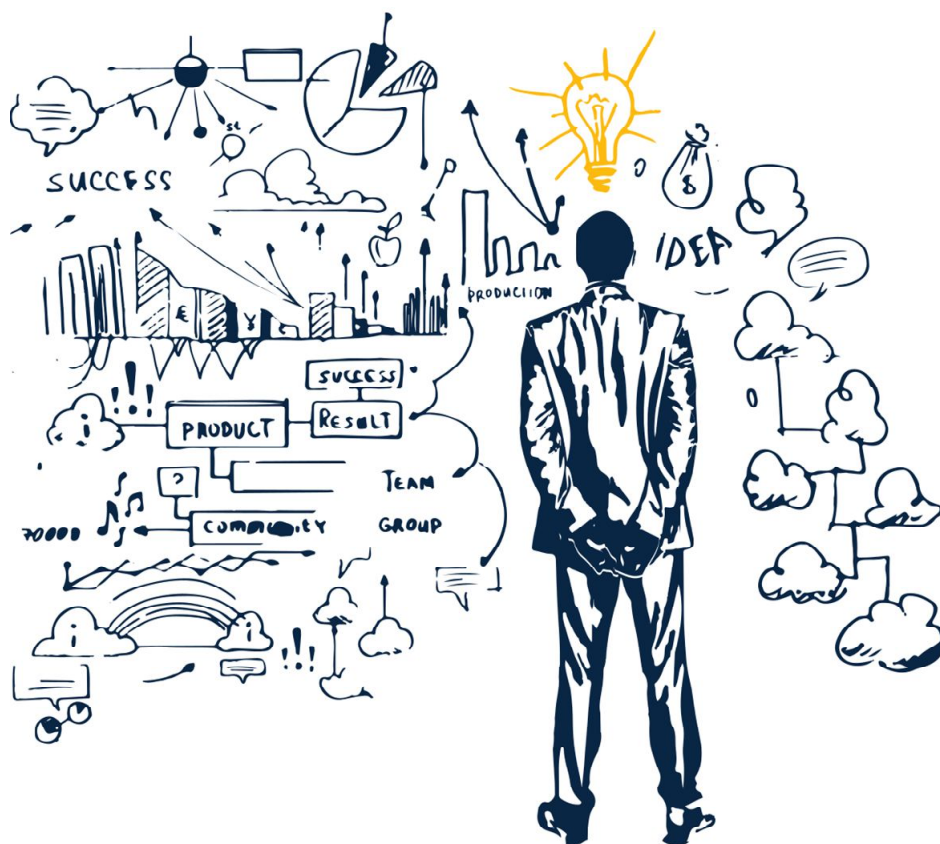


INTRA PRENEUR SHIP

Jason Gawke

A Psychological Perspective



Intrapreneurship: A Psychological Perspective

Jason C. L. Gawke

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Intrapreneurship: A Psychological Perspective

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Chapter 1

General introduction

To maintain and maximize organizational effectiveness, modern organizations increasingly depend on a phenomenon called *intrapreneurship*. Intrapreneurship captures an organization's activities aimed at creating new businesses and strategically renewing organizational vision, policies, and processes (Antonicic, 2003). Since its introduction in the 1980s (Burgelman, 1982; Pinchot, 1985), intrapreneurship has been put forward as an important means for organizations to simultaneously develop and nurture today's and tomorrow's competitive advantage (Antonicic & Hisrich, 2003; Morris et al., 2011). Indeed, structurally investing in intrapreneurial activities seems to be fruitful for organizations. Research has shown that it positively relates to profits and return on sales and assets (Bierweth, Schwens, Isidor, & Kabst, 2015). One practical example is Google, the organization that to date hosts the most widely used search engine on the internet. Google has implemented a 20% time policy for employees to invest in intrapreneurial projects. Several successful projects came out of this policy, one of them being Gmail¹, one of the market leaders of email-providers in 2017².

Although the benefits of intrapreneurship are predominantly discussed in the context of privately held organizations, its benefits are not limited to the private sector (De Vries et al., 2016). Through intrapreneurship, the UK National Health Services was able to create procedures that reduced waiting lists for elective care (Pope et al., 2006), and several governmental organizations enhanced their problem-solving capacity in dealing with societal challenges (cf. Damanpour & Schneider, 2009).

To better explain how intrapreneurship can be beneficial for organizations, scholars and practitioners have shifted their attention away from the macro-level outcomes of intrapreneurship (e.g., increased profits and public value) toward the roles and behaviors of organizational members (i.e., micro-level processes of intrapreneurship). Research on the micro-level processes has substantially increased our understanding of how employees contribute to new venture creation and strategic renewal (Belousova & Gailly, 2013), and what type of job design can enhance employees' proclivity for intrapreneurship (De Jong, Parker, Wennekers, & Wu, 2013). However, besides providing valuable insights, this research raised new questions that existing research has not yet been able to thoroughly address (Blanka, 2018). For instance, what are the psychological mechanisms that can explain why employees decide to engage in intrapreneurial activities? Also, if employees are expected to be both proficient in their job, and engage in generating, championing, and implementing intrapreneurial ideas, how does this affect their in-role performance and well-being? With these questions in mind, this dissertation sets out to increase our understanding of the micro level of intrapreneurship.

¹ <https://www.vocoli.com/blog/may-2014/10-inspiring-examples-of-successful-intrapreneurship/>

² <https://litmus.com/blog/the-2017-email-client-market-share-infographic>

In the next section, a brief overview is given of the current literature. In this dissertation, the term intrapreneurship is used to refer to the organizational activities that relate new venture creation and strategic renewal, and employee intrapreneurship is used to refer to employees' intrapreneurial behaviors. Attention is drawn to current gaps and limitations in the literature, and how these issues will be addressed in this dissertation. Thereafter, two established job design theories are introduced, namely Proactive Motivation theory (Parker, Bindle, & Strauss, 2010) and Job Demands-Resources theory (Bakker & Demerouti, 2014). Building on the core principles of these theories, a theoretical framework is introduced to explain when and why employees are most likely to act intrapreneurially and how this behavior relates to their well-being and performance. To correctly address the premises in the framework several methodological considerations are discussed. Chapter 1 concludes with the research guiding questions.

Intrapreneurship and Employee Intrapreneurship

In the 1980's the concept of intrapreneurship gained global interest as a result of Pinchot's (1985) book "Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur". In his book, intrapreneurship is portrayed as the solution to enhance corporate innovativeness and increase organizational responsiveness to environmental change (see also, Jennings & Lumpkin, 1989; Morris & Paul, 1987). Over time, the concept of intrapreneurship evolved, and research focused on the benefits of intrapreneurship for the organization, describing it as the "emergent behavioral intentions and behaviors of an organization that are related to departure from the customary" (Antonicic & Hisrich, 2003, p.9). This organizational level approach to intrapreneurship is often used interchangeably with the concept of corporate entrepreneurship (Blanka, 2018).

The positive impact of intrapreneurship for organizations has been ascribed to two central phenomena, namely new venture creation and strategic renewal (Guth & Ginsberg, 1990; Morris, Kuratko, & Covin, 2011). New venture creation captures how intrapreneurship can result in the creation and integration of new businesses. New venture creation often manifests itself in the form of new products and services, or in the form of new (semi-autonomous) organizational entities, residing both internally and externally (Narayanan, Yang, & Zahra, 2009). Strategic renewal refers to corporate activities that enhance an organization's ability to compete and take risks to adequately react to internal advancements and developments in the market. Subsequently, strategic renewal may entail organizational change through the renewal of the organizational structure, allocation of resources, and the innovation of services, products, and/or administrative processes (Ireland et al., 2003).

At the heart of organizational strategic renewal and new venture creation are the intrapreneurial behaviors of organizational members. Senior-level managers have been found to play a central role in creating an organizational vision and architecture to facilitate intrapreneurship (e.g., Belousova & Gailly, 2013). Middle-level managers often have an evaluative role in championing, refining, and facilitating fruitful bottom-up ideas to senior management, and they endorse intrapreneurship strategies coming from top-level executives to primary implementers (i.e., first-level managers). The roles of first-level managers and their employees consist of operationalizing and experimenting with the resources provided by the organization to exploit opportunities that others have not observed or have failed to exploit (Floyd & Lane, 2000).

Although our understanding of the different roles of employees in the process of intrapreneurship has substantially increased in the last decade, to date, little is known why employees decide to engage in intrapreneurial activities and how this may impact their well-being and job performance (Blanka, 2018). A reason for the relative scarcity of theoretical and empirical research on employee intrapreneurship relates to the absence of a consistent conceptualization and measure of employee intrapreneurship. To conceptualize and measure employee intrapreneurship, scholars have used employees' entrepreneurial orientation (e.g., Valsania, Moriano, & Molero, 2016), have used dichotomous measures to ask whether employees were part of an intrapreneurial project (e.g., Stam, 2013), or focused on the actual behaviors that are characteristic of employee intrapreneurship (e.g., Woo, 2017). This fragmented approach to studying employee intrapreneurship has hampered the advancement of the literature and has resulted in conceptual ambiguity of employee intrapreneurship. For instance, the current literature lacks consensus on whether innovative work behaviors are a defining feature of employee intrapreneurship (e.g., Rigtering & Weitzel, 2014), or whether they are distinct concepts that only share some similarities due to innovation being a possible outcome of intrapreneurship (e.g., McFadzean, O'Loughlin, & Shaw, 2005).

To advance our understanding of employee intrapreneurship and foster systematic research on employee intrapreneurship, this dissertation will first address the lack of conceptual clarity and consistent measurement. The following research question was formulated:

Research Question 1: How can employee intrapreneurship best be conceptualized and positioned to foster future research?

The fragmentation within the current literature on employee intrapreneurship also resonates in the studies on antecedents, as well as employee costs and benefits of intrapreneurial behaviors. Attention to what drives employee intrapreneurship has most often grown out of interest of a specific domain, such as management practices (e.g. Hornsby, Kurtatko, Holt, & Wales, 2013) or job

characteristics (e.g., De Jong, Parker, Wennekers, & Wu, 2013). Although these phenomenon-driven studies have substantially increased our understanding of the importance of management and job design for intrapreneurship, they do not address *why* employees choose to behave intrapreneurially.

Concerning the personal outcomes of employee intrapreneurship, current literature suggests that employee intrapreneurship can have both benefits and costs for employees. On the one hand, qualitative studies have shown that being part of an intrapreneurial project results in increased motivation and enthusiasm (e.g., Marvel, Griffin, Hebda, & Vojak, 2007). On the other hand, studies have highlighted that intrapreneurship requires additional effort and is likely to concur with hardships, and can have negative outcomes, such as exhaustion and burn out (e.g., Shepherd, Patzelt, & Wolfe, 2011).

Because studies on the psychological mechanisms related to employee intrapreneurship are absent, our understanding remains limited as concerns why employees decide to take on an intrapreneurial role and why employee intrapreneurship can yield both costs and benefits for employees. Yet, such understanding is necessary to explain seemingly conflicting results in the current literature. Moreover, insights into the psychological mechanism can help explain why and when employee intrapreneurship is most likely to yield costs or benefits for employees. This dissertation aims to create a theoretical framework on the antecedents and outcomes of employees' intrapreneurial behaviors, including the psychological mechanisms connecting them.

To create a theoretical framework of employee intrapreneurship, integrating the concept of employee intrapreneurship in proactive behavior and job design literature may be a first important step. They present established theories on antecedents and consequences of employee work behavior, and provide valuable insights into the underlying psychological processes. In the context of employee intrapreneurship, Proactive Motivation theory (Parker et al., 2010) and Job Demands-Resources (Bakker & Demerouti, 2014) theory may be of particular interest, as, combined, they concisely articulate the motivating mechanisms that drive proactive behavior, and define how proactive behaviors can yield potential benefits and costs for employees.

Proactive Motivation Theory for Intrapreneurship

Proactive Motivation (PM) theory (Parker et al., 2010; Parker & Wang, 2015) is a theory that has integrated several literature streams to explain why employees decide to proactively generate, strive, and continue to strive for future-oriented goals. Scholars have shown that PM theory is able to explain why employees engage in the context of a wide range of proactive behaviors, including proactive career behaviors (Strauss, Griffin, & Parker, 2012), taking initiative (Hong, Lioa, Raub & Han, 2016), and employee voice, individual innovation and problem prevention (Wu & Parker, 2018). In short, PM theory proposes that individuals'

proactive behaviors are dependent on whether they have “reason to” do it, feel they “can do” it, and are “energized to” do it. “Reason to” motivation reflects whether employees think a strong rationale is present for proactivity. This rationale is based on an individuals’ valence and utility judgments of proactivity. For instance, pursuing proactive goals may contribute to personal development, or a strong rationale can be present because the work environment prompts individuals to critically reflect on how to best perform a task. “Can do” motivation focuses on whether individuals believe that they can successfully engage or accomplish a proactive activity. Such beliefs can be related to employees’ confidence in their ability to adapt to changing situations, but also to their beliefs in their general ability to succeed at tasks. “Energized to” is a positive affect-related motivation. “Energized motivation” captures the energy needed for proactivity when it requires employees to take on an additional role or invest extra time and effort in work.

PM theory proposes that the motivational states have independent and a synergetic effect on employee proactivity (Parker & Wang, 2015). For instance, self-beliefs of one’s abilities (i.e., “can do”) can strengthen the motivational effect of job characteristics (i.e., “reason to”) to take advantage of opportunities and to respond in a proactive way. In line with this assumption, employees’ level of experienced self-efficacy have been found to enhance the motivational effect of extrinsic rewards for creative output provided by the organization on employees’ creative behaviors (Malik, Butt, & Choi, 2015). In a similar vein, job control (i.e., having control over work tasks and methods) has been shown to be particularly predictive for employees’ proactive problem-solving strategies when employees experienced high (versus low) levels of resilience (Parker, Jimmieson, Walsh, & Loakes, 2015). This dissertation will explore whether the motivational principle of PM theory can help explain why employees decide to engage in intrapreneurial behaviors. The following research question is formulated:

Research Question 2: What motivates employee intrapreneurship?

Job Demands-Resources Theory for Intrapreneurship

Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2014; 2017; Demerouti et al., 2001) is a job design theory that articulates the process concerning how demanding and motivational factors at work can elicit behaviors, and, in turn, affect employee well-being and performance. Its utility has been shown in a wide range of studies, as it has been shown to successfully predict job burnout (e.g., Bakker et al., 2005), work enjoyment (Bakker, Van Veldhoven, & Xanthopoulou, 2010), work engagement (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), and job performance (e.g., Bakker et al., 2008; Bakker, Demerouti, & Verbeke, 2004). In short, JD-R theory proposes that work environments can be described in terms of job demands and resources. Job demands refer to aspects of the work context that cost energy. In contrast,

resources refer to aspects of the work context (e.g., autonomy) and personal characteristics (e.g., self-efficacy) that help employees manage job demands, foster work engagement, and achieve personal and organizational goals. This dissertation will focus on JD-R theory's propositions concerning how proactive behaviors can affect employee well-being and performance.

According to JD-R theory, employee well-being and performance are explained by two independent processes, namely, the *motivational* process and the *health-impairment* process. The motivational process describes how a work context characterized by challenging job demands and resources may enhance motivation and proactive work behaviors, which, in turn, benefit employee well-being and performance. Consequently, such positive experiences can create new resources (e.g., increased self-efficacy due to successfully completing work goals), empower employees to face future challenges, and positively influence well-being. In contrast, when job challenges outweigh available resources, employees are expected to experience exhaustion, which in turn, hampers employees' well-being and performance (i.e., a health-impairment process; Bakker & Demerouti, 2014). Such negative experiences may, in turn, deplete future resources and increase job demands, because employees lose their confidence or feel the need to compensate for their failure. To explore whether the motivational and health-impairment process can help explain what the potential costs and benefits are for employee well-being and performance when engaging in employee intrapreneurship, the following research question is formulated:

Research Question 3: What are the costs and benefits of employee intrapreneurship for employee well-being and performance?

To give a more refined answer to Research Question 3, this dissertation will explore when employee intrapreneurship is more likely to yield personal benefits (i.e., trigger a motivational process), or when it is more likely to be detrimental for the employee (i.e., trigger a health impairment process). Research in the field of behavior and neurosciences has suggested that an individual's reward and punishment sensitivity color how one experiences and evaluates behaviors (cf. Corr, 2004). Individuals' reward sensitivity reflects their tendency to focus on positive and pleasurable outcomes as a result of their behavior. In contrast, individuals with high punishment sensitivity are likely to focus on the negative and aversive outcomes of their behavior. Experimental studies have shown that individuals who were highly sensitive to rewards had higher levels of positive affect after engaging in an appetitive task (i.e., a task that positively reinforces participants' correct behavior), compared to individuals who were not highly sensitive to rewards. Individuals who were highly sensitive to punishment had higher levels of negative affect after completing an aversive task (i.e., a task that negatively reinforces participants' incorrect behavior), as compared to those who were not highly sensitive to punishment (e.g., Heponiemi et al., 2003). Hence,

when addressing Research Question 3, the way employee characteristics can potentially qualify the relationship between employee intrapreneurship and its costs and benefits will be explored. Figure 1 displays the complete theorized framework on employee intrapreneurship.

Methodological Considerations

Current literature provides researchers with an array of statistical methods to analyze and interpret (longitudinal) data. Each methodology has explicit and subtle differences, influencing the way data are collected, analyzed, and interpreted. Consequently, they affect the outcomes and implications of a study, depending on the features a specific methodology can capture (Laursen, Little, & Card, 2012).

To accurately address the presented research questions, this dissertation will pay explicit attention to the multi-level nature of employee intrapreneurship and the different approaches that can be used to examine the outcomes of employee behavior. The multi-level nature refers to the likelihood that antecedents of employee intrapreneurship and its consequences can span multiple levels that, to some degree, are dependent on each other (Hox, Moerbeek, & van der Schoot, 2010). For instance, the “reason to” motivation for employee intrapreneurship can be elicited by unique features of the job (De Jong et al., 2013), but may also result from organizational practices that affect an entire department or organization (Hornsby et al., 2013). As concerns the outcomes of employee intrapreneurship (Research Question 3), the consequences of employee intrapreneurship for well-being will be examined in light of how it can foster or hamper well-being and performance, but also in light of its potential to stabilize or increase fluctuations in such outcomes over time.

Purpose and Overview of the Research Guiding Questions

The purpose of this dissertation is to increase our understanding of employee intrapreneurship. In order to do so, three research questions were formulated covering the conceptualization and measurement of employee intrapreneurship, the motivational states that drive employee intrapreneurship, and its benefits and costs for employees. Below, an overview of the research questions is presented together with a short description of how the different chapters included in this dissertation aim to answer each question.

Research Question 1: How can employee intrapreneurship best be conceptualized and positioned to foster future research?

Current literature on employee intrapreneurship lacks conceptual clarity, hampering theoretical advancement of the intrapreneurship literature. Chapter 2 presents a narrated review of the current intrapreneurship literature to provide an overview of the fragmented research on employee intrapreneurship. Based on this

review, Chapter 2 develops a behavior-based conceptualization of employee intrapreneurship and sheds light on conceptual boundaries between employee intrapreneurship and other proactive strategic employee behaviors.

Chapter 2 sets another milestone for the advancement of the literature on employee intrapreneurship by developing and validating a measurement instrument, namely the Employee Intrapreneurship Scale (EIS). A detailed description of how the items of the EIS were generated and tested for face validity is provided in Chapter 2. Construct validity of the EIS is shown against existing scales of the entrepreneurial orientation of employees, consisting of innovativeness, risk-taking, and personal initiative. To reduce the risk of common-method bias, multi-source data is used. As all studies in this dissertation use the EIS, the factorial validity and reliability of the scale are also discussed in the other chapters in this dissertation.

Research Question 2: What motivates employee intrapreneurship?

A second objective of the current series of studies is to provide insights into the psychological mechanisms that drive employee intrapreneurship. Chapters 3 and 4 adopt a multi-level perspective to answer this question. In these chapters, individual employee characteristics, job design, and organizational features are argued to influence employees' intrapreneurial responses (e.g., Hornsby et al., 2013). Following PM theory, the motivational effects of these antecedents are explained by the way they can elicit the motivational states "reason to" and "can do" motivation for employee intrapreneurship.

Concerning "reason to" motivation for employee intrapreneurship, this dissertation focuses on the roles of human resources practices that center on fostering employee involvement (i.e., high involvement work systems (HIWS; Appelbaum et al., 2000)). At the job level, the influence of job design characteristics, autonomy, ambiguity, and accountability are examined. Chapter 3 centers on the longitudinal relationship between job ambiguity, job autonomy, and job accountability and employee intrapreneurship, and examines the relationship between employee intrapreneurship and prosocial impact. Chapter 4 explores the relationship between HIWS, employees' perceptions of their job enrichment and accountability, and employees' intrapreneurial behaviors.

Chapters 3 and 4 address "can do" motivation for employee intrapreneurship on the basis of employees' confidence in their ability to adapt to changing situations (i.e., ego-resilience), their tendency to approach challenges with confidence (i.e., optimism), and their beliefs in their general ability to succeed at tasks (i.e., self-efficacy). Chapter 3 explores the direct relationship between "can do" motivation and employee intrapreneurship, and additionally investigates whether "can do" motivation can enhance employees' ability to better capitalize on the opportunities provided in the work environment (i.e., "reason to" motivation) for employee intrapreneurship. Chapter 4 examines both the independent effect of

“can do” motivation for employee intrapreneurship, and its potentially mediating role in the relationship between “reason to” motivation and employee intrapreneurship.

Chapter 6 focuses on “energized to” motivation for employee intrapreneurship. Chapter 6 uses the concept of work engagement to operationalize “energized to” motivation, as it refers to an employee’s vigor, dedication, and absorption at work (Schaufeli & Bakker, 2010). Chapter 6 examines whether work engagement can foster employee intrapreneurship over time, which can be expected based on prior research showing that engaged employees accomplish their in-role tasks with less effort, are better able to focus and deal with hardship at work, and are more likely to engage in proactive behaviors (Kim et al., 2012).

Research Question 3: What are the costs and benefits of employee intrapreneurship for employee well-being and performance?

A third, and final, objective of this dissertation is to increase our understanding of the costs and benefits of employee intrapreneurship for employee well-being and performance. Chapter 3 explores the relationship between employee intrapreneurship and public servants’ prosocial impact. Building on JD-R theory’s motivation and health-impairment processes, Chapter 5 examines how employee intrapreneurship relates to different types of indicators of employee performance, namely innovativeness, in-role performance, and work avoidance, with work engagement and exhaustion as mediating variables. Moreover, Chapter 5 investigates the role of personal dispositions towards reward sensitivity and punishment sensitivity as qualifiers of the relationship between employee intrapreneurship and work engagement, and employee intrapreneurship and exhaustion.

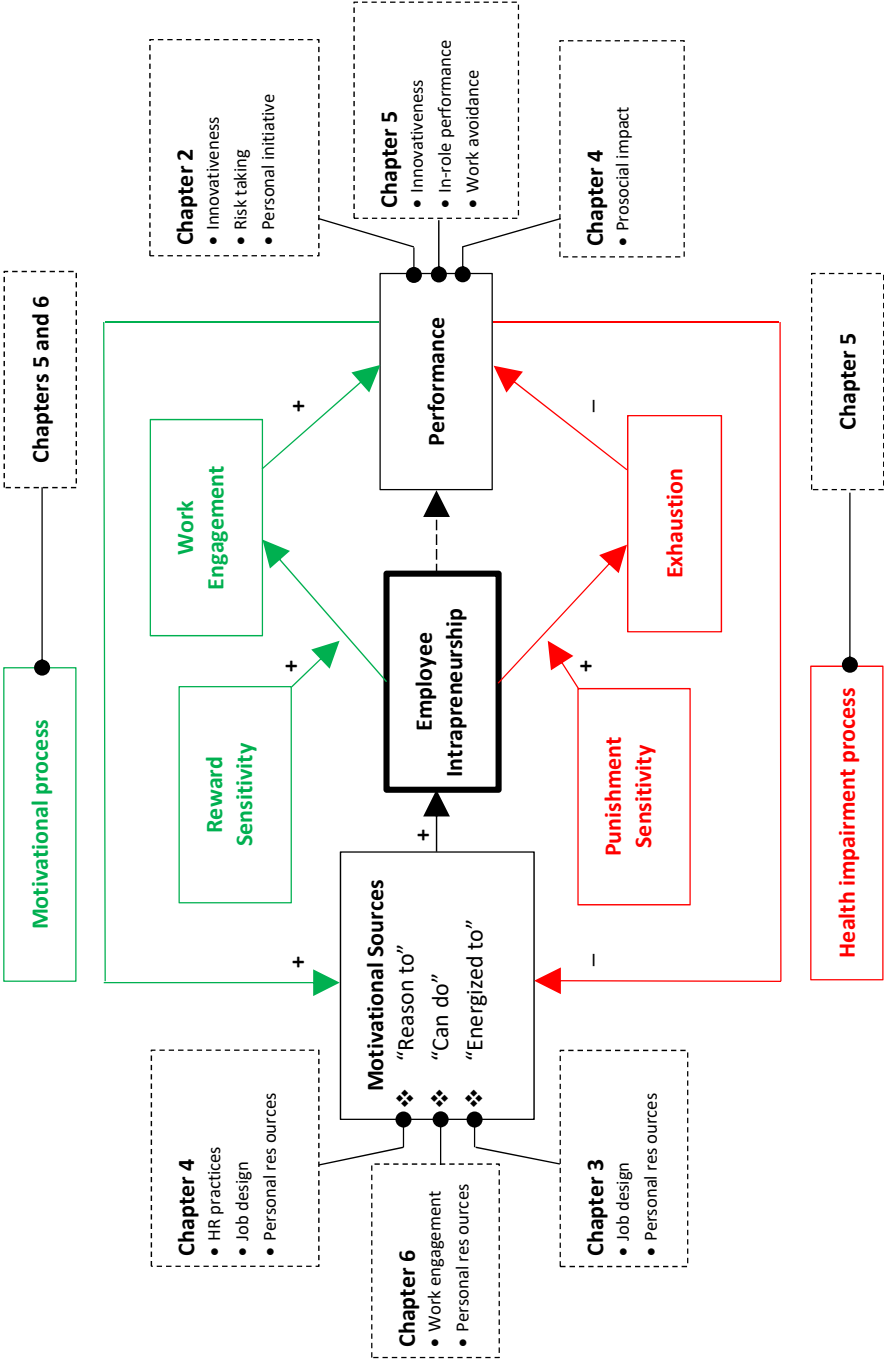
Chapter 6 focuses on how employee intrapreneurship may contribute to staying positively engaged in work. Following JD-R theory, a key reason for having a sustained, positive work life, is the availability of ample job and personal resources. Personal resources, in particular, play an important role, because personal resources can provide energy and motivation to employees, and mitigate the (negative) effect of external influences on work engagement (Bakker & Demerouti, 2017). Chapter 6 uses a latent change score analysis to explore whether the exploratory nature of intrapreneurial behaviors can lead to increased personal resources over time. Moreover, Chapter 6 examines whether having increased personal resources (i.e., “can do” motivation) will result in higher and more stable levels of work engagement (i.e., “reason to” motivation) over time.

General discussion

The results of the studies described in Chapters 2 to 6 are discussed in Chapter 7. This final chapter reflects on the main findings of each chapter guided

by the presented research questions. Moreover, the limitations of the studies are discussed as well as suggestions and thoughts for future research. Chapter 7 concludes with the practical implications and an overall conclusion of this dissertation.

Figure 1. A theorized framework of employee intrapreneurship.



Note. The text boxes with dotted borders provide an overview of which chapters and variables have been used to examine the specific component of the theorized framework that it is connected to.

Chapter 2

Measuring intrapreneurship at the individual level: Development and validation of the Employee Intrapreneurship Scale (EIS).

This chapter is published as:

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Abstract

Although employees are recognized to be key for organizational new venture creation and strategic renewal (i.e., intrapreneurship), the current literature on intrapreneurship from an individual-level perspective is fragmented, and a valid measurement instrument is lacking. We address this gap and start with presenting a review of the current literature on employee intrapreneurship. Based on this review we define employee intrapreneurship as an agentic and strategic work behavior aimed at new venture creation and strategic renewal. Next, two studies are presented aimed at developing and validating a measurement instrument that captures employee venture behavior and strategic renewal behavior as two facets of employee intrapreneurship—the Employee Intrapreneurship Scale (EIS). In Study 1, the EIS was created and its factorial validity examined in three departments of a public organization (total N = 1,475). In Study 2, using a sample of private sector employees (N = 243), the convergent and discriminant validity of the EIS was tested using self-ratings of personal initiative, reward sensitivity, and punishment sensitivity, as well as their innovativeness and risk-taking behavior as rated by a close colleague. The results indicate that the Employee Intrapreneurship Scale is a valid and reliable instrument for capturing employee intrapreneurship in multiple contexts. Theoretical and practical implications are discussed.

Keywords: Innovation; Intrapreneurship; Proactive work behavior; Strategic renewal; Venture creation

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Introduction

Intrapreneurship, defined as organizational venture creation and strategic renewal brought about by employees, has become crucial for organizations to survive and maintain their competitive advantage (Ireland, Hitt, & Sirmon, 2003; Morris, Webb, & Franklin, 2011). Research in private sector organizations has shown that intrapreneurship positively relates to profits and returns on sales and assets (Bierweth, Schwens, Isidor, & Kabst, 2015), and has been argued to increase organizational effectiveness and public value creation (Kearney & Meyhardt, 2016). Over recent decades, research on organizational preparedness for intrapreneurial activity (Hornsby, Kuratko, Holt, & Wales, 2013) and on the stance of an organization to act entrepreneurially (Miller, 2011) has progressed significantly. Additionally, studies have shed light on the specific roles, responsibilities, and activities of employees at different managerial levels to ensure successful intrapreneurship (e.g., Floyd & Lane, 2000; Hornsby, Kuratko, Shepherd, & Bot, 2009).

In spite of this growing interest, a recent review has shown that research on the agentic and strategic employee behaviors contributing to new venture creation and strategic renewal (i.e., employee intrapreneurship) is scarce and fragmented (Blanka, 2018). As a result, theoretical advancement in the field of employee intrapreneurship is hampered. Given that employee intrapreneurship is recognized as being key to an organization's new venture creation and strategic renewal (Belousova & Gailly, 2013; Ireland, Covin, & Kuratko, 2009), the present research aims to address this gap. Specifically, we aim to advance our understanding of employee intrapreneurship and provide conceptual clarity by reviewing the current literature. Thereafter, we present two studies in which we develop a valid and reliable measurement instrument that captures employee intrapreneurial behavior: the Employee Intrapreneurship Scale (EIS). In Study 1 we build on our review and on expertise from scholars and practitioners to generate the items for the EIS. Moreover, in Study 1 we validate the EIS in three different departments of a national public administration. In Study 2, we cross-validate the EIS in another sample of employees of privately held companies, and we examine its discriminant and convergent validity.

Our research makes several contributions to the intrapreneurship literature. First, by reviewing the current literature and identifying the defining characteristics of employee intrapreneurship, we advance our understanding of intrapreneurship as a research field. We argue that conceptual clarity is needed, as different conceptualizations have been used interchangeably to describe employee intrapreneurship (Blanka, 2018). Second,

based on the review we conclude that a valid measure of employees' intrapreneurial behaviors is absent. As theoretical advancement strongly depends on both consistent terminology and consistent operationalization (Suddaby, 2010), we argue that by developing the EIS we set an important pre-condition for theoretical advancement in the field of intrapreneurship. Moreover, the validity tests of the EIS based on its nomological network provide first empirical insights into how employee intrapreneurship relates to behaviors associated with having an entrepreneurial orientation (i.e., innovativeness, risk-taking, and personal initiative; Wakkee, Elfring, & Monaghan, 2010), and to employees' proclivity to perceive opportunities versus threats in the work environment (Corr, 2004). Third, we argue that practitioners may benefit from our review and the EIS. Our review may aid practitioners in more precise and appropriate terminology to communicate about intrapreneurship with clients and colleagues. Moreover, it is important that professional consultancy products aimed at facilitating intrapreneurship are evidence-based in their development and operation. The EIS may be used to provide important metrics for such means.

Theoretical Background

In the 1980s, the concept of intrapreneurship received widespread attention, and the importance of entrepreneurial employees who create value for the organization was championed to help gain competitive advantage (e.g., Pinchot, 1985). With the primary focus on the benefits for organizations, research on organizational-level intrapreneurship, also referred to as corporate entrepreneurship (Blanka, 2018), flourished and multiple conceptualizations were introduced. For instance, intrapreneurship was defined as the process whereby firms engage in diversification through internal development (Burgelman, 1983) and as a firm's activities directed at product and technological innovation, risk-taking, and proactivity (Miller, 1983; Jennings & Lumpkin, 1989). In the 1990s, a more comprehensive conceptualization of intrapreneurship emerged which, to date, is still the most frequently used. According to this conceptualization, intrapreneurship refers to an organization's corporate venturing and strategic renewal activities as a result of its employees' intrapreneurial behaviors and effective use of human resources management (Blanka, 2018; Guth & Ginsberg, 1990; Morris, Kuratko & Covin, 2011).

Corporate venturing refers to the creation and integration of new businesses, or portions of new businesses via equity investments, into the overall business portfolio of an organization (Narayanan, Yang, & Zahra, 2009). These businesses may span new products

or services, but they may also be new (semi-autonomous) organizational entities residing both internally and externally. In contrast, strategic renewal involves opportunity-seeking and advantage-seeking behaviors to enhance an organization's ability to compete with industry rivals and to adequately react to internal advancements and developments in the market. Such activities are aimed at fundamental changes from the organization's past ways of operating (e.g., strategies, product offerings, and business models) or fundamental differentiation from industry standards or conventions (Ireland et al., 2003).

Employee-level intrapreneurship

The intrapreneurial roles and actions of both managerial and non-managerial employees are argued to be at the heart of an organization's new venture creation and strategic renewal (Blanka, 2018; Belousova & Gailly, 2013; Floyd & Lane, 2000). Senior-level managers are expected to play a central role in creating an organizational vision and architecture that facilitate intrapreneurship. Moreover, they are responsible for rationalizing if and how new businesses and strategic choices add value to the organization. Middle-level managers may play an evaluative role in championing, refining, and facilitating fruitful bottom-up ideas to senior management, and they endorse intrapreneurship strategies coming from top-level executives to primary implementers (i.e., first-level managers). The roles of first-level managers and their employees are framed around operationalizing and experimenting with the resources provided by the organization to exploit opportunities that others have not observed or have failed to effectively exploit (Belousova & Gailly, 2013). Non-managerial employees may devote considerable time to contribute to intrapreneurship by deviating from their formal work requirements to increase their work variety or contribute to organizational goals by generating and nurturing innovative ideas before formally revealing them to management (Globocniks & Salomo, 2015). The premise that employees throughout the organization contribute to intrapreneurship is supported by the existing literature. For instance, staff-level employees have been shown to proactively contribute to a breakthrough innovation by designing a new product (e.g., Marvel, Griffin, Hebda, & Vojak, 2007), and employees of various managerial levels have been found to facilitate and implement entrepreneurial ideas (e.g., Hornsby et al., 2009).

With respect to the intrapreneurial activities of organizational members (i.e., employee intrapreneurship), the current literature is scarce and fragmented (Blanka, 2018). To gain more insight into the different approaches to employee intrapreneurship, we conducted a literature review. First, we searched the Web of Science, Scopus, and

PsycINFO for studies published in peer-reviewed journals using the search term “intrapreneur*”. Further inclusion criteria were that the language was English and the journal article was published between 2007 and 2018. This resulted in 367 hits. In addition, we included the 32 articles covered in Blanka’s (2018) systematic review on intrapreneurship. After deleting doubles, we screened the abstracts of these studies and dropped studies that did not focus on individual level intrapreneurship or did not provide a clear conceptualization and operationalization of employee intrapreneurship. Only 22 articles met our criteria. Three main approaches to employee intrapreneurship could be identified (see Table 1).

A first approach draws heavily on the entrepreneurial orientation literature, arguing that employee intrapreneurship is best conceptualized as a higher order factor of showing initiative, taking (calculated) risks, and creating innovations for the organization. We counted seven articles that used this conceptualization (e.g., Rigtering & Weitzel, 2013; Valsania, Moriano, & Molero, 2016). In this conceptualization, scholars argue that showing initiative reflects the self-starting nature of employee intrapreneurship characterized by an awareness of external trends and events (Wakkee et al., 2010). For instance, staff-level employees may proactively combine existing resources to create a new product, or management may change organizational resources to anticipate changes in key business areas. Risk taking is considered a defining characteristic of intrapreneurial activity because the returns on resources invested are marked by a risk of potential loss. Such a loss may represent a failed new product, but it may also relate to an individual’s reputation when selling a controversial issue (De Jong et al., 2013). Finally, because intrapreneurial activity is aimed at advancing the organization, innovativeness is viewed as a key outcome (Barringer & Bleudorn, 1999; McFadzean, O’Loughlin, & Shaw, 2005). Innovativeness may reflect the value creation for the organization in the form of a new service or a novel working process.

A second conceptualization of employee intrapreneurship centers on employees’ intrapreneurial contributions for their employer. In this category, we have counted nine articles. Scholars using this approach predominantly relied on dichotomous, single item, measures to assess employee intrapreneurship, for example, by asking employees (1) whether they have a leading role in the development and/or implementation of new products or services (e.g., Guerrero & Legazkeul; 2013), (2) if they have engaged in start-up activities for their employer in the past few years (e.g., Parker, 2011; Stam, 2013, Tietz & Parker, 2012), or (3) how many new entrepreneurial ideas they have implemented in their organization in a given period of time (Hornsby et al., 2009).

A third approach has an explicit focus on employees' agentic behaviors that contribute to firm-level intrapreneurship, such as radical and (smaller) incremental changes to products, processes, markets, organizational strategy or combinations of such. In this category we have counted six studies (e.g., Douglas & Fitzsimmons, 2012; Park, Kim, & Krishna, 2014). To provide clarity and consistency regarding what type of employee behaviors can be considered intrapreneurial behavior, employee intrapreneurship has recently been conceptualized as a specific type of agentic and strategic employee behavior that consists of employee venture behavior and employee strategic renewal behavior (e.g., Gawke et al., 2017a). Employee venture behavior captures employee activities aimed at creating, adding, or investing resources in new businesses. For instance, an employee may proactively establish collaborations to adopt technologies developed outside of the organization to reach a new market (Park, et al., 2014) or to better render services to users (Edquist, Hommen, & McKelvey, 2001). In contrast, strategic renewal behavior captures more opportunity-seeking and advantage-seeking activities aimed at radically or incrementally renewing current products, services, working methods, and organizational strategy. For instance, employees may champion a strategic shift in when and where work is done (e.g., increase teleworking) to improve productiveness and organizational performance (Basile & Beauregard, 2016; Coenen & Kok, 2014).

Conceptualizing employee intrapreneurship for systematic research

Although all three approaches to employee intrapreneurship have their merits, we argue that a behavior-based approach is best suited for the purpose of facilitating systematic research on employee intrapreneurial behaviors. Specifically, we argue that a conceptualization that centers on employee venture behavior and employee strategic renewal behavior provides more conceptual clarity on the defining features of employee intrapreneurship, compared to a conceptualization which defines intrapreneurial behavior in terms of the more general concepts of proactivity, risk taking and innovativeness. This clarity is needed to differentiate employee intrapreneurship from related behaviors, such as innovative work behaviors (Jansen, 2000) and championing behaviors (Howel, Shea, & Higgins, 2005). For example, intrapreneurial activities may enhance an organization's ability to take risks and seize opportunities (e.g., scanning for environments with no fast-food services to establish a prime new outlet for a fast-food chain). Although this activity is central to intrapreneurship, it is not considered innovative, as no novel processes, services, or products are created (Antoncic & Hisrich, 2003). In addition, employee intrapreneurship differs from championing behaviors in its emphasis on value creation

through venture and strategic renewal behaviors, whereas championing revolves around the promotion of innovations (Howel, et al., 2005).

