly less risks for managers and that a vast majority of those risks only indirectly stem from the systems themselves, but rather from uninformed or unethical usage of those (Klöpper and Köhne, 2023). Thus, whereas the systems and their potentially biased recommendations have a direct effect on employees, the risks for managers are, in many instances, what can be described as second-order effects.

Those can still have serious consequences for managers. However, as it is more difficult to uncover potential biases when dealing with PA systems, incorrect decisions made by managers on behalf of recommendations made by PA systems may go undetected for an elongated period of time, thus initially also posing an issue primarily for employees. Further, as legislations of various countries have different approaches to protecting employees from potential harm caused by the systems, managers and their responsible behaviour might be one of the only measures in charge to protect employees. To enable the use of PA systems in the best interests of people affected by it, it is necessary to investigate the systems' mechanisms of action not only at the technological level, but also in interaction with both the people who operate these systems and those who become the subject of potential surveillance, data collection and analysis. In some instances, managers’ responsible behaviour may be the only protection of employees against harmful consequences of algorithmic decision-making. The perspective of managers who (have to) work with the systems is fundamentally important in order to design systems from which people in the workplace can benefit – in more than just monetary terms.

Against this backdrop, we argue that it is now a crucial time to investigate the potential influence of PA systems on managers. Thus, we formulate the research question:

*RQ: In managerial decision making, how does the use of PA affect managers’ perceptions of responsibility and responsible behaviour?*

To guide our explorative research endeavour, we ground our research in norm theory (Kahneman and Miller, 1986), falling back on research by Nordbye and Teigen (2014), who deployed norm theory to initially investigate the difference between *being* and *acting* responsible. We adapt their research to the context of PA, conducting a vignette study amongst managers from Germany and US-America. Vignette studies are an established method in disciplines such as, for instance, sociology (Quelle) or economy (Falk and Kosfeld, 2006). As a highly suitable method to explore normative issues, vignettes are a natural fit for our research endeavour (Finch, 1987).

Our results imply xxx

Thus, the contribution of our paper is xxx Second, we derive practical implications both for companies introducing PA and for xx

# Related Work and Theoretical Foundations

In this section, we review the current state of research on PA and subsequently address the concept of responsibility as well as the growing importance of managers acting and being responsible in the light of increasing use of algorithmic systems at the workplace.

## People Analytics

Approaches to algorithmic human resource management have been a trend in HR for more than a decade (Aral et al., 2012; Barrett and Oborn, 2013; Harris et al., 2011; Ingham, 2011). While the systems have developed slowly in the past and have not played a prominent role in especially European countries, the last few years have witnessed a considerable increase in the popularity of PA (Edwards et al., 2022; Leonardi, 2021; Tursunbayeva et al., 2022). Following the onset of the COVID-19 pandemic and the resulting decentralisation of the workplace, changes in the world of work have occurred that would have likely transpired over a much longer length of time in the absence of the pandemic. This has not only given employees new tasks, such as an increased need for self-organisation, but it has also posed a challenge for managers directing decentralised teams and collaborating with new algorithmic technologies (Bryce et al., 2022; Leonardi, 2021). While the challenges and risks of this situation for employees are increasingly becoming the focus of attention across studies from various disciplines, the influence of algorithmic systems on managers has received little, and so far, mainly theoretical, attention (Becker et al., 2023; Klöpper and Köhne, 2023) WEITERE QUELLE .

