

Sustainable HRM as a driver for innovative work behavior

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Executive summary

This research explores the relationship between sustainable Human Resource Management (HRM) practices and innovative work behavior, considering work engagement as a mediator. The study addresses a significant knowledge gap regarding how sustainable HRM practices impact innovative work behavior and work engagement within organizations. While prior research has examined these concepts separately, their interplay and mechanisms remain unclear. Furthermore, this study seeks to provide insights on whether sustainable HRM practices can drive innovative work behavior, which is valuable for HR managers and organizational leaders striving to foster innovation and sustainable practices.

The research employs a quantitative approach, using a structured questionnaire to collect data from employees currently working under contracts in the Netherlands. The sample includes 88 usable responses from diverse industries in the Netherlands. Measures used encompass the three dimensions of sustainable HRM (respect-oriented, openness-oriented, and continuity-oriented), innovative work behavior facets (idea exploration, idea generation, idea championing, and idea implementation), and work engagement dimensions (vigor, dedication, and absorption).

The analysis of the gathered data reveals no significant direct relationship between sustainable HRM dimensions and innovative work behavior. However, there is a statistical significance proving a link between sustainable HRM dimensions and work engagement. However, work engagement does not mediate the link between sustainable HRM and innovative work behavior, as there is no relationship found between work engagement and innovative work behavior.

The results advocate for continued integration of sustainable HRM practices by HR departments, despite the lack of direct relationship with innovative work behavior. The reason for this, is that this study proves that sustainable HRM practices demonstrate a positive link with work engagement, which contributes to employee well-being and organizational success.

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1 Introduction

1.1 Context & problem formulation

Nowadays, organizations constantly need to adapt to rapidly changing circumstances such as technological advancements and global competition (Lin, Zeng, Liu, & Li, 2020). As a result of this, these organizations need continuous innovation to create organizational longevity and success (Stoffers, van der Heijden, & Schrijver, 2019). In general, these innovations depend heavily on employees' expertise, knowledge and commitment (Chen & Huang, 2009). Consistent with this, employees' innovative work behavior is considered as essential for organizational survival (Bani-Melhem, Zeffane, & Albaity, 2018) and a key resource for creating sustainable organisations and maintaining a competitive advantage (Lin et al., 2020). Although the importance of innovative work behavior for the survival of firms is clear, innovative work behavior still receives less attention than group or firm innovation (Bani-Melhem et al., 2018).

Innovative work behavior is defined as "the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization" (Janssen, 2000, p. 288). An important concept for organizations to understand is: what drives innovative work behavior? Fragmented knowledge may negatively affect organizations. The reason for this, is that it restricts the organization's ability to innovate because they are not able to spark employees such that it will encourage them to show innovative work behavior (Bos-Nehles, Renkema, & Janssen, 2017). Recently, several studies on characteristics that shape and stimulate innovative work behavior have started analysing Human Resource Management (HRM) as a bundle of practices, as it is a primary means by which organisations can influence and shape the behaviors of employees (Stankevičiute, Staniškiene, & Cigane, 2020).

HRM can be defined as a strategic and coherent approach to the effective and efficient management of people in a company or organization such that they help their business gain a competitive advantage (Collings, 2018). Currently, the knowledge on how HRM drives innovative work behavior is still fragmented and inconsistent (Bos-Nehles et al., 2017). An approach on HRM that emerged in the last decade is sustainable HRM. This approach stems from strategic HRM, and explicitly recognises the impact people management policies have on both human and financial outcomes, as well as the possibility of the negative impacts on human, social and ecological/environmental outcomes (Kramar, 2014). Sustainable HRM differs from mainstream HRM on three different dimensions: respect, openness and continuity (De Prins, van Beirendonck, de Vos, & Segers, 2014). Here, respect encompasses acknowledging and valuing others by recognizing them, comprehending and valuing individuals, actively listening and addressing needs, highlighting positive traits of others, and communicating requests rather than imposing demands (Carmeli, Dutton, & Hardin, 2015). Openness implies the adoption of stakeholder perspective to HRM, while continuity embodies a prolonged outlook from the perspective of both organizational and employee relationships (De Prins et al., 2014). Sustainable HRM can be defined as "the adaptation of HRM practices and strategies that enable them to achieve the financial, ecological and social goals

of the organization over a long term horizon, while controlling for negative feedback and unintended side effects" (Manzoor, Wei, Bányai, Nurunnabi, & Subhan, 2019, p. 3). Furthermore, sustainable HRM is more than only an antecedent for innovative work behavior, or innovation in general. (Sustainable) HRM practices are crucial for the implementation of innovation in an organization. Treating employees as valuable assets can bring the firm competitive advantage through high-quality skills, adaptability and commitment. This is necessary to react to the organizational change that innovation creates (Wikhamn, 2019). Concrete examples of such sustainable HRM practices, considering the ROC-model (Janssen, 2000), are: open communication by supervisors (Ma Prieto & Pilar Pérez-Santana, 2014), a reasonable workload for employees (H.-W. Lee, 2019) and providing career opportunities for young people (Diaz-Carrion, López-Fernández, & Romero-Fernandez, 2018). Additionally, questioning whether an organization should focus on applying certain HR policies to facilitate innovative work behavior, is labeled as an area for future research (AlEissa & Durugbo, 2022). From previous studies only the study by Stankeviciute et al. (2020) considers the sustainability dimension in HRM as a driver for innovative work behavior. This means that there is very limited research available on this topic. Furthermore, will the research performed in this paper be the first to examine the link between sustainable HRM and innovative work engagement with the addition of a mediator.

A mediator is an additional variable in the path between the input variable (sustainable HRM) and the ourput variable (innovative work behavior). The reason that this variable is implemented in this study, is that there is a possibility that the direct relationship between sustainable HRM and innovative work behavior is more complex, and results do not directly show a relationship. A mediator value could potentially help describe this relationship. The mediator value in this study is chosen to be work engagement, as earlier studies have already proven that sustainable HRM has a positive link with work engagement (Abu-Mahfouz, Sobihah Abd Halim, Suriawaty Bahkia, Alias, & Malek Tambi, 2023; Lulewicz-Sas, Kinowska, & Fryczyńska, 2022), and work engagement on its turn drives innovative work behavior (Agarwal, 2014; Jason & Geetha, 2021; Jia et al., 2022).

1.2 Research question

There is a very limited amount of existing research on sustainable HRM as a driver for innovative work behavior. The research objective of this study is to close the existing gap by adding reliable research to the currently only available study on sustainable HRM as a driver for innovative work behavior, and by adding the insight on the mediation of work engagement between sustainable HRM and innovative work behavior. Practically, this research seeks to provide more insight on the link between sustainable HRM practices and innovative work behavior, which could help firms choose whether to implement these practices in their HRM to stimulate innovative work behavior and subsequently innovation as a whole. The main research question that emerges is:

Main research question

- How do sustainable HRM practices associate with employees' innovative work behav-

ior?

Two research sub-questions are formulated to guide the research towards a deeper understanding on the link between sustainable HRM and innovative work behavior.

Sub-questions

1. How do the dimensions of perceived sustainable HRM, respect-, openness- and continuity-oriented HRM, associate with innovative work behavior?
2. What is the role of work engagement in the relationship between perceived sustainable HRM and innovative work behavior?

The first sub-question addresses the separate dimensions of sustainable HRM, and will help to specify how the different characteristics of sustainable HRM relate to innovative work behavior. Separating these dimensions can help firms practically to decide which sustainable HRM practices to implement first when they want to stimulate innovative work behavior. The second sub-question addresses the potential mediating effect of work engagement between sustainable HRM and innovative work engagement. Implementing this mediating effect can help to describe the link between sustainable HRM and innovative work behavior, as this link can possibly too complex to see a direct relation in the results.

1.3 Report structure

To answer the presented research questions, a literature review needs to be conducted first in order to get a thorough understanding of the concepts of sustainable HRM and innovative work behavior, and to formulate hypotheses. This literature review is presented in section 2 of this thesis proposal. Section 3 describes the research methodology, which is necessary to perform the research as it explains, among others, the data collection and data analysis methods. Section 4 presents the results of the study, which will be analyzed in Section 5, the discussion. Section 6 will give the practical implications of this research. Section 7 will present the limitations of this study, as well as recommendations for future research. Lastly, section 8 will wrap this paper up with a conclusion.

2 Literature review

In this section, the findings of the literature review are presented. Each subsection focuses on a different subject related to the research objective. The subsections are Innovative work behavior, Sustainable HRM, HRM as antecedent of innovative work behavior, The role of work engagement in the relationship between sustainable HRM and innovative work behavior and the chapter is closed by a conclusion of the literature review.

2.1 Innovative work behavior

The research on innovative work behavior was started by West and Farr in 1989. During the past decade, there has been a massive increase in research on innovative work behavior in an attempt to comprehend its causes and effects (Peerzadah, Mufti, & Majeed, 2023). Innovative work behavior is widely claimed to be crucial for the effective functioning and long-term survival of organizations (Janssen, 2000). Janssen (2000, p. 288) defines innovative work behavior as “the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization”. De Jong & Den Hartog (2008, p. 5) have a similar vision for innovative work behavior, referring to it as “individual’s behavior that aims to achieve the initiation and intentional introduction (within a work role, group or organization) of new and useful ideas, processes, products or procedures”. In line with the previous definitions of innovative work behavior, Messmann & Mulder (2012, p. 45) describe the construct as “the sum of physical and cognitive work activities carried out by employees in their work context, either solitarily or in a social setting, in order to accomplish a set of tasks that are required to achieve the goal of innovation development”. Additionally, Lukes and Stephan (2017) debated that innovative work behavior implies the behaviors through which employees adopt or generate new ideas, and consequently make efforts to implement these ideas. Examples of such behaviors include applying new work methods, searching out new technologies, securing resources to implement new ideas or offering new ways to achieve objectives (Yuan & Woodman, 2010). Previous studies have examined a number of personal and contextual factors as important antecedents that drive an employee’s innovative work behavior. Some examples of these are work engagement (Agarwal, 2014), co-worker support and workplace happiness (Bani-Melhem et al., 2018), organisational citizenship behavior (Stoffers et al., 2019), organisational support for innovation (Riaz, Xu, & Hussain, 2018) and leadership (Muchiri, McMurray, Nkhoma, & Pham, 2020).

Although innovative work behaviors are closely related to employee creativity, there is a difference (De Jong & Den Hartog, 2010). Creativity is defined as the creation of new and useful ideas regarding services, processes, products and procedures (De Jong & Den Hartog, 2008). According to Scott & Bruce (1994), creativity is about the production of novel and useful ideas while, at the same time, innovation is about the production or adoption of useful ideas, as well as the implementation of ideas. Generally, creativity primarily occurs in beginning of innovation processes (West, 2002). This means that creativity can be seen as a vital element of innovative work behavior, which is most present at the early stages of the innovation process when problems are identified and ideas are created as a reaction to a

perceived need for innovation (De Jong & Den Hartog, 2010; West, 2002).

Innovative work behavior is vital in enabling organizations to accommodate to swift changes, gain a competitive advantage, and generate a sustainable organization (Stankevičiute et al., 2020). Innovative work behavior is bounded to intentional attempts to create benefits from new changes (West, 2002). Organizations can benefit from innovative work behavior in multiple ways, such as better organizational functioning, higher employee well-being (Janssen, 2000) and employees doing more than described in their job description (Dorenbosch, Engen, & Verhagen, 2005), as innovation goes beyond the responsibilities prescribed in a job description (Park & Jo, 2018). Furthermore, employees' innovative work behavior is acknowledged as crucial for organizations to survive (Bani-Melhem et al., 2018) and a fundamental resource for establishing sustainable organisations and preserving a competitive advantage (Lin et al., 2020). In conclusion, creativity and innovation are different from each other, but both vital to innovative work behavior. In its turn, innovative work behavior is crucial for organisational survival. In the remainder of this section is explored how the construct innovative work behavior can be translated into a tangible model that can be used for the research in this paper.

2.1.1 Taxonomies of innovative work behavior

There are multiple models and frameworks describing innovative work behavior. Some examples of these are the determinants of innovative work behavior model by Ramamoorthy et al. (2005) and the measuring innovative work behavior model by De Jong and Den Hartog (2010). The model by Ramamoorthy et al. considers pay, meritocracy, equity, procedural justice perceptions and job autonomy as variables for innovative work behavior. De Jong and Den Hartog split innovative work behavior into four dimension: idea exploration, idea generation, idea championing and idea implementation. For the research in this paper, the measuring innovative work behavior model by De Jong and Den Hartog is chosen as framework to represent innovative work behavior. The reason for this, is that the four dimensions described by De Jong and Den Hartog cover much more antecedents that can influence innovative work behavior than the variables mentioned by Ramamoorthy et al. This is clarified further in the next paragraph, where there will be elaborated on the dimensions mentioned by De Jong and Den Hartog. Furthermore, unlike the model by Ramamoorthy et al., is the model by De Jong and Den Hartog designed with the purpose of measuring innovative work behavior, which is exactly what it will be used for in the research for this paper.

