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STRENGTHENING ORGANIZATIONS THROUGH AMBIDEXTERITY AN EMPIRICAL INVESTIGATION

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AUTHOR'S DECLARATION

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this dissertation are the work of the named candidate and have not been submitted for any other academic award.

Michael Hans Gino Kraft

ABSTRACT

Just like the proverb says: “When the wind of change blows, some build walls, others build windmills”. Whether it is a question of unclear future prospects, tougher competitive conditions, the rapid increase in information and communication technologies - the modern world of work and life places ever greater demands on organizations. Life teaches us that the only constant is change itself.

So the question is how to deal with the new and/or unexpected situations. From an organizational point of view, an ability to adapt to the changing demands of the environment becomes relevant. Or, to put it another way: Only those who are able to be flexible and agile today will find a path to confidently face changes and use them profitably.

However, to ensure this agility in organizations, leaders and employees are needed who can switch between different types of behavior. Under this premise, this paper summarizes the arguments and counterarguments in the scientific discussion on ambidexterity in organizations. Although academic interest in the study of ambidexterity is growing, there is still a need for empirical research to fully understand its nature. Subsequently, the purpose of this dissertation is to systematically deepen our understanding of ambidextrous behavior by developing and validating an integrative research model that covers its antecedents, effects and interrelationships. In the following, the respective fields of research will be defined more precisely.

Does ambidexterity pay off and how do these behavior occur? And what factors influence agility in organizations? These fundamental questions play an important role in the long-standing research on ambidexterity. Equally crucial is the linking of ambidextrous behavior with means to increase organizational effectiveness, as it provides the economic feasibility and thus the legitimacy for implementation in the reality of the organization.

Based on this assumption, the first major focus of this research is to uncover the importance of ambidexterity in leadership and employee behavior in relation to agility. Therefore, the effects of ambidextrous behavior are studied to determine which components are most important for increasing organizational agility. While the potential effects of ambidextrous behavior will attract most academic attention, this study will take a broader position by also examining the antecedents of this phenomenon.

So what actually causes people to behave ambidextrously? And why do some leaders behave ambidextrously? To address these questions, the second main research will be based on analyses at the individual behavioral level. More specifically, my research interest is in the

perceived environmental influences of leaders. Given the limited theoretical and empirical attention in the past, this dissertation goes beyond the existing literature by further exploring the relationship between perceived environmental dynamics and leadership behavior.

In contrast, the investigation of how leadership aspects change or facilitate the effects of employee behavior has a long tradition in the existing literature. However, much knowledge about an ambidextrous leadership style is still missing. Therefore, the third major field of this dissertation is the explorative investigation of the influence of employee behavior in consideration of an ambidextrous leadership style.

The empirical validation of the research agenda is based on a quantitative analysis of the proposed Antecedent-Behavior-Outcome research model and forms the core of this dissertation. Thus, each variable was first examined and operationalized from a theoretical perspective. The sample comprised 719 employed participants in a cross-sectoral context. Statistical techniques for modeling correlation and regression analyses were used to verify the assumed relationships.

The results of the study indicate that ambidextrous behavior of leaders has a positive effect on employee behavior. Furthermore, it was found that the ambidextrous behavior of employees have a positive and significant impact on agility in organizations. Overall, it can be stated that ambidextrous behavior of leaders and employees contributes to agility in organizations. Interestingly, perceived environmental dynamics were not the decisive factor for the facet of ambidexterity. However, it could be confirmed that perceived environmental dynamics have a positive influence on agility in organizations. In summary, the study has provided important insights into understanding ambidexterity in terms of agility.

From a practical perspective, the results suggest that it is recommended to develop ambidextrous leaders and employees in order to influence agility at the organizational level as well. It can be stated that traditional forms of organizations require a high degree of ambidexterity, as essential interrelations between ambidextrous behavior and agility could be identified in this dissertation. Most importantly, this thesis is the first to look at ambidextrous behavior in an integrative approach to combine macro- and micro-specific factors, and to link this to objective measurements of leadership and employee effectiveness.

Accordingly, practitioners are well advised to implement ambidextrous behavioral practices in organizational reality. The study of the antecedents of ambidexterity and agility is also crucial, as it gives us insight into the origins of the adaptability of organizations. The resulting patterns between ambidexterity and agility have shown that it is worthwhile to study ambidextrous behavior on an individual level and to use its potential in practice.

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LIST OF ABBREVIATIONS

ABO	Antecedent-Behavior-Outcome Model
cf.	Confer/Compare
HR	Human Resources
N	Number of Members of Sample or Population
n.d.	No date
p	Value is the Probability of Obtaining Test Results
r	Pearson Correlation Coefficient
R^2	Coefficient of Determination
QQ plot	Quantile-Quantile Plot
VUCA	Volatility, Uncertainty, Complexity & Ambiguity
α	Cronbach's alpha
β	Regression Beta Coefficient

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1 INTRODUCTION

„I am dominantly left-handed, but when I play the piano
my right hand has more facility than my left.“
(Johnson, 2012, p. 46).

If one portrays a piano, it could be one of the most aesthetic, impressive and at the same time most difficult instruments of our time. Like many other orchestral instruments, playing a piano requires the use of both hands. In particular, it requires the simultaneous handling of 52 white and 36 black keys (Buchla, 2004). From a technical point of view, both hands press smooth black and white keys, while the left hand typically plays the bases and the right hand the passages in the melody. Although each hand movement is performed independently, the parallel coordination of the two hands leads to one unique and recognizable sound for the listener: Music.

To understand this phenomenon, the term "ambidextrous" derives from the Latin roots ambi-, which means "both", and dexter, which means "right" or "favorable" (Rodriguez et al., 2010). Thus "ambidextrous" is literally "both right" as well as "both favorable" ("ambidextrous - Definition of ambidextrous in English by Lexico Dictionaries", n.d., 2019). In this context, the term "ambidextrous" basically means that, unlike the one-handedness of most people, someone is equally capable in both hands. (Byrne, 2004).

However, the reasons why a person is left-handed or right-handed have been discussed since ancient times. Plato suspected that the handedness was not born, but only developed through education, and even then recognized the advantage of practicing ambidexterity (Plato - cf. Fonfara, 2017). From a scientific point of view, the motor cortex of the frontal lobe in the human brain determines which hand is dominant. In this respect, the motor cortex is stimulated more strongly on one side than on the other, so that a preference for the dominant right or left hand develops (Llaurens et al., 2008).

In this regard, scientists have found that jazz pianists have trained both sides of their motor cortex and developed ambidextrous abilities (Hassler & Miller, 2008; Grooms Johnson, 2012). An empirical study by Kopiez et al. (2012) found evidence that ambidextrous jazz musicians have an efficient connection to several parts of the frontal lobe when playing instruments. For this reason Gute & Csikszentmihalyi (2016) described the brains of jazz musicians as more efficient machines. Subsequently, the frontal lobe plays an important role for humans, as it is involved in cognitive processes such as problem solving, language ability, social behavior and creativity (Sen, 2010).

Nevertheless, until the 1970s, left-handers were retrained to become right-handers. Rarely were there students who could write with both hands. The ambidextrous ability to switch between behaviors was simply not necessary on the society surface (Kushner, 2012). However, the term ambidexterity was first used in 1976 for corporate organizations. Since that time, organizations have increasingly faced changes in the economic, social and technological spheres. In this respect, the organizational theorist James March (1991) recognized that these dynamic circumstances require a simultaneous balance of two opposing activity patterns of organizations and provided a conceptual basis through his classification of exploration and exploitation.

In addition to this organizational perspective, a meta-analysis of Rosing et al. (2011) found that not only companies but also leaders and employees are needed who are able to switch between these two behaviors. In terms of leadership behavior, this means that leaders must be able to optimize existing resources (exploitation) and conduct research (exploration) at the same time. This is how O'Reilly & Tushman (2013) have defined ambidextrous leadership when leaders have to be able to use both hands. Birkinshaw & Gibson (2005) described, that leaders must ensure stability and efficiency with the right hand, while the left hand has the task of motivating and enabling networked and self-organized units. Consequently, this paper assumes that not only organizations but also managers and employees are facing the paradoxical challenge of dealing with these two opposing behaviors and that the competence to practice only one behavior is no longer sufficient.

In addition to the challenge of behaving ambidextrously in a volatile surrounding, many recent publications emphasize the importance of organizational agility as an ability to respond to uncertainties and changes in market conditions (Teece et al., 2016; Ravichandran, 2018; Tuan, 2016; Lu & Ramamurthy, 2011; O’Reilly & Tushman, 2008; etc.). In this regard, organizational agility is characterized by its ability to be flexible and adaptable to changes in the environment in order to optimize its performance. Given this evidence, the agility of organizations is becoming more relevant as the world faces increasingly demanding and complex issues and many companies are expected to improve and adapt quickly and continuously. Teece et al. (2016) stated in this context, that particularly disruptive innovations, changing customer expectations and ever shorter product life cycles require agile capabilities from companies in order to find appropriate responses.

However, enabling agile aspects reaches the limits of organizational feasibility. Lee et al. (2015) described that the implementation and transformation of agile elements in structures and processes represents a major challenge for many companies. According to Fojcik (2015), this is primarily caused by the fact that companies are not able to fully promote flexibilization due to a lack of financial capacity and organizational resources.

Given these findings, agile-related organizational activities are becoming increasingly important as a leadership task to secure the long-term performance of an organization (O'Reilly & Tushman, 2013). Subsequently, this research work is based on the premise that leaders and employees can contribute to organizational agility and thus to a profitable path through their behavior. To get back to the pianist: His ambidextrous skills are one of the main reasons why the pianist can play agilely on the piano. So what pianists and leaders potentially have in common is that they can improve their agility by coordinating two behaviors at the same time. This leads to the assumption that an organization can improve agility through ambidextrous behavior, or as described in the metaphor above, the pianist is able to play music on the piano.

Combining the fields of agile capabilities and ambidextrous behavior, respective research has been receiving an increased academic attention in recent years (Rialti et al., 2018; Kortmann et al. 2014; Raisch et al., 2009; Van Looy et al. 2005; etc.). Although preliminary empirical results are promising, there are still many ways to fully understand the antecedent and impact of ambidextrous behavior in agility research (O'Reilly & Tushman, 2013). Especially with the emergence of ambidextrous leadership researchers are increasingly able to investigate a promising leadership style in this area. The conceptualization of ambidextrous leadership focuses on the appropriate behavior of leaders and the promotion of behaviors among employees in organizations (Rosing et al. 2011, Zacher et al., 2016).

Against this background, the central question that motivates this paper is what can be achieved through ambidextrous behavior in terms of organizational agility? How can ambidextrous abilities deal with stability and efficiency on the one hand and uncertainty and creativity on the other? What does this mean for the leadership of employees? And can ambidexterity at the individual level be a contemporary and adequate model in the context of organizations? Additional work is highly warranted in terms of understanding the effectiveness of ambidextrous behavior by, for instance, modeling impact criteria. Accordingly, the main interest of the study is to explore the perspectives of ambidextrous behavior in an organizational context and to contribute to ambidextrous research.

1.1 GOALS OF DISSERTATION & RESEARCH QUESTIONS

The overall objective of this research is to deepen our understanding of ambidextrous behavior by examining its antecedents, implications and processes from a leadership and employee perspective. In particular, building on this area of interest, I pursue four different research questions, which are derived below.

Does ambidexterity pay off? In the more than fourth years of study and research on ambidextrous behavior this provocative question arises an ongoing vivid role. In this context, several authors argue that the link between flexibilization and economic success underpins the core purpose of an ambidextrous discourse (Martínez-Climent et al., 2019; Alghamdi, 2018; Zacher et al., 2014; Tuan, 2017). More precisely, forwarding a comprehension that ambidextrous behavior does have impact on the organizational agility, it promotes legitimacy when it comes to implementing and training ambidextrous leaders in daily business. With the conception of ambidextrous leadership forwarded by Rosing et al. (2011), I tie with the approach of ambidexterity in the sense of an agile organization. Examining if ambidextrous leadership has a positive influence on organizations is currently one of the most popular topics in the practical and scientific literature. Nevertheless, I argue that the relevance of this leadership style must also be reflected in the perception of employees. In order to determine this relevance, it is first necessary to analyze to what extent the current leadership style is applied.

Research Question 1: What is the level of ambidextrous leadership as perceived by employees?

Since both employees and leaders are necessary to achieve goals, I also apply the ambidextrous approach to employee behavior. So what makes people behave ambidextrously? With reference to the leadership literature, there are a number of examples of how this question can be answered at the individual employee level. Given this assumption, it is expected that the practice of two leadership behaviors will have a positive effect on the ambidextrous behavior of employees. In this context, it is postulated that a positive correlation between leadership style and employee behavior can ensure organizational agility. Therefrom, a very essential goal of this dissertation is to investigate the potential impact of an ambidextrous leadership style on behavioral outcome criteria on an employee level. Given that this complex topic is so prominent in the academic literature, I contribute to existing research by extensively investigating the causes and consequences of ambidextrous leadership.

Research Question 2: Does leadership enhance the ambidexterity of employees?

Ambidextrous behavior as conceptualized in this dissertation captures facets from interpersonal behavioral traits that deal with the leadership of subordinate employees. This behavioral approach is modeled two-dimensional combining all related contents into two single measurements. In this respect, it should be determined to what extent the behavior of leaders and employees has an effect on the organizational level and what influence leaders and employees contribute to this. In a quantitative approach, I draw on existing study (e.g. Rosing et al. 2011, Mom et al. 2006, Lu & Ramamurthy, 2011) in order to foster a better understanding of how ambidextrous behavior has a decisive effect on agile relevant criteria. Therefore, the purpose of this research is to extend existing research by studying the impact of this leadership approach.

Research Question 3: How effective is ambidextrous behavior in terms of agile capabilities?

So far, the research questions predominantly focused on the consequences of ambidexterity in behavioral concerns. As it is described to investigate the understanding of ambidextrous leadership behavior, I will also be addressing its antecedents. In this respect, what makes leaders behave ambidextrous? Why are leaders able to act ambidextrous and which circumstances promote this behavior? Referring to leadership literature, the majority of researchers draws beside intrapersonal traits on organizational and environmental characteristics. Identifying this surroundings predicting ambidextrous leadership validly. Considering the attention to the relationship between circumstances and ambidexterity in the past empirically this work exceeds literature by exploring this depended further.

Research Question 4: In which environmental surrounding is ambidextrous leadership valid?

1.2 OUTLINE OF RESEARCH

The overall purpose of this research is to systematically deepen our understanding of ambidexterity in organizations by answering the research questions. Against this background, a comprehensive research model is developed covering aspects of antecedents, correlates, and consequences of ambidextrous leadership with regard to organizational agility capabilities. The validation of this model was verified and carried out by an empirical study. The study deals with the research questions described above. Table 1 gives an overview of the precise focus of the respective research questions.

Table 1 Focal Points of the Dissertation

Focal points	Research Questions (RQ) addressed
Leadership	*RQ1: Relevance of Ambidextrous Leadership*
Employee	*RQ2: Enhance of Ambidextrous Employee Behavior*
Organizational Agility	*RQ3: Impact of Ambidextrous Behavior*
Environment	*RQ2: Antecedents of Ambidextrous Behavior*

To answer the research questions, an introductory Chapter is followed by the entire theoretical background in Chapter 2. This begins with a summary overview of the currently perceived environment and its dynamics. At the same time, the current topic of the VUCA world is explored and the connection to Megatrends is discussed. Afterwards, leadership theory will be discussed and in particular the historical development of leadership behavior will be outlined. Subsequently, the topic of ambidexterity in the field of organizational and employee leadership is presented and deepened. Then the concept of organizational agility is introduced and embedded theoretically. In addition, Chapter 3 develops and derives the research model of the dissertation. This theoretical part is followed by the empirical study of the scientific model in Chapters 4. In this context, the operationalization, methodology and materials are introduced. In Chapter 5 the empirical investigation ends with the presentation and discussion of the results. Chapter 6 contains a critical analysis of the results obtained, since deductive conclusions regarding their reliability must also be questioned. In this relation the limitations of the methodology and the theoretical concept are discussed. In addition to critical reflection, an attempt is also made to transfer the results into practice, where they are discussed and described. In the last Chapter 7 the dissertation is completed with the conclusion. Figure 1 illustrates the structure and procedure of this research work.

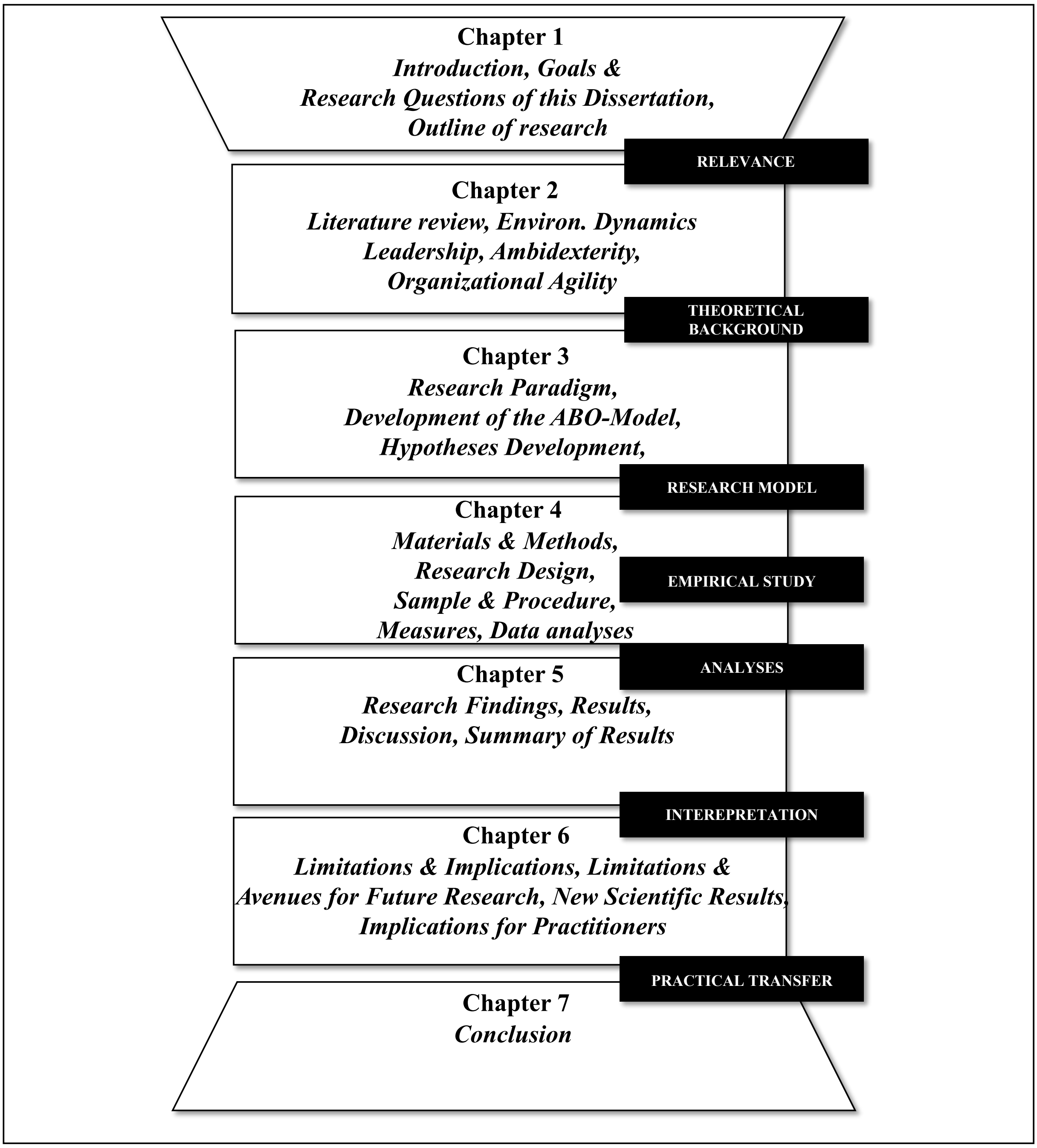

Figure 1 Structure of Dissertation

2 LITERATURE REVIEW

In order to determine the relevance of ambidextrous behavior in terms of organizational agility, the following Chapter 2 presents all theoretical background to the relevant research fields. The areas of environmental dynamics, leadership, employee behavior, ambidexterity and organizational agility are initially analyzed separately and the current status is discussed. This approach makes it possible to address not only a holistic understanding of ambidexterity and agility, but also the practical relevance and scientific discourse of these disciplines and to convey essential theory. Subsequently, the antecedents of the research are described to compare traditional and modern approaches and to explain the contribution of ambidextrous behavior in terms of organizational agility. To this end, the literature analysis will address the main findings on the respective topic areas, in particular by taking up historically important findings and comparing them with the current state of knowledge.

This review was conducted by using a Content-Based-Literature Review from 2018 to 2020. In the process, relevant articles were searched for in the individual subject areas using specific search terms. The procedure is taken up again in each Chapter and is explained schematically. This general procedure for the literature review is illustrated in Appendix II. The purpose of this procedure was to prepare basic concepts for the topics in order to derive an integrative research model. In addition to the elaboration, the concepts for some topics are also prepared and compared in tabular form. The tables are sorted in the order of publication date and thematic concept. In order to understand what is currently being discussed on the topic of leadership and which factors determine leadership behavior, the business environment is first discussed and analyzed below.

2.1 ENVIRONMENTAL DYNAMICS

Never before have success and failure been so close together as they are today. This assessment is at least shared by the majority of all publications in the economic sciences. Whether technical changes, ever shorter product life cycles, increased development costs or increasing market interdependencies, the survival of an organization often depends on one of these factors. According to Fojcik (2015), many of these scenarios can lead to mistakes at the individual level and drive organizations to bankruptcy.

The drivers behind the phenomena described above, which influence and change the entire environment globally, can be defined with the acronym VUCA (Stiehm & Townsend, 2002). VUCA describes "volatility" (volatility or volatility), "uncertainty" (uncertainty or uncertainty), "complexity" (complexity) and "ambiguity" (ambivalence or ambiguity).

Volatility: As a result of permanent change, our entire environment is in a state of constant, dynamic change. An increasing speed of innovation, the globalized market and low entry barriers ensure that the framework conditions for economic activity are becoming increasingly unpredictable.

Uncertainty: In a constantly changing environment, it is becoming increasingly difficult to identify causal relationships. This means that unexpected circumstances arise which can change the competitive environment.

Complexity: The increasing interdependence of the global economy makes the interrelationships more and more demanding and thus the overall structure of interdependence so complex that no one can comprehensively grasp them. In addition, political and social conditions are becoming increasingly flexible and volatile.

Ambiguity: Due to the growing, often contradictory information, it is no longer possible to interpret it clearly. This in turn means that simple causalities can no longer be formed and it is therefore no longer possible to apply standardized patterns or best practices to them (Stiehm & Townsend, 2002).

As a result, long-term planning is no longer possible and changes often lead to pressure to take action on the employees and management level. The perceived uncertainty of employees therefore demands clarity, security and orientation from their leaders. These changed circumstances have fundamental effects on all areas of society and the economy. Employees and leaders therefore increasingly need the ability to deal with these challenges creatively, using instruments that are often unfamiliar to them today. This environment is characterized by the fact that organizations can rely less and less on existing solutions or specifications, but must constantly re-analyze themselves (Fojcik, 2015).

2.1.1 ANTECEDENTS OF THE VUCA WORLD

To explain this VUCA world, megatrends are seen as a central cause of these developments (Overby et al., 2006). In this context, the term megatrend is understood as an overarching determinant from which an immediate and unavoidable influence emanates. The megatrends can be perceived in a concluding manner at political, economic and social level and have a global impact. Based on this, the most important VUCA factors include globalization, digitization, innovation, demography and the values of change (Fojcik, 2015).