Exploring PA’s impact on employees, a number of empirical studies has been conducted. Höddinghaus (2021) and colleagues, for example, investigate employees' potential trust in algorithmic decision-making systems. Zhu (2021) and colleagues examine employees' reactions to the implementation of AI systems in the workplace, whereas Klöpper (2023) looks at employees' perception of their employer when faced with the implementation of algorithmic systems for personnel management at their workplace. Also from the standpoint of employees, Tomprou and Lee (2022) investigate how the use of algorithmic systems influences employment relationships. The extant literature on the influence of algorithmic systems on workers covers a wide range of industries as well. The majority of research, though, continues to focus on the employment of algorithmic systems in gig or platform work, such as Uber, Lyft or Deliveroo (Cram et al., 2022, i.e. 2020; Möhlmann et al., 2021; Tarafdar et al., 2023; Wiener et al., 2023), as the systems originated and are currently most widely applied in this setting (Becker et al., 2023; Jarrahi et al., 2021). However, the use of algorithmic management in traditionally office-based professions has expanded rapidly in recent years, resulting in an increase in the number of scholarly research dealing with this context (Edwards et al., 2022; Margherita, 2022; Tursunbayeva et al., 2022). Whilst the overall amount of empirical research is increasing, the majority of literature on PA still remains of theoretical nature (Edwards et al., 2022; Gal et al., 2020; Klöpper and Köhne, 2023; Tursunbayeva et al., 2022).

Literature on PA can also be found in various disciplines. In addition to research from the IS community, PA is, amongst others, also an established topic in the field of organisation and management (Edwards et al., 2022; i.e. Kellogg et al., 2020; Meijerink et al., 2021), and it is increasingly being discussed in law (Adams-Prassl, 2022; Aloisi and De Stefano, 2022; i.e. Aloisi and Gramano, 2019), and ethics (Bryce et al., 2022; Hosseini et al., 2023) MEHR QUELLEN. Both research from law and ethics is frequently concerned with the question of responsibility in the context of automated decision-making.

Theoretically, PA could be used to strengthen the rights of employees. If neutral algorithms filter CVs, discrimination can be prevented QUELLE. If productivity is measured by meaningful metrics across all employees, all people are valued equally for equal performance – this could benefit minorities or women, whose performance is frequently ranked lower than men's (Klöpper and Köhne, 2022). Tracking working hours through the systems might also be used to discover and document overtime, which could aid the works council (Lee et al., 2021). However, at the moment, these theoretical benefits are frequently accompanied by very real risks. Aloisi (2022) argues, that advocates of algorithmic systems tend to compare the risks of algorithmic decision making against the worst possible decision humans could derive, which makes those risks look more acceptable, but this comparison is indeed a fallacy.

Practically, algorithms are usually not neutral and value-free due to the training data on which they are based, and examples of discrimination by algorithmic systems are becoming increasingly common. A variety of metrics are presently utilised across different PA software suppliers to quantify productivity and performance, many of which are dubious to say the least. The monitoring of overtime to relieve workers can also take place without PA and the associated risks and continuous surveillance.

Resistance against the usage of algorithm-driven systems is on the rise (Jiang, 2023). It is increasingly being recognised under the catchword "algo-activism" as a phenomena in scientific literature (Weber, 2023) MEHR QUELLEN. This type of protest against the systems, or more specifically, against the ethical and social implications the systems hold, can take several forms. Forms of algo-activism against monitoring remote workers, for example, were very popular in the during the first phase of the COVID-19 pandemic, when an unprecedented number of people worked from home and systems like Skype for Business or Microsoft Teams, which display users as active as long as the mouse is moving, were increasingly used. Employees quickly discovered that the courser of their computer-mouse can be manipulated: An analogue wristwatch placed under the motion sensor of a computer mouse keeps the courser in motion by constantly moving the second hand. Doing so will lead to the user being displayed as always active. There are now computer programmes that can detect such unnatural movements of the computer mouse, as well as systems that automatically move the computer mouse in a more natural way MEHR QUELLEN. Employees have also started to include unnecessary tasks into their work routines, so that the systems track them as being productive – which in reality leads to employees neglecting other, more necessary tasks (Kantor and Sundaram, 2022) MEHR QUELLEN. This renders analyses made by PA systems useless.