Based on research by De Jong and Den Hartog (2010), innovative work behavior can be distributed into four dimensions. These dimensions are idea exploration, idea generation, idea championing and idea implementation. The first dimension, idea exploration, is about the phenomenon that innovation is usually triggered by the recognition of a new opportunity (Kanter, 2000). Opportunities can be found in incongruities and discontinuities, conditions that provide signs that trends may be changing or do not fit the expected patters (Drucker, 1986). This means that an opportunity for change and improvement is the outcome of the comprehension and recognition of problems and needs in an employee's work context (Messmann & Mulder, 2012). An example of an idea exploration practice is: wondering

how things can be improved (De Jong & Den Hartog, 2010). The second dimension, idea generation, can be explained as “the activation of innovation development by creating and suggesting ideas for products or processes that are new, applicable, and potentially useful for approaching the identified opportunities” (Messmann & Mulder, 2012, p. 44). This can be understood as successfully combining and reorganising information and existing concepts to improve the performance or to solve the existing problems, especially employing a perspective from a different angle (De Jong & Den Hartog, 2010). An example of an idea generation practice is: generating original solutions for problems (De Jong & Den Hartog, 2010). The third dimension, idea championing, is about the need for selling ideas, as most ideas need to be sold (Kanter, 2000). Selling is necessary because of the fact that the most ideas do not match with what is already used in organisations (De Jong & Den Hartog, 2010). Furthermore, although it may appear that ideas fill a performance gap and have some validity, it is uncertain if their benefits will exceed the cost of developing and implementing them, and resistance to change is to be expected (De Jong & Den Hartog, 2010; Kanter, 2000). Championing involves promoting “the ideas by convincing the social environment of the envisioned innovation and building a coalition of allies that take over responsibility and provide necessary information, resources, and support” (Messmann & Mulder, 2012, p. 44-45). An example of an idea championing practice is: attempting to convince people to support an innovative idea (De Jong & Den Hartog, 2010). The fourth dimension, idea implementation, involves creating an intellectual or physical prototype or model, investigating and improving its competence, planning its integration into organisational practices, and ultimately applying it within a work role, a group, or the entire organisation (De Jong & Den Hartog, 2010; Messmann & Mulder, 2012; Janssen, 2000). An example of an idea implementation practice is: contributing to the implementation of new ideas (De Jong & Den Hartog, 2010). In conclusion, for the research in this paper employees’ innovative work behavior will be measured through the four dimensions of idea exploration, idea generation, idea championing and idea implementation.

2.2 Sustainable HRM

Human Resource Management (HRM) is a well-known concept that traces back to the early twentieth century and is nowadays used in many companies, from start-ups to multinational corporations (Obedgiu, 2017). According to Collings et al. (2018), HRM can be defined as a strategic and coherent approach to the effective and efficient management of people in a company or organization such that they help their business gain a competitive advantage. There are multiple approaches to HRM, of which strategic HRM is the most dominant (Kramar, 2014). Strategic HRM was developed in late 1970s as a manner to manage employees in a turbulent and changing environment (Kramar, 2014). In the past two decades, sustainable human resource management emerged from the strategic HRM approach (Kramar, 2014). The reason for this was a growing attention for sustainability on business level, and as a consequence scholars started connecting sustainability to HRM introducing constructs such as sustainable HRM, green HRM and ethical HRM (Stankevičiute et al., 2020). In contrast with strategic HRM, sustainable HRM explicitly recognises the impact people management policies have on both human and financial outcomes, as well as the possibility of the negative impacts on human, social and ecological/environmental outcomes (Kramar, 2014). Addition-

ally, green HRM refers to sustainable HRM practices that have an ecological impact on the organization (Singh, Giudice, Chierici, & Graziano, 2020), while ethical HRM emphasized the sustainable HRM practices that imply that the organization will not only act in the interests of its employees, but also involve employees in decisions regarding those interests (Greenwood & De Cieri, 2007). Sustainable HRM can be explained as "the adaptation of HRM practices and strategies that enable them to achieve the financial, ecological and social goals of the organization over a long term horizon, while controlling for negative feedback and unintended side effects" (Manzoor et al., 2019, p. 3). According to De Prins et al. (2014), sustainable HRM differs from mainstream HRM on three different characteristics: A renewed focus on respect for the employees as internal stakeholders in the organization (respect); environmental awareness and outside-in perspective on HRM (openness); and a long-term approach, both in terms of economic and societal sustainability terms and with regard to individual employability (continuity). In line with these characteristics, De Prins et al. (2014, p. 189) defines sustainable HRM as "specific form of personnel management that is explicitly linked with the external environment of the organization, which is focused on respect of the human workforce and in which the interests of the employer, the workers, and the societal interests are balanced with each other". Additionally, there is scope for more empirical and/or conceptual research on sustainable HRM (Richards, 2022), which is addressed by the empirical research that will be performed in the next sections of this paper. From this paragraph can be concluded that sustainable HRM differs from general HRM on the three characteristics of respect, openness and continuity. Furthermore, sustainable HRM is a form of personnel management that emphasizes the balance between employer, employee and societal interests and is focused on respect of the human workforce.

2.2.1 Taxonomies of sustainable HRM

There are multiple models and frameworks describing sustainable HRM. Some examples of these are the sustainable HRM model presented by Kramar (2014) and the ROC-model presented by De Prins et al. (2014). In his model, Kramar builds upon Ehnert (2009) and considers organisational-, social-, individual- and ecological effects for sustainable HRM. In the ROC-model, De Prins et al. build upon the sustainable HRM definition of Kramar (2014), and define sustainable HRM in three concrete building blocks, earlier defined by De Lange & Koppens (2007). These building blocks are the three dimensions of respect, openness and continuity, which are derived from Elkington's (1994) planet, people and profit. In this research, the ROC-model is chosen as framework to represent sustainable HRM, as it gives the most complete and tangible representation of sustainable HRM.

Based on the ROC-model by De Prins et al. (2014), sustainable HRM practices are divided in three dimensions: Respect, Openness and Continuity. Respect represents a more clever and respectful approach towards human resources (De Prins et al., 2014). Respect encompasses acknowledging and valuing others by recognizing them, comprehending and valuing individuals, actively listening and addressing needs, highlighting positive traits of others, and communicating requests rather than imposing demands (Carmeli et al., 2015). According to De Prins et al. (2014), respect can be made more specific in constructs such as employee participation and health & safety at work. The second dimension, openness,

implies the adoption of stakeholder perspective to HRM (De Prins et al., 2014). The relationship between HRM and the external environment is emphasized by acknowledging societal trends such as diversity, the importance of work-life balance, and the aging society. This signifies that the organizational approach to addressing these labor market challenges is recognized (De Prins, 2019). According to De Prins et al. (2014), openness can be made more specific in constructs such as work-life balance and diversity management. The third dimension, continuity, embodies a prolonged outlook from the perspectives of both organizational and employee relationships. Long term survival is one of the organisational ambitions where sustainable HRM can contribute (De Prins, 2019). According to De Prins et al. (2014), continuity can be made more specific in constructs such as training & development and performance management & career planning. This means that companies that have implemented practices supporting the dimensions respect, openness and continuity in their HRM, have automatically implemented sustainable HRM. More concrete sustainable HRM practices for firms are for example: open communication by supervisors (participation) (Ma Prieto & Pilar Pérez-Santana, 2014), workplaces that fulfil safety requirements (health & safety) (Staniškienė & Stankevičiūtė, 2018), a reasonable workload (work-life balance) (H.-W. Lee, 2019), policies and programs promoting diversity in the workplace (diversity management) (H.-W. Lee, 2019), offering mentoring programs as part of employee training (training & development) (Diaz-Carrion et al., 2018) and providing career opportunities for young people (performance management & career planning) (Diaz-Carrion et al., 2018). In conclusion, the ROC-model will be used for the empirical research in this paper. The three dimensions of the ROC-model, respect, openness and continuity can be made more specific in practices such as participation, health & safety, work-life balance, diversity management, training & development and performance management & career planning.

2.2.2 Sustainable HRM and outcomes

Multiple studies have already investigated the consequences of sustainable HRM practices in firms. On an organizational level, it is already proven that sustainable HRM enhances a firm's capability to innovate, which can increase customer satisfaction (Wikhamn, 2019). More specifically, treating employees as valuable assets can bring the firm competitive advantage through high-quality skills, adaptability and commitment. This is necessary to react to the organizational change that innovation creates (Wikhamn, 2019). Sustainable HRM is also critical to employer competitive advantage, as it is key to attracting and retaining high quality-employees (App, Merk, & Büttgen, 2012). Further, multinational corporations have been linked to such good practice, with organisations of this type influential in setting sustainable HRM agendas in a wide range of international settings (Aust, Muller-Camen, & Poutsma, 2018). In a more general sense, Ehnert et al. (2016) identified how sustainable HRM leads to increased levels of health and safety, access to training to develop new and existing skills, improved prospects in terms of work-family balance and access to high-quality jobs. Besides this, sustainable HRM is also very influential for the employees on an individual level. Employees, particularly from non-mainstream groups, reported being treated more equitably (Blake-Beard, O'Neill, Ingols, & Shapiro, 2010) and experienced less discrimination (Zientara, 2009). Sustainable HRM has also been linked to reports of better treatment for a growing casualised workforce, with such practices helping to mitigate against

global-wide trends in labor market deregulation (Zhang, Bartram, McNeil, & Dowling, 2015). Further benefits include employees experiencing high levels of respect from line managers (Järnlström, Saru, & Vanhala, 2018), resulting in an improved social and productive climate between employees and managers (Jerome, 2013). Sustainable HRM reflects a commitment to going beyond regular HRM practice (Richards, 2022). So, sustainable HRM has been proven to be influential on both the organisational and individual employee level. This study seeks to add knowledge on whether sustainable HRM practices, on the individual employee level, drive innovative work behavior.

2.3 HRM as antecedent of innovative work behavior

Challenging the status quo through innovative ideas is a potentially risky employee behavior because it requires confronting superiors by presenting different perspective on workplace challenges (AlEssa & Durugbo, 2022). Previous studies confirm risk as a factor associated with innovation (Farr & Ford, 1990) and perceived risks prevent employees from utilizing innovative work behavior because such behavior tends to be difficult and perceived as complicated (Carmeli, Meitar, & Weisberg, 2006). According to AlEssa and Durugbo (2022), may potential future research propose work designs that improve an employee acceptance of risk and shifts employees' mentality from risk aversion to risk taking in innovative work environments that promote experimentation with learning from failure and mistakes. HR policies support these environments by offering guidelines for managing employees. These guidelines can form a brick wall preventing employees from or facilitate innovative work behavior (AlEssa & Durugbo, 2022). It has been shown that HR policies enhance organization outcomes (Bonias, Bartram, Leggat, & Stanton, 2010) and can have a huge impact on employees' innovative work behavior (Bos-Nehles et al., 2017; Veenendaal & Bondarouk, 2015). However, according to AlEssa and Durugbo (2022), is a part of the agenda for future research in innovative work behavior investigating how, what, and when policies need to be implemented in a workplace to facilitate innovative work behavior. More specifically, questioning whether an organization should focus on applying certain HR policies to facilitate innovative work behavior, calls for future research. The latter is exactly the goal of this study, by answering this question for the case whether sustainable HR policies are able to facilitate innovative work behavior. From this paragraph can be concluded that, although general HR policies stimulate innovative work behavior, there still is a research agenda to investigate whether an organisation should focus on applying certain HR policies. The research in this paper will add knowledge here by specifying which sustainable HRM practices stimulate innovative work behavior.

2.3.1 Sustainable HRM as a driver for innovative work behavior

It is known that HRM practices can have a huge impact on employees' innovative work behavior (Bos-Nehles et al., 2017; Veenendaal & Bondarouk, 2015). However, there is not known exactly which specific HRM practices cause this impact and how they affect innovative work behavior. The reason for this is that knowledge on how HRM drives innovative work behavior is still fragmented and inconsistent (Bos-Nehles et al., 2017). However, there is known that sustainable HRM practices enhances a firms capability to innovate in general

(Wikhamn, 2019). Looking from the separate dimensions of sustainable HRM (respect-, openness- and continuity-oriented HRM), there is proof for a positive link between ethical leadership and innovative work behavior (Jia et al., 2022), as well as a positive link between employee well-being and innovative work behavior (X. Zhou, Rasool, & Ma, 2020). Both ethical leadership and employee well-being can be seen as constructs for respect-oriented HRM as they comply with the meaning of respect in HR context, which is: acknowledging and valuing others by recognizing them, comprehending and valuing individuals, actively listening and addressing needs, highlighting positive traits of others, and communicating requests rather than imposing demands (Carmeli et al., 2015). This implicates a positive link between respect-oriented HRM and innovative work behavior. Considering openness-oriented HRM, there is proof for a positive link between work-life balance and innovative work behavior (Ali, Li, & Qiu, 2022), as well as diversity management and innovative work behavior (Hapsari, Stoffers, & Gunawan, 2019). According to De Prins et al. (2014), work-life balance and diversity management are constructs for openness-oriented HRM. This implicates a positive link between openness-oriented HRM and innovative work behavior. Finally, training & development is proven to have a positive link with innovative work behavior (Sheeba & Christopher, 2020), as well as a positive link between individual career motives and innovative work behavior (Zandberg & Morales, 2019). Both training & development and career management are constructs of continuity-oriented HRM (De Prins et al., 2014), implicating a positive link between continuity-oriented HRM and innovative work behavior.

From the previous sections on sustainable HRM and innovative work behavior there is learned that general HRM practices stimulate HRM (Bos-Nehles et al., 2017; Veenendaal & Bondarouk, 2015). As sustainable HRM is an approach that stems from general HRM but is reflecting a commitment that is going beyond general HRM (Richards, 2022), it is expected in the outcome of the research in this paper that sustainable HRM practices will have a positive relationship with innovative work behavior as well. An additional argument for this expectation, is that it is already proven that sustainable HRM practices enhance general firm innovation (Wikhamn, 2019). Furthermore, do AlEessa & Durugbo (2022) call for future research that questions whether an organization should focus on applying certain HR policies to facilitate innovative work behavior, as HR guidelines can form a brick wall preventing employees from or facilitate innovative work behavior.

Looking into the three dimensions of sustainable HRM, respect-, openness- and continuity-oriented HRM, there is learned earlier in this subsection that theoretical proof exists that each sustainable HRM dimension has a positive effect on innovative work behavior. More concrete, there is proof for a positive link between two constructs of each of the sustainable HRM dimensions and innovative work behavior. These constructs that are proven to stimulate innovative work behavior are: ethical leadership (Jia et al., 2022) and employee well-being (X. Zhou et al., 2020) (participation), work-life balance (Ali et al., 2022) and diversity management (Hapsari et al., 2019) (openness), and training & development (Sheeba & Christopher, 2020) and individual career motives (Zandberg & Morales, 2019) (continuity). This leads to the expectation that sustainable HRM, in terms of its three dimensions respect, openness and continuity, has a positive effect on innovative work behavior. In line with this expectation, the first hypotheses are:

Hypothesis 1: Sustainable HRM, in terms of respect-oriented HRM (1a), openness-oriented HRM (1b) and continuity-oriented HRM (1c), will have a positive relation with innovative work behavior.

