

# MIDDLE MANAGERS' AMBIDEXTERITY

A SOCIAL-COGNITIVE PERSPECTIVE ON AMBIDEXTROUS BEHAVIOR

---

A THESIS IN THE FIELD OF STRATEGIC MANAGEMENT

FOR THE DEGREE OF MASTER OF SCIENCE IN BUSINESS ADMINISTRATION



**DENNIS VAN BAARLEN**

**Student number: 194139**

**Rotterdam School of Management**

**Erasmus University Rotterdam**

**Graduation Committee:**

Coach: prof. dr. J.J.P. Jansen  
Dept. of Strategic Management and Corporate Entrepreneurship  
Co-reader: dr. R.A.J.L. van Wijk  
Dept. of Strategic Management and Corporate Entrepreneurship

**Submission date: 02-10-2018**

## PREFACE

This master thesis finalizes an intensive period of 2 years at the Rotterdam School of Management. I must say that the message during the information session in February 2016, 'this is the best personal investment you can make', is totally true.

I would like to thank my coach Justin Jansen and co-reader Raymond van Wijk for their guidance, support and feedback during the process of this thesis project.

Thanks to my manager Menno for making this study possible.

Also, I would like to thank my fellow students who I cooperated with.

Last, but certainly not least, I would like to thank Jessica, Tygo, Timon and my parents for their support.

Dennis van Baarlen

Spijkensisse, October 2018

Copyright © 2018 Dennis van Baarlen

The copyright of this master thesis rests with the author. The author is responsible for its contents. RSM is only responsible for the educational coaching and cannot be held liable for the content. The content of this thesis is original and no other sources have been used other than can be found in the reference list.

## EXECUTIVE SUMMARY

Prior research on ambidexterity mainly analyzes ambidexterity on the macro or organizational level. This study takes a social-cognitive perspective to get a better understanding of the determinants of ambidexterity at the individual level of analysis. Using data collected by a survey among 94 middle managers employed at a large government organization, it was demonstrated that social cognitive factors predict middle managers' ambidextrous behavior. Simultaneously, the moderating effect of middle manager's political skill and top managements' supportive leadership style were considered.

The results of this study provide new insights to the ambidexterity literature. Findings indicate that middle managers' role breadth self-efficacy and tenacity are important antecedents for ambidextrous behavior. The results of this study also show that political skill is an important antecedent for ambidextrous behavior. Furthermore, a supportive leadership style of top management positively effects tenacity, but also negatively effects role breadth self-efficacy of the middle manager.

Keywords:

Social-cognitive theory, organizational learning, exploitation, exploration, ambidexterity, paradox, middle manager, personality trait, role breadth self-efficacy, proactive personality, tenacity, political skill, supportive leadership

## TABLE OF CONTENTS

<b>PREFACE</b>	<b>2</b>
<b>EXECUTIVE SUMMARY</b>	<b>3</b>
<b>INTRODUCTION</b>	<b>6</b>
<b>2 THEORETICAL BACKGROUND and HYPOTHESES</b>	<b>11</b>
2.1 <i>Middle Managers' Ambidexterity</i>	11
2.1.1 Ambidexterity: trade-offs between exploitation and exploration	11
2.1.2 Ambidexterity approaches: from trade-offs to a paradox	12
2.1.3 Individual Ambidexterity: paradox at the individual level	13
2.1.4 Individual Ambidexterity: ambidextrous behavior	13
2.1.5 Individual Ambidexterity: challenges	14
2.1.6 Individual Ambidexterity: middle managers	14
2.2 <i>Personality Traits of Middle Managers</i>	16
2.2.1 Individual characteristics as antecedents of Individual Ambidexterity	16
2.2.2 Social-cognitive antecedents of Middle Managers' Ambidexterity	17
2.2.3 Personality traits	17
2.2.4 Ability, Motivation and Opportunity framework (AMO framework)	18
2.2.5 Role Breadth Self-Efficacy	19
2.2.6 Proactive Personality	20
2.2.7 Tenacity	22
2.3 <i>Political Skill of Middle Managers</i>	24
2.4 <i>Supportive Leadership of Top Management</i>	28
2.5 <i>Conceptual model</i>	33
<b>3 METHODS</b>	<b>34</b>
3.1 <i>General introduction</i>	34
3.2 <i>Sample</i>	35
3.3 <i>Data collection</i>	35
3.4 <i>Measurement of variables</i>	36
3.4.1 Dependent variable	36
3.4.2 Independent variables	37
3.4.3 Moderator variables	38

3.4.4	Control variables	40
3.5	<i>Data analysis</i>	41
3.5.1	Validation	41
3.5.2	Data preparation	42
3.5.3	Statistical assumptions	42
<b>4</b>	<b>Results</b>	<b>44</b>
4.1	<i>Descriptive statistics</i>	44
4.2	<i>Hierarchical regression analysis</i>	46
<b>5</b>	<b>Discussion and conclusion</b>	<b>50</b>
5.1	<i>Conclusion</i>	50
5.2	<i>Theoretical implications</i>	50
5.3	<i>Limitations and recommendations for future research</i>	53
5.4	<i>Practical implications</i>	55
	<b>References</b>	<b>56</b>
	<b>Appendices</b>	<b>75</b>
	<i>Appendix A - Analysis of respondents</i>	75
	<i>Appendix B - Utilized scales and survey-items</i>	76
	<i>Appendix C - Factor analyses I</i>	80
	<i>Appendix D - Factor analyses II</i>	83
	<i>Appendix E - Assumptions regression analysis</i>	84

## INTRODUCTION

Environments become increasingly more dynamic placing organizations in the inevitable situation to deal with competing demands and paradoxical strategies (Smith, Binns, & Tushman, 2010). One of the paradoxical strategies (in the sense of contradictory, yet interrelated) is the need to develop the capability to consequently or simultaneously exploit and explore (Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996). The capability to exploit existing activities and explore new activities is called ambidexterity (Duncan, 1976; Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996). Initially, ambidexterity referred to the capability of an individual to use both hands equally well (Duncan, 1976). The concept of ambidexterity has been applied to organizations to analyze their ability to simultaneously exploit existing resources and explore new opportunities in order to achieve sustained performance (Raisch, Birkinshaw, Probst, & Tushman, 2009). Organizations capable of successfully managing exploitation and exploration are called ambidextrous (Lavie et al., 2010; Raisch & Birkinshaw, 2008).

In general, three main approaches to ambidexterity are recognized in academic research: structural ambidexterity, sequential ambidexterity and contextual ambidexterity (Gupta et al., 2006; Raisch & Birkinshaw, 2008; Raisch et al., 2009). Previous research has focused mainly on ambidexterity at the macro or organizational level (Nosella et al., 2012). However, ambidexterity is a construct that manifests itself on all organizational levels, not only on the macro level but also on the individual level (Birkinshaw & Gupta, 2013; Simsek, 2009; Turner & Lee-Kelley, 2013). This study builds on the contextual approach of ambidexterity which perspective on ambidexterity is to create a supportive work environment in which individuals themselves balance exploitation and exploration activities.

Ambidexterity on the micro or personal level has been conceptualized as individual ambidexterity, originating from the contextual approach of ambidexterity. Individual ambidexterity is defined as 'the individual-level cognitive ability to flexibly adapt within a dynamic context by appropriately shifting between exploration and exploitation' (Good & Michel, 2013, p. 437). The concept of individual ambidexterity may benefit from future research, from the conclusion that there is a lack of analysis on the micro-level (Lavie et al., 2010; Raisch & Birkinshaw, 2008; Raisch et al., 2009; Turner et al., 2013).

Previous research on the micro level primarily focusses on ambidexterity at the senior or top management level. Not surprisingly, as O'Reilly and Tushman state that 'ambidextrous organizations need ambidextrous senior teams and managers' (2004, p. 81). However, despite this need for ambidextrous senior teams and managers, the middle manager plays an important role in

organizations in general, but also in creating ambidexterity. Surprisingly, less attention has been given to middle managers' ambidexterity in academic research and is therefore subject of this study.

The purpose of this study is to contribute to a better understanding of middle managers' ambidextrous behaviors as there is a lack of insight in why some middle managers seem to be able to behave ambidextrously while others fail in trying to do so. This is in line with Raisch, Birkinshaw, Probst and Tushman (2009) who describe the need for a better understanding of individual characteristics as antecedents of individuals ambidexterity. Other research also calls for a better understanding of the influence of middle managers' personality traits and characteristics on ambidextrous behavior (Bonesso et al., 2014; Keller & Weibler, 2014).

Only few studies however have addressed the need for a better understanding of individuals' ambidextrous behaviors from a human resource perspective. Examples are Bonesso, Gerli and Scapola (2014) who found a relationship between individuals' prior work experience, learning orientation and competency profile with the level of individual ambidexterity and the study by Laureiro-Martínez, Brusoni, & Zollo (2010) who state the importance of individuals' ability to change his/her attention scope on individual ambidexterity. These example studies provide valuable insights, but further investigation is needed in order to get a more detailed understanding of the antecedents of individual ambidexterity (Mom et al., 2015; Nosella et al., 2012). This more detailed understanding is necessary as these first insights did not provide explanations what the effect is of differences in personal characteristics on individuals' ambidextrous behaviors (Volery et al., 2013). To get a more detailed understanding of the differences between individuals characteristics, research into the social-cognitive mechanisms behind individuals' personal characteristics and individuals' ambidextrous behavior is therefore relevant.

This study develops a theoretical model that tests relevant social-cognitive factors underlying middle managers' ambidextrous behavior. By using Social Cognitive Theory (Bandura, 1977; Wood & Bandura, 1989) as a theoretical lens, my assumption is that social-cognitive factors shape the ability of the middle manager to engage into exploitation and exploration and therefore may, or may not, result in middle managers' ambidextrous behavior.

Previous research confirms that personality traits are important antecedents effecting individuals' behaviors (Hahn et al., 2011; Woodman et al., 1993). Therefore, personality traits are also important antecedents effecting individuals' ambidextrous behavior. Personality traits are personal preferences or tendencies to engage in certain types of behavior (Ajzen, 2005). In this study, the aim is to get a more detailed insight of specific personality traits and their effects on middle managers'

ambidextrous behavior. This study selects three personality traits that contribute to middle managers' ambidextrous behavior, based on their relevance for the ambidextrous individual.

First, to behave ambidextrous it is necessary that middle managers have the perception that they are capable of carrying out broader roles in trying to realize high levels of both exploitation as well as exploration. Gibson and Birkinshaw (2004) confirm this importance by stating that the ability to behave ambidextrous increases as individuals take initiative and fulfil broader roles, beyond narrowly prescribed roles and tasks. Following Social Cognitive Theory (1977), the perceived capability to carry out a broader role stems from individuals' self-efficacy beliefs.

The first personality trait that contributes to middle managers' ambidextrous behavior, role-breadth self-efficacy (RBSE), captures the perceived capability of an individual carrying out a broader set of activities that extends the narrow job description (Crant, 2000; Gist & Mitchell, 1992).

The second personality trait that fits the characteristics of ambidextrous individuals is proactive personality. Middle managers need to possess the ability to adapt to new situations, as organizations need to respond to changes in the environment. The ability to adapt and influence situations is captured in the individuals' personality trait proactive personality (Trošt et al., 2016). This personality trait also makes a connection with the ambidextrous individual as mentioned by Birkinshaw and Gibson (2004) who state that ambidextrous individuals take initiative, are cooperative and collaborate with others.

Tenacity, or perseverance, is the third personality trait that benefits middle managers' ambidexterity. Tenacity involves taking action, even when faced with obstacles (Baum & Locke, 2004). This personality trait is relevant as middle managers are faced with obstacles and barriers in daily work situations (Huy, 2001). A middle manager has to deal with multiple challenges, like the fulfilment of contrasting or even conflicting roles and engaging in paradoxical thinking which possibly cause high cognitive demands. It is likely that a middle manager will be confronted with obstacles and setbacks in dealing with these challenges and cognitive demands in pursuing ambidextrous behavior. To overcome obstacles, setbacks and failures, persistence is needed when confronted with these difficult situations (Frese, Fay, Hilburger, Leng, & Tag, 1997).

Besides the influence of these personality traits on ambidexterity, an additional important issue for the middle manager is the ability to effectively manage interpersonal interactions due to his/her unique position in the organization, the forthcoming challenges and the high amounts of communication that are subsequently involved. Therefore, being able to manage interpersonal interactions, to understand others and also to influence others is highly important (Ferris et al., 2005).

For instance when looking for opportunities outside the regular job, when collaborating with others and when building internal linkages (Birkinshaw & Gibson, 2004). Also, middle management has to compete for scarce resources and support from top management to be able to realize organizational goals such as ambidexterity (Bouquet & Birkinshaw, 2008; Dutton & Ashford, 1993; Raes, Heijltjes, Glunk, & Roe, 2011). For the middle manager it is relevant to search for a mechanism that facilitates interpersonal interactions. A mechanism that may benefit the middle manager is political skill (Ferris, et al., 2005; Perrewé et al., 2004). Ferris et al. (2005) define political skill as 'the ability to effectively understand others at work and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives', (p. 127).

The assumption is that political skill of the middle manager has a moderating effect on individuals' personal factors (personality traits) influencing the outcome of specific behaviors, in this case ambidextrous behavior. In this assumption, political skill fulfils a double role by first enhancing middle managers' motivation to show certain behaviors, and second to 'make room' in the organizational context to display these behaviors. The rationale for this assumption is that political skill contributes to the effectiveness of interactions with others in different contextual demands (Ferris et al., 2007).

The personality traits of the middle manager do not lead to ambidextrous behaviors in isolation, but are also conditioned by organizational or contextual factors. Research by Bonesso, Gerli and Scapola (2014) confirms this by stating that full ambidextrous behavior is not the outcome of individual characteristics only, but is also influenced by contextual factors within the organization. Also, the contextual approach of ambidexterity relies on an organizational context in which individuals are facilitated by the context in balancing out exploitation and exploration activities (Raisch & Birkinshaw, 2008; Simsek, 2009).

This study delves into the moderating effect of supportive leadership, from the perception that individuals' ambidextrous behavior is getting stimulated by a supportive organizational context (Carmeli & Halevi, 2009; Lavie et al., 2010; Prieto-Pastor & Martin-Perez, 2015). Supportive leadership can be defined as 'all the organizational managers' behaviors which support their subordinates' job', (Oldham & Cummings, 1996).

Concluding, this study investigates the personality traits RBSE, proactive personality and tenacity of the middle manager in conjunction with top managements' supportive leadership style by applying Social cognitive theory's triadic reciprocal model (Bandura, 1977; Wood & Bandura, 1989). In this model top management's supportive leadership style is the environmental factor, besides middle manager's personality traits and ambidextrous behaviors as the other two factors influencing each other. Therefore, the research question for this study is defined as:

***What is the effect of social-cognitive factors on middle managers' ambidexterity and to what extent are these relationships moderated by middle managers' political skill and top managements' supportive leadership style?***

This study contributes to both academic literature as well as management practice.

First, by contributing to a better understanding of the psychological explanations of individual ambidexterity. While Raisch, Birkinshaw, Probst and Tushman (2009) describe the need for a better understanding of the effects of individual characteristics on ambidextrous behavior, earlier studies did not provide explanations from a social-cognitive perspective contributing to the micro foundations of ambidexterity (Junni, Sarala, Tarba, Liu, & Cooper, 2015).

Second, this study adds to the existing insights about the role of leadership style in managing contextual ambidexterity (Patel, Messersmith, & Lepak, 2013). Consequently, by taking a paradox perspective on ambidexterity, this study also adds to the insights on leadership and the management of organizational paradoxes (Havermans, Den Hartog, Keegan, & Uhl-Bien, 2015; Smith & Lewis, 2011).

Third, by investigating the (moderating) role of political skill on individuals' ambidextrous behavior, this study contributes to the ambidexterity literature in which the role of politics and power received less attention (Junni et al., 2015; Kapoutsis et al., 2016).

Fourth, this study contributes to the ambidexterity literature by conducting research on the topic in a public organizational context, a context which has got overlooked in academic research (Kobarg, Wollersheim, Welppe, & Spörrle, 2017).

Fifth, the results of the study provide organizations insights into relevant social-cognitive antecedents of middle managers' behavior. The insights can be used to strengthen the human resource practices of the organization (Mom, Fourné, et al., 2015). For example, organizations may benefit from using these insights in, for example, the recruitment process of new middle managers.

This report is structured as followed; chapter two describes the theoretical background and hypotheses development of this study. Chapter three describes the methods and research design used for the empirical research. In chapter four the results of the empirical research are presented, while chapter five finalizes the study. This last chapter starts with a general conclusion, followed by a discussion of the results leading to implications for the current ambidexterity literature. Finally, limitations of this study and recommendations for future research are given as well as practical implications for organizations.

## 2 THEORETICAL BACKGROUND AND HYPOTHESES

### 2.1 Middle Managers' Ambidexterity

#### 2.1.1 Ambidexterity: trade-offs between exploitation and exploration

Environments become increasingly more dynamic placing organizations in the inevitable situation to deal with competing demands and paradoxical strategies (Smith, Binns, & Tushman, 2010). One of the paradoxical strategies is the strategy of exploring and exploiting. The capability to exploit existing activities and explore new activities is called ambidexterity (Duncan, 1976; Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996). Organizations that maintain a high degree of balance between exploitation and exploration are called ambidextrous (Lavie et al., 2010; Raisch & Birkinshaw, 2008).

However, to maintain a high degree of balance between exploitation and exploration is difficult as organizations face tradeoffs. Tradeoffs inevitably occur because exploitation and exploration are conflictive types of organizational learning with different requirements about structures, strategies, processes and cognitive orientations (Benner & Tushman, 2003; McGrath, 2001). Exploitation refers to enhancing current efficiency and reliability of an organization (Benner & Tushman, 2003; March, 1991). Hereby, a focus lies on the refinement of existing resources and capabilities serving current markets and customers (March, 1991). The intention of exploration is the creation of flexibility and variability by experimenting, looking for innovations and by creating new capabilities to improve the knowledge base of the organization (Holmqvist, 2004; Levinthal & March, 1993; Sidhu, Commandeur, & Volberda, 2007).

An improper balance between exploitation and exploration causes risks for an organization. A first risk is that an organization can become mediocre in both exploitation and exploration (March, 1991). Too much attention to exploration can result a disbalance called a 'failure trap', when an organization fails to deliver results with current activities towards customers (Andriopoulos & Lewis, 2009; Levinthal & March, 1993, p. 105). Too much focus on exploitation undermines the ability of an organization to adapt to new activities and markets, leading into a 'success trap' (Benner & Tushman, 2003; Levinthal & March, 1993; Teece, Pisano, & Shuen, 1997).

Nevertheless, despite being difficult and not without risk it is relevant and important for organizations to create solutions to develop and maintain a high degree of exploitation. Various studies confirm that ambidexterity leads to better organizational performance in the short and the

long run (Gibson & Birkinshaw, 2004; He & Wong, 2004; Jansen et al., 2006; Junni et al., 2013; Lubatkin, et al., 2006; Raisch et al., 2009).

### 2.1.2 Ambidexterity approaches: from trade-offs to a paradox

A central question in the research on ambidexterity is how to reach and maintain a proper balance between exploitation and exploration activities. In general, three main ways are recognized: structural ambidexterity, sequential ambidexterity and contextual ambidexterity (Gupta et al., 2006; Raisch & Birkinshaw, 2008; Raisch et al., 2009).

Sequential ambidexterity separates exploitation and exploration activities in separate time frames with longer periods of exploitation and shorter periods of exploration (Bonesso et al., 2014; Gupta et al., 2006). A disadvantage of this approach is that organizations may not be able to respond fast enough to rapid changes in demand or market circumstances (Tushman & O'Reilly, 1996). Structural ambidexterity therefore suggests the use of a dual architecture in which an organization separates exploitation and exploration activities in different business units simultaneously (Benner & Tushman, 2003; Tushman & O'Reilly, 1996). Sequential and structural ambidexterity share the perspective that exploitation and exploration have to be separated; either by dividing exploitation and exploration over time or by creating an organizational structure with separate business units for exploitation and exploration.

The third approach called contextual ambidexterity puts a behavioral perspective on ambidexterity. Contrary to the sequential and structural approach, this approach does not separate exploitation and exploration but ties exploitation and exploration together. Contextual factors should provide support and stimulate ambidextrous behavior. The contextual approach of ambidexterity is defined as 'the behavioral capacity to reconcile simultaneously both exploration and exploitation across an entire business unit' (Birkinshaw & Gibson, 2004, p. 209). Gibson and Birkinshaw (2004) suggest that in the contextual approach individuals have to make their own choices about how and when to switch between exploitation and exploration. However, exploitation and exploration are essentially conflictive by nature and by 'squeezing' both together a paradoxical challenge is placed on the individual, hereby referring to a paradox as 'contradictory yet interrelated elements that exist simultaneously and persist over time' (Smith & Lewis, 2011, p. 382).

### 2.1.3 Individual Ambidexterity: paradox at the individual level

Previous research has primarily focused on measuring ambidexterity at the organizational level of analysis (Nosella et al, 2012). More recently however, the attention shifted towards other levels of analysis than the organizational, for instance on alliances, team or individual level, from the notion that ambidexterity is not only a dilemma at the organizational level, but in fact a multilevel dilemma and a nested construct (Birkinshaw & Gupta, 2013; Simsek, 2009).

The contextual approach of ambidexterity suggests an approach in which the individual integrates exploitation and exploration activities. Ambidexterity on this micro or individual level has been conceptualized as individual ambidexterity. Individual ambidexterity is defined as 'the individual-level cognitive ability to flexibly adapt within a dynamic context by appropriately shifting between exploration and exploitation' (Good & Michel, 2013, p. 437).

While academic researchers suggest that individual ambidexterity is a source of organizational ambidexterity, the individual level of ambidexterity lacks theoretical and empirical analysis (Lavie et al., 2010; Raisch & Birkinshaw, 2008; Raisch et al., 2009; Turner et al, 2013). Several researchers emphasize the relevance and importance to conduct research into individual ambidexterity. This has reflected in a growing interest in ambidextrous behavior at the individual level (Good & Michel, 2013; Gupta et al., 2006; Jasmand et al., 2012; Laureiro-Martínez et al., 2010).