All of these advancing trends are external economic drivers that make a company's ability to adapt and change essential. These global trends are responsible for the long-term emergence of new lifestyles, consumption patterns, needs and values (Stacey, 2002). In addition to their social impact, these trends thus also have a considerable influence on organizations. They influence social coexistence in its deepest form and usually develop slowly and over the long term (Sambamurthy et al., 2003). If companies succeed in recognizing megatrends and incorporating them into their decision-making processes, enormous economic benefits can be generated in the various functional areas. The knowledge of long-term trends thus forms the basis and advantage for various strategic issues, where an economically successful achievement of objectives can be expected.

Globalization: According to Teece et al., (2016), globalization is one of the central challenges of the 21st century. From the perspective of economic theory, the term globalization is understood to mean the networking or exchange of activities in terms of goods, products and people, which can be summarized as a phenomenon for overcoming borders. An essential characteristic of globalization is the liberalization of economic sectors, which leads to an increase in competition. In addition to the increasing complexity of markets, internationalization has enabled markets and companies to participate increasingly in world trade, prosperity and economic growth and to develop economically from developing countries to emerging markets. However, the economic dimension of globalization is only one part of this megatrend, which always has an impact on social areas: from the education system and consumption to culture and our private living and communication worlds. The consequences of these developments mean that challenges must increasingly be dealt in an international context. As the current process of cross-border interdependencies gains speed, the discourse on inequalities between countries and their impact on people, families and governmental communities is becoming more intense.

Technology: No other trend, apart from globalization, has such a profound and far-reaching impact as the development of information and communication technology. This has an impact on companies, particularly through the increasing digitalization and virtualization of work processes, and poses a challenge for employees and managers (Lu & Ramamurthy, 2011). The technological changes have been taking effect since the 10-20 years and have fundamentally changed both in the business world and in private life due to the rapid spread of PCs, mobile phones and the Internet (Overby et al., 2006). Never before has communication between people and access to information been made as easy as today.

From the point of view of the company, both developments represent a challenge for employees and managers, especially with regard to the following trends: The development of information technology is increasingly being implemented in everyday objects- technical devices such as radios, cameras or washing machines are becoming more and more intelligent. Intelligence is primarily considered from the perspective of communication. In the future, machines will be able to obtain information independently and make processes more efficient and error-free, even without a human moderator (Ravichandran, 2018). The associated consequences for work and organizational design have not yet been fully researched from both a practical and scientific point of view. What remains, however, is the realization that under the technological paradigm, organizations should prepare increasingly flexible and adaptable structures and processes in order to be able to react appropriately to changes.

Demographic issues: Moreover, demographic problems are closely intermingled with economic, technical and social developments that have a deep impact on the structures of societies. These global political changes require countries to become more networked. In many sectors, the ability to shape the economy can often only be strengthened by participating in innovation, knowledge and trade, and by creating deep and dense networks with international growth centers. The associated access to people as carriers of knowledge, skills and innovations is the most important point (Stacey, 2002). Against this background, demographic problems such as increasing urbanization, migration management or the ageing of society are coming to the force. While the population in Europe, and especially in Germany, is aging rapidly, it is continuing to rejuvenate in many emerging and developing countries. The resulting effects can be seen in the economic and deficient innovative capacity (Fojcik, 2015).

Against this background, the targeted management of migration and immigration offers an opportunity to secure economic competitiveness and innovative capacity and to shape demographic developments. Measures with which companies can react to demographic changes are topics from the fields of health management, employer branding and the promotion of lifelong learning. Ultimately, demographic changes also have implications and relevance, especially for knowledge management, employee retention and team building. On the basis of these findings, it can be stated that the response to the demographic megatrend is not necessarily dependent on the size of the company and the industry, but rather on overarching and alternative action needs.

Value change: In addition to demographic problem areas, leaders believe that changes in values are a central megatrend affecting Human Resources Management (Cunha et al., 2019).

Issues such as sustainability and equality are fundamental pillars of cohesion even within companies. One of the most widespread instruments in response to the change in values is the definition and inclusion of a Code of Conduct. In addition, it is interesting to mention that about one third of the respondents consider diversity management and non-monetary benefits in this context to be only a limitedly effective instrument. In addition, primary measures were mentioned here which, with regard to work-life balance, promote the compatibility of work and family life and enable flexible working hours and teleworking.

Furthermore, from the perspective of the leaders, it can be understood that the change in values requires additional sensitization and qualification in order to prevent negative developments. In the future, leaders will be required to support the company in performing its tasks, including the assumption of social responsibility. This also seems to be an opportunity for leaders to counteract the external shifts already mentioned and to adapt the structures and processes of companies (Kearney, 2013).

Finally, it can be pointed out that the ability to observe and strategically integrate these topics is one of the megatrends of changing values. When values change, the expectations and priorities of an employer also shift: work-life balance and health management are becoming increasingly important and this in turn gives rise to new requirements and alternative courses of action for the company. From an economic point of view, the developments on a technological and social level lead to changes in working life and management perspective. For some time now, a majority of publications has been analyze and elaborate on these changes. In this context, an increasing reduction of hierarchies within companies can be traced for years. At the same time, the need for project work has been growing for years. Thus a classical autocratic perspective has changed to a self-organized employee. Profound changes from the environment, find the influence on a VUCA world and on organizations.

2.1.2 OPERATING IN THE VUCA WORLD

A central aspect in the VUCA world is the identification of appropriate behavior within these complex systems- since statements are difficult to predict and complexity only arises from the interaction of different components and these interrelationships are difficult to analyze. Subsequently, it is only possible to make predictions for planning purposes to a limited extent. In this context, problems in complex situations have to be handled differently, since the interaction of factors could lead to other problems.

The aim must therefore be to find out to what extent problems or tasks are complex and how they can be categorized for certain courses of action. Following the model of Stacy (2002), this categorization can be divided into different categories so that actions can be derived. As shown in figure 2, the axes are formed by an understanding of the requirements on the one hand and the perception of awareness of the problems on the other. This makes it easier to categorize them for your own challenges. Especially in the R&D department, it helps to deal with the question of how challenging the requirements are for employees and managers and to what extent the experience values help to deal with the tasks in this area. Based on this insight, it is possible to define suitable means and methods for dealing with this challenge. Figure 2 illustrates the Stacey Model with the different areas.

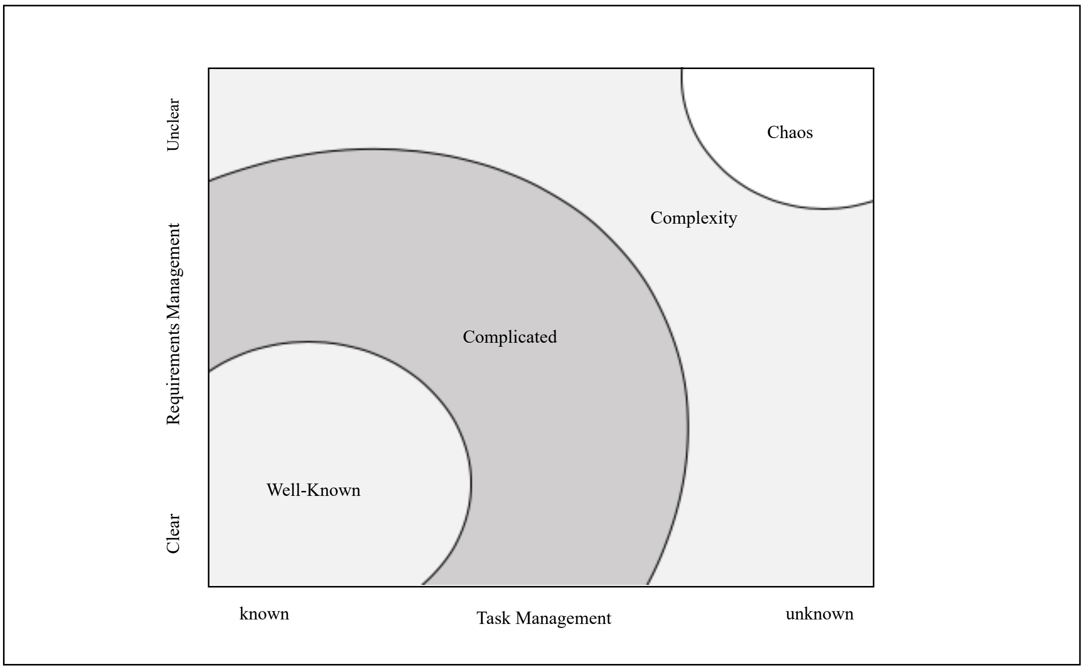

Figure 2 Comparison of Requirements & Task Management (adapted from the Stacey Model, 2002).

If causalities are known and understandable, problems can be addressed and solved by using best practices and known instruments. Depending on how problems are considered complicated, experts can be consulted to solve these kinds of problems. In the classical sense, projects are often carried out to find appropriate solutions from a temporary perspective. In the complex field, known practices to this effect are only possible to a limited extent. This means that with the help of experiments and their feedback processes, new knowledge about the topic must constantly be determined and learned before possible solutions can be found.

In addition, complex problems are usually not to be dealt with individual solutions but with several alternative solutions and therefore also lead to major challenges within an organization. Problems that fall within a chaotic area cannot be solved by means of known procedures (Overby et al., 2006). In this context, it is much more a matter of gaining control over the complex area by trying out various alternative solutions and then making chaos plannable again. As the environment is changing faster and faster for many organizations, employees as well as managers have less time to work out how the alternative solutions will affect other aspects. At the same time, more and more decisions are necessary so that the effects overlap and it is increasingly difficult to distinguish successful measures from unsuccessful ones.

2.2 LEADERSHIP

To manage these challenges from an organizational perspective, leadership is considered one of the main tasks. This has made leadership one of the best-known and best researched disciplines of our time. In this context, leadership theory has continuously evolved since antiquity to understand what impact it might have in an organizational context. However, its impact on the development of modern leadership forms, such as ambidextrous leadership, should have been more thoroughly examined. The current state of the literature on ambidextrous leadership, its antecedents, instruments and the way it impacts the efficiency of employees is poor.

Considering the potential and the degree of implementation of ambidextrous behavior models in the modern age, it is surprising to say that a significant majority of the findings in the literature are still based on a traditional or classical model of leadership. There is even less research into the relationship between leadership and agility in a corporate context. The topic is almost interacting but shows a slight development tendency. This means that the question of how organizational and ambidextrous leadership influence each other has been lightly covered by existing research and still needs to be addressed more thoroughly. In more recent literature, quite a few journal articles covered this topic and try to provide a framework for further studies. Books and academic works by prominent writers in this field are still chiefly focused on organizational topics of leadership and do not take the agile component into account. On the other hand, the theoretical knowledge base (which includes definitions, skills, instruments and competencies of ambidexterity and agility) is widely spread across the literature. These are often used as a foundation for further explanations.

2.2.1 ETYMOLOGY & CHARACTERISTICS OF LEADERSHIP

Leadership in an organizational context is a temporally and globally overlapping phenomenon. This phenomenon arises as soon as several people are facing a problem and this leads to a need for coordination. It can be stated that leading, being led, or leading oneself is a consequence of division of work and thus role differentiation. In the past, there have been many theoretical ideas and reflections on leadership phenomena in which a large number of leadership theories, concepts or models have emerged. No other phenomenon is studied so intensively as leadership in various scientific disciplines. Remarkably, given the large number of books and articles on leadership that are now available, it is somewhat surprising that many researches do not discuss the etymology and hermeneutics of the term. To understand this phenomenon it is therefore important to examine the etymology of the terms and understand how their meaning has evolved over time.

The term leadership is filled with content and understood from very different perspectives. A social-scientific discussion of the term leadership begins at the beginning of the 20th century. From a sociological perspective, the focus is on the structural influence and interaction of leaders and social groups. In psychology, the focus is on the individual influence of leaders. In business administration, this phenomenon is discussed from a factual-instrumental perspective, which considers the influence of leadership on staff as a whole. Despite intensive research in the various disciplines, there is still no agreement on what leadership means or what limits it. As early as 1975, the author Miner stated that the concept of leadership was of little use due to its heterogeneous interpretation of terms. And the world-famous work by Bass & Stogdill in 1990 already contained around 7000 sources in its third edition. The author Burns (1978) emphasizes in this context: "Leadership is one of the most observed and least understood phenomena on earth" (Burns, 1978, p. 2).

Despite the legitimate criticism of the different understanding of the term, a synonym can be derived from the modern etymological definition in which leadership can be understood as a kind of guide. The term guide comes from the Old English and means as much as leadership, conducting and execution. According to Gill (2013), the term corresponds to Old Saxon and means that a person shows another person the way and takes them on the journey. At present, the online etymology dictionary offers three types of definitions of lead (as a verb) and also lead and leadership (nouns). In this context, "to lead" literally means to go with oneself, to carry on, to create. A leader is one who leads, guides or conducts. It describes the Old English term “laedere” as a title for the leader of an authoritarian position.

The term leadership comes from the combination of “leader”-and “ship” in the sense of a responsible position commander (Etymonline.com, 2019). According to Gill (2013) the three terms lead, leader and leadership share the common understanding of "to go". Leadership in general at its roots means movement and conducting.

A further analysis of the term from an organizational perspective was first proposed by French & Raven (1959), who distinguished between positional power and personal power. In this context, positional power refers to a person who is based on an organizational hierarchy and assignment. Here a person is empowered to give certain instructions and make demands to those led. In contrast, personal power is about the potential of one's own knowledge and behavior to inspire and influence enthusiasm in other people, regardless of one's position within organizational hierarchies (Northouse, 2013). However, some authors limit the term "leadership" to an interaction that leads to a goal-oriented social influence. Consequently, it carries connotations that create an ambiguity of meaning. Moreover, it is caused by the use of other terms such as power, authority and supervision to describe the same phenomena.

In this context, the distinction between leadership and management often found in the literature is important, which assumes that "leadership" is about generating enthusiasm and questioning the status quo, whereas "management" is primarily about stability and efficiency, and monitoring and control of task fulfillment (Kotter, 2013). This distinction therefore seems to be crucial, as leadership is usually concerned with the people in the company and deals with the goals, communication and developments and the associated values and visions. Management, on the other hand, is understood as a scientific term that can initially be described as a group of people who are primarily concerned with the governance and control of norms, strategies and operational standards. According to Day et al. (2014), the term leadership means inspiring and influencing people to follow them. He also emphasizes the difference between management and leadership. The term management is understood from the point of view of organization and planning. However, to have effective leadership, executives need to acquire the leadership skills to lead people. In this respect, it can be assumed that leadership can be understood as part of management. In contrast to leadership, the term management comes from Latin and means "manus" (hand) and "agere" (conducting) (Judge & Piccolo, 2004). Based on this, management can be understood as an overarching discipline under which all facets of the leadership of individuals and the management of systems can be summarized.

As described above, it is necessary to distinguish and characterize the concept in the narrower sense. In general, descriptions always serve to explain a fact as well as to understand further analyses. The term leadership has already been characterized in numerous sources. On the basis of the previously elaborated results, it can be stated that leadership initially has something to do with influencing people, insofar as the leader influences people's attitudes and behavior through his person or behavior in order to achieve the set goals. According to the recent explaination of DuBrin (2015), leadership can be understood as the ability to inspire, trust and support people to achieve their business goals. More importantly, he explains that the term leadership could be an element of any organizational level, not reserved exclusively for higher positions.

Against this background, three main areas of responsibility can be distinguished from these descriptions. On the one hand, in the working environment in which the manager is responsible for a climate in which the infrastructure and processes can be designed. On the other hand the subject level. In this area, goals are set and the level of difficulty is linked to the respective tasks. The last level is the relationship level, where the leader is in contact with the employee and is responsible for motivation and personal interaction.

2.2.2 PARADIGM SHIFTS IN LEADERSHIP

Leadership theory and practice are always based on an existing paradigm that changes over time and determines the perspective on the field of research. The term paradigm comes from the Greek term *paradeigma* which can be translated as "show side by side". The term is composed of para- 'beside' and deigma 'to show' ("paradigm - Definition of paradigm in English by Lexico Dictionaries", n.d., 2019). Its meaning can be understood as "“prototype”, “sample”, or "ideology”. Paradigms can display and describe different theories or schemes of thoughts and behaviors. For this a paradigm can be given an essential meaning because it serves orientation and contains a narrative. Historically, it can be noted that paradigms are usually temporally terminated and replaced by another.

In this sense, the term paradigm shift was already used in the 18th century by Thomas S. Kuhn to formulate the challenge that an extraordinary scientific problem requires a new or different way of thinking. Paradigm shifts occur in every industry and every sector (Kuhn, 1983). For example, a transition of government involving a change in the political agenda can stimulate a paradigm shift. In addition to political changes, international research projects such as Bakacsi et al. (2002) have also found that cultural differences can have an impact on the understanding of leadership. From these different perspectives, the basis of the existing paradigm itself could be questioned, examined and a paradigm shift can be initiated.

In this context, the paradigms reflect the holistic developments in leadership approaches and theories related to the ongoing changes inside and outside an organization. Due to the ambiguities in the definition and the different theoretical approaches in leadership research, the emphasis on leadership characteristics of a leader had prevailed in the beginning. In this sense, leadership was understood not only in the context of leadership to other people, but also as leadership or development of one's own person (Hofmann & Linneweh, 2003). Based on this assumption, the personal traits of a leader play an important role in the effectiveness of leadership processes. This leader-oriented approach to traits theory probably represents the historically oldest explanatory approach to leadership. After that, leadership is essentially an inherited trait of the leader. Even for Machiavelli (15th century), the essential qualities of a leader are his strength, determination and humanity. The personality trait theory concentrates on the inherent or early socialized traits of leadership. This is based on the assumption that the ability to lead exists of consistent and relatively stable properties of the conductor.

Subsequently, research is conducted to determine which qualities support or prevent a leader in the process. The criticism of this approach is that the leadership was analyzed without the social aspects. Leadership success has been associated exclusively with specific personality traits of a leader. Tasks, group and situational influences were not considered. In addition, more recent findings have shown that characteristics such as self-confidence and communication skills are related to leadership success (Northouse, 2013). However these results show that these connections are not necessarily to be judged significantly, but can be interpreted only as weak.

In addition to the personality-trait-centered science in the field of leadership, the behavior-oriented approach also emerged. This approach emphasizes a lack of understanding that leadership behavior and not leadership attributes are significant in promoting leadership effectiveness. In this context, the Ohio State Studies (Fleishman, 1953) were able to place the behavior and leadership style of an leader at the center of leadership success. Based on these theories, it is assumed that specific behaviors such as helping and supporting employees, enforcing tasks, or being open to advice have a significant effect on leadership results. According to Yukl & Mahsud (2010), many weaknesses of the theoretical foundations can also be discussed in this theoretical approach.

Nevertheless, the behavior of leaders has maintained the scientific interest to this day, especially with regard to improved measurability. At the same time, situational approaches to leadership developed. They are linked to behavioral models that search for effective leadership styles. In contrast, these theories clarify the role of situational influences. In this context it is assumed that a certain leadership behavior can only be effective in specific situations. For this reason, research increasingly focused on the interaction between leadership and situation (Argyris, 1974).

Another paradigm shift took place in the 1980s. This leadership approach attempts to combine all three theories that have been considered separately so far. Research interest in combination approaches that include personal, behavioral, and situational characteristics increased. In this context, dominant approaches for transformative and servant leadership have emerged to this day. The transformational leadership is probably the most studied leadership concept of the last thirty years. In this leadership theory it is generally assumed that extrinsic motives of employees can be transformed into higher intrinsic needs. This transformational leadership approach is characterized by several dimensions. While Bass & Stogdill (1990) distinguish four different aspects, Podsakoffs et al. (1990) differentiate this leadership approach into six components.

In this respect, the transformational leadership approach consists on the one hand of *Identifying and Articulating a Vision* in which the leader identifies a positive and attractive vision and integrates his employees into this vision. The second dimension describes the *Appropriate Model* as the development of a suitable approach in which the leader acts as a precise role model. Through the reliable and precise behavior of the leader, orientation and inspiration are created among the employees and the intrinsic motivation is stimulated. The third dimension is about promoting the *Acceptance of Group Goals*, describing the ability as a leader to promote and control a sense of group coherence and team spirit. In this dimension, the focus of leadership is not primarily on the individual but on the team structure. In addition to team thinking, the fourth dimension deals with and describes the fundamental *High Performance Expectations* of employees and leaders themselves. In this dimension, the focus is on ensuring that employees and leaders are able and expected to exceed expectations. In the fifth dimension, the *Provision of Individualized Support* is about a leader's sense of consideration for successors. Transformation leaders show understanding for the individual needs of their followers and can serve or integrate them. In the sixth dimension described by Podasoff et al. (1990), a leader uses *Intellectual Stimulation* to encourage his subordinates to think creatively and thus to question previous assumptions about work tasks and their fulfilment. Transformational leadership has been carefully studied in different environments and meta-analytical results suggest a substantial correlation with a variety of criteria indicating leadership and organizational effectiveness (Dumdum et al., 2013; Judge & Piccolo, 2004).

Servant Leadership is a theory in which the attention of the leader is focused on the respective followers and not exclusively on the economic goals of the team or organization (Liden et al., 2008). The purpose of the serving leaders for the representation of leadership influence is the development, empowerment and cultivation of followers. Accordingly, one vital characteristic of each leader is a strong sense of concern for others. In addition, important behavior facets refer to the delegation of work tasks or the guarantee of task autonomy.

Recent empirical work has examined the potentially positive impact of servant leadership on organizational outcome criteria and has shown positive relationships with employee behavior in terms of organizational citizenship, self-efficacy and commitment to leadership (Parris & Peachey, 2013).

2.2.3 CONTEMPORARY APPROACHES TO LEADERSHIP

Similar to other management tasks, the role of leadership has changed in many ways in recent decades. As described in Chapter 2.1, these changes in recent years are the result of globalisation and increasing networking and are an element of the VUCA world (Lawrence, 2013). The VUCA environment has caused leadership forms to transform, whereby new skills and styles of leadership have been realized. In the business context, this means adapting to change, fostering creativity and motivating employees are increasingly necessary. This new set of skills should enable leaders to ensure the position of the organization in the market (Kraft, 2019). In order to adapt to changes and volatility, organizations, leaders and employees need to be as flexible and innovative as possible, which means skills such as agility and adaptability are of the utmost importance (Gupta et al., 2006). What is therefore necessary is the sustainable reorientation and adaptation of the entire organization and thus also the leadership culture. The traditional patterns of an authoritative, purely profit-oriented management culture are too inert to keep up with new developments. Therefore, a modern leadership approach relies on open and flexible (network) structures, trust in employees, personal responsibility of employees and their networking among each other and with customers.

Given this evidence Lawrence (2013) described the role of a modern leader not purely as a controller of a group, but also as a guide for implementing a team spirit and mutual vision, as well as a guide for creating a digital and connected environment. A leader plays a supporting role for both the individual and the team and works to create cohesion between the relationships between all members. In summary, it can be stated that leadership is becoming increasingly democratic and hierarchies between superiors and subordinates are being reduced.

Avolio et al. (2014, p. 106) re-examine the role of leadership and have shaped one of the most frequently mentioned definitions of modern leadership. They define leadership in the 21st century as "a social influence process embedded in both proximal and distal contexts and mediated by AITs [advanced information technologies] that bring about changes in attitudes, feelings, thinking, behavior, and performance. The researchers Liu et al. (2018, p. 10) agree with this definition, but also propose their own. This new definition could be explained as an extension of the definition of Avolio et al. (2014) by adding that the elements of the definition "are based on the ability to lead, to communicate intelligibly, to ensure appropriate social interaction, to inspire and manage change, to build intercultural teams, to demonstrate technological know-how and to develop a sense of trust even in virtual environments". In comparison, more recent management books such as Griffin (2013) or Daft (2016) understand leadership as a goal-oriented activity of management that must be used to achieve goals.