As already mentioned in the introduction of this thesis proposal, there is only one previous study known that researched the influence of sustainable HRM on innovative work behavior. This study by Stankeviciute et al. (2020) found evidence that the sustainable HRM dimensions of respect- and continuity-oriented HRM drive innovative work behavior, while openness-oriented HRM had no significant effect on innovative work behavior. However, this does not take away the claim of Bos-Nehles et al. (2017) that knowledge on how HRM drives innovative work behavior is still fragmented and inconsistent. Furthermore, does the research of Stankeviciute et al. only use a small sample from one country (306 respondents from Lithuania). For these reasons, will there be built on the research of Stankeviciute et al. by adding more research on this topic with a sample from a different region. Second, the research of Stankeviciute et al. lacks to describe *how* sustainable HRM practices drive innovative work behavior. The research in the current paper will work with a different research model than the study of Stankeviciute et al. (2020), adding work engagement as a mediator between sustainable HRM and innovative work behavior, attempting to clarify the relationship between sustainable HRM and innovative work behavior. This will add more knowledge on the effect sustainable HRM has on innovative work behavior, closing the research gap described by Bos-Nehles et al. (2017) and AlEssa & Durugbo (2022). The full argumentation for the implementation of a mediator in the research of this paper can be found in the next subsection.

2.4 The role of work engagement in the relationship between sustainable HRM and innovative work behavior

As highlighted earlier, there is not much existing research on the link between sustainable HRM and innovative work behavior. Still, it is expected to argue that the relationship between the two is positive, as it is proven that HRM practices in general have a positive influence on innovative work behavior (Bos-Nehles et al., 2017; Veenendaal & Bondarouk, 2015). However, other research on sustainable HRM as an antecedent proved that a relationship between sustainable HRM and another variable, in this case employee performance, can be more complex (Jerónimo, Lacerda, & Henriques, 2020). In such a case, a direct relationship cannot be found, but there still can be a relationship through a mediation effect. Such a scenario is also presented in the research of Jerónimo et al. (2020), where the relationship between sustainable HRM and employee performance can only be described with a double mediation effect. As there is a possibility that the relationship between sustainable HRM and innovative work behavior is more complex as well, a mediation variable is included in this study. The mediation variable that is chosen is work engagement. This mediator value could potentially help describe the relationship between sustainable HRM and innovative work behavior.

The reason that work engagement is chosen as mediator variable, is that earlier studies have already proven that sustainable HRM has a positive link with work engagement (Abu-Mahfouz et al., 2023; Lulewicz-Sas et al., 2022), and work engagement on its turn drives innovative work behavior (Agarwal, 2014; Jason & Geetha, 2021; Jia et al., 2022). Furthermore, an earlier study that used work engagement as a mediator between general HRM and innovative work behavior, found a mediation effect of work engagement (Kashyap & Verma, 2019). Based on this earlier research, work engagement is chosen as a suitable mediation variable in the context of this research. There is no other research known, to the author, that investigated the mediation in the link between sustainable HRM and innovative work behavior. From this paragraph can be concluded that the mediation variable work engagement can potentially help to describe the relationship between sustainable HRM and innovative work behavior. In earlier research has already been proven separately that sustainable HRM drives work engagement, while work engagement drives innovative work behavior. However, the research in this paper will be the first to test this relationship within the same model.

2.4.1 Sustainable HRM and work engagement

Work engagement is defined as "positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, González-romá, & Bakker, 2002, p. 74). Vigor captures an employee's energy levels and mental resilience, willingness to invest effort in the job and persistence while working or when facing difficulties. Dedication reflects an employee's involvement in and psychological identification with his/her work and with feelings of significance, enthusiasm, inspiration, pride and challenge attached to the work. Absorption addresses an employee's immersion and full concentration in work such that she/he loses track of time and cannot detach from that work. An engaged employee is one who is enthusiastic about his/her job, exerts high levels of energy in his/her job while not being able to detach from it (May, Gilson, & Harter, 2004; Schaufeli & Bakker, 2004). According to Schuck, Rocco & Albornoz (2011), HRM practices can increase performance, learning, and innovation; reemphasizing the significance of work engagement as a triumphant variable of the institution. Furthermore, recent studies by Lulewicz-Sas et al. (2022) and Abu-Mahfouz et al. (2023) found a positive relationship between sustainable HRM and work engagement. In terms of the three dimensions of sustainable HRM, there is proof for a positive link between ethical leadership and work engagement (Jia et al., 2022), as well as between employee participation and work engagement (Knight, Patterson, & Dawson, 2019), implicating a positive link between respect-oriented HRM and work engagement. Furthermore, there is proof of a positive link between work-life balance and work engagement (Jaharuddin & Zainol, 2019), as well as between diversity management and work engagement (Luu, Rowley, & Vo, 2019), implicating a positive link between openness-oriented HRM and work engagement. Lastly, there is a positive link between career support and development and work engagement (Y. Lee, Kwon, Kim, & Cho, 2016), as well as between employee development and work engagement (Alzyoud, 2018), implicating a positive link between continuity-oriented HRM and work engagement. So, in line with the proof that sustainable HRM drives work engagement (Abu-Mahfouz et al., 2023; Lulewicz-Sas et al., 2022), there can be concluded from this paragraph that, in theory, the sustainable HRM dimensions respect, openness and continuity individually drive work engagement as well.

2.4.2 Work engagement and innovative work behavior

The intrinsic drive and energized enthusiasm of an engaged employee not only assist in confronting uncertain situations encountered during innovation but also facilitate innovative behaviors that result in innovative performance (Gupta, Singh, & Bhattacharya, 2017). Consequently, work engagement triggers this state of aroused alert behavior (Gorgievski, Moriano, & Bakker, 2014) to comprehensively grasp and evaluate all the resources that an individual puts into their work (Lanaj, Chang, & Johnson, 2012). Furthermore, have multiple studies found a positive relationship between work engagement and innovative work behavior. Examples of these studies are by Agarwal (2014), Jason & Geetha (2021) and Jia et al. (2022). In line with these previous studies, the relationship between work engagement and innovative work behavior is expected to be positive in this study as well.

In line with the studies mentioned in section 2.4.1 and 2.4.2, the relationship between the three dimensions of sustainable HRM and work engagement is expected to be positive, as well as the the relationship between work engagement and innovative behavior. As a consequence, it is expected that work engagement has a stimulating role as mediator between the three dimensions of sustainable HRM and innovative work behavior, leading towards the following hypotheses:

Hypothesis 2: Work engagement will mediate the relationship between sustainable HRM, in terms of respect-oriented HRM (2a), openness-oriented HRM (2b) and continuity-oriented HRM (2c), and innovative work behavior.

There are no studies that previously investigated the mediating link of work engagement between sustainable HRM and innovative work behavior known to the author.

All hypothesized relationships are depicted in Figure 1.

2.5 Conclusion of literature review

In this literature review, the concepts of innovative work behavior and sustainable HRM and their potential relationship were explored. The review highlighted the significance of innovative work behavior for organizational success and the role of sustainable HRM in fostering innovation and improving employee well-being. Additionally, it presented the three dimensions of sustainable HRM: respect, openness, and continuity, and their corresponding effects on work engagement.

However, despite the existing studies on each of these concepts separately, there remains a notable knowledge gap regarding the specific relationship between sustainable HRM and innovative work behavior. While some evidence suggests a positive correlation, the mechanisms and specific sustainable HRM practices that drive innovative work behavior are still unclear. The lack of comprehensive research addressing this relationship, as well as the potential mediating role of work engagement, underscores the need for further investigation in this area, as innovative work behavior is crucial for organisational survival and generating

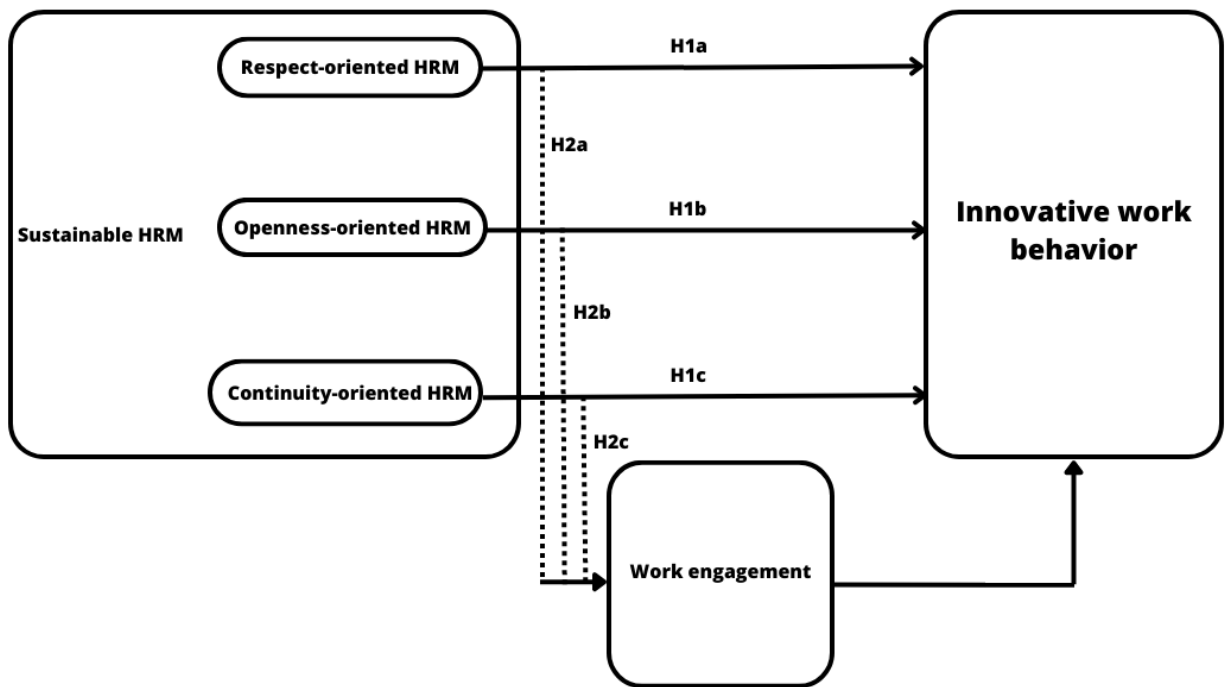


Figure 1: The research model.

useful ideas.

Prior studies have emphasized the importance of work engagement as a catalyst for innovative work behavior, but there is limited research on how sustainable HRM practices influence work engagement and, in turn, contribute to innovative work behavior within organizations. Exploring these connections and understanding the underlying mechanisms could provide valuable insights for HR managers and organizational leaders seeking to foster a culture of innovation and sustainable practices.

To address this knowledge gap, this research focuses on conducting a comprehensive study that specifically examines the relationship between sustainable HRM and innovative work behavior, taking into account the mediating role of work engagement. Such research could shed light on the HRM practices that effectively promote innovation and help organizations to develop targeted strategies for enhancing innovation within their workforce.

3 Research method

The research design for this study is a quantitative approach, focused on the key aspects of this study which are sustainable HRM, innovative work behavior and work engagement. A structured questionnaire has been conducted to gather data from which theory will be generated using a statistical analysis. The reason for this approach, is that the relationship that will be examined in this research is already described. In line with this, the most efficient method to gather the highest number of respondents is via an online questionnaire, as the researcher does not need to be present during the conduction. Furthermore, does a higher number of respondents result in a higher validity. Still, the effect tested with this method is only correlational. However, in the context of this study, this seems the most feasible method, as an experimental research design, which would disclose a causal relationship, would imply asking much more from the participants of this study. Such an experiment is unfeasible for the time frame that is available for gathering the research data. This section further discusses the population & sampling, measures, data collection, and ends with a data analysis method.

3.1 Population & sampling

The population targeted for this study are people under contract of an employer, as these employees daily perceive how HRM practices influence their engagement and innovative behavior at work. This means that the people that are approached to fill in the questionnaire must currently be under contract of an employer. Questions in the survey are specifically about the perception of HRM practices, management styles and the urge to innovate within the company. People that are currently not employed or are self-employed will not be able to relate to the questions asked in the questionnaire, for which they are excluded from the target population. There is chosen to not specify a target industry for this research. The reason for this, is that it is expected to result in a larger number of respondents, which improves the validity and generalisation of the results, as this makes the results of the study applicable to any sector. Furthermore, it is not expected that different industries have a significant fluctuation between each other in terms of innovative work behavior.

For this study, The Netherlands is chosen as target country, as this is the host country of the author. The main reason for this, is that the author has more personal connections in The Netherlands, which can make gathering data more easy. This means that the target population for this study can be described as people under contract of an employer in the Netherlands. The group of employed people in The Netherlands counts approximately 9.7 million (CBS, 2023a). From this number, approximately 1 million people are self-employed (CBS, 2021), which means that the population size counts approximately 8.7 million people. A sample from this population is necessary in order to represent it. Considering the limited time available to conduct the research for this paper, the goal is to achieve a margin of error of maximum 10% with a confidence level of 95%. This means that a number of at least 87 finished responses is demanded.

3.2 Measures

The survey consisted of a consent form, a selection question, 4 questions on demographics, 35 questions on sustainable HRM, 3 questions on work engagement and 10 questions on innovative work behavior.