### 2.1.4 Individual Ambidexterity: ambidextrous behavior

Ambidexterity at the individual level requires ambidextrous behavior. This leads to the question what (types of) behavior make(s) an individual ambidextrous. Several studies characterize ambidextrous individuals as individuals who improve their knowledge, skills and expertise (Floyd & Lane, 2000; Hansen et al., 2001; Sheremata, 2000). Gibson and Birkinshaw identify four types of ambidextrous behaviors: (1) individuals take initiative and look for opportunities outside their job, (2) individuals are cooperative and collaborate with others, (3) individuals seek to build internal linkages and (4) individuals multitask (2004). Smith and Tushman note the importance of being able to cognitively integrate exploitation and exploration, also called the ability to engage in paradoxical thinking (2005). The ability to engage in paradoxical thinking means that a person has the ability to not only recognize, but also has the ability to embrace contradictions instead of avoiding them.

Ambidextrous behavior causes individuals to face a competing cognitive agenda (Eisenhardt, Furr, & Bingham, 2010; Smith & Tushman, 2005). A competing cognitive agenda points to the relevance and importance of the cognitive ability, which also is included in the definition of Good and Michel

(2013) of individual ambidexterity. Cognitive ability can be defined as the individual differences in the capacity to process information or the ability to learn (Le Pine, Colquitt, & Erez, 2000).

### 2.1.5 Individual Ambidexterity: challenges

Ambidextrous behavior is associated with several challenges. Ambidextrous individuals are required to address competing demands that stem from balancing exploitation and exploration activities. For instance, attention must be given to existing processes but also to the improvement of the same processes or the design of new processes (Bledow, et al., 2009; Smith & Tushman, 2005). Also, exploration and exploitation require fundamentally different learning models (Gupta et al., 2006). Furthermore, the competing cognitive agenda can lead to cognitive distress. It may be possible that the organizational context does not provide equal support in exploitation and exploration, reducing the possibilities to act ambidextrous. A second challenge from the organizational perspective is that an individual usually has limited resources and freedom to find a balance between exploitation and exploration types of activities (Caniëls, Neghina, & Schaetsaert, 2017).

Previous research shows that the different challenges affect the individual, in the sense that not everybody reaches the same level of ambidexterity. The ability to act ambidextrous and the level of ambidexterity may differ between individuals, even if the organizational context is the same (Miron-Spektor et al., 2011; Mom et al., 2009).

### 2.1.6 Individual Ambidexterity: middle managers

Research on individual ambidexterity primarily focusses on ambidexterity at the senior or top management level. Not surprisingly, as O'Reilly and Tushman state that 'ambidextrous organizations need ambidextrous senior teams and managers' (2004, p. 81). Since then, managerial ambidexterity drew the attention of several researchers (Bonesso et al., 2014; Mom et al., 2009; Mom et al., 2007). Studies of Mom, Van den Bosch and Volberda (2007, 2009) provide the first valuable insights into the antecedents of managerial ambidexterity. Their research reveals three characteristics of ambidextrous managers; first the ability to host contradictions and deal with conflict, second the ability to multitask and being more a generalist, and third the ability to refine and renew their knowledge, skills and expertise (2009).

However, given the need for ambidextrous senior managers, less attention has been given to the role of the middle manager and middle managers' ambidexterity in academic research (Turner & Lee-Kelley, 2013). The middle manager may play a crucial role in developing and maintaining ambidexterity in an organization. For an organization it is important that middle managers act

ambidextrous themselves. This can be explained by arguing that the position, roles and tasks of the middle manager eminently ask for ambidextrous behavior.

First, middle managers fulfil an important role in organizations because they are centrally positioned in the hierarchy of an organization. Middle managers are hierarchically located above the front-line managers and below top management (Dutton & Ashford, 1993; Wooldridge et al., 2008). Consequently, the central position provides the middle manager with knowledge about organization's operations, but also with access to top management (Wooldridge et al., 2008). Middle managers are able to develop and maintain linkages between different business units of an organization (Floyd & Lane, 2000; Hauptman & Neuringer, 1997; Katz & Kahn, 1978; Taylor & Helfat, 2009). An ambidextrous middle manager is therefore in a perfect situation to build internal linkages and fulfil a brokering role in the organization (Birkinshaw & Gibson, 2004).

Second, being centrally positioned, middle managers fulfil different strategic roles: championing, synthesizing, facilitating and implementing (Floyd & Lane, 2000; Havermans et al., 2015). These strategic roles entail different types of activities and behaviors. One of the explicit roles of the middle manager is to facilitate the integration of exploitation and exploration, which calls for an ambidextrous middle manager (Rosing, Frese, & Bausch, 2011; Taylor & Helfat, 2009).

Third, the tasks and responsibilities of the middle manager are broadly defined, resulting in a wide array of tasks. To show some examples; tasks not only involve contributions to the strategy of the organization but also practical tasks (Burgess, Strauss, Currie, & Wood, 2015). In general, middle managers have an important task in the processes of formulation and implementation of strategic change and outcomes (Huy, 2011; Kuratko et al., 2005; Rouleau & Balogun, 2011). Also, middle managers are involved in exploration activities such as facilitating adaptability (Floyd & Wooldridge, 1992). Lastly, middle managers have to identify opportunities and engage in issue-selling to top management (Dutton & Ashford, 1993; Floyd & Wooldridge, 1999). A consequence is that a middle manager fits the characterization of Mom et al (2009) of the ambidextrous manager being a multitasker that hosts contradictions and is expected to contribute to exploitation and exploration.

To conclude, middle managers need to behave ambidextrous themselves in order to make contributions to the goals of an organization in general and to organizational ambidexterity specific (Floyd & Lane, 2000; Keller & Weibler, 2014; Rosing et al., 2011). However, still a lack of insight exists in why some middle managers seem to be able to behave ambidextrously while others do not succeed in trying to do so. This lack of insight justifies a need for a better understanding of the influence of middle managers' individual characteristics on ambidextrous behavior (Bonesso et al., 2014; Keller & Weibler, 2014).

## 2.2 Personality Traits of Middle Managers

### 2.2.1 Individual characteristics as antecedents of Individual Ambidexterity

Raisch, Birkinshaw, Probst and Tushman describe the need for a better understanding of individual characteristics as antecedents of individuals ambidexterity by stating 'answering this question may require exploring managers' personal characteristics' (2009, p. 687). This statement takes the development of the capability of ambidexterity to a human resource perspective (Kang & Snell, 2009; Patel et al., 2013).

However, only few studies address the need for a better understanding of individuals' ambidextrous behaviors from a human resource perspective. For example, Andriopoulos and Lewis (2009) connect exploitation with being disciplined and exploration with being passionate. A combination of being disciplined and passionate should enhance ambidexterity. Bonesso, Gerli and Scapola (2014) found a relationship between individuals' prior work experience, learning orientation and competency profile with the level of individual ambidexterity. A study by Stokes and colleagues investigated the effect of individuals' career aspirations on the way exploitation and exploration are balanced out. Individuals with strong career aspirations were more concerned about finding a balance with a more exploration-focus, than those who favoring a status quo (2015).

Laureiro-Martínez, Brusoni, & Zollo (2010) took a more psychological perspective by describing that individual ambidexterity is not the outcome of a balance between exploitation and exploration, but rather the ability to change one's attention scope by switching between two cognitive modes: the phasic and the tonic. The phasic mode provides a broader attention enabling exploration, whereas the tonic mode enables exploitation. Research by Good and Michel (2013) connects with these cognitive modes, mentioning the importance of focused attention (tonic mode), divergent thinking (phasic mode) and cognitive flexibility (switching between exploitation and exploration) on ambidextrous behavior. Furthermore, Jasmand, Blazevic and de Ruyter (2012) add the 'locomotion orientation', a preference for moving away from individuals' current state, being an antecedent of individuals' ambidextrous behavior.

While these studies provide valuable insights into the influence of individual characteristics on individual ambidexterity, further investigation is needed in order to get a more detailed understanding of the antecedents and the underlying mechanisms of individual ambidexterity (Mom et al., 2015; Nosella et al., 2012; Raisch et al., 2009). A more detailed understanding is necessary as less attention has been given to differences in personal characteristics and its effects on individuals' ambidextrous behaviors (Volery et al., 2013). To get a more detailed understanding, this study takes

a decidedly social-cognitive perspective with the purpose to delve into the social-cognitive mechanisms behind individuals' personal characteristics and individuals' ambidextrous behavior.

### 2.2.2 Social-cognitive antecedents of Middle Managers' Ambidexterity

The aim of this study is to develop a theoretical model that tests social-cognitive factors underlying middle managers' ambidextrous behavior. Drawing from Social cognitive theory (Bandura, 1977; Wood & Bandura, 1989), middle managers' ambidextrous behavior is a part of a triadic reciprocal model in which personal factors, behavior and environmental factors influence each other, vice versa (Figure 1).

My assumption is that personal factors shape the ability of the middle manager to engage in exploitation and exploration and may (or may not) lead to ambidextrous behavior. In addition, and in line with the contextual approach of ambidexterity, environmental factors such as (the perception of) support by top management may be influential on the reflection of middle managers' personal factors in their ambidextrous behavior.

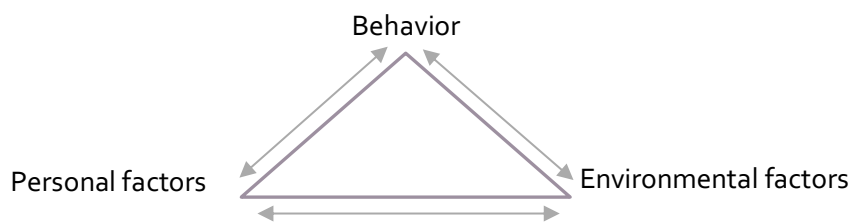


FIGURE 1 SOCIAL COGNITIVE THEORY

Personal factors are relevant for ambidextrous behavior as various research confirm that personality traits are important antecedents of individuals' behaviors (Hahn et al., 2011; Woodman et al., 1993). In their empirical research, Keller and Weibler (2014) found a relationship between personality traits and exploration and exploitation, leading to ambidextrous behavior. Their study found a relationship between the personality traits Openness to experience with exploration and Conscientiousness with exploitation. This study will elaborate further on personal factors of the middle manager as antecedents of middle managers' ambidextrous behavior.

### 2.2.3 Personality traits

Personality traits are personal preferences or tendencies to engage in certain types of behavior (Ajzen, 2005) or 'propensities to act' (McCrae & John, 1992). Kanfer simplifies this by stating that personality traits are variables that affect behaviors (1992).

The Big Five Personality Model (Digman, 1990; McCrae & John, 1992) acts as a reference point for the classification of personality traits. It is a descriptive framework in which all individual differences in personality are categorized to five traits: Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness. For the purpose of this study, two of these traits are relevant: Openness to experience and Conscientiousness (Blickle, 1996) as these traits relate to exploration and exploitation (Keller & Weibler, 2014).

The trait Openness to experience describes the extent to which individuals are open to new ideas indicating the tendency to learn and spot for new ideas, experiences and perspectives (George & Zhou, 2001; McCrae & John, 1992). It refers to flexibility in behaviors and the ability to engage in divergent thinking (Barrick & Mount, 1991). The trait Conscientiousness refers to individual differences in terms of organization, self-discipline, tenacity, desire for achievement and determination (McCrae & John, 1992).

#### **2.2.4 Ability, Motivation and Opportunity framework (AMO framework)**

While the Big Five Personality Model is a good reference and starting point, the model has a rather high level of abstraction (McCrae & John, 1992). A more practical translation to the human resource domain is necessary (Kang & Snell, 2009; Patel et al., 2013). The HR domain and the HR practices of an organization can be explained by the AMO framework (Jiang, Takeuchi, & Lepak, 2013). The framework categorizes the HR practices to three areas of influence: (1) ability, (2) motivation and (3) opportunity (Jiang, Lepak, Hu, & Baer, 2012). The performance of the individual is primarily determined by the ability and motivation of the individual (Wright, Kacmar, McMahan, & Deleeuw, 1995), but also the opportunity that he/she gets.

In this study, the aim is to investigate social-cognitive factors which are expected to relate to ambidextrous behavior. The social-cognitive factors fit with the AMO framework and the HR practices ability and motivation. The first social-cognitive factor is a motivational factor. In essence, to act ambidextrous a middle manager needs to be motivated. Instead of the widely studied types of motivation, the intrinsic and extrinsic type (Ryan & Deci, 2000), another motivational concept that seems relevant in the context of this study is role breadth self-efficacy. Second, besides being motivated, a middle manager also needs to have the ability to show ambidextrous behavior. Proactive personality is personality trait that may benefit the middle manager to act ambidextrous. Finally, paradoxical challenges, cognitive demands and tensions call for a mechanism that helps the middle manager to persist in ambidextrous behavior. The third factor that will be investigated is therefore tenacity.

### 2.2.5 Role Breadth Self-Efficacy

Ambidexterity requires middle managers with a generalist behavior profile and the flexibility to coordinate and integrate exploitation and exploration, instead of being specialized in either exploitation or exploration (Laureiro-Martínez et al., 2010; O'Reilly & Tushman, 2004). Practically however, generalists have the tendency to prefer exploration activities, while specialists usually favor exploitation activities (Kang & Snell, 2009; Kang et al., 2007). This emphasizes a difficulty for a middle manager to realize high levels of both exploitation and exploration and to behave ambidextrous as it is likely that paradoxical challenges occur as a result from potential disbalances. It is therefore necessary that middle managers perceive that they are capable of carrying out a broader role and try to realize high levels of both exploitation as well as exploration. Gibson and Birkinshaw (2004) confirm this by stating that the ability to behave ambidextrous increases as individuals take initiative and fulfil a broader role than prescribed.

In order to act ambidextrous, middle managers need to have the perception that they are capable to carrying out a broader role and to support both exploitation and exploration activities as well as integrate both activities. Drawing from Social cognitive theory (1977), the perception of being capable to perform (a wide array of) tasks stems from individuals' self-efficacy beliefs.

The concept of role-breadth self-efficacy (RBSE) captures the perceived capability of an individual carrying out a broader set of activities that extends the narrow job description (Crant, 2000; Gist & Mitchell, 1992). RBSE is a dynamic motivational construct which is expected to fluctuate in response to individuals' own judgement of his/her behavior (Figure 1; behavior) and the effect of the environment (Figure 1; environmental factors). Social cognitive theory explains these fluctuations as being the outcome of a triadic reciprocal mechanism, which explains that the perceived capability (personal factor) is influenced by both actual behavior as well as environmental factors vice versa.

For example, individuals with high self-efficacy beliefs are expected to be more willing to engage in complex behaviors (Denison, Hooijberg, & Quinn, 1995; Phillips & Gully, 1997). This also explains why individuals with a high degree of RBSE tend to be more open to organizational changes (Van Dam, Oreg, & Schyns, 2008) and learning and innovative behaviors (Van Dam & Seijts, 2007). Furthermore, individuals who regularly shift flexibly between strategic roles and between exploration and exploitation activities (Laureiro-Martínez et al., 2015) are likely to benefit from a high RBSE as their efficacy beliefs say that he/she is capable to shift between these strategic roles.

RBSE has been found to have a positive effect on the extent to which the individual is willing to contribute to improvements and innovation (Parker, 1998). Also, a positive relationship is found between RBSE and the flexibility of employees towards dividing efforts (Parker & Sprigg, 1999).

This results show the relevance of RBSE for this study, as individual ambidexterity relies on individuals' own choices about the allocation of time and dividing efforts between exploitation and exploration activities (Adler et al., 1999; Gibson & Birkinshaw, 2004).

RBSE is related to the concept flexible role orientation (FRO) (Parker, 2000). This concept entails the view of persons about their role and responsibilities in flexibly engaging in broader work roles. People with high RBSE are expected to also have high FRO. Insights into the relationships between RBSE and FRO are therefore interesting, although this study focusses only on the role of RBSE. Besides the relationship between RBSE and FRO, FRO will not be taken in further consideration in explaining middle managers' ambidexterity.

The assumption is that a high degree of RBSE is contributes in acting ambidextrous, as individuals with high RBSE are more likely to take personal initiative and to take charge towards ambidextrous behavior (Bledow & Frese, 2009). For example, Kauppila and Tempelaar (2016) found empirical evidence that generalized self-efficacy (GSE) positively relates to individuals' ambidextrous behavior.

However, this study does not select GSE as a predictor for ambidexterity. GSE is, contrary to RBSE, said to be stable over time (Chen, Gully, Whiteman, & Kilcullen, 2000). However, from the perspective of Social cognitive theory a dynamic construct suits more the purpose of this study. The reason is that reciprocal mechanisms have influences on efficacy beliefs, making it a dynamic and not stable factor. For example, successful ambidextrous behavior leads to an increase in middle managers' efficacy belief. A second example is that RBSE changes as a result of receiving positive feedback, learning experiences and by gaining experience in general (Gist & Mitchell, 1992). It is expected that middle managers with high RBSE will behave more ambidextrously than those with low RBSE as they may be better able to handle the distinctions and contradictions between exploration tasks and exploitation tasks, as well as reach a fit with the goals of the organization (Smith, 2014).

***H1. Role Breadth Self-Efficacy (RBSE) of the middle manager is positively related to middle manager's ambidexterity.***

## **2.2.6 Proactive Personality**

The ability of an organization to adapt in uncertain business environments is increasingly important (Duncan, 1976; Simsek et al., 2009; Tushman & O'Reilly, 1996). To respond to changes in the

environment and being able to adapt to new situations an organization needs middle managers that are able to act proactively on these demands. A persons' ability to adapt and to influence situations is captured in the personality trait proactive personality (Trošt et al., 2016).

Proactive personality is a relatively stable personality trait through which individuals show the tendency to behave in a way that situational forces are controlled and the environment is influenced (Bateman & Crant, 1993). The outcome of individual's perception of their proactive personality may benefit the adaptability and innovation of the organization (Chen, Farh, Campbell-Bush, Wu, & Wu, 2013).

Proactive personality is a relevant personal factor in this study as middle managers need the ability to be able to proactively act on the demands of balancing out exploitation and exploration. Individuals who score high on proactive personality tend to identify opportunities, show initiative and take actions accordingly that contribute to reaching organizations' adaptation and innovation goals. Proactive personality is found to be a predictor for individual innovation (Seibert, Kraimer, & Crant, 2001). Also, a positive relationship between proactive personality and entrepreneurial behavior was found by Rauch and Frese (2007) in their meta-analysis on the effect of personality traits on entrepreneurial behavior. Proactive individuals actively seek for opportunities by finding others to cooperate with and try to realize results by combining efforts (Birkinshaw & Gibson, 2004). Proactive personalities also show the tendency to engage in networking, with the purpose to develop relationships that assist their activities (Thompson, 2005).

Otherwise, individuals who are less proactive tend to rely on others to initiate changes and are rather passive or even tend to conform to a status quo in times when adaptations have to be made because of environmental changes (Bateman & Crant, 1993; Crant, 2000). Proactive personality is an ability that fits the characteristics of ambidextrous individuals mentioned by Birkinshaw and Gibson (2004), who state that ambidextrous individuals take initiative, are cooperative and seek collaborations with others through networking. Meta-analytic research by Fuller & Marler (2009) shows a positive relationship between proactive personality and other personality traits effecting individual ambidexterity, openness to experience and creativity. Also, research found that individuals with a proactive personality have a higher stress tolerance in demanding jobs (Parker & Sprigg, 1999), which is relevant for ambidextrous middle managers. This highlights the importance of proactive personality, especially as research also confirms that the proactive personality ability buffers the effect of role conflicts (Han, Wang, & Dong, 2014). Consequently, it is likely that a middle manager more effectively can find a balance between exploration and exploitation if role conflicts can be prevented or buffered.

In practice, middle managers are, on the one hand, expected to act proactively by identifying opportunities at the operating level of an organizations. On the other hand, mobilizing support from top management for new opportunities is also required through the process of issue-selling (Dutton & Ashford, 1993; Glaser, Stam, & Takeuchi, 2016; Kanter, 1982). The result of these broad expectations on different organizational levels is that a substantial amount of uncertainty for the middle manager can occur, as different stakeholders may have conflicting agendas and demands (Floyd & Lane, 2000). To reduce the amount of uncertainty, a proactive personality possesses the ability to produce proactive behavior, like for example building networks and seeking feedback (Frese, Garst, & Fay, 2007), possibly reducing the perceived amount of uncertainty. A result of building and maintaining networks is having better access to (tacit) knowledge. The advantage of knowledge flows has been highlighted by research by Mom et al (2007), who found that knowledge inflows effect either exploitation or exploration of the manager, contributing to ambidextrous behavior.

Concluding, a middle manager with a proactive personality is more likely to behave ambidextrously. First, by taking initiative and consider combining both exploitation and exploration activities as a challenge rather than a risk. Second, by building and maintaining networks and connections with other organizational members, which may result in better access to (tacit) knowledge and subsequently contribute to an improvement of their organizational learning. Third, by the buffering effect in work situations with role conflicts and stressors, the middle manager is able to more effectively balance exploration and exploitation.

**H2.** *Proactive personality is positively related to middle managers' ambidexterity.*

### 2.2.7 Tenacity

In daily work situations, middle managers are faced with obstacles and barriers (Huy, 2001). Obstacles and barriers may be the result of having to deal with contradictive demands and tensions like finding a proper balance between exploitation and exploration (Burgess, Strauss, Currie, & Wood, 2015; O'Reilly & Tushman, 2011). The role of the middle manager is characterized by concrete behavioral expectations that be learned and performed by a wide range of individuals (Floyd & Lane, 2000; Guillén & Saris, 2013). However, these behavioral expectations might not have to match up fully with middle managers' own personal preferences. A gap can exist between expectations and actual behavior, leading to obstacles. These situations require actions to match behaviors with expectations (Guillén & Saris, 2013). A mechanism is necessary to guide the middle manager in being able to do so. To overcome barriers, possible setbacks and failures, persistence is needed when confronted with difficult situations and obstacles (Frese et al., 1997).

Tenacity, or perseverance, is a personality trait that involves taking action even when faced with obstacles (Baum & Locke, 2004). Tenacious individuals tend to take action, work hard and persist, even in case of challenges (Gartner, Gatewood, & Shaver, 1991). Tenacity is related to the Big Five trait Conscientiousness (Guillén & Saris, 2013). Individuals who score high on tenacity are described as thorough, organized and responsible (Barrick & Mount, 1991). A middle manager has to deal with multiple challenges, like the fulfilment of contrasting or even conflicting roles. Also, the ambidextrous middle manager engages in paradoxical thinking which can cumulate into high cognitive demands. It is likely that the middle manager will be confronted with obstacles and setbacks in dealing with these challenges and in pursuing ambidextrous behavior. While these challenges have to be met by taking initiative, tenacity is also necessary to follow up initiatives and keep going to reach one's goal (Frese & Fay, 2001). It is therefore expected that a middle manager with high tenacity is more likely to persist in the process of pursuing ambidextrous behavior.