Furthermore, we argue that a behavior-based conceptualization yields more potential for theoretical advancement in the field of employee intrapreneurship than one that is solely linked to an employees' contribution to intrapreneurial output. Specifically, a behavior-based conceptualization allows for a broader theoretical exploration on potential factors that may hamper or foster employee intrapreneurship, as it also includes intrapreneurial pursuit that are still in an exploratory phase occurring without official mandates or supervisory control (Globocnik & Salomo, 2015). Moreover, a behavior-based approach to employee intrapreneurship would fit within the broader category of strategic proactive work behaviors (see for an overview Parker & Collins, 2010), which play a central role in established job design theories on employee motivation, wellbeing, and performance (e.g., Job Demands-Resources theory; Bakker & Demerouti, 2014; and Proactive Motivation theory; Parker, Bindle, & Strauss, 2010). As a result, a behavior-based conceptualization may integrate more easily into the job design literature, as compared to the other conceptualizations, and foster research on employees' motivation for employee intrapreneurship and its costs and benefits for employees.

Hence, in this research we conceptualize employee intrapreneurship as a specific type of agentic, strategic work behavior comprising employee venture behavior and strategic renewal behavior, and use this definition as a basis to develop a valid measure. To validate this conceptualization and operationalization, we use the entrepreneurial orientation approach to employee intrapreneurship (e.g., De Jong et al., 2013). Moreover, because an individual's behavior is closely related to their attitudes towards potential positive and negative outcomes (Ajzen, 1991), employee intrapreneurship is more likely to be pursued by individuals who focus on opportunities in the work environment (as opposed to seeing threats and expecting failure; Douglas & Fitzsimmons, 2012). Therefore, we examine a nomological network consisting of showing initiative, taking risks, innovativeness, and sensitivity to opportunities in the work environment (as opposed to sensitivity to threats).

Table 1. An overview of the different conceptualizations of employee intrapreneurship between 2007 and 2018.

Approach	Conceptualization	References
1. The entrepreneurial orientation approach.	Employee intrapreneurship is conceptualized on the basis of an employees' entrepreneurial orientation (i.e., proclivity toward innovativeness, risk taking, and personal initiative).	De Jong, Parker, Wu & Wennekers (2013); Felicio, Rodrigues, & Caldeirinha (2012); Moriano, Molero, Topa & Mangin (2014); Rigetering & Weitzel (2013); Sun & Pan (2011); Valsania, Moriano & Molero (2016); Wakkee, Elfring, & Monaghan (2010).
2. The intrapreneurial outcomes approach.	Employee intrapreneurship is conceptualized as employees' participation in an organization's intrapreneurial pursuits, or number of implemented intrapreneurial initiatives.	Bager, Ottósen, & Schott (2010); Camelo-Ordaz, Fernandez-Alles & Ruiz-Navado (2011); Guerrero & Peña (2013); Hornsby, Kuratko, Shepherd, & Bott (2009); Matthews, Schenkel, Ford, & Human (2009); Parker (2011); Stam (2013); Tietz & Parker (2012); Urbano, Alvarez, & Turro (2013).
3. The behavior-based approach.	Employee intrapreneurship is conceptualized on the basis of employee activities that contribute to firm-level intrapreneurship, and more recently as employees' agentic and anticipatory behaviors aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and external advancements (i.e., strategic renewal behavior).	Gawke, Gorgievski, & Bakker (2017a); Gawke, Gorgievski & Bakker (2017b); Mustafa, Lee & Hughes (2016); Park, Han, & Krishna (2014); Woo (2017); Zampetakis, Beldekis, & Moustakis (2009).

Study 1: Development of the Employee Intrapreneurship Scale (EIS)

The central goal of Study 1 is to develop the EIS. In line with our conceptualization of employee intrapreneurship, we expect the EIS to capture behaviors reflecting two factors: (a) employee venture behavior and (b) employee strategic renewal behavior. To generate and verify the items of the EIS, we will collaborate with expert scholars in the field of intrapreneurship, entrepreneurship, and employee behavior, and practitioners who have been identified as intrapreneurs by their managers. Thereafter, we will test the robustness of the factorial structure of the scale. Specifically, we develop the scale in one sample and perform measurement invariance tests in two new samples to provide initial insights into the quality of the EIS across different work contexts (cf. French & Finch, 2008). Given these goals, we formulate the following hypotheses:

Hypothesis 1: The Employee Intrapreneurship Scale has a two-factor structure in each of the three samples.

Hypothesis 2: The two-factor structure is measurement invariance across samples.

Method

Procedure and participants

Data were gathered with an online questionnaire in a national public organization. The personnel administration provided access to 2000 work email addresses of employees of three departments (departments “A”, “B”, and “C”). The core business of department A is to enhance the country’s leading position in agriculture, industry and energy, and to invest in the sustainability of the economy. Department B focuses on promoting the interest of the public administration, its stakeholders, and beneficiaries abroad. It functions as the channel through which the entire organization communicates with foreign governments and international organizations. Department C is committed to improving quality of life and mobility in a clean, safe, and sustainable environment. It is important to note that although the three departments are part of the same national public organization, they operate relatively independently of each other.

All employees received an email containing information on the study, a request to complete the survey, and a link to the online survey. Of the 2000 employees who were contacted, 1428 completed the questionnaire (response rate = 71.4%). The data of the respondents from department A were used for Phase 1 in which we develop the scale and conduct an exploratory factor analyses ($N = 775$). The mean age of the sample was 47.6 years ($SD = 9.9$), and 39.1% were female. In department A, a total of 44.9% of all

participants held a university degree or higher. Most of the participants had a permanent contract (94.6%) and had worked for an average of 7.3 years ($SD = 7.8$) in their current position. The participants worked in the following areas: advisory (15.0%), operational management (12.9%), policy (11.4%), research and development (4.4%), top management (5.7%), project management (4.3%), control (21.4%), operations (21.4%), and other (3.6%).

Departments B and C were used for Phase 2 in which we validate the factor structure of the scale and test for measurement invariance across departments. In addition, we tested measurement invariance across the different contexts. Data from department B ($N = 427$) and department C ($N = 226$) were used to test the factorial validity and reliability of the scale using multi-group confirmatory factor analysis. In addition, we tested measurement invariance across the different contexts. In department B, the mean age was 46.8 years ($SD = 11.1$); 34.8% were female; 55.7% held a university degree or higher; the participants had worked in their current position for an average of 7.1 years ($SD = 7.6$); and the vast majority had a permanent contract (94.6%). The participants worked in the following areas: advisory (20.4%), operational management (15.2%), policy (20.6%), research and development (10.1%), top management (4.2%), project management (3.5%), control (18.0%), operations (5.9%), and other (2.1%).

In department C, the mean age was 49.2 years ($SD = 9.9$); 50.9% were female; 55.8% held a university degree or higher; the participants had worked in their current position for an average of 7.3 years ($SD = 7.8$); and the vast majority had a permanent contract (91.2%). The participants also represented different fields of work: advisory (11.9%), operational management (28.8%), policy (28.8%), research and development (.4%), top management (16.4%), project management (1.7%), control (0%), operations (8.0%) and other (4.0%).

Phase 1: Scale construction and exploratory analysis

Five experts in the field of work and organizational psychology, work behavior, and (corporate) entrepreneurship (one full professor, three assistant professors, and one Ph.D. candidate) separately generated items that were meant to capture employee intrapreneurship. In line with Hinkin's (1998) deductive method of item generation, all experts were provided with a short theoretical background (including a reference list), our conceptualization of employee intrapreneurship, and some considerations with regard to the formulation of the items. The first consideration was that the items should be formulated to be concise, they should directly capture behavior, and they should be clearly quantifiable. Second, the items had to be positively worded, as negatively worded items have been shown to produce problems with the factor structure (DiStefano & Motl,

2006; Schriesheim & Eisenbach, 1995). Finally, the experts were kindly asked to generate approximately ten items each to ensure a large enough pool of items from which a selection could be made. This process generated a total of 50 items.

We proceeded by examining the 50 items based on their content, deleted double items, and reformulated some items so that they would all have a similar length. In this process, nine items were deleted because they were identical in content and formulation. The 41 remaining items were presented to a team of three practitioners who had successfully implemented several innovations within their company to carefully reflect on the content. As a result, some items were reformulated. Next, we asked the five experts and the practitioners to rate each item on clarity and the extent to which the items reflected the construct of employee intrapreneurship (i.e., content validity assessment; Hinkin, 1995; 1998). Items that were rated as “very clear” and “very reflective of the construct of employee intrapreneurship” were selected. This selection resulted in a 17-item scale. A seven-point frequency scale (1= never, 7= very often) was chosen as a means to rate the items.

Results Phase 1

Exploratory factor analysis

Principal factor analysis (maximum likelihood) with oblique rotation in SPSS was performed to examine the factorial structure of the 17 items (Worthington & Whittaker, 2006). The Kaiser-Meyer-Olkin measure of sampling adequacy was .96, and Bartlett’s test of sphericity showed an approximate $\chi^2 = 8016.50$, $df = 136$, $p < .001$, indicating that our data were suited for factor analysis (Williams, Onsman, & Brown, 2010). The criterion to retain factors was based on the eigenvalue and loading plots. Items were retained if they loaded higher than .32 on a factor. Cross-loading items (loading .32 on two or more factors) were dropped (Tabachnick & Fidel, 2001). Based on this criterion, we deleted two of the 17 items; the final questionnaire thus included 15 items. In support of Hypothesis 1, the two factors explained 55% of the variance. The first factor (eigenvalue = 7.98) reflected strategic renewal behavior (eight items; Cronbach’s alpha = .91). The second factor (eigenvalue = 7.46) reflected the dimensions of venture behavior (seven items; Cronbach’s alpha = .87). The Pearson’s r correlation was .77 between dimensions. The items, item means, standard deviations, Cronbach’s alphas, and factor loadings are presented in Table 2.

Table 2. Items, means, standard deviations, Cronbach's alphas, and factor loadings

	M	SD	α	Factor Loadings	
				1	2
<i>Strategic renewal behavior</i>					
1. I undertake activities to realize change in my organization. ^a	3.53	1.42	.93		.97
2. I undertake activities to change the current products/services of my organization. ^a	3.65	1.42			.66
3. I contribute ideas for strategic renewal for my organization. ^a	3.30	1.48			.71
4. I conceptualize new ways of working for my organization. ^a	3.19	1.49			.64
5. I utilize insights of other experts to innovate in my organization.	3.28	1.40			.69
6. I undertake activities that change the structure of my organization.	2.78	1.43			.68
7. I undertake activities that change the work practices of my organization.	2.99	1.41			.52
8. I exploit opportunities in the labor market or society to renew my organization.	2.98	1.40			.65
X. I actively mobilize people and resources to change my organization.	2.58	1.46		.45	.38
<i>Venture behavior</i>					
9. I undertake activities to set up new business units. ^a	1.79	1.09	.87		.62
10. I undertake activities to reach new market or communities for my organization. ^a	2.15	1.38			.86
11. I undertake activities that result in new departments outside of my organization. ^a	2.15	1.38			.53
12. I conceptualize new ways of service for my organization.	2.32	1.36			.69
13. I undertake activities that result in new projects within my organization.	2.90	1.44			.52
14. I actively establish new collaborations with experts outside of my own profession. ^a	2.87	1.56			.59
15. I conceptualize new products for my organization.	2.60	1.40			.58
X. I undertake activities that result in new departments within my organization.	2.48	1.37			.46

Note. Analysis was performed on Department A; N = 775. Kaiser-Meyer-Olkin measure of sampling adequacy = .96. Bartlett's test of sphericity: approximate $\chi^2 = 8016.50$, $df = 136$, $p < .001$. Answer categories are: 1 = never, 2 = rarely, 3 = occasionally, 4 = regularly, 5 = often, 6 = very often, 7 = always. Items numbered with an X were deleted after initial exploratory factor analysis.

Results Phase 2

Multi-group confirmatory factor analysis

The AMOS 20 software package (Arbuckle, 2000) was used to examine whether the two sub-dimensions of employee intrapreneurship are a valid representation of employee intrapreneurship in departments B and C (Hypothesis 1). We created a “Two-Factor Model” with two latent variables based on the results of Phase 1, namely, venture behavior (7 items) and strategic renewal behavior (8 items). The latent variables were allowed to covary. We compared the fit of this model against that of a “Baseline Model”, in which all structural paths are assumed to be zero, and that of a “One-Factor Model”, in which all items loaded on a single latent factor. The tests were performed simultaneously in departments B and C using multi-group confirmatory factor analysis, which resulted in one set of fit statistics for the overall model fit (Byrne, 2009).

To assess model fit, six indices were examined: the chi square, the standardized root mean square residual (SRMR), the Tucker-Lewis index (TLI), the comparative fit index (CFI), the incremental fit index (IFI) and the root mean square error of approximation (RMSEA; Hu & Bentler, 1999). To compare alternative models, we examined the Akaike information criterion (AIC). A lower AIC value indicates a better tradeoff between the fit and complexity of different models (Wagenmakers & Farrell, 2004).

In line with our expectations, the two-factor representation of employee intrapreneurship comprising employee venture behavior and employee strategic renewal behavior fit the data well in both groups (cf. Hu & Bentler, 1999). The factor loadings ranged between .60 and .81. Moreover, the Two Factor Model had the lowest AIC compared to the Baseline Model and the One-Factor Model, which means that the Two Factor Model best fit the data. Thus, fully supporting Hypothesis 1, the EIS shows configural invariance across samples.

Measurement invariance testing

To test Hypothesis 2 on the measurement invariance of the scale, we followed the steps as described in Van de Schoot, Lugtig, and Hox (2012). We first created a “Metric Model”, in which we constrained the factor loadings to be equal across groups (i.e., metric invariance), and compared the fit of this model to that of the unconstrained Two-Factor Model. The results indicate that respondents across groups indeed attribute the same meaning to the latent constructs under study (i.e., metric invariance), as indicated by a lower AIC for the Metric Model compared to the Two-Factor Model. Second, we created the “Intercept Model”, in which only the intercepts across groups were constrained to be

equal (i.e., intercept invariance), to test whether the meaning of the levels of the items are equal across groups. We found that the AIC of the Intercept Model is higher than that of the Measurement Model. We proceeded to examine all items based on the intercept differences across groups and released the intercept constraints of the items with the largest difference between groups one by one. After releasing three items (Item 3, 6, and 12, as noted in Table 1), the model (i.e., “Modified Intercept Model”) showed an increased fit compared to the Measurement Model, thus indicating partial intercept invariance (Steenkamp & Baumgartner, 1998). Finally, we created the “Scalar Model”, in which all the constraints of the Metric Model and the Modified Intercept Model were applied. The Scalar Model had the lowest AIC value and therefore the best tradeoff between model-fit and model-complexity (Wagenmakers & Farrell, 2004). Altogether, the fact that all factor loadings and twelve of the fifteen intercepts were invariant across both samples provides support for the cross-contextual stability of the EIS, thus supporting Hypothesis 2 (See Table 3).

To conclude, the results of Study 1 are in line with our conceptualization of employee intrapreneurship, showing that the EIS captures the two sub-dimensions of employee venture behavior and strategic renewal behavior. Moreover, the results of the measurement invariance test provide support for the factorial validity of the EIS across work contexts.

Table 3. Results of multi-group confirmatory factor analysis and invariance tests of the Employee Intrapreneurship Scale (Study 1).

Model	χ^2	df	SRMR	CFI	TLI	IFI	RMSEA	AIC
Baseline Model	6375.86	210	-	-	-	-	-	6495.89
One-Factor Model	780.24	180	.05	.90	.89	.90	.07	960.24
Two-Factor Model	603.94	178	.04	.93	.92	.93	.06	787.94
<i>Measurement Invariance</i>								
Metric Model	618.32	191	.04	.93	.92	.93	.06	776.32
Intercept Model	648.36	193	.04	.93	.93	.93	.06	802.36
Modified Intercept Model	625.65	190	.04	.93	.93	.93	.06	785.65
Scalar Model	639.94	203	.04	.93	.93	.93	.06	773.94

Note. Analyses were performed on department B and C: N = 427 and N = 226. χ^2 = ChiSquare; df = Degrees of Freedom; SRMR = standardized root mean square residuals; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root-mean-square error of approximation; AIC = Akaike Information Criterion.

Study 2: Construct Validity of the Employee Intrapreneurship Scale (EIS)

The aim of Study 2 is to examine the construct validity of the EIS. Construct validity is achieved if the operationalization of the construct relates to other established constructs in line with theoretical assumptions (i.e., convergent and discriminant validity; Cronbach & Meehl; 1955; Clark & Watson, 1995). Our theoretical assumptions are guided by the work on entrepreneurial orientation (e.g., Rigetering & Weitzel, 2013) and research on predictors of employees' decision to act intrapreneurially (e.g., Douglas & Fitzsimmons, 2012; Urban & Nikolov, 2013). To reduce bias in our results that may result from single-source data, we examine construct validity based on both participants' self-ratings and ratings given to them by one of their close colleagues on the related constructs.

Theoretical Background

Employee intrapreneurship and personal initiative

Personal initiative is a concept used to describe a class of active behaviors that individuals engage in without being told, without receiving an explicit instruction, or without having an explicit (work) role requirement (Frese & Fay, 2001). Subsequently, personal initiative is initiated on the basis of self-set goals, which can be a personally developed concept or can refer to taking charge of an idea or a project that has not yet been put into action. For example, showing personal initiative can mean not only proactively getting a glass of water when you notice that your colleague is thirsty but also proactively championing a colleague's concept for a new service. Individuals who show personal initiative engage in anticipatory actions to capitalize on upcoming opportunities rather than reactively respond to current demands (e.g., engaging in activities because one is asked to do so). Subsequently, personal initiative may coincide with changes in processes or procedures or with a modification of tasks, although this coincidence is not a criterion.

Due to the self-starting nature of personal initiative, scholars have argued that personal initiative is positively related to the pursuit of opportunities and activities to overcome challenges related to intrapreneurship (e.g., De Jong et al., 2013); however, studies on their relationship are limited. In contrast, the positive relationship between personal initiative and entrepreneurial activities in general is more established. For example, in a sample of Zimbabwean and South African entrepreneurs, Krauss, Frese, Friedrich, and Unger (2005) showed that their business performance positively related to personal initiative. Furthermore, in an intervention study (i.e., a 3-day program to promote personal initiative), Glaub, Frese, Fischer, and Hoppe (2014) showed that an

increase in personal initiative coincided with an increase in entrepreneurial behavior and performance. Thus, based on the literature, we hypothesize the following:

Hypothesis 3: Personal initiative relates positively to employee venture behavior and employee strategic renewal behavior.

Employee intrapreneurship and innovativeness

The concept of employee innovativeness refers to a set of work behaviors that create (i.e., idea generation), introduce (i.e., idea promotion), and apply new ideas (i.e., idea realization) within a work role, team, or organization in order to benefit job performance, team performance, or the performance of the organization (Janssen, 2000). Idea generation captures the first step in the innovation process and often involves rearranging or combining existing resources to create a basis for a novel idea. For example, the internet was developed by combining the computer and the telephone (McFadzean, 2001). Once an idea has been generated, championing behaviors and coalition building are considered essential to bring a creative idea to life (i.e., idea promotion). For instance, the pivotal role of a manager's championing behaviors has been shown to strongly relate to the actual realization of breakthrough innovations (Hornsby, Kuratko, & Zahra, 2002). Finally, when a new product or service is created and is considered to be of incremental value, it has to be put into practice, which implies making the innovation a part of regular work processes. The latter is referred to as idea implementation.

Because intrapreneurship includes attitudes and actions that challenge bureaucracy and encourage innovation, scholars have recognized intrapreneurship as the primary act underpinning innovativeness within an organization (Barringer & Bleudorn, 1999; McFadzean, et al., 2005). In line with this premise, in their qualitative study, Marvel and colleagues (2007) showed that intrapreneurial employees (i.e., employees who actively engage in venture and strategic renewal behaviors) in the technical sector were responsible for the creation, promotion, and implementation of several breakthrough innovations for their company. Camelo-Ordaz, Fernandez-Alles, and Ruiz-Navado (2011) reported similar results in their qualitative study among intrapreneurial employees in the creative industry. However, it is important to note that intrapreneurship refers to departures from the customary way of doing things that may or may not be related to innovation (Antoncic & Hisrich, 2003). For example, a strategic choice to abolish a service due to market developments is not always innovative. Nonetheless, based on the literature, a positive relationship between employee innovativeness and employee venture behavior and employee strategic renewal can be expected.

We formulate the following hypothesis:

Hypothesis 4: Employee innovativeness relates positively to employee venture behavior and employee strategic renewal behavior.

Employee intrapreneurship and risk taking

In general, risk taking refers to the perceived probability of receiving rewards associated with the success of a situation while subjecting oneself to consequences associated with failure (Brockhaus, 1980). In the context of our study, risk taking entails taking bold actions and allocating significant personal and organizational resources in intrapreneurial projects when the outcome is uncertain (Rauch, Wiklund, Lumpkin, & Frese, 2009). Hence, although individuals may engage in intrapreneurial behavior, expecting positive outcomes for themselves and/or their organizations, this engagement may result in a loss of physical, social, and psychological resources (Shepherd, Patzelt, & Wolfe, 2011). For instance, the failure of an intrapreneurial activity may result in reputation damage, lowered social status, or even job threat.

Research on the relationship between risk-taking behaviors and employee intrapreneurship, or entrepreneurial behaviors in general, has generated mixed findings. While some scholars have found risk tolerance to be positively related to entrepreneurial behavior (Douglas & Sheperd, 2002; Stewart & Roth, 2004), other studies have found no relationship (e.g., Brockhaus, 1980; Miner & Raju, 2004). Recent experimental studies have shown a negative relationship between intrapreneurial intention and risk taking. In these studies, employee willingness to participate in a new venture decreased when employees were faced with the risk of losing their job or part of their salary if the venture failed (Monsen, Patzelt, & Saxton, 2010; Urban & Nikolov, 2013). However, to stay ahead of the competition and to capitalize on opportunities for new venture creation and strategic renewal, scholars have argued that risk taking is inherent to intrapreneurial activity (Antonic, 2003; Shane, 2003). These risks for employees become apparent when intrapreneurial activities fall short of their goals, resulting in strong and enduring employee reactions, including grief and bitter disappointment (Shepherd, Covin, & Kuratko, 2009). Thus, although employees seem to be risk averse in general, when employees engage in employee intrapreneurship, such behavior is likely to coincide with risk taking. Hence, we formulate the following hypothesis:

Hypothesis 5: Risk taking relates positively to employee venture behavior and employee strategic renewal behavior.

Employee intrapreneurship and reinforcement sensitivity

In addition to the related activities of intrapreneurship (i.e., showing initiative, being innovative, and taking risks), a strong attitude towards (expectations of) positive outcomes is considered a defining characteristic of individuals who have intrapreneurial intentions and who engage in intrapreneurial activities (Douglas & Fitzsimmons, 2012; Urban & Nikolov, 2013). To explain why intrapreneurial individuals perceive and react more strongly to cues from the environment indicating positive outcomes, we draw on reinforcement sensitivity theory (RST; Corr, 2004; Gray, 1987). RST postulates that individuals differ in their expectations and perception of outcomes of behavior due to two independent brain mechanisms, namely, the behavioral activation (or approach) system (BAS) and the behavioral inhibition system (BIS; Carver & White, 1994). The BAS governs appetitive behaviors in response to – expectations of – reward and is sensitive to cues that signal a greater than chance probability of positive outcomes. Therefore, an increased sensitivity of the BAS coincides with stronger reactions to cues that indicate (a chance of) positive outcomes. In contrast, the BIS governs risk assessment and defensive avoidance behaviors in response to competing motivational goals and is sensitive to cues that signal a greater than chance probability of negative outcomes. Subsequently, an increased sensitivity of the BIS is associated with stronger reactions to cues that indicate negative outcomes.

Although RST is not commonly used in organizational studies, the linkage between an individual's reward and punishment sensitivity and intrapreneurial behavior has been tentatively addressed in previous studies. For instance, the experimental study of Monsen and colleagues (2010) showed that when risks were met with increased rewards (e.g., high rates of profit sharing), the willingness to engage in intrapreneurial behavior significantly increased. However, when cues of reward were absent or not perceived to be substantial enough to cover the risks, the intrapreneurial intentions of employees decreased. In a similar vein, Urban and Nikolov (2013) found that the most important attribute influencing the decision to engage in employee intrapreneurship is the probability of venture success, closely followed by financial reward. In contrast, job risk, pay risk and required effort were deterrents to employee intrapreneurship. Hence, we argue that an individual's sensitivity to signals of positive outcomes (i.e., BAS) is positively related to employee intrapreneurship. In contrast, an individual's sensitivity to punishment (i.e., BIS) is negatively related to employee intrapreneurship. Thus, we formulate the following final hypotheses:

Hypothesis 6a: Reward sensitivity (BAS) relates positively to employee venture behavior and employee strategic renewal behavior.

Hypothesis 6b: Punishment sensitivity (BIS) relates negatively to employee venture behavior and employee strategic renewal behavior.

Method

Procedure

Data were gathered with an online questionnaire among employees working in different private organizations. These employees were part of a panel database composed of individuals who had agreed to participate in research for pay. Firm size ranged from small (25 to 49 employees; 5%) to large (250 or more employees; 58%). Data were gathered in two stages. First, employees within this database were randomly selected and contacted via email with a request to participate in this research. The email contained a brief summary of the research and a link to the survey. Data were received from 535 respondents (response rate = 52%). Furthermore, the respondents were kindly asked to provide the contact details of a colleague with whom they closely collaborated (i.e., with whom they had work-related contact at least three days a week).

In the second stage, the “close collaborators” of the respondents were sent an email containing a kind request from their colleague (the respondent) to complete a questionnaire about them, a brief summary of the research and a link to the online survey. Data were received from 243 close collaborators (response rate = 45%). The complete dataset consisted of 243 pairs. This dataset was used for the analyses. A non-response analysis showed that the participants who did not provide the contact details of a close collaborator showed no significant differences in scores on the study variables and demographics.

Participants

The mean age of the participants was 41.5 years ($SD = 11.52$), and the majority of the participants had an intermediate or higher vocational educational level (76.1%). On average, the participants had held their current job for 11 years ($SD = 9.31$) and had a total of 21 years of work experience ($SD = 12.67$). For the close collaborators, the mean age was 41 years ($SD = 11.1$), and they had worked in their current job for 9.5 years ($SD = 7.8$). The respondents worked in the following areas: industry (17%); property and construction (6%); sales (12%); retail (2%); transport (9%); accountancy, banking and finance (7%);

business, consulting and management (11%); marketing, advertising and PR (3%); healthcare (18%); culture (1%); the environment and agriculture (1%); and other (13%).

Measures

All measures were administered in Dutch. Measures that were not available in Dutch were translated from English into Dutch using the forward-backward translation method (Behling & Law, 2000). For the scales in which colleagues rated the participant (i.e., for innovativeness and risk taking), the items of the scales were reformulated so that the rater could answer them for the participants.

Employee intrapreneurship was measured with 8 items of the EIS. The selection of the items was based on the confirmatory factor analysis (CFA) and measurement invariance test in Study 1 (Lugtig, Boeije, & Lensvelt-Mulders, 2011). The scale consisted of four items from the venture behavior dimension and four items from the strategic renewal behavior dimension (see Table 2). Responses were given on a 7-point scale ranging from 1 (never) to 7 (always). Cronbach's alpha for both sub-dimensions was .94.

Personal initiative was utilized to capture proactivity and was measured with 7 items (Frese, Fay, Leng, & Tag, 1997). An example item is "I actively attack problems". The items were rated on a 5-point scale ranging from 1 (totally disagree) to 5 (totally agree). Cronbach's alpha was .86.

Reward sensitivity and punishment sensitivity (BAS and BIS) were assessed with the validated Dutch version of the BIS/BAS scales of Carver and White (1994) by Franken, Muris, and Rassin (2005). The BAS scale was assessed with 12 items covering three dimensions (i.e., reward, drive, and fun). Example items include "When I get something I want, I feel excited right away", "When I go after something I want, I move on it right away", and "I will often do things for no other reason than that they might be fun". The BIS scale was measured with 5 items (example item is "I worry about making mistakes"). Responses were given on a 4-point scale ranging from 1 (totally disagree) to 4 (totally agree). The Cronbach's alpha values of the combined BAS scale and the BIS scale were .81 and .74, respectively.

Innovativeness was rated by a close colleague and was measured with nine items from Jansen (2000) representing three dimensions (three items each), namely, idea generation, idea promotion, and idea realization. Some example items include the following: "[name of participant] creates new ideas for improvements" (idea generation); "[name of participant] mobilizes support for innovative ideas (idea promotion); and "[name of participant] transforms innovative ideas into useful applications" (idea

realization). Responses were given on a 7-point frequency scale ranging from 1 (never) to 7 (always). Cronbach's alpha for the combined scale was .88.

Risk taking was rated by a close colleague and was measured with five items from the scale by Van den Brink, Koch, Ardts and Van Lankveld (2004). An example item is "[name of participant] regularly takes risks to gain a possible advantage". Responses were given on a 7-point scale ranging from 1 (never) to 7 (always). Cronbach's alpha was .85.

Data analysis

Using R (Lavaan package; R Core Team, 2015), we created a "Validity Model" containing latent variables for each of the study variables to test Hypotheses 3 to 6. The latent variables venture behavior, strategic renewal behavior, personal initiative, innovativeness, risk taking, and BIS were indicated by their separate items. The 12-item BAS was indicated by the summed scores of its subscales to decrease model complexity. To investigate convergent validity, we evaluated the strength and direction of the latent correlations between the latent study variables (Brown, 2014; Campbell & Fiske, 1959). We controlled for gender, age, education and tenure, as these variables have been shown to relate to intrapreneurial behavior (De Jong et al., 2013). To investigate discriminant validity, we followed the method proposed by Fornell and Larcker (1981) and Farrel (2010). Discriminant validity is achieved when the average variance extracted (AVE; the sum of the squared factor loadings of the indicators of a latent construct) is larger than the maximum shared variance (MSV; the squared correlation between two constructs), meaning that the latent variable accounts for more variance in the observed indicators of that variable than in the other constructs. As other constructs, we included personal initiative, innovativeness, risk taking, reward sensitivity, and punishment sensitivity.

Results and Conclusion Study 2

Descriptive statistics

Before examining the Validity Model, we investigated the factorial validity of the EIS in this sample. We compared a two-factor model, in which employee venture behavior and employee strategic renewal behavior were each indicated by their items, to a one-factor model, in which items of both sub-dimensions were used as indicators for a single factor. In line with Study 1, the results confirmed that the two-factor solution of the EIS had a better fit to the data than the single-factor model ($\Delta\chi^2_{(1\ df)}$ of 59.71, $p < .01$). The model fit of the two-factor model was acceptable: chi square = 60.73, $df = 19$, CFI = .98, TLI = .97, RMSEA = .09, and SRMR = .02; also, all indicators of the latent variables were above

the .32 threshold (Tabachnick & Fidel, 2001). Additionally, the Validity Model showed an acceptable fit to (Table 4). Hence, we proceeded to examine the convergent and discriminant validity of the EIS.

Table 4. Fit indices of the models regarding convergent and discriminant validity of the EIS (Study 2).

Model	χ^2	df	SRMR	CFI	TLI	IFI	RMSEA
Baseline Model	7573.31	820	-	-	-	-	-
Validity Model	1157.89	728	.06	.94	.93	.94	.05

Note. N = 243; χ^2 = ChiSquare; df = Degrees of Freedom; SRMR = standardized root mean square residuals; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root-mean-square error of approximation; AIC = Akaike Information Criterion.

Hypotheses testing

To test Hypotheses 3 to 6 regarding the convergent and discriminant validity of the EIS, we examined the latent correlations between constructs in the Validity Model when controlling for age, education, gender, and tenure. In line with Hypothesis 3, personal initiative related positively to employee venture behavior ($r = .33, p < .01$) and employee strategic renewal behavior ($r = .48, p < .01$). Furthermore, in support of Hypothesis 4, innovativeness related positively to both venture behavior ($r = .45, p < .01$) and strategic renewal behavior ($r = .52, p < .01$). In addition, we found a positive relationship between risk-taking behavior and both venture behavior ($r = .52, p < .01$) and strategic renewal behavior ($r = .53, p < .01$), showing full support for Hypothesis 5. In line with Hypothesis 6a, BAS related positively to employee venture behavior ($r = .62, p < .01$) and strategic renewal behavior ($r = .64, p < .01$). However, contrary to Hypothesis 6b, neither venture behavior nor strategic renewal behavior showed a relationship with BIS ($r = .07, p = .32$, and $r = .01, p = .94$). See Table 5 for an overview of the latent correlations between the study variables. Concerning discriminant validity, the AVE of the venture behavior sub-dimension was .81, and that of the strategic renewal behavior sub-dimension was .79. The AVE values of venture behavior and strategic renewal behavior were higher than any of their maximally shared variances with the study variables, indicating discriminant validity (Farrel, 2010). Thus, the results of Study 2 show full support for the convergent and discriminant validity of the EIS.

Table 5. Latent correlations between the control and study variables.

Construct	Study variables										
	1	2	3	4	5	6	7	8	9	10	11
<i>Control</i>											
1. Age	-										
2. Education	.26**	-									
3. Gender	.08	-.07	-								
4. Tenure	.73**	-.29**	-.02	-							
<i>Study variables</i>											
5. Venture behavior	.07	.13*	-.13*	-.08	-						
6. Strategic renewal behavior	.02	.20**	-.15*	-.01	.90**	-					
7. Personal initiative	-.16*	.16*	-.05	.13*	.33**	.48**	-				
8. Innovativeness	.05	.21**	-.11	-.04	.45**	.52**	.44**	-			
9. Risk taking	.09	.27**	0	-.11	.52**	.53**	.24**	.56**	-		
10. Reward sensitivity	.07	.13	-.09	-.09	.62**	.64**	.56**	.42**	.42**	-	
11. Punishment sensitivity	.13	-.09	.23**	-.11	.07	0.01	-.17*	-.06	-.02	.20*	-

Note. N = 243; Results of study variables are based on latent correlations in the Validity Model. *These variables were rated by a direct colleague.

* $p < .05$, ** $p < .01$

General Discussion

Recent developments in society have called for an increased understanding of the causes and consequences of employees' intrapreneurial activities. Although past research has shed light on the intrapreneurial roles and activities of employees within an organization, the absence of conceptual clarity and lack of a valid measure of employee intrapreneurship as a behavior-based construct has hampered systematic research examining this phenomenon. This study aimed to address this gap.

We reviewed research on employee intrapreneurship to provide conceptual clarity. Based on our review, we identified three main approaches to conceptualizing and measuring employee intrapreneurship. The first is based on the entrepreneurial orientation literature, and defines and operationalizes employee intrapreneurship as proactivity, risk taking, and innovativeness (e.g., Rigtering & Weitzel, 2013). The second approach defines employee intrapreneurship based on intrapreneurial output, and in general has relied on single indicator measures (e.g., Stam, 2013). The third conceptualizes

employee intrapreneurship as employees' agentic, strategic work behaviors aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and external advancements (i.e., strategic renewal behavior). Of these approaches, we argued that the behavior-based approach yields the most potential for theoretical advancement of the intrapreneurship literature as it captures the defining characteristics of employee intrapreneurship (i.e., employee venture behavior and employee strategic renewal behavior) and allows for a broad theoretical exploration on potential factors that may hamper or foster employee intrapreneurship. Moreover, a behavior-based conceptualization of employee intrapreneurship fits well within the job design (e.g., Bakker & Demerouti, 2014) and proactive work behavior literature (e.g., Parker et al., 2010) that center on the antecedents and individual-level outcomes of employee behavior.

On the basis of the behavior-based conceptualization of employee intrapreneurship, we developed and validated a measure of employee intrapreneurship in two separate studies, named the Employee Intrapreneurship Scale (EIS). Results of the factor analysis showed that the EIS measures two sub-dimensions, labeled employee venture behavior and employee strategic renewal behavior. In our studies, the two sub-dimensions were highly correlated, indicating that employee strategic renewal and new venture creation are likely to coincide and can, as expected, be considered as two indicators of employee intrapreneurship as the higher order construct.

Further validation based on the nomological network indicated that, congruent with our expectations, both employee venture behavior and employee strategic renewal behavior related positively to employees' self-ratings of personal initiative and a close-colleague's rating of their innovativeness and risk taking, indicating convergent validity. Furthermore, our discriminant validity analyses showed that venture behavior and strategic renewal behavior are specific types of activities can be discriminated from these more general indicators of entrepreneurial orientation and activity. Together, the findings support the premise that engaging in employee intrapreneurship coincides with showing entrepreneurial activities (i.e., initiative, risk taking, and innovativeness). We encourage researchers to further explore the nomological network of employee intrapreneurship and increase our understanding on the similarities and differences between employee intrapreneurship and related concepts such as employee creativity (Anderson, Potocnik, & Zhou, 2014), employee voicing (Tangirala & Ramanujam, 2008), and job crafting (Tims, Bakker, & Derks, 2012).

As concerns relationships between reward sensitivity and employee intrapreneurship, results were in line with previous research, showing that employees' sensitivity to rewards (BAS; cf. Corr, 2004) had a strong positive relationship with employee intrapreneurship (Monsen et al., 2010). In contrast to experimental studies showing that the perception of risks decreased participation in intrapreneurial projects (Monsen et al., 2010; Urban & Nikolov, 2013), we found no relationship between an employee's sensitivity to negative outcomes and employee intrapreneurial behavior. Similar results were found for the relationships between BIS and employees' innovativeness and risk taking behavior as rated by a close colleague. A possible explanation for this result is that the risks of intrapreneurial behaviors for an individual may be less salient, because the majority of the consequences are at the organizational level (e.g., loss of organizational resources). Therefore, an individual's sensitivity to risks and threats may be less influential in the context of employee intrapreneurship than, for instance, for entrepreneurship where the risk of project failure has direct consequences for the individual. However, previous studies have shown that engaging in intrapreneurial behaviors coincides with some risks for the individual. For instance, project failure may result in reputation damage or even job loss (Shepherd et al., 2011). Clearly, more research is needed to increase our understanding of risk sensitivity, risk perception, and the possible consequences of risks in the context of employee intrapreneurship.

Theoretical and practical implications

By providing a comprehensive behavior-based conceptualization and a valid measure of employee intrapreneurship, our study complements the large body of research on intrapreneurship and allows new types of research to be conducted to extend our theoretical understanding of employee intrapreneurship. For instance, research regarding the impact of intrapreneurship on employee well-being and job performance is scarce (Blanka, 2018). We argue that our behavior-based approach is well suited to be integrated in the job design and proactive behavior literatures that focuses on antecedents and individual-level outcomes of employee behaviors. For instance, utilizing the premises regarding the motivational and health impairment pathways in Job Demands–Resources theory (Bakker & Demerouti, 2014), research can shed light on the personal benefits and costs of employee intrapreneurship. Moreover, the importance of organizational preparedness for intrapreneurship to foster employee intrapreneurial activities within an organization has been highlighted in several studies (e.g., Hornsby et al., 2013). Combining the Corporate Entrepreneurship Assessment Instrument (Hornsby et al., 2013) and the Employee Intrapreneurship Scale in one study would enable researchers to uncover how

an organization's intrapreneurial preparedness relates to the actual intrapreneurial behaviors of employees within the organization.

In addition, our results showed that venture and strategic renewal behaviors related positively to employees' more general entrepreneurial orientation and activity, as well as to employee reward sensitivity (i.e., BAS; Corr, 2004). The latter findings expand the current evidence of the relationships between strong expectations of positive outcomes and intrapreneurial intentions (e.g., Douglas & Fitzsimmons, 2012) by showing that an increased sensitivity to rewards positively relates to actual employee venture behavior and strategic renewal behavior. Moreover, because several experimental studies have shown that participation in intrapreneurship is contingent on the perception of rewards and risks (Monsen et al., 2010; Urban & Nikolov, 2013), we argue that our results may indicate that an individual's reward sensitivity disposition may be just as important in predicting employee intrapreneurial behavior as, for instance, the work design (Hornsby et al., 2013) and managerial position (Hornsby et al., 2009). As such, we encourage scholars to include multiple types of predictors simultaneously in future studies to develop a more comprehensive understanding of important predictors of employee intrapreneurship.

Lastly, we argue that practitioners can benefit from our review and the EIS. Conceptual clarity aids practitioners in their communication about intrapreneurship to colleagues, management, and clients. Moreover, it is important that professional consultancy products and best practice books for managers aimed at facilitating intrapreneurship are evidence based in their development and operation. As this is not always the case (for a critique see Anderson, Potocnik, Bledow, Hulsheger, & Rosing, 2016), we argue that the EIS may be used to provide important metrics and make practitioner-oriented products more research-based.