The survey started with a consent form, which can be found in Appendix A. Next, the selection question was asked to test whether the respondent was part of the target population. The selection question was "Are you currently under contract with an employer in The Netherlands?" and had to be answered with "Yes" in order to proceed with the survey. In the four questions that followed respondents were asked to indicate their sector of employment, age, gender and whether they supervised/managed other employees or not. These questions were asked in order to get information on the demographics of the respondents. In the end, the data on employment sector and supervision were not used during the analysis because they did not give any notable results. The data on age and gender was only used to examine whether the group of respondents was balanced.

To measure sustainable HRM, the ROC model by De Prins et al. (2014) is used, for which the reasoning is done in section 2.2.1. The ROC model by De Prins et al. (2014) covers Respect-oriented HRM, Openness-oriented HRM and Continuity-oriented HRM. According to De Prins et al. (2014), respect-oriented HRM includes among others the practices participation and health and safety at work, openness-oriented HRM includes among others the practices work-life balance and diversity management, and continuity-oriented HRM covers among others the practices training and development and performance management & career planning. These six practices, chosen to represent sustainable HRM in this research, are separately measurable, meaning that sustainable HRM in a firm can be measured when six scales that individually measure these practices are combined. Participation can be measured using the scale developed by Ma Prieto and Perez-Santana (2014), which uses six items and is chosen because it is designed for research involving HRM practices and innovative work behavior ($\alpha = 0.85$). Health and safety at work can be measured using a scale developed by Staniskiene and Stankeviciute (2018), which also consists out of six items and is chosen because it is the only health and safety scale known to the author that is designed for organisations of any size ($\alpha = 0.70$). Work-life balance ($\alpha = 0.68$) and diversity management ($\alpha = 0.80$) can both be measured using two different three-item scales proposed by Lee (2019) and are chosen because they are designed for research in sustainable HRM context. Training and development ($\alpha = 0.93$) and performance management & career planning ($\alpha = 0.97$) can both be measured using items developed by Diaz-Carrion et al. (2018), which were chosen because of their high reliability score and the fact that they are designed for the sustainable HRM context. The training & development scale originally consists out of 9 items but two items were not included because the study focuses on employees in The Netherlands, which means that questions about host countries are irrelevant. Furthermore, it is not usual in The Netherlands that family members of an employee get trained. This results in the following questions being excluded: "My employer conducts programs to improve the training of the family of employees" and "My employer provides training for host countries' employees". All responses for the questions related to sustainable HRM were scored on a Likert scale ranging

from 1 (strongly disagree) to 5 (strongly agree).

To measure innovative work behavior, a scale that is developed for this purpose by De Jong and Den Hartog (2010) is used, for which the reasoning can be found in section 2.1.1. This scale uses four measurement dimensions, namely idea exploration ($\alpha = 0.90$), idea generation ($\alpha = 0.88$), idea championing ($\alpha = 0.95$), and idea implementation ($\alpha = 0.93$). The scale consists out of ten items, of which two items are committed to idea exploration, three items to idea generation, two items to idea championing and three items to idea implementation. All these dimensions are thus separately measurable, which means that innovative work behavior can be measured via this method. All responses for the questions related to innovative work behavior were scored on a Likert scale ranging from 1 (never) to 5 (very often).

To measure work engagement, the UWES-3 scale (Schaufeli, Shimazu, Hakanen, Salanova, & De Witte, 2019) is implemented. This is an ultra-short scale of only 3 items that can reliably measure work engagement ($\alpha = 0.82$). The UWES-3 is a valid alternative for longer work engagement scales such as the UWES-9. The UWES-3 consists out of three dimensions, which are vigor, dedication and absorption (Schaufeli et al., 2019). All responses for the questions related to work engagement were scored on a Likert scale ranging from 1 (never) to 6 (Always / every day). A list of which questions correspond to which HRM practice and scale can be found in Table 1. The entire list of questions conducted in the survey can be found in Appendix B.

Variable	Grouped questions	Scale by
Respect-oriented HRM	1-6 (participation) 7-12 (health & safety)	Ma Prieto and Perez-Santana (2014) Staniskiene and Stankeviciute (2018)
Openness-oriented HRM	13-15 (work-life balance) 16-18 (diversity management)	Lee (2019)
Continuity-oriented HRM	19-25 (training & development) 26-35 (performance management & career planning)	Diaz-Carrion et al. (2018)
Work engagement	36-38	Schaufeli et al. (2019)
Innovative work behavior	39-48	De Jong and Den Hartog (2010)

Table 1: List of grouped questions per scale/variable.

3.3 Data collection

The survey platform used for this research is Qualtrics. This is an online platform which can be used to create and distribute surveys, facilitated by TU Delft. The survey was written in the English language because expats and other potential non-Dutch speakers in The Netherlands should not be excluded from the sample. Qualtrics derived from the survey's length that it would have an estimated average duration of 7 minutes. During a data collection period of 40 days (6th of June 2023 - 16th of July 2023), a number of

135 responses were counted. From these 135 responses, 88 were useful, finished responses. Considering a target population of 8.7 million, this results in a response rate of 0.001%.

3.3.1 Questionnaire distribution

To reach participants for the study, the social, personal and professional networks of the author were used. The link for the questionnaire was posted on multiple social media platforms such as LinkedIn, Facebook and Instagram. To address people, the following message was used:

Help me with my graduation by filling in this survey! As some of you may already know, I am investigating the influence of sustainable HRM on innovative work behavior for my master thesis Management of Technology at TU Delft. I am looking for people, currently under contract with a Dutch employer (the sector does not matter), that are willing to spend 5 to 10 minutes filling in this survey. Sharing this message is also very much appreciated!

In the end, a response number of 135 was reached, of which 88 responses were actually useful, finished responses. Some reasons for the relatively high number of unusable responses are the length of the survey which can discourage people to take the time to answer all questions, the English language that maybe is not mastered by every respondent, and not giving the demanded answer at the selection question. From these 88 respondents, 54.5% was male and 45.5% was female. 51.1% of the respondents were young adults ranging in age from 21-up to 30 years old, 43.2% of the respondents ranged in the other age categories from 31-up to 70 years old, and 5.7% did not specify their age. A visual overview of the number of respondents per age category can be found in Figure 2. Considering a population size of 8.7 million and a confidence level of 95%, the margin of error with 88 responses is 10%, by which the minimum number of respondents, which was set on 87, is achieved.

3.3.2 Ethics approval

The study was approved by the TU Delft Human Research Ethics Committee. This means that the data gathered for this study was acquired in an ethical way. All participants agreed with the consent form of the survey. All surveys were conducted anonymous and no personal data was gathered that makes it able to retrace a participant. Furthermore has the data management plan of this study been approved by the TU Delft TPM faculty data steward.

3.4 Data analysis method

To analyze the data gathered with the survey, SPSS, a statistics software for social sciences, was used. First all questions from a dimension or factor are tested on internal reliability using Cronbach's Alpha, a measure to determine if multiple items together can reliably form a scale. Coherent with the main research question and sub-questions, all data from the separate questions was grouped in the matching dimension. This means that the 6 questions on participation are grouped with the 6 questions from health & safety at work to form the variable respect-oriented HRM, the 3 questions on work-life balance are grouped with

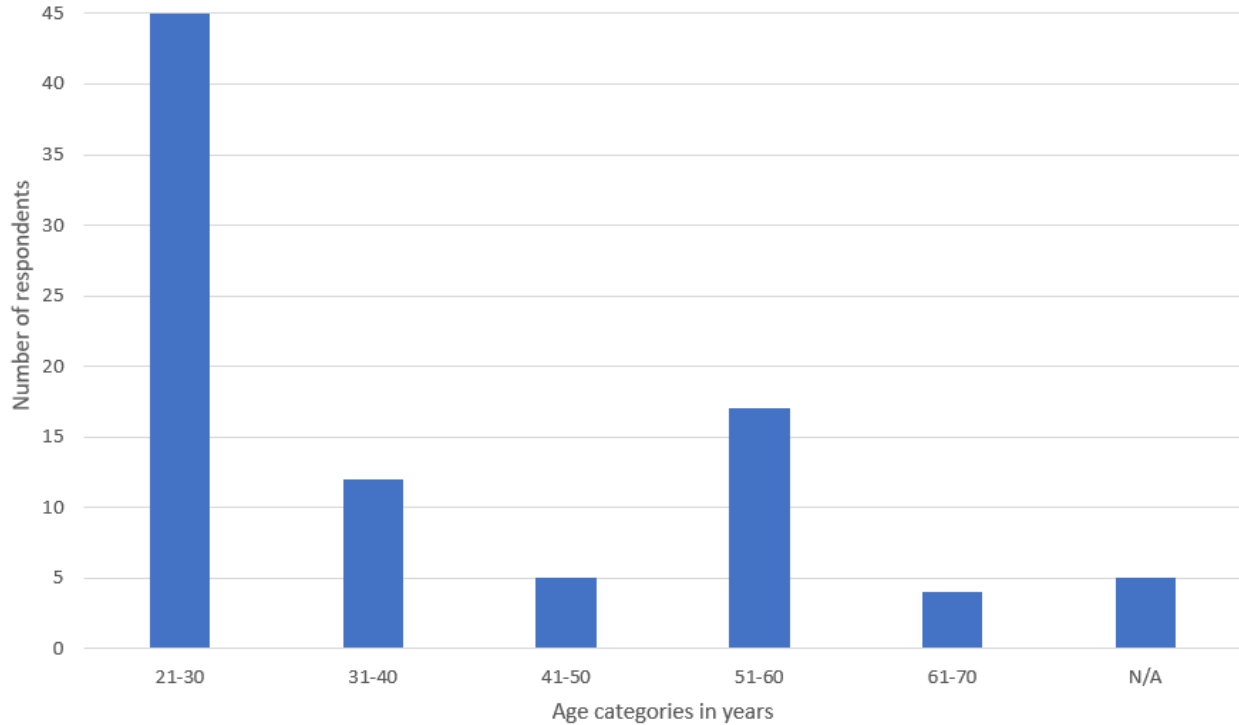


Figure 2: visual overview of the number of respondents per age category.

diversity management to form the variable openness-oriented HRM, and the 7 questions on training & development are grouped with the 10 questions on performance management & career planning to form the variable continuity-oriented HRM. An overview of these grouped questions can be found in Table 1. Next, the hypotheses can be tested by performing statistical analyses on the grouped variables. The first statistical analysis that is performed is a correlation analysis using Spearman's Rho, which is the most suitable correlation model for ordinal data (Kruskal, 1958). Ordinal data implies that the variables have natural, ordered categories and the distances between the categories are not known (Agresti, 2012), which is the case for the Likert scale data generated in this research. The correlation model is chosen to give an indication of the direction and strength of the relationships. The second statistical analysis performed, is an ordinal regression analysis using the Process by Hayes macro for SPSS. The Process by Hayes macro offers a regression model where a simple mediation model (model 4) can be tested not only for its direct, indirect and total effect, but also for the effect between the X-variable and the mediator and the effect between the mediator and Y-variable. For this study holds that the X-variables are the dimensions of sustainable HRM, the mediator is work engagement and the Y-variable is innovative work behavior. The ordinal regression analysis estimates whether one variable affects the other, and its outcome is therefore more significant than the outcome of the correlation analysis. Because of this, the ordinal regression analysis will be used to test the hypotheses. A schematic of the three mediation models for ordinal regression is depicted in Figure 3.

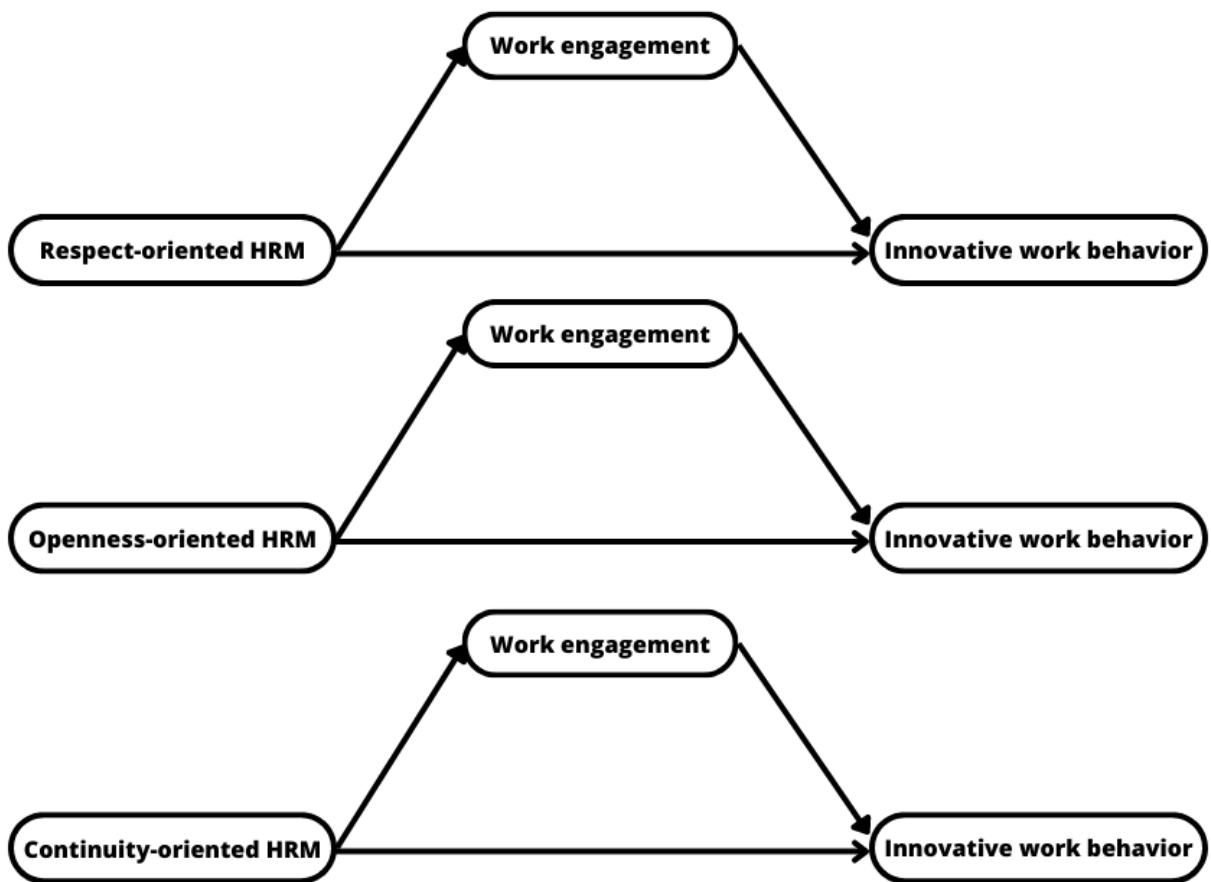


Figure 3: Schematic of the three mediation models for ordinal regression.