Therefore, the analysis of a modern leadership approach could lead to the conclusion that the role of a modern leader differs in terms of contextual factors and effectiveness constraints. Today's leadership is increasingly influenced by technological developments, cultural differences and the need for effectiveness. In this context, the social interactions in this VUCA environment are becoming increasingly important, so that modern leadership approaches focus primarily on effective cooperation and take this as a starting point. Consequently, many leaders in a VUCA environment need to be adaptable to adapt and respond to changing circumstances.

In this context, some researchers have identified the concept of ambidexterity as a key factor in dealing with today's challenges (March, 1991; Gibson & Birkinshaw, 2004; Raisch et al., 2009, Zacher, et al, 2016). In order to fulfil these ambidextrous capabilities, Rosing et al. (2011) described that leaders should manage two behaviors simultaneously and equally. In science, these two behaviors are described as exploitation (using resources) and exploration (being innovative).

2.3 AMBIDEXTERITY

Given these findings, how can organizations as a whole, and especially leaders and employees, manage these two behaviors to survive in dynamic environments? This predominant question seems to be relevant in view of the fact that many organizations that were considered "successful" traditional companies in the past have left the market due to turbulent changes. Recent examples of this can be mentioned from all countries.

These included the photo equipment supplier Kodak (USA), the airline Air Berlin (Germany) and the insurance company Conseco (USA). These prominent cases also attracted media attention because, tragically, many jobs were also lost (Fojcik, 2015). Even though the reasons that have led to the bankruptcy of companies are diverse, most of these cases have in common that companies either concentrate only on improving existing resources, products and markets (so-called explosive orientation) or only on developing new technologies, skills, products and markets (so-called exploratory orientation) (Gupta et al., 2006). Against this background, an exclusive orientation of companies towards either exploitative or explorative activities does not appear to be very effective and promising. To ensure business success in dynamic contexts, it is assumed that organizations should adopt a two-way approach consisting of an exploitative and an exploratory approach (March 1991).

This simultaneous perspective enables companies to ensure the efficiency of their basic financial resources through exploitative activities on the one hand and to develop new products or business models through exploratory activities on the other hand, in order to adapt to corresponding changes. According to Gibson & Birkinshaw (2004), and also He & Wong (2004), it could already be empirically proven that this ambidextrous behavior has a positive effect on company results. In the present day, an increasing number of scientific papers identify this concept of ambidexterity towards as a key driver for organizations to fulfil company targets in handling with these environmental impacts (Gupta et al., 2006). The authors Raisch & Birkinshaw (2008, p. 382), referenced, that the number of studies on ambidexterity in the leading journals of management research has risen from less than 10 in 2004 to more than 40 in 2008. In this context, it should be mentioned that this area has also become increasingly important in Hungarian publications in recent years. Especially the article by Dobák & Balaton (2002) with the interview by James March, in which the relevance of organizational learning with regard to explorative and exploitative behavior was pointed out, should be highlighted. And the most recent publications by Balaton (2019) and Balaton (2015) can also be included in the overview of the relevance of ambidextrous behavior in organizations.

To illustrate the relevance of ambidexterity in scientific discourse, the following graph displays and analyses the number of recently published articles over time. To prepare the graph, the terms “ambidexterity”, “ambidextrous leadership” and “ambidextrous employees” were entered into the EBSCO system (see figure 3). As illustrated in the chart, a constant stream of articles on this topic has been published since 2013 and has become increasingly relevant in recent years.

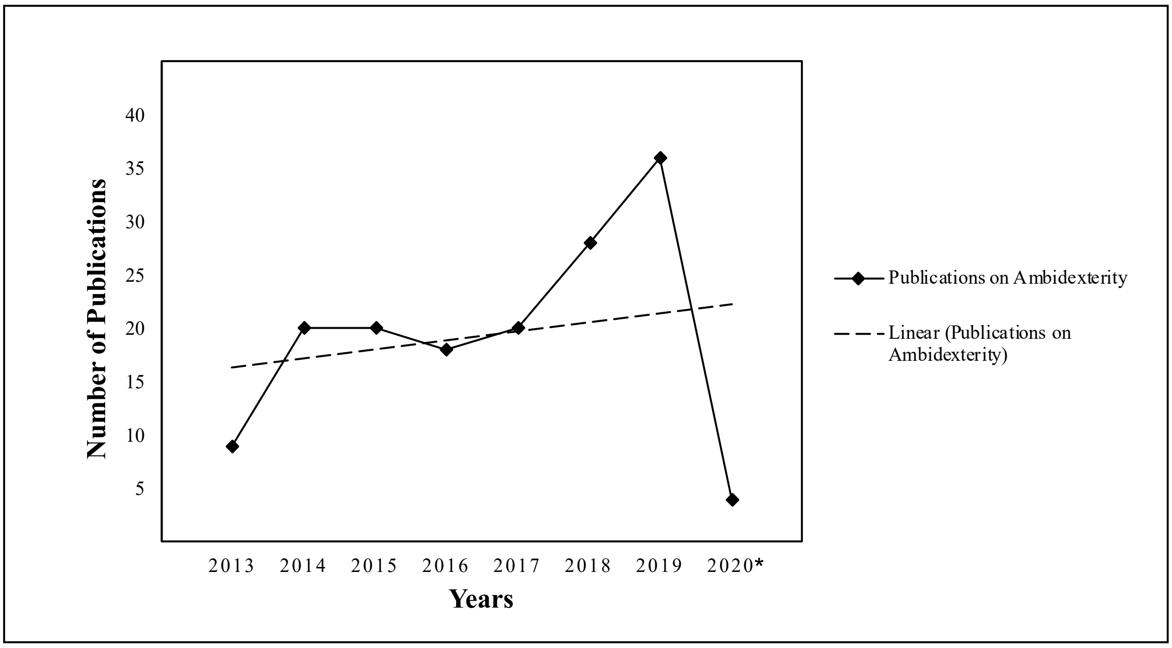

Figure 3 Short-Term Development of Publications in the Field of Ambidexterity. *Preparation until March 2020

Since this idea has already been verified and relevant in scientific discourse, this work is based on the assumption that a simultaneous practice of both behaviors (exploration and exploitation) is more promising than a one-sided action. The purpose of this Chapter is to analyze the current state of research and to give a theoretical overview of the antecedents on the research and to derive perspectives for the ambidextrous leadership style and the behavior of employees. To answer this question, the theoretical approach will discuss the basics of ambidexterity to identify external and internal factors that affect it. In this context, a review of the literature on the concept of ambidexterity in leadership and employee behavior was carried out. However, both literature reviews focused on current situations with a resource-oriented view of organizations.

2.3.1 ANTECEDENTS OF AMBIDEXTERITY

Since the publication of March (1991), the terms "exploration" and "exploitation" have increasingly dominated to explain and analyse organisational processes such as innovation, change and learning (Benner & Tushman, 2003). Although this combination of exploration and exploitation is considered important, there is still some ambiguity regarding its conceptualization and the alignment of ambidexterity. For instance, March (1991) referenced that dealing or managing both behaviors has been identified as a characteristic of organizations.

According to Gupta et al. (2006) it considers to contradictory yet interdepended elements that exist simultaneously over time. In addition, Rosing et al. (2011) state that this is also an ability of the ambidextrous leader as having the ability to switch between the two styles according to the needs of the organization. Birkinshaw & Gupta (2013), focused their definition on identifying factors that enable these two types of behavior in an ambidextrous capacity. Uotila et al. (2009), describe that technology-driven companies embed exploitation and exploration in an internal process chain to develop innovative it solutions for customers.

Jansen et al. (2009) had a similar view on ambidexterity and also found a positive correlation with effectiveness in their study. They found that such a correlation is supported by flexible hierarchies on the one hand and clear process chains on the other. Such an interaction between explorative and exploitative orientation also proved to be beneficial for He & Wong (2004) in order to increase the turnover of their companies. In addition, Han & Celly (2008) show that start-up companies in particular, which show a high degree of internationalisation within a short time after their foundation (New Ventures), have benefited from the implementation of both explorative and exploitative strategies. In conclusion, Cao et al. (2010) state that a two-way combination of exploration and exploitation is also successful for large companies with a broad resource base. Given the evidence for ambidextrous behavior from a theoretical and practical perspective, part of the ambidextrous research has been devoted to identifying factors that allow such an behavioral profile. According to the results of O'Reilly & Tushman (2004), the characteristics of the exploration and exploitation behavior of organizations can be classified along their alignment (see table 2). In addition to the organizational characteristics, the influence of leadership in organizations is also empirically proven. Furthermore, the external environmental situation also has a significant influence on the organization (Keller & Weibler, 2015).

Table 2 Characteristics of Organizational Explorative & Exploitative Alignments (adapted from O'Reilly & Tushman, 2004, p. 80).

Alignment	Explorative Organization	Exploitative Organization
Strategic focus	Innovation	Rationalisation
Competenices	Entrepreneurial	Operational
Organizational Structure	Organic	Mechanic
Leadership role	Integration	Authoritative
Culture	Efficiency	Flexibility

2.3.2 CONCEPTS OF AMBIDEXTERITY

So how can explorative (use of resources) and exploitative (be innovative) behavior be carried out simultaneously? This predominant question has been the focus of numerous studies in recent years. Gibson & Birkinshaw (2004) brought this concept of ambidexterity on the management surface and described it as an ability to promote efficiency and creativity simultaneously. Applied to the organizational context, this means that both leaders and employees have the need to find a balance between exploration and exploitation in their behavior (Gupta et al., 2006).

Based on this assumption, ambidexterity is considered in this paper as a management issue to ensure competitiveness. Accordingly, the focus of this paper is on research on leadership in organizations. There are several suggestions how this combination of the two opposing behaviors can succeed. In this context, some researchers suggest that ambidexterity can be achieved through a sequence of resources from one case to another, regardless of whether the goals are explorative or exploitative. In this cyclical approach, both behaviors between exploration and exploitation are carried out one after the other in time intervals. This concept means that focal points can shift over time (Simsek et al., 2009). A study by Rothaermel & Deeds (2004) showed that biotechnology companies could successfully focus first on research and then on commercialization of products over time. However, a particular danger of this cyclical nature of exploration and exploitation is that one of the two activities may be favored over time and the other neglected. It could also be argued that this flexibility must also be transferred to the customer. So that a brand can continue to exist.

In addition to the time variant, a structural ambidexterity is proposed in which single organizational units separately focus either on flexibility and creativity and vice versa on efficiency (O’Reilly & Tushman, 2008). The structural approach of ambidexterity is based on the assumption that a simultaneous behavior of both activities is made possible by a spatial separation (Jansen et al., 2009). This structural ambidexterity therefore functions at different organizational levels. This idea of structural ambidexterity is connected with a main problem. It leads to the question of the extent to which integration between these units can be achieved. The strict separation of orientation makes coordination and cooperation between these heterogeneous units, which have fundamentally different priorities, more difficult (Schreyögg & Sydow, 2009). Ultimately, structural ambidexterity shifts and differentiates the problem of balancing opposites only from the unit levels, without really offering a solution to dealing with these challenges (Gibson & Birkinshaw, 2004).

Based on these two ambidextrous approaches, the concept of contextual ambidexterity developed by Gibson & Birkinshaw (2004) seems to be the most appropriate from a practical point of view. By developing the organizational structure and culture, a competence is created at the individual level of action that enables the acting persons to deal with contradictory requirements at the same time (Kearny, 2013). This basic idea appears promising and has been taken up by various authors in different ways (Schreyögg & Sydow, 2009). In this context Gibson & Birkinshaw (2004) understand the context of an organization as a situation of structural and cultural aspects.

If a context is characterized by an culture of curiosity and trust, authors see a favorable situation for explorative activities, as creativity and new approaches are fostered. In contrast, a culture of ambition and discipline would encourage explosive behavior. Consequently, this would enhance the explorative and exploitative behavior within the individual organizational units.

In the empirical consideration of exploration and exploitation as complementary behaviors, ambidexterity is operationalized as a combination that causes a multiplicative interaction of both constructs (see data analyses 4.2). Ambidexterity has a stronger effect the more it combines explorative and exploitative activities. The perspective is that of simultaneous exploration and exploitation, where potential resource conflicts have already been resolved. To compare the three basic concepts in ambidexterity research, figure 4 illustrates these concepts in accordance with O'Reilly & Tushman (2013).

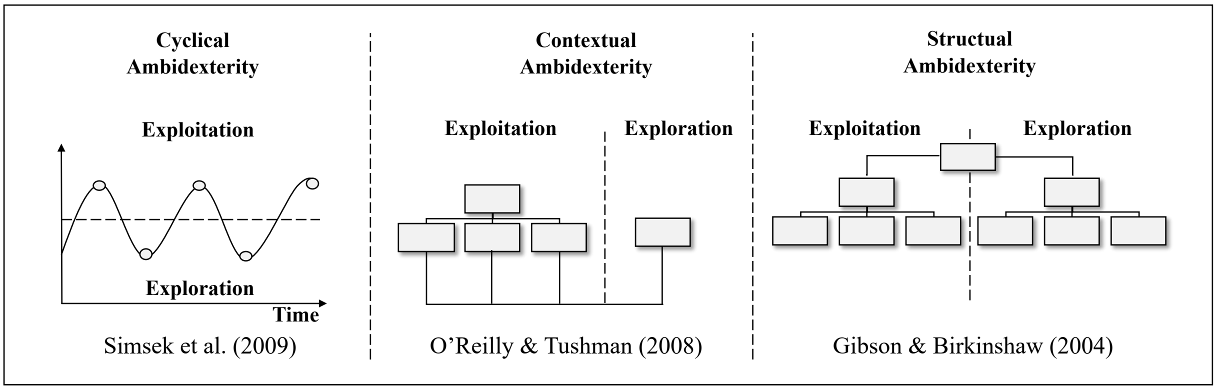

Figure 4 Concepts of Ambidexterity (adapted from O'Reilly & Tushman, 2013, p. 331–338).

2.3.3 AMBIDEXTERITY IN LEADERSHIP BEHAVIOR

Based on the assumption that the success of an organization depends on the way it is managed, this Chapter focuses on the question to what extent leaders can find an appropriate combination between the described productivity (exploitation) and innovation-oriented (exploration) leadership behavior. The starting point of this analysis is the realization that the success of established organizations can, over time, lead to a success trap, thereby always neglecting one of the two behaviors. Given this findings, it is becoming increasingly complex for managers in different functions of a company to respond and adapt for these global developments. But these skills are needed today for many companies to make strategic decisions about their businesses (March, 1991).

In this context, it is becoming evident that flexibility must be anchored not only at the organizational level but also at the leadership and employee level. Therefore, it seems increasingly important to enhance the leadership style of managers regarding to these changes by analyzing the determinants of leadership behavior.

According to the need of being flexible and adaptable at the same time, managers continuously face the challenge to balance their leadership style between improving efficiency on the one hand and for increase creativity on the other hand. The ability of ambidexterity is therefore especially located on the individual level. While ambidextrous leadership can combine two types of behavior and align them flexibly with the employees, this promotes the agility of both employees and the organization.

Ultimately it can be said that adaptability can be increased. Building on this general understanding of the term, “ambidexterity” was specified and dealt with depending on the leadership and the research perspective taken of scientific work.

In this context, ambidexterity was understood as a combination of ideas generation and implementation, organizational change and stability, social innovations vs. profit orientation designed. The following table gives an overview of the different opinions on ambidextrous at management level. This content-based literature review was conducted using important multi-databases such as EBSCO and Beluga.

The search terms for finding articles and documents related to the research agenda are: "ambidextrous leadership", "dual leadership", "paradoxical leadership approaches" and "leadership perspectives". An additional search for articles was conducted using Google Scholar to increase the reach of the search. To create the list, the articles were sorted by date and edited according to your concept proposal on ambidexterity in leadership (see table 3).

Table 3 Different Concepts of Ambidexterity in Leadership Behavior

Authors / Publication	Methodology	Conception of Ambidextrous Leadership
Birkinshaw, J., & Gibson, C. (2005)	Conceptional work	Internal learning processes vs. external adjustment
O'Reilly, C. A., & Tushman, M. L., (2004).	Conceptional work	Incremental innovations vs. discontinuous innovations
Gratton, L., & Erickson, T. J. (2007)	Review of the literature	Task-oriented leadership and relationship-oriented leadership
Rosing, K., Frese, M., & Bausch, A. (2011)	Review of the literature	Open leadership behavior vs. Closed leadership behavior
Probst, G., Raisch, S., & Tushman, M. L. (2011)	Review of the literature	Global integration vs. remaining locally adaptive
Alexander, L., & Van Knippenberg, D. (2014).	Review of the literature	Idea development vs. performance prove orientation
Vargas, M. I. R. (2015)	Review of the literature	Transformational leadership vs. transactional leadership
Schulte, B., Koller, H., Andresen, F., & Kreutzmann, A. (2016)	Conceptional work	Open leadership behavior vs. Closed leadership behavior
Zacher, H., Robinson, A. J., & Rosing, K. (2016)	Empirical Study	Open leadership behavior vs. Closed leadership behavior
Zheng, J., Wu, G., Xie, H., & Xu, H. (2017)	Empirical Study	Transformational leadership vs. transactional leadership
Trong Tuan, L. (2017)	Empirical Study	Open leadership behavior vs. Closed leadership behavior
Chebbi, H., Yahiaoui, D., Vrontis, D., & Thrassou, A. (2017)	Empirical Study	Transformational leadership vs. transactional leadership
Martínez-Climent, C., Rodríguez-García, M., & Zeng, J. (2019)	Review of the literature	Social entrepreneurial orientation vs. operational performance
Alghamdi, F. (2018)	Empirical Study	Open leadership behavior vs. Closed leadership behavior
Cunha, M. P. E., Fortes, A., Gomes, E., Rego, A., & Rodrigues, F. (2019)	Empirical Study	Empowering vs. Centralizing; Qualifying vs. controlling; etc.

Against this background, the combination of open and closed leadership behavior has been differently conceptualized in the behavioral science literature on ambidextrous leadership. However, the most common and at the same time most comprehensive understanding of ambidextrous leadership by Rosing et al. (2011) was used in this work. Both behaviors are closely related to the basic scheme of explorative and exploitative behaviors. However, this classification makes a more explicit distinction between management and employee behavior. In this context, it is assumed that managers and employees need more flexibility to perform complex tasks (e.g. innovation management). Thus, it can be stated that many complex tasks require a combination of both open and closed leadership behavior. The open leadership activities encourage creativity and the generation of new solutions. In contrast, the closed leadership activities promote the realization and implementation of solution approaches. In order to promote both necessary behaviors equally, it is necessary to combine opposing strategies. The combination is intended to reduce the negative effects of the respective opposing measures. In other words, open leadership behavior should compensate for the disadvantages of closed leadership behaviors (style of an ambidextrous leadership behavior see figure 5).

The first dimension refers to a type of empowerment (Allowing different ways of accomplishing a task vs. Monitoring and controlling goal attainment; Encouraging experimentation with different ideas vs. Establishing routines). Open leadership behavior such as empowering encourages the exploration of new ideas and options for action, which tends to have a positive effect on creativity. However, individual flexibility in coping with tasks can also lead to problems: Especially in customer situations, this can lead to different quality standards. In contrast, a closed leadership behavior promotes a precise orientation by setting goals and routines in tasks. However, better solutions may not be established and the motivation of employees may decrease. It is therefore necessary to combine this open leadership activities with a closed one: the promotion of individual flexibility and control objectives, which tends to have a positive effect on overall performance.

The second dimension concerns risk behavior (Motivating to take risks vs. Taking corrective action; Give possibilities for independent thinking and acting vs. Control adherence to rules). Open leadership behavior means that employees have a wider range of options for action and must make decisions and assess risks independently. A closed leadership behavior corresponds more to managers not delegating the decision and intervening in the area of responsibility if necessary. In this dimension it becomes clear that depending on how complex tasks can be, high demands are placed on managers in order to be able to fully assess not only the task but also the employees. A combination of both behaviors would encourage employees in terms of time and at the same time maintain an overview.

The third dimension relates to fault tolerance (Allow errors vs. Sanctions errors). In this dimension, open behavior by managers is characterized by the fact that mistakes are allowed and tolerance prevails. In this context, leaders aim at the learning effect and recognize mistakes as potential. In contrast to this, mistakes are sanctioned in closed leadership behavior. in this case, mistakes are regarded as a clear violation and as a loss of quality, which can be prevented by organizational regulations. As in the previous dimensions, it can be postulated that one-sided leadership behavior always leads to advantages and disadvantages, whereby it can be said that managers should find a balance of two behaviors in order to be able to react to corresponding situations.

This clearly requires leadership in dynamic times, flexibility also in leadership styles and from this a need for action regarding ambidextrousness can be identified. At the same time, it becomes clear that an ambidextrous leadership behavior places high demands on the leaders and that this enables flexible leadership behavior to be learned. It is also critical to note that, in addition to external market events, managers have to assess their resources as best as possible in order to be able to react to these sometimes unknown situations. It can be assumed that an ambidextrous leader must have a strong ability to reflect and be able to think analytically. Furthermore, it can be said that it is precisely through the knowledge of not being able to prepare and adapt that ambidextrous behavior is very difficult to transfer into everyday practice.

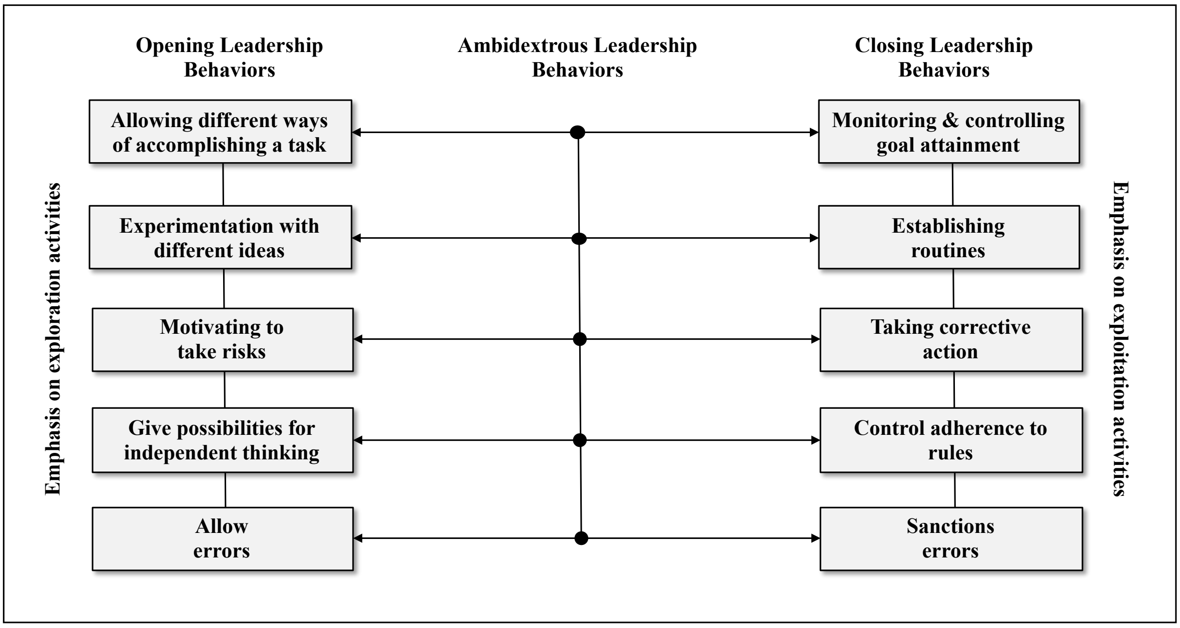

Figure 5 Tensions of Leadership Behavior & Ambidexterity (adapted from: Gebert & Kearny, 2011; Rosing et al., 2011).