**H3.** *Tenacity is positively related to middle managers' ambidexterity.*

### 2.3 Political Skill of Middle Managers

Middle managers fulfil different strategic roles to make contributions to the strategy and strategic renewal processes of an organization; championing, facilitating, synthesizing, and implementing (Floyd & Lane, 2000). Being uniquely positioned, middle managers not only fulfil more strategic roles than top management and operational level managers, it is also likely that they experience more information exchanges.

Floyd and Woolridge (1997) mention middle managers' upward and downward strategical influences. Traditionally, the downward influence of the middle manager towards the operating level of the organization gets more attention (Balogun, 2003). More recently however, studies highlight the importance of the upward influence by mentioning the vertical interpersonal processes between middle management and top management (Raes, et al., 2011; Wooldridge et al., 2008). For example, the upward influence is necessary in case of issue-selling (Dutton & Ashford, 1993), which is an important role for the middle manager (Kanter, 1982). Thus, middle managers experience considerable amounts of interpersonal interactions (Charan, et al., 2001).

The upward and downward influences are of general importance for the middle manager. Not only in the context of participating in the organization's strategy and strategic renewal processes as mentioned above, but also in the context of the capability of ambidexterity.

Ambidexterity requires different types of ambidextrous behaviors of the middle manager in which influencing others is important. For instance when looking for opportunities outside the regular job, in collaborating with others and when building internal linkages (Birkinshaw & Gibson, 2004). Also, middle management competes for scarce resources and support from top management to be able to realize organizational goals such as ambidexterity (Bouquet & Birkinshaw, 2008; Dutton & Ashford, 1993; Raes et al., 2011).

For the middle manager the ability to manage interpersonal interactions is highly important (Ferris et al., 2005). Research has found that interpersonal relationships are critical to performance at work and career success (Ferris et al., 2000). Thereby, to manage interpersonal interactions, the ability to influence others is considered to be an essential requirement in order to contribute to organizational performance (Falbe & Yukl, 1992).

This leads to the conclusion that interpersonal skills are of great importance for the middle manager, which can be explained by some examples. First, a middle manager has to fulfil multiple strategic roles and engage in different cognitive processes, which is likely to cause cognitive distress (Floyd & Lane, 2000; Laureiro-Martínez et al., 2010; Mom et al., 2009; Smith & Tushman, 2005). To

cope with cognitive distress, mechanisms are required that strengthen the ability of the middle manager to effectively operate in a complex work environment. Second, competing demands and different expectations from stakeholders potentially lead to role conflicts among middle managers (Han et al., 2014). These demands and behaviors can result in tensions and stress. It is relevant for the middle manager to search for a mechanism that can reduce the negative effects of job stressors (Perrewé et al., 2004). While being a proactive personality helps in these situations, another mechanism that may benefit the middle manager is political skill (Ferris, et al., 2005; Perrewé et al., 2004).

Pfeffer (1981) uses the term political skill to describe the competency for successful social influence in various work settings. This political perspective on organizations was already highlighted by Mintzberg (1983) who stated that organizations are political arenas in which individuals need to possess and practice political skill. Ferris et al. (2005) define political skill as 'the ability to effectively understand others at work and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives', (p. 127).

Political skill is a multidimensional construct with four underlying dimensions: (1) networking ability (2) apparent sincerity, (3) social astuteness, and (4) interpersonal influence (Ferris et al., 2008). Network ability captures the ability to develop diverse contacts and networks. Apparent sincerity reflects the ability to show authenticity and sincerity when interacting with other people. Social astuteness is the dimensions that captures the extent to which individuals can comprehend social situations, and also the interpersonal interactions that take place in these social situations. Interpersonal influence refers to the ability of a person to influence power on those around them and accordingly try to control their environments. Combining these four dimensions as political skill may benefit individuals in their behaviors and thus increase their effectiveness (Ferris et al., 2007).

From the theoretical background of this study, a connection can be made with Social cognitive theory (Bandura, 1991). By using this theoretical lens, my assumption is that political skill of the middle manager has a moderating effect on the personal factors that influence middle managers' ambidextrous behavior. In this assumption, political skill fulfils a double role by first enhancing middle managers' motivation to show certain behaviors, and second to 'make room' in the organizational context to display these behaviors. The rationale for this assumption is that political skill shapes the the effectiveness of interactions with others, depending on the contextual demand (Ferris et al., 2007).

Being politically skilled provides ways to reach individuals' personal or organizational goals (Ferris, et al., 2005; Kapoutsis, et al., 2010). Kimura (2015) states for example that politically skilled individuals are able to adapt their behavior to a situation in such a way that trust gets reinforced. A politically

skilled individual also considers interpersonal interactions as opportunities rather than threats, which facilitates building networks (Perrewe, et al., 2000). Furthermore, highly political skilled people are more confident and tend to have less problems with negative effects from a stress factor like strategic role conflict (Perrewé et al., 2004; Perrewe et al., 2000).

For the ambidextrous middle manager, being politically skilled has several advantages. The politically skilled middle manager may experience less difficulties trying to get managerial attention and obtaining scarce resources from top management (Bledow et al., 2009; Jansen et al., 2012; March, 1991). This is important considering the conflicting objectives of exploitation and exploration. It is also likely that a politically skilled middle manager is able to effectively build and maintain an internal network in the organization, in other words to seek internal linkages (Birkinshaw & Gibson, 2004) and to share knowledge and information (Hansen et al., 2001).

Political skill contributes to a greater sense of confidence which is likely to positively influence the role breadth self-efficacy of the middle manager as middle manager's perceived capability to show certain behaviors raises (Jawahar, Stone, & Kisamore, 2007). Also, a politically skilled middle manager is likely to use this ability to create a work situation with higher job autonomy. As job autonomy positively relates to role breadth self-efficacy (Morgeson, Delaney-Klinger, & Hemingway, 2005), it is expected that political skill positively moderates the relationship between middle manager's role breadth self-efficacy and middle managers' ambidexterity.

**H4A:** *Political skill moderates the relationship between role breadth self-efficacy of the middle manager and middle manager's ambidexterity in such a way that this positive effect becomes stronger as political skill increases.*

A middle manager with a proactive personality may benefit from being highly political skilled, as proactive people tend to seek ways to construct a social environment which supports their own success on the job. By taking a social capital perspective, Thompson (2005) mentions that a possible way to construct a social environment is through network building, one of the dimensions of political skill. A positive relationship between proactive personality and political skill was found by Liu and colleagues (2007). The political skill ability is therefore expected to enforce middle manager's proactive personality towards middle managers' ambidexterity.

**H4B:** *Political skill moderates the relationship between middle managers' proactive personality and middle manager's ambidexterity in such a way that this positive effect becomes stronger as political skill increases.*

The middle manager who is tenacious in striving to become ambidextrous may be facilitated by being politically skilled. In case of obstacles like (too) high cognitive demands, barriers from environmental factors, a lack of support or other potential setbacks, the use of interpersonal influence can help to resolve these problems.

**H4C:** *Political skill moderates the relationship between middle managers' tenacity and middle manager's ambidexterity in such a way that this positive effect becomes stronger as political skill increases.*

## 2.4 Supportive Leadership of Top Management

In the contextual approach of ambidexterity, leaders are suggested to 'spread out' the management and development of ambidexterity into the organization to be able to effectively manage it (Rosing et al., 2011; Smith et al., 2010). This consideration is interesting, as middle managers are expected to be better able to create a context in which both exploitative and explorative learning takes place (Yukl, 2009). However, it is difficult for (top)managers to address a paradoxical strategy like ambidexterity (Denison, et al., 1995; Smith, 2014; Smith & Lewis, 2011), as managing paradoxes causes significant challenges for top management (Lewis, 2000). Nonetheless, it has been acknowledged that top management plays an important role in supporting ambidexterity (Lubatkin et al., 2006; Raisch & Birkinshaw, 2008).

The contextual approach of ambidexterity relies on an organizational context in which individuals are facilitated by the context in balancing out exploitation and exploration activities (Raisch & Birkinshaw, 2008; Simsek, 2009). Several studies mention the role of the organizational context as an antecedent for ambidexterity (Beckman, 2006; Gibson & Birkinshaw, 2004; Smith & Tushman, 2005; Tushman & O'Reilly, 1996). Hereby, an organizational context is defined as the 'systems, processes, and beliefs that shape individual-level behaviors in an organization' (Gibson & Birkinshaw, 2004, p. 212).

Gibson and Birkinshaw (2004) describe the organizational context by using the organizational effectiveness framework of Ghoshal and Bartlett's (1994) which consists of four attributes: discipline, stretch, support and trust. Discipline and stretch characterize the performance dimension of an organization with the purpose of creating coherence and effectiveness in organization's activities (Birkinshaw & Gibson, 2004; Patel, et al., 2013). Support and trust represent the social support dimension of an organization. The attributes of this dimension contribute to the adaptability purpose of an organization; in other words the ability to reconfigure activities and to meet changing demands (Birkinshaw & Gibson, 2004; Patel et al., 2013).

Research confirms the importance of trust and support, for example organizational learning of an organization gets positively influenced if organizational members trust each other and experience psychological safety (Edmondson, 1999; Levin & Cross, 2004). Also, trust can lead to greater openness, more information sharing and more effective information exchanges among employees (Floyd & Lane, 2000). A middle manager also benefits from getting support from top management, as being provided with resources and autonomy may work reciprocal. In this sense, getting support can lead to situations in which the middle manager tries to reciprocate by committing to challenging

organizational goals (Eisenberger, et al., 1986). The ambidextrous middle manager should benefit from an organizational context with a social support dimension providing support and trust.

The purpose of this study is to investigate the organizational context in more detail. By taking a social-cognitive perspective, I hypothesize that personal factors of the middle manager influence ambidextrous behavior but are also conditioned by organizational factors. Research by Bonesso, Gerli and Scapola (2014) confirms my hypothesis by stating that full ambidextrous behavior is not the outcome of individual characteristics only, but is also influenced by contextual factors of the organization. Raisch, Birkinshaw, Probst and Tushman also state that individual ambidexterity is not only achieved by considering personal characteristics, but also by 'organizational factors affecting individuals' ability to act ambidextrously' (2009, p. 687). Carmeli and Haveli add that 'organizational leaders are seen as the main shaper and builder of organizational context' (2009).

The aim is to investigate RBSE, proactive personality and tenacity of the middle manager in conjunction with top managements' supportive leadership style by applying Social cognitive theory's triadic reciprocal model (Bandura, 1977; Wood & Bandura, 1989). In this model top management's supportive leadership style is the environmental factor, besides middle manager's personality traits and ambidextrous behaviors as the other two factors (figure 2).

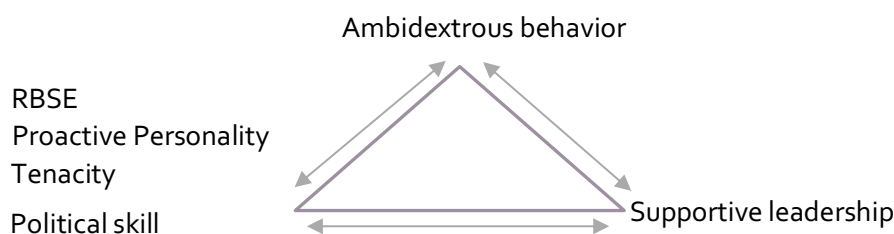


FIGURE 2 SOCIAL COGNITIVE THEORY (APPLIED)

Leadership and more specifically leadership behavior are important factors that shape the social support dimension of the organizational context. Leadership is a broad concept that can be operationalized in many ways. For the purpose of this study leadership is defined by 'a process of facilitating individual and collective efforts to learn and accomplish shared goals in organizations' (Berson, Nemanich, Waldman, Galvin, & Keller, 2006; Yukl, 2013).

In general, leadership behavior is regarded as an important factor in shaping behavior of lower-level employees in organizations (Day, 2008). Leadership behavior is the 'process of influencing and teaching others to understand why and how certain activities and goals need to be accomplished' (Berson, et al., 2006). Tushman and O'Reilly (1997) conclude that leadership behavior (among values

and culture) is an essential contextual condition for ambidexterity. In the context of ambidexterity, Gibson and Birkinshaw mention 'the important role played by senior executives in making an organization context effective and developing ambidexterity' (2004, p. 223). This leads to the question which type of leadership style is suited to support the middle manager in the contextual ambidexterity approach.

To be able to support ambidexterity as a manager, insights are needed about the effects of leadership styles on ambidextrous behavior (O'Reilly & Tushman, 2011; Rosing, et al., 2011). This is important as studies have confirmed positive effects of leadership style on the development of exploration and exploitation (Lavie et al., 2010; Raisch & Birkinshaw, 2008).

Hence, several studies have been conducted to develop (better) insights into different types of leadership style and their effects on exploitation, exploration and ambidexterity. Tushman and O'Reilly (1996) already stated the importance of supportive leaders in enabling structural ambidexterity. Vera and Crossan linked transformational and transactional behaviors by senior management to organizational learning (2004). Different studies on transformational leadership style found positive relationships with ambidexterity either at organizational (Jansen et al., 2008), team (Nemanich & Vera, 2009) and individual level (Keller & Weibler, 2015). Jansen, Vera and Crossan found that transactional leadership positively relates to exploitation, while transformational leadership positively relates to exploration (2009). Finally, studies on paradoxical leadership style found relationships with ambidexterity at the levels of the organization, business unit (Andriopoulos & Lewis, 2009; Lewis, et al., 2014) and individual level (Kauppila & Tempelaar, 2016).

This study focusses on top management's supportive leadership style, from the perception that individuals' ambidextrous behavior is getting stimulated in a supportive organizational context (Carmeli & Halevi, 2009; Lavie et al., 2010; Prieto-Pastor & Martin-Perez, 2015).

The importance of supportive leaders can be explained by Social exchange theory (Blau, 1964), because supportive leadership involves a reciprocal mechanism. In this mechanism top managements' leadership style acts as an enabler in managing ambidexterity (Turner, et al., 2013) by empowering and showing trust in middle management (Hart, 1992). In return, the middle manager feels obligated to reciprocate the support from top management (Blau, 1964; Eisenberger et al., 1986). The middle manager reciprocates by behaviors that contribute to, for example, a good relationship with top management and the strategic objectives of the organization (Grandey, 2000).

Supportive leadership can be defined as 'all the organizational managers' behaviors which support their subordinates' job', (Oldham & Cummings, 1996). Supportive leadership is an important aspect

of individuals' work-experience (Eisenberger, et al., 2002). Rooney & Gottlieb (2007) indicate that supportive leadership contains supportive behaviors to the job and supportive behaviors to the relationship. This is consistent with the theory of leader-member exchange (LMX), which describes the quality of interactions between a superior and subordinates (Graen & Uhl-Bien, 1995; Graen & Cashman, 1975). Research found a link between the perceived support and trust of the subordinate, which form the social support for exploration and exploitation, in relationship with LMX (Berson, et al., 2006). Therefore, the perception of a high quality LMX relationship may allow a middle manager to feel more autonomy and freedom to pursue exploitation and exploration activities (Amabile, et al., 1996; Tierney, et al., 1999). As a result, it is expected that a supportive leadership style of top management influences the motivation and commitment of middle managers in such a way that it benefits their ambidextrous behavior (Carmeli & Halevi, 2009; Rosing et al., 2011). This by means of top management displaying behaviors like encouraging, clarifying of responsibilities, providing feedback and showing trust (Carmeli, et al., 2010; Van de Ven & Chu, 1989).

The question is what the influence is of top managements' supportive leadership on the personality traits RBSE, proactive personality and tenacity of the middle manager. In general, a supportive leadership style facilitates the development of skills and empowerment of employees (Kang, et al., 2007; Lepak & Snell, 1999). Middle managers may thus benefit from top managements' supporting behaviors like receiving support and getting empowered (Hart, 1992). Research shows that empowerment may increase middle managers' self-efficacy beliefs (Kellerl & Dansereaul, 1995; Redmond, Mumford, & Teach, 1993). Considering RBSE, the question is primarily what effect supportive behaviors of top management have on middle managers perceived capability beliefs. And also, what the difference is between middle managers with a high RBSE and middle managers with a low RBSE when experiencing supportive leadership behaviors.

On the one hand, middle managers with a high RBSE are expected to have a belief that they are capable to behave ambidextrously. When top management facilitates this capability belief by showing supportive leadership behaviors, the effect will probably be that middle managers feel even more capable and are even more willing to act ambidextrous (Wood & Bandura, 1989). On the other hand, middle managers with a low RBSE are expected to have a belief that they are not, or less capable of showing ambidextrous behavior. The downside of a supportive leadership style is that by (over)emphasizing the relational part of supportive leadership, the effect of giving this type of support may work contra productive (Wood & Bandura, 1989) and even lead to stress (Ozer & Bandura, 1990).

Empirical research on the effect of different leadership styles on RBSE shows different results. While previous research found for example that transformational leadership style positively relates to

role breadth self-efficacy (Strauss, Griffin, & Rafferty, 2009), other research on supportive leadership style states that there was more emphasis on emotions and mood of the employee rather than RBSE itself (Rafferty & Griffin, 2006). Other research by Srivastava, Bartol and Locke (2006) found a positive relationship between empowering leadership and efficacy on the team level.

In line with prior research on the role of supportive leadership behaviors on team ambidexterity (Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016), the assumption is that supportive behaviors by top management may 'act as a double-edged sword', resulting in mixed feelings about this type of leadership among the middle manager.

**H5A:** *Top managements' supportive leadership moderates the relationship between middle managers' role breadth self-efficacy and middle manager's ambidexterity in such a way that this positive effect becomes weaker as supportive leadership increases*

For the moderating effect of supportive leadership behaviors on proactive personality a different influence is expected. First of all, a proactive personality is likely to be less moderated by situational factors (Bateman & Crant, 1993). However, a proactive personality is likely to seek a way in the business environment that supports his/her perception of success. From that perspective, a proactive personality is likely to mobilize support from top management (Glaser et al., 2016; Kanter, 1982) and actively seek for feedback (Frese et al., 2007). In this sense, the behaviors of a proactive personality can be answered by supportive leadership behaviors; it is therefore expected that a middle manager with a proactive personality gets facilitated by top management's supportive leadership in showing ambidextrous behavior.

**H5B:** *Top managements' supportive leadership moderates the relationship between middle managers' proactive personality and middle manager's ambidexterity in such a way that this positive effect becomes stronger as supportive leadership increases*

Ambidextrous middle managers are often required to deal with high cognitive demands, conflicting expectations or opposing intentions (Tempelaar & Rosenkranz, 2017). These situations call for tenacious middle managers who persevere when faced with obstacles and setbacks. It is likely that in these situations the middle manager benefits from getting supportive leadership behaviors, as these behaviors may give a helping hand when trying to reach the middle manager's goals (Frese & Fay, 2001).

**H5C:** *Top managements' supportive leadership moderates the relationship between middle managers' tenacity and middle manager's ambidexterity in such a way that that this positive effect becomes stronger as supportive leadership increases*

### 2.5 Conceptual model

The discussion of the theoretical background leads to the development of the following conceptual model. In the conceptual model a visual representation has been made of the proposed relationships between middle managers' ambidexterity (the dependent variable) and role breadth self-efficacy, proactive personality and tenacity (the independent variables). Also included are political skill and supportive leadership (the moderator variables) including the hypotheses (Figure 3).

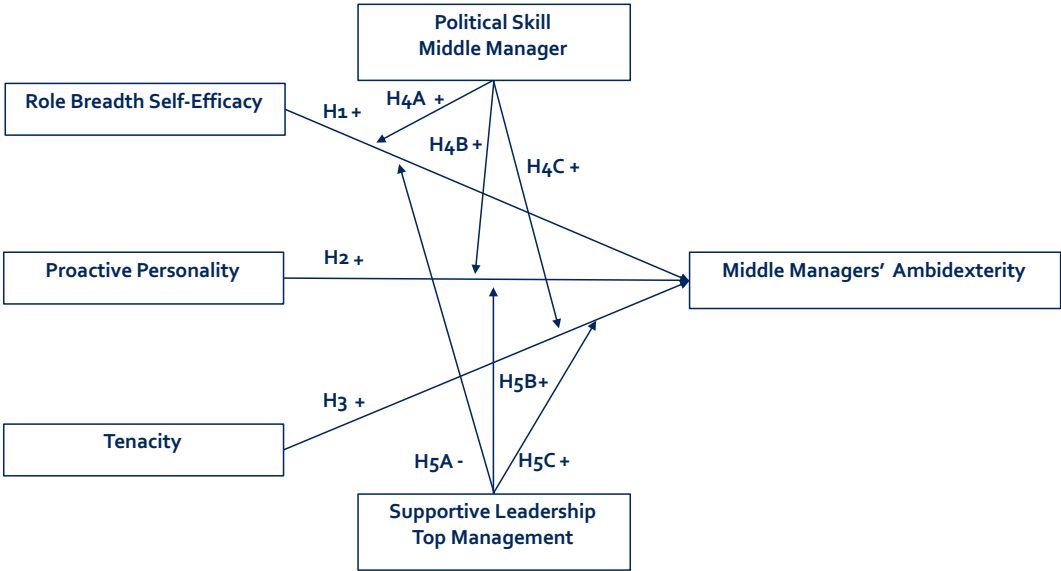


FIGURE 3 CONCEPTUAL MODEL

## 3 METHODS

### 3.1 General introduction

The past chapter presented the theoretical background of this study. In this chapter the research design is presented that was used to conduct the empirical part of the study. Therefore, this chapter elaborates on the research design in terms of sample frame, data collection, measurement of variables and statistical methods used to analyze the data. The aim of presenting the research design is to provide sufficient information about the research procedures through which replication of the study can be made possible.

To be able to test the theory and hypotheses, primary data was collected by means of a survey research design. A survey was filled in by 94 respondents working for a Dutch government organization. The selection of a government organization is appropriate in the context of this study because these organizations benefit from creating (a higher level of) individual and organizational ambidexterity (Kobarg et al., 2017). Organizational ambidexterity is of importance for government organizations as these organizations function in a complex environment, in which the power of politics, law, regulations and customers highly interact. Government organizations not only need to cut costs, but also have to deal with rapid changes in demands and expectations by its customers. In an increasingly way, innovative and customized solutions have to be delivered and provided to customers, preferably products and services that contribute to lowering costs and also raise usability.