4 Results

This section presents the findings that are retrieved from the data of the 88 completed questionnaires. This data should be able to give a better insight into the link between sustainable HRM and innovative work behavior. First the data is tested on reliability using Cronbach's Alpha. Second a correlation analysis is performed using Spearman's Rho for ordinal data. Third, an ordinal regression analysis is performed using a simple mediation model. In Table 2, the means and standard deviations of the variables used in the statistical analysis can be found. The further data gathered from the questionnaire can be found in Appendix C and D. In Appendix C, the means and standard deviations of the variables and all individual questions can be found, while Appendix D offers an overview of the frequency response data for every survey question categorized in participation, health & safety, work-life balance, diversity management, training & development, performance management & career planning, work engagement and innovative work behavior.

Variable	Mean	Standard deviation
Respect-oriented HRM	4.09	0.766
Openness-oriented HRM	3.65	0.905
Continuity-oriented HRM	3.53	1.039
Work engagement	4.62	0.820
Innovative work behavior	3.09	0.866

Table 2: Means and std. deviations of variables.

4.1 Reliability analysis

In this section, the internal reliability of the variables of this research is tested. Cronbach's Alpha is used to analyse the internal reliability of each group of Likert scale survey questions corresponding to a variable. For example, the 12 questions that together represent respect-oriented HRM are analyzed as a group (an overview of this can be found in Table 1). A variable is considered as reliable when Cronbach's Alpha is higher than 0.7 (Tavakol & Dennick, 2011).

Variable	Cronbach's Alpha
Respect-oriented HRM	0.868
Openness-oriented HRM	0.795
Continuity-oriented HRM	0.916
Work engagement	0.763
Innovative work behavior	0.900

Table 3: Internal reliability analysis using Cronbach's Alpha.

In Table 3 the results of the internal reliability analysis are presented. All variables score a

value higher than 0.7, meaning that every variable is considered as internally reliable. This makes all variables useful, as they can be included in the remainder of the statistical analysis.

4.2 Correlation analysis

In this section, the correlation between all variables is tested to give an indication of the direction and strength of the relationships between the dimensions of sustainable HRM, work engagement and innovative work behavior. For this correlation analysis, Spearman's Rho is used as this is the most suitable method to determine correlation when using ordinal data (Kruskal, 1958).

Variable	Work engagement	Innovative work behavior
Respect-oriented HRM	$\rho_s = 0.294$ $p = 0.005$	$\rho_s = 0.164$ $p = 0.128$
Openness-oriented HRM	$\rho_s = 0.315$ $p = 0.003$	$\rho_s = 0.053$ $p = 0.624$
Continuity-oriented HRM	$\rho_s = 0.233$ $p = 0.029$	$\rho_s = 0.140$ $p = 0.192$
Work engagement	-	$\rho_s = 0.239$ $p = 0.025$
Innovative work behavior	$\rho_s = 0.239$ $p = 0.025$	-

Table 4: Correlation analysis using Spearman's Rho.

In Table 4 the results of the correlation analysis are presented. Following the results in this table, an indication is given that there is no significant correlation between respect-oriented HRM and innovative work behavior ($\rho_s = 0.164, p = 0.128$), openness-oriented HRM and innovative work behavior ($\rho_s = 0.053, p = 0.624$), and continuity-oriented HRM and innovative work behavior ($\rho_s = 0.140, p = 0.192$). This means that there is no statistical significance in the correlation analysis supporting hypotheses H1a, H1b and H1c, indicating no direct relationship between sustainable HRM and innovative work behavior. However, the statistics do show that there is a significant, positive correlation between respect-oriented HRM and work engagement ($\rho_s = 0.294, p = 0.005$), openness-oriented HRM and work engagement ($\rho_s = 0.315, p = 0.003$), and continuity-oriented HRM and work engagement ($\rho_s = 0.233, p = 0.029$). Furthermore, there is a significant, positive correlation between work engagement and innovative work behavior ($\rho_s = 0.239, p = 0.025$). This means that there is statistical, positive significance in the correlation analysis supporting hypotheses H2a, H2b and H2c, indicating a mediation effect of work engagement between sustainable HRM and innovative work engagement.

4.3 Regression analysis

In this section, an ordinal regression analysis is presented to test the direct and indirect relationship between the dimensions of sustainable HRM, as well as the mediation effect of

work engagement. The ordinal regression analysis estimates whether one variable affects the other. Three different simple mediation models were constructed that each included one of the sustainable HRM dimensions (respect-oriented-, openness-oriented and continuity-oriented HRM), as is depicted in Figure 3. These models were constructed in the Process by Hayes macro for SPSS, in which the ordinal regression analysis was executed. For each sustainable HRM dimension a simple mediation model was constructed (Process by Hayes model 4), where the X-variable was either respect-, openness- or continuity-oriented HRM, the mediator (M-variable) was work engagement and the Y-variable innovative work behavior. The bootstrapping samples (the number of times a random sample is drawn from the main sample with replacement) and confidence intervals (range of estimates for the unknown parameters) were kept on default settings, which are 5000 and 95 respectively.

Variable	Effect on WE	Effect between WE and IWB	Direct effect on IWB	Indirect effect on IWB	Total effect on IWB
Respect-oriented HRM	$\beta = 0.4472$ $p = 0.0001$ $R = 0.4180$ $R^2 = 0.1747$ $M = 0.5614$ $F = 18.2059$	$\beta = 0.1640$ $p = 0.1907$ $R = 0.1640$ $R^2 = 0.0284$ $M = 0.7461$ $F = 1.2409$	$\beta = 0.0307$ $p = 0.8179$ $R = 0.1640$ $R^2 = 0.0284$ $M = 0.7461$ $F = 1.2409$	$\beta = 0.0733$ $BootLLCI = -0.0654$ $BootUCLI = 0.2597$	$\beta = 0.1041$ $p = 0.3935$ $R = 0.0921$ $R^2 = 0.0085$ $M = 0.7526$ $F = 0.7353$
Openness-oriented HRM	$\beta = 0.2689$ $p = 0.005$ $R = 0.2966$ $R^2 = 0.0880$ $M = 0.6204$ $F = 8.2957$	$\beta = 0.1992$ $p = 0.0951$ $R = 0.1810$ $R^2 = 0.0327$ $M = 0.7428$ $F = 1.4388$	$\beta = -0.0708$ $p = 0.5099$ $R = 0.1810$ $R^2 = 0.0327$ $M = 0.7428$ $F = 1.4388$	$\beta = 0.0536$ $BootLLCI = -0.0348$ $BootUCLI = 0.1374$	$\beta = -0.0172$ $p = 0.8678$ $R = 0.0180$ $R^2 = 0.0003$ $M = 0.7587$ $F = 0.0279$
Continuity-oriented HRM	$\beta = 0.2598$ $p = 0.0017$ $R = 0.3291$ $R^2 = 0.1083$ $M = 0.6065$ $F = 10.4471$	$\beta = 0.1738$ $p = 0.1499$ $R = 0.1667$ $R^2 = 0.0278$ $M = 0.7466$ $F = 1.2151$	$\beta = 0.0052$ $p = 0.9563$ $R = 0.1667$ $R^2 = 0.0278$ $M = 0.7466$ $F = 1.2151$	$\beta = 0.0452$ $BootLLCI = -0.0425$ $BootUCLI = 0.1535$	$\beta = 0.0503$ $p = 0.5763$ $R = 0.0604$ $R^2 = 0.0036$ $M = 0.7562$ $F = 0.3147$

WE=work engagement & IWB=innovative work behavior.

M=Mean square error.

Bootstrapping samples: 5000. Confidence intervals: 95.

Table 5: Ordinal regression analysis using simple mediation.

The results of the ordinal regression analysis are presented in Table 5. The table depicts the outcomes from the Process by Hayes models, which presents five outcomes for every X-variable. These outcomes are the X-variable's effect on work engagement and innovative work behavior, from which the latter is presented as direct, indirect (through mediation), and total effect (direct and indirect effect combined). Additionally, the effect between mediator work engagement and Y-variable innovative work behavior is presented. As this effect

is determined separately for every model, the results vary when comparing the models, although the same effect is described.

As can be seen in Table 5, there is a statistically significant, positive relationship between respect-oriented HRM and work engagement ($\beta = 0.4472, p = 0.0001$), openness-oriented and work engagement ($\beta = 0.2689, p = 0.005$), and continuity-oriented HRM and work engagement ($\beta = 0.2598, p = 0.0017$). However, there is no statistical significance to prove an effect between work engagement and innovative work behavior in the models for respect-oriented HRM ($\beta = 0.1640, p = 0.1907$), openness-oriented HRM ($\beta = 0.1992, p = 0.0951$), and continuity-oriented HRM ($\beta = 0.1738, p = 0.1499$). This indicates that there is no mediation effect of work engagement between the sustainable HRM dimensions and innovative work behavior. The latter is confirmed by the indirect effect of the three dimensions of sustainable HRM on innovative work behavior, as these are not significant for respect-oriented HRM ($\beta = 0.0733, BootLLCI = -0.0654, BootUCLI = 0.2597$), openness-oriented HRM ($\beta = 0.0536, BootLLCI = -0.0348, BootUCLI = 0.1374$), and continuity-oriented HRM ($\beta = 0.0452, BootLLCI = -0.0425, BootUCLI = 0.1535$) ($BootLLCI$ and $BootUCLI$ must not include zero for significance). This means that, although there is proof for a relationship between the three dimensions of sustainable HRM and work engagement, there can be concluded that there is no proof for a mediation effect of work engagement between the three dimensions sustainable HRM and innovative work behavior, rejecting hypotheses H2a, H2b, and H2c.

From Table 5 can be seen that there is no statistical significance to prove a direct effect of respect-oriented HRM on innovative work behavior ($\beta = 0.0307, p = 0.8179$), openness-oriented HRM on innovative work behavior ($\beta = -0.0708, p = 0.5099$), and continuity-oriented HRM on innovative work behavior ($\beta = 0.0052, p = 0.9563$). This indicates that there is no effect of sustainable HRM on innovative work behavior. Also including the possible mediation of work engagement, which is the total effect, there is no statistical significance to prove a potential relationship between respect-oriented HRM and innovative work behavior ($\beta = 0.1041, p = 0.3935$), openness-oriented HRM and innovative work behavior ($\beta = -0.0172, p = 0.8678$), and continuity-oriented HRM and innovative work behavior ($\beta = 0.0503, p = 0.5763$). This confirms the indication that there is no effect between sustainable HRM and innovative work behavior, meaning that hypotheses H1a, H1b and H1c can be rejected. In Figure 4 a schematic of the three mediation models is depicted, including the outcomes of the ordinal regression analysis.

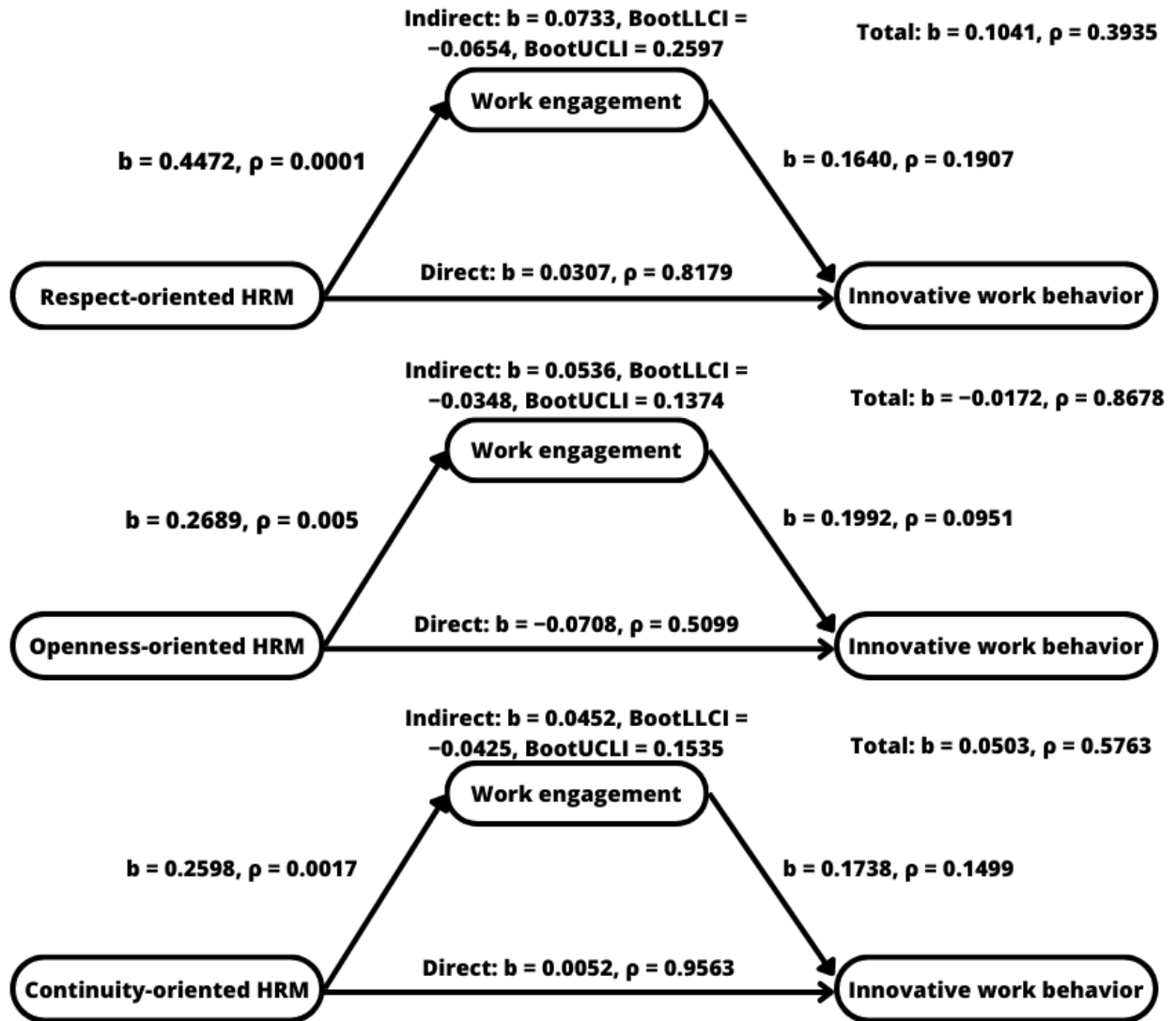


Figure 4: Schematic of the three mediation models including the coefficients of the ordinal regression analysis.