2.3.4 AMBIDEXTERITY IN EMPLOYEE BEHAVIOR

Despite the narrow link between ambidextrous behavior at the organizational level, a number of studies within the research indicate that answers to central questions on this topic remain incomplete (Gupta et al.,2006; Alghamdi, 2018). In conclusion, it can be postulated that not only organizations and leaders, but also teams and individual employees have to deal with the tension between exploration and exploitation in order to perform. In this context, an employee is defined as a person who works under an employment contract, whether oral or written, explicit or implicit, and who has acknowledged rights and obligations. This group of people could also be characterized as workers or employees (source). Accordingly, employee behavior is defined as an employees' reaction to a particular situation at the workplace. It describes a behavioral way of activity patterns during their work performance.

Consequently, employee behavior is a central object of investigation in organizational research. This characteristic is justified by the fact that this type of transactional relationship is used to investigate economic exchange in terms of income and performance. In addition, it should be mentioned that within this exchange expectations (implicit or explicit), promises, deceptions etc. are included. According to Martin (2017), it should be noted that an exact specification of the work performance is often difficult to implement contractually and the transactional relationship is extended by an interpersonal component for task fulfilment. From a scientific point of view, research topics on engagement, Organizational Citizenship Behavior, Commitment etc. are predominantly discussed in this context. Essentially, the purpose is to examine the situation in which employees can proactively engage themselves for the entire organization in addition to their contractually agreed work performance.

To understand these behavioral activity patterns within an organization, different levels of analysis can be distinguished. Due to the scope and complexity of the topic, this paper focuses only on isolated explanations of human behavior within organizations. Two theoretical approaches come into consideration, which on the one hand focus on the respective person and the situation. In this context Von Rosenstiel (2011) provides an overview of the different approaches and the scientific work. With regard to personal traits, it becomes clear that the appropriate behavior of persons is activated by needs, motives or desires on the one hand, and thus personal attitudes serve as a function of behavior.

However, a purely psychological explanations of the behavior of the employees pose a risk. According to the psychologist Kurt Lewin (1935) every behavior of a person is dependent on the respective situation. This theory is based on the assumption that an appropriate situation can motivate and encourage a person to behave in a certain way. Both explanatory approaches refer to the intention to show a certain behavior. In addition to these two explanatory models for the emergence of employee behavior, the behavioral process within the behavioral sciences is examined. Based on this theory, the ability to behave is usually determined by organizational conditions (e.g. access to resources, clarity of roles, tolerance of behavior within the hierarchy). According to Martin (2017), employee behavior is comprised of the three factors described (see figure 6). In summary, it can be argued that the behavior of employees is not only due to personal characteristics, to the respective situation, but also to organizational regulations.

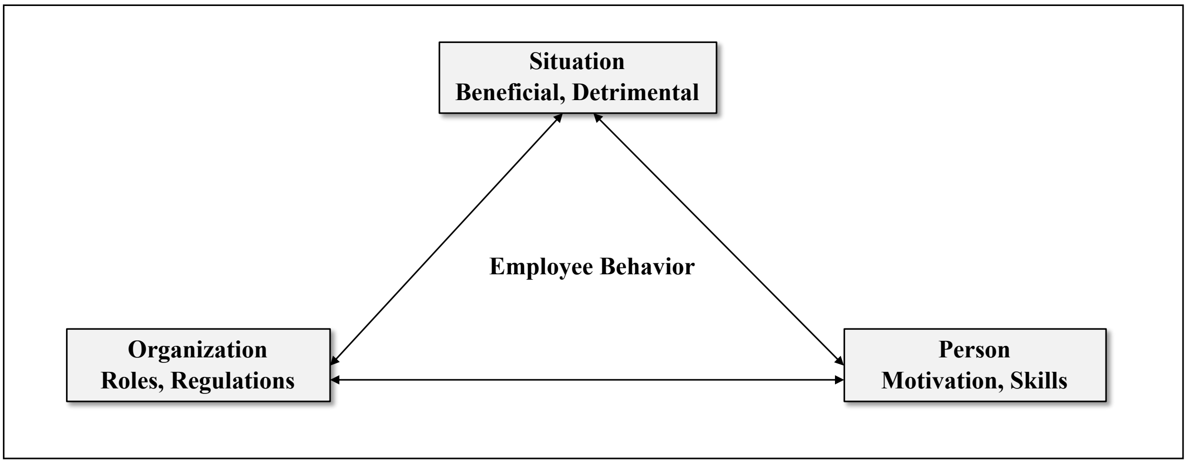

Figure 6 Determinants of Employee Behavior (adapted from: Martin, 2017).

Applied to the discussion on ambidexterity in organizations, the question arises as to which behaviors should be encouraged by employees? In this context, Caniëls & Veld (2016) describe that successful companies are characterized by the fact that employees perform a combination of explorative and exploitative behaviors. Exploration in employee behavior means in general to find new ways of accomplishing a task or to solve problems with a new approach. In contrast, exploitation means to use existing resources and methods to generate efficiency in the organization. In this respect, ambidexterity of employees is defined as a behavioral pattern that can emphasize a combination of exploitative and explorative activities within a given period of time (Mom et al., 2006). The ambidextrous behavior of employees is understood in different dimensions in the literature. According to Kauppila & Tempelaar (2016), the behavior of ambidextrous employees is primarily seen as a skill that can perform both explorative and exploitative tasks. An explorative behavior serves here to adhere to rules and to build up a routine in work. Exploratory behavior, on the other hand, is mainly about experimenting with ideas and analyzing and interpreting the environment.

According to Gupta et al. (2006), it is important to note that an increase in one behavioral pattern is only at the expense of the other and thus an ambidextrous balance in behavior is neglected. Consequently, an equal combination of explorative and exploitative activities is sought. According to Good & Michel (2013) a cognitive learning perspective of the employees is necessary to achieve ambidexterity in behavior. It can be argued that employees must be intellectually capable of switching flexibly between exploration and exploitation in changing environments. In the following table 4, the empirical studies on the individual ambidexterity of employees are once again reviewed and compared in terms of their conception.

Table 4 Different Concepts of Ambidexterity in Employee Behavior

Authors (publication)	Methodology	Conception of Ambidextrous Employee Behavior
Mom, T. (2006)	Empirical Study	Exploration Behavior & Exploration Behavior on Manager Level
Weibler, J., & Keller, T. (2011)	Empirical Study	Exploration Behavior & Exploration Behavior on Manager/ Employee Level
Hafkesbrink, J., Bachem, C., & Kulenovic, D. (2012)	Empirical Study	Individual Exploitation Competencies & Individual Exploration Competencies
Good, D., & Michel, E. J. (2013)	Empirical Study	Individual Exploitation abilities & Individual Exploration abilities
Keller, T & Weibler, J., (2015)	Empirical Study	Exploration Behavior & Exploration Behavior on Manager/ Employee Level
Kauppila, OP, & Tempelaar, MP. (2016)	Empirical Study	Exploration Behavior & Exploration Behavior on Employee Level
Caniëls, M. C., & Veld, M. (2016).	Empirical Study	Exploration Behavior & Exploration Behavior on Employee Level
Ajayi, O. M., Odusanya, K., & Morton, S. (2017)	Empirical Study	Suggestion orientation & Implementation orientation on Employee level
Luo, B., Zheng, S., Ji, H., & Liang, L. (2018).	Empirical Study	Exploration Behavior & Exploration Behavior in Top Management Teams
Luu, T. T., Rowley, C., & Dinh, K. C. (2018)	Empirical Study	Exploration Behavior & Exploration Behavior in Public Service
Alghamdi, F. (2018)	Empirical Study	Exploration Behavior & Exploration Behavior on Employee Level

Among all these determinants of employee behavior, leadership was arguably noted as one of the most important factors influencing behavior in organizations. It is assumed, that the leadership behavior of a manager influences the behavior of employees and works towards a desirable target state (Bledow et al. 2009). From a theoretical point of view, leadership behavior can stimulate employee behavior in many ways. Firstly, leaders can motivate and encourage their employees to behave in a way that is based on their personality. In this context the motivation of the employees is enabled by showing their character traits. Conger (1999) describes a connection of the perceived personality of a supervisor with the motivation of the employees. Secondly, through the leadership behavior of a manager, resources such as information and instruments can be provided for the necessary support and thus stimulate behavior. Based on this theory, employees behave as long as they are supported by their supervisor. In this context, several studies indicate that transformational leadership has the most significant impact on an outcome (Gumusluoglu & Ilsev, 2009). However, it should be noted that most of the studies were carried out a long time ago and that from today's perspective, one-sided leadership behavior should be disregarded, particularly for reasons of flexibility. Under this assumption, a combination of several leadership behaviors adds value to flexibility and agility. In this context, two leadership behaviors are performed simultaneously in an ambidextrous leadership. Thus, an open leadership behavior should stimulate an explorative behavior of the employees and a closed leadership behavior should contribute to an exploitative behavior.

2.4 ORGANIZATIONAL AGILITY

There is almost no academic discourse that does not also address the need for agility in the corporate sector. From a scientific perspective, the changed environmental conditions are mentioned as one of the main reasons for this topic. Thus, markets that are becoming increasingly global, dynamic and customer-oriented are placing new demands on companies in order to remain competitive in the long term. The resulting uncertainty about what a future looks like and what it can mean for each individual is nothing unusual from an economic perspective (Nijssen & Paauwe, 2012). In the past, there have always been events that suddenly had a radical impact on the economy. For example, it took 62 years for the car to reach 50 million users after its launch, mobile phones 12 years, Facebook 3 years and the game Pokémon Go only 19 days (Holland, 2019). These examples indicate that, unlike in the past, the present is characterized by an increasing speed of development of new technologies and products.

In this context, researchers have found that an organization's internal capabilities are critical to its ability to survive in these changing environments. When analyzing internal capabilities with regard to the challenges outlined above, the current responsiveness of an organization is described as dominant. Under this premise, organizations strive for increasing flexibility of their internal processes and structures to adapt to increasingly complex and dynamic environments.

According to Yang & Liu (2012), agility plays a central role in an organization in order to be able to flexibly adapt internal processes or products and react to the predicted change. In the literature to date, these dynamic capabilities are believed to have a positive impact on an organization's market-based performance (Teece et al. 2016). In this context, agility is usually seen as a universal solution to all problems, so it seems that all companies are already agile, are becoming agile or have always been agile. However, ideas about what exactly is behind the term vary widely. So there are companies that consider themselves to be unagile in their self-perception and others that greatly overestimate their agile abilities. But why is there no common understanding of such a topic and how is it possible that such a great importance is attributed to this field of research? The following section will deal with exactly these questions and will try to draw an understanding of the topic and its role for companies in addition to the points of relevance. In this context, it will also be determined to what extent leadership and employee behavior can affect the agility of organizations and whether certain factors need to be taken into account.

2.4.1 EVOLUTION OF THE ORGANIZATION

Whenever complex tasks can no longer be solved by a single person alone, from a sociological point of view, a group of people is formed as a social system. This collaboration pursues a common goal, and the use of resources is regulated by limited availability. According to Max Weber (1947), this gives two essential challenges that need to be solved through organization. Firstly, organizations have to solve the question of power, i.e. to what extent power is distributed among the members of the organization and secondly, how are resources distributed in the best possible way. This results in economic determinants that must organize resource allocation and cooperation effectively. From this point of view, the topic of organization is one of the oldest and at the same time most important disciplines of economic theory (Bledow et al. 2009). Given these findings, it is clear that organizations are constantly dependent on their environment.

In this context it can be postulated that changes in the environment always have an impact on resources and power distribution. Organizations thus represent a dynamic construct that can adapt to environmental conditions and learn. For example, changes in the world of labour market have led to more or less significant developments in the organization. The predominant organizational approach of Taylorism has now been replaced in many companies and is no longer possible. In order to be able to understand these changes from a scientific point of view, phase models for the evolution of organizations were outlined in the past, which attempt to outline explanatory models of these processes. In a phase model by Laloux (2014), which originally relies on the work of Graves (1970), organizations show typical change characteristics in their development. In this context, it can be stated that within an organization decisions in the classic sense can be understood through top-down processes. Power and control are derived from formal roles. Based on this logic, there is a clear separation of planning and operation work in an organization. This separation makes responsibilities clearer and specialization effects possible. The career in this hierarchical order is mostly gradual. Efficiency is the key element within this organization. That is why employees are very process-driven in their work behavior. Such forms of organization are suitable on the one hand if the environmental conditions are considered stable and there are hardly any deviations in the production process or in service. These organizations must consistently deliver the same results. Examples of this type of organization are public institutions like schools and the public service (Nijssen & Paauwe, 2012).

On the second level, hierarchy and formal roles play a strong role. However, depending on the area of responsibility, decision-making powers are delegated to teams. This delegation is the result of increasingly complex tasks. If individual managers who can no longer solve the tasks themselves, employees are integrated into the decision-making process. This approach is considered the most common form of organization worldwide. Control mechanisms are in place, but individual decisions are transferred to the subordinates. The major challenge with this type of organization is that employees can work for several managers and this can lead to conflicts of competence between the functions (Yang & Liu, 2012).

On the third level, the central target is the focus of the organizational form. In contrast to the previous levels, tasks are determined and distributed here in order to achieve goals and not by the hierarchy. This form of organization requires clear target descriptions in order to be able to measure progress and to be able to ensure order and security even with constantly changing environmental conditions.

At this level it becomes clear for the first time that organizations are dependent on the environment and that the targets are based on the environmental conditions. This form of organization requires personal responsibility and self-organization of the employees, since the achievement of goals is hardly compatible with an autocratic leadership style. In practice, this type of organization is often found in globally operating and diversified companies, as well as at scholar universities (Simsek et al., 2009).

On the fourth level, people, competencies and relationships are at the heart of the organization. Although there is usually still a clear structure, personal networks and shared values ensure that the organization is coordinated with the goal of satisfied customers. For this reason, the organization is consistently aligned with the needs of the customers. The employees are relatively empowered in this respect. The necessary precondition of these organizations is a culture that is characterized by cohesion and a sense of unity. Strict control is therefore no longer necessary. Employees begin to search for solutions independently, interact and cooperate with their colleagues, make decisions and take responsibility for their actions. This approach requires a high level of competence from employees and managers, so that they are able to deal with emerging challenges in a self-organized manner and develop creative solutions in communication with their colleagues. A central challenge with this approach is that employees increasingly seek consensus in order not to negatively influence the individual networks. While this can lead to a better working atmosphere, it also carries the risk that important decisions are made too late and the organizations as a whole become blind to renewal (Gupta et al., 2006). An excessively harmony-oriented organizational climate leads to the suppression of controversies and no impetus for innovation. Organizations at this level can be found in almost all areas. They usually have an excellent reputation and are characterized by high employee satisfaction and first-class customer service (Holland, 2019).

In the last level, organizations are focused not only on profit and customer satisfaction, but also on achieving additional goals in the area of society, the environment. For this reason, the personal network and interaction with colleagues within the organization are also decisive at this level. At this level, it is assumed that intrinsically motivated employees work in a self-organized manner in order to fulfill their professional as well as private visions. That is why it is no longer necessary to act according to the principle of consensus, since every employee strives to achieve the common goals with the best of his knowledge and belief. The employees are therefore viewed holistically. They are more than just employees of the organization, they play a key role in shaping them.

Most of the time, one employee takes on a topic and works on it. The employee submits a proposal to the team, which is implemented as long as no other employee has a justified objection. This leads to significantly faster decisions and enables the organization to act flexibly (Gupta et al., 2006). The entire organization strives for flexibility. If the decision is wrong, it can be reversed at any time. In practice, it is often shown that a decision taken quickly, even if it has not yet been fully developed, ultimately has a better impact than a decision that is only taken after a long maturing process, as quality deficiencies are avoided. Experience demonstrates that the special purpose of this kind of organization leads to a strong differentiation in the market, which not only attracts suitable candidates but also customers who share the same values. This unique selling proposition gives employees the feeling that they are not only buying a product or service, but that they are part of an ideal community (Overby et al., 2006). Against the background of the current dynamic challenges, that an organization becomes more competitive in this phase because the members of the organization understand the mission and purpose. Furthermore, it can be stated that it is precisely in these organizations that the ability to innovate is much more pronounced, because it allows the employees to think and act creatively and independently. In summary, it can be said that an organization cannot skip any of these phases in its development, but can cultivate itself over time.

2.4.2 UNDERSTANDING AGILITY

If one tries to define the term "agility", it becomes clear that there is no "generally valid" definition. According to Appelbaum et. al. (2017), a meta-analysis showed that current research lacks clarity about the definition of the term. This shows the complexity of the theory behind the term. According to Yang & Liu (2012), propose an overall synthesized definition of the term. "Corporate flexibility is a complex, multidimensional and context-specific concept that encompasses the ability to capture changes in the environment and to respond quickly to unforeseen changes by flexibly assembling resources, processes, knowledge and skills (Yang & Liu, 2012, p. 1023). From a scientific point of view, this definition is supported by numerous publications on the topic that organizations need to focus on their internal capabilities to meet these challenges. Based on this assumption, this relevance of agility in organizations represents a fundamental consequence for employees. Companies need more and more employees who are able to develop solutions for challenges in increasingly digitalized work processes in an independent and qualified manner. The basic idea of agility goes back to the concept developed by Deming (2015), in which organizations learn and constantly evolve to improve processes.

Initially this approach was limited to the production area, but it soon became clear that this principle can be applied to practically any situation. Especially in a VUCA world where long-term planning is not possible, this approach is the basis of any agile concept. With this method it can be achieved that the processes and the cooperation are optimized and the work processes become more predictable and predictable.

Nevertheless, long-term planning, usually with milestones defined in the group, is still needed to provide orientation. According to Overby et al. (2006), in order to promote agility, the principles and values are considered relevant in addition to the employees. It is assumed that even with the optimal implementation of an agile method, team members must have internalized the necessary values in order to exploit the potential of this approach. If not, it could be stated that it can even be expected that the achieved increases in efficiency will soon return to the original level.

In this context, a number of principles of agile working methods or principles of action attempt to steer employees towards implementation and give them orientation. The principles attempt to provide concrete procedures and simplify individual work steps. The principles attempt to provide concrete procedures and simplify individual work steps. However, in order for these principles or rules to be implemented, values become relevant.

Values are always necessary because they determine our behavior and form the basis of all decisions, even if the necessary information is lacking. Especially in uncertain, dynamic environmental situations, managers and employees make decisions without having sufficient information at their disposal (Lu & Ramamurthy, 2011). Values therefore form the basis of agility and thus determine the success of the methods used. Even if values cannot be prescribed, they can be acquired in real decision-making situations, e.g. in the work process ("learning at work"). Based on the values, the competencies that employees need to be able to act successfully in the future can be derived. In this context, values such as determination, self-organized action or a sense of responsibility play an essential role. If both principles and agile values are anchored and cultivated in the organization, agility is created in an organization in which every employee can contribute to responsiveness and integrate agility into their daily work processes. Every employee is encouraged to make a full contribution and to generate the right output for the organization from the inputs.

2.4.3 AGILITY IN ORGANIZATION

This section is about how organizations in the 21st century should be designed to be successful and sustainable. It is based on the assumption that a current organizational design must be fundamentally different. This changing paradigm makes fundamentally new demands on corporate management in the 21st century. The authors Olbert & Prodoehl (2019) describe the current paradigm as the paradigm of the agile company.

In this context, the agilization of a company is seen as a holistic concept, according to which agile organizations are more than just the use of agile methods. It can be stated that the agility means more than just the use of agile techniques and practices that have been known and applied in software development for years.

Since both the terminology and the concept of organizational agility differ considerably from a scientific point of view, a literature analysis was conducted to derive a concept for operationalization. Similar to the previous literature reviews, a content analysis was conducted using important multi-databases such as EBSCO and Beluga. The search terms for finding articles related to the research work are: "Organizational Agility", "Enterprise Agility", "Agile Organization" and "Agility". An additional search for articles was conducted with Google Scholar to increase the reach of the search. To create the list, the authors, the methodology used and the concept of organizational agility were prepared. The results of the analysis are presented in table 5.

Table 5 Different Concepts of Agility in Organizations

Authors (publication)	Methodology	Conception of Organizational Agility
Goldman, S. L., Nagel, R. N., & Preiss, K. (1995)	Conceptional work	Market Capitalization & Internal Adjustments
Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003)	Review of Literature	Digital Competence & Internal Processes
Overby, E., Bharadwaj, A., & Sambamurthy, V. (2006)	Conceptional work	Firm Knowledge & Internal Processes
Yang, C., & Liu, H. M. (2012)	Empirical Study	Customers Service & Cooperation resources
Zhang, Z., & Sharifi, H. (2007)	Empirical Study	IT-Systems & HR-Compentences
Goodhue, D. L., Lewis, W., & Thompson, R. (2007)	Case Study	Human Resources & IT-Systems
Ganguly, A., Nilchiani, R. & Farr, J.V. (2009)	Empirical Study	IT-Practices & Supply Chain Agility
Lu, Y., & Ramamurthy, K. (2011)	Empirical Study	Market Capitalization & Operational Adjustments
Denning, S. (2015)	Review of Literature	Mindset & Organizational culture
Teece, D., Peteraf, M., & Leih, S. (2016).	Conceptional work	Dynamic internal Capabilities & Financial Resources
Ravichandran, T. (2018).	Empirical Study	IT Competence & Innovation Capacity

Given these findings, the majority of scientific work understands organizational agility as an internal ability to deal with unexpected changes that occur frequently in the business world by reacting quickly and creatively. This interpretation is based on the work of Goldman et al (1995). According to Zhang & Sharifi (2000), this is also the most commonly used understanding of agility in science. In summary, all work focuses on internal capabilities and postulates that these need to be promoted within the organization. Agility extends the concept of flexibility, which can normally be integrated into a business process. In this respect, agility extends the concept of strategic issues, which deals with unstructured change (Overby et al., 2006). The agility of a company is determined by five essential dimensions. These dimensions describe the basic directions that play a role in achieving organizational agility.

(1) Enrichment of the customer, (2) Cooperation to improve competitiveness, (3) Alignment to manage change and uncertainty, (4) Achievement of a fast reaction time of the employees, and (5) Thinking in solutions. According to Lu & Ramamurthy (2011), these five dimensions can essentially be divided into two types of organizational agility: Agility of market capitalization and agility of operational alignment. Market capitalizing agility refers to all the dimensions that are concerned with the ability of a company to remain competitive.

In this context, it is made clear that the first three dimensions - customer, market and cooperation - are the focus of this agility analysis. Given this, organizations should benefit from change by continuously monitoring products/services and meeting customer needs. This agility emphasizes a dynamic, aggressively change- and growth-oriented entrepreneurial mindset that focuses on strategic direction, decision-making and evaluation under uncertain conditions (Sambamurthy et al. 2003). For this it is postulated, that an agile company significantly generates customer value by providing products that are perceived by customers as individual problem solutions. In particular, products that are perceived by customers as individual problem solutions have a high profit potential. In contrast to the classic transaction business, where a customer buys a product, problem solutions are multidimensional. If products are perceived as multidimensional services, customers tend to show a comparatively high willingness to pay and are significantly more loyal to the company. Precisely this explanatory model shows to what extent agility can contribute indirectly to profit.

In addition, the work of Goodhue et al. (2007) showed that cooperation or strategic alliances can be interpreted as a response to increasing market dynamics. It can be stated that organizations can flexibly cooperate with other companies in order to find solutions and to exploit synergies. The third dimension of a company's alignment to cope with uncertainty and change reflects an overarching organizational perspective, as it addresses how a company should be aligned to deal with change and uncertainty in the interest of the company. This dimension is intended to ensure that an organization can also adapt to changes in the market.

In addition to agility from a market perspective, operational adjustments refer to a company's ability to embed and integrate market changes with internal business processes. (Dove 2001; Sambamurthy et al. 2003). This type of agility thus emphasizes the flexibility of internal processes, which, as an important basis for fast and fluent implementation, enables adaptation. At the same time, this type of agility requires a constant willingness to change, whereby agility in particular must be anchored in the mindset and culture of the employees.

In addition to the operational embedding of agility mechanisms, there is also a need for change in order to develop an agility mentality and maintain it at an organizational level. Figure 7 shows the dimensions with regard to the two agility types. In this respect, the organizational perspective is linked to agility.