Therefore, operating in a complex environment with changing demands and expectations challenges a government organization to raise their performance. Raising the performance in terms of cutting costs calls for the development of exploitation, while 3renewal of products and services calls for higher levels of exploration. This performance challenge means that government organizations benefit from stimulating exploitation and exploration and thus create (a higher level of) organizational ambidexterity.

### 3.2 Sample

Data was collected in May and June 2018 by means of a survey among the unit of analysis, middle managers working at the Dutch tax and customs administration. The total population consists of 529 middle managers, all with the same task description (which is identical for every middle manager working for the Dutch government). In the task description elements referring to exploitation and exploration type of activities are included, implicitly stating the expectation to perform activities for which ambidextrous behavior is necessary. No differentiation was made across business or functional areas of the organization. Yet, despite having the same job description, accents in daily activities may however vary in practice, potentially leading to different levels of ambidextrous behavior.

From the population a sample frame of 223 middle managers was taken out of the business intelligence database of the organization. The respondents represent a wide variety in terms of demographic characteristics such as age, tenure and educational level. The respondents were contacted at a few target-group meetings to briefly introduce the study, its relevance and the question to participate (and anticipate on potential non-response bias). In these meetings 5 participants were found to pilot-test the survey.

### 3.3 Data collection

The first step in the data collection process was to conduct a pilot-test to test the entire research process from data collection to data analysis, prior to the wide distribution of the survey among the target-group. The result of the pilot-test was that the layout of the survey was slightly enhanced to increase the readability of the survey-items and to speed up the use for the respondent (+12 min.). Respondents were sent the definitive survey along with a short introduction in which the purpose and importance of the study was briefly highlighted. Anonymity and confidentiality of the respondents was guaranteed, also with a statement that the aim of the survey was not to look at right or wrong answers but honest answers. Respondents were thus encouraged to participate in the survey.

These procedure steps were taken to anticipate on potential issues regarding common method bias and also to try to increase the response rate of the survey and the reliability of answers on the survey-items (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

The survey was administered in Dutch, as all respondents have Dutch as their native language and primarily speak Dutch. A reminder was sent to the respondents 14 days after the initial survey was sent out with the kindly request to participate if not already done. In total, 103 surveys were collected (response rate 46%) for further analyses. However, after analysis 9 surveys pointed out not to be

completely filled out and not suitable for further analyses due to large portion of answers missing, resulting in 94 usable surveys.

The demographic characteristics of the respondents are shown in Appendix A. Regarding gender, 62.8% of the respondents were male and 27.2% female. The total group of respondents had an average age of 50.62 years (S.D. 7.96). Participants had an educational background that ranged from secondary school to post-doc level. The most common level of education was a master degree (42,6%). Respondents had worked within the organization for an average of 22.63 years (S.D. 9.79), of which 7.12 years (S.D. 3.70) in the same function. The average span of control of the middle manager was 21.97 employees (S.D. 3.15).

To check for the representativeness of the sample, the demographic characteristics of the respondents were compared with the available demographic information in the organization's business intelligence database. Based on this comparison and the notion that the population is fairly stable, the sample was an accurate reflection of the total population in terms of age, male-female ratio and tenure within the organization and function. Non-response bias was therefore not expected to be an issue.

### 3.4 Measurement of variables

The survey used existing multi-item scales to measure the variables of the theoretical framework of the study. In the following subsections an explanation is given about the scales in terms of scale construction, reliability and validity. In general, respondents were asked to answer on the items related to the variables of the study on 7-point Likert agreement or frequency scales. A full list of the scales and underlying items can be found in Appendix B at the end of the study.

#### 3.4.1 Dependent variable

***Middle managers' ambidexterity.*** Middle managers' ambidexterity was measured by taking an approach in line with prior research. Middle managers' ambidexterity consists of two types of organizational learning. First exploitation, which operational definition is 'selecting, implementing, and refining existing resources and capabilities with the goal of serving current customers and markets' resulting in incremental development and enhanced reliability (Benner & Tushman, 2003; March, 1991, p. 71). Second, exploration with the following operational definition 'searching for, discovering, creating and experimenting with new capabilities' (March, 1991, p. 71).

Middle managers' ambidexterity was operationalized as 'middle manager's behavioral orientation toward combining exploration and exploitation related activities within a certain period of time' (Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2004). To measure middle managers' ambidexterity the frequency scales of Mom et al. (2009) were used. Middle managers' exploitative behavior was measured by six items summed to an index (Cronbach's  $\alpha = .73$ ) that captures the extent (1 = to a very small extent, 7 = to a very large extent) to which middle managers engaged in exploitation activities like routine tasks and tasks that build on existing knowledge during the last year. An example-item is 'Activities primarily focused on achieving short-term goals.' The seven-item scale for exploration (Cronbach's  $\alpha = .84$ ) captured the extent (1 = to a very small extent, 7 = to a very large extent) to which middle managers engaged in activities that require to pursue novel knowledge or engage in nonroutine tasks during the last year. A sample of an exploration item is 'Activities requiring you to learn new skills or knowledge'.

The next step was to create a measure for middle managers' ambidexterity. Ambidexterity can be measured following different approaches and methods, as there is no consensus among academics on this topic (Cao, Gedajlovic, & Zhang, 2009). One method measures the difference between exploitation and exploration by subtracting exploitation from exploration (He & Wong, 2004), while a second method adds them together (Lubatkin et al., 2006). A third method takes the exploitation and exploration sub-scales and multiplies them (Gibson & Birkinshaw, 2004; Mom et al., 2009). To check for robustness of the study's findings, all methods were used in hierarchical regression analyses. The results of these analyses were that the additive model had the highest F-value and explained the most variance.

The additive measure for middle managers' ambidexterity was created by mean centering the exploitation and exploration sub-scales and then adding them, thereby mitigating for potential multicollinearity issues (Aiken, West, & Reno, 1991; Cao et al., 2009).

### 3.4.2 Independent variables

**Role Breadth Self-Efficacy (RBSE).** Role-breadth self-efficacy (RBSE) was operationalized as 'the extent to which people feel confident that they are able to carry out a broader and more proactive role' (Parker, 1998, p. 835). RBSE was assessed using the original 10-item scale of Parker (1998). Scores on the items were given on a 5-point Likert-scale (1= not at all confident, 5= very confident). The scores from the 10 items were summed and averaged to form a single RBSE-scale. A sample item from the scale is 'Representing your work area in meetings with senior management'. The original scale by Parker reported Cronbach's  $\alpha = 0.96$ . This study reported Cronbach's  $\alpha = 0.95$ .

**Flexible Role Orientation (FRO).** Prior research studied RBSE in conjunction with the concept of flexible role orientation as these concepts relate to each other in the sense that a person first should have a broader view about his/her roles (FRO) and then may be capable (RBSE) of showing particular tasks (Parker, 2000). While this study focusses on RBSE, FRO was also assessed in the survey process by using a 3-item scale constructed by Ohly and Fritz (2007). FRO was operationalized by defining FRO as the extent to which middle managers see developing and implementing new ideas at work as their responsibility. Respondents rated these items on a 7-point Likert-scale (1= strongly disagree, 7= strongly agree). One of the three items was 'It is my job to develop new ideas and to test them.' Cronbach's  $\alpha$  reported in this study = 0.64. The 3 items were summed and averaged to a single-scale score for flexible role orientation.

**Proactive personality.** Proactive personality was operationalized as 'a person who creates positive change in his or her environment, regardless or even in spite of situational constraints' (Seibert et al., 2001). Proactive personality was measured by a multi-item construct containing 10 items with the highest average factor loadings based on the results of the originally developed 17-item Proactive Personality Scale by Bateman and Crant (1993). Respondents rated these items on a 7-point Likert-scale (1= strongly disagree, 7= strongly agree). Example of an item is 'No matter what the odds, if I believe in something I will make it happen'. The 10-item validated scale reported a Cronbach's  $\alpha$  = 0.89 (Seibert et al., 1999), while the 8 item version (2 items were discarded as a result from factor analysis) in this study also reports Cronbach's  $\alpha$  = 0.89. The 8 items were summed up and averaged to form a single-scale score for proactive personality.

**Tenacity.** Tenacity (or perseverance) was operationalized as a personality trait that 'involves sustaining goal-directed action and energy even when faced with obstacles' (Baum & Locke, 2004, p. 588). It was measured using the scale of Baum and Locke (2004) containing items as suggested by Gartner et al. (1991). Respondents rated these items on a 7-point Likert-scale (1= strongly disagree, 7= strongly agree). Example-item is 'I can think of many times when I persisted with work when others quit'. The original scale reported a Cronbach's  $\alpha$  = 0.85, while this study reports a reliable scale with Cronbach's  $\alpha$  = 0.70. The 5 items were summed and averaged to form a single-scale score for tenacity.

### 3.4.3 Moderator variables

**Political skill.** To assess the level of political skill of the middle manager, the Political Skill Inventory (PSI) developed by Ferris and colleagues was used (2005). All answers were given by respondents on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

The PSI is a multi-dimension scale consisting of 18 items in total, covering four dimensions: (1) Networking Ability, (2) Apparent Sincerity, (3) Social Astuteness and (4) Interpersonal Influence. The dimension of networking ability (NA) was assessed using six items, defining middle managers' ability to develop diverse contacts and networks. An example item is 'I spend a lot of time at work developing connections with others.' Cronbach's  $\alpha = .71$ . With the six items the subscale networking ability (NA) was created. The dimension apparent sincerity (AS) operationalizes the ability to show authenticity and sincerity when interacting with other people. AS was captured using three items. Cronbach's  $\alpha = .66$ . One of the items is 'I try to show a genuine interest in other people'. With the three items the subscale apparent sincerity (AS) was created. Five items captured the dimension social astuteness (SA), which is defined by the extent to which individuals can comprehend social situations. An example item is 'I understand people very well'. Cronbach's  $\alpha = .75$ . With four items (1 item was discarded as a result from factor analysis) the subscale social astuteness (SA) was created. Four items captured the dimension interpersonal influence (II), defined as the ability of a person to influence power on those around them and accordingly try to control their environments. A sample item related to this dimension is 'I am good at getting people to like me'. Cronbach's  $\alpha = .73$ . With the four items the subscale interpersonal influence (II) was created.

The scale political skill was created by summing the scores on the subscales of the underlying four dimensions and dividing the total score by four, resulting in a political skill score of the respondent. Cronbach's  $\alpha = .85$ .

**Supportive leadership.** Supportive leadership was measured by utilizing the scale of Carmeli, Gelbard and Gefen (2010). Other scales were also available, like for example the 3-item scale of Rafferty and Griffin (2004); however, this scale and other scales had a less good fit with the construct, measured the construct from a slight other perspective or measured for instance the concept of leader-member exchange (LMX). For the purpose of this study the items of the scale of Carmeli, Gelbard and Gefen had the best fit with the supportive behaviors that need to be measured. Supportive leadership was operationalized as the extent to which middle managers perceive getting supportive behaviors from top management on the job as well as on the relationship. Middle managers were thus asked to assess whether they agree getting supportive leadership behavior from top management they. Answers were given on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). An example item is the supportive leadership behavior 'Encouraging individual initiative'. Cronbach's  $\alpha = .82$ , similar to the original reported Cronbach's  $\alpha = .84$  in the study of Carmeli et al. (2010).

#### 3.4.4 Control variables

Control variables were added to control for possible explanations other than the hypothesized effects between the independent variables and the dependent variable. A few conditions needed to be met to include a control variable in this study (Becker, 2005; Bono & McNamara, 2011). A first argument for adding a control variable was that a control variable needed to be proven relevant in the context of the study by previous research. A control variable is thus expected to correlate with the dependent variable, middle manager's ambidexterity, but is also expected to show correlations with the independent variables; role breadth self-efficacy, proactive personality and tenacity. Furthermore, a control variable should not fulfil a central function or act as a main predictor in the theoretical model. The following control variables were added: Age, gender, educational level, organizational tenure and functional tenure.

**Age.** The age of the middle manager was measured in years, with the purpose of analyzing the influence of middle managers' age on his or her level of ambidexterity. Research by Mom et al. (2009) and Mom, Fourné and Jansen (2015) found that managers' age negatively relates to the level of ambidexterity. Rafferty and Griffin found a positive relationship between age and role breadth self-efficacy (2006) but no relationship between age and supportive leadership.

**Gender.** Gender was added (dichotomous nominal variable) with the purpose to measure whether male or female middle managers were more ambidextrous. Following Kauppila and Tempelaar (2016), an organization may provide male middle managers more possibilities to perform and balance out exploitation and exploration activities.

**Educational level.** Educational level was measured on an ordinal level (1= Basisschool, 2= Middelbare school, 3= MBO, 4= HBO–Bachelor, 5= WO–Master, 6= PhD–Postdoc). Dummy variables were created to be able to distinguish between lower (below HBO) and higher degrees (HBO and higher, whereas the reference group were the lower degree managers). Educational level of the middle manager was measured as a study by Mom, Fourné and Jansen (2015) found that managers with a bachelor or higher degree were more ambidextrous than managers with lower degrees. A higher educational level also improves the cognitive reasoning skills and knowledge creation capability (Good & Michel, 2013; Smith, Collins, & Clark, 2005). Tierney and Farmer found that a higher educational level is positively related to a higher degree of creative self-efficacy (2002). In line with this, it was found that (higher levels of) cognitive ability positively relate to role breadth self-efficacy (Morgeson et al., 2005).

**Organizational tenure.** Organizational tenure was added as a control variable, as it is expected to positively relate to a manager's ambidexterity (Tushman & O'Reilly, 1996), which has also been confirmed in the study of Mom, Fourné and Jansen (2015).

**Functional tenure.** Functional tenure was measured by the length of time spent in the organization, expressed in years. A higher tenure in the function can have negative influence on ambidexterity. Exploration may show low levels as performing the same tasks for a long time may decrease creativity (March, 1991). A negative direct effect of functional tenure on ambidexterity was confirmed by Mom, Fourné and Jansen in their study on managers' work experience (2015).

## 3.5 Data analysis

This subsection explains the (statistical) procedures and techniques by which the obtained data was analyzed. All statistical analyses were performed using the software package IBM SPSS, version 25. First step in the process of data analysis was to validate the utilized scales. The second step was to prepare the data in order to use for the presentation of the descriptive statistics and correlations of the variables. The last step of the data analysis was to test several statistical assumptions regarding the hierarchical regression analyses that needed to be performed to test the hypotheses of the study.

### 3.5.1 Validation

The survey used multi-item scales which had been previously published, which means that researchers already tested the variables on content validity. However, in this study validity was tested again as the context of previous studies may differ in terms of time frame, population and sample frame. A second reason to check for validity was because the scales were originally developed in English and had to be translated to Dutch in order to provide proper understanding and convenience for the respondent, but with the risk of losing validity.

Factor analyses were conducted regarding all potential items of the constructs in this study to analyze the construct validity of the studied constructs. The suitability of the data was assessed by using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, using the value of .60 as a rule of thumb (Tabachnick & Fidell, 2007). Also, a second rule of thumb was that Barlett's Test of Sphericity needed to be significant ( $p < .05$ ). Factors all had an eigenvalue greater than 1 were considered as a component of a variable. Loadings required to load above .30 to increase the reliability that the items properly fit with other items of the scale (Pallant, 2007). Communalities need to load above .40. A description of the factor analyses can be found in Appendix C.

Also, several checks for signs of biases were performed. Some half-filled surveys were found with inconsistency in the answers and the majority of answers missing, which could be the result of respondents being 'survey fatigue'. These surveys, 9 in total, were excluded from further analyses.

For the purpose of this study, common method bias was analyzed by taking a two-step approach (Podsakoff et al., 2003). The first step was taking procedural remedies related to the design and application of the survey (as described in subsection 3.2). The second step had to do with the survey measuring both the dependent and independent variables among the same unit of analysis, the middle manager. The risk of measuring these variables at the same unit of analysis, at one point in time and with the same measurement method is that the relationship between the different variables can be too strong. The potential problem with common method bias can be statistically analyzed by performing Harman's single-factor test (Podsakoff et al., 2003). In short, this test analyzes whether the variance in the data is comes from one factor. The performance of the Harman's single-factor test (method: factor analysis on all constructs, extraction to 1 factor) resulted in a single factor explaining 23.92% of the total variance indicating no signs of common method bias. It is however noteworthy that Harman's single-factor test is just one of the possible statistical methods to analyze and indicate signs of common method bias. There are more statistical methods that can be applied (Podsakoff et al., 2003), all with advantages and disadvantages of the specific method; for the purpose of this study a single statistical test was chosen to perform.

### 3.5.2 Data preparation

The data-matrix was screened on completeness by looking for missing values, possible (typing) errors and outliers via procedures for both categorical as well as continuous variables (Pallant, 2007). Only few answers randomly missed in the data set. Some outliers were identified and could be corrected as respondents obviously made typing errors when filling in their age and organizational or functional tenure. Also, checks on normality of the variables were performed via histograms and descriptive statistics in terms of Skewness and Kurtosis values. All variables seemed normally distributed.

### 3.5.3 Statistical assumptions

To be able to test the hypotheses of the study, hierarchical multiple regression analysis was used to test the direct relationships between the main effects (the independent variables) and the dependent variable as well as the moderating (interaction) effects.

Several assumptions of (multiple) regression were hereby taken in consideration. The sample size of the study had to contain a certain amount of cases to obtain a result that can be generalized. The

requirements for the sample size were obtained by using the formula of Tabachnick and Fidell (2007). The formula ( $N > 50 + 8m$ ) takes the number of independent variables ( $m$  = number of IV's). This study primarily utilizes three independent variables, thus suggesting a minimum sample size of  $N = 74$ . The sample size of the study ( $N=94$ ) meets this requirement.

A second assumption is about the relationship between the independent variables. Two types of possible relationships have to be analyzed. A first problem can occur when the independent variables are highly correlated ( $r = .9$  and above), which is called multicollinearity. The highest reported correlation between independent variables was between role breadth self-efficacy and proactive personality ( $r = .76$ ). To further examine for possible multicollinearity in detail, variance inflation factors (VIF) were calculated for each of the independent variables. VIF factors were between 3.38 and 1.15, which is below the rule-of-thumb of 10 (Hair, Black, Babin, Anderson, & Tatham, 2006). Therefore, no signs of issues with multicollinearity were found. A second potential problem, the issue of singularity, may occur if an independent variable forms a combination of other independent variables. The independent variables in the study are not made up of a combination, suggesting singularity is not an issue.

The third assumption is about the linearity of the regression model. The distribution of the residuals was checked afterwards on normality by a histogram and a normality probability plot. A second check was to see whether the regression model was homoscedastic. A scatterplot with the standardized residuals (\*ZRESID) and the predicted values (\*ZPRED) showed a fairly balanced concentration round the zero line. Appendix E contains the graphs concerning this assumption.

Finally, prior to the hierarchical multiple regression analysis the independent variables role breadth self-efficacy, proactive personality and tenacity were mean-centered (Aiken et al., 1991). Consequently, also the moderating variables were mean-centered before calculating and creating the interaction effects between the independent variables and the moderator variables.

## 4 RESULTS

In this chapter the results of the data analyses are presented and explained. The first subsection presents a general overview of the data by means of presenting the descriptive statistics. The second subsection presents the results from the hierarchical multiple regression analysis including the discussion of the results of the tests of the hypotheses.

### 4.1 Descriptive statistics

Table 1 presents an overview of the descriptive statistics and bivariate correlations, including means, minimum and maximum values, standard deviations (S.D.) and correlations of the variables. All the significant correlations are flagged with an asterix (\* or \*\*).

TABLE 1 MEANS, STANDARD DEVIATIONS AND CORRELATIONS

Variable	Mean	SD	Min.	Max.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Middle manager ambidexterity	9,90	0,62	8,02	11,36														
2 Exploration	4,72	0,55	3,50	5,67	,533**													
3 Exploitation	5,18	0,57	3,86	6,29	,574**	-,387**												
4 Role Breadth Self Efficacy	4,42	0,63	3,10	5,90	,511**	,362**	,206*											
5 Flexible Role Orientation	5,63	0,57	4,00	7,00	0,081	,268**	-,0171	,252*										
6 Proactive Personality	4,32	0,55	2,88	5,63	,293**	,258*	0,069	,757**	0,063									
7 Tenacity	4,95	0,68	3,00	6,80	,339**	,228*	0,148	,337**	-,0119	,249*								
8 Political Skill	5,49	0,41	4,58	6,27	,615**	,441**	,243*	,448**	,210*	,331**	,298**							
9 Supportive Leadership	5,30	0,73	3,67	6,83	0,012	0,077	-,0061	0,088	-,0069	0,154	,304**	0,031						
10 Age	50,62	7,96	34,00	64,00	0,009	-,0022	0,031	0,166	,339**	0,079	-,292**	0,041	-,0166					
11 Gender	1,37	0,49	1,00	2,00	-,013	-,0173	0,026	-,0180	-,219*	-,0111	0,097	-,0139	,353**	-,277**				
12 Educational level	4,14	0,99	2,00	6,00	-,0097	,254*	-,351**	-,0004	0,086	0,089	0,188	0,064	,409**	-,469**	0,182			
13 Organizational tenure	22,63	9,80	2,00	44,00	0,047	-,0122	0,170	0,031	0,121	-,0072	-,217*	-,0009	-,228*	,710**	-,0172	-,504**		
14 Functional tenure	7,120	3,70	1,00	16,00	0,066	-,0064	0,134	0,039	0,150	-,0060	-,210*	0,016	-,0199	,698**	-,0132	-,535**	,543**	

N = 94

\* p < 0.05 (2-tailed), \*\* p < 0.01 (2-tailed)

In general, the results in the correlation table show significant correlations between dependent (middle managers' ambidexterity) and independent variables (role breadth self-efficacy, proactive personality and tenacity). Both exploration ( $r = .533, p < 0.01$ ) and exploitation ( $r = .574, p < 0.01$ ) correlate significantly with middle managers' ambidexterity, not surprisingly as ambidexterity requires high levels of exploration and exploitation. The negative correlation ( $r = -.387, p < 0.01$ ) between exploration and exploitation is interesting, suggesting that the middle manager might experience tensions in managing a balance between exploration and exploitation activities.

Role breadth self-efficacy shows a higher correlation with exploration ( $r = .362, p < 0.01$ ) than exploitation ( $r = .206, p < 0.05$ ). This was expected as prior research by Parker (1998) found that individuals with high RBSE are willing to contribute to innovation and improvements.