5 Discussion

This paper aimed at investigating how sustainable HRM practices potentially drive employee's innovative work behavior. In the execution, sustainable HRM has been divided into three dimensions according to the ROC-model by De Prins et al. (2014), namely respect-oriented HRM, openness oriented HRM and continuity-oriented HRM. Additionally, work engagement is included in the research model as a mediator. The results, using data gathered from questionnaires spread under employees in The Netherlands, are presented in the previous section.

The results of the regression analysis show no sign of a relationship between respect-oriented HRM and innovative work behavior, rejecting H1a. This means that the respect-oriented HRM practices tested in this study, participation and health & safety at work, do not necessarily stimulate innovative work behavior. These findings do not align with multiple other studies that have proven that participation and health & safety practices in the workplace support innovation (Y. Zhou, Fan, & Son, 2019; X. Zhou et al., 2020). There are no studies known to the author that prove the opposite. Furthermore, the findings of this study do not align with other studies that found that respect-oriented HRM constructs ethical leadership (Jia et al., 2022) and employee well-being (X. Zhou et al., 2020) have a positive link with innovative work behavior. A theory behind the result in this study could be that respect-oriented HRM practices make employees more comfortable, but because of this also less active to seek for improvements, obstructing innovative work behavior. However, there is no other research supporting this statement. Another explanation for the findings in this research could be the limitations of this study, which are discussed in section 7.

The results of the regression analysis show no sign of a relationship between openness-oriented HRM and innovative work behavior, rejecting H1b. This means that the openness-oriented HRM constructs tested in this study, work-life balance and diversity management, do not necessarily stimulate innovative work behavior. These findings do not align with results from other studies, that found that there is a positive link of both openness-oriented HRM constructs work-life balance (Ali et al., 2022) and diversity management (Hapsari et al., 2019) with innovative work behavior. A theory behind the result in this study, regarding work-life balance, could be explained by turning to the nature of work-life balance. Work-life balance pertains to the connection between the work and non-work facets of individuals' lives. Typically, balance involves constraining one aspect (often work) to allocate more time for the other (Kelliher, Richardson, & Boiarintseva, 2019). Thus, work-life balance means "satisfaction and good functioning at work and at home, with a minimum of role conflict" (Clark, 2000, p. 751). With this orientation, employees lack the motivation to generate, introduce, and implement new ideas, as they are content with their current work and non-work circumstances. Consequently, employees do not exhibit behaviors conducive to exploring opportunities, originating or embracing novel concepts, and undertaking subsequent endeavors to put them into action (Janssen, 2004). Regarding diversity management, a paradox could describe why no relationship has been found with innovative work behavior. On one hand, diversity is a recognizable source of creativity and innovation that can provide a basis for competitive advantage. On the other hand, diversity is also a cause of misunderstanding,

suspicion and conflict in the workplace that can result in absenteeism, poor quality, low morale and loss of competitiveness (Bassett-Jones, 2005). Another explanation for the findings in this research could be the limitations of this study, which are discussed in section 7.

The results of the regression analysis show no sign of a relationship between continuity-oriented HRM and innovative work behavior, rejecting H1c. This means that the continuity-oriented HRM constructs tested in this study, training & development and performance management & career planning, do not necessarily stimulate innovative work behavior. These findings do not align with other research, that found a positive link of both continuity-oriented HRM constructs training & development (Sheeba & Christopher, 2020) and career motives (Zandberg & Morales, 2019) with innovative work behavior. Although there are studies that contradict the results presented in this study and show proof for a positive relationship between continuity-oriented HRM constructs and innovative work behavior, there are also studies that did not find a (positive) relationship between these constructs and innovative work behavior. Regarding training & development, Veenendaal & Bondarouk (2015) found that development opportunities had a negative effect on idea generation, which is one of the dimensions of innovative work behavior. In line with this, Jiang, Wang, and Zhao (2012) demonstrated that in a Chinese business context, there existed no correlation between training and employee creativity. Similar findings were observed by Bos-Nehles and Veenendaal (2019), where innovative work behavior among manufacturing employees remained unaffected by perceived training and development. Considering performance management & career planning, a theory behind the research results could be that performance management tools can create an environment supportive of innovation, but that this is no automatic link. According to Jacobsen and Andersen (2014), innovation is a highly elusive concept, and even though innovation is usually desirable it can be difficult to request. Thus, decision-makers and managers must demand that their employees do what no one has yet imagined possible. Demanding innovation is, therefore, a more complicated matter, and one where we should probably expect less success. Another explanation for the findings in this research could be the limitations of this study, which are discussed in section 7.

In the three cases of respect-oriented HRM, openness-oriented HRM and continuity-oriented HRM, the results of the regression analysis show that there is only a relationship between each of these three sustainable HRM dimensions and work engagement, which is only one side of the mediation. This means that on the other side of the mediation, the link between work engagement and innovative work behavior, there is no relationship found. Furthermore, does the regression analysis also show that there is no indirect effect, the effect describing the mediation, between the sustainable HRM dimensions and innovative work behavior. This means that there is no mediation effect of work engagement between any sustainable HRM dimension and innovative work behavior, rejecting hypotheses H2a, H2b and H2c. However, other studies found a positive link of both respect-oriented HRM constructs ethical leadership (Jia et al., 2022) and employee participation (Knight et al., 2019) with work engagement. Also a positive link was found between both the openness-oriented HRM constructs work-life balance (Jaharuddin & Zainol, 2019) and diversity management (Luu et al., 2019) and work engagement, and a positive link between continuity-oriented HRM constructs career support & development (Y. Lee et al., 2016) and employee development (Alzyoud, 2018) and

work engagement. Additionally, multiple studies found proof that work engagement stimulates innovative work behavior (Agarwal, 2014; Jason & Geetha, 2021; Jia et al., 2022), and there are no studies known to the author that prove the opposite. The findings from these other studies, proving that sustainable HRM dimensions drive work engagement and work engagement drives innovative work behavior, indicate a mediation effect of work engagement between the sustainable HRM dimensions and innovative work behavior, which is not in line with the findings from the research in this paper. A theory behind the contradicting result found in this study could be that an employee with a high work engagement is already very satisfied with their job, resulting in being less active in seeking for improvement or simply not being able to think of one. This obstructs innovative work behavior. However, there is no other research supporting this statement. Another explanation for the findings in this research could be the limitations of this study, which are discussed in section 7.

6 Practical implications

As this study shows that sustainable HRM practices, in terms of respect-oriented-, openness-oriented- and continuity-oriented HRM practices, do have a positive link with work engagement, it is advised to firms' HR departments to include sustainable HRM practices into their HR management. Work engagement is an important factor for a positive, fulfilling, work-related state of mind (Schaufeli et al., 2002). Furthermore, as argued in section 2.2.2, sustainable HRM practices can bring advantages on both the organizational- and individual level of firms. Sustainable HRM can, for example, stimulate firm competitive advantage (Wikhamn, 2019) and employee equitability (Blake-Beard et al., 2010). HR departments that are seeking to stimulate the innovative work behavior of their employees are advised to let the outcomes of this research not refrain from a strategy containing the implementation of (sustainable) HRM practices. There are multiple HRM practices that are proven to be beneficial for innovative work behavior (Bos-Nehles et al., 2017; Veenendaal & Bondarouk, 2015), and there is still a possibility that sustainable HRM practices stimulate innovative work behavior as other research, in contradiction with this research, has stated this (Stankevičiute et al., 2020). After all, more research on the topic of sustainable HRM and its link to innovative work behavior is necessary to give a definitive answer on this matter, as will be explained in section 7.

More concrete, HR departments are advised to include sustainable HRM practices from all three dimensions: respect-, openness- and continuity-oriented HRM, as all these dimensions stimulate work engagement. These practices can be converted from the constructs used in this research, such as work-life balance or diversity management, but can also be converted from other constructs mentioned in sustainable HRM frameworks, such as the frameworks by De Prins et al. (2014) and Kramar (2014). In terms of examples of specific practices, this would lead to HR departments securing a reasonable workload to support its employees work-life balance or implementing policies and programs to promote diversity in the workplace to support diversity management. In conclusion, these practices will stimulate firm competitive advantage and stimulate employees' work engagement.

For firms seeking to stimulate their innovative work behavior through HRM practices, it is advised to first look into general HRM practices that are proven to have an effect on innovative work behavior. According to Bos-Nehles et al. (2017), is providing employees with autonomy in their jobs one of the very best HRM practices for boosting innovative work behavior. Additionally, there are also other methods to stimulate innovative work behavior in a firm. An example of a method that has been proven to be effective, is inclusive leadership (Mansoor, Wahab, & Jahan, 2021).

7 Limitations and recommendations for future research

This study has several limitations, which open avenues for future research. The most important limitation is the group of respondents for the questionnaire. The number of useful responses consisted of 88 persons, of which more than half were younger adults ranging from 21 to 30 years old. Ideally, more respondents would have been found, resulting in a smaller margin of error. Furthermore, a more equally distributed age group would be more representative of the research population, as the age distribution of people employed in the Netherlands is fairly equal (CBS, 2023b). Future researchers are advised to use a larger, more representative group of respondents for data gathering to increase the reliability and validity of the data, and generalisability of the study.

This study makes use of employees' self-reported measures of sustainable HRM practices, work engagement and innovative work behavior. Although there is proof that self-reported measurements in the field of innovative work behavior are reliable (Dul, Ceylan, & Jaspers, 2011), there is a possibility that it can lead to socially desirable answers (Bos-Nehles et al., 2017). For example, Janssen (2000) found different effects when using self-rated innovative work behavior than when using leader-rated innovative work behavior. Especially when employees perceived innovative work behavior as a measurement tool for determining career development, they were likely to overestimate their innovative potential. For this reason, future research could use a triangulation method for data gathering, using both self-reported measurements by employees, as well as measurements from the perspective of their supervisors.

This study only included a limited amount of sustainable HRM constructs representing respect-, openness- and continuity-oriented HRM. However, do these three dimensions consist of more constructs than only two per dimension. This means that the representation of sustainable HRM in this study is simplified, and thus not whole. To create a more comprehensive and complete representation of sustainable HRM, more constructs for each of the three dimensions of sustainable HRM should be included in future studies. According to De Prins et al. (2014), some examples of such constructs can be employee empowerment (respect-oriented HRM), ecology management (openness-oriented HRM) and workplace innovation (continuity-oriented HRM).

In the past years there has been research on how HRM practices influence innovative work behavior, still the research on this topic is fragmented and inconsistent (Bos-Nehles et al., 2017). This paper investigated how the specific practices of sustainable HRM influenced innovative work behavior, and found that there is no relationship between the two. Earlier research on the same topic by Stankeviciute et al. (2020) concluded partly the opposite, that sustainable HRM dimensions respect-oriented HRM and continuity-oriented HRM do drive innovative work behavior. This contradiction means that there is still need for researchers to investigate the relationship between sustainable HRM practices and innovative work behavior. Furthermore, did the research by Stankeviciute et al. also had limitations, such as using only a small sample from one country.

This research also included work engagement as a mediator between sustainable HRM and innovative work behavior. It can be confirmed that sustainable HRM has a positive link with work engagement, which is also found by Luluwicz-Sas et al. (2022) and Abu-Mahfouz et al. (2023). However, no link between work engagement and innovative work behavior has been found, contradicting the findings of Agarwal (2014), Jason & Geetha (2021) and Jia et al. (2022). Still, the inclusion of a mediator could help to describe the relationship between sustainable HRM and innovative work behavior, as argued in section 2.4. This study found that work engagement is not a mediator in the relationship between sustainable HRM and innovative work behavior. This means that future research that will study the link between sustainable HRM and innovative work behavior should still include a mediating variable, but not work engagement. Examples of other constructs that earlier have been proven to mediate in the link between HRM and innovation, and therefore can be considered as mediators in future research considering the link between sustainable HRM and innovative work behavior, are employee creativity and knowledge management (Seeck & Diehl, 2017).

As there is still limited and inconsistent research on the link between sustainable HRM and innovative work behavior, the need for researchers to investigate this link remains. These researchers are advised to include other mediator variables than work engagement to investigate the link between sustainable HRM and innovative work behavior, and also to consider the other recommendations given in this subsection.