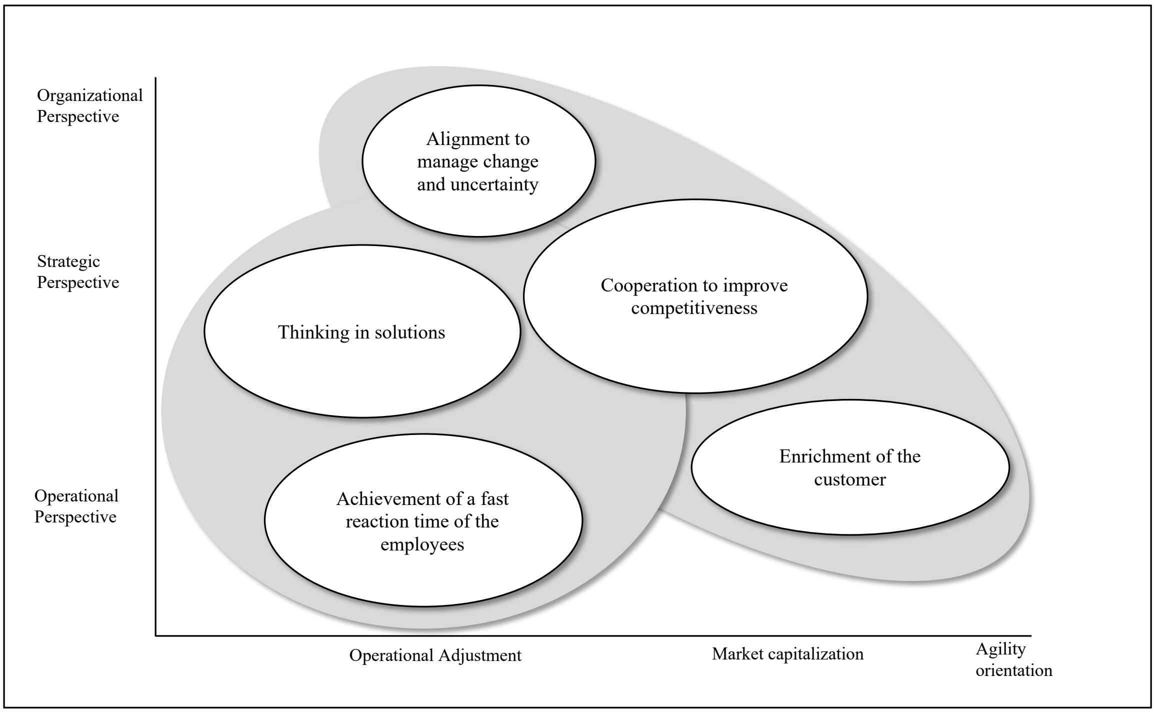

Figure 7 Types of Organizational Agility (adapted from: Sambamurthy et al., 2003).

In order to achieve both types of agility, from an internal point of view, a timely processing of large amounts of information must be distributed and analyzed. In this context, Sambamurthy et al. (2003) describe that IT-enabled learning systems can help in this respect. However, it must be assumed here that all IT capacities could exhaust financial resources and in turn place high demands on employees and managers. Furthermore, it can be seen that disruptive changes in the market environment make differentiation increasingly difficult and many companies may therefore be forced to continuously analyze their macro environment in order to build agility at the organizational level.

Finally, organizational agility creates the framework within which can develop their effectiveness. This is about creating understanding and structures, an attitude that is deeply rooted in the roots and foundation of the organization. Only this deep rootedness makes it possible to master the challenges and conflicts that arise when agile, lively, situation-driven action meets old, structured, optimized frameworks.

3 RESEARCH MODEL

As described in the previous sections, the focus of this study is to uncover an integral relationship between behavioral science contexts within organizations. In this regard, it will be examined to what extent macro-specific factors are related to micro-specific behavioral patterns. This will allow to identify success indicators to empirically prove the importance of ambidexterity with respect to agility. Since previous research indicates that organizational agility is dependent on employees and leaders, these two factors are the focus of this research on ambidexterity (Yang & Liu, 2012).

Due to the fact that several indictors related to ambidextrous behavior have been uncovered in the literature, this paper does not claim to be completeness. The purpose of this work is to build on existing relevant studies by developing and validating this comprehensive model of ambidextrous behavior in terms of organizational agility. However, the previous theoretical overview (see Chapter 2) serves as a starting point for the development of the integrative research model of this dissertation. Based on the conceptualized theoretical framework, hypotheses are derived and formulated in this Chapter. This procedure to the work is intended to ensure the theoretical basis for this work and make a contribution to the ambidextrous literature. In particular, I will discuss the impact of ambidexterity, the antecedents of ambidexterity, and finally the factors influencing ambidextrous behavior from an organizational and agile perspective. In this context, Chapter 3.1 first deals with the research paradigm to explain the determinants of this research. The research model is then presented and conceptualized in Chapter 3.2 and its essential elements explained. In the last Chapter 3.3 the hypotheses based on the ABO model are then derived and discussed.

3.1 RESEARCH PARADIGM

A research paradigm is understood to be scientific methods and questions that are generally accepted views, attitudes, working methods and criteria that determine scientific practice (Bortz & Döring, 2002). It can thus be stated that a research paradigm determines the sphere in which scholarship moves. From a certain research paradigm, a certain positioning of researchers can be pointed out, which then reveals the limits of the study. In the research discipline of ambidexterity, no paradigms have yet been finally established. According to the most common classification, research paradigms can be divided into three categories: critical, interpretative and positivist research.

The aim of critical research is to clarify behavioral theoretical peculiarities and to explain how certain behavioral patterns occur (Blanz, 2015). The critical perspective examines not only the causes, but also the actually measurable aspects of behavior. In comparison, interpretative research is primarily concerned with analyzing behavior patterns rather than generalizing and predicting causes and effects. In positivist research, the focus is on the application and validation of highly controlled and structured research approaches. In this context, positivist paradigms are mainly used to test theories in order to gain a better understanding of phenomena. While the majority of research approaches for leaders are still based on a positivist research paradigm, there are growing doubts about the objectivity of this paradigm. Against this background, an interpretative research paradigm was chosen based on the following assumptions by Blanz (2015): Ontological assumption: Reality is socially constructed and dependent on consciousness; Epistemological assumption: Knowledge can only be gained by including subjective perspectives and the anthropological assumption: The behavior of persons is based on voluntariness.

In order to manage this approach, the choice of research methods also determines the research framework. Usually, either qualitative or quantitative methods are used to investigate research projects. Quantitative research has its origin in the natural sciences and includes methods such as surveys and laboratory experiments (Popper, 1989). The purpose of this methodology is thereby that by the quantification within the research work numerical statements can be calculated and made. In this context, a large number of participants can be addressed by questionnaire surveys and thus the representativeness can be increased. Furthermore, the calculation of results also leads to an improved comparability between examinations.

This contrasts with the methodological approach of the qualitative investigation (Bortz & Döring, 2002). In the type of methodology, profound aspects and motivations are examined through interview forms. In contrast to the quantitative analysis, this enables a higher-quality statement to be made and more degrees of freedom can also be planned. Both research methods have been relevant in research methodology for decades, and Mix methods have also increased in recent years. In this context, both variants are carried out sequentially and then used to test the hypothesis. This should make it possible to take advantage of both methods. This approach initially promises a high degree of relevance, but in practical implementation it is not always possible to implement it adequately in terms of resources and economics (Bortz & Döring, 2002).

In addition, high demands are placed on the researchers here so that usable results can also be achieved. Against this background, a purely quantitative approach was chosen in the course of this work. As in numerous studies on the subject, it is postulated that individual behavior, especially in the field of behavioral science, can be easily understood with the help of questionnaires. For this reason, this type of research has established itself and offers promising insights into the topic.

For this reason, the present study is conducted with professionally self-employed persons, since they are subject to a lesser degree to externally imposed framework conditions and have greater freedom in shaping their working environment (see section 2.2.4 and section 2.2.5).

3.2 DEVELOPMENT OF THE ABO-MODEL

In the last decade, the number of published work on ambidexterity, both empirically and theoretically, is growing steadily. However, most of the existing studies focus on specific aspects of ambidexterity, such as the process and outcomes. Nevertheless, so far there are only a few research studies that deal with several perspectives in an integrative model. According to Kearny (2013), an integrative research model is particularly useful if research is carried out at different levels (e.g. leadership behavior and organizational results). Therefore, the overall goal of this study is the development and empirical validation of such an integrative model of an ambidextrous leadership style in an agile context. For the purpose of this paper, I define a model as integrative if (a) it covers aspects of causes and effects of the respective interest variables (here ambidextrous leadership and ambidextrous employee behavior) and (b) combines different levels of perspectives on criteria (e.g. organizational agility as a factor of behavior impact).

Consequently, this integrative model includes questions at the micro and macro level. In this context, Colemans (1994) model of micro-macro relations forms a suitable basis for the conceptual framework. This model is used particularly in sociology (Hedstrom & Swedberg 1998) and in organizational literature, for example in the study and relation of individual and organizational behavior (Udehn, 2001). From this it can be assumed that it can be very useful for leadership literature to analyze the effectiveness of certain leadership styles. This model underlines the importance of linking different levels and presenting the role of the individual in relation to the organization (see figure 8).

To address the research questions, I developed the Antecedents-Behavior-Outcome (ABO) framework by adapting Coleman's model to explicitly consider ambidextrous behavior in an organizational context. In addition to the ambidextrous leadership, the behavior of employees and their effects on organizational agility is also examined and integrated into this framework. In this way, the ambidextrous activity patterns and the dual effects can be considered and integrated in a more differentiated way.

The model links the role of the individual at the micro level with variables at the macro level, such as the influencing factor of a dynamic environment and its influence on the behavior of managers and employees and their outcomes (see figure 8). Therefore four types of relations are included: (a) macro-micro-relation on how perceived environmental dynamics affect the behavior (open, closing) of the leaders (link 1); (b) micro-micro-relation on how this leadership behavior influences individual employee actions (exploration, exploitation) (link 2); in (c) a micro-macro relationship is investigated in which the combined individual actions of the employees predict the agility of the organization (Link 3); and (d) the macro-macro-relation, which examines the relationship between causes and effects at the macro level, i.e. to what extent organizational agility depends on the perceived environmental dynamics of an organization (link 4).

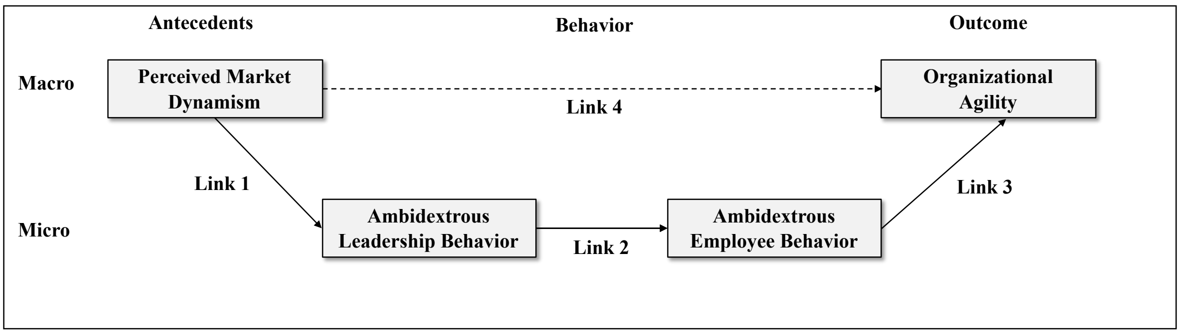

Figure 8 Antecedents-Behavior-Outcome (ABO) Framework as an Integrative Research Model of the Dissertation

3.3 HYPOTHESES DEVELOPMENT

In the following, the relationships described from the research model are discussed theoretically and hypotheses derived with reference to them. The relationships between the different macro-and micro levels are analyzed and explained. This approach allows to integrate previous theoreticaal aspects from different studies and to substantiate the presented research model. Essential theoretical contributions have already been examined and processed in Chapter 2 with regard to literature review.

Situational influence of the Perceived Dynamic Environment on Ambidextrous Leadership Behavior

Many articles on management theory begin with an introduction that companies are in a dynamic environment. And although this statement is used so often, it is still gaining in importance as we constantly find practical examples of how companies are affected by dynamic changes in their environment. The most recent example of the economic crisis in 2008 demonstrated how interdependent the economic markets are and how this dynamic led to global financial crises. In this context, it can be stated that many companies are perceiving an increasing dynamism in their markets due to changes in the economy, technology and society. Jansen et al. (2006) characterizes the dynamics as an uncertainty factor that leaders and companies have to deal with. According to Schreyögg & Kliesch-Eberl (2007), dynamic markets are defined by the fact that especially leaders are confronted with an increasing complexity of tasks.

Under this assumption, Keller & Weibler (2015) found in an empirical study that the situational effects of the environment in terms of complexity have an influence on leadership behavior and leaders adapt their behavior to environmental conditions. Importantly, these results indicate that leaders do not act completely independently of the environmental situation. Consequently, the environment of a company is a major antecedent of a certain leadership behavior. Furthermore, the situation decides which behavior a leader determines, how this behavior is perceived by the employees and whether their reactions contribute to the goals of the company.

In this context, Bledow et al. (2009) state that a complex leadership approach is needed to cope with complex tasks such as innovation management. According to Rosing et al. (2011) there are basically two decisive types of leadership behavior in complex contexts. In this regard, open and closed leadership behavior are described. An open leadership behavior is characterized by the promotion of self-responsible task fulfilment, the creation of possibilities for independent thinking and acting, the openness for discussions as well as the ability of the team to work more creatively. In contrast, closed leadership behavior involves the realization of plans, the taking of corrective measures, the implementation of routines and the concentration on efficient work. Given this evidence, Jansen et al. (2009) described that it is difficult for many leaders to implement and define clear guidelines and routines in terms of the increasingly perceived market dynamics.

From this it can be postulated that the increasing market dynamics have a negative impact on the focus of closed leadership behavior. In contrast, Yang (2009) even found that this uncertainty creates opportunities for new exploration and therefore requires more open leadership behavior.

Keller & Weibler (2015) noted, that employees need more structure, especially in dynamic situations, and therefore a focus on open leadership behavior can be also problematic. Consequently, a negative correlation between perceived market dynamics and open leadership behavior can also be concluded. According to Ferdig (2007), there is a need for an ambidextrous behavior that takes into account not only opened but also closed activities.

In this context, the empirical study by Weibler & Keller (2011) already examined a significant relationship between perceived dynamic environmental conditions and open and closed leadership behavior in terms of transformational and transactional leadership behavior. As already analyzed in Chapter 2, ambidextrous leadership behavior offers the possibility of switching both open and closed leadership behavior depending on the situational context. This flexibility seems to be best suited in a dynamic or strongly changing situation. As Gibson & Birkinshaw (2004) described it, the leader is in a position, to give employees space for creativity and at the same time to implement routines in the processes if necessary. Especially in dynamic environments, this balance can be seen as an immense competitive advantage, as it enables organization not only to focus on a certain leadership behavior, but also to make better use of resources through ambidextrous behavior. Based on the proceeding discussion, the following hypotheses can be deduced.

Hypothesis 1: The perceived market dynamics of the organization relates positively to fostering an ambidextrous combination of closing leadership behavior and opening leadership behavior.

Relationship between Ambidextrous Leadership Behavior & Ambidextrous Employee Behavior in an Organizational context

Numerous studies have shown that successful companies in dynamic environments indicate ambidextrous skills that can take on both explorative and exploitative tasks (Kauppila and Tempelaar 2016; Cao et al. 2010). However, in order to adapt to change, recent research on this issue shows that ambidexterity is not only necessary at the organizational and leadership level, but also at the team and employee levels (Mom et al., 2006; Keller & Weibler, 2015; Alghamdi, 2018; Tuan, 2017; Zacher et al., 2016; etc.).

In this respect, Mom et al. (2006) concluded that employee ambidexterity has a positive impact on the performance of companies in dynamic contexts. To promote this ambidexterity in employee behavior, leadership is considered one of the most influential predictors of employee performance and organizational development (Zacher et al. 2016; Bledow et al. 2009). The ambidexterity theory of leadership, driven by the research of Zacher et al. (2016), proved that the innovation performance of employees is significantly affected by ambidextrous leadership behavior, since both opening and closing leadership behavior can be taken into account.

In this context, opening behaviors include measures that drive employee exploration behaviors, such as promoting alternative methods of task fulfillment. Closing leadership behavior concerns measures that facilitate the exploitation of ideas, such as the definition of routines and the monitoring of the achievement of objectives, as well as ensuring compliance with the rulers (Zacher & Wilden, 2014). In the study by Tuan (2017), it was empirically proven that ambidextrous leadership also has a positive effect on the ability of organizations to change, by emphasizing a balance between these opening and closing leadership behavior in the change process. According to a recent study by Alghamdi (2018), an ambidextrous leadership style that combines opening and closing leadership behaviors promotes explorative employee behavior and exploitative employee behavior and is effective in promoting employee flexibility and task performance.

Although these results may seem very promising, there are only a few studies in the scientific discourse that focus on the ambidextrous leadership style and employee behavior in the context of organizational agility. This seems surprising, because according to a meta-analysis by O'Reilly & Tushman (2008) found that the agility of companies is determined and influenced in particular by employees and thus by leadership behavior. In this context, an excessive focus on one of the two behaviors can lead to companies and employees not being able to adapt flexibly to a future challenge, especially from an organizational point of view. March (1991) argues, that an entirely focus on both exploitation or exploration would lead to a "success trap" in terms of competitiveness, as both behaviors are inevitably opposed to each other.

In this respect, the work of O'Reilly & Tushman (2008) has shown that both exploratory and exploitative behavior can also be used within the agility framework. Organizations who can be both explorative and exploitative in a ambidextrous way increase their performance and can achieve goals through this behavior.

For this reason, I predict that an ambidextrous leadership style could stimulate a ambidextrous behavior of employees in different ways. First, the opening of leadership behavior could trigger the subordinates motivation to explore, encourage subordinates to independently seek alternative flexible approaches and agile solutions to customer problems (Rosing et al., 2011).

Secondly, closing leadership behavior supports the maximum use of existing knowledge, which serves to increase reliability and efficiency (Rosing et al., 2011). Here leaders can change the form of incentives and/or take on more demanding service tasks in order to improve the efficiency and performance of their work (Tuan, 2017). Based on the proceeding discussion, the following hypotheses can be postulated.

Hypothesis 2: Ambidextrous leadership in combination of opening and closing leadership behavior relates positive to fostering an ambidextrous employee behavior in terms of a combination of explorative and exploitative employee behavior.

The Effects of Ambidextrous Employee Behavior on the Organizational Agility

As described above, the ability to adapt to changing circumstances is central to the success of many businesses. Hasebrook et al. (2019) describe this ability to deal with environmental complexities as organizational agility. As noted, two forms of organizational agility are considered in this study. On the one hand the market capitalizing agility emphasizes an organization's ability to find appropriate actions. This agility includes not only selection and processing of information to identify and anticipate problems, but also the ability to continuously monitor and rapidly improve the product/service offering to meet customer needs (Dove 2001). On the other hand, the operational adaptability shows the ability of the company to react quickly to changes in demand in its internal business processes (Sambamurthy et al. 2003). This agility focuses more on the flexibility of structures and processes to react quickly to changes. It is primarily focused on operational activities and is therefore reactive (Jansen et al. 2006).

Against this background, a number of questions regarding the agility of organizations remain to be addressed. What determines organizational agility and what factors influence it? In this respect, O'Reilly & Tushman (2003) describe ambidexterity as a dynamic ability that has an impact on business performance. Surprisingly, it is claimed that ambidexterity is a dynamic ability, but not whether it affects agility.

In this context, Alghamdi (2018) stated in his current study that individual agility in daily business life is made possible by ambidextrous employee behavior. It has also been found that ambidextrous practices enable companies to improve their ability to address organizational problems, improve their innovation performance and become more cost effective (Bledow et al. 2009). Given this findings, the behavior of employees and leaders plays a key role in enabling this organizational performance (Zacher et al., 2016).

Therefore, it can be assumed that a market capitalized agility requires an explorative behavior of the employees and an operational agility rather requires an exploitative behavior. It can be stated that agility at the organizational level can be positively influenced by ambidextrous behavior of employees. However, since none of the known studies analyzed ambidextrous employee behavior in relation to organizational agility, the following hypothesis can be derived in this respect.

Hypothesis 3: Ambidextrous employee behavior combined with explorative and exploitative behavior will positively influence organizational agility.

The Complementary Relationship of Perceived Market Dynamic & Organizational Agility

As illustrated in figure 8, this research conceptualizes the complementarity of perceived market dynamism and organizational agility. The dynamic business environment, driven primarily by the megatrends of digitalization, globalization, and general market deregulation, requires companies to keep pace and implement reforms to meet the changing environment. In this context, Nijssen & Paauwe (2012) describe that established traditional industrial companies in particular are often attacked by younger companies due to the innovative technology in their business model and are therefore subject to considerable dynamic change. Given this evidence, Bruhn & Hadwich (2017) describe that established players often find it difficult to adapt to competitive, dynamic environments and simply react too late. A recently published study by the Boston Consulting Group proved that around 60% of 40 family businesses with sales of up to €7 billion invest only 1.5% of their sales in digitization. Although companies recognize the necessity of digital change, they are often unable to implement it. This lack of flexibility and lethargy offers technology-driven companies the opportunity to replace parts of the value chain - mostly within the framework of new digital, service-based business models.

Against this background, researchers and practitioners believe that the concept of organizational agility is increasingly becoming a success factor for companies, ensuring survival in a turbulent and rapidly changing environment (Ganguly et al. 2009). In this context, several researchers have identified several factors that companies can achieve through organizational agility. For example, companies can react better to dynamic market changes (Aravind Raj et al. 2013), generate competitive advantages (Ganguly et al. 2009) and deliver innovative products to customers promptly and cost-effectively (Swafford et al. 2006).

Therefore, an increasingly perceived dynamism in the market is a major antecedent and requirement for agility capability (Bruhn & Hadwich (2017). Because of this, many organizations have begun to build skills to respond quickly to the troubled markets (Nijssen & Paauwe, 2012). According to Lee et al. (2015), describe the need for organizational agility in order to survive in dynamic times. Consequently, it can assume that the perceived environmental dynamics predict an increasing need for agility.

Hypothesis 4: The perceived market dynamics of an organization relates complementary to organizational agility, insofar that the perceived market dynamics predict organizational agility.

In summary, hypotheses 1 to 4 are posited, figure 9 illustrates the postulated relationship between perceived market dynamic, ambidextrous leadership and organizational agility.