The concept flexible role orientation (FRO), which was also measured in conjunction with role breadth self-efficacy (RSBSE) to provide a deeper understanding about these related motivational constructs, shows a relatively weak correlation with RBSE ( $r = .252, p < 0.05$ ). On the other hand, FRO significantly correlates ( $r = .268, p < 0.01$ ) with exploration as could be expected because of the nature of these constructs. RBSE and proactive personality also highly correlate ( $r = .757, p < 0.01$ ), which was expected as these are related concepts (Parker, 1998). Some observations about tenacity are that a higher aged middle manager tends to be less tenacious and a higher tenure in the function or organization also show less tenacity among the middle managers.

The first moderating variable, political skill, significantly correlates with middle managers' ambidexterity. Interesting is that political skill also significantly correlates with each of the independent variables, suggesting the importance of political skill in relation to social-cognitive factors of the middle manager. The second moderating variable, supportive leadership, only shows a significant correlation with tenacity ( $r = .304, p < 0.01$ ). The extent to which the middle manager perceives to be supported by top management seems to have a positive effect on his/her tenacity.

Interestingly, the control variables (variables 10-14) do not show any significant correlations with middle managers' ambidexterity, which is surprising as it was expected, based on previous research, that positive or negative correlations would be found. Female middle managers seem to be slightly more ambidextrous than male middle managers. No correlations were found suggesting middle managers with a higher educational level (bachelor or higher degree) are more ambidextrous than middle managers with lower degrees. However, a higher educational level negatively correlates with exploitation ( $r = -.351, p < 0.01$ ) and weakly correlates ( $r = .254, p < 0.05$ ) with exploration, suggesting that middle managers with a higher level of education prefer to focus on exploration activities. Finally, middle managers with a higher degree tend to have shorter tenures, both in the organization as well as the function.

## 4.2 Hierarchical regression analysis

The dataset was submitted to a multiple hierarchical regression analysis to test the hypotheses of the study. The hierarchical regression analysis was performed to explain the relationships and the specific contribution of each of the social-cognitive factors (personality traits) on middle managers' ambidexterity in the presence of the other factors. In the hierarchical regression analysis, middle managers' ambidexterity was used as the dependent variable. Based on existing theoretical insights, the control variables were entered as a first step in model 1. The variables that were added in this step were age, gender, educational level, organizational tenure and functional tenure. In model 2 the predictor variables (main effects) were added: role breadth self-efficacy, proactive personality and tenacity to be able to test the first three hypotheses. In model 3 the moderator variables were added; political skill and supportive leadership. Finally, in model 4 the interaction effects were added. The overall results of the regression analyses are displayed in table 2.

TABLE 2 RESULTS OF HIERARCHICAL REGRESSION ANALYSES FOR MIDDLE MANAGERS' AMBIDEXTERITY

Variable	Middle managers' ambidexterity											
	Model 1			Model 2			Model 3			Model 4		
	b	S.E.	$\beta$	b	S.E.	$\beta$	b	S.E.	$\beta$	b	S.E.	$\beta$
Intercept	0,912	(0,736)		1,090	(0,632)		1,218	(0,591)		1,191	(0,594)	
<b>Independent variables (Main effects)</b>												
Role Breadth Self Efficacy ( <i>Hypothesis 1</i> )				0,584	(0,140)	<b>0,598***</b>	0,413	(0,127)	<b>0,423**</b>	0,439	(0,128)	<b>0,450**</b>
Proactive Personality ( <i>Hypothesis 2</i> )				-0,191	(0,155)	-0,169	-0,19	(0,136)	-0,168	-0,272	(0,139)	-0,240
Tenacity ( <i>Hypothesis 3</i> )				0,163	(0,091)	0,180	0,079	(0,084)	0,088	0,085	(0,084)	0,094
<b>Moderators</b>												
Political Skill							0,701	(0,132)	<b>0,467***</b>	0,643	(0,135)	<b>0,429***</b>
Supportive Leadership							0,03	(0,079)	0,036	0,063	(0,080)	0,075
<b>Interaction effects</b>												
RBSE * Political Skill ( <i>Hypothesis 4A</i> )										0,038	(0,080)	0,053
Proactive Personality * Political Skill ( <i>Hypothesis 4B</i> )										-0,048	(0,081)	-0,070
Tenacity * Political Skill ( <i>Hypothesis 4C</i> )										-0,111	(0,060)	-0,157
RBSE * Supportive Leadership ( <i>Hypothesis 5A</i> )										-0,232	(0,105)	<b>-0,357*</b>
Proactive Personality * Supportive Leadership ( <i>Hypothesis 5B</i> )										0,191	(0,097)	0,321
Tenacity * Supportive Leadership ( <i>Hypothesis 5C</i> )										0,111	(0,053)	<b>0,179*</b>
<b>Control variables</b>												
Age	-0,013	(0,014)	-0,173	-0,020	(0,012)	-0,258	-0,020	(0,011)	-0,256	-0,018	(0,011)	-0,236
Gender	-0,181	(0,140)	-0,142	-0,097	(0,119)	-0,077	-0,053	(0,111)	-0,042	-0,050	(0,108)	-0,040
Educational level	-0,044	(0,082)	-0,070	-0,061	(0,069)	-0,097	-0,095	(0,064)	-0,153	-0,082	(0,063)	-0,132
Organizational tenure	0,004	(0,010)	0,056	0,007	(0,008)	0,106	0,006	(0,007)	0,100	0,004	(0,008)	0,066
Functional tenure	0,017	(0,026)	0,100	0,022	(0,022)	0,131	0,016	(0,019)	0,095	0,006	(0,019)	0,034
R-squared	0,033			0,348			0,513			0,576		
Adjusted R-squared	-0,022			0,287			0,455			0,487		
F value	0,601			5,669			8,760			6,527		

Notes. Centered data; unstandardized coefficient (b) and standardized coefficients ( $\beta$ ) are reported, standard errors (S.E.) in parentheses

N = 94; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Model 1 shows the results of the regression analysis with middle managers' ambidexterity as the dependent variable. The regression analysis shows no significant relationships between the control variables age, gender, educational level, organizational tenure and functional tenure and middle managers' ambidexterity. Thus, these variables have no significant explanatory effect on ambidexterity of the middle manager, indicated by the negative value of the adjusted R-squared (-0,022).

Model 2 shows the results of the regression analysis, including the main effects of the three predictors of middle managers' ambidexterity. The first three hypotheses predicted direct positive effects of social-cognitive factors on middle managers' ambidexterity. The model as a whole showed a significant increase in fit, explaining 28.7% of the variance in middle managers' ambidexterity.

The predicted positive relationship between role breadth self-efficacy and middle managers' ambidexterity was confirmed as model 2 shows a significant positive relationship ( $\beta = 0,598, p < .001$ ), resulting in the support of hypothesis 1. This means that middle managers with a high RBSE are more ambidextrous than middle managers with a low RBSE. The hypothesis that proactive personality positive relates to ambidexterity had to be rejected. Model 2 shows an unexpected non-significant negative relationship ( $\beta = 0,169, ns$ ). Lastly, a positive relationship between tenacity and ambidexterity was predicted. This positive relationship was found; however, the relationship was not significant ( $\beta = 0,180, ns$ ), resulting in the rejection of hypothesis 3.

Model 3 shows the regression results of the moderating variables. The models' adjusted R-squared showed an increase in fit, explaining 45.7% of the variance in middle managers' ambidexterity. Political skill has a significant influence on middle managers' ambidexterity ( $\beta = 0,467, p < .001$ ), while supportive leadership has no influence ( $\beta = 0,036, ns$ ).

Regarding the last model, model 4 explains a total of 48.7% of the variance in middle managers' ambidexterity. The predicted positive moderating effect of political skill on the relationship between role breadth self-efficacy and ambidexterity was found, however the results of the regression analysis are not significant ( $\beta = 0,053, ns$ ), therefore hypothesis 4A was not supported.

Hypothesis 4B predicted that political skill positively moderates the relationship between proactive personality and middle manager's ambidexterity. The results of the regression analysis do not show the positive effect that was predicted but a negative non-significant effect ( $\beta = -0,070, ns$ ), thereby not supporting hypothesis 4B.

The moderating effect of political skill on the relationship between tenacity and middle manager's ambidexterity also was not found. The results of the regression analysis show a negative effect, but not significant ( $\beta = -0,157, ns$ ), thus not supporting hypothesis 4C.

It was predicted that supportive leadership negatively moderates the relationship between role breadth self-efficacy and ambidexterity. The result from the regression analysis confirms this prediction as a significant negative effect was found ( $\beta = -0,357, p < .005$ ), thereby supporting hypothesis 5A. Middle managers with a high RBSE act less ambidextrous under the influence of high levels of supportive leadership behaviors. The interaction effect between RBSE and supportive leadership is plotted in figure 4.

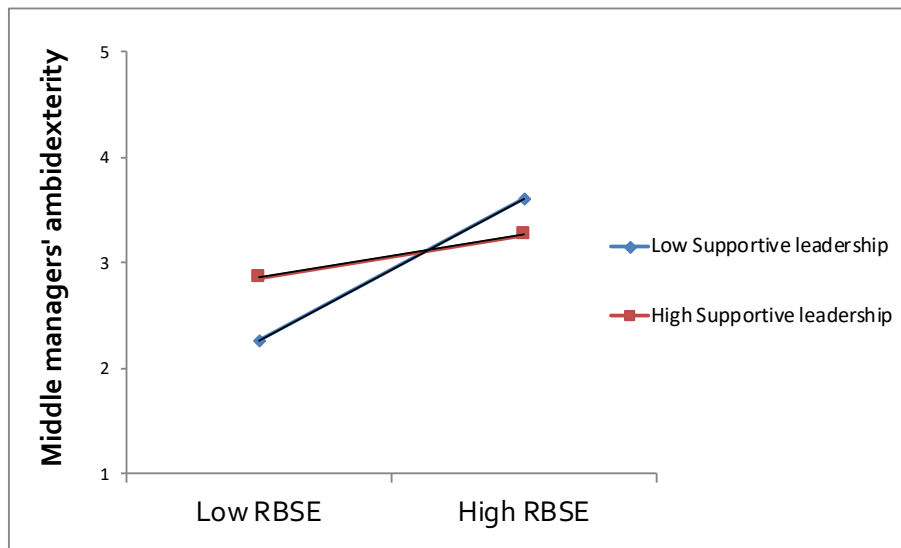


FIGURE 4 INTERACTION OF RBSE AND SUPPORTIVE LEADERSHIP

Hypothesis 5B predicted that supportive leadership positively moderates the relationship between proactive personality and ambidexterity. The result shows a positive interaction coefficient ( $\beta = ,321, ns$ ), however not significant, leading to the rejection of hypothesis 5B.

The last prediction was that supportive leadership positively moderates the relationship between tenacity and ambidexterity. The result shows a positive significant effect ( $\beta = ,179, p < .005$ ), therefore supporting hypothesis 5C. Middle managers who are high tenacious are more ambidextrous when they perceive getting a high level of supportive behaviors by top management. The interaction effect between tenacity and supportive leadership is plotted in figure 5.

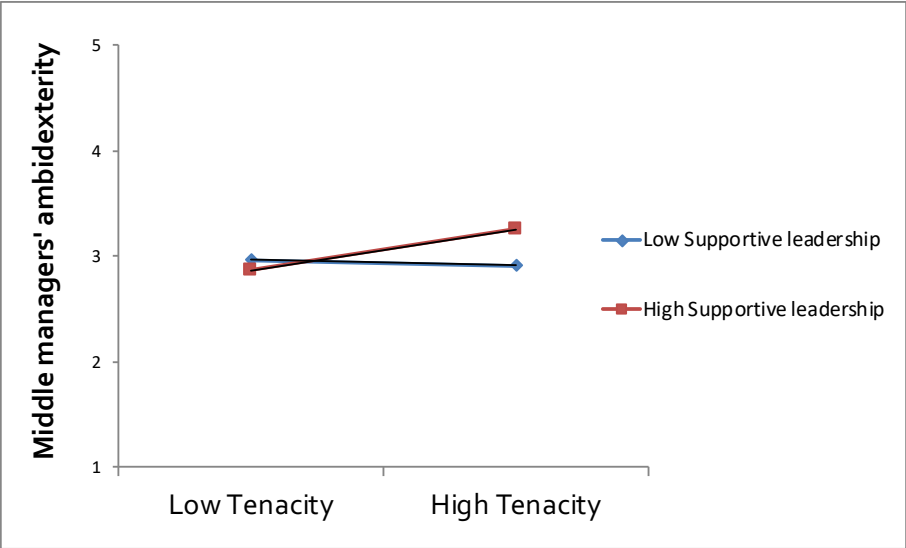


FIGURE 5 INTERACTION OF TENACITY AND SUPPORTIVE LEADERSHIP

## 5 DISCUSSION AND CONCLUSION

This last chapter starts with an overall conclusion followed by a discussion of the most evident findings and the impact on current theoretical insights. Next, the limitations of the study are outlined and recommendations for future research are given. The chapter finalizes by stating the practical implications.

### 5.1 Conclusion

This study took a social-cognitive perspective on middle managers' ambidexterity. The aim of the study was to contribute to existing theoretical insights about ambidexterity at the individual level. The study was guided by the following research question:

*'What is the effect of social-cognitive factors on middle managers' ambidexterity and to what extent are these relationships moderated by middle managements' political skill and top managements' supportive leadership style?'*

The research question cannot be answered by a single answer. The study first shows that social-cognitive factors such as role breadth self-efficacy and tenacity are important antecedents for ambidextrous behavior of the middle manager. Secondly, by examining political skill of the middle manager, the results extend the understanding of the role of political skill in pursuing ambidextrous behavior. In addition, this study provides an extended understanding of the role of leadership style in managing organizational paradoxes in general and more specific the influence of supportive leadership style in managing contextual ambidexterity. Finally, this study extends current insights on ambidexterity by examining ambidexterity in a public organizational context.

### 5.2 Theoretical implications

The results of the study advance current theoretical insights by taking a social-cognitive perspective and providing explanations that contribute to a better understanding of the micro foundations of ambidexterity (Junni, Sarala, Tarba, Liu, & Cooper, 2015). This perspective contributes to research on the individual level of analysis as research on ambidexterity nearly exclusively investigated the concept on the organizational level (Junni et al., 2013). Specifically, this study contributes to a stream of research that calls for investigating individual ambidexterity at the level of the middle manager (Burgess, Strauss, Currie, & Wood, 2015; Mom, Chang, Cholakova, & Jansen, 2018).

The study developed and tested a theoretical model consisting of social-cognitive factors driving ambidextrous behavior of the middle manager from the notion that a more detailed understanding of the antecedents of individual ambidexterity is needed (Mom et al., 2015; Nosella et al., 2012). I therefore developed a theoretical model by using Social Cognitive Theory and used its triadic reciprocal model as the guide of the study (Bandura, 1977; Wood & Bandura, 1989). I assumed that social-cognitive factors shape middle manager's ability to engage into exploitation and exploration and lead to middle managers' ambidextrous behavior, answering the call for investigating individual's abilities and motivational factors driving ambidexterity (Smith & Tushman, 2005). In the contextual method of ambidexterity, middle managers' ambidextrous behavior is also shaped (highly) by the organizational context. I chose one of the most important contextual conditions, leadership, to conclude in this study, to measure the moderating effect of supportive leadership behaviors by top management as insights into organizational circumstances affecting ambidexterity are inadequately developed (Junni et al., 2013; Prieto & Pilar Pérez Santana, 2012). Furthermore, my assumption was that political skill is an important (yet under researched) factor with high impact on social interactions in organizations. The theoretical model and the hypotheses are visualized in the following conceptual model.

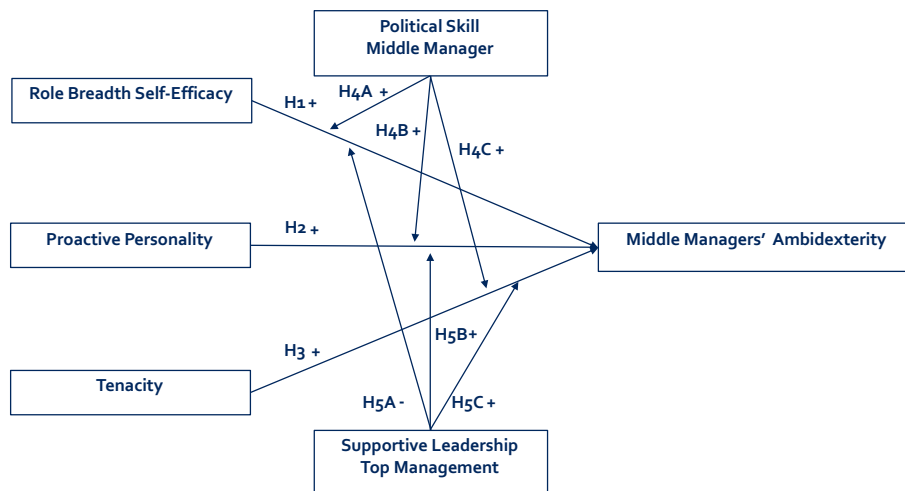


FIGURE 6 CONCEPTUAL MODEL

In the empirical part of the study relevant data was collected to test the hypotheses and predicted relationships. Table 3 shows an overall view of the tests of the hypotheses and the results.

TABLE 3 HYPOTHESES AND RESULTS

Hypothesis	Main and moderating effects	Dependent variable	Theory	Observation	Result
1	RBSE	Middle manager's ambidexterity	+	+	<b>Supported</b>
2	Proactive personality	Middle manager's ambidexterity	+	- (ns)	Rejected
3	Tenacity	Middle manager's ambidexterity	+	+ (ns)	Rejected
4A	RBSE * Political Skill	Middle manager's ambidexterity	+	+ (ns)	Rejected
4B	Proactive Personality * Political Skill	Middle manager's ambidexterity	+	- (ns)	Rejected
4C	Tenacity * Political Skill	Middle manager's ambidexterity	+	- (ns)	Rejected
5A	RBSE * Supportive Leadership	Middle manager's ambidexterity	-	-	<b>Supported</b>
5B	Proactive Personality * Supportive Leadership	Middle manager's ambidexterity	+	+ (ns)	Rejected
5C	Tenacity * Supportive Leadership	Middle manager's ambidexterity	+	+	<b>Supported</b>

Notes. (ns) = not significant

The results as shown in table 3 have to be put in perspective in relation to existing theoretical insights. The results of the study offer several theoretical implications.

First, the study confirms that achieving ambidexterity is difficult at the individual level, as a significant negative correlation ( $r = -.387, p < 0.01$ ) between exploration and exploitation was found. Results of studies on organizational ambidexterity usually show positive correlations between exploration and exploitation (Cao et al., 2009).

Second, role breadth self-efficacy (RBSE) has a positive effect on ambidextrous behavior of the middle manager. This result is expected as RBSE also positively connects with exploration and exploitation, with a stronger correlation with exploration. This is consistent with findings of Rauch and Frese (2007) who found that self-efficacy predicts entrepreneurial behavior (Volery et al., 2013). Although being a slightly different conceptualization, Kauppila and Tempelaar (2016) also found that general self-efficacy (GSE) positively influences individuals' ambidexterity.

Third, no positive effect was found that having a proactive personality is more likely to lead to ambidextrous behavior, on the contrary; an unexpected non-significant negative relationship ( $\beta = 0,169, ns$ ) was found. A possible explanation is that being a proactive personality not automatically has to lead to certain (ambidextrous) behaviors. More factors play a role in this process, for instance behavioral tactics (Thompson, 2005). Nonetheless, also the interaction between proactive personality and political skill (a sort of behavioral tactic) showed no signs towards ambidextrous behavior.

Fourth, the assumption was that tenacity positively influences ambidextrous behavior. While this influence was found, it did not have significant influence on itself. However, under the influence of supportive leadership, tenacity makes significant contributions to ambidextrous behavior, indicating that supportive behaviors like being encouraged stimulate a middle manager to persevere even more to act ambidextrous.

Fifth, an interesting finding is that political skill seems to have had a direct effect on middle managers' ambidexterity, instead of the hypothesized moderating effect on the personality traits. An explanation of the direct effect may be that ambidextrous behavior causes several challenges for the individual that could benefit from being politically skilled. I expect that within these challenges a relatively high amount of social interactions takes place. Furthermore, I expect that to face these challenges, political skill is effective in terms of influencing and effectively communicating, for instance when negotiating about scarce resources. This way political skill directly contributes to the effectiveness of interactions with others, depending on the demands of the context at hand (Ferris et al., 2007). The finding contributes to the understanding of the role of political skill, which has received less attention till date in ambidexterity research (Junni et al., 2015; Kapoutsis et al., 2016).

Finally, supportive leadership behaviors negatively influence the relationship between middle managers with high RBSE and ambidextrous behavior. I argue that this may occur because of a few reasons. Prior research on the path-goal theory has suggested that supportive leadership behaviors may be primarily associated with needs, emotions and satisfactions of the employee, not with a motivational aspect like RBSE (House, 1996). Instead, middle managers with high RBSE may prefer to get support on the job. A second reason may have to do with the research setting. Middle managers who work for a government organization may not be familiar with a supportive leadership style. Consequently, middle managers who work for government organizations might be less familiar with supportive behaviors. By showing supportive behaviors in these situations, the result may not be the development of trust, but even result in being distrusted as these behaviors might be perceived as redundant and work counterproductive. The finding expands the understanding about the role of supportive leadership in managing contextual ambidexterity and the management of organizational paradoxes (Havermans et al., 2015; Patel et al., 2013; Smith & Lewis, 2011).

### 5.3 Limitations and recommendations for future research

This study has several limitations and therefore creates opportunities for future research. A first limitation involves the type of research design, utilizing cross-sectional data obtained through single informants. Due to the purpose of this study, it was not possible to make observations over a longer period of time. While this relative short time period provided valuable insights into the relationships between the constructs, causality between the constructs measured in this study cannot be measured through the type of research design that was used. Longitudinal research on the research topic may generate more value in terms of causality between the study's constructs. With a longitudinal approach the constructs can be measured at more points in time to follow the development of the

process and impact over time. This is especially valuable considering that a motivational factor like efficacy beliefs and the process of balancing exploitation-exploration fluctuate and may unfold over time. Also, supportive leadership style may be considered more positive or negative after gaining more experience with this type of leadership style. Thus, collecting longitudinal data makes it possible to predict changes in beliefs and supportive leadership behaviors over time.