Limitations of the current research

The current study has some limitations. First, although the current study consists of multiple heterogeneous samples drawn from the public sector and the private sector, all employees are based in one country. This limitation affects the generalizability of the results to other cultures. The literature has shown that national cultures are important factors to consider because measures of intrapreneurship may lack cross-national equivalence (Antoncic & Hisrich, 2003) and because culture may influence the relationship between entrepreneurial activity and performance (Rauch et al., 2009). Therefore, future research should employ a cross-national design to establish the generalizability of the EIS and to examine the influence of national culture.

A second limitation is the use of a cross-sectional design. Because the aim of this study was not to establish causality between the constructs under investigation, a cross-sectional design was adequate. However, to advance our theoretical understanding of employee intrapreneurship, future studies are advised to investigate explanatory and predictive models of employee intrapreneurship using multiple measurement moments and multiple data sources in their research design (Ployhardt & Ward, 2011). For instance, examining the personal costs and benefits of employee intrapreneurship for employee well-being and performance may be of particular interest, in addition to the relationship between the job design and employee intrapreneurial behaviors.

A final limitation of our study is the lack of firm-level predictors and outcome variables. Because the aim of this study was to create a generic and valid scale of employee intrapreneurship, we opted for examining convergent and discriminant validity with variables that capture related employee behaviors and characteristics at the individual level. However, employee intrapreneurship is expected to relate to firm-level intrapreneurship and to ultimately affect firm-level performance (Antoncic & Hisrich, 2003). Future studies may overcome this limitation by including measurements at multiple levels to investigate how organizational-level activities relate to individual employee intrapreneurship.

Conclusion

In this study, we reviewed the intrapreneurship literature, based on which we defined employee intrapreneurship as an employee's agentic and anticipatory behaviors aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and external advancements (i.e., strategic renewal behavior; Gawke et al., 2017a). Following this definition, we developed a generic and valid scale, namely, the Employee Intrapreneurship Scale (EIS). With the EIS, researchers are empowered to systematically study employee intrapreneurial behaviors and increase our understanding of its antecedents and consequences at the individual and organizational levels. Furthermore, organizations are increasingly relying on employee intrapreneurial behaviors to improve their adaptability and competitive position. Monitoring intrapreneurial activities in specific organizational units or examining the impact of new rules and regulations on employee intrapreneurial behaviors may be of interest. For all of these purposes, the EIS may be a useful tool for practitioners and decision makers.

Chapter 3

Employee intrapreneurship and prosocial impact
in public administration: A multi-level study.

This chapter is submitted as:

Gawke, J.C., Gorgievski, M.J., & Bakker, A.B. Employee intrapreneurship and prosocial impact in public administration: A multi-level study.

Abstract

Although the importance of employees' intrapreneurial behaviors for the performance of public administration has been recognized, empirical research on the antecedents and consequences of these behaviors is scarce. The present research uses proactive motivation theory to study public servants' intrapreneurship and develop an integrative, multi-level model of its antecedents and consequences for public servants. Participants were 688 public servants from 37 departments of a national public administration, who filled out a weekly diary questionnaire for five consecutive weeks. As predicted, the results of the multi-level analyses showed that autonomy, ambiguity, and accountability provided "reason to" motivation for public intrapreneurship, personal resources provided "can do" motivation for public intrapreneurship, and both indirectly increased public servants' awareness of their prosocial impact via public intrapreneurship. "Can do" motivation was found to enhance the motivational effect of "reason to" motivation in such a way that employees who had high levels of job ambiguity and job accountability, and high levels of personal resources engaged most often in public employee intrapreneurship. Our results underline the importance of adopting a multi-level perspective, as single-level analysis would have biased results and obscured relationships present at one level of analysis but not another. Theoretical and practical implications are discussed.

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Introduction

To maintain and maximize performance and public value, public sector organizations increasingly depend on their employees' intrapreneurial activities to explore new opportunities, facilitate co-creation with citizens and other institutions, and implement innovative ideas to better fulfil legal mandate (Meynhardt & Diefenbach, 2012; Kearney & Meynhardt, 2016). Such employee intrapreneurial activities are referred to as employee intrapreneurship and capture employee agentic activities that enhance an organization's ability to react to internal and external advancements and lead to the creation of new businesses or services (Belousova & Gailly, 2013; Gawke, Gorgievski, & Bakker, 2017a). Intrapreneurial activities within public sector organizations have been shown to result in procedures that reduce waiting lists for elective care (Pope et al., 2006), and digital systems that render tax assessment services more effectively to users and citizens (Edquist, Hommen, & McKelvey, 2001; De Vries et al., 2016).

Despite the importance of intrapreneurship for public services and its central role in new public management (NPM) and public value management (PVM; Stoker, 2006; Meynhardt & Diefenbach, 2012), only few conceptual studies (e.g., Kearney, Hisrich, & Roche, 2008; Kearney & Meynhardt, 2016) and case studies (e.g., Meynhardt & Metelmann, 2009) have explored how intrapreneurship manifests within public sector organizations and its potential benefits. Even less research has empirically examined the antecedents and personal outcomes of public servants' intrapreneurial behaviors (Gawke et al., 2017a; Miao, Newman, Schwarz & Cooper, 2017). As a result, our understanding of when and why public sector employees are most likely to act intrapreneurially and how this relates to their public performance is limited.

The current study aims to address this gap in the literature. Specifically, we used longitudinal data from multiple departments of the Dutch National Public Administration to examine how job characteristics (i.e., job ambiguity, job accountability, and job autonomy) and public servants' sense of their ability to control their work environment successfully (i.e. personal resources; Hobfoll, Johnson, Ennis, & Jackson, 2003) influence employee intrapreneurship and employee prosocial impact (i.e., making a positive difference in the life of others through one's work; Grant, 2007). We build on proactive motivation theory (Parker, Bindl, & Strauss, 2010; Parker & Wang, 2015) to explain the motivational process that drives public employee intrapreneurship and enhances prosocial impact.

Our research contributes to the public management literature in several ways. First and foremost, we shed light on what motivates employee intrapreneurship within a

political and complex environment unique to public sector organizations. We build on public administration, management, and work and organizational psychology literatures to elaborate on important job and employee characteristics that are likely to foster public employee intrapreneurship.

Second, although our understanding of intrapreneurship in public services has increased significantly over the past decade (e.g., Kearny & Meynhardt, 2016; Meynhardt & Diefenbach, 2012), current literature lacks an integrated theoretical framework on the psychological mechanisms that underlie the motivational effect of job and employee characteristics for intrapreneurship and its outcomes. Yet, such a framework is necessary to further develop our understanding of why and when public servants' are most likely to act intrapreneurially and how intrapreneurship may affect them. We draw from the proactive motivation theory (Parker et al., 2010) to create such a framework and complement organizational-level intrapreneurship models with an employee-level perspective (cf. Kearney & Meynhardt, 2016).

Third, current research often fails to acknowledge that public servants' perceptions of their work are dependent on the context they work in (Favero & Bullock, 2014; Jakobsen & Jensen, 2015). For instance, the departmental culture and socialization processes may influence how employees from a department perceive and relay information about various dimensions of their job. Ignoring this multi-level dependency has been argued to bias results and obscure relationships (Chen & Kanfer, 2006; Peccei & Van de Voorde, 2016). We provide empirical insight into the magnitude of the departmental dependency in public servants' perceptions of their job design, their intrapreneurial behaviors, and their prosocial impact.

Theoretical Background

Although intrapreneurship has been discussed in both private sector and public sector studies, empirical research on intrapreneurship is often conducted in the context of small to medium-sized organizations with clear goals and in light of its benefits for financial performance (Bierweth, Schwens, Isidor, & Kabst, 2015). As a result, implications of intrapreneurship research to date may not always generalize to public sector organizations that often have a strong hierarchical, and relatively rigid, structure. Moreover, the benefits of intrapreneurship for public sector organizations are not solely expressed in financial performance; in contrast, when the focal point of public managers is financial effectiveness, such a focus can even be harmful to the public interest (Denhardt & Denhardt, 2000). To better fit the context of public sector organizations, scholars have

proposed that intrapreneurship in the public sector captures the process through which public resources are used to initiate and reshape public services, and to enhance organizational performance (Kearney & Meynhardt, 2016). Specifically, public intrapreneurship is regarded as a means to generate alternative revenues, improve internal processes, and develop innovative solutions to meet social and economic needs. Potential benefits of public intrapreneurship have been argued to relate to public value creation (Kearney & Meynhardt, 2016), which refer to the positive impact on citizenry (Moore, 1995).

For intrapreneurship to work effectively, public sector organizations rely on the intrapreneurial behaviors of individual organizational members, also referred to as employee intrapreneurship (Kearney & Meynhardt, 2016; Gawke et al., 2017a). Such employee behaviors are characterized by proactivity, innovativeness, and risk-taking (Bolton & Lane, 2012; De Jong, Parker, Wu, & Wennekers, 2013), and enhance an organization's ability to take risks and seize opportunities through strategic renewal behaviors and venture behaviors (Gawke et al., 2017a). Specifically, employee intrapreneurship refers to an employee's agentic and anticipatory behaviors aimed at creating new businesses or services for the organization (i.e., venture behavior) and at enhancing an organization's ability to react to internal and external developments (i.e., strategic renewal behavior). For instance, when a public servant initiates a shift in the allocation of resources to facilitate a public service (e.g., intensifying staff occupation of an immigration office to desk-based support at the cost of telephone-based support to allow faster and more personal services for residence visa applicants), such activity may be considered employee strategic renewal behavior. In addition, when an employee initiates a new service for the organization to improve service quality for citizens, such an activity can be considered employee venture behavior (e.g., the creation of a digital portal to simplify tax declaration procedures).

Although top management is responsible for organizational strategic renewal and new venture creation, we argue that employees at all levels in a public sector organization have the capacity to engage in employee intrapreneurship (i.e., dispersed intrapreneurship; Birkinshaw, 1997; Kearney & Meyenhardt, 2016). Evidence for this contention was found in studies among civil servants in front-line staff (Zampetakis & Moustakis, 2007), among public managers (Meynhardt & Metelmann, 2007), and in studies including managerial and non-managerial public servants (Gawke et al., 2017a; Miao et al., 2017).

Proactive motivation theory

Although studies have addressed how specific organizational characteristics can promote public intrapreneurship (e.g., Meyenhardt & Diefenbach, 2012), our understanding of the motivational process that leads to employee intrapreneurship within public sector organizations is limited (Kearney & Meyenhardt, 2016). To shed light on this motivational process, we build upon proactive motivation (PM) theory (Parker & Wang, 2015). Integrating established propositions of more generic motivational and job design theories, such as self-determination theory (Deci & Ryan, 2000), broaden and build theory (Fredrickson, 2004), and the job characteristics model (Hackmann & Oldham, 1976), PM theory provides a unique and comprehensive framework that can explain why employees engage in proactive goal generation and proactive goal striving. In short, PM theory posits that proactive behaviors are driven by three proactive motivational states labelled “reason to” (i.e., the compelling rationale to be proactive), “can do” (i.e., the belief in oneself to be proactive), and “energized to” (i.e., the positive affective state that motivates proactivity). These motivational states are triggered by individual characteristics, the work context, and the interaction of these two (Parker & Wang, 2015). In this study, we focus on individual and contextual factors that influence the motivational states “reason to” and “can do”, and elaborate on how they relate to public employee intrapreneurship.

“Reason to” motivation public employee intrapreneurship

“Reason to” motivation is based on individuals’ valence and utility judgments of proactivity. Considering the risk and uncertainty associated with employee intrapreneurship (Gawke et al., 2017a), a strong rationale, or “reason to” motivation, is needed for individuals to go beyond prescribed tasks and act intrapreneurial. The strength of an individuals’ “reason to” motivation for proactivity and innovation has been positively related to job characteristics that prompt individuals to better utilize their talents and accentuate responsibilities and the importance of job tasks may be especially relevant (Parker & Wang, 2015; Shin, Yuan, & Zhou, 2017). In line with this contention, we argue that the job characteristics ambiguity, accountability and autonomy as discussed in public management (e.g., Kearny & Meyenhardt, 2016) can provide a strong rationale for public servants to engage in employee intrapreneurship.

Under ambiguity, employees are faced with the presence of complex and equivocal expectations about how to act at work (Grant, 2007). The uncertainty that coincides with ambiguity at work can relate to different facets of work, including the presence of contradictory and unclear expectations regarding one’s role (i.e., role ambiguity; Currie & Procter, 2005) and the absence of specific behavioral expectations as concerns how to

perform one's job (i.e., job ambiguity; Grant, 2007). In the current study, we focus on job ambiguity. Because job ambiguity relates to the cognitive complexity of a job and the absence of specific behavioral expectations, such a context has been argued to provide opportunities to go beyond formal job requirements (Grant & Parker, 2009) and to experiment with novel methods to create public value (Bennington & Moore, 2011). Moreover, job ambiguity is said to increase employees' desires to reduce uncertainty (Parker et al., 2010; Wall, Cordery & Clegg, 2002). Consequently, employees are likely to act in advance to prevent problems, introduce greater structure, and improve their tasks (Grant & Ashford, 2008). Indeed, research has shown that ambiguous work contexts foster generic proactivity at work (Grant & Rothbard, 2013) and organizational citizenship behavior, as a specific form of proactive behavior (Yun, Takeuchi, & Liu, 2007).

A second job design feature that may foster "reason to" motivation for public servants' intrapreneurship is accountability (Bennington & Moore, 2011). In the context of NPM and PVM, accountability can take on a multitude of forms since public servants must attend to law, community values, political norms, professional stand, and citizen interests (e.g., Dubnick & Fredrickson, 2010). In this study, we take a more generic approach to job accountability and define it as the expectation to justify one's actions to an audience (Tetlock, 1987). We argue that job accountability fosters "reason to" motivation because it can strengthen employees' feelings of responsibility to take initiative (Grant & Parker, 2009) and achieve the public outcomes that they are employed for (Kearny & Meyenhardt, 2016). Consistent with this idea, studies have shown that felt responsibility predicted proactive behaviors that share similarities with intrapreneurial activities, such as taking charge to improve work methods and processes (McAllister, Kamdar, Morisson, & Turban, 2007; Morrison & Phelps, 1999), voicing ideas for constructive organizational changes, and taking initiative to improve productivity and quality (Fuller, Marler, & Hester, 2006).

Third, we argue that job autonomy is an important job characteristic within public sector organizations that can foster intrapreneurial behaviors (Kearny & Meyenhardt, 2016). In many occupations, employee intrapreneurship is combined with the "job as usual" and thus often entails for public servants to go beyond their formal job description to recognize and act upon opportunities (Gawke et al., 2017a). We argue that autonomy can motivate employee intrapreneurship because autonomy provides employees with the opportunity to take on broader roles (Parker, 2000). This notion is consistent with several studies showing that autonomy is positively related to entrepreneurial behavior of public sector managers (Meynhardt & Diefenbach, 2012; Meynhardt & Metelmann, 2011), and

employees' motivation to redefine their roles and job requirements to include broader responsibilities (e.g., Parker, Williams, & Turner, 2006; De Jong et al., 2013). Based on the PM theory and previous research, we formulated the following hypothesis:

Hypothesis 1: Employees' (a) job ambiguity, (b) job accountability, and (c) job autonomy relate positively to public employee intrapreneurship.

"Can do" motivation public employee intrapreneurship

"Can do" motivation revolves around the question "Can I do this?" and has a strong link with employees' self-beliefs of their ability to control and impact the environment (i.e., personal resources). Because proactivity can be risky and its outcomes uncertain, "can do" motivation is needed to initiate proactive goals and deal with potentially negative consequences induced by proactivity (Parker et al., 2010). In the context of intrapreneurial behaviors, self-beliefs regarding ego-resilience (Block & Kremen, 1996), optimism (Carver & Scheier, 2003), and self-efficacy (Bandura, 1997) have been shown to be important in both private (Frese & Gielnik, 2014) and public sector research (Gawke et al., 2017a). Combined, these beliefs reflect an individual's ability to successfully adapt to changing situations, to respond proactively, and to approach challenges with enthusiasm and persistence (Carver & Scheier, 2003; Sutcliffe & Vogus, 2003). Hence we argue that personal resources foster "can do" motivation for public servants' intrapreneurship.

Hypothesis 2: Personal resources relate positively to public employee intrapreneurship.

We further propose that employees' "can do" motivation may play another decisive role. Following PM theory, we argue that "can do" motivation can enhance the motivational effect of "reason to" motivation, because they strengthen employees' ability to engage in proactive goal generation and goal striving (Parker et al., 2010; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). For instance, employees who experience high self-efficacy may more likely recognize and exploit the opportunities ambiguity and autonomy provide them as compared to employees who experience low self-efficacy. In a similar vein, the presence of accountability may increase public servants' feelings of responsibility to challenge the status quo in particular when they have stronger positive beliefs in their ability to successfully adapt to uncertain situations.

Although empirical studies on the relationship between personal resources, job design, and public servants' intrapreneurial behaviors are lacking, the notion that personal resources may increase an individual's ability to leverage work characteristics to engage in proactive work behavior has received empirical support. For instance, studies have shown

that the positive impact of managerial support for employee innovation and creativity can be strengthened by employees' openness to new experiences and self-efficacy (Madrid et al., 2014; Malik et al., 2015). In a similar vein, Parker and her colleagues (2015) showed that employees' personal resource of resilience enhanced the positive impact of job control on employee proactive problem-solving strategies. We formulated the following hypothesis:

Hypothesis 3: Personal resources strengthen the positive relationship between employees' (a) job autonomy, (b) job ambiguity, and (c) job accountability and public employee intrapreneurship.

Employee intrapreneurship and prosocial impact

Although the financial outcomes of public employee intrapreneurship are relevant, the benefits of public servants' intrapreneurship are better expressed in social business criteria and increased public value (Kearney & Meynhardt, 2016). We argue that one such social business criterion is prosocial impact as it refers to the experience of making a positive difference in the lives of others through one's work (Grant, 2007). Research has shown that employees' perceptions of prosocial impact can be enhanced via increasing the awareness of the meaningful consequences their actions have for other people. For instance, evidence from field and laboratory studies showed that even when public servants are responsible for a meaningful job or task, they gain a stronger awareness of their prosocial impact when they have direct contact with their beneficiaries (Grant et al., 2007; Grant, 2012). In line with these studies, we argue that engaging in public employee intrapreneurship can increase public servants' awareness of prosocial impact. Specifically, in order to rejuvenate rules, regulations, and structures within public organizations, public servants often need to collaborate with the people that are directly affected by their intrapreneurial actions (Peled, 2001; Voorberg, Bekkers & Tummers, 2014).

Whilst empirical studies on the positive relationship between employee intrapreneurship and prosocial impact are absent, some studies do provide tentative support for our premise. For instance, Meynhardt and Metelmann's (2009) qualitative study showed that public managers take risks, challenge the status quo, and proactively respond to challenges to ensure the public value and prosocial impact of their department; such activities may be considered defining features of employee intrapreneurship (Gawke et al, 2017a; De Jong et al., 2013). Moreover, a recent review of 222 empirical studies on innovation in the public sector showed that public innovation (i.e., a novel idea adopted for the first time in a public organization) positively related to tangible indicators of prosocial impact, such as increased involvement of citizens and

customer satisfaction (De Vries et al, 2016). Consistent with the proactivity and public administration literatures, and these previous findings, we formulated our next hypothesis:

Hypothesis 4: Public employee intrapreneurship relates positively to prosocial impact.

The final conceptual model is depicted in Figure 1. As can be seen, the model proposes that job characteristics and personal resources positively relate to public employee intrapreneurship, and, in turn to employees' prosocial impact. Moreover, personal resources are proposed to moderate the strength of the relationships between job characteristics and public employee intrapreneurship, which, in turn, positively relates to employees' prosocial impact: the more personal resources public servants have, the stronger the mediated relationship between job characteristics and prosocial impact via public employee intrapreneurship. Hence, to holistically address our framework we formulated the following hypotheses:

Hypothesis 5: Employees' (a) job ambiguity, (b) job accountability, (c) job autonomy, and (d) personal resources have a positive indirect effect on prosocial impact through employee intrapreneurship.

Hypothesis 6: The indirect effect of employees' (a) job ambiguity, (b) job accountability, (c) job autonomy on prosocial impact through employee intrapreneurship is positively moderated by personal resources.

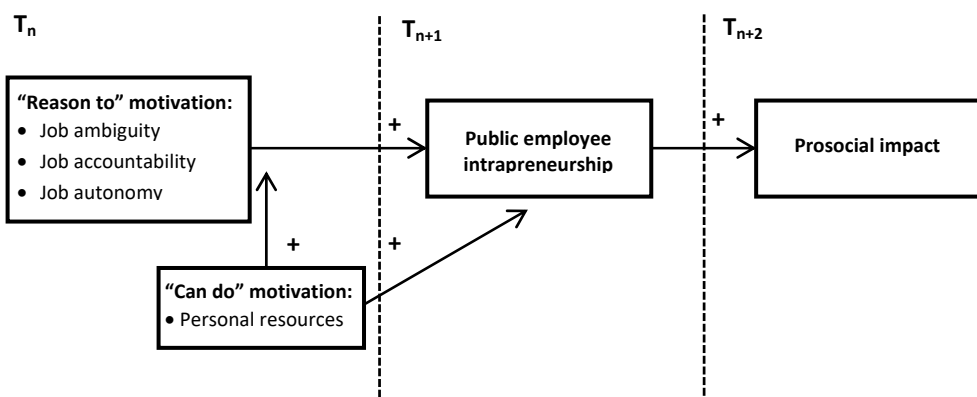


Figure 1. The conceptual model of employee intrapreneurship.

Method

Procedure and participants

Data were gathered using an online questionnaire among public servants working in national public administration. With the consent of the board of directors, we sent an email signed by the general HR-director to 2000 public servants from 37 different departments. The email contained information on the study and a request to voluntarily participate in it. At the end of the first survey, participants were asked if they were willing to complete another four questionnaires, one each week for the coming four consecutive weeks. In total, 688 individuals agreed to participate in the longitudinal study (i.e., drop out was 63%). A non-response analysis showed that the participants who did not participate in the follow-up surveys did not score significantly different on our outcome variables employee intrapreneurship (mean difference = 0.2, $p = .37$) and prosocial impact (mean difference = 0.1, $p = .97$) as compared to participants in the final sample. The average response rate for weekly survey was 65% (T0= 100%; T1= 62%; T2= 53%; T3= 50%; T4= 58%). Kim and Bentler's (2002) generalized least squares test showed that missing values of each week were missing at random (MAR; $p = .68$), indicating that response bias seemed unlikely. Each department ($k = 37$) was on average represented by 20 employees (ranging from 3 to 88 employees).

The mean age of the participants was 47 years ($SD = 10.61$), and almost 52% of the participants were female. The majority of participants were highly educated: 48.2% held a master's university degree or higher, 33.8% had finished higher vocational education, and 18% had finished intermediate vocational education or lower. Participants held a variety of occupations and represented a vast array of work fields within national public administration: Advisory 21.9%, Operational Management 25.6%, Policy 11.6%, Research and Development 7.0%, Top Management 6.5%, Project Management 6.1%, Control 8.9%, and Operations 12.4%. On average, participants had worked in their current position for 6.9 years ($SD = 8.2$).

Measures

All measures were administered in Dutch. Measures that were not available in Dutch were translated, using the forward-backward translation method (Behling & Law, 2000). Participants responded to all of the measures on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with the exception of the measures for ego-resilience, self-efficacy, and employee intrapreneurship. Participants responded to the ego-resilience and self-efficacy scales on a 4-point Likert scale (1 = totally disagree, 4 = totally agree) and to

the employee intrapreneurship scale on a 7-point frequency scale (1 = never to 7 = always). All items were reformulated so that they referred to the past week.

Autonomy was measured with seven items on the Dutch version of the Work Design Questionnaire (Morgeson & Humphry, 2006), the WDQ-NL (Gorgievski, Peeters, Rietzschel, & Bip, 2016). Sample items are, “Last week, the job gave me a chance to use my personal initiative in carrying out the work,” and “Last week, the job allowed me to plan how I do my work.” The scale showed good internal consistency. Cronbach’s alpha was .91.

Ambiguity was also assessed with the WDQ-NL (Gorgievski et al., 2016). Following Grant and Ashford (2008), we operationalized ambiguity using nine items from the subscales task variety, job complexity, and problem-solving to capture complex and uncertain work environments. Sample items are, “Last week, the job required me to utilize a variety of different skills in order to complete the work,” “Last week, the job involved solving problems that had no obvious correct answer,” and “Last week, the job often involved dealing with problems that I had not encountered before.” Cronbach’s alpha of the ambiguity scale was .90.

Accountability was assessed with the seven-item accountability scale from Hall, Zinko, Perryman, and Ferris (2009). Sample items are, “Last week, I was held accountable for my actions at work,” and “Last week, I often had to explain why I do certain things at work.” Cronbach’s alpha was .82.

Personal resources were assessed with shortened versions of the optimism scale of Scheier, Carver, and Bridges (1994), the ego-resilience scale developed by Block and Kremen (1996), and the self-efficacy scale of Schwarzer and Jerusalem (2010). Because the shortened versions have been shown to be reliable in previous studies (e.g., Gawke et al., 2017a), we used these versions to reduce the questionnaire length for participants. Optimism was measured with four items (sample item, “Last week, I expected the best outcomes”). Ego-resilience was assessed with five items (sample item, “Last week, I enjoyed engaging in new and unusual situations”). Finally, self-efficacy was measured with four items (sample item, “Last week, I knew what to do, regardless of what happened”). The three scales were combined into one overall personal resources index. Cronbach’s alpha was .85.

Employee intrapreneurship was measured with the eight-item version of the employee intrapreneurship scale of Gawke and colleagues (2017a). Four items measured sub-dimension employee venture behavior (e.g., “Last week, I undertook activities to set up new units for my organization”), and four items measured sub-dimension employee

strategic renewal behavior (e.g., “Last week, I undertook activities to realize change in my organization”). The scores on both dimensions were combined to create one overall intrapreneurship index. Cronbach’s alpha was .89.

Prosocial impact was assessed with four items adapted from Grant’s (2008) prosocial impact scale. Sample items are, “Last week, the results of my work had a positive impact on others,” and “Last week, the results of my work were benefiting others.” Cronbach’s alpha of the scale was .87.

Department-level dependency in employee scores on measures

The relationships between job characteristics, public employee intrapreneurship, and employee performance do not occur in isolation; they exist within a broader context (Bakker & Demerouti, 2018; Parker, Van den Broeck, & Holman, 2017). For instance, the departmental culture and socialization processes may influence how employees from a department perceive and relay information about various dimensions of their job (Favero & Bullock, 2014). Consequently, research has underlined that ignoring such dependency of employee perceptions on the broader context may bias estimates (Favero & Bullock, 2014) and obscure relationships present at one level of analysis but not another (Peccei & van de Voorde, 2016).

To calculate the department-level dependency of public servants’ perceptions of their job characteristics, we first aggregated (averaged) the weekly individual scores of ambiguity, accountability, and autonomy for each week. We assessed the between-department variability (ICC1 scores) and departmental-level reliability of the scores (ICC2 scores; Bliese, 2000). The ICC1 scores for ambiguity, accountability, and autonomy were .10, .06, and .11, respectively, indicating that a significant amount of the variance in the scores is due to department membership (Bliese, 2010). Reliability coefficients of the department-level variables of ambiguity, accountability, and autonomy as indicated by their ICC2 scores were good: .87, .77, and .87, respectively (i.e., Enders & Tofighi, 2007; Hox, Moerbeek, & Van de Schoot, 2010).

To examine whether it is necessary to include between-department variance scores in job characteristics in our analyses to predict employee intrapreneurship and prosocial impact, we calculated the proportion of department-level variance in employee intrapreneurship and prosocial impact (ICC1). The ICC1 for employee intrapreneurship was .11 and for prosocial impact .18, indicating that they both have a significant dependence on departmental factors (Bliese, 2000). Thus, our results indicate that the dependency of scores on department context should be addressed in all our analyses (Hox et al., 2010).

Department-level dependency in employee scores on measures

Prior to analyzing the data, we addressed the missing data in our study. Tabachnick and Fidell (2012) posit that missing data mechanism and missing data patterns are most important to consider when addressing missing data (see also Dong & Peng, 2013). Given that Kim and Bentler's (2002) generalized least squares test showed that missing values of each week were missing at random (MAR; $p = .68$), multiple-imputation method (MIM; Peugh & Enders, 2004) is the recommended missing data strategy over other standard approaches (e.g., list-wise deletion, pair-wise deletion, and replacing missing values with mean values). Because MIM replaces missing values with predictions based on the available information in the data, it better retains the original sample size than other standard approaches and acknowledges individual differences across subjects in the imputation process (Peugh & Enders, 2004; Jeličić, Phelps, & Lerner, 2009).

Data were analyzed in R (nlme package; R Core Team, 2015), using a hierarchical linear mixed modeling approach to analyze study variables nested within multiple levels (i.e., multi-level analysis; Hox et al., 2010). Multi-level analysis is superior to ordinary least square regression analysis because it allows for dependent observations within the higher-level data structure (Snijders, 2011). With respect to the present study, we use multilevel analysis to take the longitudinal character of our data into account as well as the dependence of employee observations within each department (i.e., measurement moments are nested in individuals who are nested in groups).

To test our hypotheses, we separated predictors and outcomes over time in line with our theoretical framework. This procedure reduces bias that may occur due to, for instance, participants' transient mood state (Favero & Bullock, 2014). We used participants' scores on job ambiguity, job accountability, job autonomy, and personal resources at the first measurement moment (i.e., T_n); scores on employee intrapreneurship at the consecutive time point one week later (i.e., T_{n+1}), and scores on prosocial impact at the following measurement moment (i.e., two weeks later, T_{n+2}). Because participants filled in the weekly diary for five consecutive weeks, we have three sequences that are nested in employees (i.e., $T_1 \rightarrow T_2 \rightarrow T_3$, $T_2 \rightarrow T_3 \rightarrow T_4$, and $T_3 \rightarrow T_4 \rightarrow T_5$; see Figure 1). To examine whether public servants' scores on employee intrapreneurship and prosocial impact were affected by the starting point of a sequence (i.e., T_1 , T_2 , or T_3), we examined the variability between sequences. Results revealed that the starting point of the sequence did not affect public servants' scores on employee intrapreneurship and prosocial impact: ICC1 scores were $< .05$ and models with a random intercept for the starting point of a sequence did not fit the data better than a single-level

solution; for employee intrapreneurship ($\Delta\chi^2_{(1\ df)} = 0.02, p = .89$) and prosocial impact ($\Delta\chi^2_{(1\ df)} = 0, p = 1.00$).

We proceeded to group-mean center our variables before conducting our analyses. Group-mean centering, or cluster-mean centering, creates uncorrelated predictors at the different levels, thus allowing us to separately address the relationships between individual and department-level dependency of job characteristics and employee intrapreneurship and prosocial impact (Enders & Tofighi, 2007; Hox et al., 2010). To add robustness to the results, we controlled for the effects of age, education, gender, tenure, and salary scale in all of our analyses, as these have been shown to relate to employee intrapreneurship (e.g., Gawke et al., 2017a; De Jong et al., 2013). We included the between-department variance in job characteristics in all analyses.

Results

Descriptive statistics

Table 1 shows the means, standard deviations and zero-order correlations between the study variables. Employees' perceptions of their job characteristics and the between-department variance of these perceptions are uncorrelated due to group-mean centering.

Hypotheses testing

Hypothesis 1 stated that perceived job ambiguity, job accountability, and job autonomy would positively relate to public employee intrapreneurship. Another predictor of employee intrapreneurship was stated under Hypothesis 2, namely personal resources. To test both hypotheses, we created Model 1. Model 1 consisted of the control variables, the between-department variance scores in job characteristics, the individual scores of the job characteristics that represent "reason to" motivation (i.e., job ambiguity, job accountability, and job autonomy), and personal resources that represent "can do" motivation to predict employee intrapreneurship. In addition, random intercepts for departments were modeled. Model 1 showed a significant better fit than a null model without predictors ($\Delta\chi^2_{(9\ df)} = 855.80, p < 0.01$). Confirming Hypothesis 1, results showed that ambiguity ($B = .16, SE = .04, p < .01$), accountability ($B = .27, SE = .02, p < .01$), and autonomy ($B = .16, SE = .04, p < .01$) related positively to employee intrapreneurship. Moreover, results of Model 1 supported Hypothesis 2 showing that personal resources related significantly and positively to employee intrapreneurship ($B = .51, SE = .05, p < .01$).

To test Hypothesis 3 concerning the enhancing effect of "can do" motivation on the relationship between "reason to" motivation and employee intrapreneurship, we followed

Table 1. Latent correlations between the control and study variables.

Construct	M	SD	Study variables								
			1	2	3	4	5	6	7	8	9
L1											
1. Prosocial impact	4.60	.97	-								
2.Employee intrapreneurship	2.50	1.12	0.31**	-							
3. Autonomy	4.02	.69	0.13**	0.22**	-						
4. Ambiguity	3.78	.62	0.27**	0.35**	0.41**	-					
5. Accountability	3.52	1.01	0.20**	0.35**	-0.02	0.34**	-				
6 Personal resources	3.07	.44	0.24**	0.33**	0.33**	0.42**	0.19**	-			
L2											
7. Autonomy	2.68	.13	0.08**	0.15**	0	0	0	0	-		
8. Ambiguity	4.87	.24	0.17 **	0.21**	0	0	0	0	0.73**	-	
9. Accountability	1.89	.13	0.08 **	0.09**	0	0	0	0	0.17**	0.23**	-
L1 control											
Education	5.28	1.08	0.05	0.19**	0.16**	0.22**	0.09**	0.09**	0.13**	0.12**	-0.02
Gender	1.51	.50	0.02	-0.04**	-0.01	-0.04**	-0.05**	0.01	-0.06**	-0.05**	-0.05**
Tenure	6.88	7.91	0.06*	-0.12**	-0.04	-0.08**	-0.02	-0.07**	-0.03	-0.02	-0.02
Salary	10.91	2.32	0.07**	0.35**	0.19**	0.29**	0.18**	0.11**	0.18**	0.20**	0.11**

Note. L1 = Level 1 (Individual); L2 = Level 2 (Departments). $N_{L1} = 688$ and $N_{L2} = 37$.

* $p < .05$ ** $p < .01$

the method described in Frazier, Tix, and Barron (2004). We created interaction terms between personal resources and each job characteristic (i.e., ambiguity, accountability, and autonomy) and added all interaction terms simultaneously to Model 1 to create Model 2 (Dawson, 2014). Adding the interaction terms significantly increased model fit ($\Delta\chi^2_{(3\ df)} = 16.13$, $p < 0.01$). Results of Model 2 partly supported Hypothesis 3, showing that the interaction effect of job accountability and personal resources was significant ($B = .14$, $SE = .05$, $p < .01$). As can be seen in Figure 2, employees' with high job accountability and high personal resources most frequently engaged in public employee intrapreneurship. Although the shape of the interaction effects of job autonomy and personal resources, and of job ambiguity and personal resources were in line with our predictions, they were not significant (respectively $B = .08$, $SE = .07$, $p = .29$; $B = .02$, $SE = .07$, $p = .73$; see Table 2 for an overview of the results Model 1 and 2).

To test Hypothesis 4, according to which employee intrapreneurship would positively relate to employees' prosocial impact, we included employee intrapreneurship to the variables in Model 2 and to predict prosocial impact (Model 3). We allowed intercept variability across groups. Results of Model 3 confirmed our hypothesis; employee intrapreneurship showed a positive, lagged relationship with prosocial impact ($B = .15$, $SE = .02$, $p < .01$).

Finally, to test Hypothesis 5 and 6 which addressed our framework holistically, we applied the product-of-coefficients methodology to Model 2 and 3, which means calculating the product of the independent-mediator path and the mediator-dependent path, and dividing the product by the estimated standard error (cf. Frazier et al., 2004; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Supporting our hypotheses, results showed significant indirect effects of job ambiguity ($B_{\text{indirect}} = .03$, $z = 3.53$, $p < .01$), job accountability ($B_{\text{indirect}} = .04$, $z = 6.17$, $p < .01$), and job autonomy ($B_{\text{indirect}} = .03$, $z = 3.31$, $p < .01$) on prosocial impact via employee intrapreneurship. Moreover, In line with our framework, the analysis revealed significant moderated indirect effect for perceived job accountability and personal resources ($B_{\text{indirect}} = .03$, $z = 3.27$, $p < .01$) on prosocial impact via employee intrapreneurship.

Post hoc analyses

The ICC scores of our study variables and the significant effect of between-department variance of job ambiguity on employee intrapreneurship (see Table 2) suggested that the departmental context had a unique effect on employee perceptions of intrapreneurship and prosocial impact. Thus, in line with our framework, we additionally tested whether the motivational effect of between-department variance in the job characteristics were enhanced by employee personal resources. We created a new model with the same characteristics as Model 2 and included random slopes for personal resources (Model 4). To test whether personal resources enhanced the relationship between between-department variance in job ambiguity, job accountability, and job autonomy and employee intrapreneurship, we simultaneously added their interaction terms in Model 4 (Dawson, 2014). Results showed that the interaction effect of between-department variation in job ambiguity and personal resources ($B = .71$, $SE = .26$, $p < .01$), and between-department variation in job accountability and personal resources ($B = .42$, $SE = .21$, $p < .05$) had a significant impact on employee intrapreneurship. As can be seen in Figure 3, in departments with high levels of job ambiguity and job accountability, employees who had high personal resources were most likely to act intrapreneurially.

Discussion

This study aimed to increase our understanding of antecedents and consequences of intrapreneurship within the context of public sector organizations. Drawing on the proactive motivation theory (Parker et al., 2010) and building on public administration (e.g., Kearney & Meynhardt, 2016), management (e.g., Grant & Parker, 2009), and work and organizational psychology literature (e.g., Bakker & Demerouti, 2014) we created and tested a public intrapreneurship framework. Our framework posits that factors that enhance “reason to” and “can do” motivation foster public intrapreneurship and increase public servants’ awareness of their prosocial impact. The results were largely supportive of our theoretical framework and the theoretical assumptions central to PM theory (Parker & Collins, 2010; Parker & Yang, 2015). We showed that the motivational sources “reason to” reflected by job ambiguity, job accountability, and job autonomy, and “can do”, reflected by personal resources, have an independent and combined positive influence on public servants’ intrapreneurial behaviors and, indirectly, prosocial impact. Moreover, our post hoc results underlined the importance of addressing organizational context when examining public servants’ behaviors and perceptions as differences between departments were found to have a unique effect on employee intrapreneurship. Overall, we argue that our study has several implications for public sector scholars and practitioners.

Theoretical contributions

Building on PM theory and the discussed public administration studies, we provide first empirical evidence for the premise that job ambiguity, job accountability, and job autonomy can provide “reason to” motivation for public intrapreneurship. We argue that such a job context can create “reason to” motivation, because it enhances valence and utility judgments for intrapreneurship by providing leeway to take on a broader role (Grant, 2007), fostering more effortful thinking (Kearny & Meyenhardt, 2016) and providing opportunity to take initiative (Meyenhardt & Diefenbach, 2012). This contention may be particularly interesting in relation to the debate on whether job ambiguity may foster or hamper public servants to take on a broader role (e.g., Meyenhardt & Diefenbach, 2012). We argue that the lack of consensus on the effect of ambiguity may be a result of different types of job ambiguity that have been researched (conform different types of organizational ambiguity; Chun & Rainy, 2005). Our results indicate that when ambiguity relates to cognitive complexity and providing leeway to experiment with novel work methods, such context can motivate employees to exploit the provided opportunity

to create public value (Benning & Moore, 2011). In contrast, under role ambiguity (Currie & Procter, 2005) or when ambiguity exists as concerns how organizational goals are measured and evaluated (Chun & Rainy 2005), a strong rationale to take initiative is absent due to a prevalent risk that intrapreneurial actions negatively affect relationships with co-workers, or are incongruent with political norms and citizen interests. Hence, we argue that investigating different approaches to job ambiguity in the work of public servants is an important step to increase our understanding of how ambiguity affects intrapreneurship. For instance, ambiguity related to how to perform one's tasks may motivate individuals to take initiative, whereas ambiguity regarding interpersonal expectations may impede individuals to take on a broader role.