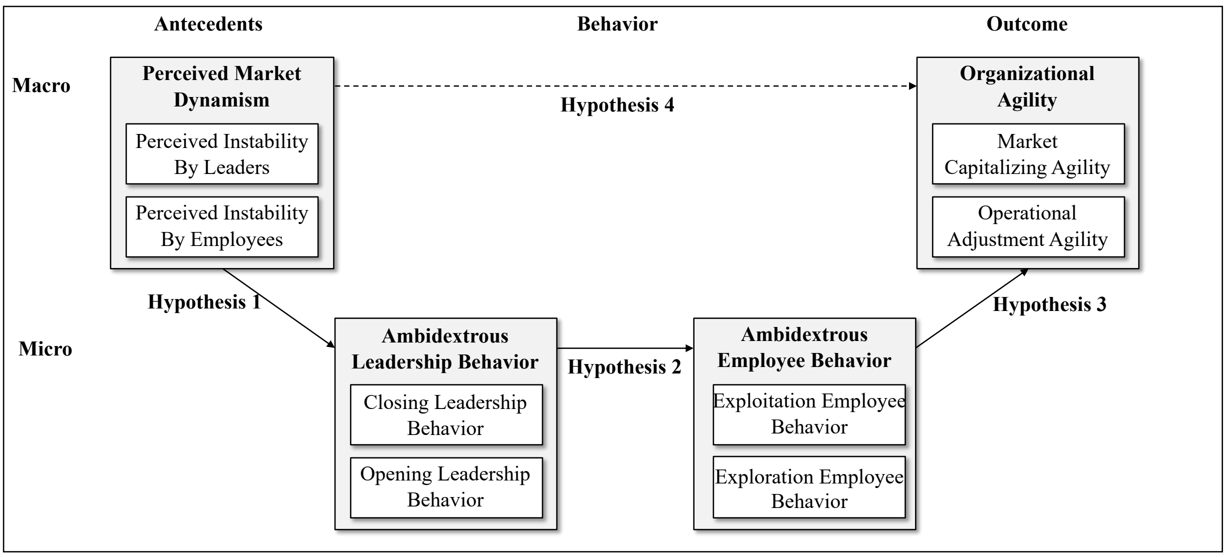

Figure 9 Conceptual Research Model & Hypotheses

4 MATERIALS & METHODS

To ensure the scientific standard of this work, a coherent and logical arrangement of materials and methodology is of particular importance. For this reason, Chapter 4.1 focuses on the choice of methodology in terms of research design and discusses it in relation to the research questions. Subsequently, Chapter 4.2 discusses the circumstances of the study and the instruments of data collection. In this context, descriptive information on the data is addressed and materials on the study population, sample size ratio and the technique of data analysis is presented. In addition, the measurements in Chapter 4.3 are discussed and data analysis is provided in Chapter 4.4. To substantiate the chosen procedure and method, this chapter also deals with the data sources and the processing software used.

4.1 RESEARCH DESIGN

This paper follows a confirmatory quantitative research approach based on the concept defined by Popper (1989). According to this approach, hypotheses are deductively derived from existing theories in order to subsequently verify their validity in an empirical study. Since this approach is still relevant in the leadership literature, it was chosen with the intention of being able to make valid statements about the relationships investigated (Bortz & Döring, 2002). In contrast to qualitative research, a much larger number of data cases can be reached and evaluated with standardized quantitative measurement methods using statistical test procedures. According to Bortz & Döring (2002), this increases generally the representativeness of the results. Given to the high expenditure of time in the collection and processing of qualitative data (e.g. conducting individual surveys with subsequent interpretation of the collected answers), their results are usually based on a small number of cases.

A survey with standardized questions also ensures a higher degree of objectivity in the implementation and evaluation. Due to the fact that a quantitative approach takes into account the anonymity of the participants, this type of survey can also reveal personal questions (e.g. about the stress experience or personality) and partially much more validated statements than a personalized survey (Bortz & Döring, 2002).

On the other hand, a qualitative approach allows an in-depth and at the same time more profound analysis of patterns and attitudes. Furthermore, it should be noted that quantitative methods always require on a measurable side of a construct and must presuppose it.

Nevertheless, quantitative measurement methods still play an important role in the scientific discussion, as they allow better control and comparison of data. Since this work focuses in particular on the assessment and behavior of employees and leaders, a quantitative approach is preferred. Given that the main objective of this research is to validate the ABO framework presented in Chapter 3, no individual sectors and organizational differences were analyzed. In this context, the primary goal is to establish an overall validation of the postulated hypotheses. This approach is supported by the work of Weibler & Keller (2015). As suggested in these paper in particular, a more integrated, cross-sectoral model should be developed.

4.2 SAMPLE & PROCEDURE

The participants in this study were recruited through different channels and organizations. Primarily, part-time students were personally invited to participate in seminars. Other part-time students followed the invitation and completed the questionnaire via a university intranet portal. In this context, part-time students were defined as professionals who can spend up to 10 hours per week studying in addition to their working hours (Bargel & Bargel, 2014). In the second round of the survey, employees were invited to participate in the study via direct organizational contacts. In the sense of a snowball multiplication system, the participants were asked to invite professional friends and colleagues to participate in the survey (Pundt & Schyns, 2005).

In a letter of invitation, the research intentions were outlined in a prologue and a web link was provided which led directly to the corresponding questionnaire (see Appendix I). Responses to the questionnaire were obtained with the assurance of anonymity. The participants were asked about various aspects of their work that affect both themselves and their working environment. More precisely, the participants were asked about their perception of the leadership behavior of their superiors (ambidextrous leadership behavior), their perception of organizational and work-related characteristics (e.g. environmental dynamics, organizational agility) and demographic aspects. To ensure the quality of the sample, only participants who have sufficient language skills in English and are employed by an organization for at least 30 hours per week could be considered in the data analysis. In this context, two compulsory pre-selection questions were included in the investigation. To enable participants to distinguish between leaders and employees, a clear distinction between leaders and employees was also ensured by an item of their job role.

In this respect, leaders were defined as supervisors with staff responsibilities. This leadership responsibility could be assumed through the employment contract or through the organizational structure. For this study however, the understanding of the own role in the organization is decisive (Rosing et al., 2011).

The questionnaire was designed and respondents were collected using the SurveyMonkey survey platform. In this context, the project was started in January 2020 and the questionnaire closed in March 2020. The statistical analysis of the hypotheses was tested using the IBM SPSS Statistics software. This procedure enabled a total of 719 participants to be studied. The population of participants was 889, which means that appx. 80% of all respondents could be included in the survey. The remaining 20% could not be considered because they did not meet the minimum requirements of the pre-select questions or did not fully answer the questions.

With regard to the materials, the following descriptive statistics were determined: In this respect it was found that 50.3% of the respondents were male, 49.2% female and 0.05% diverse. The average age of the respondents was ranging from 31-40 years (31.8%). The other age groups were distributed as follows: Up to 20 years 6%, from 20-30 years 18.6% and over >50 years about 22%. This sample was answered by 62% of staff. 30.9% of respondents reported that they work as Middle Manager and 7.1% as Senior Manager. The average tenure of the respondents was 5-10 years (26.8%). In addition, 21.3% of those surveyed stated that they had been working in the organization for >15 years. In addition, about 20% of the participants stated that they work in an organization for up to 1-3 years and 17.9% stated that they had been in an organization for 3-4 years. Out of the respondents, 64.4% worked in profit organizations, 9% in non-profit organizations, 22.3% in government institutions a and 4.3% in other Organizations. In relation to the size of the organization, 6.8% worked in organizations with less than 10 employees, 14.3% worked in organizations with up to 50 employees, 11.5% up to 100 employees, 16.1% up to 250 employees, 12, 1 % up to 500 and 39.1% stated they were employed in organizations with more than 500 employees.

4.3 MEASURES

This research applied a descriptive cross-sectional method at the first place. The study instrument is structured, self-administered, and comprises five parts. The Cronbach alpha was used to quantify the reliability of the variables.

This method specifies the ratio of the observed variance to the variance of the true test values and is therefore a measure of the internal consistency. Cronbach-Alpha can take values between minus infinity and 1, but only positive values can be interpreted meaningfully. The advantage of Cronbach's alpha is that it provides an easy-to-interpret measure of the strength of reliability. In this context, it is assumed that a Cronbach's alpha above >.70 is considered sufficiently good (Blanz, 2015).

As already described in Chapter 4.2, two obligatory pre-selection questions regarding English language skills and employment were asked to ensure the sampling quality. The items are: Do you believe that your English (reading, understanding, writing) is good enough to proceed with the survey? The answer were nominally scaled with yes, my English is good enough or no, stop here. The item for the employment were: What is your employment status? The answers were working - full-time; working - part-time (30 hours or more per week); unemployed/ looking for work; attending vocational retraining; retired - formerly working; retired - formerly not working; in education - apprenticeship; in education - school; in education - college/ university; not working - but did before, not working - and did never before; not applicable.

Subsequently, the participants were asked to complete a survey to assess the leadership behavior of their immediate supervisor and organizational agility. The first part refers to ambidextrous leadership, which consists of two dimensions: opening and closing the leadership behavior. Both scales were developed and adapted by Rosing et al. (2011) and consist of a total of 10 items. Participants were asked to evaluate their supervisor's leadership behavior by using two activity patterns. The statements for opening leadership behavior are: Allows different ways of accomplishing a task; Encourages experimentation with different ideas; Motives to take risks; Gives possibilities for independent thinking and acting; Allows errors. The statements for closing leadership behavior are: Monitors and controls goal attainment; Established routines; Takes corrective action; Controls adherence to rules; Sanctions errors. The answers were adjusted and measured with a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alphas for two scales were .82 for Leader Opening behavior and .74 for Leader Closing behavior. Due to the fact that the internal consistency of the scale could be considerably increased by excluding an item, one item was deleted (all included items are shown in table 6). The internal consistency for an ambidextrous leadership style was measured with ($\alpha = .79$).

In the second section the employee ambidextrous behavior was conceptualized through the two measures of exploration and exploitation of employee activities linked to agility. This variable indicates the ability of an individual to balance activities in terms of agility. Both employee behaviors were surveyed by 10 items in total. The exploration scale was developed and adapted by March (1991) and Mom et al.'s (2006) and consists of 5 items. The statements were; to what extent did you, last year, engage in work related activities that can be characterized as follows: Searching for possibilities with respect to products/services, processes, or markets; Focusing on strong renewal of products/services or processes; Activities that are new/unknown to you; Activities requiring quite some adaptability/flexibility from your side; Activities requiring you to learn new skills or knowledge.

To examine the exploitative part of the activities, 5 items of Mom et al. (2006) and Weibler & Keller (2011) were also adapted and transferred for exploitation. The statements were; to what extent did you, last year, engage in work related activities that can be characterized as follows: Activities which you carry out as if it were routine; Activities that serve to fulfill day-to-day business; Activities from which you have broad experience; Activities that are conducted according to clear guidelines; Activities primarily focused on achieving short-term goals. All items were measured on a 5-point Likert scale (1 = to a very small extent to 5 = to a very large extent). Cronbach's alphas for two scales were .80 for Employee Explorative behavior and .74 for Employee Exploitative behavior. Since the internal consistency of the extent of exploitation could be considerably increased by excluding an item, this item was dropped (all included items are shown in table 6). The reliability test on the ambidextrous behavior of employees has shown that the instruments with 9 items have sufficient reliability (α = .79).

In the third part, based on the adapted and more recent measurement by Jansen et al. 2009, a five-point measurement was included which includes the environmental dynamics. The respondents were asked to evaluate the following five statements. The statements were: Environmental changes in our local market are intense; Our customers regularly ask for new products and services; The competition in our market is very strong; In a year, a lot has changed in our market; In our market the products and services change quickly and often. The statements were measured on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The scale (α = .82) showed the rate of change and the instability of the external environment.

In the fourth part, Organizational Agility was measured. Two constructs were measured that reflect a company's ability to respond to market or demand changes. On the one hand, Market Capitalizing Agility and, on the other hand, Operational Adjustment Agility. Both scales were originally described by Goldmann et al. (1995) & Tsourveloudis & Phillis (1998) and quantitatively validated by Lu & Ramamurthy (2011) with five items.

The Operational Adjustment Agility was measured by three factors, where participants were asked to evaluate the following statements: We can respond quickly to special requests of our customers when such demands arise; We are quick to make appropriate decisions in the face of market/customer-changes; Whenever there is a change in our business, we can quickly make the necessary internal adjustments. The two statements on Market Capitalizing Agility were: We are constantly looking for opportunities to reinvent/change our organization to better serve our market; We treat market related changes as opportunities to capitalize quickly. The items were adjusted and measured with a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Since the internal consistency could be significantly increased by constructing the items collectively in one scale, Organizational Agility was then used and calculated with a single scale. The items on Organizational Agility can be found in table 6. The Cronbach's Alpha for the single scale was .82.

The descriptive section was measured in the last part of the study. It comprised items on the demographic and socio-economic characteristics of the participants and their employer. Participants reported their gender (female, male and diverse), group of age (<20, 20-30, 31-40, 41-50, 50>), job profile (management position, staff or other), duration of employment (<1 year, 1-2 years, 3-4 years, 5-10 years, 11-15 years, >15 years), number of employees (<10, 10-50, 51-100, 101-250, 251-500, >500), industry sector (public sector, private sector, non-profit sector and other), market position (we are market leaders with decisive influence, we are among the key players, we are probably characterized by average market performance, we are lagging behind, we produce a loss, we are struggling to survive) and sales development in recent years (increased significantly, increased, stagnated, reduced, decreased significantly). All items for the described statistics are listed in table 6.

4.4 DATA ANALYSES

Correlation and regression analyses between the variables were used to test the hypotheses. In this context, a factor analysis was carried out to validate the measurement model in order to uncover possible discriminatory effects between the items and to construct appropriate scales. In this study, the factor structure was examined by an exploratory factor analyses (EFA). Compared to the confirmatory analysis, this method does not yet have a concrete idea of the possible factors and is used to determine or discover the factor structure for consistency with the existing data. It is therefore a structure-recognizing (explorative) procedure.

The EFA was examined by including all items pertaining to the independent and dependent variables; the opening leadership items, closing leadership items, employee exploration items, employee exploitation items, perceived market dynamics items and organizational agility items.

The exploratory factor analysis was conducted by a principal component analysis with Varimax rotation and showed that the items had the highest factor loadings on their theoretically relevant factor. In this context, the highest values of the respective items were labelled for the corresponding components. Results of the EFA indicate that the 25 items were appropriately extracted to six factors; eigenvalues for each factor were greater than 1, all items loaded on their appropriate factors at greater than 0.62, and no item cross-loading was greater than 0.33. This indicates that the participants were able to distinguish between the factors in their evaluations.

The six factors are consistent with the corresponding studies published in the literature. The six factors include open leadership behavior, closed leadership behavior, explorative and exploitative behavior, perceived market dynamics and organizational agility. Overall, the results of the EFA was able to establish sufficient discriminatory validity of the variables that are in focus for each of the four hypotheses. Table 6 shows the calculated results of the EFA.

Table 6 Items and Factor Analysis of the Opening & Closing Behavior of Leaders, the Exploration & Exploitation activities of Employees, the Perceived Market Dynamics & Organizational Agility

Items	Component					
	1	2	3	4	5	6
My supervisor allows different ways of accomplishing a task	.024	.056	**.798**	.056	.114	.127
My supervisor encourages experimentation with different ideas	.138	.15	**.782**	.17	.102	.023
My supervisor motivates to take risks	.148	.186	**.586**	.286	.035	.030
My supervisor gives possibilities for independent thinking and acting	.000	.166	**.770**	.174	.153	.048
My supervisor allows errors	.027	.027	**.714**	.056	.050	.028
My supervisor monitors and controls the goal attainment	.144	.069	.135	.063	**.708**	.059
My supervisor establishes routines	.100	.04	.091	.068	**.722**	.140
My supervisor takes corrective action	-.036	.202	.189	.076	**.703**	.077
My supervisor controls adherence to rules	.079	.086	.007	.094	**.731**	.178
Searching for new possibilities with respect to products/services, processes, or markets	.239	.153	.122	**.675**	.039	.066
Focus on the renewal of products/services or processes	.216	.129	.115	**.711**	.02	.064
Activities that are new/unknown to you	.049	.017	.138	**.741**	.011	.098
Activities requiring quite some adaptability/flexibility from your side	.083	.078	.133	**.696**	.095	.163
Activities requiring you to learn new skills or knowledge	.066	.139	.125	**.735**	.204	.032
Activities which you carry out as if it were routine	.018	.100	.060	.100	.071	**.802**
Activities that serve to fulfill day-to-day business	.116	.129	.045	.075	.170	**.765**
Activities from which you have broad experience	.103	.054	.124	.157	.059	**.700**
Activities that are conducted according to clear guidelines	.072	.167	-.015	.051	.365	**.542**
Environmental changes in our local market are intense	**.696**	.08	.143	.165	.048	.162
Our clients regularly ask for new products and services	**.688**	.191	.065	.188	.115	.008
The competition in our market is very strong	**.724**	.151	.092	.053	.022	.128
In a year, a lot has changed in our market	**.774**	.126	-.015	.100	.060	.087
In our market the products and services change quickly and often	**.761**	.157	.015	.115	.101	-.054
We can respond quickly to the special requests of our customers when such demands arise	.06	**.758**	.159	.011	.071	.127
We are quick to make appropriate decisions in the face of market/customer-changes	.129	**.791**	.119	.093	.083	.130
We are constantly looking for opportunities to reinvent/change our organization to better serve our market	.255	**.597**	.164	.107	.135	.108
We treat market related changes as opportunities to capitalize quickly	.219	**.661**	.048	.185	.125	.034
Eigenvalue	7.084	2.407	2.202	1.867	1.576	1.399
Percentage of variance explained	25.302	8.598	7.865	6.668	5.627	4.997

Items are quoted from our survey. All items were measured on a five-point Likert-Scale. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

For the measurement of a two-dimensional ambidextrous behavior two methods are established in the literature. A distinction is made between a "balance" and a "combination" of the two activity patterns for the operationalization of ambidextrous behavior (Lubatkin et al., 2006). According to the theoretical background, this work is based on the assumption that a high degree of postulated leadership and employee behavior (open leadership, closed leadership, explorative and explosive) can significantly complement and reinforce an effect. In this context, the combined method of ambidextrous behavior was chosen. To calculate the combinatorial ambidexterity, the product of the respective extent of leadership behavior (open and closed leadership) and employee behavior (explorative and explosive) was measured. In a first step, scales were constructed using the mean value of the items. In the second step the scales were multiplied by each other. This operational approach to quantify ambidextrous behavior has already been used by He & Wong (2004) and Gibson & Birkinshaw (2004).

To reduce the potential for methodological bias and to ensure that the influences found were related to management and employee behavior, the experience-based influences of the participants were controlled as in the study by Mom et al. (2006). The age was used as an argument for different life and work experiences. Since young employees often have less work experience compared to older employees, an increased exploratory behavior of young study participants would be possible due to a (first) professional orientation. The assumption of this work is based, similar to Keller & Weibler (2015), on the fact that employees become more competent in operational work with increasing employment tenure and thus have fewer tasks in the exploratory area. In this context, the influence of more than five years of employment of the participants was controlled.

As suggested by Cohen et al. (1998), the hypotheses of the quantitative study were evaluated using correlation and regression analyses. To create the correlation matrix, all measured variables were entered into the correlation formula. The partial correlation method was chosen for the calculation, since this method can reduce statistical distortions through the additional input of the described control variables. To statistically test the prediction between the variables postulated in the hypotheses, the variables were modelled in a second step and examined by linear regression analysis. To carry out a linear regression analysis, all variables and models were first checked for the Gauss-Mankov assumptions (Sen & Srivastava, 1990). In this context, it had to be ensured that the residuals of the variables were normally distributed, that there was no heteroscedasticity, and that there was an overall sufficient sample size.

Based on these requirements, the links of the ABO model (overall results see figure 14) of the integrative management approach were tested. In a first step, the statistical predictive power of the perceived market dynamics on the ambidextrous leadership behavior was measured. In a second step, the suitability of ambidextrous leadership behavior for predicting ambidextrous employee behavior was investigated at the micro-micro level.

In order to find out to what extent ambidextrous employee behavior affects organizational agility, in a third step a micro-macro correlation between the two variables was regressed as suggested in hypothesis 3. Finally, a combination of macro-macro variables was examined. In this context, the extent to which perceived environmental dynamics predict organizational agility was investigated.

5 RESEARCH FINDINGS

This Chapter will review all relevant results of this study and address key questions. For this reason, this Chapter presents the results of the empirical study in relation to the ABO model, as described in the previous Chapter. In addition to the presentation of the results in Chapter 5.1, the hypotheses are discussed in Chapter 5.2. The results of the correlation and regression analysis are presented in tabular form and illustrated in diagrams. In the last Chapter 5.3 the main results are analyzed and summarized again.

5.1 RESULTS

This results section summarizes the data collected and the statistical approach. All relevant results should be reported, even if they contradict the hypotheses. In this context, the aim is to present the data in a pure form without interpreting the results. The results are presented in order to the research hypotheses. Table 7 illustrates the descriptive statistics and the corresponding coefficients used to quantify the relationship between the variables involved in the calculations. Since the sample size of the survey is quite large, a graphical method of the QQ plot and histogram was used instead of the mathematical test (Kolmogorov-Smirnov or Shapiro-Wilk test). According to Wilcox (2012), a normal distribution of the variables can be assumed for a larger sample ($N > 30$) due to the central limit theorem. In this context it can be stated that the distribution of the data does not differ significantly from the normal distribution.

Correlation analyses

Based on this assumptions, the calculation of the correlation and regression analysis was performed with the described control variables. The partial correlation analysis revealed several significant correlations between the variables. A correlation measures the intensity of a statistical relationship between two or more variables (Sen & Srivastava, 1990). It can be understood that a positive correlation is "the more variable A... the more variable B" or vice versa, a negative correlation is "the more variable A... the less variable B" or vice versa. In this context, significant correlations were found between all tested variables. According to Cohen (1998), a correlation $r < .10$ is considered weak. In addition, a correlation coefficient of .30 is considered moderate correlation and a correlation coefficient of .50 or greater is considered strong or high correlation. According to this definition, all calculated correlations between the main variables from the ABO model can be classified as weak or moderate.

With regard to perceived environmental dynamics, the highest correlation values were found with ambidextrous employee behavior and organizational agility. These two correlations can be classified as moderate (ambidextrous employee $r = .38$, $p < .01$; organizational agility $r = .42$, $p < .01$). Contrary to *hypothesis 1*, the ambidextrous leadership behavior correlated only slightly with the perceived market dynamics (ambidextrous leadership $r = .28$, $p < .01$). For this reason, *hypothesis 1* cannot be accepted on the basis of the correlation calculation. It can therefore be assumed that the perceived market dynamics have a significant influence on leadership behavior, but this influence is only weak.

With regard to the leadership, it was found that both open and closed leadership behavior is most significantly related to ambidextrous leadership behavior (Open Leadership $r = .83$, $p < .01$; Closing Leadership $r = .74$, $p < .01$). Similar to the two leadership behaviors, the highest significant correlation between explorative and exploitative employee behavior was found (Exploration $r = .84$, $p < .01$; Exploitation $r = .73$, $p < .01$). These findings are not surprising, since ambidextrous behavior can be formed from the respective behavior patterns. In accordance with *hypothesis 2* it could be proven that ambidextrous leadership behavior correlates with ambidextrous employee behavior (Ambidextrous Leadership $r = .46$, $p < .01$). It can be stated that, if an ambidextrous leadership style is applied, this has a positive moderate influence on ambidextrous employee behavior. In addition, a similarly significant correlation between ambidextrous leadership behavior and organizational agility was found. In this context it can be assumed that an increasingly ambidextrous leadership style has a positive moderate effect on the agility of organizations (Ambidextrous Leadership $r = .40$, $p < .01$).

In *hypothesis 3* a connection between ambidextrous employee behavior and organizational agility was postulated. This assumption was confirmed by the correlation analysis of the survey (Ambidextrous Employee $r = .42$, $p < .01$). Even if the correlation is positively moderate, it is obvious that the behavior is significantly related to the organization. It can be assumed that an increasing ambidextrous behavior of employees and also of leaders promotes an increasing agility of the organization. Finally, a positive correlation between perceived market dynamics and organizational agility was found in *hypothesis 4* (Organizational Agility $r = .42$, $p < .01$). In this respect, it can be stated that an increasingly perceived market dynamic is positively related to the agility of the organization. All results of the correlation analysis can be found in table 7.