Second, the limited time frame of this study also has the disadvantage that common method bias can occur as the collection of data on the independent and the dependent variables takes place at a single point in time. This disadvantage can be resolved by collecting data about the independent and the dependent variables at separate moments in time (Podsakoff et al., 2003).

A third limitation of the study is the use of self-reports to measure the study's variables. While scales are specifically developed to be used for self-reports, risks may occur concerning single-informant bias and social desirability bias (Podsakoff et al., 2003). These risks can be mitigated by utilizing a multi-rater approach involving other actors such as colleagues or peers assessing the social-cognitive factors of the middle manager.

Fourth, the study results are restricted in terms of generalizability. The respondents involved all worked for the same governmental organization. Collecting data within more different government organizations would enhance the external validity of the results. Also, a second option and recommendation for future research is to replicate the research in other organizational contexts, for example in industries and sectors with high environmental dynamism.

Fifth, this study took a single-level approach to the concept of ambidexterity. However, ambidexterity research lacks multilevel insights (Kauppila & Tempelaar, 2016; Mom et al., 2018). Future studies may provide a more detailed insight how ambidexterity behavior at lower levels benefits organizational ambidexterity.

Finally, future research may identify and address the role and influence of other social-cognitive factors in promoting middle managers' ambidexterity. To be more specific, it is suggested to find more relevant abilities and motivational factors that influence ambidextrous behavior.

## 5.4 Practical implications

The results of the study suggest that individual characteristics of middle managers have significant impact on the capacity to behave ambidextrously. The insights of this study can be used to strengthen the human resource practices of the organization (Mom et al., 2018; Mom, Fourné, et al., 2015). The AMO framework can hereby act as a reference point. To strengthen the HR practices of an organization to promote individual ambidexterity, top management should focus specifically on the abilities and motivational factors of the middle managers. For example, top management can use the insights of this study in the recruitment process of new middle managers. Top management should seek to recruit middle managers with high role breadth self-efficacy beliefs (motivational factor) and the ability to constantly show perseverance.

For top management that uses a supportive leadership style, this study stresses the importance of understanding the effects of a supportive leadership style on the middle manager. Top management should carefully distinguish between giving support on the job or support on the relationship depending on the individual characteristics of the middle manager. For instance, a middle manager with a high role breadth self-efficacy benefits more from getting support on the job instead of on the relationship.

For middle managers, the results suggest that middle managers should be aware of the consequences and risks of having a one-sided focus on exploitation or exploration. The risks of a success or a failure trap do not only exist on the organizational level, but also on the individual level. Middle managers should work on their efficacy beliefs from the notion that a high role breadth self-efficacy benefits their ambidextrous behavior.

## REFERENCES

- Adler, P. S., Goldoftas, B., & Levine, D. I. (1999). Flexibility Versus Efficiency? A Case Study of Model Changeovers in the Toyota Production System. *Organization Science*, 10(1), 43–68. <https://doi.org/10.1287/orsc.10.1.43>
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.
- Ajzen, I. (2005). *Attitudes, personality, and behavior*. McGraw-Hill Education (UK).
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154–1184. <https://doi.org/10.2307/256995>
- Andriopoulos, C., & Lewis, M. W. (2009). Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation. *Organization Science*, 20(4), 696–717. <https://doi.org/10.1287/orsc.1080.0406>
- Balogun, J. (2003). From Blaming the Middle to Harnessing its Potential: Creating Change Intermediaries. *British Journal of Management*, 14(1), 69–83. <https://doi.org/10.1111/1467-8551.00266>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50(2), 248–287. [https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/10.1016/0749-5978(91)90022-L)
- BARRICK, M. R., & MOUNT, M. K. (1991). the Big Five Personality Dimensions and Job Performance: a Meta-Analysis. *Personnel Psychology*, 44(1), 1–26. <https://doi.org/10.1111/j.1744-6570.1991.tb00688.x>
- Bartlett, C. A., & Ghoshal, S. (1994). Linking Organizational Context and Managerial. *Strategic Management Journal*, 15, 91–112.
- Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior*, 14(2), 103–118. <https://doi.org/10.1002/job.4030140202>

- Baum, J. R., & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology, 89*(4), 587–598. <https://doi.org/10.1037/0021-9010.89.4.587>
- Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods, 8*(3), 274–289. <https://doi.org/10.1177/1094428105278021>
- Beckman, C. M. (2006). The influence of founding team company affiliations on firm behavior. *Academy of Management Journal, 49*(4), 741–758. <https://doi.org/10.5465/AMJ.2006.22083030>
- Benner, M. J., & Tushman, M. L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review, 28*(2), 238–256. <https://doi.org/10.5465/AMR.2003.9416096>
- Berson, Y., Nemanich, L. A., Waldman, D. A., Galvin, B. M., & Keller, R. T. (2006). Leadership and organizational learning: A multiple levels perspective. *Leadership Quarterly, 17*(6), 577–594. <https://doi.org/10.1016/j.leaqua.2006.10.003>
- Birkinshaw, J., & Gibson, C. (2004). Building Ambidexterity into an Organisation. *MIT Sloan Management Review, 45*(4), 47–55.
- Birkinshaw, J., & Gupta, K. (2013). Clarifying the Distinctive Contribution of Ambidexterity to the Field of Organization Studies. *Academy of Management Perspectives, 27*(4), 287–298. <https://doi.org/10.5465/amp.2012.0167>
- Blau, P. M. (1964). *Exchange and power in social life*. New York, NY:Wiley. New York: J. Wiley. Retrieved from <http://www.worldcat.org/title/exchange-and-power-in-social-life/oclc/254227>
- BLEDOW, R., & FRESE, M. (2009). A SITUATIONAL JUDGMENT TEST OF PERSONAL INITIATIVE AND ITS RELATIONSHIP TO PERFORMANCE. *Personnel Psychology, 62*(2), 229–258. <https://doi.org/10.1111/j.1744-6570.2009.01137.x>
- Bledow, R., Frese, M., Anderson, N., Erez, M., & Farr, J. (2009). A Dialectic Perspective on Innovation: Conflicting Demands, Multiple Pathways, and Ambidexterity. *Industrial and Organizational Psychology, 2*(03), 305–337. <https://doi.org/10.1111/j.1754-9434.2009.01154.x>
- Blickle, G. (1996). Personality traits, learning strategies, and performance. *European Journal of Personality, 10*(5), 337–352. [https://doi.org/10.1002/\(SICI\)1099-0984\(199612\)10:5<337::AID-PER258>3.0.CO;2-7](https://doi.org/10.1002/(SICI)1099-0984(199612)10:5<337::AID-PER258>3.0.CO;2-7)

- Bonesso, S., Gerli, F., & Scapolan, A. (2014). The individual side of ambidexterity: Do individuals' perceptions match actual behaviors in reconciling the exploration and exploitation trade-off? *European Management Journal*, 32(3), 392–405. <https://doi.org/10.1016/j.emj.2013.07.003>
- Bono, J. E., & McNamara, G. (2011). Publishing in AMJ —Part 2: Research Design. *Academy of Management Journal*, 54(4), 657–660. <https://doi.org/10.5465/amj.2011.64869103>
- Bouquet, C., & Birkinshaw, J. (2008). Managing power in the multinational corporation: How low-power actors gain influence. *Journal of Management*, 34(3), 477–508. <https://doi.org/10.1177/0149206308316062>
- Burgess, N., Strauss, K., Currie, G., & Wood, G. (2015). Organizational Ambidexterity and the Hybrid Middle Manager: The Case of Patient Safety in UK Hospitals. *Human Resource Management*, 54(S1), s87–s109. <https://doi.org/10.1002/hrm.21725>
- Caniëls, M., Neghina, C., & Schaetsaert, N. (2017). Ambidexterity of employees: The role of empowerment and knowledge sharing. *Journal of Knowledge Management*, 00–00. <https://doi.org/10.1108/JKM-10-2016-0440>
- Cao, Q., Gedajlovic, E., & Zhang, H. (2009). Unpacking Organizational Ambidexterity: Dimensions, Contingencies, and Synergistic Effects. *Organization Science*, 20(4), 781–796. <https://doi.org/10.1287/orsc.1090.0426>
- Carmeli, A., Gelbard, R., & Gefen, D. (2010). The importance of innovation leadership in cultivating strategic fit and enhancing firm performance. *Leadership Quarterly*, 21(3), 339–349. <https://doi.org/10.1016/j.leaqua.2010.03.001>
- Carmeli, A., & Halevi, M. Y. (2009). How top management team behavioral integration and behavioral complexity enable organizational ambidexterity: The moderating role of contextual ambidexterity. *Leadership Quarterly*, 20(2), 207–218. <https://doi.org/10.1016/j.leaqua.2009.01.011>
- Chen, G., Farh, J. L., Campbell-Bush, E. M., Wu, Z., & Wu, X. (2013). Teams as innovative systems: Multilevel motivational antecedents of innovation in R&D teams. *Journal of Applied Psychology*, 98(6), 1018–1027. <https://doi.org/10.1037/a0032663>
- Chen, G., Gully, S. M., Whiteman, J.-A., & Kilcullen, R. N. (2000). Examination of relationships among trait-like individual differences, state-like individual differences, and learning performance. *Journal of Applied Psychology*, 85(6), 835–847. <https://doi.org/10.1037/0021-9010.85.6.835>

- Crant, J. M. (2000). Proactive behavior in organizations. *Journal of Management*, 26(3), 435–462. <https://doi.org/10.1177/014920630002600304>
- Day, D. V. (2008). Leadership: Past, Present, and Future. In D. V Day & J. Antonakis (Eds.), *The Nature of Leadership* (Second, pp. 259–260). United Kingdom: SAGE Publications Ltd.
- Denison, D. R., Hooijberg, R., & Quinn, R. E. (1995). Paradox and Performance: Toward a Theory of Behavioral Complexity in Managerial Leadership. *Organization Science*, 6(5), 524–540. <https://doi.org/10.1287/orsc.6.5.524>
- Digman, J. M. (1990). Personality Structure: Emergence of the Five-Factor Model. *Annual Review of Psychology*, 41(1), 417–440. <https://doi.org/10.1146/annurev.ps.41.020190.002221>
- Duncan, R. B. (1976). The ambidextrous organization: Designing dual structures for innovation. *The Management of Organization Design - Strategies and Implementation*, 1, 167–189. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:the+ambidextrous+organization:+Desining+dual+structures+for+innovation#o>
- Dutton, J. E., & Ashford, S. J. (1993). Selling Issues To Top Management. *Academy of Management Review*, 18(3), 397–428. <https://doi.org/10.5465/AMR.1993.9309035145>
- Edmondson, A. (1999). Psychological Safety and Learning Behavior in Work Teams. *Administrative Science Quarterly*, 44(2), 350. <https://doi.org/10.2307/2666999>
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived Organizational Support. *Journal of Applied Psychology*, 71(3), 500–507. <https://doi.org/10.1037/0021-9010.71.3.500>
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, 87(3), 565–573. <https://doi.org/10.1037/0021-9010.87.3.565>
- Eisenhardt, K. M., Furr, N. R., & Bingham, C. B. (2010). CROSSROADS—Microfoundations of Performance: Balancing Efficiency and Flexibility in Dynamic Environments. *Organization Science*, 21(6), 1263–1273. <https://doi.org/10.1287/orsc.1100.0564>
- Falbe, C. M., & Yukl, G. (1992). Consequences for Managers of Using Single Influence Tactics and Combinations of Tactics. *Academy of Management Journal*, 35(3), 638–652. <https://doi.org/10.2307/256490>
- Ferris, G. R., Blickle, G., Schneider, P. B., Kramer, J., Zettler, I., Solga, J., ... Meurs, J. A. (2008). Political

- skill construct and criterion-related validation: a two-study investigation. *Journal of Managerial Psychology*, 23(7), 744–771. <https://doi.org/10.1108/02683940810896321>
- Ferris, G. R., Davidson, S., & Perrewé, P. L. (2005). *Political Skill at Work: Impact on Work Effectiveness*. Nicholas Brealey Publishing.
- Ferris, G. R., Treadway, D. C., Kolodinsky, R. W., Hochwarter, W. A., Kacmar, C. J., Douglas, C., & Frink, D. D. (2005). Development and validation of the political skill inventory. *Journal of Management*, 31(1), 126–152. <https://doi.org/10.1177/0149206304271386>
- Ferris, G. R., Treadway, D. C., Perrewé, P. L., Brouer, R. L., Douglas, C., & Lux, S. (2007). Political skill in organizations. *Journal of Management*, 33(3), 290–320. <https://doi.org/10.1177/0149206307300813>
- Floyd, S. W., & Lane, P. J. (2000). Strategizing throughout the organization: Managing role conflict in strategic renewal. *Academy of Management Review*, 25(1), 154–177. <https://doi.org/10.5465/AMR.2000.2791608>
- Floyd, S. W., & Wooldridge, B. (1992). Middle management involvement in strategy and its association with strategic type: A research note. *Strategic Management Journal*, 13(1 S), 153–167. <https://doi.org/10.1002/smj.4250131012>
- Floyd, S. W., & Wooldridge, B. (1997). Middle Management's Strategic Influence and Organizational Performance. *Journal of Management Studies*, 34(3), 465–485. <https://doi.org/10.1111/1467-6486.00059>
- Floyd, S. W., & Wooldridge, B. (1999). Knowledge Creation and Social Networks in Corporate Entrepreneurship: The Renewal of Organizational Capability. *Entrepreneurship Theory and Practice*, 23(3), 123–144. <https://doi.org/10.1177/104225879902300308>
- Frese, M., & Fay, D. (2001). 4. Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. [https://doi.org/10.1016/S0191-3085\(01\)23005-6](https://doi.org/10.1016/S0191-3085(01)23005-6)
- Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology*, 70(2), 139–161. <https://doi.org/10.1111/j.2044-8325.1997.tb00639.x>
- Frese, M., Garst, H., & Fay, D. (2007). Making Things Happen: Reciprocal Relationships Between Work Characteristics and Personal Initiative in a Four-Wave Longitudinal Structural Equation Model.

- Journal of Applied Psychology*, 92(4), 1084–1102. <https://doi.org/10.1037/0021-9010.92.4.1084>
- Fuller, B., & Marler, L. E. (2009). Change driven by nature: A meta-analytic review of the proactive personality literature. *Journal of Vocational Behavior*, 75(3), 329–345. <https://doi.org/10.1016/j.jvb.2009.05.008>
- Gartner, W. B., Gatewood, E., & Shaver, K. G. (1991). Reasons for starting a business, not-so-simple answers to simple questions. *Research at the Marketing/Entrepreneurship Interface*, 90–101.
- George, J. M., & Zhou, J. (2001). When openness to experience and conscientiousness are related to creative behavior: An interactional approach. *Journal of Applied Psychology*, 86(3), 513–524. <https://doi.org/10.1037//0021-9010.86.3.513>
- Gibson, C. B., & Birkinshaw, J. (2004). THE ANTECEDENTS, CONSEQUENCES, AND MEDIATING ROLE OF ORGANIZATIONAL AMBIDEXTERITY. *Academy of Management Journal*, 47(2), 209–226. <https://doi.org/10.2307/20159573>
- Gibson, C., & Birkinshaw, J. (2004). Building Ambidexterity into an Organization Topic: Leadership and Organizational Studies. *Reprint 45408*, (4), 47–55.
- Gist, M. E., & Mitchell, T. R. (1992). Self-Efficacy - a Theoretical-Analysis of Its Determinants and Malleability. *Academy of Management Review*, 17(2), 183–211. <https://doi.org/10.2307/258770>
- Glaser, L., Stam, W., & Takeuchi, R. (2016). Managing the risks of proactivity: A multilevel study of initiative and performance in the middle management context. *Academy of Management Journal*, 59(4), 1339–1360. <https://doi.org/10.5465/amj.2014.0177>
- Good, D., & Michel, E. J. (2013). Individual ambidexterity: Exploring and exploiting in dynamic contexts. *Journal of Psychology: Interdisciplinary and Applied*, 147(5), 435–453. <https://doi.org/10.1080/00223980.2012.710663>
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6(2), 219–247. [https://doi.org/10.1016/1048-9843\(95\)90036-5](https://doi.org/10.1016/1048-9843(95)90036-5)
- Graen, G., & Cashman, J. F. (1975). *A role-making model of leadership in formal organizations: A developmental approach*. *Leadership frontiers* (Vol. 143).
- Grandey, A. A. (2000). Emotional regulation in the workplace: A new way to conceptualize emotional

- labor. *Journal of Occupational Health Psychology*, 5(1), 95–110. <https://doi.org/10.1037//1076-8998.5.1.95>
- Guillén, L., & Saris, W. E. (2013). Competencies, Personality Traits, and Organizational Rewards of Middle Managers: A Motive-Based Approach. *Human Performance*, 26(1), 66–92. <https://doi.org/10.1080/08959285.2012.736898>
- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006). THE INTERPLAY BETWEEN EXPLORATION AND EXPLOITATION. *Academy of Management Journal*, 49(4), 693–706. <https://doi.org/10.5465/AMJ.2006.22083026>
- Hahn, M. H., Choi, D. Y., & Lee, K. C. (2011). Effects of Social and Emotional Intelligence on the Creative Process and Individual Creativity. In T. Kim, H. Adeli, J. Ma, W. Fang, B.-H. Kang, B. Park, ... K. C. Lee (Eds.), *U- and E-Service, Science and Technology* (Vol. 264, pp. 217–226). Berlin, Heidelberg: Springer Berlin Heidelberg. [https://doi.org/10.1007/978-3-642-27210-3\\_26](https://doi.org/10.1007/978-3-642-27210-3_26)
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.
- Han, Y., Wang, M., & Dong, L. (2014). Role Conflict and the Buffering Effect of Proactive Personality Among Middle Managers. *Social Behavior and Personality: An International Journal*, 42(3), 473–486. <https://doi.org/10.2224/sbp.2014.42.3.473>
- Hansen, M. T., Podolny, J. M., & Pfeffer, J. (2001). So many ties, so little time: A task contingency perspective on corporate social capital in organizations. In *Research in the Sociology of Organizations* (Vol. 18, pp. 21–57). [https://doi.org/10.1016/S0733-558X\(01\)18002-X](https://doi.org/10.1016/S0733-558X(01)18002-X)
- Hart, S. L. (1992). An Integrative Framework for Strategy-Making Processes. *The Academy of Management Review*, 17(2), 327. <https://doi.org/10.2307/258775>
- Hauptman, O., & Neuringer, J. (1997). The Knowledge-Creating Company: How Japanese companies create the dynamics of innovation. *Technological Forecasting and Social Change*, 55(1), 99–101. [https://doi.org/10.1016/S0040-1625\(96\)00091-1](https://doi.org/10.1016/S0040-1625(96)00091-1)
- Havermans, L. A., Den Hartog, D. N., Keegan, A., & Uhl-Bien, M. (2015). Exploring the Role of Leadership in Enabling Contextual Ambidexterity. *Human Resource Management*, 54(S1), s179–s200. <https://doi.org/10.1002/hrm.21764>
- He, Z.-L., & Wong, P.-K. (2004). Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis. *Organization Science*, 15(4), 481–494. <https://doi.org/10.1287/orsc.1040.0078>

- Holmqvist, M. (2004). Experiential Learning Processes of Exploitation and Exploration Within and Between Organizations: An Empirical Study of Product Development. *Organization Science*, 15(1), 70–81. <https://doi.org/10.1287/orsc.1030.0056>
- House, R. J. (1996). Path-goal theory of leadership: Lessons, legacy, and a reformulated theory. *Leadership Quarterly*, 7(3), 323–352. [https://doi.org/10.1016/S1048-9843\(96\)90024-7](https://doi.org/10.1016/S1048-9843(96)90024-7)
- Huy, Q. N. (2001). In praise of middle managers. *Harvard Business Review*, 79(8), 72–79, 160. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11550632>
- Huy, Q. N. (2011). How middle managers' group-focus emotions and social identities influence strategy implementation. *Strategic Management Journal*, 32(13), 1387–1410. <https://doi.org/10.1002/smj.961>
- Jansen, J. J. P., George, G., Van Den Bosch, F. A. J., & Volberda, H. W. (2008). Senior team attributes and organizational ambidexterity: The moderating role of transformational leadership. *Journal of Management Studies*, 45(5), 982–1007. <https://doi.org/10.1111/j.1467-6486.2008.00775.x>
- Jansen, J. J. P., Kostopoulos, K. C., Mihalache, O. R., & Papalexandris, A. (2016). A Socio-Psychological Perspective on Team Ambidexterity: The Contingency Role of Supportive Leadership Behaviours. *Journal of Management Studies*, 53(6), 939–965. <https://doi.org/10.1111/joms.12183>
- Jansen, J. J. P., Simsek, Z., & Cao, Q. (2012). Ambidexterity and performance in multiunit contexts: Cross-level moderating effects of structural and resource attributes. *Strategic Management Journal*, 33(11), 1286–1303. <https://doi.org/10.1002/smj.1977>
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Management Science*, 52(11), 1661–1674. <https://doi.org/10.1287/mnsc.1060.0576>
- Jansen, J. J. P., Vera, D., & Crossan, M. (2009). Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. *Leadership Quarterly*, 20(1), 5–18. <https://doi.org/10.1016/j.leaqua.2008.11.008>
- Jasmand, C., Blazevic, V., & de Ruyter, K. (2012). Generating Sales While Providing Service: A Study of Customer Service Representatives' Ambidextrous Behavior. *Journal of Marketing*, 76(1), 20–37. <https://doi.org/10.1509/jm.10.0448>
- Jawahar, I. M., Stone, T. H., & Kisamore, J. L. (2007). Role conflict and burnout: The direct and moderating effects of political skill and perceived organizational support on burnout dimensions.