8 Conclusion

The literature review in this study explored academic research on the concepts of innovative work behavior and sustainable HRM. Prior studies have emphasized the importance of work engagement as a catalyst for innovative work behavior, but there is limited research on how sustainable HRM practices influence work engagement and, in turn, contribute to innovative work behavior within organizations. Here remains a noticeable knowledge gap regarding the specific relationship between sustainable HRM and innovative work behavior. To address this knowledge gap, the primary objective of this study was to identify how perceived sustainable HRM practices increase employees' innovative work behavior, taking into account the mediating role of work engagement. The research involved conducting and analyzing questionnaires covering sustainable HRM practices, work engagement and innovative work behavior.

This study did not find any relationship between sustainable HRM practices, in terms of the three dimensions respect-, openness, and continuity-oriented HRM, and innovative work behavior. The relationship was examined directly, as well as indirectly through work engagement as a mediator, but in both cases there was no statistical signification found. This means that, according to this study, sustainable HRM practices do not increase employee's innovative work behavior. However, this study has found proof that sustainable HRM practices do have a positive relationship with work engagement. Nevertheless, work engagement does not mediate between sustainable HRM and innovative work behavior, as there is no relationship found between work engagement and innovative work behavior. Still, the results presented in this study need to be carefully interpreted, as this research has some considerable limitations such as a low and unbalanced sample.

HR departments are invited to implement sustainable HRM practices in their HR strategies, despite the lack of a direct relationship with innovative work behavior, as this study has presented proof for a positive link with work engagement. Sustainable HRM and work engagement can contribute to employee well-being and other advantages on the firms' organizational and individual level. As the results in this research contradict other studies, and there is still limited research on the link between sustainable HRM practices and innovative work behavior, the need for future research to investigate this relationship remains.

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Appendices

A Consent form survey

You are being invited to participate in a research study titled “Sustainable HRM as a driver of innovative work behavior”. This study is being done by Stef van der Wielen from the TU Delft. This study is part of a master thesis for the study Management of Technology.

The purpose of this research study is to find out to what extent sustainable HRM practices have a stimulating effect on innovative work behavior, and will take you approximately 5 to 10 minutes to complete. This survey is targeted at employees working in The Netherlands, in any sector. The data will be used as most important source for this master thesis study. We will be asking you to answer questions about participation, health & safety, work-life balance, diversity management, training & development, career planning, idea exploration, idea generation, championing and application.

As with any online activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by making sure no personal data is being stored. The survey is designed to be anonymous, the information you provide cannot be traced back to you. The answers provided by all participants will be made publicly available as the support material to the associated thesis.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any questions. As the survey is answered anonymously, it is not possible to remove any data after submitting. By clicking through to the anonymous online survey, you agree with the opening statement.

Responsible researcher: Stef van der Wielen

For any questions or remarks contact: s.vanderwielen@student.tudelft.nl

B Questions survey

- I. Are you currently under contract with an employer in The Netherlands? (Yes, No)
- II. In which sector are you currently working? (Open)
- III. Please indicate you age in number of years. (Open)
- IV. What gender do you identify as? (Male, female, non-binary/third gender, prefer not to say).
- V. Do you manager or supervise other employees in the company you are working for? (Yes, no)

The next 6 questions will be specifically about the participation in the company you are working for. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Ma Prieto and Perez-Santana (2014))

1. Employees in this company are allowed to make decisions.
2. Employees are provided the opportunity to suggest improvements in the way things are done.
3. Employees are invited to participate in a wide range of issues, including performance standards, quality improvement, benefits, etc.
4. Employees are invited to participate in problem solving and decisions.
5. Employees receive information on the relevant concerns of the company (goals, performance, etc.).
6. Supervisors keep open communications in this company.

The next 6 questions will be specifically about the health & safety in the company you are working for. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Staniskiene and Stankeviciute (2018))

7. The organisation provides the necessary working equipment for the employees.
8. The workplaces fulfil safety requirements.
9. The organisation encourages the employees to give up bad habits.
10. The organisation provides good conditions for rest for its employees.
11. The organisation provides wellness opportunities for its employees.
12. The organisation provides good working conditions for its employees.

The next 3 questions will be specifically about the work-life balance in the company you are working for. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Lee (2019))

13. My work load is reasonable.
14. My supervisor supports my need to balance work and other life issues.
15. Senior leaders demonstrate support for Work/Life programs.

The next 3 questions will be specifically about the diversity management in the company you are working for. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Lee (2019))

16. Policies and programs promote diversity in the work-place (for example, recruiting minorities and women, training in awareness of diversity issues, mentoring).

17. My supervisor is committed to a workforce representative of all segments of society.
18. Supervisors work well with employees of different backgrounds.

The next 7 questions will be specifically about training & development in the company you are working for. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Diaz-Carrion et al. (2018))

19. The organization that I work for has skill training programmes and continuous learning that support workers' employability.
20. The organization that I work for offers mentoring programmes as part of the training of employees.
21. The organization that I work for provides periodic training to all employees regardless of their professional category, gender, age etc.
22. The organization that I work for helps employees to fund educational programmes (master's degree etc.).
23. The organization that I work for takes into account employees' preferences when determining training.
24. The organization that I work for establishes training levels according to the talent, commitment and performance appraisal of every employee.
25. The organization that I work for has an individual training itinerary for every employee.

The next 10 questions will be specifically about performance management and career planning. Please indicate the degree to which you agree or not agree with the following statement. (1 to 5 Likert scale) (scale by Diaz-Carrion et al. (2018))

26. The organization that I work for has rigorous and objective assessment procedures to determine an employee's development plan.
27. The organization that I work for has 'fast track' career plans that favour internal promotion within a short time.
28. The organization that I work for sets promotions based on employees' merit.
29. The organization that I work for gives responsibility to employees for their own development.
30. The organization that I work for evaluates performance and decide career plans for all employees, regardless of their professional category, gender etc.
31. The organization that I work for provides career opportunities for young people.
32. The organization that I work for employs different assessment systems depending on the different employee groups.
33. The organization that I work for offers periodic feedback to employees about their development.
34. The organization that I work for implements a 360-degree performance evaluation system.
35. The organization that I work for gives workers the opportunity to decide on their careers.

The following questions will be about work engagement. Please indicate how often you find yourself in the following situations. (1 to 6 Likert scale, never to always/every day) (scale by Schaufeli et al. (2019))

36. At my work, I feel bursting with energy.

37. I am enthusiastic about my job.
38. I am immersed in my work.

The following 10 questions will be about the innovative work behaviour. Please indicate how often you find yourself in the following situations. (1 to 5 Likert scale) (scale by De Jong and Den Hartog (2010))

39. How often do you pay attention to issues that are not part of your daily work?
40. How often do you wonder how things can be improved?
41. How often do you search out new working methods, techniques or instruments?
42. How often do you generate original solutions for problems?
43. How often do you find new approaches to execute tasks?
44. How often do you make important organizational members enthusiastic for innovative ideas?
45. How often do you attempt to convince people to support an innovative idea
46. How often do you systematically introduce innovative ideas into work practices?
47. How often do you contribute to the implementation of new ideas?
48. How often do you put effort in the development of new things?

C Means & std. deviations questionnaire

Variable	Mean	Standard deviation
Respect-oriented HRM	4.09	0.766
Openness-oriented HRM	3.65	0.905
Continuity-oriented HRM	3.53	1.039
Work engagement	4.62	0.820
Innovative work behavior	3.09	0.866
Question 1	4.28	0.726
Question 2	4.41	0.811
Question 3	3.92	0.973
Question 4	4.09	0.942
Question 5	3.91	1.141
Question 6	3.90	1.135
Question 7	4.17	1.048
Question 8	4.33	0.943
Question 9	3.30	1.186
Question 10	3.69	1.032
Question 11	2.82	1.306
Question 12	4.09	0.892
Question 13	3.75	1.143
Question 14	3.98	0.976
Question 15	3.20	1.116
Question 16	3.32	1.280
Question 17	3.35	1.155
Question 18	3.94	0.998
Question 19	3.82	1.228
Question 20	3.32	1.291
Question 21	3.66	1.321
Question 22	3.11	1.360
Question 23	3.64	1.019
Question 24	3.47	1.184
Question 25	2.95	1.422
Question 26	3.07	1.276
Question 27	2.76	1.268
Question 28	3.33	1.162
Question 29	4.18	0.865
Question 30	3.65	1.223
Question 31	4.17	0.991
Question 32	3.01	1.189
Question 33	3.69	1.148
Question 34	2.86	1.224

Question 35	3.78	0.915
Question 36	4.43	0.996
Question 37	4.75	0.861
Question 38	4.47	1.103
Question 39	3.26	0.941
Question 40	3.73	0.931
Question 41	3.18	1.136
Question 42	3.28	0.958
Question 43	3.09	0.884
Question 44	2.79	1.013
Question 45	3.06	0.992
Question 46	2.72	1.019
Question 47	3.06	1.016
Question 48	3.29	1.077