Providing a strong rationale may not be enough for public servants to embrace the risk and uncertainty that often coincide with intrapreneurship. We showed that strong self-beliefs regarding self-efficacy, optimism, and ego-resilience (i.e., personal resources) can foster "can do" motivation for intrapreneurship. Moreover, in line with PM theory, we found that "can do" motivation enhanced the motivational effect of "reason to" motivation for intrapreneurship. Specifically, under high job ambiguity and job accountability, results suggested that employees with low "can do" motivation were more likely to focus their attention on the self-threatening nature of such a context, thus withholding them to act intrapreneurially even though a strong rationale is present. Conversely, employees with high "can do" motivation were more likely to focus their attention on the opportunity that ambiguity and accountability can provide to engage in public employee intrapreneurship and create beneficial change. We did not find an enhancing effect of "can" do motivation for the positive relationship between job autonomy and employee intrapreneurship. As the shape of the interaction was in line with our expectations, the non-result may be explained as a result of multicollinearity between our predictors (Dawson, 2014). However, our results may also indicate that individuals with high personal resources are less likely to exploit the leeway autonomy provides for intrapreneurship because it does not provide a direct reason to create value for the organization, whereas job ambiguity and job accountability do. Taken together, with current research predominantly focusing on organizational antecedents of public intrapreneurship (Kearney & Meyenhardt, 2016), we argue that these results underline that examining the multiple roles of "can do" motivation for public intrapreneurship deserves more attention in future research. For instance, besides further increasing our understanding on how "can do" motivation can strengthen (and when not) the motivational effect of "reason to" for public intrapreneurship, scholars may also examine

how “can do” motivation can buffer against emotional demanding aspects of public work (cf. Bakker & Demerouti, 2017).

Our results further showed that public intrapreneurship positively related to prosocial impact. Because public intrapreneurship entails collaboration with diverse occupations and stakeholders (e.g. Peled, 2001), we argue that our results indicate that the direct contact between public servants and the people that are affected by their intrapreneurial activities fosters awareness of prosocial impact (Grant et al., 2007; Grant, 2012). This result may be especially important as prosocial impact has been shown to protect service employees from a burn out (Grant & Cambell, 2007) and help employees overcome difficulties when implementing ideas (Sonnentag & Starzyk, 2015). Hence, unveiling how to enhance awareness of public servants’ prosocial impact is pivotal, and our results suggested that public employee intrapreneurship can play an important role. As research on employee outcomes of public intrapreneurship is scarce, we encourage scholars to build on our framework to examine how public servants can benefit from intrapreneurial behaviors also in other ways. Simultaneously, we argue that addressing the potential personal costs of public intrapreneurship is also needed to build a comprehensive understanding of personal outcomes of public employee intrapreneurship (see for instance Gawke et al., 2017b).

Lastly, although recent studies have underlined the importance of addressing the dependency of employee perceptions and behavior on organizational context due to, for instance, departmental culture and socialization processes (Bakker & Demerouti, 2018; Parker, Broeck, & Hollman, 2017), studies adopting a multi-level perspective when examining public servants’ perceptions and behaviors are scarce (Favero & Bullock, 2014; Jakobsen & Jensen, 2015). Our results indicated that on average 10% the variation within public servants’ perceptions of their job design, intrapreneurship, and prosocial impact were influenced by departmental characteristics. The post hoc analysis showed that aspects of a department can manifest in employees’ perceptions of their work and have a unique effect on employees’ behaviors over job characteristics that are unique to an employees’ job. As such, our study supports the notion that ignoring this dependency can indeed result in biased parameter estimates (Favero & Bullock, 2015) and obscure relationships present at one level of analysis but not another (Peccei & Van de Voorde, 2016). Clearly, much can be gained from adopting a multi-level perspective and we argue its necessity to substantially increase our understanding of how, why, and when public servants decide to act intrapreneurially. We encourage scholars to adopt a multi-level perspective in future research to disentangle how organizational characteristics discussed

in new public management and public value management literature (e.g., Stoker, 2006; Meynhardt & Diefenbach, 2012) trickle down and affect public servants' perceptions of job design and intrapreneurial behaviors.

Practical implications

Recently, public sector intrapreneurship has become more fundamental to increasing the quality of public services (Kearney & Meynhardt, 2016). In order to increase intrapreneurial behavior of public sector employees, our study provides several practical implications for public managers. First, when public servants engage in intrapreneurial activities they often have to adopt dual role at work consisting of managing ongoing in-role activities and pursuing intrapreneurial opportunities (Kearney et al., 2007; Morris, Web, & Franklin, 2011). As such, public managers are advised to create work conditions that provide a strong rationale for employees to engage in venture and renewal behavior simultaneously with their formal job requirements; if these conditions are not present employee intrapreneurial activities are likely to be inhibited by more clearly defined and immediately rewarding in-role responsibilities (Shin et al., 2017). In the current study, we show that job conditions characterized by ambiguity, accountability, and autonomy positively relate to intrapreneurial behaviors, implying that such conditions encourage employees to take on an (additional) intrapreneurial role. Hence, public managers may use job redesign techniques, such as job enrichment (i.e., assigning employees additional responsibility or changing responsibilities; Parker, 2014). On a broader scale, managers may also implement human resources practices that can systematically motivate and empower employees to engage in venture behavior and strategic renewal behavior (for instance see High Involvement Work Systems; Oppenauer & Van de Voorde, 2016).

Second, providing ideal circumstances alone may not be enough. In line with the proactive motivation theory (Parker et al., 2010), but also with other established psychological theories (e.g., Job Demands-Resources theory; Bakker & Demerouti, 2014, 2017), both individual characteristics and the work environment can be expected to interact with each other and influence motivation. We showed that personal resources, such as ego-resilience, optimism, and self-efficacy, play a decisive role in how public servants respond to the context and the extent to which they engage in intrapreneurship. Personal resources are by definition malleable psychological constructs which are open to development (Luthans & Youssef, 2004). Consequently, public managers can increase the potential of their employees to capitalize on the opportunities in the work environment by increasing their personal resources. Intervention studies, such as those proposed by

Luthans, Avey, and Patera (2008) could be used as a basis to increase public servants' personal resources. Moreover, to increase collective personal resources and thriving at work of employees of a business unit, managers can focus their attention on demonstrating key characteristics of servant leadership (Walumbwa et al., 2016).

Limitations and future studies

In addition to its merits, this study also has its limitations. First, all measures in the present study were self-reports. Hence, common method and commons bias could have produced inflated correlations between our study variables. To decrease the risk of these biases we separated predictors and outcomes over time, ensured that differing answering scales were used for predictor and outcome measures, and used multi-level analyses (e.g., Favero & Bullock, 2015; Podsakoff, MacKenzie, & Podsakoff, 2012). However, to fully mitigate this risk, future research should aim to use multi-source data. For instance, stakeholder-scores can be used to capture prosocial impact and job design features can be operationalized based on functional job descriptions.

Second, the time interval of our study (two weeks) prevented us from capturing more long-term relations between job design, personal resources, employee intrapreneurship, and prosocial impact. The interval of our study was based on a literature review of studies that captured the influence of job design and personal resources on proactive work behaviors. However, as the process of organizational rejuvenation of services and products can encompass longer time periods (Antoncic & Hirich, 2003), an interval spanning at least a year would provide with valuable insights into the more enduring effects of intrapreneurship on awareness of prosocial impact and public value creation. Thus, although our two-week interval provides important first insights into the lagged relationship between job characteristics, personal resources, employee intrapreneurship, and prosocial impact, incorporating larger time intervals is necessary to increase our understanding of more long-term public value creation (Meynhardt, 2015).

Third, as the main focus of our study was to shed first light on what antecedents and outcomes of public employee intrapreneurship, our research design was not able to examine reciprocal relationships. Scholars have argued that psychological mechanisms underlying behavior, personal resources, and performance are not one-directional but often have a dynamic and reciprocal nature (Bakker & Demerouti, 2017; Fredrickson, 2004). This may also be the case for the relationship between public intrapreneurship and personal resources, as a recent study has shown that public intrapreneurship can build personal resources (Gawke et al., 2017a). As process-oriented studies in the field of public

intrapreneurship are scarce, we argue that examining dynamic psychological processes and potential gain cycles (i.e., reciprocal relationships that enhance each other over time; Bakker, 2015) when studying employee intrapreneurship may be a fruitful avenue for future research. Scholars may also consider different data analysis strategies to shed light on how reciprocal relationships between constructs change and develop over time (for instance, see Latent Change Score analysis; McArdle, 2009).

Fourth, our study shows that public servants' perceptions of their job design, intrapreneurial behaviors, and prosocial impact are dependent on both individual characteristics and unique job features, and on the characteristics of their department. However, our research design limits us in concluding which unique departmental practices may have influenced employees' perceptions of their job. For instance, we are unable to conclude that differences in general operational uncertainty within a department underlies our result regarding the positive relationship between departmental-variance in job ambiguity and employee intrapreneurship. Including a direct measure of organizational practices discussed in new public management (e.g., key performance indicator focus of an organization, supervisor support for innovation) and public value management literature (e.g., multitude of expectations and localism; Meynhardt & Diefenbach, 2012) can solve this issue.

Conclusion

Our study showed that PM theory may provide a fruitful framework to explain why and when public servants are likely to feel motivated to engage in intrapreneurship, and, in turn, enhance awareness of their prosocial impact. For public servants to be motivated to engage in intrapreneurship, providing a work environment that fosters a "reason to" be intrapreneurial is crucial. In the current study, we showed that jobs characterized by ambiguity, accountability, and autonomy are able to do so. Moreover, our post hoc analyses showed that promoting the consensus and awareness of these job characteristics may also be a method to increase venture and strategic renewal activities within public sector organizations. However, providing a motivational context alone may not be enough. For employees to fully exploit the opportunities in the work environment for intrapreneurial purposes, they need to believe in their intrapreneurial ability (i.e., "can do" motivation). Our study indicated that self-beliefs regarding self-efficacy, optimism, and ego-resilience are employee characteristics that positively influence public servants' intrapreneurial response to the work environment. Taken together, public sector organizations should aim to design jobs that provide a strong rationale for employee

intrapreneurship and create a context that enhances employees' intrapreneurial self-beliefs. Such a strategy may foster the awareness of the prosocial impact of public employees and likely result in optimized public performance.

Chapter 4

High involvement work systems and employee intrapreneurship: A multi-level study within public service.

This chapter is submitted as:

Gawke, J.C., Bakker, A.B., Gorgievski, M.J., & Parker, S.K. High involvement work systems and employee intrapreneurship: A multi-level study within public service.

Abstract

This study among 2261 public servants of a National Public Administration from 37 departments investigates how high involvement work systems (HIWSs) may encourage public servants' intrapreneurial behavior (i.e., behaviors aimed at creating new strategies, businesses, and services). Integrating strategic human resource management and job design literatures, we developed a multilevel intrapreneurship model according to which an organization's HIWSs stimulate intrapreneurship through shaping work environments characterized by job enrichment and job accountability, which helps develop public servants' personal resources. Hypotheses were tested both on the aggregated department level and the individual level independent from the organizational context. Public servants rated their own job design, personal resources, and intrapreneurship, whereas human resource managers rated their department's HIWS. Results of multilevel piecewise path modeling offered full support for our hypothesized model. Developing personal resources proved to be the key element on department level. We discuss the theoretical and practical implications of these findings.

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Introduction

As public services are increasingly faced with new societal and technological challenges, intrapreneurial activities of public servants have become essential for service innovation and the creation of public value (Kearney & Meynhardt, 2016). These intrapreneurial activities, also called employee intrapreneurship, refer to the behaviors through which individuals expand an organization's current services (i.e., employee venture behavior) and strategically optimize the way resources are currently used (i.e., employee strategic renewal behavior; Gawke, Gorgievski, & Bakker, 2017). Benefits of intrapreneurship for public sector organization have been shown in several studies (De Vries, Bekkers, and Tummers, 2016), including its contribution to a significant reduction in waiting lists for elective care (Pope et al., 2006) and the creation of a digital system that more effectively renders tax assessment services to users and citizens (Edquist, Hommen, and McKelvey, 2001). Despite its obvious importance, relatively little is known about how to facilitate such intrapreneurial behaviors in public service, especially from a strategic human resource management perspective.

The central aim of the present study is to increase our understanding of how a public organization may encourage intrapreneurial behavior of its employees through high involvement work systems (HIWSs). A HIWS refers to a congruent bundle of HR practices that are typically implemented at the level of the organization, and that are intended to systematically motivate and empower employees to perform well (Boxall & Macky, 2009). Although there is a general consensus regarding the premise that HIWSs enhance organizational performance and innovation (Messersmith, Patel, Lepak, & Gould-Williams, 2011), our theoretical understanding as to how and why organizations' HIWSs may have a trickle-down effect on individual behaviors remains limited. There are two particular shortcomings in this literature.

First, exactly how the implementation of HIWSs at the organizational level – as reported by managers – is experienced by employees such that it affects their behaviors, has received limited attention. We agree with Nishii, Lepak and Schneider (2008; p. 5), that “empirical research which begins to explore the role of employees' perceptions of human resource practices in the causal chain is sorely needed” (see also Peccei & Van de Voorde, 2016). We draw from strategic human resource management (SHRM) and job design literatures to theorize that HIWSs help shape employee experiences of enriched job designs (i.e., jobs that provide both leeway and challenges; Morgeson & Humphry, 2006), as well as jobs in which individuals feel accountable for their performance. We further propose that, because these work characteristics facilitate mastery of challenging

tasks and increase employees' sense of responsibility, such job contexts promote employees' self-beliefs of their ability to successfully manage changing situations (i.e., personal resources; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). We argue that personal resources foster employee intrapreneurship, and form a key link in the HIWS-employee intrapreneurship relationship.

A second shortcoming in the current SHRM literature is that studies often investigated cross-level effects of human resource (HR) practices on employee responses using a single level of analysis (Peccei & Van de Voorde, 2016). Although such an approach has its merits, it fails to fully address the multi-level nature of how organizational HR practices influence employees' job design and behaviors. Moreover, a single-level analysis may provide biased estimates, as it inflates relationships among aggregated measures and obscures relationships present at one level of analysis but not another (Griffin, Mathieu, & Jacobs, 2001). To overcome these limitations and to more precisely address the cross-level process in the HIWS-employee behavior relationship, we adopt a multi-level perspective in both theory and methodology.

To increase our understanding of the linkage between HIWSs and employee intrapreneurship, we will develop a multi-level theoretical framework in which we explore the mediating roles of employee enriched job design, accountability, and personal resources. By doing so, our research contributes to the current literature in two different ways. First, by integrating SHRM and job design literatures, we provide insights into the proverbial "black box" concerning how organizational HIWSs have an influence on employees' perceptions of their job context and motivation to take on an intrapreneurial role. Second, we adopt a multi-level perspective to shed light on the unique influence of between-employee differences (i.e., employees' job design and personal resources unique to an employee) and between-department differences (e.g., the HR practices unique to a department that help shape employees' job design) on public servants' intrapreneurial behaviors. These insights may be particularly useful for top managers and HR managers of public services that seek to boost intrapreneurship in their organizations.

Theoretical Background

Unpacking the cross-level effects of a High Involvement Work System (HIWS)

A HIWS reflects the idea that an aligned system of HR programs, processes, and policies can foster employee involvement, discretionary activities, and organizational performance (Boxall & Macky, 2009). HR practices that are part of a HIWS center on empowering employees to use their skills and motivation most effectively (Guthrie, 2001;

Pil & MacDuffie, 1996). For instance, when HR practices contribute to staff-level employees being adequately trained, incentivized, and included in the strategic decision making process, such context may motivate employees to use their skills and abilities beyond their formal job and in a broader organizational context. Although the set of HR practices that represent a HIWS varies across studies, recent literature often includes employee staffing, employee training and development opportunities, reward systems, performance evaluation, participation, and job design (Messersmith et al., 2011).

To theorize the HIWS – employee intrapreneurship linkage, both how HR practices ‘reach’ individual employees as well as how HR practices may motivate employees to take on an intrapreneurial role need to be scrutinized. SHRM literature proposes that an important pathway as to how HR practices may trickle down relates to the way implemented HR practices shape an organization’s work environment (Boxal & Macky, 2009). When employees perceive and interpret these work conditions set by HR practices, employees internalize and translate them to their own job design (Bakker & Demerouti, 2018). For instance, empowerment-focused HR practices have been shown to positively relate to employees’ perceptions of variety and autonomy in their own job (Van de Voorde, Veldhoven, & Veld, 2016), and high involvement HR practices have been shown to positively relate to employees’ job responsibility (Oppenauer & Van de Voorde, 2016).

Although the idea that HR practices can trickle down and influence employee responses is quite established, research on how HIWSs affect and motivate employee’ intrapreneurial behaviors is absent. Moreover, existing single-level research is unable to examine to what extent employees’ motivation and behaviors are the result of HR practices, or the result of the specific job design that comes with the role an employee has in the organization (e.g., a manager versus a production assistant; Peccei & Van de Voorde, 2016). We address these issues in the current research by simultaneously examining how organizational HIWSs help shape employees’ collective job design characteristics and personal resources that foster intrapreneurial behaviors, as well as how an individual employee’s unique job design characteristics and personal resources motivate employee intrapreneurship (see Figure 1).

Linking HIWS to employee intrapreneurship

We argue that an important reason why HIWS may motivate employee intrapreneurship relates to the way HIWSs are aimed at increasing job enrichment (leeway and challenges in their job; Boxal & Macky, 2009) and job accountability (Oppenauer & Van de Voorde, 2016), both of which can provide a reason for employee intrapreneurship.

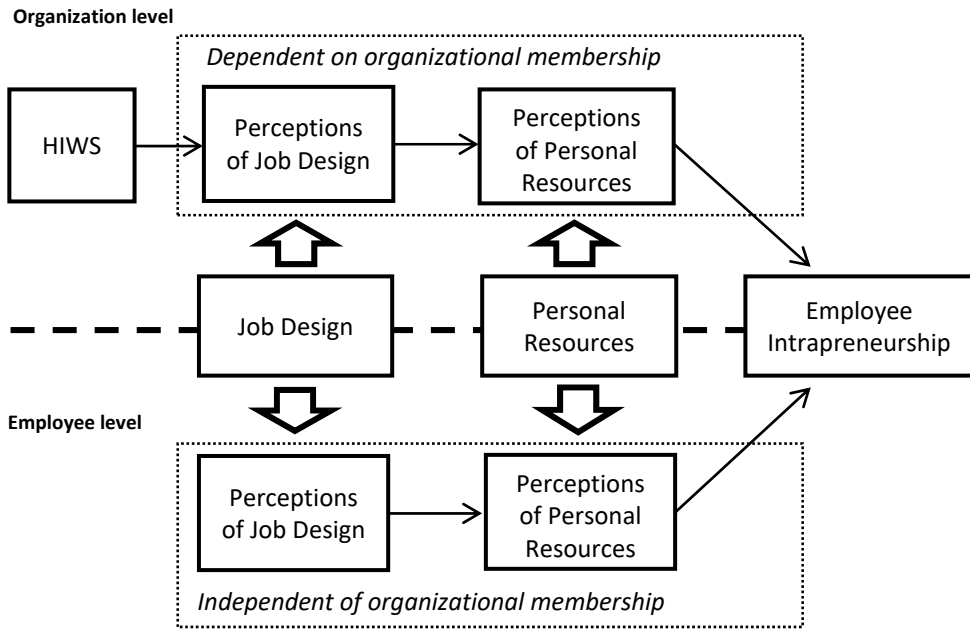


Figure 1. A multi-level theoretical model of High Involvement Work Systems (HIWSs) and employee intrapreneurship.

“Reason to” motivation is related to utility and valence judgements of proactive behaviors, such as enjoyment of the activity or its contribution to important (self-set) work goals (Parker & Wang, 2015). Enriched job design can create a strong rationale for employee intrapreneurship because they allow individuals to redefine their roles and job requirements to contribute to important organizational goals (e.g., Hornsby, Kuratko, Holt, & Wales, 2013; Jong, Parker, Wennekers, & Wu, 2015).

Besides job enrichment, we argue that high job accountability, too, may foster employee intrapreneurship. Job accountability refers to the extent to which employees have to justify their actions, and are held responsible for the outcomes of their actions. Under such circumstances, employees are encouraged to take initiative and engage in more self-critical thinking to find the best solutions (Grant and Parker, 2009). Empirical research corroborates this notion, showing that high job accountability motivates employees to proactively improve work methods and processes (McAllister, Kamdar,

Morisson, and Turban, 2007), and voice ideas for constructive organizational changes (Fuller, Marler, and Hester, 2006). Accordingly, we formulated the following hypotheses:

Hypothesis 1: HIWSs are positively related to job enrichment and job accountability

Hypothesis 2: Job enrichment and accountability are positively related to employee intrapreneurship.

The mediating role of personal resources

In addition to providing “reason to” motivation for proactive goal striving, job designs may indirectly foster proactive behavior by impacting “can do” motivation for proactivity (Parker & Wang, 2015). “Can do” motivation refers to employees’ self-beliefs regarding the ability to take initiative and deal with the challenges that arise from taking initiative. In the context of intrapreneurship, self-beliefs regarding ego-resilience (Block & Kremen, 1996), optimism (Carver & Scheier, 2003), and self-efficacy (Bandura, 1997) are considered to be especially important personal resources (Douglas and Fitzsimons, 2012; Frese & Gielnik, 2014). Combined, these beliefs reflect an individual’s ability to successfully adapt to changing situations, and proactively approach challenges with enthusiasm and persistence (Gawke et al., 2017a).

Because enriched jobs and job accountability provide leeway and prompt individuals to justify their actions, we argue that they may cultivate positive self-beliefs regarding confidence to engage in challenges and invest the necessary effort to succeed in intrapreneurial activities. A diary study showed that a resourceful work environment characterized by autonomy, professional development, social support, and supervisory coaching increased employees’ optimism, hope, and resilience on a daily basis (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2012). Moreover, another study showed that employees of different managerial levels who perceived more accountability at work showed higher levels of psychological ownership and self-efficacy (Avey, Avolio, Crossley & Luthans, 2009). We formulate the following hypotheses: We formulate the following hypotheses:

Hypothesis 3: Job enrichment and accountability are positively related to personal resources.

Hypothesis 4: Personal resources are positively related to employee intrapreneurship.

Multilevel sequential mediation in the HIWS-employee intrapreneurship relationship

An important premise in the SHRM and job design literatures is that the theorized relationships between HIWSs, job design, personal resources, and employee behaviors form a sequential process (Bakker & Demerouti, 2018; Kehoe & Wright, 2013; Wright & Nishii, 2013). In the context of our study, we reason that HIWSs contribute to more enriched and accountable job designs within an organization, which, in turn, cultivate personal resources that, subsequently, motivate employee intrapreneurship. To more precisely address the mechanism of this process, we additionally examine the sequential mediating relationships through which HIWSs may affect employees' work environments, personal resources, and intrapreneurial behaviors.

Hypothesis 5: HIWSs are positively related to employee intrapreneurship through (a) job enrichment and accountability, and (b) personal resources (sequential mediation).

Finally, although HIWS may help shape employees' job design and personal resources that motivate employee intrapreneurship, a substantial part of employees' job design and personal resources, as well as the motivation they provide for employee intrapreneurship, are likely to be independent of organizational context. For instance, regardless of whether an organization has implemented HIWSs, a manager may engage in intrapreneurial behaviors as a result of having ample of autonomy and job complexity which comes with his managerial position. Hence, to examine the unique effect of HIWSs on the job context, personal resources, and employee intrapreneurial behaviors, we need to recognize that individual differences between employees may exist and that these differences, too, influence the way employees perceive their job context and personal resources, and employee intrapreneurship.

Following this multi-level reasoning, we argue that Hypothesis 5 needs to be specified in order to investigate the two pathways that may simultaneously influence employees' intrapreneurial behaviors, namely an organizational-level pathway to employee intrapreneurship, and an employee-level pathway. The organizational-level pathway focuses on how organizational HIWSs help shape organizational members' collective perceptions of job enrichment, job accountability, and personal resources, and, in turn, employee intrapreneurship; and the employee-level pathway focuses on how employees' perceptions of job enrichment, accountability, and personal resources independent of organizational context influence employee intrapreneurship. Both the

organizational-level and employee-level pathway will be modeled to investigate the extent to which they explain employee intrapreneurship.

Method

Procedure and participants

The data were gathered in two phases within the national public administration organization in the Netherlands. First, with the consent of the board of directors, we contacted by email 4000 public servants within 49 departments. The email contained information on the study and a request to participate. The email made clear that participation was voluntary. In total, 2445 employees agreed to participate (response rate of 61%). In the second phase, we invited the HR managers of all 49 departments to fill in a questionnaire on HR practices within their department. HR managers who requested additional information on the study were contacted through telephone. Of the 49 HR managers, 37 agreed to participate (response rate of 76%). Thus, focusing only on those departments for whom we had HR data, the final sample consists of 2261 public servants, which is 56% of the total sample, who worked in one of 37 different departments. A t-test showed that employees excluded from the final data set neither differed from our sample regarding the core dependent variable of employee intrapreneurship ($p = .78$), nor on any of the other study variables (p -values ranged between .11 and .13). This means that a response bias due to dropout is unlikely.

The mean age of the participants was 48 years ($SD = 10.20$), and 55.7% was male. Participants worked in a variety of occupations and represented a wide range of work fields within the national public administration: Advisory 23.8%, Operational Management 22.8%, Operations 19.1%, Control 9.1%, Policy 7.7%, Research and Development 7.0%, Top Management 5.9%, and Project Management 4.6%. Participants had worked for an average of 7.2 years ($SD = 7.8$) in their current position, and the majority was highly educated: 41.0% held a master degree or higher; 51.7% finished higher vocational education; and only 7% finished intermediate vocational education or lower.

Measures

All measures were administered in Dutch. Measures that were not available in Dutch were translated, using the forward-backward translation method (Behling & Law, 2000).

Department level measures

High involvement work system practices were measured by asking HR managers to fill out a sixteen-item Dutch version (Oppenauer & Van de Voorde, 2016) of the high

involvement work system questionnaire (Prieto & Pilar Pérez Santana, 2012) suitable for use in the public service context. Six items refer to Ability-practices (e.g., “Within my department, we invest a lot of effort to choose the right person for the job” and “Employees within my department regularly partake in development programs”). Five items refer to Motivation-practices (e.g., “Employee performance appraisals are based on objective results”). Another five items cover Opportunity practices (e.g., “My department stimulates teamwork and collaboration” and “Employees within my department are given the opportunity to champion ideas that improves the service”). HR managers reported the extent of coverage of each HR practice on a six-point scale with the response categories 1 (“I don’t know”) to 6 (“All employees of my department”). “I don’t know” responses on an item were recoded into “None of the employees of my department” (Gardner et al., 2011). In line with previous research, we used an additive index of HR practices to capture a department’s HIWS (e.g., Van de Voorde et al., 2016). Principal component analysis justified the use of an additive index, indicating that the subscales are part of a single higher-order factor to represent a HIWS, explaining 74% of the variance. Factor loadings of the subscales ranged from .82 to .88. Cronbach’s alpha of the combined HIWS scale was .87.

Individual level

Enriched job design was measured with fifteen items of the Dutch version of the Work Design Questionnaire (Morgeson & Humphry, 2006) – the WDQ-NL (Gorgievski, Peeters, Rietzschel, & Bip, 2016). As enriched jobs are characterized by job characteristics that allow employees an element of discretion in their work and provide challenges (Morgeson & Humphry, 2006), we used items from the scales autonomy and task variety (i.e., motivation task characteristics), and job complexity and problem solving (i.e., knowledge characteristics). Sample items are, “The job allows me to plan how I do my work”, “The job requires me to utilize a variety of different skills in order to complete the work”, “The job involves solving problems that had no obvious correct answer”, and “The job often involves dealing with problems that I have not met before.” Employees responded to all items on a five-point Likert-scale (1 = strongly disagree to 5 = strongly agree). Principal component analysis justified the use of a single higher order factor to represent job enrichment, explaining 61% of the variance. Factor loadings ranged from .61 to .84. Cronbach’s alpha of the enriched job design scale was .91.

Job accountability was assessed with the seven-item accountability scale from Hall, Zinko, Perryman, and Ferris (2009). Sample items are “I am held accountable for my actions at work”, and “If things don’t go the way they should, I will hear about it from

management.” Employees responded to the items on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Cronbach’s alpha was .82.

Personal resources were assessed with shortened versions of the optimism scale of Scheier, Carver, and Bridges (1994), the ego-resilience scale developed by Block and Kremen (1996), and the self-efficacy scale of Schwarzer and Jerusalem (2010). Because the shortened versions have shown to be reliable in previous studies (e.g., Gawke et al., 2017), we used these versions to reduce the questionnaire length for participants. Optimism was measured with four items (e.g., “In uncertain times, I usually expect the best”). Ego-resilience was assessed with five items (e.g., “I enjoy engaging in new and unusual situations”). Finally, self-efficacy was measured with four items (e.g., “I know what to do, regardless of what happens”). Participants responded to the optimism scale on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), and to the ego-resilience and self-efficacy scales on a four-point Likert scale (1 = totally disagree, 4 = totally agree). Principal component analysis justified that the three scales could be combined into one overall personal resources index, explaining 63% of the variance. Factor loadings ranged from .78 to .81. Cronbach’s alpha of the personal resources scale was .85.

Employee intrapreneurship was measured with the eight-item version of the employee intrapreneurship scale (EIS) of Gawke, Gorgievski, and Bakker (2015). Four items measured the sub-dimension employee venture behavior (e.g., “I undertake activities to set up new units for my organization.”), and four items measured the sub-dimension employee strategic renewal behavior (e.g., “I undertake activities to realize change in my organization.”). Employees responded on a seven-point frequency scale (1 = never to 7 = always). The scores on both dimensions were combined to create one overall intrapreneurship index. Principal component analysis confirmed a single dimension that explains 81% of the variance, whose factor loadings were both .90. Cronbach’s alpha of the combined employee intrapreneurship scale was .90. The EIS has shown its factorial validity in several studies, as well as its criterion validity with employee innovativeness, employee risk-taking behavior, employee personal initiative, and reinforcement sensitivity (e.g., Gawke et al., 2017; 2017b).

Data analysis strategy

Before addressing our hypotheses, we analyzed the missing values in our data. Of the 2261 participants, 272 had missing data on some of the study variables (12%). Given that Kim and Bentler’s (2002) generalized least squares test showed that the missing values were missing at random (MAR; $p = .25$), we applied the multiple-imputation method

(MIM) to impute missing values (Peugh & Ender, 2004). MIM replaces missing values with predictions based on the available information in the data and is the recommended missing data strategy over other standard approaches (e.g., list-wise deletion, pair-wise deletion, and replacing missing values with mean values) as it better retains the original sample size and acknowledges individual differences across subjects in the imputation process (Peugh & Ender, 2004; Jeličić, Phelps, & Lerner, 2009).

To account for the multi-level nature of our data, we used multi-level analysis (Hox et al., 2010). Justifying our multi-level approach, scores of the employee-level variables showed between-department variance: the intra class correlations (ICC1; i.e., between-group variability) of employee intrapreneurship was .04, of enriched job design was .05, of accountability was .03, and of personal resources, .04. Moreover, examination of the intercept variability also indicated that between-department differences had a significant influence on employees' scores on these measures (i.e., two-level solution including random intercepts for the 37 departments fit the data significantly better than a single-level solution; cf. Bliese, 2000; Raudenbusch, 2002). We aggregated employees' scores on job enrichment, accountability, and personal resources within a department (i.e., created composite scores based on direct consensus) to create scores that represent the between-department variance scores (Peccei & Van de Voorde, 2016). The reliability of the composite scores, as indicated by their ICC2 scores, were good: .76, .54, and .59, respectively (Bliese, 2000; Hox et al., 2010). In addition, we group mean-centered employee scores on job enrichment, accountability, and personal resources to remove their between-department variance. This final step enabled us to simultaneously examine the unique influence of department-level and employee-level processes on employee intrapreneurship (Enders & Tofighi, 2007).

Data were analyzed in R (R Core Team, 2015) using multilevel piecewise path modeling (Shipley, 2009). In piecewise path modeling, the theorized model is broken down in several separate models to calculate parameter estimates of links between study variables. All separate models are then analyzed simultaneously to calculate the model fit of the overall theorized model. Because piecewise models release the restriction of a minimum number of observations necessary at the highest-level (i.e., sufficient degrees of freedom to estimate the whole variance-covariance matrix), and can accommodate non-normal distributions (Lefcheck, 2016; Shipley, 2009), we argue that it provides a more flexible and powerful technique compared to traditional multi-level path analysis considering our relatively small sample size of 37 departments.

To calculate model fit, we used Shipley's (2009) test of directed separation. This procedure tests the assumption that all unconnected variables in the theorized model are independent (i.e., conditional independence). The model fit is calculated using Fisher's C statistic (Lefcheck, 2016). A non-significant Fisher's C statistic indicates that the hypothesized relationships in the path model are consistent with the data. To compare different models, the model's value on the Akaike information criterion can provide insights into relative fit (AIC); a lower AIC value represents a better fitting model (Shipley, 2009). To reduce bias, we controlled for department size and participants' salary scale in all our analyses as these factors have been shown to influence intrapreneurial activity (e.g., Hornsby, Kuratko, Shepherd, & Bot, 2009).

Results

Descriptive statistics

Table 1 shows means, standard deviations, and zero-order correlations between the study variables. Employee-level predictors are uncorrelated with the compositional scores of predictors as a result of group-mean centering.

Hypotheses testing

Corresponding to Figure 2, we created the "Multi-level Intrapreneurship model" to simultaneously examine our hypothesized department-level and employee-level pathways to employee intrapreneurship. At the department level, we modeled HIWSs to predict between-department variance in job enrichment and accountability, which, in turn, were modeled to predict between-department variance of employee personal resources. Subsequently, all between-department scores were modeled to predict employee intrapreneurship. At the employee level, we modeled the between-individual variance of job enrichment and accountability to predict between-employee variance of personal resources, which, in turn, were also modeled to predict employee intrapreneurship. In the Multi-level Intrapreneurship model, random intercepts for employee intrapreneurship and correlations between the exogenous (independent) variables were modeled. The model showed a good fit to the data (Fisher's $C = 36.08$, $df = 26$, $p = .09$), indicating that it adequately captured the linkages between our study variables. Examination of the variance components indicated that the Multi-level Intrapreneurship model explained 51.61% of the between-department variance in employee intrapreneurship, and 29.69% of the between-employee variance in employee intrapreneurship. The results of the analysis are graphically presented in Figure 2.

Table 1. Means, standard deviations and correlations between the study variables.

Construct	M	SD	Study variables							
			1	2	3	4	5	6	7	8
L1										
1.Employee intrapreneurship	2.25	1.24	-							
2. Acountability	2.50	1.03	0.36**	-						
3. Enriched job design	3.49	.55	0.28**	0.23**	-					
4. Personal resources	3.23	.51	0.41**	0.22**	0.41**	-				
L2										
5. Enriched job design	3.50	.13	0.10**	0	0	0	-			
6. Accountability	3.26	.19	0.08**	0	0	0	0.38**	-		
7. Personal resources	2.98	.42	0.13**	0	0	0	0.22**	0.36**	-	
8. HIWS	3.29	.71	0.04*	0	0	0	0.19**	0.19**	0.07*	-
L1 Control										
Salary scale	10.46	2.39	0.31 **	0.15**	0.14**	0.19**	0.14**	0.13**	0.03	0.08**
L2 Control										
Department size	143.00	95.26	-0.01	0	0	0	-0.06*	-0.20**	-0.40**	-0.20**

Note. L1 = Level 1 (Individual); L2 = Level 2 (Departments). $N_{L1} = 2261$ and $N_{L2} = 37$.

* $p < .05$ ** $p < .01$

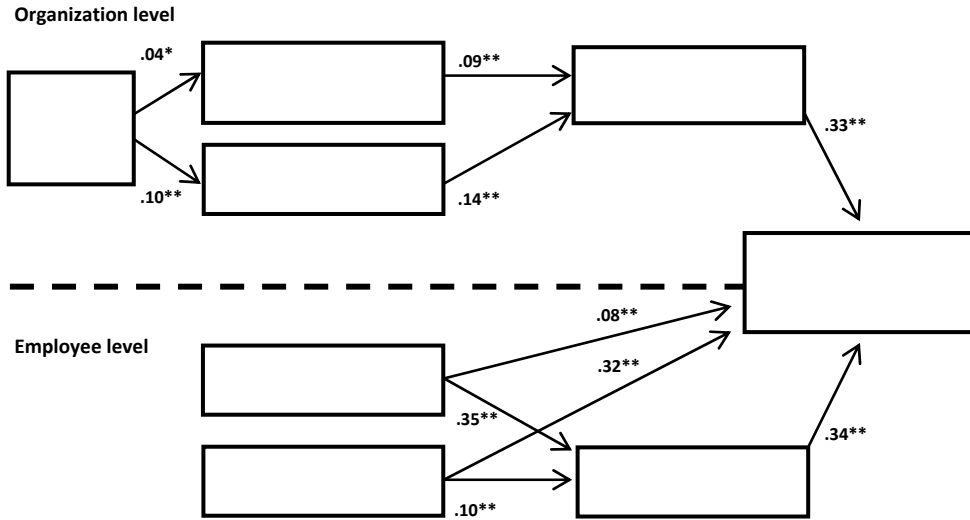


Figure 2. Results of piecewise path analysis of the multilevel employee intrapreneurship model.

Note. [d] = between-department scores, [i] = between-individual scores. Fisher's C = 36.08, $df = 26$, $p = .09$; and the Akaike Information Criterion = 100.08. At the department level $N = 37$ and at the individual level $N = 2261$. Paths from the control variables (department size and employee salary scale) to study variables and insignificant paths are omitted from the figure for clarity. * $p < .05$, ** $p < .01$.

Hypothesis 1 stated that departmental HIWS positively influence the job enrichment and job accountability of public servants employed in that department. Results of the multi-level analysis support this notion, as HIWSs were found to positively relate to the between-department variance in public servants' perceptions of their job enrichment ($\beta = .04$, $p < .05$) and job accountability ($\beta = .10$, $p < .01$). This means that when departments use more HR practices such as providing opportunities to employees, fostering teamwork and collaboration, employees in these departments are more likely to perceive a challenging and resourceful work environment in which they are held accountable for their actions.

Our hypothesis that job enrichment and job accountability are positively related to employee intrapreneurship was only partly supported (Hypothesis 2). The results of multi-level analysis showed that job enrichment and job accountability positively related to employee intrapreneurship at the employee-level ($\beta = .08$, $p < .01$; $\beta = .32$, $p < .01$), but not on the department level ($\beta = .06$, $p = .21$; $\beta = .01$, $p = .69$). These findings indicate that *only* public servants' perceptions of job enrichment and accountability that exist

independently of departmental context have a *direct* relationship with their intrapreneurial behaviors.

In Hypothesis 3, we predicted that public servants' job enrichment and job accountability positively relate to personal resources. This hypothesis was supported at both the department and employee level. Specifically, between-department variance in public servants' perceptions of their job enrichment and job accountability showed a positive relationships with between-department variance in personal resources ($\beta = .09, p < .01$; and $\beta = .14, p < .01$, respectively). These findings indicate that when departments have public servants employed who perceive high levels of job enrichment and job accountability, these departments are likely to report high levels of personal resources. The between-employee variance in employees' perceptions of their job enrichment and job accountability also showed positive relationships with between-employee variance in employees' personal resources ($\beta = .35, p < .01$; and $\beta = .10, p < .01$, respectively). The latter findings suggest that when public servants perceive job enrichment and job accountability, they are likely to report higher personal resources.

Further, in line with Hypothesis 4, personal resources had a positive relationship with employee intrapreneurship at both the department and employee level. Specifically, between-department variance in public servants' personal resources showed a positive relationship with employee intrapreneurship ($\beta = .33, p < .01$). Thus, departments that have public servants employed who are optimistic, resilient, and efficacious, are also more likely to have public servants that showed intrapreneurship. At the employee level similar results were found, as between-employee variance in personal resources positively related to employee intrapreneurship ($\beta = .46, p < .01$). Hence, individual public servants who perceived more personal resources were also more likely to act intrapreneurially.