Algorithms are increasingly performing managerial duties that were traditionally performed by middle or senior management and involved human decision-making (Gal et al., 2020; Parent-Rocheleau and Parker, 2021). By being able to replace expertise, algorithmic management can transform organisations (Holmström and Hällgren, 2021). PA's role as a mediator both challenges and redefines the dynamics, relationships, and communication between managers and employees (Jarrahi et al., 2021; Klöpper and Köhne, 2023; Tarafdar et al., 2023).

Employee leadership has evolved in accordance with humanistic principles in recent decades (QUELLE). Many organisations currently favour flat hierarchies and a corporate culture in which all employees are on first-name terms with one another (QUELLE). However, the usage of PA drastically opposes many humanistic concepts, as employees are solely represented as quantitative data in the systems and the systems are potentially not free of harmful biases that may lead to discrimination (Tursunbayeva et al., 2022). According to preliminary research, the usage of PA might be able to considerably entrench workplace hierarchies once again (Klöpper and Köhne, 2023). Those hierarchies could be more pronounced than they have been before, even if they are not what companies are trying to achieve (Aloisi and Gramano, 2019).

## Responsibility

Responsibility is an important and fundamental concept both in everyday human life and in research literature. Yet, responsibility has become a buzzword in everyday use, such as in advertising, where it is often used interchangeably with the term sustainability - responsible materials, responsible commerce, responsible food consumption – which makes it harder for people to grasp the meaning of *responsibility* or to recognize greenwashed responsibility-claims from proper responsibility. The overuse of concepts like sustainability and responsibility, as well as the increasing emptiness of the terms' content as a result of their inflationary use, have lately been characterised as misleading. In 2023, the EU proposed a regulation that, if implemented, will prevent brands from using these and similar terms in advertisements unless there are well-founded research that establish they are not deceptive QUELLE)..

Responsibility has been subject of numerous studies of various disciplines including IS literature. Especially with regard to new autonomous systems, IS research focuses on the importance of responsibility. For example, Rowe (2023) and colleagues investigate autonomous driving systems and derive recommendations which include notions on moral and legal responsibility;

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The term "responsible" is in itself ambiguous; on the one hand, it might suggest that someone has behaved responsibly – which is almost always connotated in a positive way – but it can also mean that someone is responsible for a specific outcome – which is often connotated negatively. Thus, *being responsible* and *acting responsible* are not identical (Nordbye and Teigen, 2014).

Additionally, in organisational literature, Hackman and Oldham (1976) discussed the concept of felt responsibility. According to their fundamental research, individuals will be more concerned with output quality, if they will feel responsible for the outcome (Pearce and Gregersen, 1991).

The importance of managers acting in a responsible fashion can also be grounded in their key-role in the acceptance of IS systems. For instance, a certain level of managerial support is helpful to enable adequate resource allocation in order to create a more conducive environment for IS (Igbaria et al., 1997). Managers have also an influential role when it comes to the adoption and use of IS systems (Dong et al., 2007). Literature highlights three factors that describe how managers as organisational factors affect the adoption of IS systems: significance, legitimation and dominance (Orlikowski, 1992). Significance involves managers developing norms and values, which provide users with a foundation for cognitive interpretations of a new information system. Legitimisation occurs when managers validate expected user behaviours, serving as templates for users to guide their cognitive understanding of the new system. Domination entails management developing regulations that specify norms and procedures for users to follow (Dong et al., 2007; Orlikowski, 1992; Scott, 2008). The concept of responsibility entails aspects of those factors: As Stahl (2006, p. 2) points out, responsibility can be described as the “*ascription of an object to a subject*.” The subject is a person who is responsible for something, whilst the object is, what the person is responsible for. At its core, this ascription is a social process. Nevertheless, this social process might need motivation, which usually comes in the form of sanctions and normative rules. In the organisational context, these sanctions and rules are often established by and implemented through managers. If managers perceive recommendations of PA systems as responsible, they will promote the use of the systems and put a higher emphasise on following the recommendations.