- International Journal of Stress Management*, 14(2), 142–159. <https://doi.org/10.1037/1072-5245.14.2.142>
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How Does Human Resource Management Influence Organizational Outcomes? A Meta-analytic Investigation of Mediating Mechanisms. *Academy of Management Journal*, 55(6), 1264–1294. <https://doi.org/10.5465/amj.2011.0088>
- Jiang, K., Takeuchi, R., & Lepak, D. P. (2013). Where do We Go From Here? New Perspectives on the Black Box in Strategic Human Resource Management Research. *Journal of Management Studies*, 50(8), n/a-n/a. <https://doi.org/10.1111/joms.12057>
- Junni, P., Sarala, R. M., Taras, V., & Tarba, S. Y. (2013). Organizational Ambidexterity and Performance: A Meta-Analysis. *Academy of Management Perspectives*, 27(4), 299–312. <https://doi.org/10.5465/amp.2012.0015>
- Junni, P., Sarala, R. M., Tarba, S. Y., Liu, Y., & Cooper, C. L. (2015). Guest Editors' Introduction: The Role of Human Resources and Organizational Factors in Ambidexterity. *Human Resource Management*, 54(S1), s1–s28. <https://doi.org/10.1002/hrm.21772>
- Kanfer, R. (1992). Work Motivation: New Directions in Theory and Research. *International Review of Industrial and Organizational Psychology*, 7(April), 1–53.
- Kang, S.-C., & Snell, S. A. (2009). Intellectual Capital Architectures and Ambidextrous Learning: A Framework for Human Resource Management. *Journal of Management Studies*, 46(1), 65–92. <https://doi.org/10.1111/j.1467-6486.2008.00776.x>
- Kang, S. C., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational learning, and value creation: Extending the human resource architecture. *Academy of Management Review*, 32(1), 236–256. <https://doi.org/10.5465/AMR.2007.23464060>
- Kanter, R. M. (1982). The middle manager as innovator. *Harvard Business Review*, 60(4), 95–105. <https://doi.org/Article>
- Kapoutsis, I., Papalexandris, A., & Nikolopoulos. (2010). *Influence Tactic Ambidexterity for Achieving Performance: the Moderating Role of Political Skill*. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:INFLUENCE+TACTIC+AMBI+DEXTERITY+FOR+ACHIEVING+PERFORMANCE:+THE+MODERATING+ROLE+OF+POLITICAL+SKILL#2%5Cnhttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Influence+Tactic+Ambidexterit>

- Kapoutsis, I., Papalexandris, A., & Thanos, I. C. (2016). Hard, soft or ambidextrous? Which influence style promotes managers' task performance and the role of political skill. *International Journal of Human Resource Management*, (September), 1–30. <https://doi.org/10.1080/09585192.2016.1233447>
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (Vol. 2). Wiley New York.
- Kauppila, O. P., & Tempelaar, M. P. (2016). The Social-Cognitive Underpinnings of Employees' Ambidextrous Behaviour and the Supportive Role of Group Managers' Leadership. *Journal of Management Studies*, 53(6), 1019–1044. <https://doi.org/10.1111/joms.12192>
- Kehoe, K. (2001). The Leadership Pipeline: How to Build the Leadership Powered Company. *Academy of Management Executive*, 15(2), 135–136. <https://doi.org/10.5465/AME.2001.4615076>
- Keller, T., & Weibler, J. (2014). Behind Managers' Ambidexterity — Studying Personality Traits, Leadership, and Environmental Conditions Associated with Exploration and Exploitation. *Schmalenbach Business Review*, 66(3), 309–333. <https://doi.org/10.1007/BF03396909>
- Keller, T., & Weibler, J. (2015). What It Takes and Costs To Be an Ambidextrous Manager: Linking Leadership and Cognitive Strain to Balancing Exploration and Exploitation. *Journal of Leadership and Organizational Studies*, 22(1), 54–71. <https://doi.org/10.1177/1548051814524598>
- Kellerl, T., & Dansereau, F. (1995). Leadership and Empowerment: A Social Exchange Perspective. *Human Relations*, 48(2), 127–146. <https://doi.org/10.1177/001872679504800202>
- Kimura, T. (2015). A Review of Political Skill: Current Research Trend and Directions for Future Research. *International Journal of Management Reviews*, 17(3), 312–332. <https://doi.org/10.1111/ijmr.12041>
- Kobarg, S., Wollersheim, J., Welpel, I. M., & Spörrle, M. (2017). Individual Ambidexterity and Performance in the Public Sector: A Multilevel Analysis. *International Public Management Journal*, 20(2), 226–260. <https://doi.org/10.1080/10967494.2015.1129379>
- Krackhardt, D., & Mintzberg, H. (1985). Power In and Around Organizations. *Administrative Science Quarterly*, 30(4), 597. <https://doi.org/10.2307/2392702>
- Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. (2005). A model of middle-level managers' entrepreneurial behavior. *Entrepreneurship: Theory and Practice*, 29(6), 699–716. <https://doi.org/10.1111/j.1540-6520.2005.00104.x>

- Laureiro-Martínez, D., Brusoni, S., Canessa, N., & Zollo, M. (2015). Understanding the exploration-exploitation dilemma: An fMRI study of attention control and decision-making performance. *Strategic Management Journal*, *36*(3), 319–338. <https://doi.org/10.1002/smj.2221>
- Laureiro-Martínez, D., Brusoni, S., & Zollo, M. (2010). The Neuroscientific Foundations of the Exploration-Exploitation Dilemma. *Journal of Neuroscience, Psychology, and Economics*, *3*(2), 95–115. <https://doi.org/10.1037/a0018495>
- Lavie, D., Stettner, U., & Tushman, M. L. (2010). Exploration and exploitation within and across organizations. *Academy of Management Annals*, *4*(1), 109–155. <https://doi.org/10.1080/19416521003691287>
- Le Pine, J. A., Colquitt, J. A., & Erez, A. (2000). Adaptability to changing task contexts: Effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology*, *53*(3), 563–593. <https://doi.org/10.1111/j.1744-6570.2000.tb00214.x>
- Lepak, D. P., & Snell, S. A. (1999). The Human Resource Architecture: Toward a Theory of Human Capital Allocation and Development. *The Academy of Management Review*, *24*(1), 31. <https://doi.org/10.2307/259035>
- Levin, D. Z., & Cross, R. (2004). The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer. *Management Science*, *50*(11), 1477–1490. <https://doi.org/10.1287/mnsc.1030.0136>
- Levinthal, D. A., & March, J. G. (1993). The myopia of learning. *Strategic Management Journal*, *14*(S2), 95–112. <https://doi.org/10.1002/smj.4250141009>
- Lewis, M. W. (2000). Paradox: Toward a more comprehensive guide. *The Academy of Management Review*, *25*(4), 760–776. <https://doi.org/http://www.jstor.org/stable/259204>
- Lewis, M. W., Andriopoulos, C., & Smith, W. K. (2014). Paradoxical Leadership to Enable Strategic Agility. *California Management Review*, *56*(3), 58–77. <https://doi.org/10.1525/cm.2014.56.3.58>
- Liu, Y., Ferris, G. R., Zinko, R., Perrewé, P. L., Weitz, B., & Xu, J. (2007). Dispositional antecedents and outcomes of political skill in organizations: A four-study investigation with convergence. *Journal of Vocational Behavior*, *71*(1), 146–165. <https://doi.org/10.1016/j.jvb.2007.04.003>
- Lubatkin, M. H., Simsek, Z., Ling, Y., & Veiga, J. F. (2006). Ambidexterity and performance in small-to medium-sized firms: The pivotal role of top management team behavioral integration. *Journal of Management*, *32*(5), 646–672. <https://doi.org/10.1177/0149206306290712>

- March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, 2(1), 71–87. <https://doi.org/10.1287/orsc.2.1.71>
- McCrae, R. R., & John, O. P. (1992). An Introduction to the Five-Factor Model and Its Applications. *Journal of Personality*, 60(2), 175–215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- McGrath, R. G. (2001). Exploratory learning, innovative capacity, and managerial oversight. *Academy of Management Journal*, 44(1), 118–131. <https://doi.org/10.2307/3069340>
- Miron-Spektor, E., Gino, F., & Argote, L. (2011). Paradoxical frames and creative sparks: Enhancing individual creativity through conflict and integration. *Organizational Behavior and Human Decision Processes*, 116(2), 229–240. <https://doi.org/10.1016/j.obhdp.2011.03.006>
- Mom, T. J. M., Chang, Y. Y., Cholakova, M., & Jansen, J. J. P. (2018). A Multilevel Integrated Framework of Firm HR Practices, Individual Ambidexterity, and Organizational Ambidexterity. *Journal of Management*, XX(X), 1–26. <https://doi.org/10.1177/0149206318776775>
- Mom, T. J. M., Fourné, S. P. L., & Jansen, J. J. P. (2015). Managers' Work Experience, Ambidexterity, and Performance: The Contingency Role of the Work Context. *Human Resource Management*, 54(S1), s133–s153. <https://doi.org/10.1002/hrm.21663>
- Mom, T. J. M., van den Bosch, F. A. J., & Volberda, H. W. (2009). Understanding Variation in Managers' Ambidexterity: Investigating Direct and Interaction Effects of Formal Structural and Personal Coordination Mechanisms. *Organization Science*, 20(4), 812–828. <https://doi.org/10.1287/orsc.1090.0427>
- Mom, T. J. M., Van Den Bosch, F. A. J., & Volberda, H. W. (2007). Investigating managers' exploration and exploitation activities: The influence of top-down, bottom-up, and horizontal knowledge inflows. *Journal of Management Studies*, 44(6), 910–931. <https://doi.org/10.1111/j.1467-6486.2007.00697.x>
- Mom, T. J. M., van Neerijnen, P., Reinmoeller, P., & Verwaal, E. (2015). Relational Capital and Individual Exploration: Unravelling the Influence of Goal Alignment and Knowledge Acquisition. *Organization Studies*, 36(6), 809–829. <https://doi.org/10.1177/0170840615580009>
- Morgeson, F. P., Delaney-Klinger, K., & Hemingway, M. A. (2005). The Importance of Job Autonomy, Cognitive Ability, and Job-Related Skill for Predicting Role Breadth and Job Performance. *Journal of Applied Psychology*, 90(2), 399–406. <https://doi.org/10.1037/0021-9010.90.2.399>
- Nemanich, L. A., & Vera, D. (2009). Transformational leadership and ambidexterity in the context of

- an acquisition. *Leadership Quarterly*, 20(1), 19–33. <https://doi.org/10.1016/j.leaqua.2008.11.002>
- Nosella, A., Cantarello, S., & Filippini, R. (2012). The intellectual structure of organizational ambidexterity: A bibliographic investigation into the state of the art. *Strategic Organization*, 10(4), 450–465. <https://doi.org/10.1177/1476127012457979>
- O'Reilly, C. A., & Tushman, M. L. (2004). The Ambidextrous Organization. *Harvard Business Review*, 82(4), 74–81.
- O'Reilly, C. A., & Tushman, M. L. (2011). Organizational Ambidexterity in Action: How Managers Explore and Exploit. *California Management Review*, 53(4), 5–22. <https://doi.org/10.1525/cm.2011.53.4.5>
- Ohly, S., & Fritz, C. (2007). Challenging the status quo: What motivates proactive behaviour? *Journal of Occupational and Organizational Psychology*, 80(4), 623–629. <https://doi.org/10.1348/096317907X180360>
- Oldham, G. R., & Cummings, A. (1996). EMPLOYEE CREATIVITY: PERSONAL AND CONTEXTUAL FACTORS AT WORK. *Academy of Management Journal*, 39(3), 607–634. <https://doi.org/10.2307/256657>
- Ozer, E. M., & Bandura, A. (1990). Mechanisms Governing Empowerment Effects: A Self Efficacy Analysis. *Journal of Personality and Social Psychology*, 58(3), 472–486.
- Pallant, J. (2007). SPSS survival manual, 3rd. Edition. McGrath Hill.
- Parker, S. (2000). From Passive to Proactive Motivation: The Importance of Flexible Role Orientations and Role Breadth Self-efficacy. *Applied Psychology*, 49(3), 447–469. <https://doi.org/10.1111/1464-0597.00025>
- Parker, S. K. (1998). Enhancing role breadth self-efficacy: the roles of job enrichment and other organizational interventions. *The Journal of Applied Psychology*, 83(6), 835–852. <https://doi.org/10.1037/0021-9010.83.6.835>
- Parker, S. K., & Sprigg, C. A. (1999). Minimizing strain and maximizing learning: The role of job demands, job control, and proactive personality. *Journal of Applied Psychology*, 84(6), 925–939. <https://doi.org/10.1037//0021-9010.84.6.925>
- Patel, P. C., Messersmith, J. G., & Lepak, D. P. (2013). Walking the Tightrope: An Assessment of the Relationship between High-Performance Work Systems and Organizational Ambidexterity.

*Academy of Management Journal*, 56(5), 1420–1442. <https://doi.org/10.5465/amj.2011.0255>

Perrewé, P. L., Ferris, G. R., Funk, D. D., & Anthony, W. P. (2000). Political skill: An antidote for workplace stressors. *Academy of Management Perspectives*, 14(3), 115–123. <https://doi.org/10.5465/AME.2000.4468071>

Perrewé, P. L., Zellars, K. L., Ferris, G. R., Rossi, A. M., Kacmar, C. J., & Ralston, D. A. (2004). Neutralizing job stressors: Political skill as an antidote to the dysfunctional consequences of role conflict. *Academy of Management Journal*, 47(1), 141–152. <https://doi.org/10.2307/20159566>

Pfeffer, J. (1981). *Power in Organizations*. Pitman Publishing (Vol. 33). Pitman Marshfield, MA.

Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, 82(5), 792–802. <https://doi.org/10.1037/0021-9010.82.5.792>

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>

Prieto-Pastor, I., & Martin-Perez, V. (2015). Does HRM generate ambidextrous employees for ambidextrous learning? The moderating role of management support. *International Journal of Human Resource Management*, 26(5), 589–615. <https://doi.org/10.1080/09585192.2014.938682>

Prieto, I. M., & Pilar Pérez Santana, M. (2012). Building ambidexterity: The role of human resource practices in the performance of firms from Spain. *Human Resource Management*, 51(2), 189–211. <https://doi.org/10.1002/hrm.21463>

Raes, A. M. L., Heijltjes, M. G., Glunk, U., & Roe, R. A. (2011). The interface of the top management team and middle managers: A process model. *The Academy of Management Review*, 36(1), 102–126. Retrieved from <http://aom.metapress.com/index/C162516751X79105.pdf>

Rafferty, A. E., & Griffin, M. A. (2004). Dimensions of transformational leadership: Conceptual and empirical extensions. *Leadership Quarterly*, 15(3), 329–354. <https://doi.org/10.1016/j.leaqua.2004.02.009>

Rafferty, A. E., & Griffin, M. A. (2006). Refining individualized consideration: Distinguishing developmental leadership and supportive leadership. *Journal of Occupational and Organizational Psychology*, 79(1), 37–61. <https://doi.org/10.1348/096317905X36731>

- Raisch, S., & Birkinshaw, J. (2008). Organizational Ambidexterity: Antecedents, Outcomes, and Moderators. *Journal of Management*, *34*(3), 375–409. <https://doi.org/10.1177/0149206308316058>
- Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance. *Organization Science*, *20*(4), 685–695. <https://doi.org/10.1287/orsc.1090.0428>
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, *16*(4), 353–385. <https://doi.org/10.1080/13594320701595438>
- Redmond, M. R., Mumford, M. D., & Teach, R. (1993). Putting creativity to work: Effects of leader behavior on subordinate creativity. *Organizational Behavior and Human Decision Processes*, *55*(1), 120–151. <https://doi.org/10.1006/obhd.1993.1027>
- Rooney, J. A., & Gottlieb, B. H. (2007). Development and initial validation of a measure of supportive and unsupportive managerial behaviors. *Journal of Vocational Behavior*, *71*(2), 186–203. <https://doi.org/10.1016/j.jvb.2007.03.006>
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *Leadership Quarterly*, *22*(5), 956–974. <https://doi.org/10.1016/j.leaqua.2011.07.014>
- Rouleau, L., & Balogun, J. (2011). Middle managers, strategic sensemaking, and discursive competence. *Journal of Management Studies*, *48*(5), 953–983. <https://doi.org/10.1111/j.1467-6486.2010.00941.x>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, *25*(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Seibert, S. E., Crant, J. M., & Kraimer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, *84*(3), 416–427. <https://doi.org/10.1037/0021-9010.84.3.416>
- Seibert, S. E., Kraimer, M., & Crant, J. M. (2001). What Do Proactive People Do? *Personnel Psychology*, *54*(4), 845–874.
- Sheremata, W. A. (2000). Centrifugal and centripetal forces in radical new product development under time pressure. *Academy of Management Review*, *25*(2), 389–408.

<https://doi.org/10.5465/AMR.2000.3312925>

Sidhu, J. S., Commandeur, H. R., & Volberda, H. W. (2007). The Multifaceted Nature of Exploration and Exploitation: Value of Supply, Demand, and Spatial Search for Innovation. *Organization Science*, 18(1), 20–38. <https://doi.org/10.1287/orsc.1060.0212>

Simsek, Z. (2009). Organizational ambidexterity: Towards a multilevel understanding. *Journal of Management Studies*, 46(4), 597–624. <https://doi.org/10.1111/j.1467-6486.2009.00828.x>

Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. (2009). A Typology for Aligning Organizational Ambidexterity's Conceptualizations, Antecedents, and Outcomes. *Journal of Management Studies*, 46(5), 864–894. <https://doi.org/10.1111/j.1467-6486.2009.00841.x>

Smith, K., Collins, C., & Clark, K. (2005). Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms. *Academy of Management Journal*, 48(2), 346–357. <https://doi.org/10.2307/20159660>

Smith, W. K. (2014). Dynamic decision making: A model of senior leaders managing strategic paradoxes. *Academy of Management Journal*, 57(6), 1592–1623. <https://doi.org/10.5465/amj.2011.0932>

Smith, W. K., Binns, A., & Tushman, M. L. (2010). Complex business models: Managing strategic paradoxes simultaneously. *Long Range Planning*, 43(2–3), 448–461. <https://doi.org/10.1016/j.lrp.2009.12.003>

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, 36(2), 381–403. <https://doi.org/10.5465/AMR.2011.59330958>

Smith, W. K., & Tushman, M. L. (2005). Managing Strategic Contradictions: A Top Management Model for Managing Innovation Streams. *Organization Science*, 16(5), 522–536. <https://doi.org/10.1287/orsc.1050.0134>

Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49(6), 1239–1251. <https://doi.org/10.5465/AMJ.2006.23478718>

Stokes, P., Moore, N., Moss, D., Mathews, M., Smith, S. M., & Liu, Y. (2015). The Micro-Dynamics of Intraorganizational and Individual Behavior and Their Role in Organizational Ambidexterity Boundaries. *Human Resource Management*, 54(S1), s63–s86. <https://doi.org/10.1002/hrm.21690>

- Strauss, K., Griffin, M. A., & Rafferty, A. E. (2009). Proactivity directed toward the team and organization: The role of leadership, commitment and role-breadth self-efficacy. *British Journal of Management*, 20(3), 279–291. <https://doi.org/10.1111/j.1467-8551.2008.00590.x>
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Allyn & Bacon/Pearson Education.
- Taylor, A., & Helfat, C. E. (2009). Organizational Linkages for Surviving Technological Change: Complementary Assets, Middle Management, and Ambidexterity. *Organization Science*, 20(4), 718–739. <https://doi.org/10.1287/orsc.1090.0429>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Tempelaar, M. P., & Rosenkranz, N. A. (2017). Switching Hats: The Effect of Role Transition on Individual Ambidexterity. *Journal of Management*, XX(X), 014920631771431. <https://doi.org/10.1177/0149206317714312>
- Thompson, J. A. (2005). Proactive Personality and Job Performance: A Social Capital Perspective. *Journal of Applied Psychology*, 90(5), 1011–1017. <https://doi.org/10.1037/0021-9010.90.5.1011>
- Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *Academy of Management Journal*, 45(6), 1137–1148. <https://doi.org/10.2307/3069429>
- Tierney, P., Farmer, S. M., & Graen, G. B. (1999). An examination of leadership and employee creativity: The relevance of traits and relationships. *Personnel Psychology*, 52(3), 591–620. <https://doi.org/10.1111/j.1744-6570.1999.tb00173.x>
- Trošt, J. K., Miha, S., & Anzengruber, J. (2016). The ability-motivation-opportunity framework for team innovation: Efficacy beliefs proactive personalities supportive supervision and team. *Economic and Business Review*, 18(1), 77–102. <https://doi.org/10.15458/85451.17>
- Turner, N., & Lee-Kelley, L. (2013). Unpacking the theory on ambidexterity: An illustrative case on the managerial architectures, mechanisms and dynamics. *Management Learning*, 44(2), 179–196. <https://doi.org/10.1177/1350507612444074>
- Turner, N., Swart, J., & Maylor, H. (2013). Mechanisms for managing ambidexterity: A review and research agenda. *International Journal of Management Reviews*, 15(3), 317–332. <https://doi.org/10.1111/j.1468-2370.2012.00343.x>

- Tushman, M. L. (1997). Winning through innovation. *Strategy & Leadership*, 25(4), 14–19. <https://doi.org/10.1108/ebo54591>
- Tushman, M. L., & O'Reilly, C. A. (1996). Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change. *California Management Review*, 38(4), 8–29. <https://doi.org/10.2307/41165852>
- van Dam, K., Oreg, S., & Schyns, B. (2008). Daily Work Contexts and Resistance to Organisational Change: The Role of Leader–Member Exchange, Development Climate, and Change Process Characteristics. *Applied Psychology*, 57(2), 313–334. <https://doi.org/10.1111/j.1464-0597.2007.00311.x>
- Van Dam, K., & Seijts, G. H. (2007). Measuring goal orientation climate. In *Paper for the symposium 'Goal orientation research across levels: The role of motives and context', at the 22nd Annual Conference of the Society of Industrial and Organizational Psychology, New York, USA.*
- Van de Ven, A. H., & Chu, Y. (1989). *A psychometric assessment of the Minnesota Innovation Survey. Research on the management of innovation: The Minnesota Studies.* Oxford University Press Oxford.
- Vera, D., & Crossan, M. (2004). Strategic Leadership and Organizational Learning. *The Academy of Management Review*, 29(2), 222. <https://doi.org/10.2307/20159030>
- Volery, T., Müller, S., Oser, F., Naepflin, C., & del Rey, N. (2013). The Impact of Entrepreneurship Education on Human Capital at Upper-Secondary Level. *Journal of Small Business Management*, 51(3), 429–446. <https://doi.org/10.1111/jsbm.12020>
- Wood, R., & Bandura, A. (1989). Social Cognitive Theory of Organizational Management. *Academy of Management Review*, 14(3), 361–384. <https://doi.org/10.5465/AMR.1989.4279067>
- Wood, R., & Bandura, A. (1989). Social Cognitive Theory of Organizational Management. *The Academy of Management Review*, 14(3), 361. <https://doi.org/10.2307/258173>
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a Theory of Organizational Creativity. *The Academy of Management Review*, 18(2), 293. <https://doi.org/10.2307/258761>
- Wooldridge, B., Schmid, T., & Floyd, S. W. (2008). The middle management perspective on strategy process: Contributions, synthesis, and future research. *Journal of Management*, 34(6), 1190–1221. <https://doi.org/10.1177/0149206308324326>

Wright, P. M., Kacmar, K. M., McMahan, G. C., & Deleeuw, K. (1995). P=f(M X A): Cognitive Ability as a Moderator of the Relationship Between Personality and Job Performance. *Journal of Management*, 21(6), 1129–1139. <https://doi.org/10.1177/014920639502100606>

Yukl, G. (2009). Leading organizational learning: Reflections on theory and research. *The Leadership Quarterly*, 20(1), 49–53. <https://doi.org/10.1016/j.leaqua.2008.11.006>

Yukl, G. A. (2013). *Leadership in organizations*. Pearson Education India.