To holistically test the organizational and employee pathway to predict public servants intrapreneurship (Hypothesis 5), we followed Tofighi and MacKinnon's (2011) product-method. Results of the product-method analysis fully supported our Multi-level Intrapreneurship model. Specifically, HIWSs indirectly explained between-department variance in employees' personal resources via between-department variance in employees' job enrichment ($\beta_{indirect} = .004, SE = .001, 95\% CI[.001, .006]$) and accountability ($\beta_{indirect} = .014, SE = .002, 95\% CI[.011, .018]$). Moreover, the between-department variance in employees' job enrichment and job accountability showed a significant indirect effect on employee intrapreneurship via between-department variance in employees' personal resources ($\beta_{indirect} = .028, SE = .007, 95\% CI[.015, .044]$; and $\beta_{indirect} = .048, SE = .01, 95\% CI[.029, .068]$, respectively). With respect to the indirect effects at the

employee level, results showed that between-employee variance in job enrichment and job accountability had a positive indirect effect on employee intrapreneurship via between-employee variance in personal resources ($\beta_{indirect} = .163$, $SE = .014$, 95% CI[.137, .191]; and $\beta_{indirect} = .046$, $SE = .008$, 95% CI[.031, .063]). Taken together, in correspondence with the proposed multilevel intrapreneurship model, we observe that both the department- and the employee-level paths play an important role in explaining public servants' intrapreneurial behaviors.

Reversed causality test

We compared the Multi-level Intrapreneurship model with a Reversed Causation model to add robustness to our results on the indirect effects (Hypothesis 5). We created the Reversed Causation model by reversing the causal order of the indirect effects on employee intrapreneurship (i.e., department and individual-level psychological resources were modeled as predictors of enriched job design and accountability, which, in turn, predicted employee intrapreneurship). Results showed that the proposed model (AIC = 100.08) had a better fit to the data than the Reversed Causation model (AIC = 919.19). Hence, whilst longitudinal studies are the only way to accurately assess the direction of causality, these findings provide additional support for our Multi-level Intrapreneurship model as concerns the sequential order in which HIWSs and job design indirectly affect employee intrapreneurship.

Discussion

Given the importance of public sector intrapreneurship to financially sustain operations and create public value (Kearney & Meynhardt, 2016), this study aimed to increase our understanding of the mechanisms through which HIWSs may foster public servants' intrapreneurship. Based on insights of SHRM and job design literatures, we theorized and tested a multi-level intrapreneurship model that explains how organization and employee-level processes concurrently influence employee intrapreneurship.

In line with our predictions, results of multi-level piecewise path modeling showed that departmental HIWSs positively influenced employee intrapreneurship via perceptions of more job enrichment and job accountability, and more personal resources on average for all members of a department. These results underline the potential of an organization's high involvement HR practices to empower employee self-beliefs and foster behavior (Boxal & Macky, 2009). These findings also support the notion that HR practices

help shape a challenging and resourceful work context (Oppenauer & Van de Voorde, 2016). Moreover, they corroborate previous findings that employees' job design (e.g., De Jong et al., 2013) and personal resources (e.g., Douglas & Fitzsimmons, 2012) are important constructs that can explain why employees choose to act intrapreneurially at work.

On top of the department level effects, the findings of the current study indicate that between-employee differences in job design and personality influence employee intrapreneurship. This substantiates previous findings that employees working in the same organization can differ in their experience of their job design, personal resources, and proclivity to act intrapreneurial due to, for instance, different job tasks and job position (Hornsby et al., 2009), or different self-beliefs related to intrapreneurship (Globocnik & Salomo, 2015). As both between-department and between-employee differences were found to concurrently relate to employee intrapreneurship, our study underlines the importance of adopting a multi-level perspective to comprehensively address what motivates employee behavior within organizations (Peccei & Van de Voorde, 2016). Taken together, our results have several theoretical implications for the SHRM and job design literatures, as well as implications for fostering intrapreneurship within public services.

Theoretical contribution

As research on the relationship between HR practices and employee behaviors is scarce (Peccei & Van de Voorde, 2016), an important theoretical contribution of this study is the development of a multi-level conceptual model explaining the HIWS–employee intrapreneurship linkage. Our model underlines that a single-level analysis cannot capture the complexity of the relationship between HR practices and intrapreneurship. In line with previous empirical evidence (e.g., Kehoe & Wright, 2013; Oppenauer & Van de Voorde, 2016), we found that employee-ratings of all mediators and outcome variables (job enrichment, job accountability, personal resources, and employee intrapreneurship) showed department-level and employee-level variability. Single-level analyses would have produced biased results, as it would have underestimated the influence of between-department differences or that of between employee-differences on employee intrapreneurship. As a department-level construct, our results indicate that HIWSs trickle down to affect employees' *collective* perceptions and foster similarity among organizational members as concerns their job design, personal resources, and proclivity to act intrapreneurially. The collective perceptions and attitude towards intrapreneurship provide a unique source of motivation for employees that exist next to employees'

motivation for intrapreneurship independent of the departmental context. Hence, HIWSs can be expected to provide the additional “pull” factor for intrapreneurship within a department, thereby boosting employees’ own confidence and proclivity for intrapreneurship.

Moreover, our study showed a difference, be it subtle, in how departmental and individual level effects influence employee intrapreneurship. On the department level, job enrichment and accountability only related to intrapreneurship because it related to higher personal resources, indicating that collective levels of personal resources are the key explanatory variable in this relationship (indirect effect). This result is congruent with the premise that HR practices most effectively encourage employees’ proactive behaviors if they help create a work context that empowers employees to use their skills and motivation most effectively (Valsania et al., 2016). It also corroborates with findings that an intrapreneurship-friendly work environment and management’s clear commitment to intrapreneurship are important precursors of intrapreneurial activities within an organization (Kirby, 2006). On the individual level, the job design characteristics under study related to higher personal resources and to intrapreneurship (partial mediational effect). These findings highlight that job design features unique to an employee can create a strong rationale for intrapreneurship (De Jong et al., 2013) and cultivate personal resources (Bakker & Demerouti, 2017). This can be expected, because employee differences in job design are primarily the result of employees’ different roles and positions in organizations. As such, they directly affect an employee’s opportunity to participate in decision-making processes and take initiative, as well as availability of resources. These features of a job have been shown to positively affect intrapreneurship (Menzel et al., 2007) and increase employees’ self-beliefs for proactivity (Bakker & Demerouti, 2017). Whilst the multi-level reasoning contributes to our understanding how employee behaviors are affected by the organizational and job context, to date, it is still common practice to use only one level of analysis when testing the impact of HR practices (Peccei & Van de Voorde, 2016). We encourage scholars to further unpack the multi-level HIWS-intrapreneurship relationship and examine how and why mechanisms on the organizational level may not necessarily be the same as the mechanisms on the employee level (Ployhardt & Moliterno, 2016).

A second contribution relates to the specific explanatory variables that were included in our study, which can broadly be generalized to “reason to” and “can do” motivation for employee intrapreneurship. Employees’ perceptions of enriched job designs—indicated by job autonomy, task variety, job complexity and problem solving—and perceptions of job

accountability were theorized to foster a strong rationale for intrapreneurial behavior (i.e., “reason to” motivation; Parker & Wang, 2015). Our results showed positive relationships between enriched job designs and employee proactive behaviors, corroborating results of quite established prior empirical work (cf. Bakker & Demerouti, 2017). Results also highlight the usefulness of including accountability in employee centered studies on intrapreneurship. Accountability steers employee actions and thought processes towards reaching work and organizational goals (Grant & Parker, 2009; Tetlock, 1985). Moreover, by explicitly appraising and rewarding employees’ activities and accomplishments that benefit the organization, the organization emphasizes that employee intrapreneurship is desirable (Globocniks & Salomo, 2015). Further research could explore in more depth under what conditions job enrichment and accountability strengthen employees’ “reason to” motivation for intrapreneurship.

Next, our results show that employees’ personal resources—operationalized as ego-resilience, optimism, and self-efficacy—can be seen as a source of “can do” motivation for intrapreneurial behavior. Personal resources provide “can do” motivation because they reflect an individual’s self-beliefs regarding the ability to take intrapreneurial initiative, approach challenges with enthusiasm and persistence, and effectively deal with the challenges that coincide with intrapreneurship (Frese & Gielnik, 2014; Gawke et al., 2017a). To date, our understanding of the role of personal resources for intrapreneurship is limited as the current literature predominantly focuses on static personality traits (e.g., personality; Sinha & Srivastava, 2013), and competences (e.g., brokering; Bjornali & Storen, 2012) in light of “can do” motivation for intrapreneurship. Several empirical studies have shown that personal resources not only motivate proactivity but also help employees to stay energetic and positive when facing hardships and challenges at work (cf. Bakker and Sanz-Vergel, 2013; Gawke et al., 2017a). Our results substantiate that personal resources should get a more prominent position in the intrapreneurship literature. Besides general self-efficacy, hope, and resilience used in this study, entrepreneurial self-capital may be an interesting construct, which is comprised of core self-evaluation, hardiness, creative self-efficacy, resilience, goal mastery, decisiveness, and vigilance (Di Fabio, 2014). Future research may further disentangle the role of personal resources in relation to why and when employees are most likely to act intrapreneurially.

While the premise that “reason to” and “can do” motivation underlie employee proactivity is quite established in the job design literature (Parker, Morgeson, & Johns, 2017), we show that their usage as explanatory psychological mechanisms for employee behaviors can also benefit the SHRM literatures. Our results indicate that to foster

employee intrapreneurship, a coherent HR system should not only aim to increase employee autonomy and responsibility (i.e., increase collective “reason to” motivation) but also include skill enhancing HR practices that provide employees the opportunity to learn and develop their competencies and personal resources (i.e., increase collective “can do” motivation). These insights can help explain why empirical evidence to date has shown mixed results as concerns whether motivational HR practices enhance employee intrapreneurship and innovation (Ramamoorthy, Flood, Slattery & Sardesai, 2005) or decrease employees’ intrapreneurial tendencies (Deprez, Leroy, & Euwema, 2018). These studies solely focus on the effect of increasing the collective “reason to” motivation for intrapreneurship via, for instance, overt communications on its importance, but neglect how these practices align with other organizational HR practices and how they affect employees’ self-beliefs on whether they can successfully act intrapreneurially. The alignment between HR practices and the importance of increasing both collective “reason to” and “can do” motivation for intrapreneurship deserves further attention.

Practical implications

Our study has several practical implications for public managers and HR-professionals who aim to increase public servants’ intrapreneurial behaviors within their organization. Although intrapreneurship is highly relevant for public sector organizations (Kearney, Hisrich, & Roche, 2008), public sector organizations are often considered to be less conducive to intrapreneurship as compared to private sector organizations due to being faced with bureaucracy, legislative constraints, and general public skepticism (Borins, 2001). Our findings indicate that HIWSs may provide an important instrument to overcome such barriers. When implemented correctly, HIWSs can provide employees with structures, values, resources, and learning opportunities that reduce formalization, and center on taking initiative and effectively adapting and managing change (Peccei & Van de Voorde, 2016). As a result, public servants will be more likely to be proactive, involve and co-create with citizens (Voorberg, Bekkers, & Tummers, 2015), and search for (alternative) ways finding additional resources for new venture creation or strategic renewal. When introducing HIWSs, it is crucial that managers not only implement empowerment HR practices that provide a strong rationale for employees to use their skills for intrapreneurship (e.g., including motivational HR bundles that make intrapreneurial behavior part of performance appraisal and reward systems), but at the same time implement skill enhancing HR practices that increase the collective “can do” motivation. The latter refers to HR practices aimed at recruitment and assessments, and at optimized

training and career counseling possibilities for employees (Savickas, 2003). In order to maximize the motivational impact on employees, managers are advised to use HR practices that complement each other (Boxall & Macky, 2009; Subramony, 2009) and align with existing HR practices in their organization.

Second, our study showed that public servants have unique individual perceptions of their work environments and personal resources, and proclivity towards intrapreneurship. The reason for such differences can be a result of different job positions, competences, and personality, each having a potential influence on employees' proclivity for intrapreneurship. Therefore, managers should be aware that to foster intrapreneurship among specific organizational members, the implementation of HIWSs should be accompanied with a local approach. For instance, managers may offer these organizational members trainings aimed at mapping job demands and job resources, and using this information to come up with a plan to increase job enrichment, feelings of accountability, and having abundant personal resources. Such interventions have shown to increase employees activities aimed at proactively optimizing the work environment, which, in turn, positively affected their work engagement and performance (Gordon et al., 2018). Similarly, training aimed at increasing personal resources, such as those proposed by Luthans, Avey, and Patera (2008), could be used as a basis to increase employees' ego-resilience, optimism, and self-efficacy.

Limitations and future directions

In addition to its merits, including a multi-source and multi-level research design, several limitations need to be mentioned. First, our study included a limited number of job design characteristics. We encourage scholars to expand the presented multilevel intrapreneurship model by including additional explanatory job design characteristics. Further integration of SHRM and job design literatures can substantially contribute to a fuller understanding of how HR practices trickle down and motivate employee responses. The Job Demands-Resources theory (Bakker & Demerouti, 2018) and Proactive Motivation theory (Parker & Wang, 2015) may provide interesting frameworks at the employee-level, as they map out why employees engage in proactive behaviors, and what the potential costs and benefits of these behaviors are for employees.

Second, our study had a cross-sectional design, because of which we are not able to draw conclusions on causality. Future studies should aim to incorporate multiple measurement moments to further unpack the HIWS–employee intrapreneurship relationship (Ployhart & Ward, 2011). Moreover, a longitudinal design using at least three

measurement moments may further contribute to our understanding of how HR-practices may help shape a context that increases coalescence of employee's perceptions and behaviors within a department (cf. Fulmer & Ostroff, 2016).

A third limitation concerns our conceptualization of HIWS. In the current study we measured HIWS by adding up the high involvement HR practices implemented by a department. This approach fits with our aim of testing premises based on the SHRM process model and job design theories. However, a next study could address potential synergies or interactions between different HR practices on employee outcomes by employing a configurational approach (i.e., HR systems reflecting different patterns, combinations, or profiles of HR practices; Chadwick, 2010). Such an approach may be especially useful to increase our understanding of whether and how different configuration of HR practices influence job performance and well-being of different employee groups (Bowen & Ostroff, 2004).

Finally, our study was conducted in a single national public administration in the Netherlands. The benefits of this approach are that it allowed us to ensure a high response rate and have a contextually valid measurement for all departments. However, such an approach may limit the generalizability of our results. For instance, cultural differences regarding motives, values, and beliefs of individuals exist regarding entrepreneurial activities (Hayton, George, & Zahra, 2002) and have been shown to moderate intrapreneurship (Turro, Urbano, & Peris-Ortiz, 2014). Accordingly, we reason that culture may influence the extent in which HIWSs can elicit "reason to" and "can do" for intrapreneurial behaviors. Future studies may address this issue by conducting a cross-cultural study and incorporating culture as a moderator.

Conclusion

Despite its importance, our understanding how to foster public servants' intrapreneurial behaviors remains limited (Kearney & Meynhardt, 2017). By integrating SHRM and job design literatures, we created a multilevel intrapreneurship model to advance our understanding of why and how HIWSs influence public servants' intrapreneurship. Our model highlights the roles of job enrichment, accountability, and personal resources (self-beliefs concerning self-efficacy, optimism, and resilience) in the HIWS-employee intrapreneurship relationship. Moreover, we showed the incremental value of using job design literature to explain the underlying psychological mechanism why and how HIWSs can trickle down to effect employee perceptions of their job design and personal resources, and their proclivity to act intrapreneurial. Taken together, our

study highlights that strategies aimed at fostering employee intrapreneurship should follow a multi-level perspective and give increased attention to high involvement HR practices, as well as job design and personal resources of individual employees.

Chapter 5

Personal costs and benefits of employee intrapreneurship: Disentangling the employee intrapreneurship, well-being, and job performance relationship.

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Abstract

Ample studies have confirmed the benefits of intrapreneurship (i.e., employee behaviors that contribute to new venture creation and strategic renewal activities) for firm performance, but research on the personal costs and benefits of engaging in intrapreneurial activities for employees is lacking. Building on job demands–resources and reinforcement sensitivity theories, we examined how employees’ reinforcement sensitivity qualified the relationship among their intrapreneurial behavior, subjective well-being, and other-rated job performance. Using a sample of 241 employee dyads, the results of moderated mediation analyses confirmed that employee intrapreneurship related positively to work engagement for employees high (vs. low) in sensitivity to rewards (behavioral approach system), which subsequently related positively to innovativeness and in-role performance and negatively to work avoidance. In contrast, employee intrapreneurship related positively to exhaustion for employees high (vs. low) in sensitivity to punishments (behavioral inhibition system), which subsequently related positively to work avoidance and negatively to in-role performance (but not to innovativeness). Theoretical and practical implications are discussed.

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Introduction

Modern organizations increasingly depend on the entrepreneurial activities of their employees (i.e., intrapreneurship) to maintain and maximize organizational effectiveness and competitiveness (Antonicic & Hisrich, 2003; Ireland, Kuratko, & Morris, 2006a, 2006b). Indeed, ample studies have shown that organizations with a strong emphasis on intrapreneurship are more profitable and have a better return on sales and assets (Bierwerth, Schwens, Isidor, & Kabst, 2015). In contrast, studies seeking to understand the potential implications of an employee's intrapreneurial behavior for employee well-being and job performance are lacking. Yet, because employee intrapreneurial activities are the micro foundation of intrapreneurship, the costs and benefits of such behavior for employee well-being and job performance are important to address (Belousova&Gailly, 2013; Ireland, Covin, & Kuratko, 2009). Our study aims to expand the current intrapreneurship literature to the individual level by providing theoretical and empirical insights into how an employee's intrapreneurial behavior, a phenomenon we coin *employee intrapreneurship* (EI)¹, relates to employee well-being and job performance.

The contribution of this study to the literature is threefold. First, this article adds to the current literature by providing empirical insights into how EI relates to positive and negative facets of employee well-being, namely, work engagement and exhaustion, and different types of indicators of employee job performance (Fineman, 2006), namely, innovativeness, in-role performance, and work avoidance. Second, we contribute to the theoretical development of the job demands–resources (JD-R) theory by testing the generalizability of the motivational process and the health impairment process in the context of EI (Bakker & Demerouti, 2014, 2017). Specifically, we test and expand its core predictions regarding two separate pathways relating employee behavior at work, employee well-being, and job performance. Insights into these processes are important for management and employees themselves (Grant & Ashford, 2008). Third, empirical research on how employee characteristics and behavior interact is scarce. Yet, such research is needed to advance our understanding of antecedents of well-being and performance at work (Barrick & Mount, 2005). We use reinforcement sensitivity theory (Corr, 2004) to examine how dispositions (i.e., sensitivity toward rewards and punishment) qualify the impact of EI on well-being and performance. In addition, we show the incremental value of this neurobiological rooted theory for research in the field of occupational health psychology.

¹ To avoid semantic confusion with the firm-level concept of intrapreneurship, we use the term employee intrapreneurship when referring to the intrapreneurial activity of an individual employee.

Theoretical Background

Employee intrapreneurship

Employees' intrapreneurial behaviors have been a topic of interest since the 1980s (Pinchot, 1985) because of their potential to contribute to two important organizational outcomes, namely, new venture creation (i.e., the creation of new business for the organization) and strategic renewal (i.e., the renewal or alteration of processes to enhance an organization's ability to react to internal and market developments; Guth & Ginsberg, 1990; Morris, Kuratko, & Covin, 2011). To date, intrapreneurship has most often been discussed in relation to the benefits for the organization. Research on intrapreneurship at the employee level (i.e., EI) has been less extensively studied. Moreover, employee intrapreneurial behaviors have often been defined rather broadly as employee activities characterized by showing initiative, taking risks, and developing novel ideas (Bolton & Lane, 2012; De Jong, Parker, Wennekers, & Wu, 2013). Although such a conceptualization provides us with an understanding of the degree to which employees have an intrapreneurial orientation, this conceptualization is too broad to enable a clear distinction from other proactive work behaviors (for a review, see Parker & Collins, 2010).

Recently, Gawke, Gorgievski, and Bakker (2017) proposed a conceptualization of EI that better articulates its defining features and more clearly differentiates it from other proactive work behaviors. Taking Guth and Ginsberg's (1990) firm-level definition of intrapreneurship as a starting point (see also Morris et al., 2011), they conceptualized EI as an individual employee's agentic and anticipatory behavior aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and market advancements (i.e., strategic renewal behavior). Following this conceptualization, we position EI as a specific type of proactive behavior that is related to organizational change and improvement (similar to, for instance, innovative work behaviors) and differentiate it from proactive concepts that focus on achieving compatibility between one's own attributes and the organizational environment (e.g., job crafting).

Moreover, EI can be differentiated from related proactive behaviors, such as innovative work behaviors (i.e., the creation of new and useful products, services, and processes; Janssen, 2000), because EI is not always innovation-related (Antoncic & Hisrich, 2003). For example, intrapreneurial activity may enhance an organization's ability to take risks and seize opportunities (e.g., scanning for environments with no fast-food services to establish a prime new outlet for a fast-food chain). Although such activity is central to intrapreneurship, it is not considered innovative, as no novel processes, services, or

products are created. In addition, EI can be distinguished from organizational citizenship behavior (i.e., a type of extrarole work behavior promoting effective functioning of the organization; Organ, 1988) in its specific emphasis on new venture creation and strategic renewal.

Job Demands-Resources theory

To investigate how EI may relate to employee well-being and job performance, we build on JD-R theory (Bakker & Demerouti, 2014, 2017). JD-R theory, which is a recent extension of the JD-R model (Bakker & Demerouti, 2007), proposes that well-being and performance at work are explained by two independent pathways, namely, the *motivational process* and the *health-impairment* process. Central to the motivational process is that employees need to have sufficient resources to thrive at work. Resources are physical, psychological, social, or organizational aspects of work that help employees achieve work goals, reduce job demands, and stimulate personal growth, learning, and development (Bakker&Demerouti, 2007). As such, when employees have sufficient resources available at work, they will experience a motivational reaction toward their job that is characterized by vigor, dedication, and absorption (i.e., work engagement; Schaufeli & Bakker, 2004), which in turn fosters job performance (Christian, Garza, & Slaughter, 2011). In contrast, the health-impairment process is set into motion by job demands. Job demands are aspects of the job that require sustained physical, emotional, or cognitive effort (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Subsequently, job demands are associated with psychological costs, such as exhaustion at work (i.e., an extreme form of fatigue at work), which in turn hampers job performance (Demerouti, Bakker, & Leiter, 2014).

The present study focuses on in-role performance, innovativeness, and work avoidance as criteria of both the motivational process and the health impairment process. We argue that these performance indicators are particularly relevant to examine the costs and benefits of EI. Specifically, in-role performance reflects how an employee accomplishes core job tasks and is often used to evaluate employee performance (Griffin, Neal, & Parker, 2007); innovativeness captures the creation of new ideas for an organization (Janssen, 2000) and is considered an important outcome of EI for an organization (McFadzean, O'Loughlin, & Shaw, 2005); and work avoidance is a form of workplace deviance and reflects poor attendance without a legitimate reason (Gruys & Sackett, 2003). The latter indicator may provide us with direct insights into the possible negative effect of EI for performance (Fineman, 2006).

Building on JD-R theory, we propose that EI can trigger both the motivational and health impairment processes and can thus have both benefits and costs for employees. According to JD-R theory, employee work behaviors can increase employee work engagement through personal goal achievement at work (i.e., increasing personal resources such as self-efficacy) and through proactively crafting a more resourceful work environment (i.e., increasing job resources such as task variety). Although scarce, recent quasi-experimental studies support the premises of JD-R theory on how work behaviors can affect well-being at work. For instance, the intervention study of Van Wingerden, Bakker, and Derks (2017) showed that participants who had learned how to proactively craft their job demands and resources reported significantly higher levels of work engagement after the intervention compared with before the intervention, whereas the control group showed no change over time. However, work behaviors may simultaneously result in exhaustion, through increasing work demands. For example, going beyond the line of duty to expand an organization's business or volunteering to take on additional responsibilities may increase work stress and workload. For instance, Bolino, Hsiung, Harvey, and LePine (2015) showed that citizenship behaviors (e.g., helping others) increased workload to such an extent that employees felt worn out and tired.

The motivational pathway

In line with the JD-R premise regarding the motivational process, we argue that EI may relate to increased performance and decreased work avoidance, through high levels of work engagement (i.e., the experiences of absorption, dedication, and vigor). Drawing from the work of Bakker and Demerouti (2014) and Baumeister, Vohs, DeWall, and Zhang (2007), we argue that EI may foster experiences of absorption, dedication, and vigor at work because it contributes to personal goal achievement and a more resourceful work context. For instance, engaging in EI may entail proactively conceptualizing a new service to reach a new market (McFadzean et al., 2005). The subsequent appraisal that one's self-initiated effort may have contributed to the achievement of such a goal may result in increased positive affect (Bandura, 1997) and energy at work (i.e., vigor). Such experiences may increase employees' capability to handle job requirements more effectively (Kanfer, 1990). In addition, involvement in new projects, which is characteristic of EI, will presumably offer ample opportunities for task and skill variety, which is known to positively increase employees' immersion (i.e., absorption) and enthusiasm at work (i.e., dedication; Bakker & Demerouti, 2014). As a result, employees' innovative output may be

increased, as high levels of immersion and dedication allow them to expend more discretionary effort and capitalize on created opportunities.

Although ample research has confirmed the positive relationship between work engagement and in-role performance and innovativeness (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Christian et al., 2011) and has shown that work engagement negatively relates to counterproductive work behaviors (Sulea et al., 2012), only a few studies tentatively supported the notion that EI may foster work engagement. A qualitative study by Marvel, Griffin, Hebda, and Vojak (2007) based on 24 in-depth interviews with employees in the technical sector showed that engaging in intrapreneurship enriched employees' work by being part of challenging projects. Subsequently, employees experienced motivation and enthusiasm in their work—two central indicators of work engagement (Bakker, 2011). Research on other proactive work behaviors that share some conceptual overlap with EI concurs with these findings. For instance, a longitudinal study by Simbula and Guglielmi (2013) among school teachers showed that organizational citizenship behavior related positively to work engagement measured 5 months later. Based on this argumentation, we formulated the following hypothesis:

Hypothesis 1: Work engagement mediates the relationships between EI and (a) in-role performance, (b) innovativeness, and (c) work avoidance.

The health-impairment pathway

In addition to the theorized beneficial effect of EI for work engagement and job performance, we argue that EI may also have a negative relationship with employee well-being and job performance. Building on the health impairment process (Bakker & Demerouti, 2014, 2017), we reason that EI may be related to more exhaustion at work, because employee intrapreneurial behaviors require additional energy, time, and resources that may not directly contribute to formal work goals. For instance, EI often requires that employees “go the extra mile” (e.g., come in early for work or stay late) to meet the requirements of the job and the additional challenges that come with EI (Birkinshaw, 1997). As a result, employees may experience an increased sense of time pressure, anxiety, and worry at work (Schaufeli & Bakker, 2004). Furthermore, entrepreneurial projects often need to be terminated due to falling short of their goals (Clancy & Stone, 2005), evoking negative reactions in employees (Shepherd, Patzelt, & Wolfe, 2011). Subsequently, employees' increased exhaustion may negatively influence their job performance (Demerouti et al., 2014), as exhausted employees may no longer be

able to handle core job tasks well (i.e., decreased in-role performance) and may, for example, decide to leave work early without a legitimate reason (i.e., increased work avoidance).

Although the negative relationship between exhaustion and job performance has been established in the literature, to our knowledge, research on the relationship between EI and exhaustion is lacking. Some empirical research exists on related proactive work behavior, which has shown possible implications for job strain. For instance, in their study among 98 couples, Bolino and Turnley (2005) found employee initiative (i.e., task-related behavior that goes beyond what is required or generally expected) to be positively associated with employee role overload, job stress, and work–family conflict. Furthermore, in their longitudinal study among 273 employees and their peers, Bolino and colleagues (2015) showed that engaging in organizational citizenship behavior is related to higher levels of fatigue over time. Thus, building on JD-R theory's health impairment process and the discussed literature on EI, exhaustion, and performance, we formulated the following hypothesis:

Hypothesis 2: Work exhaustion mediates the relationships between EI and (a) in-role performance, (b) innovativeness, and (c) work avoidance.

Reward and punishment sensitivity

Grounded in neurological research on brain activity in response to stimuli (Gray, 1991), reward sensitivity theory postulates that individual differences in reward sensitivity and punishment sensitivity predispose individuals' reactions to cues from the environment owing to increased vigilance toward positive and negative stimuli (Corr, 2004). Reward sensitivity, which has a biological basis in the behavioral approach system (BAS), refers to an individual's sensitivity toward potentially rewarding situations and positive outcomes. For example, for BAS+ individuals (i.e., individuals with a heightened sensitivity toward reward), monetary incentives have a stronger influence on task motivation and experiences of positive affect, as compared with BAS– individuals (Jackson, 2001). In contrast, punishment sensitivity, which has a biological basis in the behavioral inhibition system (BIS), captures the responsiveness toward potentially harmful or unpleasant stimuli. Accordingly, BIS+ individuals will react more strongly when faced with situations that involve pain, loss, or social disapproval as compared with BIS– individuals (Heponiemi, Keltikangas-Järvinen, Puttonen, & Ravaja, 2003).

In the context of our study, we propose that sensitivity toward rewards (BAS) strengthens the relationship between EI and work engagement. Specifically, because BAS+

individuals focus more on positive outcomes and are more sensitive to positive stimuli (Corr, 2004), we argue that they will have a stronger positive reaction to positive events that coincide with intrapreneurial behavior. For instance, such individuals will be more sensitive to (personal) goal achievement and enrichment of one's work (Marvel et al., 2007). Consequently, because personal goal achievement and job enrichment are known factors that foster work engagement (Schaufeli & Bakker, 2004), BAS+ individuals will be more inclined to experience work engagement as compared with BAS– individuals when engaging in EI. In contrast, we theorize that sensitivity toward punishment (BIS) strengthens the relationship between EI and exhaustion. We argue so because BIS+ individuals are more responsive to harmful and unpleasant stimuli (Corr, 2004) and may thus react more negatively to negative events that relate to intrapreneurial behavior, such as set-backs and increased work pressure (Shepherd et al., 2011). Subsequently, engaging in EI will be more exhausting for BIS+ individuals relative to BIS– individuals.

Although, to our knowledge, studies on the proposed moderating effect of BIS and BAS in the context of EI are absent, the influence of BIS and BAS on how tasks and events are experienced has been investigated. For instance, the experimental study of Heponiemi and colleagues (2003) showed that BAS+ individuals had higher levels of positive affect after engaging in an appetitive task (i.e., a task that positively reinforces participants' correct behavior) compared with BAS– individuals. In contrast, BIS+ individuals had higher levels of negative affect after completing an aversive task (i.e., a task that negatively reinforces participants' incorrect behavior) as compared with BIS– individuals. Furthermore, software developers with high levels of trait positive affect, a personality trait associated with BAS+ (Pickering & Corr, 2008), showed higher levels of work engagement regardless of the positive or negative events that happened during the day, as compared with individuals with low levels of positive affect (Bledow, Schmitt, Frese, & Kühnel, 2011). Thus, building on the discussed literature, we formulated two moderated mediation hypotheses:

Hypothesis 3a: BAS moderates the strength of the mediated relationship between EI and job performance (i.e., innovativeness, in-role performance, and exhaustion) via work engagement; the higher individuals score on BAS?, the stronger the relationship between EI and work engagement.

Hypothesis 3b: BIS moderates the strength of the mediated relationship between EI and job performance (i.e., innovativeness, in-role performance, and exhaustion) via exhaustion; the higher individuals score on BIS?, the stronger the relationship between EI and exhaustion.

Method

Procedure

Data were gathered with an online questionnaire among employees working in various private organizations. These employees were part of a panel database and had agreed to participate in research for pay. Firm size ranged from small (25–49 employees; 5%) to large (≥ 250 employees; 58%). To receive data from the employees and a significant peer, the data collection spanned two phases. First, 1,000 employees within this database were randomly selected and contacted via e-mail with a request to participate in this research. The e-mail contained a brief summary of the research and a link to the survey. Data were received from 535 respondents (response rate = 54%). Furthermore, the respondents were kindly requested to provide contact details of a colleague with whom they closely collaborated (i.e., with whom they had a work-related contact at least 3 days a week).

In the second stage, the “close collaborator” of the respondent was sent an e-mail containing a brief summary of the research, a kind request from their colleague (the respondent) to fill in a questionnaire about him or her, and a link to the online survey. Data were received from 243 close collaborators (total response rate = 24%). The complete data set, therefore, consisted of 243 pairs. This data set was used for the analyses. A nonresponse analysis showed that the participants who did not provide contact details of a close collaborator had slightly lower scores on work engagement and slightly higher scores on exhaustion, with absolute mean differences of 0.24, $t = 2.38$, $p < .05$, and 0.31, $t = -2.74$, $p < .05$.²

Measure

All measures were administered in Dutch. Measures that were not available in Dutch were translated from English to Dutch using the forward–backward translation method (Behling & Law, 2000).

EI was measured with the eight-item Employee Intrapreneurship Scale of Gawke, Gorgievski, and Bakker (2015, 2017). Four items measured the sub-dimension employee

² Additionally, to examine to what extent the significant differences in mean values between employees who received other ratings versus those who did not may have influenced the results, we compared the interrelationship between employee intrapreneurship and work engagement/exhaustion between groups. First, we calculated the correlations between these variables in each group separately. Subsequently, we transformed the correlations in both groups using Fisher’s r -to- z method to compare groups (Weaver & Wuensch, 2013). The results showed that the correlations did not differ between groups; thus, it can be argued that attrition did not have a substantial impact on either the employee intrapreneurship–work engagement relationship, $Z = 1.47$ (not significant), or the employee intrapreneurship–exhaustion relationship, $Z = -.46$ (not significant).

venture behavior (e.g., “I undertake activities to set up new units for my organization”), and four items assessed employee strategic renewal behavior (e.g., “I undertake activities to realize change in my organization”). Responses were given on a 7-point scale (1 = never, 7 = always). The Cronbach’s alpha of the total scale was .96. In their validity study among four independent samples, Gawke et al. (2015) showed that the Employee Intrapreneurship Scale has good factorial validity (i.e., EI consists of employee strategic renewal and employee venture behaviors). In addition, Gawke and colleagues showed that the scale has convergent and discriminant validity vis-a-vis employee innovativeness (Janssen, 2000), employee risk-taking behavior (Van den Brink, Koch, Ards, & Van Lankveld, 2004), and employee personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997).

Work engagement was assessed with the nine-item version of the Utrecht Work Engagement Scale, including the three sub-dimensions of vigor, dedication, and absorption (Schaufeli, Bakker, & Salanova, 2006). Some example items are as follows: “At my work, I feel bursting with energy” (vigor), “I am enthusiastic about my job” (dedication), and “I am immersed in my work” (absorption). Responses were given on a 7-point frequency scale (1 = never, 7 = always). The Cronbach’s alpha of the combined scale was .95.

Exhaustion was measured with the five-item exhaustion subscale of the Maslach Burnout Inventory–General Survey (Schutte, Toppinnen, Kalimo, & Schaufeli, 2000). A sample item is “I feel used up at the end of the workday.” Items were scored on a 7-point scale (1 = never, 7 = always), and the Cronbach’s alpha was .92.

The BAS and the BIS were assessed with the validated Dutch version of the BIS/BAS scales of Carver and White (1994), created by Franken, Muris, and Rassin (2005). The BAS scale was assessed with 12 items representing sensitivity for rewards (four items, e.g., “When good things happen to me, it affects me strongly”), drive (four items, e.g., “When I want something, I usually go all-out to get it”), and fun (four items, e.g., “I’m always willing to try something new if I think it will be fun”). BIS was measured with five items, including “I worry about making mistakes.” Responses were given on a 4-point scale (1 = totally disagree, 4 = totally agree). The Cronbach’s alpha of the combined BAS scale was .79 and that of the BIS scale was .80.

Other-rated performance was operationalized using three scales capturing two types of work performance, namely, innovativeness and in-role performance, and one type of workplace deviance, namely, work avoidance. Additionally, the items of the scales were reformulated so that a colleague could rate the respondent.

Innovativeness was measured with nine items of Janssen (2000), representing three dimensions (three items each), namely, idea generation, idea promotion, and idea realization. The following are example items: “[name of participant] creates new ideas for improvements” (idea generation), “[name of participant] mobilizes support for innovative ideas” (idea promotion), and “[name of participant] transforms innovative ideas into useful applications” (idea realization). Responses were given on a 7-point frequency scale (1 = never, 7 = always). The Cronbach’s alpha of the combined scale was .95.

In-role performance was assessed with three items of Goodman and Svyantek (1999). A sample item is “[name of participant] achieves the objectives of the job.” Responses were given on a 5-point scale (1 = totally disagree, 5 = totally agree). The Cronbach’s alpha was .85.

Work avoidance was measured with five items taken from Gruys and Sackett (2003). A sample item is “[name of participant] is often absent from work without a legitimate reason.” Responses were given on a 6-point frequency scale (1 = not characteristic for [name of participant], 6 = very characteristic for [name of participant]). The Cronbach’s alpha was .92.

Data analysis strategy

Data were analyzed in R (Lavaan package; R Core Team, 2015). We applied path analysis using manifest variables³ to test our hypotheses (Preacher, Rucker, & Hayes, 2007). Path analysis is an adequate method to test our hypothesized conditional indirect effects, because it allows for analyzing in one coherent model whether a number of mediation effects hold under different conditions, thus decreasing chance capitalization in comparison with other methods that require separate analyses for each hypothesis (e.g., multiple regression analyses). To further reduce bias, we controlled for age, education, sex, and tenure of participants in all our analyses. Given that we have mediation and moderation hypotheses in the current study, we used bootstrapping to increase the accuracy of our analyses ($k = 2.000$; Preacher et al., 2007) and mean-centered model variables to facilitate a straightforward interpretation of the results of our moderation analyses (Shieh, 2011; Dawson, 2014). Model fit was based on the normed chi-square (χ^2/df), standardized root mean square residuals, incremental fit index, comparative fit

³ We analyzed our moderated mediation hypotheses with manifest variables to optimize the ratio parameter estimates and observations, thus increasing the power of our analyses (Jackson, 2003). We also tested our moderated mediation hypotheses with latent moderated mediation structural equation modeling (Little, Card, Bovaird, Preacher, & Crandall, 2007) and found similar results.

index, Tucker–Lewis index, and root mean square error of approximation (Marsh, Hau, & Wen, 2004).

Results

Descriptive statistics

Before testing our hypotheses, we created a “correlation model” containing composite measures of each of the eight variables in the study and the four control variables (i.e., age, education, sex, and tenure). All measures were allowed to correlate. Table 1 presents the descriptive statistics of all the study variables (means and standard deviations) and the correlation coefficients between the study variables and control variables. As can be seen in Table 1, all correlations were in the expected direction. Given that the control variables showed significant relations with our study variables, we have included the control variables in our analyses to test our hypotheses.

Hypothesis testing

To test the mediation effects (Hypotheses 1 and 2), we modeled paths from EI to work engagement, exhaustion, innovativeness, in-role performance, and work avoidance. Additionally, we added paths from work engagement and exhaustion to innovativeness, in-role performance, and work avoidance. This formed our “mediation model.” All relationships were controlled for age, sex, education, and tenure. Correlations were allowed between the exogenous variables (i.e., the variables that were not predicted by any other variable) and between work engagement and exhaustion. Because the mediation model was fully saturated, it showed a perfect fit to the data.

To test Hypothesis 1, according to which employee intrapreneurship has a positive indirect relationship with innovativeness and in-role performance and a negative indirect relationship with work avoidance, we first examined the significance of the paths of the Mediation Model. The results showed significant paths from employee intrapreneurship to work engagement ($\beta = .49, p < .01$) and, subsequently, from work engagement to innovativeness ($\beta = .26, p < .01$), in-role performance ($\beta = .38, p < .01$), and work avoidance ($\beta = -.19, p < .01$).

To examine the significance of the indirect pathways (i.e., β_{indirect}) between employee intrapreneurship and performance through work engagement, we followed Shrout and Bolger (2002) and examined the strength of the product of the pathway from employee intrapreneurship to work engagement and the pathway from work engagement to each of

Table 1. Correlations between the self-rated and other-rated study variables ($N = 243$).