In the interests of protecting employees, some legislations prohibit certain functions of PA, that are otherwise technically possible. Hence, PA systems are not used in the same way across the globe. While the use of the systems is restricted in the EU, where the systems are considered a high-risk use of artificial intelligence, and where individual countries, such as Germany, have enacted their own laws to protect employees, the use of the systems in the US, for example, is subject to completely different mechanisms. In the worst-case scenario, managers' responsible handling of PA is thus one of the immediate protection measures against harmful implications for employees induced by the systems.

## Norm Theory

Norms have two main functions: the representation of category-knowledge owned by a person and the interpretation of experiences a person already lived through (Kahneman and Miller, 1986). Kahnemann and Miller (1986) argue that a stimulus being in line with a norm is processed after the person experiences the stimulus, rather than a preconceived opinion. In the field of managerial decision-making, it is usually possible to identify a norm - that is, a behaviour that has become established among managers - as well as a deviation from this norm. This norm may be applicable to a specific organisation or be standardised behaviour for managers that is taught in standardised training courses. When people follow particular norms, this is rarely questioned, but divergence from the norm is. Even when people move out of their usual routines in their personal lives, many questions arise. However, when determining how positively or negatively this maintenance of the status quo or deviation from the norm is rated, it is not necessarily the changed behaviour that plays a role, but also the outcome of the chosen behaviour. When people move into a negative scenario with their routine behaviour, the inactivity, the non-deviation from the norm, is evaluated as negative. On the other hand, when people break from the norm and potentially engage in doing something risky, this is viewed positively if the outcome is positive. For example, a young woman who risks everything and founds a start-up is likely to be criticised for her behaviour if the start-up fails, and praised if the start-up is a success, even if their behaviour in the course of founding the start-up were exactly the same. The association between a negative reaction to unaltered behaviour and a negative outcome is also known as inaction bias (Kahneman and Tversky, 1982). However, additional research found that the existence of an inaction bias is depending on the context of the situation. In situations where active intervention is the norm, the opposite of the inaction bias can take place (Patt and Zeckhauser, 2000).

**Research Gap** –In sum, according to the literature review, a major risk of PA is that managers may not notice poor quality of results provided by the systems. This can result in negative consequences for employees and, in the long run, for the managers themselves. However, due to the lack of transparency of the systems, assigning responsibility for unfavourable outcomes is becoming increasingly difficult. Managers and their responsible behaviour are often a further instance to protect employees and organisations from the implementation of misled decisions. Yet, research investigating managers' responsibility is lacking. Furthermore, research on organisational responsibility shows that workers who feel responsible are more concerned about outcome quality. In our study, we combine these findings to investigate an essential but still missing piece of the debate over PA and management: *being responsible* and *acting responsibly* in the context of PA supported managerial decision-making.

# Research Design and Hypothesis Development

The aim of our study is to explore managers perceptions of acting and being responsible in the context of growing PA usage to support managerial decision making. As the aim of our study thus is of explorative nature, we choose to conduct a vignette study. Vignette studies are a well-established and appropriate tool for addressing normative questions (Finch, 1987). Whilst the method is highly established in the social sciences, and less common in IS, researchers from the field of IS have used vignettes to explore an array of normative issues, for instance: dysfunctional information systems behaviours (Djajadikerta et al., 2015) or users’ behaviour in deciding when to learn new technologies (Loraas and Wolfe, 2006). A recent review of vignette studies in IS concludes that vignettes are a useful technique and have been featured in top IS journals (Klotz et al., 2022).

We adapt four vignettes that have been used in earlier research on responsibility judgements in managerial decision-making (Nordbye and Teigen, 2014). The vignettes describe four qualitatively distinct scenarios, in all of which managers were faced with a decision between an active option and a more passive approach. In line with norm theory (Kahneman and Miller, 1986) as illustrated above, the passive approach represents the “normal” course of action, whilst the active approach equals a deviation from the norm. In line with the original study by Nordbye and Teigen (2014), we expect that managers who choose the active approach will be judged as being more responsible for both positive and negative outcomes than the managers who choose the passive approach. The behaviour of active managers, though, will be judged as less responsibly, meaning they acted in a manner that potentially put themselves or others at risk.