Table C.1: Means and std. deviations of questionnaire items

D Questionnaire frequencies

19

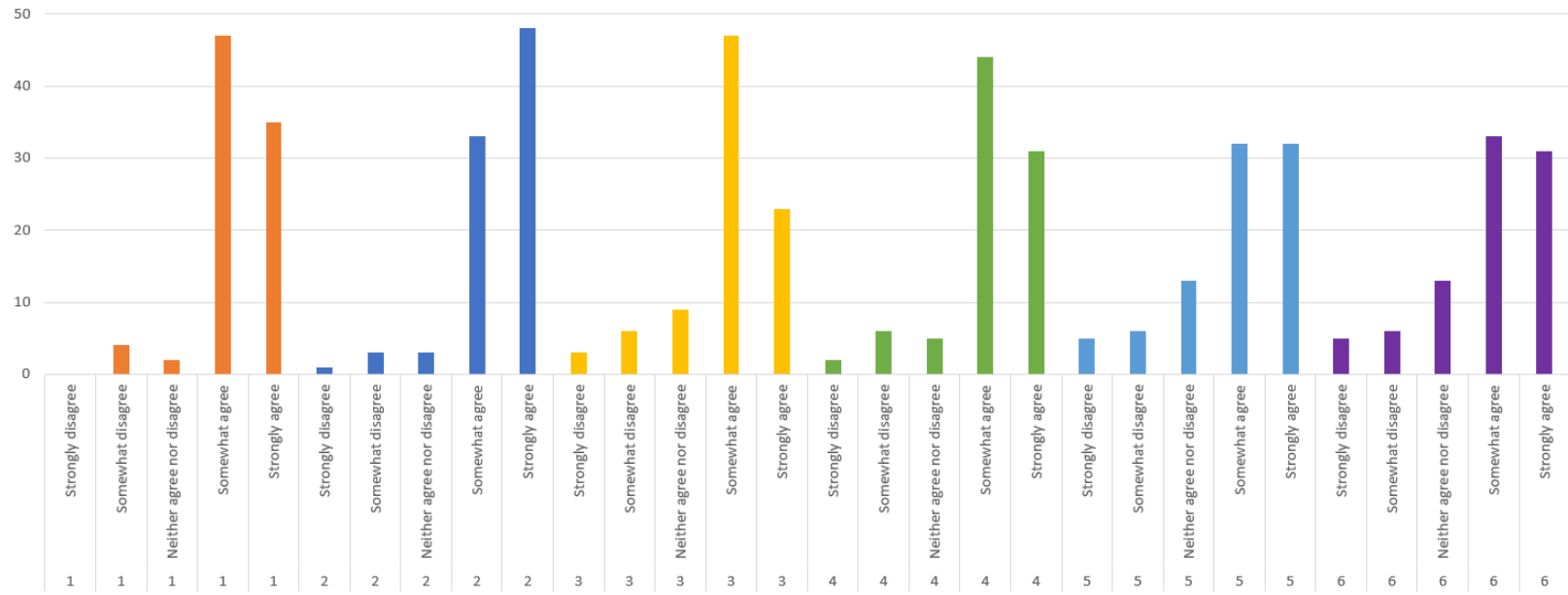


Figure D.1: Response frequencies of participation questions

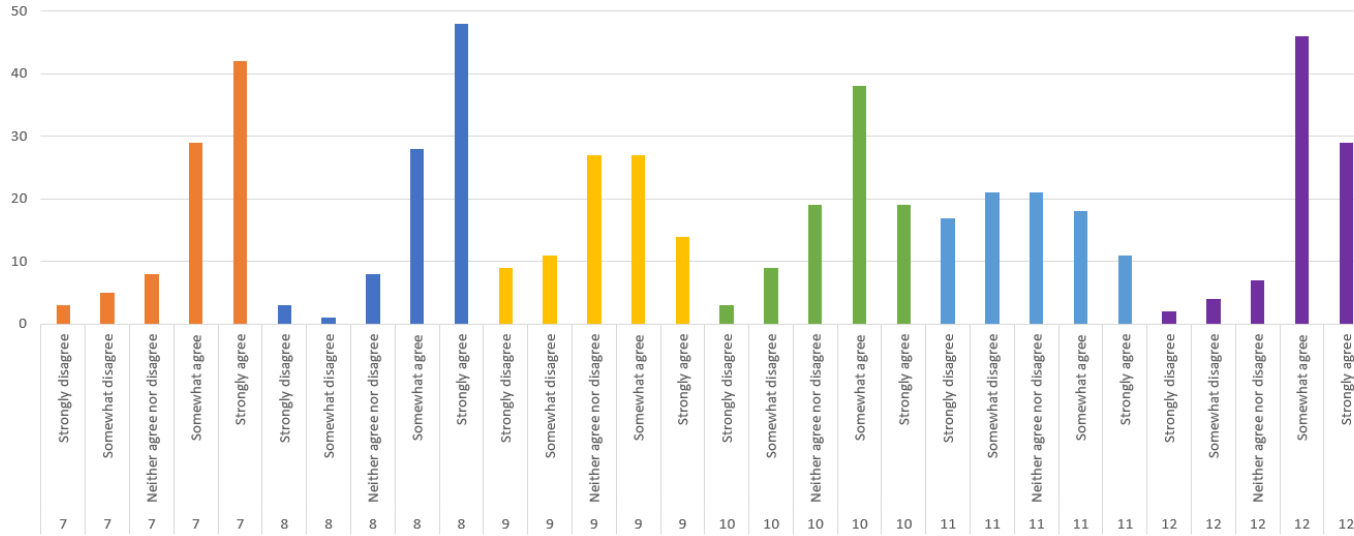


Figure D.2: Response frequencies of health & safety questions

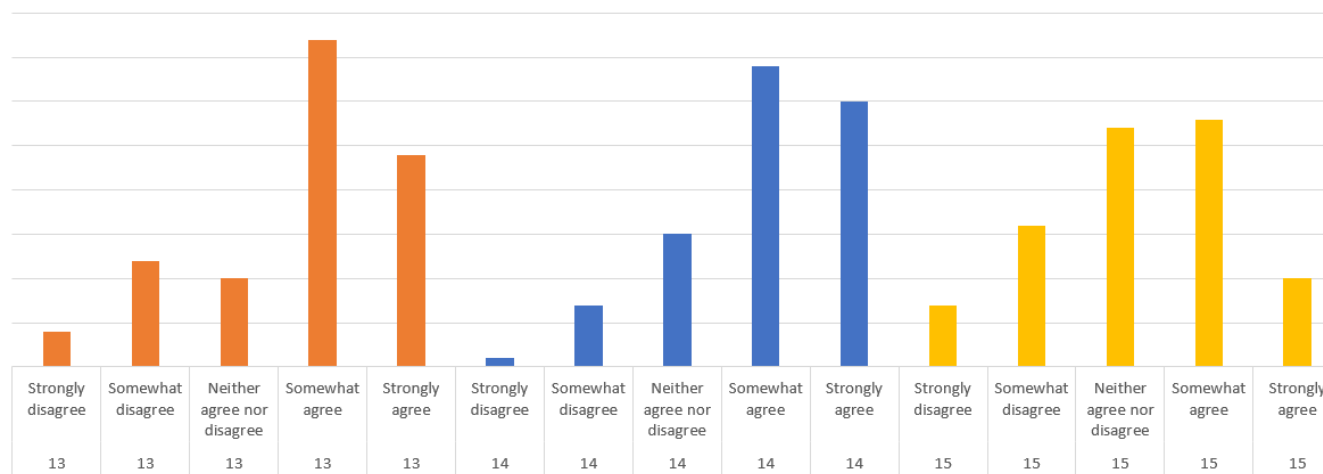


Figure D.3: Response frequencies of work-life balance questions

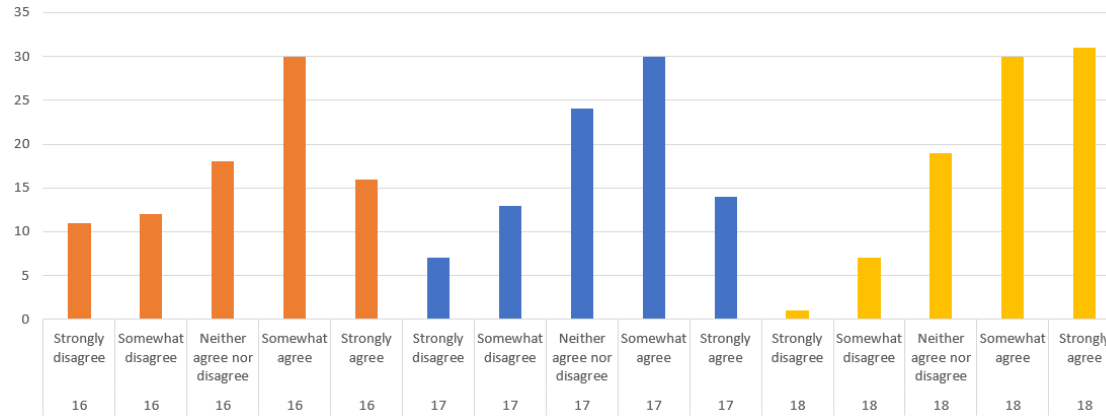


Figure D.4: Response frequencies of diversity management questions

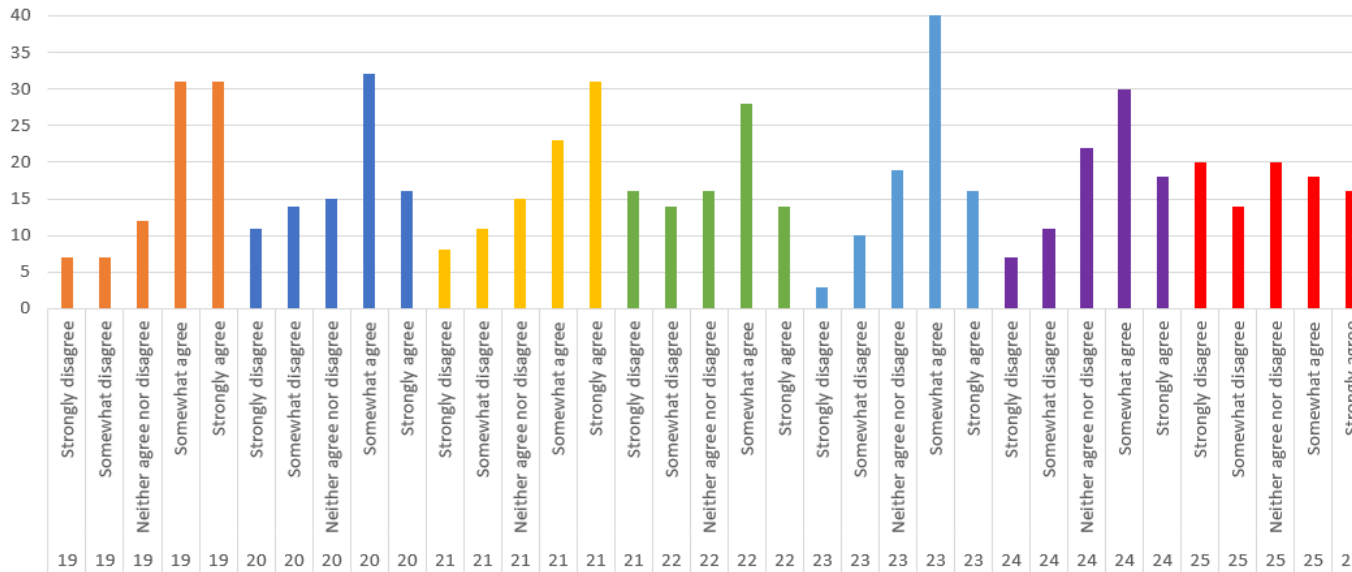


Figure D.5: Response frequencies of training & development questions

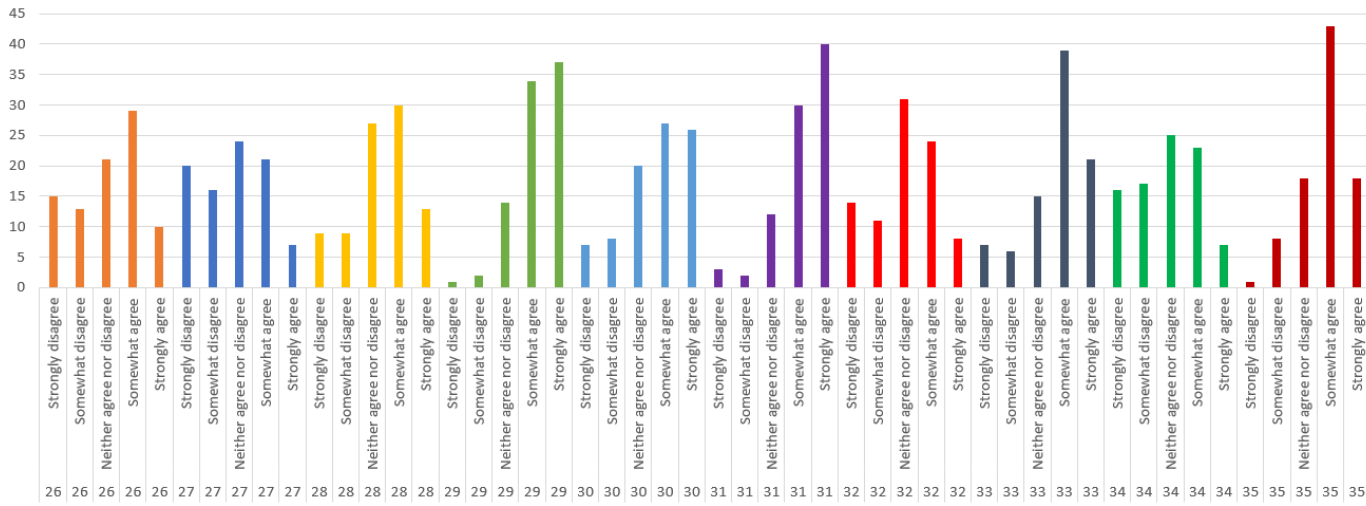


Figure D.6: Response frequencies of performance management & career planning questions

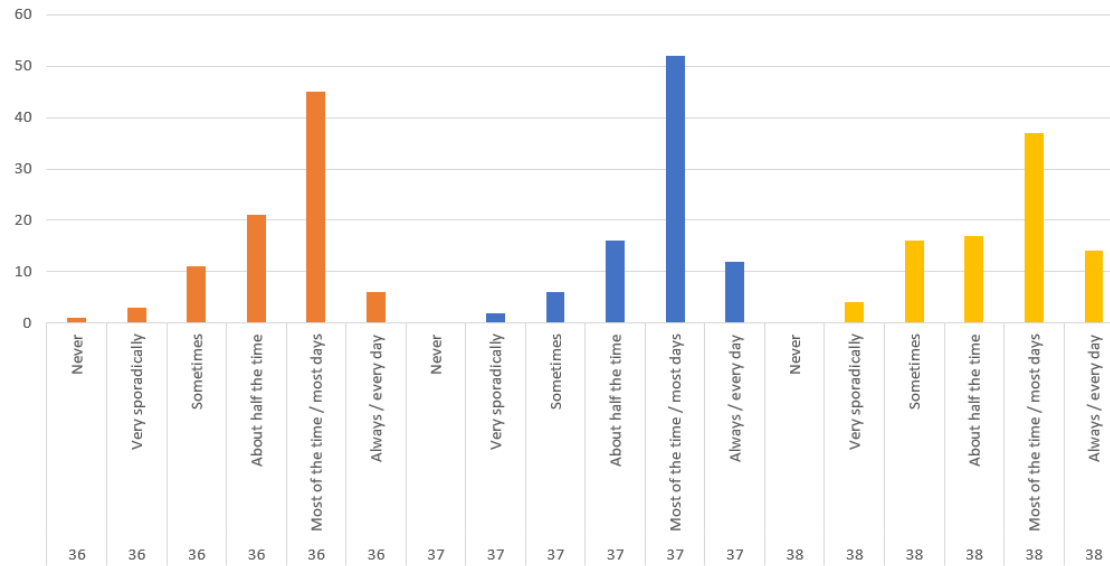


Figure D.7: Response frequencies of work engagement questions

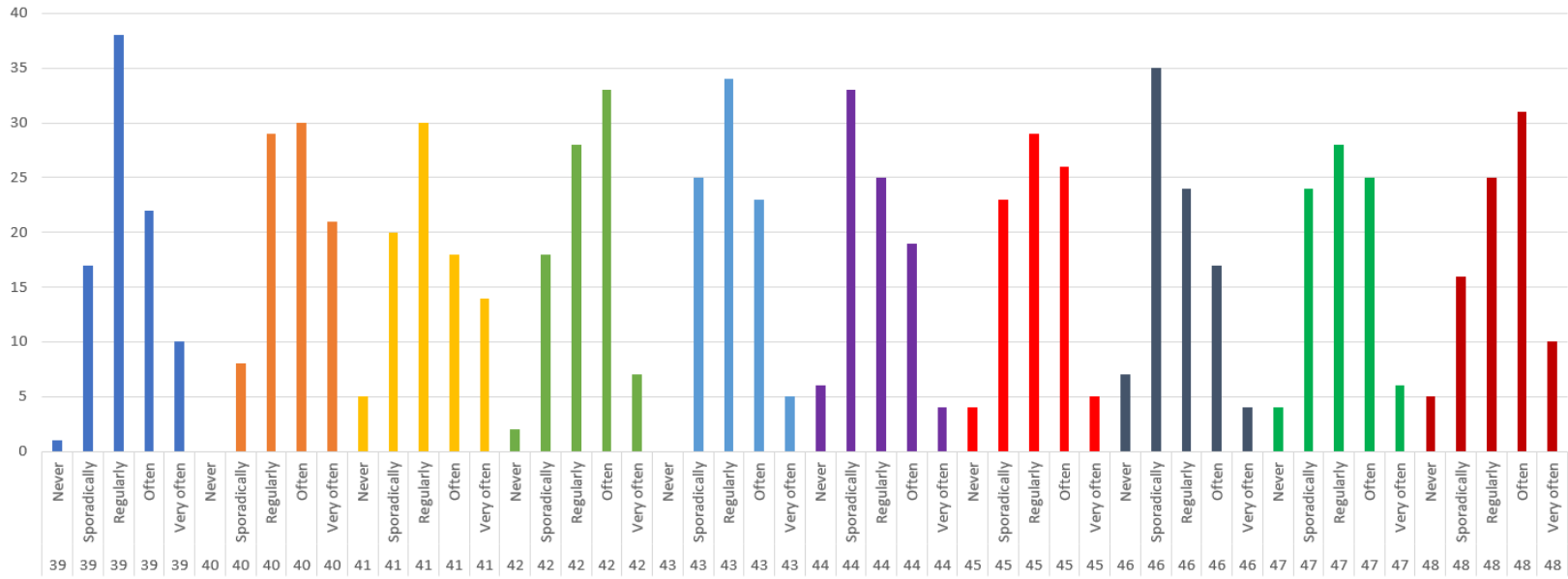


Figure D.8: Response frequencies of innovative work behavior questions