Construct	M	SD	Study variables							
			1	2	3	4	5	6	7	8
Study variables										
Self-rated										
1.Employee intrapreneurship	3.36	1.45	-							
2. Work engagement	4.59	1.16	.50**	-						
3. Exhaustion	2.95	1.27	.38**	-.01	-					
4. Reward sensitivity (BAS)	2.82	.34	.52**	.48**	.22**	-				
5. Punishment Sensitivity (BIS)	3.36	.52	.04	-.05	.41**	.19*	-			
Other-rated										
6. In-role performance	4.76	1.00	.06	.36**	-.21**	.14*	-.21**	-		
7. Innovativeness	4.60	1.17	.47**	.43**	.07	.33**	-.04	.38**	-	
8. Work avoidance	1.71	1.20	.30**	-.08	.50**	.12*	.20**	-.28**	.10	-
Control variables										
Age	41.49	11.52	.04	-.14*	.23**	.05	.09	-.13*	.04	.27**
Education	4.41	1.06	.17**	.04	-.02	.12	-.08	.09	.21**	-.05
Sex	1.33	1.34	-.14*	-.17**	.04	-.07	.19**	-.10	-.11	-.03
Tenure	20.66	11.67	-.05	.13*	-.26**	-.06	-.08	.13*	-.04	-.27**

Note. BAS = behavioral approach system; BIS = behavioral inhibition system.

^a Results are based on correlations in the correlation model. b Control variables represent age, education, sex, and tenure of the participants. * $p < .05$. ** $p < .01$.

the performance measures (i.e., innovativeness, in-role performance, and work avoidance).

The results support Hypothesis 1: The indirect relationship between employee intrapreneurship and the criteria via work engagement were all significant, namely, for innovativeness: $\beta_{\text{indirect}} = .10$ ($p < .01$, 95% CI [.05, .16]) and for in-role performance: $\beta_{\text{indirect}} = .13$ ($p < .01$, 95% CI [.07, .18]). For work avoidance, there was a negative indirect relationship, as hypothesized: $\beta_{\text{indirect}} = -.09$ ($p < .05$, 95% CI [-.15, -.02]). Thus, engaging in employee intrapreneurship was positively related to work engagement, which, in turn, was related to higher levels of innovativeness and in-role performance and lower levels of work avoidance.

Before testing Hypothesis 2, in which we proposed that employee intrapreneurship had a negative indirect relationship with innovativeness and in-role performance and a

positive indirect relationship with work avoidance via work exhaustion, we first examined the significance of the paths in the Mediation Model between employee intrapreneurship, exhaustion, and performance. The results showed that employee intrapreneurship was significantly related to exhaustion ($\beta = .41, p < .01$), and subsequently, exhaustion was related to in-role performance ($\beta = -.14, p < .05$) and work avoidance ($\beta = .35, p < .01$). The relationship between exhaustion and innovativeness was non-significant ($\beta = -.06, p = .36$).

To test whether the indirect relationships between employee intrapreneurship and other-rated performance via exhaustion are significant, we again followed the method of Shrout and Bolger (2002). The results supported Hypotheses 2b and 2c. The strength of the indirect relationship between employee intrapreneurship and in-role performance through exhaustion was $\beta_{\text{indirect}} = -.04$ ($p < .05$, 95% CI $[-.08, .00]$), and the indirect relationship between employee intrapreneurship and work avoidance was $\beta_{\text{indirect}} = .14$ ($p < .01$, 95% CI $[.07, .18]$). Thus, the results indicated that engaging in employee intrapreneurship was positively related to exhaustion, which, in turn, was related to lower levels of in-role performance and higher levels of work avoidance. Hypothesis 2b was not supported, because no relationship was found between exhaustion and innovativeness; the indirect relationship was also not significant $\beta_{\text{indirect}} = -.02$ ($p = .36$, 95% CI $[-.06, .02]$). In addition to the reported indirect relationships in the Mediation Model, we also found that employee intrapreneurship was directly related to innovativeness ($\beta = .34, p < .01$) and to work avoidance ($\beta = .27, p < .01$). Results of the mediation analyses are presented in Figure 1.

To examine the moderating impact of sensitivity towards BAS and BIS on the relationships between employee intrapreneurship and work engagement (Hypothesis 3a) and exhaustion (Hypothesis 3b), we created product terms of employee intrapreneurship and BAS (EI×BAS) and of employee intrapreneurship and BIS (EI×BIS). Subsequently, we included both interaction variables in the Mediation Model and added paths from EI×BAS to work engagement and EI×BIS to exhaustion. In addition, we added paths from both EI×BAS and EI×BIS to innovativeness, in-role performance, and work avoidance to address our moderated mediation hypotheses (Preacher et al., 2007). This formed the “Moderated Mediation Model”. The Moderated Mediation Model showed a good fit to the data ($\chi^2/df = 2.52$, SRMR = .02, CFI = .99, IFI = .99, TLI = .88, and the RMSEA = .08; Marsh et al., 2004).

Before testing Hypothesis 3a, in which we proposed that sensitivity towards BAS strengthens the relationship between employee intrapreneurship and work engagement and, in turn, job performance, we first examined whether the relationship between

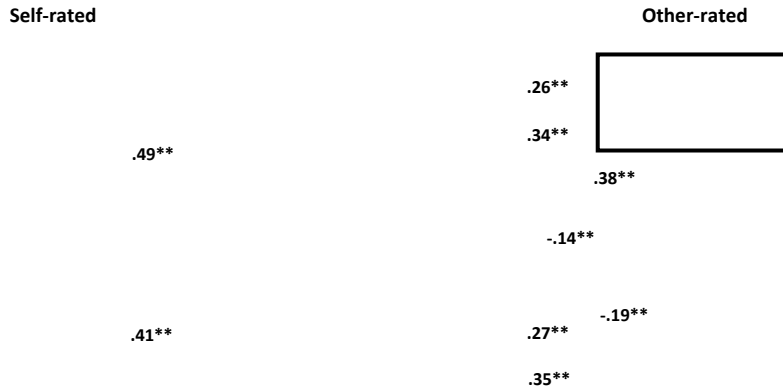


Figure 1. The standardized regression weights of the significant paths between latent variables in the mediation model. All paths in the model were tested simultaneously. * $p < .05$. ** $p < .01$.

employee intrapreneurship and work engagement was enhanced by employees' BAS. In line with our predictions, the higher an individual's BAS+ scores, the stronger the relationship between employee intrapreneurship and work engagement: the β of the interaction term was .13 ($p < .05$). The interaction effect is plotted in Figure 2. We continued to examine whether the interaction effect between employee intrapreneurship and BAS was indirectly related to the performance outcomes via work engagement using Shrout and Bolger's (2002) method. Consistent with Hypothesis 3a, we found significant indirect relationships for the interaction term of employee intrapreneurship and BAS, and innovativeness ($\beta_{\text{indirect}} = .07$, $p < .05$, 95% CI [.00, .13]) and in-role performance ($\beta_{\text{indirect}} = .07$, $p < .05$, 95% CI [.00, .13]) via work engagement. However, no indirect relation was found for work avoidance ($\beta_{\text{indirect}} = -.05$, $p = .07$, 95% CI [-.08, .01]). Thus, in line with Hypothesis 3a, the results indicated that employees' reward sensitivity enhanced the indirect relationship between employee intrapreneurship and employee in-role performance and innovativeness via work engagement.

To test whether BIS strengthened the indirect relationship between employee intrapreneurship and the performance measures via exhaustion (Hypothesis 3b), we first examined whether BIS moderated the relationship between employee intrapreneurship

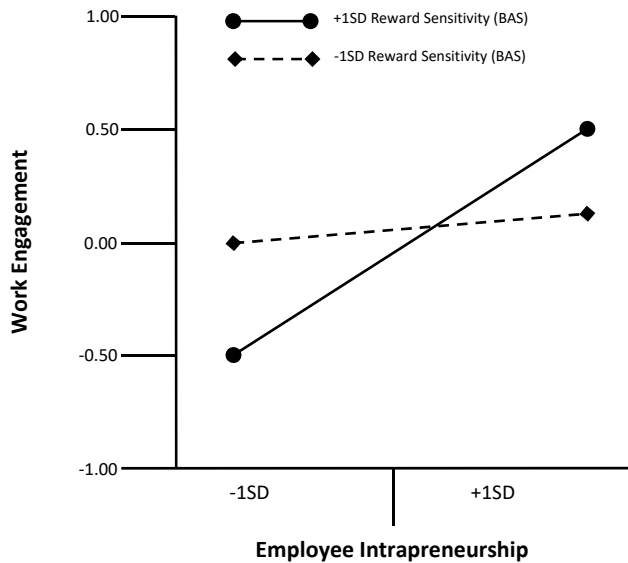


Figure 2. The interaction between reward sensitivity (BAS) and employee intrapreneurship for work engagement. The slope is .46 ($SE = .21$, $p < .05$) for the group “+1SD Reward Sensitivity (BAS)” and .05 ($SE = .25$, ns) for the group “-1SD Reward Sensitivity (BAS)”.

and exhaustion. Consistent with our hypothesis, the higher an individual’s BIS+ scores, the stronger the relationship between employee intrapreneurship and exhaustion: the β of the interaction term was .18 ($p < .01$). The interaction effect is plotted in Figure 3. To examine Hypothesis 3b, we again followed Shrout and Bolger (2002) and tested the significance of the indirect relationship between the interaction term and all three performance outcomes via exhaustion. Consistent with Hypothesis 3b, we found that the indirect relationship between employee intrapreneurship and work avoidance via exhaustion was positively moderated by BIS ($\beta_{\text{indirect}} = .09$, $p < .01$, 95% CI [.03, .15]). However, no indirect relationship was found on innovativeness ($\beta_{\text{indirect}} = -.01$, $p = .56$, 95% CI [-.05, .03]) or in-role performance ($\beta_{\text{indirect}} = -.02$, $p = .24$, 95% CI [-.05, .01]). Thus, the results indicated that only the indirect relationship of employee intrapreneurship and work avoidance via exhaustion was strengthened by employees’ BIS.

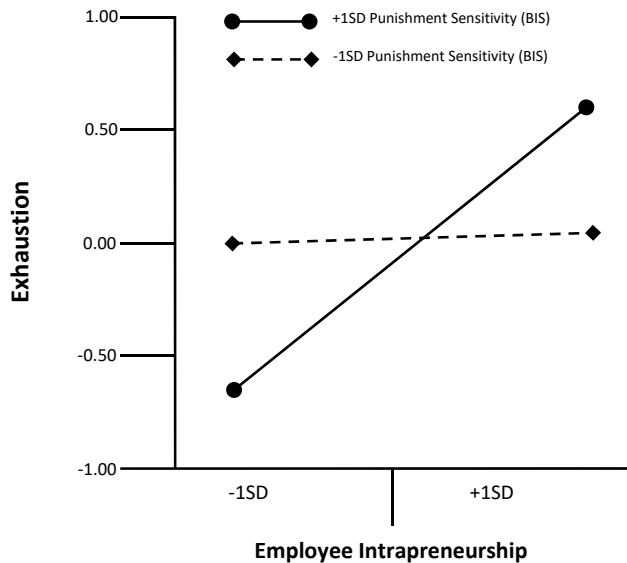


Figure 3. The interaction between punishment sensitivity (BIS) and employee intrapreneurship for exhaustion. The slope is .56 ($SE = .14$, $p < .01$) for the group “+1SD Punishment Sensitivity (BIS)” and .03 ($SE = .16$, ns) for the group “-1SD Punishment Sensitivity (BIS)”.

Discussion

The current study investigated the relationships among EI, employee well-being, and employee performance. In general, our findings suggest that EI is part of two concurrent processes that differentially relate to employee well-being and job performance. Specifically, EI positively relates to employee innovativeness, in-role performance, and decreased work avoidance via work engagement (i.e., a motivational process). At the same time, EI relates to exhaustion (i.e., an energy depletion process; cf. JD-R theory; Bakker & Demerouti, 2014, 2017), which in turn relates to impaired in-role performance and increased work avoidance. Thus, our results indicate that EI can have both a beneficial and a detrimental relationship with employees’ well-being and job performance. Furthermore, our results show that employees’ reward sensitivity and punishment sensitivity influence their emotional and motivational responses to behavior in such a way that BAS+ individuals are more likely to have higher levels of work engagement when engaging in EI and BIS– individuals are more likely to feel exhausted when engaging in EI. These findings have several important theoretical implications for literature on intrapreneurship, employee work behavior, and employee well-being.

First, our study provides empirical evidence for the benefits of EI for employee well-being and performance. Given that studies addressing the relation among employees' intrapreneurial behavior, employee well-being, and job performance are lacking, our results extend current studies of intrapreneurship to the individual level. In addition, our findings that work engagement and exhaustion are important explanatory factors in the EI–performance relationship indicates that the dual-process model based on JD-R theory provides a valid framework to explain how EI relates to job performance (Bakker & Demerouti, 2014, 2017). Regarding the motivational process, the consequences of work behaviors are expected to result in heightened levels of positive affect and motivation (such as work engagement), which in turn positively influence performance. Accordingly, we reason that EI can increase work engagement, because of its capacity to enrich working conditions through (personal) goal attainment at work and crafting beneficial job circumstances. For instance, when engaging in EI, employees initiate new projects, combine existing resources to develop new and novel ideas (McFadzean et al., 2005), and exchange information and resources with both internal and external stakeholders (Anderson & Jack, 2002). Such activities can result in new knowledge, experience, and self-insights and can increase the task variety and skill variety of work (Clegg & Spencer, 2007)— factors that are known to foster work engagement (Bakker, 2011). We encourage scholars to validate these premises by conducting longitudinal research on the role of EI in the motivational process.

Second, regarding the health impairment process, we provide new insights into the “dark side” of employee intrapreneurial behavior for employee well-being and performance. Our results indicate that EI may negatively influence job performance, that is, it may decrease in-role performance and increase work avoidance (no effect was found for innovativeness) through increased exhaustion. This implies that EI is simultaneously part of a motivational and a health-impairment process. In a health-impairment process, some work behaviors are reasoned to increase levels of exhaustion because they create obstacles at work (e.g., increased time pressure, work role overload), which in turn result in decreased performance (Bakker & Demerouti, 2014, 2017). In the context of our study, we reason that engaging in EI may coincide with extra working hours and additional responsibilities that do not always contribute to achieving formal work goals (Antoncic & Hisrich, 2003). Furthermore, entrepreneurial projects within organizations are often terminated due to falling short of the intended goals (Clancy & Stone, 2005), which evokes strong negative emotions in employees (Shepherd et al., 2011). Such factors are known to increase employee exhaustion, decrease in-role performance (Demerouti et al., 2014),

and, over time, even result in chronic employee health impairment (e.g., burnout; Hobfoll & Shirom, 1993; Schaufeli & Bakker, 2004). Hence, similar to recent research that underlined negative effects of “positive” proactive behaviors (Bolino et al., 2015), we argue that it is important to also address the “dark side” of intrapreneurship. For instance, the reciprocal process of how EI can negatively affect employee well-being and employee performance over time (e.g., short-term positive outcomes vs. long-term negative outcomes) may be of heightened interest for further scholarly work.

Third, our results contribute to the theoretical development of JD-R theory (Bakker & Demerouti, 2014, 2017) by providing empirical evidence that the motivational and energy depletion pathways from behavior to well-being occur concurrently. Specifically, our results show that although EI is positively related to beneficial performance outcomes due to higher levels of work engagement, it may at the same time also hamper performance due to higher levels of exhaustion. This apparent paradox may be of heightened interest because it sheds new light on how work behaviors can simultaneously be beneficial and detrimental to employee well-being and performance. Thus, complementing the assumption of JD-R theory that a specific type of proactive behavior either increases work engagement (e.g., job crafting; cf. Tims, Bakker, & Derks, 2013) or increases exhaustion (e.g., self-undermining behaviors that harm performance; Bakker, 2015), we argue that some proactive behaviors, such as EI, may simultaneously be part of both processes. As such, we encourage scholars to address both processes of JD-R theory concurrently when examining the outcomes of work behavior for employees in future research. We believe that such an approach will provide new insights into the consequences of work behavior, such as EI, and open up a new research agenda on factors influencing these processes (e.g., personal characteristics; see also next paragraph).

Finally, by applying reward sensitivity theory (Corr, 2004) to EI, we have shown first evidence for personal differences in the way EI relates to employee well-being (and, indirectly, job performance). Our findings indicate that employees who are more sensitive to rewards (BAS+) show higher levels of work engagement when engaging in EI relative to employees who are less sensitive. In contrast, for employees who are more sensitive to punishment (BIS+), EI relates more strongly to exhaustion. These findings are in line with experimental studies showing that BAS and BIS color the way individuals react to events (Heponiemi et al., 2003). In the context of our study, the results may imply that BAS+ employees are more responsive toward (personal) goal achievement or the enrichment of one’s work, thus fostering work engagement. In contrast, BIS+ employees may react more strongly to setbacks and may be more easily distressed by resistance when engaging in EI,

resulting in higher levels of exhaustion. Consequently, we argue that to adequately examine how work behaviors affect employee outcomes, it is necessary to address how employee personality characteristics interact with work behavior. Hence, a fruitful avenue for future research would be to focus on how employee sensitivity toward reward and punishment may color the individual experience of work behaviors and the perception of the work environment to increase our understanding of the mechanisms that underlie employee well-being and performance.

Limitations

Despite its merits, this study also has some limitations. First, although the use of multisource data and path analyses provides us with insights into the costs and benefits of EI for employees, the cross-sectional design does not allow us to make causal inferences. For example, it is conceivable that EI is not only a predictor but also a consequence of work engagement (i.e., the two variables are reciprocal). Hakanen and colleagues (2008) showed that work engagement at the baseline was positively related to personal initiative and work unit innovativeness measured 3 years later. Furthermore, recent studies (Simbula & Guglielmi, 2013) have indicated that the relationship between motivation and behavior is reciprocal (Bakker & Demerouti, 2014). Therefore, it may be of heightened interest for future studies to examine the role of EI in the motivational process with a longitudinal study design and in more detail. Such studies should aim to incorporate at least three repeated measurement moments (Ployhart & Ward, 2011).

Second, our participants are Dutch employees who worked in a wide range of privately owned companies differing in firm size and sector. Although the premises of JD-R theory have been cross-culturally validated across a wide range of contexts (Bakker & Demerouti, 2014, 2017), cultural differences have been shown to affect individual appraisal of the consequences of EI (Hayton, George, & Zahra, 2002; Turró, Urbano, & Peris-Ortiz, 2014). Hayton and colleagues (2002) indicated in their review that the motives, values, and beliefs of individuals regarding entrepreneurial activity differ across cultures. Similarly, Turró and colleagues (2014) reported that entrepreneurial culture (e.g., popularity of entrepreneurial activities, funding for entrepreneurial activities within a country) moderated entrepreneurial activity. Accordingly, we reason that culture may influence an individual's expectation of whether EI yields beneficial or harmful consequences, thus impacting the strength of the relationship between EI and work engagement versus exhaustion. Future studies may address this issue by conducting cross-cultural research and incorporating culture as a moderator.

Third, consistent with the motivational and health-impairment process of JD-R theory, we have shown that EI simultaneously relates to positive and negative work outcomes via work engagement and exhaustion. Investigating the role of job characteristics was beyond the scope of our current study. Based on JD-R theory, reciprocal relationships can be expected among job characteristics (i.e., job demands and job resources), work behaviors (i.e., EI), work engagement, and exhaustion (Bakker & Demerouti, 2014, 2017). Including job characteristics in future studies may yield valuable insights into how intrapreneurial behavior may relate to work engagement and exhaustion, for example, through crafting more-resourceful versus more-demanding work environments.

Including job characteristics may also increase our understanding of the role of job types. For instance, job type may relate to job characteristics that affect employees' intrapreneurial capability and motivation (Bakker & Demerouti, 2014, 2017; Grant & Ashford, 2008). When favorable (e.g., high on autonomy), EI may boost innovative output or provide employees with leeway to better combine intrapreneurship with in-role activities. Hence, it can be expected that employees with favorable jobs are more likely to enter a positive gain spiral, whereas the energy depletion process would be buffered. This premise is supported in a study among managers showing that higher-level managers more effectively used organizational resources (i.e., managerial support, work discretion) to implement intrapreneurial ideas (Hornsby, Kuratko, Shepherd, & Bot, 2009). We encourage scholars to investigate the generalizability of our findings across job contexts in future studies.

Practical implications and conclusion

Besides theoretical implications, this study yields interesting practical implications. As organizations are becoming increasingly dependent on proactive employee behaviors, such as EI, to remain competitive in a dynamic environment (Grant & Ashford, 2008), it is important to understand the consequences intrapreneurial behavior may have for employees. Our results show that EI is a double-edged sword for employees, with the potential to boost motivation and performance but increase exhaustion, which in turn hampers performance. Top management should be aware that adopting and encouraging intrapreneurial behavior may yield beneficial and harmful consequences for employees.

Furthermore, we show that differences in employee dispositions may be essential to determine what effect intrapreneurial behavior may have on the employee. Specifically, our results show that individuals who have higher reward sensitivity (i.e., sensitivity

toward potentially rewarding situations and positive outcomes) will most likely reap the benefits of engaging in EI. In contrast, individuals who are more sensitive to punishments (i.e., sensitivity toward potentially harmful situations and negative outcomes) will most likely experience detrimental effects of engaging in EI. Thus, it may be advisable to specifically target individuals based on their reward sensitivity when promoting intrapreneurship. Not only will such a strategy potentially boost employees' engagement but it may also increase their innovative output for the organization and in-role performance. In addition, we argue that organizations should avoid motivating employees who are easily distressed to contribute to strategic renewal or new venture creation, as such activity may result in increased exhaustion and hamper performance (i.e., work avoidance).

In sum, building upon JD-R theory (Bakker & Demerouti, 2014, 2017) and reinforcement sensitivity theory (Corr, 2004), we showed that EI may have both beneficial and detrimental implications for employee well-being and performance. We also demonstrated that employee characteristics may play a key role in explaining when proactive behaviors can be expected to positively or negatively affect well-being and performance. We hope that our study will inspire future research on the personal costs and benefits of EI, as proactive work behaviors seem crucial in ever-changing modern organizations.

Chapter 6

Employee intrapreneurship and work engagement: A latent change score approach.

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Abstract

Although ample evidence has shown that intrapreneurial activities of an employee (i.e. employee intrapreneurship) positively impact organizational outcomes, research on how these activities affect employee outcomes is scarce. Based on Job Demands-Resources theory, we hypothesized that employee intrapreneurship builds personal resources over time, which in turn, fosters work engagement. We conducted a two-wave study with a three-month time interval among a sample of public servants ($N = 351$). Results of a latent change score analysis showed that employee intrapreneurship predicted a positive change in employees' personal resources over time, and personal resources predicted higher and more stable experiences of work engagement during the study period. Moreover, we found evidence for a positive gain cycle of employee intrapreneurial behavior, personal resources, and work engagement. The practical implication of our findings is that intervening to increase either one of these constructs can be expected to lead to mutual gains in the others.

Acknowledgements

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Introduction

For organizations to successfully adapt and proactively act upon environmental opportunities, executives and scholars have recognized the importance of the entrepreneurial activities of individual employees (Ireland, Hitt, & Sirmon, 2003; Miles, Snow, Fjeldstad, Miles, & Lettl, 2010; Morris, Webb, & Franklin, 2011). Consequently, the concept of intrapreneurship, also referred to as corporate entrepreneurship, has received increased attention as it centers on the activities of employees to expand and rejuvenate the organization to adequately adapt to external and internal developments (e.g., Hornsby, Kuratko, Shepherd, & Bott, 2009; Krauss, Frese, Friedrich, & Unger, 2005; Marvel, Griffin, Hebda, & Vojak, 2007).

Although a body of research has been published on how employees' entrepreneurial behavior for their organization relates to beneficial organizational outcomes, such as innovativeness (Bierwerth, Schwens, Isidor, & Kabst, 2015), firm growth (Antoncic, 2007), and overall performance (Bierwerth et al., 2015; Rauch, Wiklund, Lumpkin, & Frese, 2009), the literature on its effect on employees has received less scrutiny. Yet, process-oriented research that focuses on the consequences of employee intrapreneurial behaviors for the individual employee has been acknowledged as necessary to further advance the field of intrapreneurship (Belousova & Gailly, 2013; Dess et al., 2003). This study will address this void by examining the longitudinal, cyclical relationship between the intrapreneurial behavior of an individual employee (a phenomenon we coin employee intrapreneurship to avoid semantic confusion with the firm level concept of intrapreneurship), personal resources (i.e., optimism, resilience, and self-efficacy), and work engagement.

This study will contribute to the organizational behavior and intrapreneurship literature in at least three ways. First, by conducting a two-wave cross-lagged panel study, we will contribute to the intrapreneurship literature by shedding light on how employee intrapreneurship may affect personal resources and work engagement over time. Second, because we utilize both an inter-individual (between-person) and an intra-individual (within-person) perspective, we will provide insights on how frequency of employee intrapreneurial behavior impacts the magnitude of change in levels of personal resources and employee work engagement over time, thus increasing our understanding of how resources and work engagement develop and fluctuate over time. Research on typical fluctuation patterns of different types of resources is scarce and a necessary prerequisite to further increase our understanding of dynamic processes that occur at work (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010). Third, we draw upon the Job Demands-Resources theory (JD-R; Bakker & Demerouti, 2014; Bakker, Demerouti, & Sanz-Vergel,

2014) to develop a theoretical framework that enables us to explain how employees can optimize and sustain a positive work life (i.e. staying engaged in their work) through employee intrapreneurship. This is the first study incorporating employee intrapreneurship in the JD-R theory. This theoretical framework can be used by future scholars who aim to disentangle intrapreneurship at the individual level in more detail, and, when combined with existing frameworks at the organizational level (Hornsby, Kuratko, Holt, & Wales, 2013), provide a basis for multi-level research.

Theoretical Background

The concept of employee intrapreneurship

Because of its beneficial effects for organizational performance, employee intrapreneurship has been an important research topic for scholars and practitioners since the beginning of the 1980s (e.g., Burgelman, 1983; Pinchot, 1985). Through employee intrapreneurship, employees are able to contribute to two important organizational outcomes, namely new venture creation and strategic renewal (Guth & Ginsberg, 1990; Morris, Kuratko, & Covin, 2011). Venture creation refers to the creation of new businesses (e.g., products) and integrating them into the overall business portfolio of an organization (Narayanan, Yang, & Zahra, 2009). Strategic renewal embodies corporate activities that enhance an organization's ability to compete and take risks to adequately react to internal advancements and market developments. Subsequently, strategic renewal refers to organizational change through renewal of the organizational structure, a shift in allocation of resources, and the renewal of services, products and/or administrative processes (Ireland et al., 2003).

In contrast to intrapreneurship at the firm level, a concise definition of intrapreneurship at the employee level (i.e., employee intrapreneurship) is currently lacking. In the literature to date, scholars mostly define employee intrapreneurship as employee activities characterized by showing initiative, taking risks, and coming up with novel ideas (Bolton & Lane, 2012; De Jong, Parker, Wennekers, & Wu, 2013). Although such a conceptualization captures the behavioral characteristics of intrapreneurial behavior, it is too broad to clearly distinguish employee intrapreneurship from other types of proactive work behaviors and strategic proactive behaviors (cf. Parker & Collins, 2010). Consequently, we argue that a more fine-grained conceptualization is necessary for our research aim, namely disentangling the specific effect of employee intrapreneurship on employee well-being.

Drawing from the entrepreneurial behavior literature (e.g., De Jong et al., 2013) and the intrapreneurship literature on the firm level (Guth & Ginsberg, 1990; Morris, Kuratko et al., 2011), we conceptualize employee intrapreneurship as an individual employee's agentic and anticipatory behaviors aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and external advancements (i.e., strategic renewal behavior). This conceptualization is firmly anchored in the intrapreneurship literature on the business level and distinguishes employee intrapreneurship from other proactive work behaviors that share the behavioral characteristics of showing initiative, taking risks, and introducing novel ideas. For instance, employee intrapreneurship differs from organizational citizenship behavior (i.e., a type of extra-role work behavior promoting effective functioning of the organization; Organ, 1988) in its specific focus on new venture creation and strategic renewal. In addition, it differs from job crafting (i.e., self-initiated behaviors of employees to make actual changes in their level of job demands or job resources; Tims, Bakker, & Derks, 2012), because employee intrapreneurship refers to behavior that is both aimed at changing the internal environment of the organization as well as changing an organization's fit with the external environment.

The dynamic relationship between work behavior, resources, and work engagement

To investigate how employee intrapreneurship affects employees, it is necessary to conceptualize the interrelatedness between “what happens at work” and how this relates to employees' experiences at work. One theory that captures this interrelatedness is the Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2014). This novel theory integrates several job stress and motivational approaches, and outlines how employee well-being and performance are influenced by job characteristics (job demands and resources), personal resources, as well as proactive employee behaviors (e.g., job crafting). In short, JD-R theory proposes that employees thrive in organizational contexts that are characterized by high job demands (i.e., challenges) combined with high job or personal resources. When employees have sufficient resources available at work, they are able to cope well with the challenges they encounter at work and reach personal and organizational goals, which fosters work engagement and increased performance. In contrast, if job challenges outweigh the available resources, employees will experience exhaustion, which in turn, hampers well-being and performance (Bakker et al., 2014).

With respect to the dynamic relationships between work behaviors, personal resources, and work engagement, JD-R theory has integrated the established and general

Conservation of Resource (COR) theory (Hobfoll, 1989, 2002) and translated it to the context of work (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). According to COR theory, individuals engage in activities that can help them obtain, retain, and protect valued resources (e.g., material, social, personal, or energetic resources). Subsequently, when individuals accumulate resources, they will become less vulnerable to future resources loss, more capable of gaining other resources, and experience enhanced well-being (Hobfoll, 2001). In addition, the relationship between activities and resources is argued to be reciprocal in a way that resource gains are likely to facilitate activities that result in more resource gains (Gorgievski & Hobfoll, 2008; Hobfoll, Johnson, Ennis, & Jackson, 2003).

In a similar vein, JD-R theory postulates that through work behavior employees can mobilize and develop their own job and personal resources at work, which in turn positively influences an employee's affective and motivational state (e.g., work engagement). Subsequently, when individuals experience positive affect and motivation, they are more likely to engage in work behaviors that enable them to build resources (Fredrickson, 2004), thus forming a resources gain cycle (labeled as “the motivational process” within JD-R theory; cf. Bakker & Demerouti, 2014). For example, several studies have shown that job crafting (i.e., the proactive changes employees make to balance their job demands, job resources, and personal resources with their personal abilities and needs) positively relates to work engagement and job satisfaction, through increasing job and personal resources (e.g., Tims, Bakker, & Derks, 2014). Subsequently, higher levels of work engagement can foster job crafting (e.g., Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2015).

The role of personal resources

Personal resources can be argued to play a key role in the psychological mechanisms explaining causes and consequences of employee behavior, such as employee intrapreneurship. First, personal resources represent a set of characteristics that form an individual's self-beliefs of his or her ability to control and impact upon the environment (Hobfoll et al., 2003). In other words, they can be expected to increase an individual's potential to respond to the work environment in a pro-active manner, regardless of the organizational and occupational context (Mäkikangas, Feldt, Kinnunen, & Mauno, 2013). Second, personal resources are by definition relatively malleable psychological constructs which are open for development (Luthans, Avey, & Lincoln, 2008). They are considered to be “state-like”, meaning they are not as fleeting as moods, happiness, and other affective

states, yet not as stable as, for example, Big Five personality traits. Moreover, personal resources can be increased through conscious efforts. For instance, personal resources have been theorized to build up over time when individuals explore and interact with the environment in a novel way (Fredrickson, 2004).

In empirical studies, scholars have used different combinations of specific personal characteristics to capture a unified construct reflecting an individual's personal resources. For example, in their longitudinal study, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) have used self-efficacy, optimism, and organization-based self-esteem to measure personal resources. Their study shows that the three specific indicators load significantly and substantially on the latent factor of personal resources (see also Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). In a similar vein, Judge, Erez, Bono, and Thoresen (2003) proposed a latent construct of Core Self-Evaluations indicated by self-esteem, self-efficacy, emotional stability and locus of control.

In the present study, we focus on ego-resilience, optimism, and self-efficacy as indicators of an individual's personal resources because these characteristics have been shown to have special relevance in an entrepreneurial context. Ego-resilience reflects an individual's ability to adapt to changing situations and respond accordingly (Block & Kremen, 1996) and is considered decisive when facing turbulent, uncertain, or dynamic environments (Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Sutcliffe & Vogus, 2003). Optimism reflects a broad and diffuse sense of confidence, related to an individual's tendency to approach challenges with enthusiasm and persistence (Carver & Scheier, 2003). Optimism has been shown to help individuals cope with work environments with a high information-overload (Baron, 1998; Forbes, 2005) and relates to employee behaviors which are challenging the status quo (Bernardo & Welch, 2001). Finally, self-efficacy captures the expectations of individuals about their abilities to execute desired behavior successfully (Bandura, 1997). Self-efficacy was shown to relate positively to an employee's intrapreneurial intentions (Douglas & Fitzsimmons, 2012) and is regarded as a crucial personal characteristic explaining entrepreneurial success (Frese & Gielnik, 2014).

Employee intrapreneurship as a predictor of increased personal resources

It is our contention that engaging in intrapreneurial behavior will lead to employees' personal growth in terms of increased personal resources, such as self-efficacy, optimism, and resilience. A central element in building self-efficacy (Bandura, 1997) and optimism (Carver & Scheier, 2003) are the achievement of action goals which relate to (small) success experiences. In the context of intrapreneurship, this happens, for instance, when

an employee engages in employee intrapreneurship and successfully conceptualizes an innovative idea that can improve the efficiency of current services. As a result, he or she feels more efficacious and expects similar positive experiences when performing such behavior in the future (Marvel et al., 2007). Moreover, when engaging in employee intrapreneurship, employees are likely going to face several difficulties and hardships (Antoncic & Hisrich, 2003; Stopford & Baden-Fuller, 1994). To overcome these challenges and successfully persist in employee intrapreneurship, employees have been shown to seek advice from both internal and external sources to overcome such challenges (e.g., Anderson & Jack, 2002). Consequently, employees can be expected to acquire new knowledge, experiences, and self-insights when engaging in employee intrapreneurship (Honig, 2001), which are important in building individual resiliency (Masten, 2001).

Although the relationship between employee intrapreneurship and personal resources has not been tested empirically, research supports the notion that work behaviors characterized by exploring possibilities and interacting with the environment in a novel way can have a positive impact on personal resources. For example, organizational citizenship behavior, a type of extra-role work behavior promoting effective functioning of the organization (Organ, 1988), has been shown to positively relate to personal resources, such as hope, optimism, and self-efficacy, across 51 independent samples (Avey, Reichard, Luthans, & Mhatre, 2011). Moreover, besides being positively related, longitudinal research supports the notion that an individual's personal resources can be increased as a result of exploratory, proactive work behavior. A recent intervention study of Van den Heuvel, Demerouti, and Peeters (2015) on job crafting shows that participants who had learned how to proactively craft their jobs (vs. control groups) reported more personal resources, in specific self-efficacy, after the intervention. Similarly, an experimental study by Fredrickson, Cohn, Coffey, Pek, and Finkel (2008) showed that work-related meditation practices increased daily experiences of positive emotions and produced gains in personal resources (i.e. self-acceptance, feelings of mastery, and purpose in life) over eight weeks of time. Thus, based on the aforementioned studies, we argue that employees who engage more often in employee intrapreneurship will have more personal resources over time:

Hypothesis 1: T1 employee intrapreneurship increases personal resources over time.

The capacity of personal resources to foster and sustain work engagement

In the occupational context, scholars often are interested in employees' work engagement (Bakker, Schaufeli, Leiter, & Taris, 2008), because of its relationship with

employee levels of energy and motivation (Demerouti, Mostert, & Bakker, 2010; Schaufeli, Salanova, González-Romá, & Bakker, 2002; Schaufeli & Van Rhenen, 2006) and employee performance (e.g., Christian, Garza, & Slaughter, 2011; Kim, Kolb, & Kim, 2012). Work engagement is defined as “the positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli & Bakker, 2004, *p.* 295). In JD-R theory, personal resources are theorized to foster work engagement, because of their ability to provide energy and motivation for individuals to engage in activities that fulfill personal needs or buffer against stressors (Xanthopoulou et al., 2007). Subsequently, when this energy is utilized to overcome work-related challenges or fulfill work related needs, it induces a positive, work-related, motivational state in employees known as work engagement (Schaufeli, Bakker, & Salanova, 2006). Empirical research supports the notion that personal resources foster work engagement. In a meta-analysis of Halbesleben (2010), personal resources, such as self-efficacy and optimism, were shown to be significant predictors of work engagement across a multitude of studies. Furthermore, longitudinal studies have shown that individual differences in personal resources, such as optimism, resilience, and self-efficacy, are significant predictors of the level of work engagement over time (Llorens, Schaufeli, Bakker, & Salanova, 2007; Xanthopoulou et al., 2009).

Besides being an important factor in explaining why individuals differ in levels of work engagement, from a within-person perspective, scholars have argued that personal resources can mitigate the (negative) effects of external influences (e.g., changes in the work environment) on work engagement, because they alter the way people appraise and interact with the work environment (Mäkikangas et al., 2013; Xanthopoulou et al., 2007). For example, high resilient individuals are less affected by setbacks in a project (Masten, 2001), high efficacious individuals are less insecure when facing difficult tasks (Bandura, 1997), and optimistic individuals are less affected by environments that are overloaded with information (Baron, 1998; Forbes, 2005). Thus, similar to how certain personality traits facilitate coping mechanisms that stabilize happiness and general well-being (cf. Diener, Lucas, & Scollon, 2006; Gorgievski, Bakker, Schaufeli, & van der Heijden, 2005), and similar to how having bountiful resources makes individuals less vulnerable to resource loss (Hobfoll, 2001), it may be argued that individuals with bountiful personal resources are able to maintain stable levels of positive affective, motivational states more effectively over time (Gorgievski & Hobfoll, 2008).

Although the proposed general stabilizing effect of personal resources on work engagement has not been examined empirically, previous research has provided insights

into specific buffering effects of personal resources on individual well-being. A review of Pierce and Gardner (2004) concluded that organization-based self-efficacy mitigates the effects of demanding conditions (e.g., organizational changes, role ambiguity) on depression, physical strain, and job dissatisfaction, implying smaller within-person changes in mental well-being over time. Furthermore, a longitudinal study of Mäkikangas and Kinnunen (2003) showed that under demanding work conditions (i.e., high time pressure, high job insecurity, and poor organizational climate), optimistic employees reported lower levels of mental distress than their less optimistic colleagues over a period of one year. Thus, in line with both theoretical and empirical findings, we argue that although personal resources relate to higher work engagement levels in general, they should additionally stabilize intra-individual levels of work engagement:

Hypothesis 2a: T1 personal resources relate positively to T2 work engagement.

Hypothesis 2b: T1 personal resources relate negatively to changes (i.e. stabilize) in work engagement over time.

The link between work engagement and employee intrapreneurship

Flowing from the definition of work engagement as an active positive motivational state, scholars have related work engagement to proactive work behavior in several studies (cf., Bakker, 2011). The basis of this relationship lies in the premise that individuals who have high levels of work engagement are physically, cognitively, and emotionally connected with their work roles (Kahn, 1990), and thus more likely to engage in proactive activities than those who are not (Kim et al., 2012).

We argue that these features of work engagement may also be important to motivate employee intrapreneurship for several reasons. First, in many occupations, employee intrapreneurship is combined with the “job as usual” (Belousova & Gailly, 2013), and thus requires additional effort to start and persist in (Frese, Fay, Hilburger, Leng, & Tag, 1997). Due to high levels of vigor, engaged employees are able to accomplish their in-role tasks with less effort (Hockey, 2000) and thus have more resources left to enact entrepreneurial behaviors. Second, the process of intrapreneurship is often filled with hardships and failure (Shepherd, Haynie, & Patzelt, 2013). Accordingly, to engage in employee intrapreneurship, employees have to regard entrepreneurial activities for their organization worthwhile to invest the extra effort. Dedication and enthusiasm for their work and organization (both characteristics of engaged individuals; Schaufeli & Bakker, 2004) are thus arguably important characteristics that may facilitate entrepreneurial activities to improve the organization. Third, when engaging in intrapreneurship,

employees are challenged to go beyond the status quo and recognize opportunities (Antoncic & Hisrich, 2003). To successfully do so, it is important for individuals to resist the temptation to get distracted and to detach in case of emerging difficulties. Engaged individuals have these qualities over non-engaged individuals due to their higher levels of absorption and persistence in their work.