The vignettes show events that managers may be familiar with from their day-to-day work. The content of the vignettes includes choosing between a familiar and a new solution, sticking to a decision or changing the mind about it, following or going against advice, and lastly, which differs from the first three scenarios, contrasting two norms. Literature on employee’s perception of algorithmic management at the workplace does currently provides mixed results on how trustworthy or fair the systems are perceived (Höddinghaus et al., 2021; Lee, 2018; Newman et al., 2020; Tomprou and Lee, 2022). However, as the literature indicates, the perceptions of algorithmic systems are situational: algorithmic management is perceived to be fairer in situations that require more analytical skills rather than human skills (i.e., understanding emotions, showing compassion) (Lee, 2018). Whilst fairness of course differs from responsibility, we apply findings from fairness-based research to our highly exploratory study. We thus expect, that, differentiating between the situations described in the vignettes, the usage of PA will lead to different responsibility-ratings compared to the ratings of decisions that were made without PA usage. Specifically, we expect that the involvement of PA will negatively affect the judgements of how responsible the managers in the scenarios will feel in situations that require more analytical skills, whilst the in scenarios that involve more human skills, the involvement of PA will negatively affect the ratings of how responsibly a manager acted.

# Method

## Participants

We recruit participants via the online market research panel Prolific (Palan and Schitter, 2018). In this panel, participants initially sign up voluntarily and receive invitations to participate in (online) surveys and experiments. We chose a panel consisting of adult individuals, who are working and living in management positions where they supervise other employees. Further, the participants had to be residing in either Germany (46.7%) or US-America (53.3%). 180 participants finished the survey and passed all attention checks. We incentivize participants with monetary rewards for participation, and they spent, on average, 7.16 minutes (SD=1.65) in the entire survey. In our sample, 26.7% identify as female, the average (median) age is 38.4 (34) ranging from 22-78. With an algorithmic aversion mean of 5.13 (single item 7-point Likert scale), we reach a relatively neutral sample.

## Procedure and Material

We partially replicate the vignette study by Nordby and Teigen (2014): participants are shown four vignettes (Appendix 1) that describe decisions taken by two leaders A and B. Our study has four rounds with 2 steps each. In each round, participants are shown a new vignette (Appendix A).

In step 1, participants are asked to read the vignette and to indicate how risky they consider the decisions of the leaders. We changed the wording depending on the treatment (Table X): Treatments 1 and 2 included the information that both leaders use a People Analytics system, while treatments 3 and 4 stated that there is no People Analytics system available in the workplace.

In step 2, participants are informed about the outcome of the decision of leader A and leader B. Depending on the treatment (Table X), the outcome for both decisions is negative or positive. Participants are then asked, for each leader, whether they think that the leader will feel responsible for the outcome and whether they think the leader acted responsibly, ethically and professionally.

Following Nordby and Teigen (2014), we showed half our sample positive outcomes for vignettes 1 and 4 and negative outcomes for vignettes 2 and 3; and vice versa for the other half of our sample.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Outcome | |
|  |  | Positive | Negative |
| People Analytics employed | Yes | Treatment 1 | Treatment 2 |
| No | Treatment 3 | Treatment 4 |

# Results

Our main research question is whether and how using people analytics systems affects managers’ perceptions of responsibility and responsible behaviour in leadership situations.

When we compare average perceptions across all treatments, we find that managers perceive leaders who use a people analytics system to acting more/less responsible than leaders who do not (Mann-Whitney-U test, ….). Conversely, they think that leaders who use a people analytics system will feel less/more responsible than leaders who do not (Mann-Whitney-U test, …). Following Nordby and Teigen (2014), who found that perceptions varied by vignette and outcome, we investigate whether and how people analytics usage changes manager perceptions in line with our expectations. We use a mixed-effects regression with fixed participant effects.