Table 7 Descriptive Statistics & Correlations of the Researched Variables

	Mean	SD	1	2	3	4	5	6	7
1 Opening Leadership Behavior	3,48	.755	-						
2 Closing Leadership Behavior	3,53	.660	.301**	-					
3 Exploration Employee Behavior	3,16	.757	.393**	.262**	-				
4 Exploitation Employee Behavior	3,34	.686	.220**	.392**	.294**	-			
5 Ambidextrous Leadership Behavior	12,43	3,76	.832**	.746**	.409**	.355**	-		
6 Ambidextrous Employee Behavior	10,00	3,70	.375**	.374**	.841**	.730**	.467**	-	
7 Perceived Market Dynamism	3,20	.812	.231**	.241**	.378**	.250**	.288**	.388**	-
8 Organizational Agility	3,34	.689	.348**	.318**	.350**	.328**	.400**	.429**	.426**

**Pearson Correlation is significant at the 0.01 level (2-tailed). N = 719.

Regression analyses

In addition to the correlation statistics, a regression analysis was performed to test the hypotheses. The regression analysis is used as a statistical method to investigate the effects of correlations between different (dependent and independent) variables from the ABO model. Thus, linear regression is a useful method for this work, as it allows and reveals predictions and correlations between two variables (Kearny, 2013). To prove the individual relationships, all variables from the ABO model were tested sequentially and separately.

In order to analyze the influence of the predictor variables on the explained variable, the standardized regression coefficients as well as the R^2 values were calculated and presented in the tables. The regression coefficients express the influence of the predictor variables on the explained variable. According to Keller & Weibler (2015), the model results can be compared more effectively by calculating a standardized coefficient. With regard to the R^2 value, it is determined how well the independent variable can explain the variance of the dependent variable. The R^2 is always between 0% (useless model) and 100% (perfect model fit). It should be noted that the R^2 is a measure of goodness for describing a linear relationship.

For the interpretation of the regression results, Falk & Miller (1992) recommended that when explaining causal relationships in the behavioral sciences, R^2 values should be equal to or greater than .10 so that the explained variance of a particular endogenous construct can be considered appropriate. They point out that human behavior is simply more difficult to predict than physical phenomena, and therefore lower R^2 values of less than 50% could be found.

In this context, the first regression analysis examined the relationship between perceived environmental dynamics and ambidextrous leadership behavior. As suggested by the ABO model, ambidextrous leadership was evaluated as an independent variable and perceived environmental dynamics as a dependent variable in the regression analysis. The main objective was to find out to what extent the perceived environmental dynamics of managers and employees influence the corresponding leadership behavior of managers. From a technical point of view, the two control variables (age, term of office) were first included in the regression analyses (see Model a table 8). In the second step, the predictor variable of the perceived environmental dynamics was then entered into the regression equation and calculated (see Model b table 8). In this context, the results of the correlation matrix already showed only a moderate correlation between the perceived market dynamics and the ambidextrous leadership style (R^2 = .084).

In the regression analysis it was found that the perceived environmental dynamics explain or predict about 8% of the dependent variables. Contrary to expectations, it could not be proven that perceived market dynamics have a significantly positive effect on ambidextrous leadership behavior. Based on the recommendation of Falk & Miller (1992) and the calculated results in the regression analysis, *hypothesis 1* could not be accepted and is therefore rejected ($\beta = .288$; $p = < .05$). It can be assumed that there is no significant correlation between the two variables examined as assumed. Consequently, *hypothesis 1* is rejected. To illustrate the relationships, figure 10 illustrates the moderate effect of perceived market dynamics on ambidextrous leadership behavior.

Table 8 Results of the Regression Analysis with Ambidextrous Leadership as Dependent Variable

Dependent variable	Ambidextrous Leadership Behavior	
Control variables	Model a	Model b
Age	$-.024^{a}$	$-.008^{b}$
Tenure	$-.584^{a}$	$-.022^{b}$
Predictors		
Perceived Market Dynamics		**$.288^{b**}$**
R^2	.001	.084
Adjusted R^2	-.002	.080

Shown are standardized regression coefficients (β). P* < 0.10 & P** < 0.05. N = 719.
Dependent Variable: Ambidextrous Leadership Behavior
a Predictors: (Constant), Age, Tenure
b Predictors: (Constant), Age, Tenure, Perceived Market Dynamics

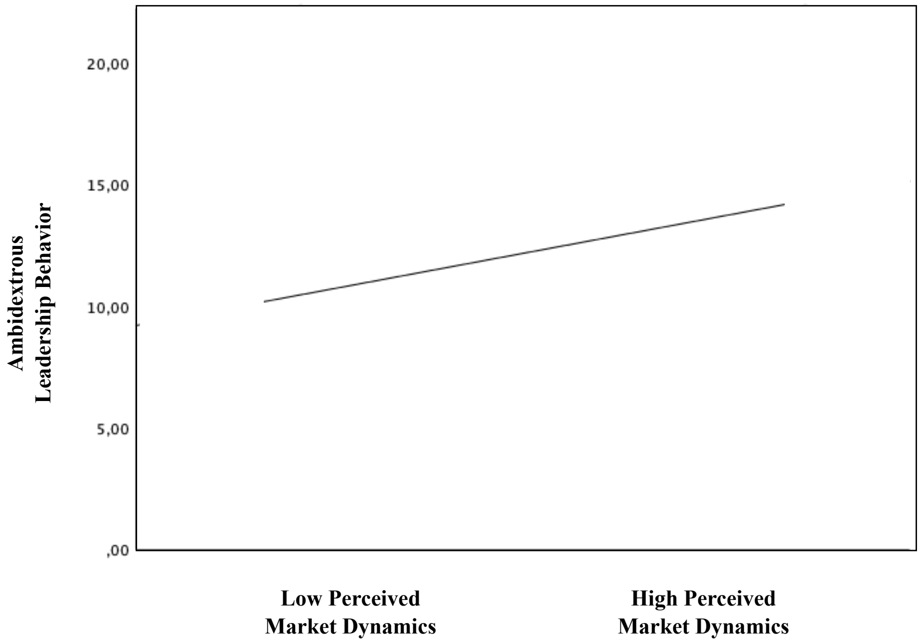

Figure 10 The Effects of the Macro-Micro Relationship between Perceived Market Dynamics on Ambidextrous Leadership

A different picture emerges for the internal ambidexterity of managers and employees. Table 9 shows the results of a regression analysis with ambidextrous employee behavior as a dependent variable. However, to avoid bias due to multicollinearity between the variables, two different Models were examined. In the first Model a both styles (open, closed) were included together in the regression equation. In a second Model b the regression with ambidextrous leadership was then examined and calculated. In accordance with *hypothesis 2*, Model b showed that the addition of ambidextrous leadership to the regression calculation led to a significant increase in the explained variance ($R^2 = .219$; $p = < .05$). The standardized regression coefficient of interaction was $\beta = .467$. Consequently, *hypothesis 2* can be accepted and is confirmed.

From this it can be concluded that ambidextrous Leadership is capable of predicting ambidextrous behavior of employees beyond the variance already explained by the control variables, open and closed leadership. A comparison between the two Models shows that both leadership styles together can provide an almost equally high explanation for the variance in employee behavior. However, it is also evident that an ambidextrous leadership style can have a higher R^2 value separately. As shown in figure 11, a high level of ambidextrous leadership has a high and positive effect on ambidextrous employee behavior.

Table 9 Results of the Regression Analysis with Ambidextrous Employee Behavior as Dependent Variable

Dependent variable	Ambidextrous Employee Behavior	
Control variables	Model a	Model b
Age	-.026[a]	-.025[b]
Tenure	.009[a]	.002[b]
Predictors		
Opening Leadership Behavior	**.288[a]****	
Closing Leadership Behavior	**.287[a]****	
Ambidextrous Leadership Behavior		**.467[b]****
R^2	.216	.219
Adjusted R^2	.212	.216

Shown are standardized regression coefficients (β). P* < 0.10 & P** < 0.05. N = 719.
Dependent Variable: Ambidextrous Employee Behavior
a Predictors: (Constant), Age, Tenure, Opening Leadership Behavior, Closing Leadership Behavior
c Predictors: (Constant), Age, Tenure, Ambidextrous Leadership Behavior

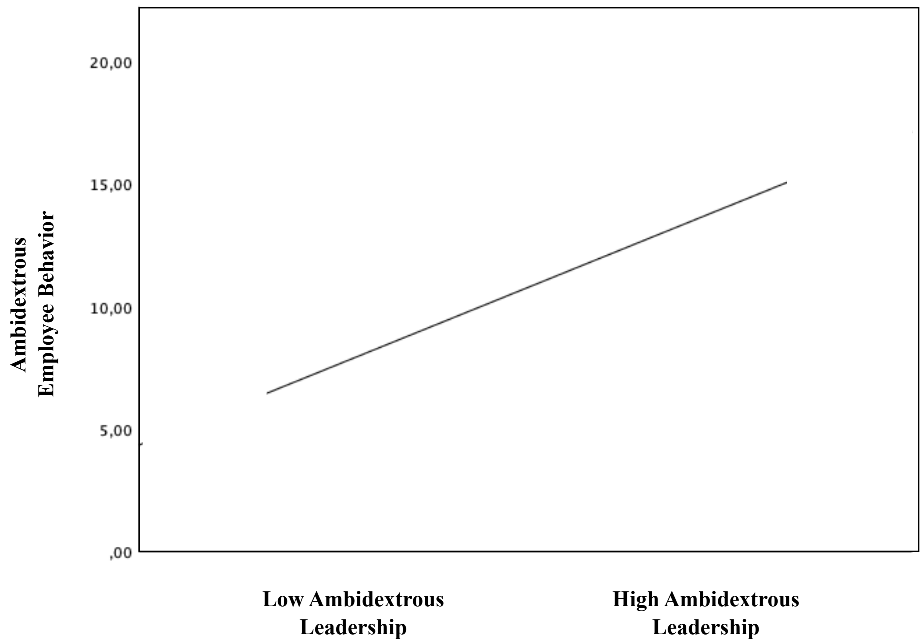

Figure 11 The Effects of the Micro-Micro Relationship between Ambidextrous Leadership on Ambidextrous Employee Behavior

With regard to the regression analysis regarding organizational agility, three Models were calculated. Table 10 presents the results of the regression analysis on organizational agility. In the first Model a, the extent to which employee behavior of exploration and exploitation can predict the variance of organizational agility was examined. The second Model b examined the extent to which ambidextrous employee behavior is related to organizational agility in comparison to Model a. In this context it can be noted that although both Models a and b can explain (Model a - $R^2 = .179$; Model b - $R^2 = .185$) only 17% and 18% of the variance of organizational agility respectively, there is a significant correlation between these variables ($\beta = .280$ & $\beta = .430$, $p = < .05$). The more the ambidextrous behavior of employees is developed, the higher the organizational agility (see figure 12). In accordance with Falk & Miller (1992) *hypothesis 3* can be confirmed and accepted.

Table 10 Results of the Regression Analysis with Organizational Agility as a Dependent Variable

Dependent variable	Organizational Agility	
Control variables	Model a	Model b
Age	.028[a]	-.008[b]
Tenure	-.016[a]	-.022[b]
Predictors		
Exploration Employee Behavior	**.280[a]****	
Exploitation Employee Behavior	**.245[a]****	
Ambidextrous Employee Behavior		**.430[b]****
R^2	.179	.185
Adjusted R^2	.174	.180

Shown are standardized regression coefficients (β). P* < 0.10 & P** < 0.05. N = 719.

Dependent Variable: Organizational Agility

a Predictors: (Constant), Age, Tenure, Exploration Employee Behavior, Exploitation Employee Behavior

b Predictors: (Constant), Age, Tenure, Ambidextrous Employee Behavior

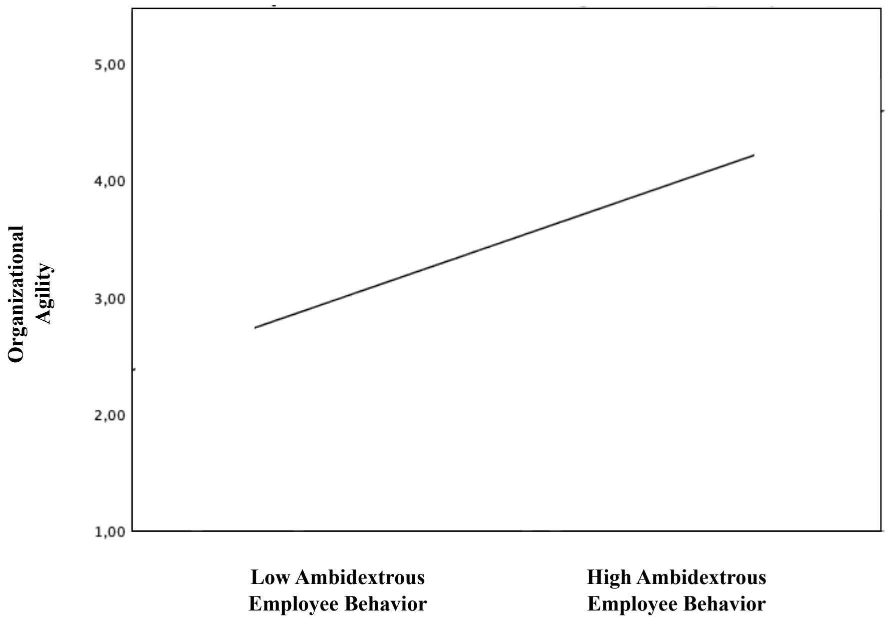

Figure 12 The Effects of the Micro-Macro Relationship between Ambidextrous Employee Behavior on Organizational Agility

In relation to *hypothesis 4*, another Model was set up in addition to employee behavior, in which the perceived market environment was calculated for organizational agility (see Model a and b in table 11). In this study the two macro-level variables were investigated in combination. As in the previous regression analyses, the control variables n the regression equation were entered in the first step and the perceived market dynamics were included in the second step. The result of this regression analysis indicates that even the perceived market environment can predict the variance of organizational agility to 18% (Model b - R2 = .182, p = < .05). In accordance with Falk & Miller (1992*) hypothesis 4* can be also confirmed and is accepted. It can be stated that a perceived market dynamic has an influence on the agility of organizations, as postulated in *hypothesis 4*. Figure 13 illustrates the effect of the regression analysis on organizational agility.

Table 11 Results of the Regression Analysis between Organizational Agility & Market Dynamics

Dependent variable	Organizational Agility	
Control variables	Model a	Model b
Age	011[a]	.016[b]
Tenure	-.018[a]	-.028[b]
Predictors		
Perceived Market Dynamics		**.427[b]****
R^2	.001	.182
Adjusted R^2	-.003	.179

Shown are standardized regression coefficients (β). P* < 0.10 & P** < 0.05. N = 719.

Dependent Variable: Organizational Agility

a Predictors: (Constant), Age, Tenure, Exploration Employee Behavior, Exploitation Employee Behavior

b Predictors: (Constant), Age, Tenure, Perceived Market Dynamics

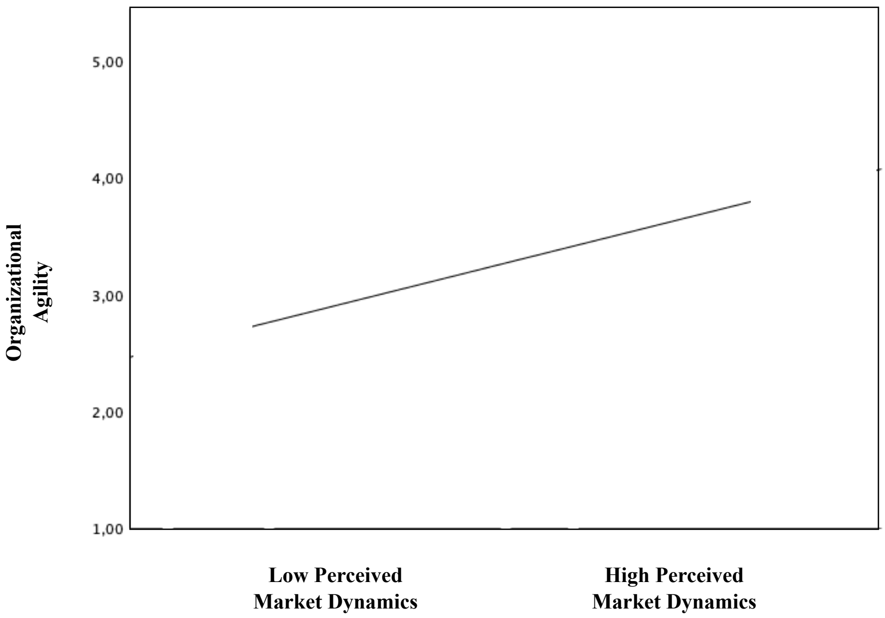

Figure 13 The Effects of the Macro-Macro Relationship between Perceived Market Dynamics on Organizational Agility

Transferring the general results of the regression analysis to the research model, the hypotheses can be understood by using macro-micro-macro logic. In order to visualize the relationship between the individual hypotheses once again, the standardized regression coefficients were processed and illustrated in figure 14 by using and illustrating the ABO model. In this context, table 12 summarizes the results of the individual hypothesis tests of the ABO framework.

Overall, it can be stated that the independent and dependent variables are in part moderately related to each other. However, only a maximum of 10-20% of the variance could be explained by the predictors for the theses. Nevertheless, it can be stated that only a linear relationship was regressed. If several variables were included in the regression equation, this would also affect R^2. Against this background, the presented results are revealing with regard to the ABO model.

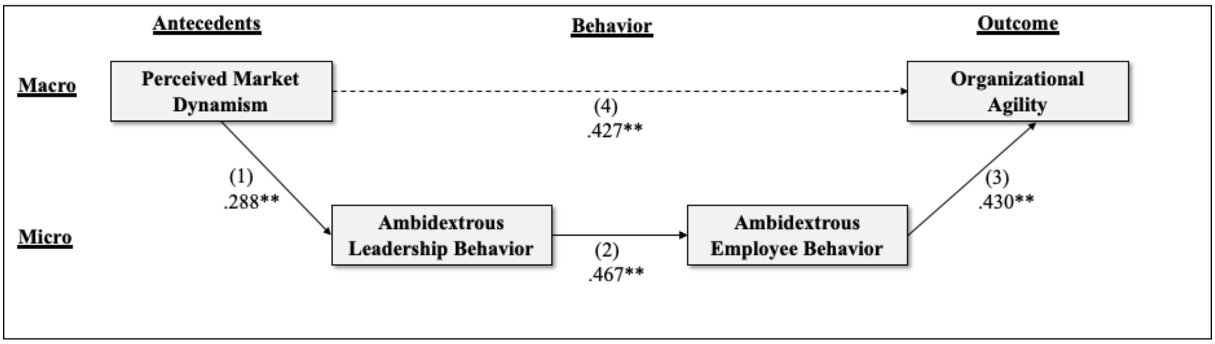

Figure 14 Overall Results of Hypothesis Testing using the Standardized Regression Coefficients

Table 12 Overview of the Regression Analysis with the Research Model

Dependent variables	Ambidextrous Leadership Behavior	Ambidextrous Employee Behavior	Organizational Agility	
Hypotheses	Macro-Micro (1)	Micro-Micro (2)	Micro-Macro (3)	Macro-Macro (4)
Control variables				
Age	-.022[1]	-.025[2]	.026[3]	.016[4]
Tenure	-.008[1]	.002[2]	-.018[3]	-.028[4]
Predictors				
Perceived Market Dynamics	**.288 [1]****			**.427[4]****
Ambidextrous Leadership Behavior		**.467[2]****		
Ambidextrous Employee Behavior			**.430[3]****	
R^2	.084	.219	.185	.182
Adjusted R^2	.080	.216	.180	.179

Shown are standardized regression coefficients (β). $P^* < 0.10$ & $P^{**} < 0.05$. N = 719.

1 Macro-Micro: (Constant), Age, Tenure, Perceived Market Dynamics

2 Micro-Micro: (Constant), Age, Tenure, Ambidextrous Leadership Behavior

3 Micro-Macro: (Constant), Age, Tenure, Ambidextrous Employee Behavior

4 Macro-Macro: (Constant), Age, Tenure, Perceived Market Dynamics

5.2 DISCUSSION

Ambidextrous behavior has been presented in this paper as an integrative approach which, on a theoretical level, seems to be particularly well suited to deal with increasingly complex organizational challenges. The overall goal of this dissertation was to systematically gain insights into the growing field of ambidexterity. More precisely, I developed an integrative research model covering aspects of antecedents, situational behavior, and its impact on organizational outcome criteria.

The empirical validation of this ABO model formed the core of this work. In this respect, it was postulated that ambidextrous leadership represents an improvement over established leadership constructs, which tend to have a one-sided effect by combining several (e.g. open and closed leadership behavior) styles. In this context, the present study was able to empirically prove and confirm the usefulness of a proposed new integrative leadership concept based on ambidexterity. It was shown that ambidextrous leadership reveals the variance of ambidextrous employee behavior and that ambidextrous employee behavior has a positive effect on organizational agility. The results also showed that although the perceived market dynamics positively correlate with organizational agility. A quantitative methodological approach was chosen to determine the validity of this model. In the process of empirical investigation, different and well-known instruments were used.

At this point it can be mentioned that this approach must also be critically questioned. Especially from a holistic perspective it becomes clear that a purely quantitative approach to validation can only capture a fraction of the interrelationships. It is therefore not the entire reality that can be represented by this numerical approach, but only the measurable truth. Therefore, the various items, scales and variables were tested for their suitability in terms of objectivity, validity and reliability.

The survey was carried out via a web link so that the participants could answer the questionnaires without being influenced by third parties. A distortion due to social interaction through external pressure (e.g. from supervisors) was therefore not to be expected. Whether this phenomenon played a role in the personal perception of the individual can never be completely ruled out in questions about work- and leadership behavior. Furthermore, it should be critically noted that the participants are mainly working students, which could possibly distort the results. To reduce this effect somewhat, the control variables were included in the statistical analysis.

However, within the framework of the study, every possible effort was made to motivate the test persons to give "honest" answers. The items and scales used either corresponded to well-tested and validated standard instruments or, in the case of a new formation, were checked with the necessary statistical test methods. The sample itself included 719 participants who completed the survey. Even though a larger sample size might be more informative, the Cronbach Alpha showed that the reliability of the variables is clearly defined. The Cronbach alpha values were between 0.74 and 0.82. Changes to the scales due to internal consistency and selectivity only had to be made in two cases where an increase in Cronbach alpha values became apparent. In summary all applied items in the study demonstrated to be reliable instruments.

In each case, internal consistencies reached acceptable to good levels. Regarding the variables covered in the path modeling approaches. As already described in the previous section, the results of the correlation and regression analysis initially show only weak or moderate correlations from a statistical perspective. As described according to Bortz & Döring (2002), it is therefore not possible to draw conclusions from clear correlations on the basis of these results. Rather, it can be concluded from this study that no correlation between the variables can be rejected. Despite the low correlation between the variables, it could be shown in the present study that the variables at the micro-level such as ambidextrous leadership correlate more strongly with ambidextrous employee behavior and that the macro-variables such as perceived market dynamics correlate most strongly with organizational agility.

This is in line with the theoretical findings of Kearny (2013). Compared to previous studies, the results on ambidextrous behavior indicate a similar significance for R^2. In the work of Kearny (2013), a R^2 =.07 and R^2 =0.46 was found in relation to team performance. And in the most recent empirical work by Alghamdi (2018) only an R^2 =.08 and R^2 =.31 was found. Against this background, the results of this work are not more significant compared to the other studies, but correlations could be proven precisely because of the behavioral complexity outlined above. In this context, experimental laboratory studies in which the different behaviors are tested separately could be helpful. This would also make it possible to test causal relationships.

Nevertheless, the empirical findings provide a basis for future research on the effects of ambidextrous behavior. There are a number of other plausible hypotheses that could be derived from the theoretical ABO model discussed above. For instances, regression analyses could be used to investigate whether variables such as national culture, industry or organizational unit explain the effects of ambidextrous leadership at the individual level. The characteristics of these variables could influence how ambiguity and uncertainty are dealt with.

In terms of practical implications, this paper confirms that leaders whose organizations have complex tasks to perform should develop an understanding of leadership that emphasizes the holistic nature of balance and the combination of apparent contradictions, which are in fact complementary elements. In theory, two measures were simply multiplied by each other. However, from a practical point of view, there are greater challenges in transferring this approach. For example, it is very difficult to implement and exercise contradictory behavior simultaneously.