Although empirical research supporting the notion that work engagement increases employee intrapreneurship is scant, empirical research has shown that high levels of work engagement foster work behaviors that go beyond the scope of employees' formal function description, such as engaging in proactive idea implementation and proactive problem-solving (e.g., Parker, Williams, & Turner, 2006), as well as taking personal initiative (e.g., Hahn, Frese, Binnewies, & Schmitt, 2012). Furthermore, fluctuations in work engagement have been shown to directly impact proactive behaviors over time. A study of Fritz and Sonnentag (2007) showed that day-level work engagement of civil servants positively predicted day-level proactive behavior (i.e. taking charge) in both the same and the consecutive day. Similarly, the study of Bakker and Bal (2010) showed that week-level work engagement predicted an increase in extra-role performance in the consecutive week among a sample of Dutch teachers. We formulated the following hypothesis in regards to the relationship between work engagement and employee intrapreneurship:

Hypothesis 3: T1 work engagement increases employee intrapreneurship over time.

Additional support for a resources gain cycle

An important assumption of JD-R theory is that work behavior, resources, and work engagement may form a “resources gain cycle”, meaning proactive work behaviors are expected to influence (personal) resources, which in turn influence work engagement. To complete the cycle, work engagement is theorized to foster proactive work behavior (Bakker & Demerouti, 2014). Technically, (resources) gain cycles are loops in which cyclic relationships among constructs influence each other positively over time and show interdependency in the way they fluctuate over time (Lindsley, Brass, & Thomas, 1995). Although the premise of a resources gain cycle between employee intrapreneurship, personal resources, and work engagement implicitly lies behind our previous hypotheses, an additional approach utilizing the change scores of the study variables may shed more light on the reciprocal nature of the relationships. In specific, building on the premise that gain cycles of resources are self-enhancing and interdependent (Gorgievski & Hobfoll, 2008; Lindsley et al., 1995), change in one of our study variables should reflect in a change

in other study variables. Thus, we argue that a significant interdependency between intra-individual changes of our study variables would provide further evidence for a resources gain cycle.

Hypothesis 4: Changes in employee intrapreneurship, personal resources, and work engagement relate positively to each other.

Method

Procedure and participants

The data was gathered with an online questionnaire in five public organizations in The Netherlands at two measurement moments. To ensure the time interval between measurement moments fits our research design, we based the length of the time interval on an analysis of existing literature (cf. Mitchel & Lawrence, 2001). For the first wave, the personnel administration department of the organizations provided access to work email addresses of the employees in the personnel database. In agreement with the board of directors of a public organization, we were allowed to randomly contact 1750 employees. These employees received an email signed by the HR-Director. This email contained information on the study, a request to fill out the survey (also stating that participation was voluntary), and a link to the survey. The title of the email was “A research on the push and pull factors of work and career behaviors” and was framed as being part of an ongoing inquiry among personnel on proactivity at work, career development, and work satisfaction. Of the 1750 employees who were contacted, 1330 answered the questionnaire (response rate is 76%).

For the second wave, the board of directors had allowed us to approach the employees who had indicated they were willing to continue in our study at the end of the questionnaire at baseline. Of the 1330 employees, 618 employees had agreed to continue with our study (46%). A follow-up mail was send to these employees twelve weeks after the initial email of the first wave and contained information on the follow-up study, a request to fill in the follow-up survey, and a link to the survey. Of the 618 employees who were contacted, 351 completed the questionnaire. Thus, the analyses were based on a two-wave sample of 351 cases (total response rate 20%). A non-response analysis showed that the participants who did not participate in the follow-up survey did not score significantly different on the control variables age, gender, education, and salary as compared to participants in the final sample. Moreover, participants who did not participate in the follow-up survey did not score significantly different on the study

variables as compared to participants in the final sample, with the exception of work engagement. Participants in the final sample had a slightly higher score on work engagement (mean difference = 0.55, $t_{(1152\text{ df})} = 2.68$, $p < 0.01$).

Measures

All measures were administered in Dutch and were framed according to the chosen twelve-week time interval by explicitly stating that responses on each item should reflect the past twelve weeks. Measures that were not available in Dutch were translated, using the forward-backward translation method (Behling & Law, 2000).

Employee intrapreneurship was measured with the eight-item version of employee intrapreneurship scale of Gawke, Gorgievski and Bakker (2015). Four items measured the sub-dimension employee venture behavior (example item, “I undertook activities to set up new units for my organization.”), and four items measured the employee strategic behavior dimension (example item, “I undertook activities to realize change in my organization.”). Responses were given on a 7-point frequency scale ranging from 1 = *never* to 7 = *always*. The subscale venture behavior had a Cronbach’s alpha of .85 at T1 and .80 at T2; the subscale strategic renewal behavior had Cronbach’s alpha of .89 at T1 and .90 at T2. Based on two independent studies, Gawke et al. (2015) have shown the EIS is a valid measure to capture employee intrapreneurship. First, they performed confirmatory factor analyses (CFA) and measurement invariance tests in three independent samples of employees in the public sector (i.e., $N = 775$, $N = 427$, and $N = 226$) and showed employee venture behavior and strategic renewal behavior can be discriminated as two related sub-dimensions of employee intrapreneurship. Next, in a new sample of employees in the private sector ($N = 243$), Gawke and colleagues (2015) confirmed the convergent and discriminant validity of the EIS with activities that are closely related to employee intrapreneurial activities (De Jong et al., 2013; Bolton & Lane, 2012), namely employee innovativeness ($r = .50$, $p < .05$), employee risk taking ($r = .52$, $p < .05$), and employee personal initiative ($r = .47$, $p < .05$). In addition to these activities, Gawke et al. (2015) showed that personality traits associated with employees’ intrapreneurial intentions (i.e., expectations of positive outcomes; e.g., Douglas & Fitzsimmons, 2012) also related to the EIS in line with theory ($r = .61$, $p < .05$).

Work engagement was assessed with the nine-item version of the Utrecht Work Engagement Scale capturing three sub-dimensions of work engagement, namely vigor, dedication and absorption (Schaufeli et al., 2006). Here are some example items: “At my work, I felt bursting with energy” (vigor); “I was enthusiastic about my job” (dedication);

and “I was immersed in my work” (absorption). Responses were given on a 7 point Likert scale ranging from 1= “*never*” to 7 = “*always*”. For T1 and T2 respectively, Cronbach’s alpha’s for vigor were .75 and .73; for dedication .81 and .87; and for absorption .88 and .84.

Personal resources were assessed with three subscales capturing different work-related personal resources. Optimism was measured with four items (sample item, “In uncertain times I expected the best outcomes”) based on the scale of Scheier, Carver, and Bridges (1994); ego-resilience was assessed with five items (sample item, “I enjoyed engaging in new and unusual situations”) based on the scale of Block and Kremen (1996); and self-efficacy was measured with four items (sample item, “I knew what to do, regardless of what happened”) based on the scale of Schwarzer and Jerusalem (1995). Participants responded on the scale for optimism on a 5-point Likert scale, ranging from 1 = “*totally disagree*” to 5 = “*totally agree*”; for ego-resilience and self-efficacy participants responded on a 4-point Likert scale ranging from 1= “*totally disagree*” to 4 = “*totally agree*”. Cronbach’s alpha’s for optimism were .82 at T1, and .78 at T2, for ego-resilience .81 at T1, and .78 at T2, and for self-efficacy .83 at T1, and .84 at T2.

Control variables. The following control variables were included in the study. First, because employee intrapreneurship has been found related to demographic characteristics and hierarchical position in the organization (De Jong et al., 2013; Hornsby et al., 2009), we controlled for age, education, gender, salary scale, and tenure. Next, we included job crafting as control variable. Job crafting is a form of proactive work behavior aimed at modifying ones job characteristics. Studies have shown job crafting modified job characteristics over time (Tims, Bakker & Derks, 2013) and had beneficial effects on personal resources and work engagement (e.g., Vogt et al., 2015). Job crafting relates to similar job characteristics as employee intrapreneurship, such as job autonomy and job variety (De Jong et al., 2013). Job crafting was measured by the scale developed by Tims et al. (2012) Five items measured increasing structural job resources (sample item, “I try to develop my capabilities.”), five items measured increasing social job resources (sample item, “I ask my supervisor to coach me.”), and five items assessed increasing challenging job demands (sample item, “When an interesting project comes along, I offer myself proactively as project co-worker.”). All items were answered using a 5-point frequency scale ranging from 1 = “*never*” to 5 = “*often*”. Cronbach’s alpha’s were .54 for increasing structural job resources, .68 for increasing challenging job demands, and .75 for increasing challenging job demands.

Data analysis strategy

Data were analyzed in R (Lavaan package; R Core Team, 2015), using a latent change score (LCS) approach (also referred to as Latent Difference Score approach; cf. McArdle, 2009). The LCS approach represents a novel method for cross-lagged structural equations modeling of data with multiple measurement moments. LCS has several advantages over other longitudinal analysis methods, such as latent growth curve models (Meredith & Triask, 1990) and cross-lagged regression models (Selig & Little, 2012), because it considers both dynamic differences between individuals and intra-individual changes within a two-wave time series (Ferrer & McArdle, 2003). To assess the fit of all models, we examined the Chi square, ratio Chi Square / degrees of freedom, the Standardized Root Mean Square Residual (SRMR), the Root Mean Square of Error of Approximation (RMSEA; Browne & Cudek, 1993), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI). For the model chi-square, higher values reflect poor model fit, with Chi square / $df < 3.00$ accepted as indicating a reasonable fit. RMSEA and SRMR are measures of absolute model fit. $RMSEA \leq .05$ and $SRMR < .08$ represent a close fit (Bollen, 1989; Brown & Cudek, 1993; Marsh, Hau, & Wen, 2004). CFI and TLI correct for model complexity. Higher values represent better model fit. CFI and TLI values close to .95 or higher in combination with $RMSEA \leq 0.05$ indicate a good fit (Hu and Bentler, 1999). Values of .90 - .95 indicate a reasonable fit (Kline, 2005).

Results

The measurement model and descriptive statistics

Before testing our hypotheses, we first tested a measurement model including seven latent variables, namely employee intrapreneurship, personal resources, work engagement at respectively Time 1 and Time 2 as well as job crafting T1 (cf. the two step approach; Anderson & Gerbing, 1988). The latent construct *employee intrapreneurship* was indicated by its subscales employee venture behavior and employee strategic renewal behavior; *work engagement* was indicated by the three sub-scale scores representing absorption, dedication, and vigor; and the latent construct *personal resources* was indicated by the three subscale scores representing optimism, ego-resilience, and self-efficacy. *Job crafting* was modeled as a latent factor indicated by its sub-dimensions, namely increasing structural resources, increasing social resources, and increasing challenging demands. Finally, correlation coefficients were modeled between all study and control variables. Correlations between latent variables ranged from .25 to .63 and were all in the expected direction (see Table 2).

Table 1. Fit statistics for the study models (N = 351)

Model	χ^2	df	χ^2/df	SRMR	CFI	TLI	RMSEA
Structural Equation Models							
Measurement-Model	326.01	183	1.78	.05	.97	.96	.05
LCS Base Model	385.01	207	1.86	.06	.96	.95	.05
LCS Model 1	328.85	186	1.76	.05	.97	.96	.05

Note. χ^2 = chi-squared; χ^2/df = normed chi-squared; SRMR = standardized root mean square residuals; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation

Our measurement model fit the data well (see Table 1): $\chi^2_{(183\ df)} = 326.01$, $p < .001$; SRMR = .05; CFI = .97; TLI = .96, RMSEA = .05. Factor loadings were all significant and ranged from .69 to .94 with exception of optimism which showed path coefficients of around .30¹. In order to validate discriminant validity of the measures, we tested several models in which different latent factors were combined into one (Brown, 2014). Results support the validity of our measures; all models in which latent factors were combined fit significantly worse to the data. The best fitting alternative model was a model in which employee intrapreneurship (i.e., employee venture behavior and employee strategic renewal behavior) and personal resources (i.e., ego-resilience, optimism, and self-efficacy) were combined into one factor (at T1 Δ Chi square $_{(\Delta\ df = 1)}$ was 120.97, $p < .01$; and at T2 Δ Chi square $_{(\Delta\ df = 1)}$ was 48.87, $p < .01$).

Hypotheses testing using latent change-score model

In order to test our hypotheses, three additional latent variables were created measuring the intra-individual change scores, namely *changes in employee intrapreneurship*, *changes in personal resources*, and *changes in work engagement*. In order for these latent variables to represent only the “true” score corrected for measurement error (cf. McArdle, 2009), we constrained corresponding T1 and T2 measures to be identical by constraining the auto regression paths of the latent study variables to 1 and setting the variance of the latent study variable at T2 to zero. In addition, we modeled the latent change score factor to account for all the “residual variance” in the T2 measure (i.e., for the part of the score of T2 that is not identical to T1) by constraining the regression path from the latent change variable to the respective variable at T2 to the value 1. Covariation between the latent change variables was allowed.

¹ Removing optimism as an indicator of personal resources from the analysis did not change the results. Therefore, on theoretical grounds we kept optimism as an indicator of personal resources in our study.

Table 2. Latent correlations between the study variables and change score variables (N = 351).

Construct	Study variables											
	1	2	3	4	5	6	7	8	9	10	11	12
Study variables^a												
<i>Control</i>												
1. Age	-											
2. Education	-.09	-										
3. Gender	-.27**	.01	-									
4. Job crafting	-.18**	.23*	.10	-								
5. Tenure	.25**	-.12*	-.07	-.20**	-							
6. Salary scale	.20**	.55**	-.19**	-.23**	-.23**	-						
<i>Time 1</i>												
7. Employee intrapreneurship	.06	.27**	-.18**	.64**	-.18**	.54*	-					
8. Personal resources	0	.09	.07	.60**	-.16*	.13*	.54**	-				
9. Work engagement	.06	.03	-.03	.36**	-.03	.06	.30**	.46**	-			
<i>Time 2</i>												
10. Employee intrapreneurship	.07	.26**	-.17**	.59**	-.31**	.54**	.84**	.51**	.25**	-		
11. Personal resources	0	.08	-.03	.52**	-.14*	.16*	.56**	.70**	.37**	.64**	-	
12. Work engagement	.02	-.02	.01	.30**	-.11*	.01	.18**	.33**	.83**	.27**	.41**	-

Note. ^a Results of study variables are based on the latent correlations in the Measurement-Model. * $p < .05$. ** $p < .01$

This model formed our “Latent Change Score (LCS) Base Model”. Figure 1 visualizes the imposed constraints necessary to capture “true” change of a variable over time.

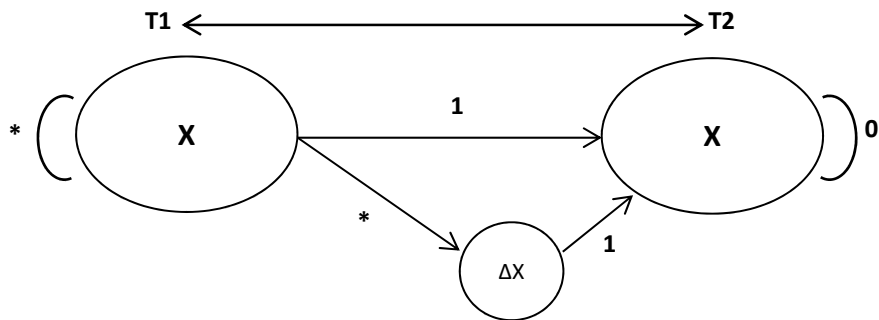


Figure 1. Visualization of constraints to capture the latent change score of variable X . The numbers “1” and “0” represent the imposed constraints to specific parameters. The “*” represent freely estimated parameters. The “ ΔX ” represents the latent change score of variable X .

To test Hypotheses 1 to 3, we added cross-lagged paths from *employee intrapreneurship* at $T1$ to *changes in personal resources*, from *personal resources* at $T1$ to *changes in work engagement*, and from *work engagement* at $T1$ to *changes in employee intrapreneurship* (see “LCS Model 1”). In all models, the synchronous relations between the latent variables at $T1$, and covariation of the error terms of each observed indicator at $T1$ with the corresponding error term at $T2$ were allowed (Finkel, 1995; Meier & Spector, 2013). Note that all lagged relationships were controlled for age, education, gender, salary scale, tenure, and job crafting.

We used the LCS Model 1 to examine the directionality of the inter-individual relationship between the constructs over time and the intra-individual magnitude of change in employee intrapreneurship, personal resources, and work engagement over time (Figure 2). In support of Hypothesis 1, employees who engaged more often in employee intrapreneurship at $T1$ showed higher levels of personal resources at $T2$ ($r = .57$; $p < 0.01$). In addition, the regression path in the LCS Model 1 leading from employee intrapreneurship at $T1$ to changes in personal resources over time ($\beta = 0.39$, $p < 0.01$) was significant. This result indicates that, as predicted in Hypothesis 1, engaging in intrapreneurial behavior also positively influenced the magnitude of change in an individual's personal resources over time.

Hypothesis 2 focused on whether individuals who have higher levels of personal resources are more likely to have higher levels of work engagement over time (Hypothesis 2a) and whether personal resources can stabilize the magnitude of change of within-person levels of work engagement (Hypothesis 2b). In line with hypothesis 2a, we found that employees with more personal resources at T1 also had higher levels of work engagement at T2 ($r = .32$; $p < 0.01$). In addition, we found support for the premise that higher levels of personal resources relate to significantly smaller fluctuations in (the higher levels of) work engagement over time (Hypothesis 2b). In the LCS Model 1, the path leading from personal resources at T1 to changes in work engagement was significant and negative ($\beta = -.22$, $p < 0.05$).

Our results support Hypothesis 3 with respect to the positive relationship between work engagement at T1 and employee intrapreneurship at T2 ($r = .25$; $p < 0.01$). However, no significant regression path in the LCS Model 1 was found from T1 work engagement to changes in employee intrapreneurship ($\beta = -0.02$, *ns*). Thus, although work engagement and employee intrapreneurship positively relate over time, work engagement at T1 did not significantly influence change in frequency of an employee's intrapreneurial behavior over the three-month time interval.

Finally, to test Hypothesis 4, we examined the relationship between the intra-individual changes in the study constructs. In the LCS Base Model, changes in employee intrapreneurship correlated positively with changes in personal resources ($r = .27$, $p < 0.01$) and changes in work engagement ($r = .37$, $p < 0.01$); and changes in personal resources correlated positively with changes in work engagement ($r = .40$, $p < 0.01$). This indicates that the magnitude of change in our study variables over time shows interdependency, which is a central assumption in resources gain cycles (e.g., Lindsley et al., 1995). Thus, these results support Hypothesis 4 and provide additional support for the existence of a resources gain cycle between employee intrapreneurship, personal resources, and work engagement.

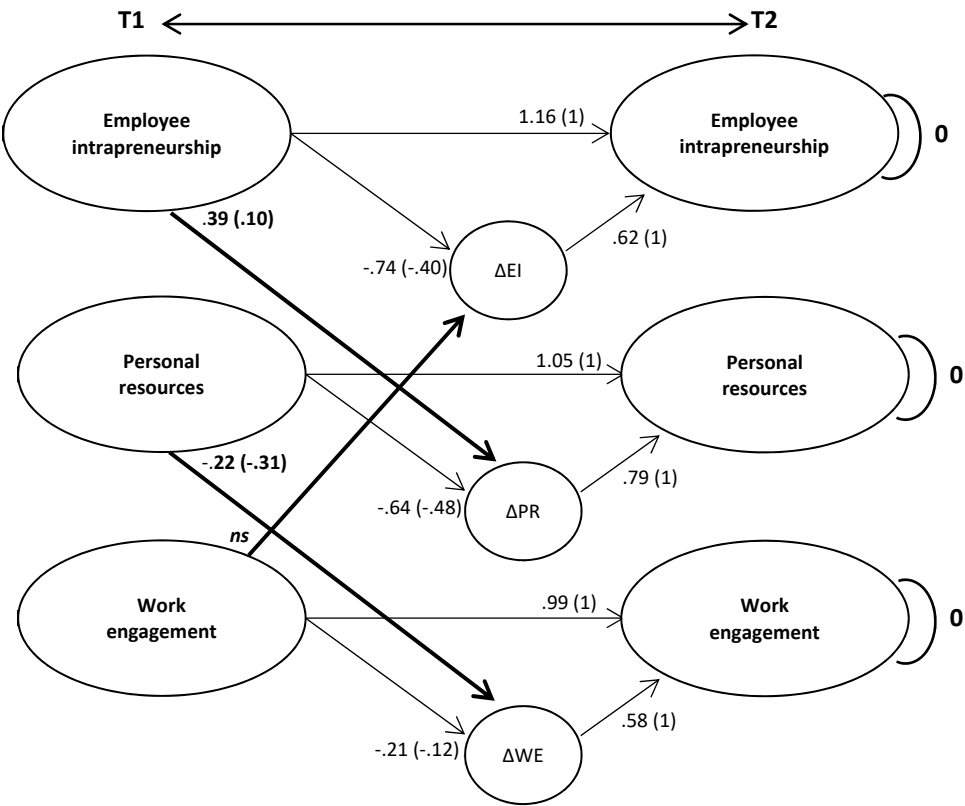


Figure 2. Visualization of LCS Model 1. The significant standardized regression weights are displayed of the paths between latent variables. The unstandardized regression weights are displayed in brackets. Although not visualized, covariations between T1 latent variables and covariations between latent change score variables were modeled, and all paths were controlled for age, gender, job crafting, salary scale, and tenure.

Discussion

This study centered on whether employees' intrapreneurial activities (i.e., employee intrapreneurship) may yield beneficial consequences for employee well-being. Following the basic premises of JD-R theory (Bakker & Demerouti, 2014) on the interrelatedness of proactive work behavior and employee well-being, this study aimed to provide insights into the longitudinal interrelatedness of between-person differences in employee intrapreneurship, personal resources, and work engagement, as well as within-persons relationships between these study variables. On the basis of the results of a latent change score analysis (cf. McArdle, 2009), we may conclude that employee intrapreneurship can significantly and positively contribute to employee work engagement over time.

Furthermore, our results shed light on the process of how employee intrapreneurship fosters employee work engagement. Specifically, when individuals engage in intrapreneurial behavior they increase their personal resources, which results in higher and more stable levels of work engagement over time. Hence, our results contribute to our knowledge on intrapreneurship and proactive work behavior in several ways, and yield interesting implications for advancing JD-R theory.

First, by providing a theoretical framework that enables us to explain how employees can optimize and sustain a positive work life (i.e., staying engaged in their work) through employee intrapreneurship, our study contributes to the field of intrapreneurship research by answering the call to increase our understanding of effects and processes of intrapreneurship at the individual level (e.g., Belousova & Gailly, 2013; Dess et al., 2003). In line with research on other types of proactive work behavior, such as job crafting (e.g., Tims et al., 2014; Vogt et al., 2015) and organizational citizenship behaviors (e.g., Avey et al., 2011), our results indicate that proactive strategic work behavior, in this study employee intrapreneurship, helps build an employee's personal resources, in specific self-efficacy, optimism, and ego-resilience. Moreover, our results provide empirical support for the assumption that employees' personal resources are “relatively malleable and open for development” (Luthans et al., 2008, p. 209). In specific, we show that the frequency of employee intrapreneurial behavior significantly influences the magnitude in which personal resources develop over a period of 12 weeks (i.e. engaging more often in employee intrapreneurship predicted more within-person change in personal resources over time). This latter result may especially be of interest for research in the field of proactive behavior at work. To date, not much is known about the impact of proactive behaviors at work on fluctuating patterns of resources as both empirical studies and theoretical models, such as COR and JD-R theory, have not yet addressed this issue in detail (Salanova et al., 2010). Thus, a focus on disentangling how different types of resources (e.g., job resources and personal resources) can develop over time as a result of engaging in proactive work behavior may provide a fruitful topic for future research in both the field of proactive work behavior literature as well as intrapreneurship literature at the individual level.

Second, we investigated the relationship between personal resources and work engagement. Besides confirming the hypothesis that personal resources relate positively to work engagement over time (e.g., Halbesleben, 2010), we found first empirical support that personal resources enable individuals to maintain stable positive affective, motivational states more effectively over time. Thus, in line with the assumption of COR

theory that individuals with more resources are less vulnerable to resources loss (Hobfoll, 2001), and in line with the way positive affectivity and emotional stability buffer negative changes in affect and general happiness (e.g., Diener et al., 2006), our results extend this literature by showing empirical support that similar mechanisms are present in the occupational context. Furthermore, our results may also imply that having bountiful personal resources act as a potential buffer of external influences that hamper work engagement (Xanthopoulou et al., 2007). Personal resources have been reasoned to influence the way individuals perceive and interact with the environment (Mäkikangas et al., 2013) in such a way that they buffer the effects of external events on individual well-being (Gorgievski et al., 2005). For example, individuals with high levels of resilience are less affected by adversity (Masten, 2001), high efficacious individuals are more motivated when facing challenging tasks (Bandura, 1997), and optimistic individuals tend to think in opportunities rather than problems (Baron, 1998). Future studies could aim to find more direct support for such a buffer effect by incorporating external influences, such as job demands and resources.

Third, we examined whether work engagement would relate to employee intrapreneurship over time based on the theoretical assumption that individuals with high levels of work engagement are physically, cognitively, and emotionally connected with their work roles (Kahn, 1990), and thus more likely to engage in intrapreneurial activities. In line with previous literature showing that work engagement fosters proactive behaviors (e.g., Fritz & Sonnentag, 2007), we found positive correlations over time between work engagement and employee intrapreneurship. These results may indicate that high levels of vigor, dedication, and absorption can be important to start and persist in employee intrapreneurship, to overcome the challenges that coincide with intrapreneurial activity (e.g., Shepherd et al., 2013), and can provide the focus necessary to see an innovative idea through several stages (Stopford & Baden-Fuller, 1994). However, work engagement did not significantly impact the magnitude of intra-individual changes in employee intrapreneurship during our study period, indicating the frequency of employee intrapreneurial behavior over a period of 12 weeks was not influenced by initial levels of employee work engagement. This contrasts results of other studies of how work engagement influences proactive work behaviors over time (e.g., Vogt et al., 2015). One possible explanation is that the time interval may have been too short to investigate changes in employee intrapreneurship. Different from other forms of proactive behavior at work, such as job crafting (Tims et al., 2014), employee entrepreneurial behavior can span over a longer period of time (e.g., setting up new units, innovating a service).

Another explanation is that employee intrapreneurship is more dependent on external resources and influences, such as access to funding and decision authority (e.g., Hornsby et al., 2009), and the explicit expectations of the management (Hornsby et al., 2013), compared to other forms of proactive work behavior. Thus, building on our results, it seems fruitful for future studies to address the interrelatedness of employee intrapreneurship with organizational characteristics from a multi-level perspective to further our understanding of the processes that underlie intrapreneurship.

Lastly, drawing upon COR theory (Hobfoll, 1989, 2001) and JD-R theory (Bakker & Demerouti, 2014), we argued that employee intrapreneurship, personal resources, and work engagement are cyclically related and form a “resources gain cycle”. To establish such a relationship, our study variables should positively influence each other over time and show interdependency in the way they change over time (Lindsley et al., 1995). Our results support both premises. Besides the significant correlations of our study variables over time (i.e. indicating a positive relationship over time), the changes in employee intrapreneurship, personal resources, and work engagement that occurred during our study period showed significant interdependence. Subsequently, we provide additional support for the premise that psychological mechanisms underlying behavior, personal resources, and work engagement are not one-directional but have a dynamic and reciprocal nature (Salanova et al., 2010). In light of the lack of process-oriented studies in the field of intrapreneurship at the individual level (Belousova & Gailly, 2013), our results underscore the importance of considering dynamic psychological processes when studying how employee intrapreneurship relates to personal growth (i.e. increases in personal resources) and employee well-being.

Limitations and directions for future research

Besides its merits, this study also has some limitations. First, although we utilized a research design that provided insights into the dynamic, longitudinal nature of employee intrapreneurship, personal resources, and work engagement, our research design can be improved. For instance, all measures in the present study were self-reports. Hence, common method bias could be present in the data and may have produced inflated correlations between our study variables. Our two-wave study design decreases the risk of common method bias (Conway & Lance, 2010), but to decrease common method bias further, future research should aim to combine self-report measures with other indicators of employee well-being. Examples are physiological measures of stress (cf. Danna & Griffin, 1999), or other-ratings of employee intrapreneurial behavior.

Second, a two-wave longitudinal design excludes the possibility to investigate non-linear forms of change within study variables. It is our contention that increasing our understanding of the underlying dynamic motivational process linking employee intrapreneurship, resources, and work engagement over time is an important next step. In order to investigate more complex mechanisms, we encourage future scholars to disentangle such a dynamic motivational process by adopting a time series approach with at least three time waves (cf. Ployhart & Ward, 2011). Such a research design will provide valuable insights on the reciprocal nature of behavior, resources, and work behavior, and shed light on mutual influences, fluctuations and co-variations over time.

Third, based on influential work of Hobfoll (2001), Xanthopoulou et al. (2007), and Bakker and Demerouti (2014), we were able to increase our understanding of the psychological mechanism (i.e., the motivational process; Bakker & Demerouti, 2014) that underlies the positive relationship between employee intrapreneurship, work engagement, and personal resources. Furthermore, in line with the goals of our study, we provide novel insights on how personal resources and work engagement change over time. However, because of our focus on personal resources and work engagement, we are unable to draw conclusions on the role of other variables, such as job demands and resources, and more stable personality characteristics, such as Big Five personality, that may contribute to fluctuations or stability in personal resources and work engagement. Thus, future research can expand our knowledge further by including these variables. In addition, future research could additionally investigate possible negative effects of employee intrapreneurship on employee well-being, such as employee exhaustion and stress, which may occur in case intrapreneurial projects fail (Shepherd et al., 2013), and how this impacts positive and negative employee outcome variables (e.g., in-role work performance and counterproductive work behaviors).

Lastly, the time interval of our study (twelve weeks) might have been a limitation to truly capture changes in the entrepreneurial behavior of employees. The interval was based on a literature review on studies that captured changes in personal resources, work engagement and other forms of proactive work behavior. To capture changes in employee intrapreneurship over time, this interval may be too short, as the process of organizational rejuvenation encompasses longer time periods (Antoncic & Hisrich, 2003). Thus, although the interval of twelve weeks seems adequate to capture the impact of employee intrapreneurship on employee growth and well-being, incorporating larger time intervals may be considered to capture the recursive effects on changes in the entrepreneurial behavior of employees.

Conclusion and practical implications

In conclusion, our study shows that employee intrapreneurship may have beneficial outcomes for employee well-being through its potential to increase personal resources, which in turn, both increases levels of work engagement and maintains these levels effectively. Thus, we argue that our results contribute to existing literature on intrapreneurship and proactive work behavior, and to the development of COR and JD-R theory, by providing new empirical insights on the interrelatedness of employee intrapreneurship, personal resources, and work engagement from both an inter-individual as well as an intra-individual perspective. Besides theoretical implications, our study yields interesting practical implications for developing HR practices and HR policies.

As our results show, engaging in employee intrapreneurial activities is not only beneficial for organizations, but also for an individual employee's personal growth and well-being. Furthermore, our results imply employee intrapreneurship, personal resources, and work engagement are part of a resources gain cycle, which means intervening to increase either one of these constructs can be expected to yield increases in the others. This is especially interesting for organizations that heavily rely on the entrepreneurial activities of employees, as increasing resources and/or work engagement may yield promising changes in their employee's intrapreneurial behaviors. Accordingly, intervention studies, such as proposed by Frederickson and colleagues (2008), and Van den Heuvel et al. (2015), could be used as a basis to increase personal resources, such as ego-resilience, optimism, and self-efficacy, and thus foster employee intrapreneurship.

Chapter 7

Summary and general discussion

This dissertation set out to advance our understanding of employees' agentic, strategic behaviors aimed at organizational new venture creation and strategic renewal, also referred to as employee intrapreneurship. Guided by three central research questions, the previous chapters have shed new light on (1) how employee intrapreneurship can best be conceptualized and positioned to foster future research; (2) what motivates employees to engage in intrapreneurial activities; and (3) what the benefits and costs are for employees when engaging in intrapreneurial activities. In this chapter, the findings of the previous chapters are discussed in relation to current research on employee intrapreneurship and in light of future challenges for the intrapreneurship literature. Thereafter, the theoretical implications of this dissertation are addressed, followed by a discussion of its limitations and its implications for practitioners.

Research Question 1: How can employee intrapreneurship best be conceptualized and positioned to foster future research?

To date, scholars have used a multitude of definitions and measurements to conceptualize and capture employees' intrapreneurial behaviors within organizations. As a result, the current literature on employee intrapreneurship lacks conceptual clarity and studies on employee intrapreneurship are often incomparable due to the use of different measures. The narrated review of the literature in Chapter 2 showed that although the current literature is fragmented, similarities do exist as concerns how different scholars define and conceptualize employee intrapreneurship. Three main approaches were identified, namely an entrepreneurial orientation approach (e.g., Valsania, Moriano, & Molero, 2016), an intrapreneurial-outcomes approach (e.g. Stam, 2013), and a behavior-based approach (e.g., Woo, 2017). Each of these approaches focuses on specific defining features: the entrepreneurial orientation approach centers on factors that reflect employees' proclivity for intrapreneurship, the intrapreneurial-outcomes approach on the quantity of and participation in venture creation or strategic renewal projects within an organization, and the behavior-based approach focuses on the actual employee intrapreneurial behaviors.

Although all three approaches have their merits, Chapter 2 showed that to provide clear conceptual boundaries of employee intrapreneurship in relation to other strategic work behaviors (cf. Parker & Collins, 2010), the behavior-based approach is best suited. In this approach, employee intrapreneurship is conceptualized based on its underlying agentic employee venture behaviors and strategic renewal behaviors. Employee venture behavior captures employee activities aimed at creating, adding, or investing resources in

new businesses. For instance, an employee may proactively establish collaborations to adopt technologies developed outside of the organization to reach a new market (Park et al., 2014) or to better render services to users (Edquist, Hommen, & McKelvey, 2001). In contrast, strategic renewal behavior captures more opportunity-seeking and advantage-seeking activities aimed at incrementally or radically renewing current products, services, working methods, or organizational strategy. For instance, employees may champion a strategic shift in when and where work is done (e.g., increase teleworking) to improve productivity and organizational performance (e.g., Coenen & Kok, 2014).

The conceptual clarity provided in Chapter 2 helped advance the intrapreneurship literature in two ways. First, it increased our understanding of the nomological network of employee intrapreneurship. The current literature lacks consensus on whether innovative work behaviors are a feature of employee intrapreneurship (e.g., Rigtering & Weitzel, 2014), or whether the two are distinct concepts that only share some similarities due to innovation being a possible outcome of intrapreneurship (e.g., McFadzean, O'Loughlin, & Shaw, 2005). Results of this dissertation indicated that employee intrapreneurship and innovative work behaviors are conceptually different constructs. Although both focus on increasing organizational effectiveness, employee intrapreneurship is unique in the way that it involves activities that can enhance an organization's ability to take risks and seize opportunities without introducing any novel products or procedures. To empirically examine how employee intrapreneurship relates to, and differs from, other employee behaviors, Chapter 2 created the Employee Intrapreneurship Scale (EIS). The EIS is a measurement instrument that provides scholars and practitioners a reliable and valid instrument to capture employee intrapreneurship in a wide range of organizational contexts. With the EIS, Chapters 2, 3, and 6 showed that employee intrapreneurship can be empirically distinguished from innovative work behaviors, personal initiative, risk-taking, and job crafting.

Second, by positioning employee intrapreneurship as a specific type of strategic employee behavior (cf. Parker & Collins, 2010), Chapter 2 opened a new research stream in relation to the theoretical advancement of the employee intrapreneurship literature. Current literature lacks a theoretical framework that can explain when and why employees are most likely to act intrapreneurially, and how this behavior relates to employee well-being and performance. Yet, being able to explain the psychological mechanisms that underlay employees' motivation for intrapreneurship and how intrapreneurial activity affects employees is pivotal for any organization with a (long-term) intrapreneurial strategy (Blanka, 2018). The proposed behavior-based conceptualization

can be integrated into established job design and proactive motivation theories that center on employee proactive behaviors, such as Proactive Motivation theory (Parker & Wang, 2015) and Job Demands-Resources theory (Bakker & Demerouti, 2017). As shown in this dissertation, the propositions of these theories can be used to advance our understanding of what drives employee intrapreneurship and how it can affect employees.

Research Question 2: What motivates employee intrapreneurship?

Attention to what drives employee intrapreneurship has most often grown out of interest for a specific domain, such as management practices (e.g., Hornsby, Kurtatko, Holt, & Wales, 2013) or job characteristics (e.g., De Jong, Parker, Wennekers, & Wu, 2013). Although these phenomenon-driven studies provide important insights into the antecedents of employee intrapreneurship, they do not address *why* employees choose to behave intrapreneurially. Building on the motivational states that fuel employees' proactive goal orientation and goal striving (see Proactive Motivation theory; Parker & Wang, 2015), this dissertation provided new insights into how "reason to" motivation, "can do" motivation, and "energized to" motivation affect employee intrapreneurship.

"Reason to" motivation centers on the following question: "Is there a reason for me to engage in intrapreneurship?" and is based on individuals' valence and utility judgments of the activity (Parker & Wang, 2015). Chapter 3 showed that a strong rationale for intrapreneurship can be fostered through job characteristics that released behavioral constraints on how to perform a task (i.e., job autonomy and job ambiguity) or prompt individuals to critically reflect on how to best perform a task (i.e., job accountability). Chapter 3 revealed that the psychological mechanisms underpinning the motivational effect of job characteristics can help explain conflicting findings in the literature on the antecedents of employee intrapreneurship. Current literature lacks consensus on whether ambiguity in one's job fosters (e.g., Grant & Rothbard, 2013) or hampers (e.g., Currie & Procter, 2005) employee intrapreneurship. Following the presented framework, job ambiguity can be reasoned to foster a strong rationale for employee intrapreneurship when reducing the uncertainty through intrapreneurship will benefit an important goal. This is the case when job ambiguity, for instance, reflects the presence of complex and equivocal expectations about how to fulfill one's task (e.g., Grant & Rothbard, 2013; Chapter 3). However, when ambiguity exists in the form of how organizational goals are measured and evaluated, a strong rationale to take initiative is absent due to a prevalent risk that intrapreneurial actions may negatively affect relationships with coworkers and

organizational objectives (e.g., Chun & Rainy, 2005). In this case, ambiguity is most likely to hamper employee intrapreneurship.

In addition to employees' job design, an organization's high involvement human resource practices (HIWSs), which are aimed at systematically motivating and empowering employees, can influence employees' "reason to" motivation for intrapreneurship (Chapter 4). Such human resources practices cover the domains of employee staffing, employee training and development opportunities, reward systems, performance evaluation, participation, and job design (Messersmith et al., 2011). Although studies have discussed the importance of human resource practices for intrapreneurship (e.g., Hornsby et al., 2013), the majority of empirical studies use single-level analyses and are unable to address the multi-level relationship between human resources practices and employee intrapreneurship. By adopting a multi-level perspective, this dissertation showed that HIWSs trickle down and have a significant positive influence on how employees perceive their job characteristics that, in turn, motivate intrapreneurship. Moreover, this dissertation underlined the importance of adopting a multi-level perspective when examining antecedents of employee intrapreneurship within an organization, as on average 8% of employees' intrapreneurial behaviors were explained by features of the organization.

Next to "reason to" motivation, "can do" motivation was found to be an important motivational source for employee intrapreneurship. "Can do" motivation focuses on whether individuals believe that they can successfully engage or accomplish an activity. Chapters 3, 4, and 6 showed that at the core of "can do" motivation for intrapreneurship lay employees' confidence in their ability to adapt to changing situations (i.e., ego-resilience), their tendency to approach challenges with confidence (i.e., optimism), and their beliefs in their general ability to succeed at tasks (i.e., self-efficacy). These results corroborate with other studies that have shown the importance of similar employee characteristics for intrapreneurship (e.g., creative self-efficacy and resilience; DiFabio, 2014). Given that intrapreneurship research to date often overlooks the role of "can do" motivation for intrapreneurship, results of this dissertation indicated that "can do" motivation should get a more prominent position in the intrapreneurship literature as it was the strongest motivational source for employee intrapreneurship (Chapters 3 and 4). The incremental value of "can do" motivation for the advancement of the intrapreneurship literature is further underlined due to its relatively malleable nature and potential to increase over time (Chapter 6; see also Luthans et al., 2008, p. 209). To date, research is absent on the reciprocity between intrapreneurship and "can do" motivation

or on how intrapreneurship can affect fluctuating patterns of resources. Chapter 6 showed that employee's beliefs in whether they can successfully engage in intrapreneurship increased over time relative to the frequency with which employees had previously engaged in intrapreneurship, forming a gain spiral.