Model 1: PA only + FE

Model 2: PA \* outcome + FE

Model 3: PA \* outcome \* Vignette + FE

Model 4: PA \* outcome \* Vignette + FE

Model 5: PA only + risky + gender + country + FE

Model 6: PA \* outcome \* Vignette + risky + gender + country + FE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable | AR |  | FR |  |
|  |  |  |  |  |
| Intercept | **4.194** | **\*\*\*** | **5.579** | **\*\*\*** |
|  | (.336) |  | (.353) |  |
| outcome positive | .425 | **\*** | .046 |  |
|  | (.220) |  | (.232) |  |
| pa available | -.082 |  | **-.385** | **\*** |
|  | (.221) |  | (.232) |  |
| active teamlead | .316 |  | **-1.825** | **\*\*\*** |
|  | (.197) |  | (.208) |  |
| outcome positive × pa available | .259 |  | .544 |  |
|  | (.341) |  | (.359) |  |
| pa available × active teamlead | .182 |  | **.673** | **\*\*** |
|  | (.279) |  | (.295) |  |
| outcome positive × active teamlead | .256 |  | **1.094** | **\*\*\*** |
|  | (.279) |  | (.294) |  |
| outcome positive × pa available × active teamlead | -.453 |  | **-1.335** | **\*\*\*** |
|  | (.396) |  | (.418) |  |
| residuals PR | **-.392** | **\*\*\*** | **.159** | **\*\*\*** |
|  | (.033) |  | (.035) |  |
| algo aversion | **.102** | **\*** | .086 |  |
|  | (.057) |  | (.060) |  |
| gender female | .422 | **\*\*\*** | **.373** | **\*\*\*** |
|  | (.158) |  | (.165) |  |
| C(scenario)[T.2] | **-.482** | **\*\*\*** | **-.482** | **\*\*\*** |
|  | (.140) |  | (.148) |  |
| C(scenario)[T.3] | -.170 |  | .196 |  |
|  | (.140) |  | (.148) |  |
| C(scenario)[T.4] | **-.778** | **\*\*\*** | -.094 |  |
|  | (.139) |  | (.147) |  |
| participant Var | .208 |  | .226 |  |
|  | (.051) |  | (.050) |  |
| Observations | 720 |  | 720 |  |
| Residual Std. Error | 1.280 (df=706) |  | 1.350 (df=706) |  |
| AIC | 2525.24 |  | 2601.26 |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Scenario | 1 |  |  |  | 2 |  |  |  | 3 |  |  |  | 4 |  |  |  |
| DV | AR |  | FR |  | AR |  | FR |  | AR |  | FR |  | AR |  | FR |  |
| 1 | participant | .003 |  | -.004 |  | -.006 |  | -.001 |  | -.006 | **\*** | -.000 |  | -.001 |  | .002 |  |
|  | (.003) |  | (.004) |  | (.004) |  | (.004) |  | (.004) |  | (.004) |  | (.005) |  | (.005) |  |
| Intercept | 4.120 | **\*\*\*** | 5.085 | **\*\*\*** | 3.147 | **\*\*\*** | 6.113 | **\*\*\*** | 4.469 | **\*\*\*** | 5.574 | **\*\*\*** | 4.559 | **\*\*\*** | 5.016 | **\*\*\*** |