Thus, managers and employees are confronted with the challenge to transfer flexibility into the daily work routine, to find a balance between explorative and exploitative behavior. This requires not only a deeper understanding of the basics of the ambidextrous idea and its implementation in leadership, but also probably requires intensive training and regular coaching sessions, in which the implementation of the ambidextrous idea in everyday leadership situations can be practiced by exercises. In this context, it becomes clear that an increase in ambidexterity requires high demands on employees and leaders. From a business perspective, it can be said that the demands are not only on employees and managers, but also on the organization. If employees and managers allow more flexibility in their behavior, the agility of the entire company can increase. Therefore, an ambidextrous behavior promises a positive correlation or advantages compared to other leadership behaviors.

5.3 SUMMARY OF RESULTS

This work investigates how ambidextrous behavior (by employees and leaders) can contribute to the agility and thus the adaptability of organizations and which factors positively influence this ability. In an integrative research model, the existing findings from the research were analyzed and validated with a quantitative survey. In summary, the research questions can be answered as follows.

Research Question 1: What is the level of ambidextrous leadership as perceived by employees?

On the basis of the quantitative survey, the sample of 719 participants made it possible to statistically determine the ambidextrous behavior of leaders and calculate it for the ABO framework (see section 4.4). The survey of individual perceptions regarding the respective behavior patterns is reflected in the course of this work and could be verified by the responses.

A systematization of the basic concept of ambidexterity could be made by the open and closed leadership behavior. In addition, the literature review helped to determine which factors influence ambidextrous leadership behavior and in which environment such leadership behavior is useful. The findings of the correlation analysis are consistent with the theoretical background from Chapter 2. This is in line with the Hungarian contribution from Balaton (2019) where ambidextrous behavior in the leadership role is considered relevant. In this respect, it could be stated that an ambidextrous leadership style in organizations is becoming increasingly relevant from a theoretical perspective. The research question could thus be answered and concretized through the literature research as well as the empirical investigation with regard to agility performance.

Research Question 2: Does leadership enhance the ambidexterity of employees?

The interaction between leadership behavior and employee behavior was supported by an ABO model developed for this purpose. This model provides a framework for structuring the common correlation at the individual level for the systematic elaboration of the different behaviors within an organization. In addition, the ABO model reveals dependencies at the micro level (for results see Table 9, Figure 11). A weak to moderate statistical correlation between ambidextrous leadership and ambidextrous employee behavior could be demonstrated. It could be assumed that ambidextrous leadership behavior thus enhances the ambidextrous behavior of employees. In this context it can be concluded that a significant positive correlation between leadership and employee behavior regarding ambidexterity exists and has been proven. Research question two could also be answered and confirmed.

Research Question 3: How effective is ambidextrous behavior in terms of agile capabilities?

In question three it should be explored to what extent ambidextrous behavior is effectively associated with agility. In this context, a theoretical connection was found in the literature analysis in chapter 2. In the empirical study, a statistical relationship between the two topics was then studied. It was examined to what extent agility factors are positively influenced by ambidextrous behavior on an individual level. For operationalization, agility was defined as the ability to capitalize on the market and as an operational alignment. In the course of the analysis, both capabilities were calculated and combined into a single scale.

In summary, although the empirical study found only a significantly low to moderate correlation, the literature review was able to demonstrate the correlation between the two topics. Thus, it was theoretically and empirically proven that individual ambidexterity in behavior has a positive effect on the mobility of organizations. In this regard it can be stated that ambidextrous behavior has a positive effect. Question three could also be proven and confirmed by the empirical study.

Research Question 4: In which environmental surrounding is ambidextrous leadership valid?

Based on the fourth research question, the aim was to find out to what extent a perceived phenomenon like environmental dynamics affects agility. Theoretically, it was postulated that the dynamics shown by the VUCA environment relate to the relevance of agile organizations. Thus, this question could once be substantiated theoretically as well as empirically. If an environment is regarded as dynamic, the more agile organizations become necessary. In other words, agility is positively influenced by dynamic environments.

However, a relationship between the perceived environmental dynamics could not be established in connection with ambidexterity. The present study also shows that there is a slightly positive correlation between perceived market dynamics and organizational agility. For organizations, this results in the consequence that agility in particular plays an important role for employees and leaders when a need for action arises from external perceptions such as the market. Given this evidence it is important for managers not only to have a precise knowledge of the context in which they operate, but also to deal intensively with external aspects. From a theoretical point of view, it is also clear that a profound analysis of the macro-specific conditions is necessary for improved planning. This circumstance is especially aggravated by dynamic environmental situations. The research question four could thus be answered and substantiated primarily by the literature review.

6 LIMITATIONS & IMPLICATIONS

Although the origins of ambidexterity as a model proposal dates back a long time, the concept of James March (1991) with its behavioral classification of exploration and exploitation still provides the theoretical basis today, making it accessible for empirical observations. Since that time, a growing interest in ambidexterity to increase flexibility has steadily increased. Ultimately, the main findings have also been applied in practice above ground and have gained acceptance. In this context, the following Chapter will transfer and analyze the findings of this research to practical aspects. In order to derive the practical relevance, various limits are listed in the first step. On the one hand, limits are determined on the basis of the research model and then discussed in relation to the chosen methodology. The Chapter ends with an outlook on individual implications and practical recommendations for organizations.

6.1 LIMITATIONS & AVENUES FOR FUTURE RESEARCH

Despite the contribution to literature, this work also implies and raises some comments about limitations for future research. A detailed review of limitations in terms of conceptual and methodological approaches is given in course of Chapters 2., and 2.5. In this context, the arguments should not be repeated. The conceptual and methodological limitations will be addressed and discussed on a more general level. The focus is on the subsequent derivation of potential areas of future research. To retain a clear structure, I will differentiate between propositions for discussion on (1) antecedents of ambidextrous leadership, (2) impact of ambidextrous behavior, and (3) contextual implications from antecedents and impacts.

(1) Antecedents of ambidextrous leadership. A goal of this work was to empirically confirm the postulated connection from a perceived market dynamism on ambidextrous leadership, respectively. However, results from the Study revealed that contradicting academic literature market dynamics did not exhibit significant effects beyond this leadership style. Baring these findings, it can be assumed that there is a need for more environmental factors which have an clear effect on the ambidexterity. Another influential environmental aspect is the domain of organizational culture. Several authors have studied the role of organizational culture within the field of ambidexterity (Rosing, et al., 2011). However, contextual situations could only be examined to a limited extent. In this context, questions of culture or specific industry influences would be important to investigate.

(2) Impact of ambidextrous behavior. In this context, the establishment and realization of agility at the organizational level is typically a long-term goal of a company (Sambamurthy et al. 2003). The cross-sectional research design of the present study is therefore limited in the investigation of long-term process-oriented topics. A longitudinal design would be desirable to further differentiate the causal dynamics or relationships between employee behavior and agility. Future research should further investigate the antecedents of organizational agility to better understand the process of capability development. This work has shown that customer orientation is an important antecedent of agility and that there are various, particularly cultural, mechanisms that can be identified to promote agility.

(3) Contextual implications from antecedents on agility. This approach aimed to identify not only micro-relationships but also relationships at the macro-level. Future research should therefore examine various phenomena at the macro level that have a positive effect on agility or limit this potential. Especially the investigation of potential restrictions of organizational agility would be a possibility to provide companies with more concrete courses of action. In this study it was tried to find out to what extent a perceived market dynamic affects the agility of organizations. It is questionable to what extent employees and managers can objectively perceive these market dynamics and which indicators would be relevant for measuring them. All in all, a market can of course also be regarded as non-dynamic and yet an awareness of agility can prevail. In this respect, it can be conceptually proposed for future work that market dynamics be determined by qualitative survey methods and then measured in relation to agility.

From a methodological point of view, it can be concluded that a restriction to a purely quantitative analysis does not completely deepen the knowledge about the measurement of the hypotheses made. Even if several instruments have been chosen to limit these methodological limitations, it is ultimately always better to enable a method variation in research. In addition to these limitations, the approach used enabled comparisons to be made with other study results and simplified the complex subject area. In this respect, the application of sophisticated methods such as the Structural-Equation-Method (SEM) techniques would have contributed to the systematic reduction of measurement bias (Lubatkin et al., 2006). With regard to the ABO framework and the distinction between macro and micro levels, such SEM analyses could statistically confirm the empirical validation of both constructs.

Another point that can be critically examined in the work is the lack of a suitable qualitative research methodology. In this respect, a more specific examination of the individual factors would also be possible through an interview survey on the ABO model. This would make a deeper analysis of the subject matter conducive to a holistic understanding, as this is an independent scientific discipline whose roots lie in the financial and legal fields. Due to the limited scope of the work, it was not possible to examine all of the problem areas and they could be dealt with in more detail in the course of further research.

At the beginning of this study, the assumption was that agility - especially in the context of dynamic markets - can be increased by taking ambidextrous behavior into account. In a first step this was derived from the literature research and in a second step empirically proven and validated. However, this study represents only a small section of the field of agility research, so that no generally valid model can be found and implemented in practice. The derived model therefore serves only as a possible indicator, but not as a defined guideline. Furthermore, the results of the study clearly showed how individualized behavior is related to the organizational level. Future research will have to examine this field not only with quantitative approaches but also with qualitative approaches. Ultimately, a transfer between theory and practical fields of action should also be made possible.

In addition to the limitations of the ABO model in terms of content, general limitations must also be described. In this context, limitations regarding the sampling can exist due to the choice of methodology as well as the circumstances of the investigation. In addition, the snowball effect in the recruitment of participants could lead to further distortions in the study results. Overall, the use of pre-selection questions was intended to ensure basic requirements and the quality of the sample, but this is not quite possible with a quantitative procedure with a full coverage. Language deficits as well as the complexity of the subject area may also have caused difficulties and limitations. Moreover, although anonymity is guaranteed, it is more difficult to reflect true facts in studies that focus on assessing the behavior of employees and managers. Finally, the significance of this study can be discussed in terms of its short-term nature. Since no longitudinal effects are investigated in this study, only behavioral phenomena are studied and reflected in a cross-sectional approach. To this end, the proposed ABO model could be examined and used as a basis for future work for certain types of organizations.

6.2 IMPLICATIONS FOR PRACTITIONERS

An empirical study with an exploratory character gives the practitioner an insight into circumstances that may have been previously closed off. The proposed ABO model allows readers to draw their own conclusions about the facts on the subject.

With this in mind, the help of a theoretical ABO framework, which consists of elements of ambidextrous behavior and the theory of organizational agility, the empirical connections are brought and broken down into subproblems. This combination of theory and empiricism makes it possible to understand the problems and relate them to self-made experiences and constellations in one's own environment.

From a practical point of view, it should be noted that not all statements on the findings can be declared to be generally valid for all companies. Similarly, some factors, such as ambidextrous behavior and agility, are not necessarily positive in all circumstances. Here, other instruments may also be effective, which meet the goals and framework conditions of the respective organization with regard to agility.

As already discussed, the demands on employees and managers are increasing more and more. At the same time, most companies cannot afford to lose highly qualified employees due to an impending shortage of skilled workers. Employee retention and performance quality have become important concepts in HR management. In the context of these changed framework conditions, the question arises as to which theoretical leadership models are still effective in which situation. In this context, it was possible to investigate leadership behavior in relation to employee behavior. This investigation shows above all that managers need to know the resources of themselves and their employees so that they can actually design requirements in such a way that employees can behave ambidextrously.

With regard to the leadership concept, it can be stated here that, on the basis of the findings, nothing can go wrong with this leadership style, but that only minor successes can be achieved. All this implies that leaders can train their behavior with regard to an ambidextrous leadership style, so that employee behavior can lead to agility. In addition to the possibilities for taking action in the area of personnel development, cultural development also plays a significant role. In this context it can be stated that agility and leadership must always be anchored in an organizational culture. For this reason, from a practical perspective, an ambidextrous culture that contributes to the promotion of agility would be advisable. Overall, the described interactions between person, situation and organization thus move even more to the focus of possible scope for action.

In summary, it can be said that above all factors such as creativity and self-organized work in combination with continuity and routine work in leadership behavior seem to be important to adapt.

This thesis attempts to reveal that within the framework of a holistic, integrative agility approach, leadership and employee behavior are one of the most important parameters. However, as long as these processes are not strategically considered and then anchored in processes and structures, the economic proof of agility remains difficult.

The connection between leadership and agility also makes the ABO model a functional framework concept for leadership controlling, since relevant company factors can be questioned depending on the strategic orientation. Depending on the situation, other leadership styles may also play a role, but in the present case it has been shown that flexibility in combining two leadership styles has a positive effect on agility.

7 NEW SCIENTIFIC RESULTS

The central contribution of the dissertation to leadership and behavioral research is that existing theoretical approaches to ambidexterity were further developed and empirically tested.

In this regard, the ABO framework was developed as an integrative concept to propose and contribute an alternative to the prevailing perspectives in the ambidextrous literature. In this context, it can be noted that ambidextrous behavior is addressed with the traditional means of organizational impact. The presented empirical study showed that there is an significant correlation between the ambidextrous behavior and agility performance of organizations. Reviewing the conceptual work on ambidexterity, different leadership characteristics and behavioral patterns are discussed. By distinguishing between leadership and employee behavior, the study opens up a still underdeveloped research area. The results indicate that the fostering of ambidextrous behavior as a visible behavioral component, such as demonstrating open and closed leadership tasks (error tolerance, setting rules), accounts for a share of the influence of organizational agility.

Another merit of the present work is the focus on the integration of ambidextrous mechanisms into a leadership model. In most of the relevant literature, the processes of how ambidexterity is characterized in leadership behavior are mainly driven by theory. Multifactorial empirical evidence is scarce. As one of the very few exceptions, Zheng et al. (2017) confirmed culture and organizational identification as important factors. My work extends the scope of existing research by considering and developing people and organization as additional variables in an integrative framework. The results support that ambidexterity is introduced into the individual behavior of followers and that ambidextrous leaders can contribute to and improve the agility of organizations, which is reflected in increased flexibility and organizational behavior of employees. On the other hand, dealing with issues related to ambidextrous leadership also implies investigating antecedents. In my empirical work I have identified the perceived market dynamics as crucial for the emergence of ambidextrous leadership, which is in line with the study by Keller & Weibler (2015). In an attempt to understand the antecedents of flexible ability, I also considered perceived environmental dynamics as instruments of this category. In this case, the study could not fully confirm the positive correlations of ambidextrous leadership, as it was significantly related to both criteria. However, this dissertation strengthens the importance of ambidextrous leadership as an important dimension of the explanation of leadership behavior.

Another important impulse for the existing literature is the inclusion of employees. While this approach has been consistently neglected in the past, my study confirmed its relevance in terms of leadership. When relying on employee behavior, a leader who shows a high degree of ambidextrous leadership behavior (e.g., when he or she can take open and closed actions at the same time) is more likely to develop a reputation for flexible leadership if by being a more visible role model for imitation.

Furthermore, I contribute to the validation of the ABO model to explain ambidextrous leadership behavior within social structures. While in the literature to date the leadership personality, or leadership effectiveness, has been investigated, my work provides important empirical support for an understanding of social issues. Overall, my results confirm the theoretical findings of several authors who postulate beneficial and detrimental effects on the emergence and influence of ambidexterity in an organizational context.

In addition to the theoretical contribution to ambidextrous literature, this dissertation is characterized by the inclusion of several important methodological strengths. These strengths relate to aspects of measurement sources as well as analytical methods. Starting from the different measurement sources, I have taken several steps to ensure the external validity of the results and to reduce the measurement bias resulting from the usual applied methods (Podsakoff et al., 2003). Here, the study was conducted as a field study, which means that all participants were employed and therefore had a supervisor and/or subordinate. Therefore, this work goes beyond existing studies that investigated ambidextrous leadership in experimental environments that rely only on student participants (e.g. Ferdig, 2007). Since the study was conducted in different organizations and settings, this heterogeneity in data composition further strengthens the external validity of my results.

Consequently, it can be stated that this study proved scientifically for the first time that there is a statistical and theoretical correlation between ambidexterity at the individual level & agility at the organizational level. Finally, the new scientific results can be summarized in two main categories. In the first category, a methodological leverage was achieved with this dissertation. This includes:

1 The assembly and testing of the linked variables within the ABO framework;
2 The combination of micro- and macro-specific factors from the perspective of ambidexterity in leadership and employee behavior.

The second category comprises an empirical leverage effect, in which the following novel results could also be summarized:

3 There is a significant correlation between ambidextrous behavior and the agility performance of organizations;
4 Ambidextrous leaders can contribute to and improve the agility of organizations, which is reflected in increased flexibility and organizational behavior of employees.

8 CONCLUSION

At the very beginning of this work, the playing of a pianist was portrayed. From there, I shifted this ability of ambidexterity into the leadership context and examined to what extent this concept of ambidexterity can be transferred to and affect the agility of organizations. Considering the technical developments in recent years and the resulting uncertainties in the business world, both practitioners and scientists are increasingly concerned about business problems and possible solutions. With this paper I have addressed some of the currently predominant issues. In particular, I examined not only behavior but also the antecedents, effects and contingencies associated with business. Focusing on organizational frameworks, this work essentially supports the claim that "ambidexterity actually pays off". The results showed that ambidextrous leadership and employee behavior are positively related to improving agility related factors. Surprisingly, my work is the first to prove a positive statistical relationship between ambidexterity and objective measures of agility. Since the improvement of a general performance is linked to leadership, this dissertation provides economic incentives not only to study but also to put ambidexterity into practice.

Accordingly, practitioners should pursue the implementation of ambidextrous leadership and employee behavior in the organizational culture through appropriate development programs or leadership competence models. While ambidextrous leadership in companies has proven so useful from an agile perspective, research on the history of ambidextrous leadership has fallen short of expectations. Here it became clear that perceived market dynamics do not necessarily create an internal need for flexibility and have a positive influence on it.

This dissertation contributes to existing research by not only addressing the question of whether ambidexterity has positive effects. By identifying an integrative approach, it was possible to investigate not only leadership but also the effect of employee behavior with respect to ambidexterity. To predict the agility of organizations through individual behavior, the perceived market dynamics were identified as an important antecedent. Since the resulting contexts can vary in organizational situations, researchers and practitioners are invited to consider these contextual situations when investigating perceived market dynamics as an antecedent of organizational agility.

Finally, being able to play a song on the piano means showing agility through ambidexterity. This dissertation has so far demonstrated that ambidexterity is worthwhile and thus challenging.

Extensive research and thorough practice are always justified to strengthen the ambidextrous approach to entrepreneurial tasks. Leaders should recognize the ambidextrous potential in leading people and deal with these issues especially in dynamic times. To conclude this work, I refer to the great pianist Tom Lehrer: "Life is like a piano. What you get out of it depends on how you play it."

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Finally I learned that philosophy is not just something like a title you can hang on the wall or find in a glass of wine. Rather, philosophizing is a privilege, a value that does not develop and express itself in a materialistic way, but perhaps one day within oneself.

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Publications with peer review process in proceeding books:

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Kraft, M. H. G. (2018). Imperatives of Customer Orientation: Perspectives for Organizational Behavior in Terms of Customer Satisfaction in the German Non-Profit Sector. In 16th International Conference on Social Sciences Paris, 23-24 November 2018. Proceedings Book. ISBN 9788890970054.

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ISM University of Applied Science in Hamburg **March. 2018- present**

Adjunct lecturer at the Institute of Business Administration for Organization & Leadership

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Fresenius University of Applied Science in Hamburg **Sep. 2017- present**

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PROFESSIONAL EXPERIENCES

SBB Kompetenz gGmbh in Hamburg **Aug. 2017- present**

Project-Coordinator & Lecturer

Responsible for developing & conducting educational IT projects as part of professional trainings.

Cervacon GmbH in Hamburg **Jul. 2015- Jul. 2017**

Management Consultant,

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Junior Consultant (working student), Responsible for Project-Analyses and workshop designs

RESEARCH INTERESTS

Organizational Behavior, Leadership, Digital Transformation, Sustainability

Hamburg, Septermber 2020

APPENDIX I: QUESTIONNAIRE

Welcome, Willkommen, Fogadtatás, Benvenuto,

as part of my dissertation project on the analysis of the perspectives of Ambidextrous Leadership behavior, we would like to ask you to answer a few questions about your professional experience and your field of activity.

The questionnaire consists of 38 questions and will take about 5-10 minutes of your time.

All questions will be evaluated anonymously and confidentially at the Faculty of Economic Science at the University of Kaposvár. We would like to thank you very much for your support of this research project! Further information on the research project can be obtained from:

Michael Hans Gino Kraft, M.Sc.

Doctoral Candidate in Management and Organizational Sciences
Kaposvár University
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Ambidextrous Leadership Behavior. Please indicate the extent to which you agree with the following statements in regard to your immediate supervisor.

1. My supervisor allows different ways of accomplishing a task
2. My supervisor encourages experimentation with different ideas
3. My supervisor motivates to take risks
4. My supervisor gives possibilities for independent thinking and acting
5. My supervisor allows errors
6. My supervisor monitors and controls the goal attainment
7. My supervisor establishes routines
8. My supervisor takes corrective action
9. My supervisor controls adherence to rules
10. My supervisor sanctions errors

Adopted Items (Rosing et. al., 2011). The answers were adjusted and measured with a 5-point scale from 1 (strongly disagree) to 5 (strongly agree).

Ambidextrous Employee Behavior. Relative to your own work, to what extent did you, last year, engage in work related activities that can be characterized as follows.

11. Searching for possibilities with respect to products/services, processes, or markets
12. Focusing on strong renewal of products/services or processes
13. Activities that are new/unknown to you
14. Activities requiring quite some adaptability/flexibility from your side
15. Activities requiring you to learn new skills or knowledge
16. Activities which you carry out as if it were routine
17. Activities that serve to fulfill day-to-day business
18. Activities from which you have broad experience
19. Activities from which you have broad experience; Activities that are conducted according to clear guidelines
20. Activities primarily focused on achieving short-term goals

Adopted Items (March, 1991; Mom et. al., 2006, Weibler & Keller, 2011). The answers were adjusted and measured with a 5-point scale from 1 (strongly disagree) to 5 (strongly agree).

Market Dynamics. Relative to your job environment, how you perceive the dynamics of your market.

21. Environmental changes in our local market are intense
22. Our customers regularly ask for new products and services
23. The competition in our market is very strong
24. In a year, a lot has changed in our market
25. In our market the products and services change quickly and often

Adopted Items (Jansen et. al., 2009). The answers were adjusted and measured with a 5-point scale from 1 (strongly disagree) to 5 (strongly agree).

Organizational Agility. Relative to your competitors, how well your organization performs or is positioned to perform the following activities.

26. We can respond quickly to special requests of our customers when such demands arise
27. Whenever there is a change in our business, we can quickly make the necessary internal adjustments
28. We are quick to make appropriate decisions in the face of market/customer-changes
29. We are constantly looking for opportunities to reinvent/change our organization to better serve our market
30. We treat market related changes as opportunities to capitalize quickly

Adopted Items (Goldmann et. al., 1995; Tsourveloudis & Phillis, 1998). The answers were adjusted and measured with a 5-point scale from 1 (almost never true ree) to 5 (almost ever true).

Descriptive Statistics

31. What is your gender?
32. What is your age?
33. What is your job role?
34. How long have you been working for your organization?
35. How many people work for your organization?
36. Which of the following categories best describes the industry you primarily work in (regardless of the actual job position)?
37. What do you think of this? Which is right for your business?
38. What is the reality of your organization? Real revenue over the last 5 years…

Adopted Items 36-43 (Excellence in Leadership and Management Network © 2020, www.leadershabits.com, Excellent Leader Excellent Enterprise Questionnaire - ELESQ).

APPENDIX II: CONTENT-BASED LITERATURE REVIEW