The last motivational source in the theoretical framework is "energized to" motivation. "Energized to" motivation focuses on the physiological component of proactive motivation (Parker et al., 2010) that allows employees to perform their in-role tasks with more ease (e.g., Hockey, 2000) and encourages employees to take on additional roles in the organization (e.g., Kim et al., 2012). In line with qualitative studies (e.g., Marvel, Griffin, Hebda, & Vojak, 2007), this dissertation showed that when employees are physically, cognitively, and emotionally connected with their work roles (i.e., work engaged; Schaufeli & Bakker, 2004; Bakker & Demerouti, 2017) they are more likely to act intrapreneurially than when they are not (Chapter 6). Moreover, similar to recent findings as concerns the relationship between work engagement and generic proactivity (Simbula & Gulglielmi, 2013), this dissertation showed that work engagement and employee intrapreneurship are likely to have a reciprocal relationship. However, the reciprocal relationship between work engagement and employee intrapreneurship may be of a different nature than that of work engagement and other proactive behaviors. Specifically, whilst work engagement has been shown to help sustain high levels of job crafting (e.g., Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2015), the research presented in Chapter 6 showed that work engagement could not sustain high levels of employee intrapreneurship. This may indicate that, as compared to other types of proactive work behaviors, changes in strategic proactive behaviors are more dependent on other resources and influences (see also Parker & Collins, 2010), such as, for instance, the explicit expectations of senior managers (Hornsby et al., 2013). Consequently, work engagement may become more important as a motivational source when such conditions are met, or work engagement may have an indirect effect on intrapreneurship by encouraging employees to create a work context that allows for intrapreneurship.

Important to note is that several chapters showed that the three motivational sources have independent and synergistic effects on employee intrapreneurship. Hence, the different motivational states should be addressed simultaneously in research to comprehensively study what drives employee intrapreneurship. This is not (yet) common practice in current intrapreneurship literature. A first synergetic effect relates to the positive impact that motivational sources can have on each other (Bakker & Demerouti, 2017; Parker & Wang, 2015). Similar to how entrepreneurs' personal resources have been

shown to positively influence entrepreneurs' levels of work engagement over time (Laguna, Razmus, & Zelinski, 2017), Chapter 3 showed that that "reason to" motivation created by a rich and accountable job design for employee intrapreneurship also positively affected "can do" motivation (e.g., self-efficacy, resilience, and optimism) for employee intrapreneurship over time. Moreover, Chapter 6 showed that "can do" motivation for employee intrapreneurship also positively affected "energized to" motivation for employee intrapreneurship over time. Second, the motivational states for intrapreneurship can interact and enhance each other. Related to how the positive impact of managerial support for employee innovation and creativity is strengthened when employees are open to new experiences and have high self-efficacy (e.g., Madrid et al., 2014; Malik et al., 2015), Chapter 3 indicated that when employees who worked in complex and accountable job contexts, as well as experienced high levels of personal resources engaged most frequently in employee intrapreneurship. Third, "can do" and "energized to" motivation was shown to interact to create a more consistent and stable motivation for employee intrapreneurship over time (Chapter 6). This result is in line with research which suggests that individuals with more resources are less vulnerable to losing other resources (Hobfoll, Halbesleben, Neveu, & Westman, 2018).

Research Question 3: What are the costs and benefits of employee intrapreneurship for employee performance and well-being?

Although there is vast research on the effects of intrapreneurship on organizational performance (e.g., Bierweth, Schwens, Isidor, & Kabst, 2015), studies that have addressed how employee intrapreneurship affects employee well-being and performance are limited. Moreover, previous studies either show the personal benefits (e.g., Monsen et al., 2010) or personal costs (e.g., Shepherd et al., 2011) of employee intrapreneurship and lack theoretical underpinnings to explain these conflicting results. Building on the *motivational* and *health-impairment processes* of JD-R theory (cf. Bakker & Demerouti, 2017), Chapter 5 and 6 extended these studies by explaining what the effect of employee intrapreneurship is on employee well-being and performance, and when it most likely to yield benefits or costs for employees.

In line with the *motivational process*, this dissertation showed that the personal benefits of employee intrapreneurship for well-being and performance are related to psychological growth and the way it allows employees to express themselves cognitively and emotionally in their work. When engaging in employee intrapreneurship, employees

autonomously initiate new projects, combine existing resources to develop new and novel ideas (McFadzean et al., 2005), and exchange information and resources with both internal and external stakeholders (Anderson & Jack, 2002). Such activities are likely to result in new knowledge, experience, and personal resources (see Chapter 6), increase the task variety and skill variety of work (Clegg & Spencer, 2007), and foster work engagement (cf. Bakker, 2011; Chapter 5 and 6). In turn, employees who have higher levels of work engagement are more likely to positively impact the life of others with their work (Chapter 3), perform better in their job, and generate innovative ideas at work, and are less likely to avoid their work (Chapter 5).

Besides the personal benefits of employee intrapreneurship, Chapter 5 showed that employee intrapreneurship can be costly for employee performance. In line with the *health-impairment* process (Bakker & Demerouti, 2017), employee intrapreneurship can increase exhaustion as it may require employees to invest extra physical and psychological resources at work. Specifically, developing new ideas demands creativity and may coincide with extra working hours and additional responsibilities that do not always contribute to achieving formal work goals (Antoncic & Hisrich, 2003). Moreover, entrepreneurial projects within organizations often face hardships and setbacks (Clancy & Stone, 2005), which can evoke strong negative emotions in employees (Shepherd et al., 2011). Consequently, employees experience psychological strain at work and increased exhaustion (Demerouti et al., 2014). As exhausted employees have low energy levels they are more likely to show low in-role performance and high work avoidance to recover (Chapter 5).

The disentanglement of the psychological mechanisms that underlay the relationship between employee intrapreneurship personal outcomes gave an important new insight for the intrapreneurship literature: employee intrapreneurship is not by definition beneficial or costly for employees. Specifically, employees who are more sensitive to rewarding outcomes (e.g., more sensitive to the benefits that employee intrapreneurship may coincide with) had higher levels of work engagement when engaging in employee intrapreneurship relative to employees who are less sensitive to these benefits. In contrast, for employees who are more sensitive to possible negative outcomes (e.g., more sensitive to the extra time investment that may coincide with employee intrapreneurship), employee intrapreneurship related more strongly to exhaustion (Chapter 5). As such, similar to recent proactive behavior literature (Strauss, Parker, & O'Shea, 2017), this dissertation underlines that further exploring a person-behavior interaction perspective

can substantially increase our understanding of why and when employee intrapreneurship is most likely to yield personal benefits and costs.

A final note on the theoretical framework

In order to answer the posed research questions, this dissertation created a holistic theoretical framework that successfully explained why and what drives employees to initiate and sustain intrapreneurial behavior, and when such behavior will have positive and/or negative outcomes for employees. At the basis of this framework lay the generic principles of the Proactive Motivation theory (Parker & Wang, 2015) and Job Demands-Resources theory (Bakker & Demerouti, 2017). These principles have demonstrated validity in a multitude of contexts among individuals who have a wide range of cultural backgrounds (e.g., Parker, Morgeson, & Jones, 2017), and who have different proactive behaviors (e.g., Wu, Parker, Wu, & Lee, 2018). Hence, the results of this dissertation can also be interpreted as the examination of a generic proactivity framework in the context of employee intrapreneurship. Adopting such a perspective has allowed several generic implications for the literature on proactive behavior that go beyond the scope of intrapreneurship.

First, although established job design theories address potential costs and benefits of proactivity (e.g., the *motivation* and the *health-impairment* process of JD-R theory; Bakker & Demerouti, 2017), they do not explain how proactivity may simultaneously yield costs and benefits. Yet, similar to the results of Chapter 5, recent studies on proactivity have shown that proactivity is not by definition good or bad for employees and that the effect of proactive behaviors on employee outcomes can differ from individual to individual (e.g., Bolino & Grant, 2016; Straus et al., 2017). The presented framework addresses how it is possible that proactive behaviors can yield both costs and benefits, and explains when proactive behaviors are more likely to yield benefits and when they are less likely to do so, in relation to employees' reinforcement sensitivity (Chapter 5). This extension to current job design and proactive motivation theories is especially relevant in light of the call for more balanced and comprehensive research on outcomes of employee proactivity which minimises bias regarding the benefits or costs of employee proactivity (Fineman, 2007; Straus et al., 2017).

Second, by examining changes within employee motivation and employee proactive behaviors over time, this dissertation provided new insights into how causal effects manifest within time frames, and at what rate change occurs (Chapter 6). Although time is implicitly or explicitly a boundary condition of most established theories on job design and

proactive motivation (e.g., embedded in causal relationships, gain spirals, and loss spirals), the nature of change in terms of its rate and its magnitude over time is often not an integral part of the theory. As a consequence, our understanding of fluctuating patterns of proactive work behaviors over time is limited and empirical research to date on this topic remains scarce. Chapter 6 indicated that increasing our understanding of such patterns can provide new insights into explaining the process of how constructs affect each other over time. Moreover, results presented in Chapter 6 also tentatively suggest that these patterns of change may be unique for different types of behaviors, as intrapreneurship remained relatively stable over a period of 12 weeks whereas employees' job crafting behaviors have been found to fluctuate over a similar time frame (Vogt et al., 2015). Hence, scholars are encouraged to direct more attention to *when* change is likely to occur and *at what rate* change is expected to happen when studying proactive behaviors.

Limitations and Future Research

Several limitations need to be mentioned regarding the presented research on employee intrapreneurship, as well as ideas on how to tackle these limitations in future studies. A first limitation relates to how the cross-sectional designs in Chapters 3 and 5 limited the examination of causal relationships in the theorized model. For instance, Chapter 5 indicated that employee intrapreneurship positively influences work performance via work engagement. However, these results do not exclude the possibility that employee intrapreneurship may have been a consequence of work engagement, or that they have a reciprocal relationship (Chapter 5). This notion of reciprocity has been put forward in several studies, promoting a bidirectional approach when examining work behaviors, antecedents, and outcomes (e.g., Simbula & Guglielmi, 2013). Future studies could empirically examine reciprocal relationships in the context of employee intrapreneurship and the motivational and health-impairment process. Such studies should aim to incorporate at least three repeated measurement moments to determine the direction of causality (Ployhart & Ward, 2011).

A second limitation relates to the time intervals used in the longitudinal studies. Chapter 3 presented a weekly diary study spanning five weeks, and in Chapter 6, two measurement moments were employed separated by three months. The choice of these time intervals was based on the purpose to capture the short-term impact of antecedents on employee intrapreneurship and, in turn, performance and well-being as well as on the literature on changes in proactive work behaviors in relation to personal resources and work engagement (e.g., Vogt et al., 2015). However, due to the short-term focus, other

important changes in employee intrapreneurial activities and its consequences over a longer time span were not addressed. Extra-role activities related to employee intrapreneurship may result in increased work engagement in the short run due to more task variety, but may, in the long run, relate to increased exhaustion, or even burnout, due to long-term exposure to demanding working conditions (Bakker, Demerouti, & Sanz-Vergel, 2014). Hence, scholars are encouraged to incorporate larger time intervals to capture long-term effects on well-being and performance.

Third, although the studies were conducted in private and public sector organizations, had high response rates, and adequate sample sizes, all organizations were based in The Netherlands. The latter may limit the generalizability of our findings as cultural differences have been shown to affect individuals' tendency to initiate and sustain intrapreneurial activities (Turró, Urbano, & Peris-Ortiz, 2014). A review showed that motives, values, and beliefs of employees regarding entrepreneurial activities differ across cultures (Hayton, George, & Zahra, 2002). Culture may influence an individual's expectation of whether employee intrapreneurship yields beneficial or harmful consequences, thus impacting the strength of the relationship between employee intrapreneurship on the one hand, and work engagement and exhaustion on the other. Future studies may address this issue by conducting cross-cultural research and incorporating national culture as a moderator.

A final limitation is related to the lack of objective organizational outcome measures. Because this dissertation focused on employee outcomes, organizational outcomes were considered to be beyond scope. However, employee intrapreneurship is employee behavior that should benefit the organization, thus, an important indicator of its effectivity is its contribution to organizational venture creation and strategic renewal. Scholars are encouraged to extend the findings reported in this dissertation to the organizational level. The EIS can be used to monitor how employees' intrapreneurial behaviors create a positive ripple effect that result in new venture creation or strategic renewal at the organizational level (e.g., Belousova & Gailly, 2013), and contribute to objective organizational outcomes, such as increased profit in private sector organizations and public value creation in public sector organizations.

Implications for Practice

Organizations are becoming increasingly dependent on employees' intrapreneurial behaviors to remain competitive, increase efficiency, and deliver the best possible services. This dissertation provides insights into the concept of employee

intrapreneurship, the psychological mechanisms that drive intrapreneurship, and what costs and benefits can be expected when employees engage in intrapreneurship. These insights have high relevance for practitioners. The most important practical implications are discussed below.

First, the conceptual clarity of employee intrapreneurship can aid practitioners in their communication about intrapreneurship to colleagues, management, and clients. For instance, when top management wants to successfully implement a strategy that fosters employee intrapreneurship, clarity of the purpose and goal of the strategy is necessary for tactical and operational management (Peralta, Lopes, Gilson, Lourenco, & Pais, 2015). Moreover, it is important that professional consultancy products aimed at facilitating intrapreneurship are evidence-based in their development and operation. As this is not always the case (for a critique see Anderson, Potocnik, Bledow, Hulsheger, & Rosing, 2016), practitioners can use the EIS to provide them with important metrics and make practitioner-oriented products more evidence-based.

Second, employees often pursue intrapreneurial opportunities next to formal job activities, thus requiring additional effort to initiate and sustain their effort (Kearney et al., 2007; Morris et al., 2011). This dissertation showed that without a strong rationale, strong self-beliefs, and high levels of energy, employees are less likely to take on an intrapreneurial role. Job conditions that are likely to foster a strong rationale for employee intrapreneurship are characterized by providing autonomy about how to perform a task and prompting employees to critically reflect on how to best perform a task. Managers can create such motivational job conditions by using job redesign techniques, such as job enrichment (cf. Parker, 2014), and implementing performance-appraisal systems that allow for specific outcome agreements on which employees can be held responsible. Moreover, top management can motivate employees by implementing bundles of complementary HR practices that involve and empower employees to use their skills and motivation most effectively. For instance, facilitating optimized training and career counseling possibilities for employee development (Savickas, 2003), and implementing performance appraisal systems that go beyond in-role performance (Griffin, Neal, & Parker, 2007) can strengthen employees' rationale to take on a broader role.

Third, providing ideal circumstances alone may not be enough. Employees' confidence in their ability to adapt to changing situations (i.e., ego-resilience), their tendency to approach challenges with confidence (i.e., optimism), and their beliefs in their general ability to succeed at tasks (i.e., general self-efficacy) play a decisive role for employee intrapreneurship (see Chapter 3 and 4). These self-beliefs, or personal

resources, are by definition malleable psychological constructs (Luthans & Youssef, 2004) and their potential to motivate intrapreneurship can be enhanced (Chapter 6). Intervention studies, such as those proposed by Luthans, Avey, and Patera (2008), and Van den Heuvel and colleagues (2015), could be used as a basis to increase employees' personal resources and foster their motivation to capitalize on opportunities in the work environment through intrapreneurship.

A final practical implication concerns the consequences of intrapreneurial behavior for employees. Employee intrapreneurship can be a double-edged sword for employees, with the potential to boost motivation and performance, but also to increase exhaustion, which, in turn, hampers performance. Subsequently, encouraging intrapreneurial behavior within an organization may yield both beneficial and harmful consequences for employees. Chapter 5 showed that differences in employees' reinforcement sensitivity can moderate the effect intrapreneurial behavior has on them. Being aware of differential effects and using strategies to foster intrapreneurship accordingly within an organization will likely boost employee engagement, innovation, and in-role performance, as well as prevent employees from becoming exhausted and counterproductive.

Conclusion

In conclusion, this dissertation helped advance the intrapreneurship literature by providing a psychological perspective on employee intrapreneurship. The conceptual clarity and the development of the Employee Intrapreneurship Scale presented in Chapter 2 set important milestones for the theoretical advancement of the literature and systematic research on this topic. Using the EIS, and by combining core principles of Proactive Motivation theory and Job Demands-Resources theory, this dissertation presented a holistic theoretical framework for investigating employee intrapreneurship. As a theoretical framework was absent in the literature, our understanding as to why employees take on an intrapreneurial role, what factors influence employee motivation for intrapreneurship, and how such behavior may affect employees has substantially increased. Moreover, results highlighted that employee intrapreneurship is not by definition good or bad for employees' well-being and performance; this dissertation showed whether employee intrapreneurship is beneficial or costly is moderated by employees' sensitivity to rewarding versus punitive cues from the work environment. As the employee-level focus of this dissertation contrasts the current focus of intrapreneurship literature on organization-level outcomes (Blanka, 2018), this dissertation explores relatively uncharted terrains. Consequently, besides providing new

Chapter 7 | Summary and general discussion

insights, several new and unexplored research avenues have been discussed that can help advance the intrapreneurship literature. Taken together, the presented work on employee intrapreneurship hopes to inspire strategic renewal within the field of intrapreneurship and encourage scholars to start new ventures to build and advance the findings of this dissertation.

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Nederlandse **samenvatting**

Summary in Dutch

Recente maatschappelijke en technologische ontwikkelingen zorgen voor een nieuwe dynamiek op de arbeidsmarkt en de werkvloer. Waar organisaties voorheen vooral belang hadden bij de bekwaamheid van medewerkers om een specifieke functie uit te voeren, is er nu toenemend belang bij dat medewerkers zich meer ondernemend opstellen om de organisatie vooruit te helpen. Het ondernemend gedrag van medewerkers voor de organisatie wordt intrapreneurship genoemd. Intrapreneurship heeft vele voordelen voor organisaties. Zo laat een meta analyse onder 13.327 organisaties zien dat de mate van intrapreneurship voorspellend is voor de winst en het marktaandeel van organisaties (Bierweth et al., 2015). Daarnaast profileren succesvolle bedrijven zich met intrapreneurship als strategie voor vernieuwing en innovatie. Neem bijvoorbeeld Google, de organisatie die tot op heden de meest gebruikte internet zoekmachine en browser is. Google heeft het “20%-tijd-voor-jezelf” beleid ingevoerd om medewerkers expliciet aan te zetten om buiten hun formele functie ondernemende projecten op te zetten die waarde voor de organisatie kunnen creëren. Dit beleid heeft hen een aantal succesvolle projecten opgeleverd, waaronder GMAIL, een van de meest gebruikte email-providers in 2017.

In vergelijking met de onderzoeken naar de effecten van intrapreneurship voor organisaties, is relatief weinig onderzoek gedaan naar intrapreneurship in relatie tot de medewerkers van een organisatie. Er is bijvoorbeeld nog geen eenduidig antwoord op de vragen wat voor soort medewerkergedrag kenmerkend is voor intrapreneurship of waarom medewerkers kiezen om ondernemend te zijn voor de organisatie. Ook over wat het effect is van intrapreneurship op het welzijn en de werkprestatie van medewerkers is onderzoek versnipperd. Gegeven dat medewerkers de drijfveer zijn achter intrapreneurship, is meer duidelijkheid op deze onderwerpen noodzakelijk voor succesvolle intrapreneurship binnen een organisatie. Deze dissertatie richt zich op het beantwoorden van de volgende vragen: 1) Welk medewerkergedrag karakteriseert intrapreneurship en hoe kan onderzoek hiernaar gefaciliteerd worden?, 2) Wat motiveert medewerkers om zich ondernemend te gaan gedragen voor de organisatie?, en 3) Wat zijn de voor- en nadelen van intrapreneurship voor medewerkers?.

Vraag 1: Welk medewerkergedrag karakteriseert intrapreneurship en hoe kan onderzoek hiernaar gefaciliteerd worden?

Tot op heden is in de literatuur weinig consensus over welk medewerkergedrag ten grondslag ligt aan intrapreneurship en hoe dit het beste gemeten kan worden. In Hoofdstuk 2 is te lezen dat er grofweg drie benaderingen in de huidige literatuur bestaan

in relatie tot hoe intrapreneurship beschreven en gemeten wordt. De eerste richt zich op de ondernemersattitude van medewerkers (ookwel entrepreneurial orientation genoemd); de tweede richt zich op de frequentie dat een medewerker succesvol heeft bijgedragen aan een uitbreiding of strategische vernieuwing van de organisatie; en de derde richt zich op hoe medewerkers in hun gedrag bijdragen aan uitbreiding en/of strategische vernieuwing van de organisatie.

Van de drie benaderingen richt de gedragsbenadering zich specifiek op de unieke gedragskenmerken van intrapreneurship. Op basis van de kaders die de gedragsbenadering geeft van intrapreneurship, is in Hoofdstuk 2 een heldere en concrete definitie van intrapreneurship gegeven: intrapreneurship refereert naar de proactieve activiteiten van medewerkers gericht op organisatie uitbreiding (ookwel uitbreidingsgedrag) en strategische vernieuwing van de organisatie (ookwel strategisch vernieuwingsgedrag). Onder uitbreidingsgedrag vallen de activiteiten van medewerkers gericht op uitbreiding van de afzetmarkt of het aanbod van diensten van de organisatie. Een medewerker kan bijvoorbeeld proactief samenwerking opzoeken met andere experts buiten de organisatie, zodat zij samen een dienst kunnen aanbieden aan klanten buiten hun huidige afzetmarkt (Park et al., 2014). Strategisch vernieuwingsgedrag van medewerkers kenmerkt zich door proactieve activiteiten gericht op het optimaliseren van de huidige producten, diensten, methodieken of vernieuwing van de organisatie strategie. Bijvoorbeeld, medewerkers kunnen proactief de bestaande manier van werken binnen hun team aanpassen zodat zij effectiever kunnen werken (bijv. meer tijd en plaats onafhankelijk gaan werken; Coenen & Kok, 2014).

Een duidelijke afbakening van wat intrapreneurship is helpt in bestaande discussies over de relatie tussen intrapreneurship en andere proactieve werkgedragingen. De huidige literatuur is bijvoorbeeld versnipperd wat betreft of innovatief gedrag onderdeel is van intrapreneurship (e.g., Rigtering & Weitzel, 2014), of dat dit twee verschillende gedragingen zijn die enigszins overlap hebben vanwege hun gedeelde focus op het verbeteren van de organisatie (e.g., McFadzean, O'Loughlin, & Shaw, 2005). Op grond van onderzoek met de Employee Intrapreneurship Scale, een meetinstrument ontwikkeld in Hoofdstuk 2 om intrapreneurship te meten, is aangetoond dat intrapreneurship zich met name van andere proactieve gedragingen (zoals innovatief werkgedrag en job crafting) onderscheidt in de manier waarop medewerkers risico's nemen voor uitbreiding en/of strategische vernieuwing van hun organisatie.

Het inzicht dat intrapreneurship een unieke vorm van proactief medewerkergedrag is draagt niet alleen bij aan discussies over wat er wel en niet onder valt, maar creëert ook nieuwe onderzoekskansen naar intrapreneurship. Dit proefschrift laat zien dat door intrapreneurship te beschouwen als een specifieke vorm van proactief medewerkergedrag het mogelijk is om bestaande organisatiepsychologie theorieën succesvol toe te passen op intrapreneurship vraagstukken. Dit is een belangrijke mijlpaal voor de intrapreneurship literatuur omdat deze integratie het mogelijk maakt om vanuit gefundeerde theorieën te onderzoeken *waarom* medewerkers ervoor kiezen om ondernemend te zijn op werk (i.e., *Proactive Motivation* theorie; Parker & Wang, 2015) en wat voor *effect* dit heeft op hun welzijn en prestatie (i.e., *Job Demands-Resources* theorie; Bakker & Demerouti, 2017).

Vraag 2: Wat motiveert medewerkers om zich ondernemend te gaan gedragen voor de organisatie?

Bestaand onderzoek naar wat medewerkers motiveert tot intrapreneurship is vooral ontstaan uit interesse vanuit verschillende vakgebieden. Voorbeelden hiervan zijn strategisch management (bijv. Hornsby, Kuratko, Holt, & Wales, 2013) en personeelsmanagement (bijv. De Jong, Parker, Wennekers, & Wu, 2013). Deze onderzoeken richten zich op specifieke organisatie- en werkkenmerken en geven inzichten over hoe de werkcontext of het personeelsbeleid aangepast kan worden om medewerkers te motiveren zich meer ondernemend te gaan gedragen. Echter, er wordt niet ingegaan op de onderliggende vraag die relateert aan de psychologische drijfveren van medewerkers om zich ondernemend te gedragen. Op basis van de principes van de *Proactive Motivation* theorie, laat dit proefschrift zien dat de keuze van medewerkers voor intrapreneurship gedreven is vanuit drie motivatievraagstukken, namelijk 1) heb ik een reden voor intrapreneurship?, 2) is intrapreneurship iets wat ik succesvol kan? en 3) heb ik energie voor intrapreneurship?.

Medewerkers ervaren reden voor intrapreneurship wanneer zij de waarde en nut van intrapreneurship inzien. In Hoofdstuk 3 is aangetoond dat waarde en nut voor intrapreneurship ontstaat wanneer medewerkers zich vrij voelen in hoe ze hun werk kunnen uitvoeren en er expliciete verwachtingen aanwezig zijn omtrent het vinden van de beste oplossingen voor hun werktaken. Naast dat deze bevindingen eerder onderzoek bevestigen (zie bijvoorbeeld De Jong et al., 2015), bieden de onderliggende psychologische processen van motivatie een nieuwe kijk op bestaand onderzoek. Ze kunnen bijvoorbeeld verklaren hoe het mogelijk is dat ambiguïteit op de werkvloer in sommige onderzoeken positief relateert aan intrapreneurship (bijv. Grant & Rothbard,

2013) en in andere negatief (bijv. Currie & Procter, 2005). Wanneer het oplossen van ambiguïteit door intrapreneurship in het voordeel werkt voor de werkopgave geeft dit een reden voor intrapreneurship. Denk bijvoorbeeld aan een situatie waarbij onduidelijkheid is over hoe een project uitgevoerd moet worden, maar wel duidelijk is wat het project moet opleveren. Echter, wanneer ambiguïteit zich kenmerkt door onduidelijkheid over verantwoordelijkheid voor een werктаak of wat een taak moet opleveren, is geen reden tot intrapreneurship aanwezig. Ondernemend gedrag kan in dit geval de relatie met collega's verstoren en de werkprestatie verminderen.

In Hoofdstuk 4 is aangetoond dat ook het personeelsbeleid van een organisatie een reden kan geven om als medewerker ondernemend te zijn. Personeelsbeleid dat medewerkers aanzet om hun competenties en vaardigheden optimaal te benutten voor de organisatie, ookwel *High Involvement Work Systems* genoemd (HIWS; Boxall & Macky, 2009), is met name motiverend voor intrapreneurship. Een HIWS is personeelsbeleid bestaande uit een bundel van verschillende praktijken en diensten die te samen het doel hebben om de betrokkenheid en motivatie van medewerkers verhogen. Dit is bijvoorbeeld het geval wanneer met de werving en selectie extra aandacht is voor initiatief en het leervermogen van kandidaten, de organisatie er op toeziet dat leren en ontwikkelen aandacht krijgt, en wanneer het management de medewerkers actief betreft bij belangrijke beslissingen voor de organisatie of hun eigen ontwikkeling. Hoofdstuk 4 laat zien dat HIWS medewerkers een reden geeft voor intrapreneurship door het collectief gevoel van ruimte en rekenschap onder medewerkers te vergroten en het geloof van medewerkers dat zij zich ondernemend kunnen gedragen te verhogen.

Naast het hebben van een reden om ondernemend te zijn, laten de onderzoeken in dit proefschrift zien dat het zelfvertrouwen van een medewerker om ondernemend te kunnen zijn ook van wezenlijk belang is. Individuen verschillen in zelfvertrouwen om te ondernemen, omdat ieder andere vaardigheden en competenties heeft, een andere persoonlijkheid heeft, en een ander niveau van persoonlijke hulpbronnen heeft. In dit proefschrift staan persoonlijke hulpbronnen centraal. Met persoonlijke hulpbronnen worden persoonskenmerken bedoelt gerelateerd aan veerkracht en aan het geloof of iemand het vermogen heeft om de omgeving en gebeurtenissen te beïnvloeden (Hobfoll et al., 2018). Dit proefschrift laat zien dat persoonlijke hulpbronnen in de vorm van zelfvertrouwen, optimisme en veerkracht belangrijk zijn in het kader van het motivatievraagstuk "is intrapreneurship iets wat ik succesvol kan?". Ze zorgen namelijk voor motivatie voor intrapreneurship en houden medewerkers bevlogen tijdens tegenslag en uitdaging in het werk (Hoofdstuk 6).

Een laatste voorspeller van intrapreneurship is de mate van energie die medewerkers hebben voor intrapreneurship. In tegenstelling tot de rationele aard van de motivatievraagstukken “Heb ik een reden voor intrapreneurship?” en “Is intrapreneurship iets wat ik succesvol kan?”, is de vraag “Heb ik energie voor intrapreneurship” van fysiologische aard. Dit proefschrift laat zien dat werkbevlogenheid belangrijk is voor intrapreneurship als energiebron (Hoofdstuk 6). Werkbevlogenheid is de positieve, bevredigende werkhouding van medewerkers die wordt gekarakteriseerd door vitaliteit, toewijding, en absorptie. Werkbevlogenheid motiveert intrapreneurship, omdat het medewerkers de energie geeft om hun ondernemende activiteiten naast hun formele werkrol met meer gemak uit te kunnen voeren. Vergelijkend met andere proactieve gedragingen, zoals job crafting, laat dit proefschrift zien dat de relatie tussen werkbevlogenheid en intrapreneurship wederkerig is (Simbula & Gulglielmi, 2013). Dit betekent dat werkbevlogenheid zowel een voorspeller van intrapreneurship is als een uitkomst (Hoofdstuk 5 en 6). Intrapreneurship kan de bevlogenheid van medewerkers doen toenemen omdat door intrapreneurship medewerkers nieuwe ervaringen opdoen (Marvel et al., 2007), hun werk verrijken door meer afwisseling (Clegg & Spencer, 2007), of door succeservaringen wanneer een nieuw idee ontwikkeld wordt (McFadzean et al., 2005).

Hoewel de drie besproken motivatiebronnen afzonderlijk belangrijk zijn voor medewerker ondernemend gedrag, laat dit proefschrift zien dat ze in relatie tot elkaar onderzocht moeten worden. De motivatiebronnen hebben namelijk synergetische effecten op het ondernemend gedrag van medewerkers. Bijvoorbeeld, het motivationele effect van een werkomgeving dat reden geeft om te ondernemen is sterker wanneer medewerkers ook een positief zelfbeeld hebben over hun vermogen om ondernemend te zijn (Hoofdstuk 3). Bovendien laat het onderzoek in Hoofdstuk 4 zien dat een werkomgeving gekarakteriseerd door ruimte en rekenschap ervoor zorgt dat medewerkers meer zelfvertrouwen krijgen, optimistischer naar hun werk kijken en zich veerkrachtiger voelen. Een laatste wisselwerking heeft betrekking op hoe motivatiebronnen elkaar kunnen stabiliseren over tijd door medewerkers minder kwetsbaar te maken voor tegenslagen (Hobfoll et al. 2018). Zo laat Hoofdstuk 6 zien dat medewerkers met een positief zelfbeeld over hun vermogen om te ondernemen minder fluctuaties in hun bevlogenheid laten zien over een periode van drie maanden.

Vraag 3: Wat zijn de voor- en nadelen van intrapreneurship voor medewerkers?

Omdat huidig onderzoek zich vooral richt op de voor- en nadelen van intrapreneurship voor organisaties, is relatief weinig bekend over de voor- en nadelen van

intrapreneurship voor medewerkers. Bestaande onderzoeken naar de consequenties van intrapreneurship voor medewerkers geven geen eenduidig beeld. Zo laten enkele onderzoeken zien dat intrapreneurship kan bijdragen aan het welzijn en de prestatie van medewerkers (bijvoorbeeld Monsen et al., 2010) maar leggen andere onderzoeken juist de nadruk op hoe intrapreneurship voor mentale uitputting kan zorgen bij medewerkers en de negatieve invloed op werkprestatie (bijvoorbeeld Shepherd et al., 2011). Om te verklaren hoe het mogelijk is dat de literatuur tegenstrijdigheden laat zien, is in dit proefschrift dieper ingegaan op de psychologisch processen van motivatie en uitputting. Op basis van het motivationeel- en uitputtingsproces van de *Job Demands-Resources* theorie (Bakker & Demerouti, 2017) is een model ontwikkeld dat niet alleen verklaart waarom intrapreneurship zowel voor- als nadelen kan hebben, maar ook wanneer ondernemend gedrag het meest waarschijnlijk voor- of nadelen heeft voor medewerkers (zie Hoofdstuk 1).

De persoonlijke voordelen van intrapreneurship voor het welzijn en de prestatie van werknemers houden verband met psychologische groei en sterkere verbondenheid met het werk die medewerkers kunnen ervaren door intrapreneurship. Wanneer medewerkers ondernemen betekent dit vaak dat zij autonoom nieuwe projecten initiëren en promoten, op zoek gaan naar hoe bestaande middelen gecombineerd kunnen worden om een nieuw idee te ontwikkelen (McFadzean et al., 2005) of gaan ze in gesprek met (nieuwe) samenwerkingspartners om een probleem op te lossen (Anderson & Jack, 2002). Dergelijke activiteiten kunnen resulteren in nieuwe kennis en ervaringen (zie Hoofdstuk 6) en kunnen de taakvariatie van het werk vergroten (Clegg & Spencer, 2007). Deze factoren bevorderen de vitaliteit van medewerkers en de emotionele band met het werk en de bevoegenheid in het werk (cf. Bakker, 2011). Bevoegen medewerkers, in vergelijking tot minder bevoegen medewerkers, presteren in het algemeen beter, hebben meer kans op innovaties op het werk, zullen minder snel uitdagende werkzaamheden uit de weg gaan (Hoofdstuk 5), en hebben meer kans om hun prosociale impact (de positieve bijdrage van hun werk voor anderen) met hun werk te vergroten (Hoofdstuk 3).

Naast de voordelen, laat Hoofdstuk 5 zien dat intrapreneurship ook nadelig kan uitpakken voor het welzijn en de werkprestatie van werknemers. Wanneer medewerkers zich ondernemend gedragen kost dat energie. Het ontwikkelen van nieuwe ideeën vereist bijvoorbeeld creativiteit en kan samengaan met langere werktijden en extra verantwoordelijkheden die niet altijd bijdragen aan de formele taken die een medewerker heeft vanuit zijn of haar functie (Antoncic & Hisrich, 2003). Bovendien kan intrapreneurship falen of tegenslagen bevatten (Clancy & Stone, 2005) met als

consequentie dat medewerkers teleurstelling en frustratie ervaren op het werk (Shepherd et al., 2011). Dergelijke factoren veroorzaken een extra psychologische belasting op het werk (Demerouti et al., 2014) en hebben een negatieve invloed op de energie en motivatie die werknemers hebben voor hun formele functie. Dit uit zich vervolgens in een verminderde werkprestatie en het vertonen van werkvermijdend gedrag om te herstellen van de negatieve ervaring(en) (Hoofdstuk 5).

Dit proefschrift laat zien dat ondernemend gedrag van medewerkers niet per definitie voordelig of nadelig is voor het welzijn en de prestatie van medewerkers. Maar wanneer zijn dan voordelen of nadelen te verwachten voor het welzijn en de prestatie van medewerkers? Onderzoeken naar waarom mensen die na eenzelfde activiteit of ervaring anders reageren is te verklaren door individuele verschillen in de gevoeligheid voor belonende en bestraffende prikkels. Zo zijn mensen met een hoge beloningssensitiviteit gevoelig voor wat bepaald gedrag hen heeft opgeleverd of zal opleveren. In tegenstelling, mensen die gevoelig zijn voor bestraffende stimuli zijn meer gericht op de kosten en de investeringen van hun gedrag (Gray, 1981). Dit zien we ook terug in de context van intrapreneurship (Hoofdstuk 5). Zo hebben medewerkers die gevoeliger zijn voor belonende prikkels (bijvoorbeeld door meer oog te hebben voor de taakvariatie die kan samengaan met intrapreneurship) een hogere mate van werkbevoegenheid dan collega's die hier minder gevoelig voor zijn. Voor werknemers die gevoeliger zijn voor bestraffende prikkels (bijvoorbeeld voor de extra tijdinvestering die kan samengaan met intrapreneurship), zien we dat intrapreneurship daarentegen zorgt voor meer mentale vermoeidheid ten opzichte van medewerkers die hier niet gevoelig voor zijn (Hoofdstuk 5).

Conclusie

De literatuur en praktijk laten zien dat ondernemend gedrag van medewerkers alsmäär belangrijker wordt voor zowel private als publieke organisaties. Hoewel bekend is dat medewerkers een belangrijke rol spelen bij intrapreneurship, is relatief weinig bekend over wat verstaan wordt onder ondernemend gedrag van medewerkers en waarom medewerkers ervoor kiezen om bij te dragen aan intrapreneurship. Dit proefschrift laat zien dat ten grondslag aan intrapreneurship de proactieve activiteiten van medewerkers liggen, gericht op strategische vernieuwing of uitbreiding van diensten en producten van de organisatie. Op basis van deze afkadering van intrapreneurship is het meetinstrument de Employee Intrapreneurship Schaal (EIS) ontwikkeld om organisaties inzicht te kunnen geven in welke mate hun medewerkers zich ondernemend gedragen. Om intrapreneurship aan te moedigen is het belangrijk rekening te houden met een drietal

vragen, namelijk 1) “Hebben medewerkers een reden voor intrapreneurship”, 2) “Hebben medewerkers het geloof dat zij succesvol kunnen zijn in intrapreneurship?” en 3) “Hebben medewerkers energie voor intrapreneurship?”. Wanneer op meerdere vraagstukken ja wordt geantwoord, zal dit de kans dat een individu zich ondernemend opstelt voor de organisatie aanzienlijk vergroten. Hoewel de literatuur vrij eenduidig is dat intrapreneurship bijdraagt aan de effectiviteit en succes van organisaties, is het gevolg van intrapreneurship voor het welzijn en de werkprestatie van medewerkers niet per definitie goed of slecht. Dit proefschrift laat zien dat er rekening gehouden moet worden met de individuele gevoeligheid van medewerkers aangaande de voor- en nadelen van intrapreneurship. Door dit te doen kan intrapreneurship voor zowel de organisatie als de individuele medewerker een belangrijke bron voor groei, ontwikkeling en vernieuwing zijn.

Curriculum Vitae and **Publications**

Curriculum Vitae

Jason Gawke was born in Leidschendam, The Netherlands, in May 1988. At the age of 4 he had his first lesson of Judo, which later became a big part of his life. During secondary education he was recruited for the national team Judo and had the honours to travel the world to compete at various international competitions. Highlights were winning several medals at major national and international championships, and a 5th place at the junior European Championships. After finishing secondary education, he embraced the opportunity to get a university degree and started to study Psychology at Erasmus University of Rotterdam. By dividing his attention between academics and judo, he was able to keep competing at the highest level in Judo and graduate from university without delay. He successfully obtained his Master's degree in Organizational Psychology in 2010 and, together with Dr. Marjan Gorgievski and Prof. dr. Dimitri van der Linden, published his master thesis on risk factors at work for employee well-being in the Journal of Occupational Health. Not long after his graduation, he got a part-time job at the national public administration of the Netherlands. This job allowed him to maintain his training regime whilst also preparing him for a working career. Noticing the limited knowledge transfer between practice and research, he decided to end his judocareer and apply for funding at the A+O fonds Rijk for an applied PhD research project, which formed the basis of this dissertation. The project focused on employees' proactive behaviors, in particular intrapreneurship, and how they relate to employee well-being and employability. The studies of this PhD project were supervised by Prof. dr. Arnold Bakker and Dr. Marjan Gorgievski. During his PhD-research, he supervised several research projects of Bachelor and Master students, co-organized symposia at international academic congresses, gave seminars to practitioners in the field of Human Resources and Strategic Management, and developed instruments that facilitate evidence-based policy creation, implementation, and impact monitoring. To enrich his understanding of antecedents and consequences of employee proactivity, he visited Prof. dr. Sharon Parker at the University of Western Australia, Perth, Australia for a period of 3 months. Currently, he is a senior policy officer at the Dutch national public administration and has recently started his own business to pursue his calling of bridging the gap between science and practice in a broader context.

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International Peer-Reviewed Publications

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