|  | (.501) |  | (.573) |  | (.623) |  | (.593) |  | (.520) |  | (.553) |  | (.754) |  | (.720) |  |
| active\_teamlead | .850 | **\*\*** | -1.900 | **\*\*\*** | 1.440 | **\*\*\*** | -3.320 | **\*\*\*** | .360 |  | -1.000 | **\*\*\*** | -1.950 | **\*\*\*** | -.800 |  |
|  | (.367) |  | (.419) |  | (.423) |  | (.402) |  | (.353) |  | (.376) |  | (.552) |  | (.527) |  |
| algo\_aversion | .020 |  | .163\* |  | .160 | **\*** | .054 |  | .110 |  | .093 |  | .101 |  | .038 |  |
|  | (.072) |  | (.083) |  | (.093) |  | (.089) |  | (.078) |  | (.083) |  | (.109) |  | (.104) |  |
| outcome\_positive | .755 | **\*\*** | .407 |  | .541 |  | -.144 |  | .177 |  | .141 |  | -.216 |  | -.107 |  |
|  | (.373) |  | (.426) |  | (.422) |  | (.402) |  | (.353) |  | (.375) |  | (.561) |  | (.536) |  |
| outcome\_positive × active\_teamlead | -.166 |  | 1.058 | **\*** | .175 |  | 1.897 | **\*\*\*** | .217 |  | .192 |  | 1.266 |  | 1.116 |  |
|  | (.526) |  | (.601) |  | (.592) |  | (.564) |  | (.495) |  | (.526) |  | (.790) |  | (.755) |  |
| outcome\_positive × pa\_available | -.571 |  | .081 |  | .722 |  | .949 |  | .900 | **\*** | -.060 |  | 1.211 |  | .831 |  |
|  | (.498) |  | (.569) |  | (.641) |  | (.610) |  | (.536) |  | (.570) |  | (.748) |  | (.715) |  |
| outcome\_positive × pa\_available × active\_teamlead | .790 |  | -.803 |  | -.865 |  | -1.265 |  | -1.075 |  | .881 |  | -2.527 | **\*\*** | -3.059 | **\*\*\*** |
|  | (.698) |  | (.798) |  | (.900) |  | (.856) |  | (.752) |  | (.799) |  | -1.050 |  | -1.003 |  |
| pa\_available | .317 |  | .096 |  | -.309 |  | -.865 | **\*\*** | -.881 | **\*\*** | -.121 |  | -.469 |  | -.186 |  |
|  | (.348) |  | (.398) |  | (.457) |  | (.435) |  | (.382) |  | (.406) |  | (.524) |  | (.500) |  |
| pa\_available × active\_teamlead | -.235 |  | .285 |  | .349 |  | .688 |  | .798 |  | -.474 |  | 1.412 | **\*** | 1.223\* | \* |
|  | (.488) |  | (.558) |  | (.643) |  | (.612) |  | (.538) |  | (.572) |  | (.734) |  | (.701) |  |
| gender\_female | .356 | **\*** | .488 | **\*\*** | .278 |  | .195 |  | .635 | **\*\*\*** | .251 |  | .387 |  | .597 | \*\* |
|  | (.202) |  | (.231) |  | (.261) |  | (.248) |  | (.218) |  | (.232) |  | (.304) |  | (.291) |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Observations | 180 |  | 180 |  | 180 |  | 180 |  | 180 |  | 180 |  | 180 |  | 180 |  |
| R2 | .197 |  | .328 |  | .286 |  | .483 |  | .191 |  | .164 |  | .167 |  | .105 |  |