## APPENDICES

### Appendix A - Analysis of respondents

TABLE 4 MEANS, STANDARD DEVIATIONS AND MINIMUM AND MAXIMUM VALUES

<b>Info</b>	<b>Age</b>	<b>Organizational Tenure</b>	<b>Functional Tenure</b>	<b>Span of control</b>
Mean	50,62	22,63	7,12	21,97
Std. Deviation	7,96	9,79	3,70	3,15
Minimum	34	2,00	1,00	16,00
Maximum	64	44,00	16,00	31,00

TABLE 5 RATIO MALE-FEMALE

<b>Gender</b>	<b>Level</b>	<b>%</b>
Male	59	62,8%
Female	35	37,2%

TABLE 6 EDUCATIONAL LEVEL

<b>Educational level</b>	<b>Level</b>	<b>%</b>
Middelbare school	10	10,6
MBO	9	9,6
HBO - Bachelor	34	36,2
WO - Master	40	42,6
PhD - Post-doc	1	1,1

## Appendix B - Utilized scales and survey-items

- Wat is uw leeftijd?
- Wat is uw geslacht?
- Wat is uw hoogst afgeronde opleiding?
- Hoe lang werkt u voor de organisatie?
- Hoe lang werkt u in uw huidige functie?
- Wat is in uw functie de span of control waarmee u te maken heeft?

### **Exploratie (Exploration; scale Mom et al. (2009)) ( $\alpha = .84$ )**

---

Geef s.v.p. aan in welke mate u in het afgelopen jaar heeft gewerkt aan:

- Activiteiten gericht op het zoeken naar nieuwe mogelijkheden voor producten/diensten, processen of markten
- Activiteiten gericht op het evalueren van verschillende mogelijkheden voor producten/diensten, processen of markten
- Activiteiten die gericht zijn op sterke vernieuwing van producten/diensten of processen
- Activiteiten waarvan de bijbehorende opbrengsten of kosten momenteel nog onduidelijk zijn<sup>(\*)</sup>
- Activiteiten die een redelijk aanpassingsvermogen van u vereisen
- Activiteiten die vereisen dat u nieuwe vaardigheden of kennis ontwikkelt
- Activiteiten die (nog) niet duidelijk deel uitmaken van het organisatiebeleid

### **Exploitatie (Exploitation; scale Mom et al. (2009)) ( $\alpha = .73$ )**

---

Geef s.v.p. aan in welke mate u in het afgelopen jaar heeft gewerkt aan:

- Activiteiten waarin je al veel ervaring hebt opgedaan
- Activiteiten die je uitvoert alsof ze routine zijn
- Activiteiten die bestaande (interne) klanten bedienen met bestaande producten/diensten
- Activiteiten waarvan je duidelijk weet hoe je ze moet uitvoeren
- Activiteiten die voornamelijk gericht zijn op het bereiken van korte-termijn doelen
- Activiteiten die u goed kunt uitvoeren door een beroep te doen op uw huidige kennis
- Activiteiten die duidelijk passen binnen het huidige organisatiebeleid

---

<sup>(\*)</sup> Deleted item

**Zelfverzekerdheid (Role breadth self-efficacy; scale Parker (1998)) ( $\alpha = .95$ )**

---

Geef s.v.p. aan hoe zelfverzekerd u bent als u:

- Een langlopend probleem analyseert om een oplossing te vinden.
- Uw vakgebied moet vertegenwoordigen tijdens vergaderingen met de directie.
- Voor uw vakgebied nieuwe procedures moet opstellen
- Voorstellen doet aan het management over manieren waarop uw afdeling kan verbeteren
- Een bijdrage levert aan de discussie over de strategie van uw bedrijf
- Een voorstel schrijft om geld te spenderen aan uw afdeling
- In uw eigen vakgebied moet helpen met het uitzetten van doelstellingen
- Mensen buiten het bedrijf (bijvoorbeeld cliënten) moet benaderen om problemen te bespreken
- Informatie aan een groep collega's moet presenteren
- Mensen van een andere afdeling bezoekt om ze te laten weten dat ze dingen anders moeten aanpakken

**Flexibele rol oriëntatie (flexible role orientation; scale Ohly and Fritz (2007)) ( $\alpha = .64$ )**

---

Geef s.v.p. aan in welke mate u in het eens bent met de stelling:

- Het is mijn werk om nieuwe ideeën te ontwikkelen en ze uit te testen
- Het is mijn taak om innovatief te zijn
- Mijn werk vraagt om de ontwikkeling en implementatie van nieuwe ideeën

**Proactieve persoonlijkheid (proactive personality; scale Bateman and Crant (1993), as adopted by Seibert, Crant, & Kraimer (1999)) ( $\alpha = .89$ )**

---

Geef s.v.p. aan in welke mate u in het eens bent met de stelling:

- Ik ben constant op zoek naar nieuwe manieren om mijn leven te verbeteren<sup>(\*)</sup>
- Wat ik ook heb gedaan, ik ben een sterke kracht wat betreft de realisatie van veranderingen<sup>(\*)</sup>
- Niets is spannender dan mijn ideeën gerealiseerd te krijgen
- Als ik iets zie wat mij niet bevalt, dan verander ik het
- Wat er ook gebeurt, als ik ergens in geloof dan maak ik het ook waar
- Ik neem graag verantwoordelijkheid voor mijn ideeën, ook als anderen hier bezwaar tegen maken
- Ik blink uit in het identificeren van kansen
- Ik zoek altijd naar betere manieren om dingen te doen
- Als ik in een idee geloof, zal niets mij tegenhouden om het uit te voeren
- Ik ben in staat om een goede kans veel eerder te ontdekken dan anderen

---

<sup>(\*)</sup> Deleted item

<sup>(\*)</sup> Deleted item

**Vasthoudendheid (Tenacity; scale Baum and Locke (2004)) ( $\alpha = .70$ )**

---

Geef s.v.p. aan in welke mate u in het eens bent met de stelling:

- Ik kan mij veel situaties herinneren waarin ik volhardde in mijn taken terwijl anderen wilden stoppen
- Ik werk harder dan de meeste mensen die ik ken
- Ik ben in staat om uitdagend werk voor langere perioden uit te voeren
- Als iets misgaat, analyseer ik direct de oorzaak van het probleem en onderneem ik actie
- Ik blijf doorgaan met hard werken aan projecten, zelfs als anderen zich verzetten

**Politieke vaardigheid (Political skill; scale Ferris et al. (2005)) ( $\alpha = .85$ )**

---

*NA=Networking Ability,*

*AS=Apparent Sincerity,*

*SA=Social Astuteness,*

*II= Interpersonal Influence*

Geef s.v.p. aan in welke mate u het eens bent de stelling:

- Ik steek op mijn werk veel tijd en energie in netwerken met anderen (*NA*)
- Op mijn werk ken ik veel belangrijke mensen waar ik een goede relatie mee heb (*NA*)
- Ik ben goed in het gebruik van mijn relaties en netwerken om dingen gedaan te krijgen op mijn werk (*NA*)
- Ik heb een groot netwerk van collega's en compagnons ontwikkeld op mijn werk die ik kan benaderen voor hulp wanneer ik echt dingen gedaan moet krijgen (*NA*)
- Ik besteed veel tijd op mijn werk aan het ontwikkelen van contacten met anderen (*NA*)
- Ik ben goed in het bouwen aan relaties met invloedrijke mensen op mijn werk (*NA*)
- Het is belangrijk dat mensen geloven dat ik eerlijk ben in wat ik zeg en doe (*AS*)
- Als ik communiceer met anderen probeer ik oprecht te zijn in wat ik zeg en doe (*AS*)
- Ik probeer een oprechte interesse te tonen in andere mensen (*AS*)
- Het lijkt alsof ik altijd intuïtief het goede weet te zeggen of te doen om invloed te hebben op anderen (*SA*)<sup>(\*)</sup>
- Ik heb een goede intuïtie of gewiekstheid over hoe ik mijzelf moet presenteren aan anderen (*SA*)
- Ik ben bijzonder goed in het waarnemen van motivaties en verborgen agenda's van anderen (*SA*)
- Ik let goed op de gezichtsuitdrukkingen van mensen (*SA*)
- Ik begrijp mensen erg goed (*SA*)

---

<sup>(\*)</sup> Deleted item

- Het is gemakkelijk voor mij om met de meeste mensen een goede verstandhouding te ontwikkelen (II)
- Ik ben in staat ervoor te zorgen dat de meeste mensen rondom mij zich comfortabel en op hun gemak voelen bij mij (II)
- Ik ben in staat makkelijk en effectief te communiceren met anderen (II)
- Ik slaag er goed in dat mensen mij mogen (II)

**Ondersteundend leiderschap (Supportive leadership;**

*scale Carmeli et al. (2010)) ( $\alpha = .82$ )*

---

Geef s.v.p. aan in welke mate u het eens bent de stelling:

- Het topmanagement stimuleert samenwerking
- Het topmanagement verduidelijkt individuele verantwoordelijkheid
- Het topmanagement geeft heldere feedback aan medewerkers
- Het topmanagement legt de nadruk op taakoriëntatie
- Het topmanagement moedigt initiatieven aan
- Het topmanagement vertrouwt de werknemers

## Appendix C - Factor analyses I

*Exploration.* The 7 exploration-items were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .77 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed two components, explaining 39.3% with component 1 and 15.5% with component 2 of the total variance. The scree plot showed one component clearly exceeding the recommended eigenvalue of 1 with an eigenvalue of 2.753. The second component had an eigenvalue of 1.086. Further inspection of the components showed an item ('Activities of which the associated yields or costs are currently unclear') not loading on the first component. This item was therefore excluded, resulting in the retention of one component explaining 43.6% of the total variance. Also, the Kaiser-Meyer-Olkin (KMO) value was .78 and Bartlett's Test of Sphericity reached statistical significance.

*Exploitation.* The 7 items pertaining to exploitation were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .87 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 55.8% of the total variance. The scree plot showed one component clearly exceeding the recommended eigenvalue of 1 with an eigenvalue of 3.908.

*RBSE.* The 10 items were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .92 and Bartlett's Test of Sphericity reached statistical significance (Pallant, 2007). PCA using varimax rotation revealed one component, explaining 67.0% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1.

*FRO.* The 3 items were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .61 and Bartlett's Test of Sphericity reached statistical significance (Pallant, 2007). PCA using varimax rotation revealed one component, explaining 59.1% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1.

*Proactive Personality.* The 10 items were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value initially was .78 and Bartlett's test of sphericity reached statistical significance. PCA using varimax rotation revealed two components, explaining 51.4% and 13.9% of the total variance, also visualized in the scree plot and exceeding the recommended eigenvalue of 1 with eigenvalues of 5.136 and 1.086. Further inspection of the components showed two items (item 1: 'I am constantly on the lookout for new ways to improve my life' and item 2: 'Wherever I have been, I have been a powerful force for constructive change') loading not correctly on the first component. These first two items of the Proactive Personality Scale seem to be misunderstood by respondents

and were therefore excluded for further analysis, resulting in the retention of one component explaining 57.9% of the total variance. Also, the Kaiser-Meyer-Olkin (KMO) value was .87 and Bartlett's Test of Sphericity reached statistical significance.

*Tenacity.* The 5 items were subjected to principal components analysis (PCA). Before performing PCA, the data was assessed in order to check for factorability. The Kaiser-Meyer-Olkin (KMO) value was .64 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 45.7% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1.

*Political skill.* The 6 items of networking ability (NA) were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .71 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 45.0% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1. The 3 items of apparent sincerity (AS) were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .66 and Bartlett's test of sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 45.7% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1. The 5 items of social astuteness (SA) of were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .64 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed two components, explaining 48.4% and 20.6% of the total variance. The scree plot showed the first component clearly exceeding the recommended eigenvalue of 1 with an eigenvalue of 2.420. The second component had an eigenvalue of 1.030. Further inspection of the components showed that the first item ('I always seem to instinctively know the right things to say or do to influence others') not loaded on the first component. This item was therefore excluded, resulting in the retention of one component explaining 60.2% of the total variance. Also, the Kaiser-Meyer-Olkin (KMO) value was .69 and Bartlett's Test of Sphericity reached statistical significance. The 4 items interpersonal influence (II) were subjected to principal components analysis (PCA). The Kaiser-Meyer-Olkin (KMO) value was .70 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 59.5% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1.

*Supportive leadership.* The 6 items were subjected to principal components analysis (PCA). Kaiser-Meyer-Olkin (KMO) value was .79 and Bartlett's Test of Sphericity reached statistical significance. PCA using varimax rotation revealed one component, explaining 53.4% of the variance. The scree plot clearly showed one component with an eigenvalue exceeding 1.

TABLE 7 FACTOR ANALYSES

<b>Variable</b>	<b># items (retained)</b>	<b>Kaiser-Meyer-Oklung (KMO)</b>	<b>Bartlett's Test of Sphericity</b>
Exploration	6 (out of 7)	.78	Significant
Exploitation	7	.87	Significant
Role Breadth Self-Efficacy (RBSE)	10	.92	Significant
Flexible Role Orientation (FRO)	3	.61	Significant
Proactive Personality	8 (out of 10)	.87	Significant
Tenacity	5	.64	Significant
Political Skill - Networking Ability (NA)	6	.71	Significant
Political Skill - Apparent Sincerity (AS)	3	.66	Significant
Political Skill - Social Astuteness (SA)	4 (out of 5)	.64	Significant
Political Skill - Interpersonal Influence (II)	4	.70	Significant
Supportive Leadership	6	.79	Significant

## Appendix D - Factor analyses II

Item	Loadings	Communalities	
RBSE1	Analyzing a long-term problem to find a solution	0,782	0,612
RBSE2	Representing your work area in meetings with senior management	0,847	0,717
RBSE3	Designing new procedures for your work area	0,849	0,72
RBSE4	Making suggestions to management about ways to improve the working of your section	0,862	0,743
RBSE5	Contributing to discussions about the company's strategy	0,876	0,768
RBSE6	Writing a proposal to spend money in your work area	0,8	0,641
RBSE7	Helping to set targets/goals in your work area	0,859	0,738
RBSE8	Contacting people outside the company to discuss problems	0,864	0,747
RBSE9	Presenting information to a group of colleagues	0,612	0,374
RBSE10	Visiting people from other departments to suggest doing things differently	0,798	0,637
Flexrol1	It is my job to develop new ideas and to test them	0,827	0,684
Flexrol2	It is my task to be innovative	0,652	0,425
Flexrol3	My job requires the development and implementation of new ideas	0,816	0,665
Proact3	Nothing is more exciting than seeing my ideas turn into reality	0,765	0,586
Proact4	If I see something I don't like, I fix it	0,816	0,666
Proact5	No matter what the odds, if I believe in something I will make it happen	0,86	0,739
Proact6	I love being a champion for my ideas, even against others' opposition	0,755	0,57
Proact7	I excel at identifying opportunities	0,819	0,671
Proact8	I am always looking for better ways to do things	0,797	0,635
Proact9	If I believe in an idea, no obstacle will prevent me from making it happen	0,559	0,313
Proact10	I can spot a good opportunity long before others can	0,669	0,448
Tenacity1	I can think of many times that I persisted with tasks when other wanted to quit	0,756	0,572
Tenacity2	I work harder than most people I know	0,534	0,285
Tenacity3	I'm able to perform challenging work for long periods	0,717	0,515
Tenacity4	When something goes wrong I immediately analyze the cause of the problem and take action	0,634	0,401
Tenacity5	I continue to work hard on projects, even when other oppose me	0,715	0,512
Explr1	Searching for new possibilities with respect to products/services, processes or markets	0,644	0,415
Explr2	Evaluating diverse options with respect to products/services, processes or markets	0,78	0,609
Explr3	Focusing on strong renewal of products/services or processes	0,718	0,515
Explr5	Activities requiring quite some adaptability of you	0,564	0,318
Explr6	Activities requiring you to learn new skills or knowledge	0,583	0,34
Explr7	Activities that are not (yet) clearly existing company policy	0,649	0,421
Explt1	Activities of which a lot of experience has been accumulated by yourself	0,877	0,769
Explt2	Activities which you carry out as if it were routine	0,597	0,356
Explt3	Activities which serve existing (internal) customers with existing services/products	0,831	0,69
Explt4	Activities of which it is clear to you how to conduct them	0,844	0,713
Explt5	Activities primarily focused on achieving short-term goals	0,358	0,128
Explt6	Activities which you can properly conduct by using your present knowledge	0,728	0,53
Explt7	Activities which clearly fit into existing company policy	0,85	0,722
Polsk1	I spend a lot of time and effort at work networking with others. (NA)	0,355	0,126
Polsk2	At work, I know a lot of important people and am well connected. (NA)	0,83	0,409
Polsk3	I am good at using my connections and network to make things happen at work. (NA)	0,517	0,267
Polsk4	I have developed a large network of colleagues and associates at work whom I can call on for support when I really need to get things done. (NA)	0,797	0,635
Polsk5	I spend a lot of time at work developing connections with others. (NA)	0,883	0,779
Polsk6	I am good at building relationships with influential people at work. (NA)	0,887	0,787
Polsk7	It is important that people believe I am sincere in what I say and do. (AS)	0,774	0,599
Polsk8	When communicating with others, I try to be genuine in what I say and do. (AS)	0,786	0,618
Polsk9	I try to show a genuine interest in other people. (AS)	0,753	0,567
Polsk11	I have good intuition or savvy about how to present myself to others. (SA)	0,462	0,313
Polsk12	I am particularly good at sensing the motivations and hidden agendas of others. (SA)	0,782	0,612
Polsk13	I pay close attention to people's facial expressions. (SA)	0,879	0,772
Polsk14	I understand people very well. (SA)	0,901	0,812
Polsk15	It is easy for me to develop good rapport with most people. (II)	0,711	0,506
Polsk16	I am able to make most people feel comfortable and at ease around me. (II)	0,9	0,811
Polsk17	I am able to communicate easily and effectively with others. (II)	0,557	0,31
Polsk18	It is easy for me to develop good rapport with most people. (II)	0,869	0,755
Suppld1	The top management team emphasizes teamwork	0,776	0,603
Suppld2	The top management team clarifies individual responsibility	0,665	0,442
Suppld3	The top management team provides clear feedback to the employees	0,724	0,525
Suppld4	The top management team emphasizes task orientation	0,683	0,466
Suppld5	The top management team encourages initiatives	0,78	0,608
Suppld6	The top management team trusts the employees	0,748	0,559

## Appendix E - Assumptions regression analysis

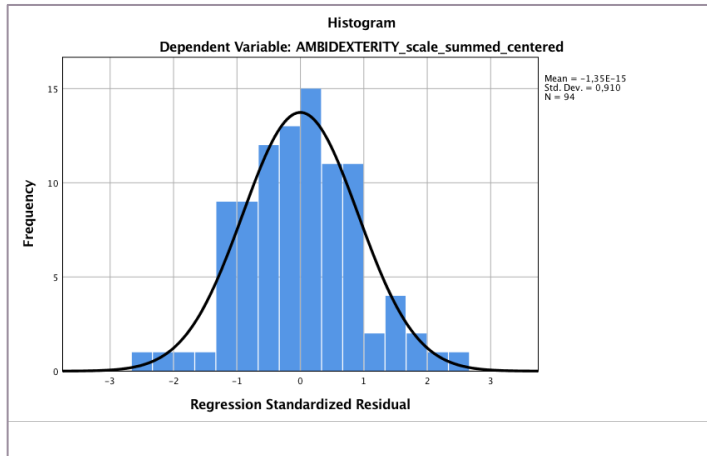


FIGURE 7 HISTOGRAM

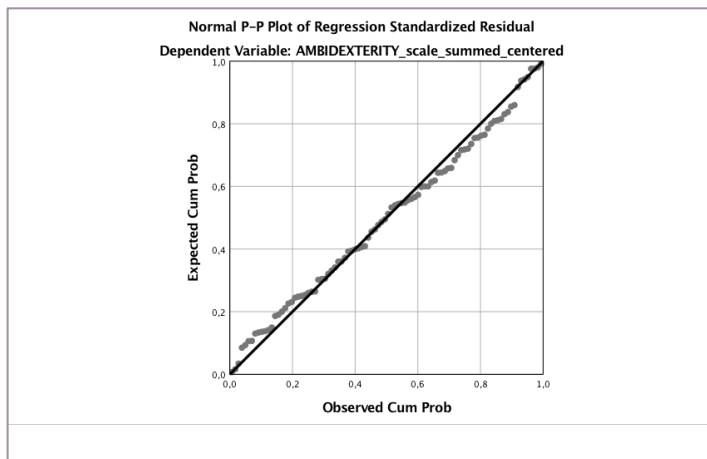


FIGURE 8 NORMAL P-P PLOT

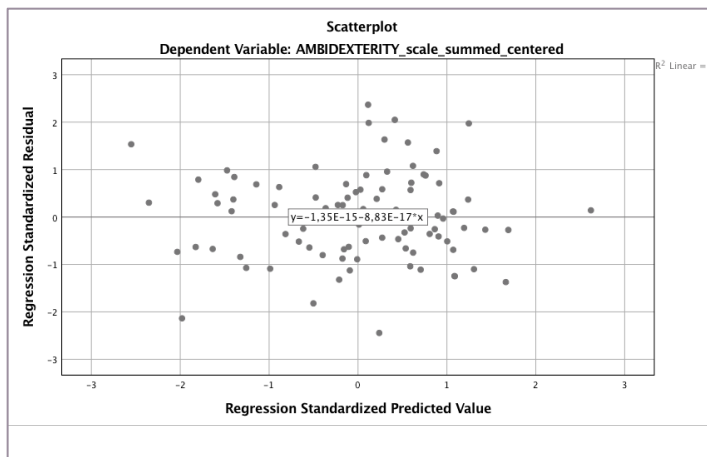


FIGURE 9 SCATTERPLOT