Table 1. Results of regression analysis. \*\*\* p < .001; \*\* p < .01; \* p < .05.

*Figure 1. Mean judgements.*

**People Analytics**. The effect is not/stable across…

**Gender**. There is XYZ effect of gender on perceptions.

**Country**. German and US managers XYZ …

**Vignette**.

We conducted the same regressions with “acting ethically” and “acting professionally” as dependent variables. The results are not/in line with our findings on “acting responsibly”

# Discussion

**Theoretical Contribution**

To the best of our knowledge, our study is the first to empirically address the concepts of *being responsible* and *acting responsibly* in the context of PA and leadership. We are thus adding an important aspect to the existing research on this currently highly topical issue. While there is an increasing number of empirical research on PA, each delivering relevant insights on their specific themes, our study adds to the discourse on how managers who have to work with the systems might perceive them.

Another insight from our study is, that female identifying participants made significantly different judgments compared to the male identifying participants.

**Practical Contribution**

The findings of our study provide crucial insights into how managers’ skill sets must adjust in the Future of Work. The use of algorithmic systems that deliver data-driven assessments and action recommendations is expanding. Our research implies that managers must have an increasingly complex array of values and norms in addition to a strong understanding of statistics and the risks associated with dealing with automated systems. The risks posed by PA are often not directly caused by the systems, but by incorrect or unethical use of them. Managers must be aware of this and, in case of doubt, be able to recognise discrimination or unethical and unfair system decisions. This requires a rethink in the world of work and demonstrates the importance of a greater emphasis on diversity and inclusion.

There is a historically grown discussion about the possibility of job loss for employees due to increasing automation. Not only science and research are involved in this with numerous studies on re-qualification and the learning of new skills for employees. Public authorities and organisations are also dedicated to the retraining of employees. Our study adds to this discourse by demonstrating that managers must also adapt to the workplace in the Future of Work. They need a new skill set that not only enables them to understand and scrutinise statistics and analyses. They must also have stronger interpersonal skills, a greater understanding of which groups are at danger of discriminating through systems, and the ability to identify risks for them.

**Limitations and Future Work** – Our study is a first exploratory step towards understanding PA's influence on (perceived) responsibility in managerial decision making. However, like all studies, our study has natural limitations. First, in terms of sample, the generalisability of our results is subject to the limitation of an entirely German and US-American sample. We chose the two extreme ends of PA system regulation within the setting of our investigation with these two groups. A more varied selection of participants in studies is a critical next step. For example, the usage of systems in the EU, where the EU AI Act addresses algorithmic systems in personnel management, may be compared to less the stringent rules in the US and also the UK. Second, our study deals with hypothetical scenarios. Managers may evaluate the situation differently if they encountered them in regular life and at their own workplace rather than in a monetarily incentivised study environment. Furthermore, while our study's exploratory design is highly appropriate for our aims, it is nevertheless vulnerable due to this very exploratory nature. Based on the initial insights gained, the next important step is to deepen the findings in further studies.

# Conclusion

Appendix

~ 1 Seite TABELLE

**Vignette 1**

Choosing a familiar solution vs a new solution

Imagine two different HR projects. The leaders for both projects have access to a people analytics system at their workplace. Both projects face a problem that has different possible solutions. The leader for project A chooses a familiar solution that they have used before, while the leader for project B chooses a new solution.

**Vignette 2**

Following the recommendations of the management team vs finding own solution

Imagine two leaders, leader A and leader B, who both have access to a people analytics system at their workplace. Now, they both experience a big problem. Both of them present the problem to their leader groups. The problem is discussed and the two groups decide upon an advice for how their leader can solve the problem. Leader A chooses to follow the advice of their leader group, while leader B chooses not to follow the advice and to find their own solution.

**Vignette 3**

Choosing vs sticking with decisions based

Leaders often make decisions. Imagine a situation where two leaders, who both have access to a people analytics system at their workplace, independent of each other, have to take an important decision. They both choose initially one of two possible solutions. After further considerations, leader A chooses to hold onto the original decision, while leader B changes their mind and chooses the other option.

**Vignette 4**

“Wait and see” vs intervening in a conflict between employees

Imagine a situation where two leaders, independent of each other, are starting to suspect that there is a problem among their employees. They both have access to a people analytics system at their workplace. They have a choice between two possible ways of handling the situation. They can either take action and confront their employees with the issue and actively try to solve the problem, at the risk of creating a lot of trouble and unpleasant attention to a problem that might really just been minor. Or they can wait and see how it all develops, at the risk of the problem growing large and difficult to handle later on. Leader B chooses to actively solve the problem, while leader A awaits to see if blows over by itself.

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