

Organizational Agility and Agile Teamwork: Evidence from Industry Data

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Abstract

My dissertation, "Organizational Agility and Agile Teamwork: Evidence from Industry Data," analyzes the conceptual foundations, organizational prerequisites, success factors and outcomes of organizational agility and agile teamwork. The findings are presented in four peer-reviewed studies. These four studies contribute to a more nuanced and comprehensive understanding of organizational agility and agile teamwork. During the research, various levels of organizational agility were considered and continuously refined in the analysis. Study 1, "*Organizational Agility – A Structured Review of the Literature*" establishes the conceptual foundation by providing novel dimensions and a definition of organizational agility. Building on this groundwork, study 2, "*Organizational Agility and the Application of Agile Working Methods*", examines the organizational conditions necessary for the effective application of agile teamwork methods, exploring how incomplete organizational transformation impacts the effectiveness of agile teamwork methods. Study 3, "*Leadership in Agile Work Design – Exploring the Effectiveness Implications of Directive and Empowering Team Leadership*", goes deeper by exploring leadership as a key success factor, comparing the influence of directive versus empowering leadership on agile team effectiveness. Finally, study 4, "*Motivated by Agility, Hampered by Switching: A Boundary Perspective*", shifts focus to individual outcomes of agile working methods, investigating the individual effects of agile working methods on role clarity and task motivation. Accordingly, the analysis is progressively refined, starting with high-level organizational agility, followed by the necessary prerequisites for implementation, to the consideration of situational leadership, and ultimately the individual outcomes of agile working methods.

The research draws on an extensive literature review of organizational agility, complemented by qualitative and quantitative data from semi-structured interviews and employee surveys conducted within a German automotive manufacturer. Data collection was conducted between 2019 and 2021, utilizing a multi-method approach to both data gathering and analysis. In sum, my research significantly contributes to advancing a more nuanced and comprehensive understanding of agility at both the organizational and team levels.

1. Introduction

1.1 Relevance of Research

In recent years, there has been a growing focus on agility in both research and practice. Given the volatile and dynamic environment that organizations face – described, for example, by the VUCA framework (i.e., volatile, uncertain, complex and ambiguous) (Bennett & Lemoine, 2014) or the BANI framework (i.e., brittle, anxious, nonlinear and incomprehensible) (Cascio, 2020) – organizations must continuously adapt to an ever-changing environment. Many organizations consider agility as a critical success factor for survival in this volatile environment (e.g., Chaanoon, Rahmouni, & Alaoui, 2023; Highsmith & Highsmith, 2002; Teece, 2007) and a growing number of organizations strive to achieve agility (Ahlbäck, Fahrback, Murarka, & Salo, 2017; Kroll et al., 2017; Macias-Lizaso & Thiel, 2006). Moreover, today's leaders are increasingly called upon to navigate these challenging times, often relying on agile working methods to remain adaptable in product development and to build high-performing teams (Geffer, Bretschneider, Eilers, & Oeste-Reiß, 2024; Uludağ et al., 2022). These high-performing teams modify their work structures and adopt agile methods, moving away from traditional approaches (Allon et al., 2022). My research contributes to a more nuanced and comprehensive understanding of organizational agility and agile teamwork as it addresses several challenges and gaps in existing research.

My first area of research provides a foundational framework by delineating novel dimensions and offering a precise definition of organizational agility, addressing the significant ambiguity present in both literature and in management practice, regarding its conceptual foundation and definition of organizational agility (Bottani, 2009; Sherehiy, Karwowski, & Layer, 2007; Teece, Peteraf, & Leih, 2016). Sherehiy et al. (2007) argued that there is a lack of consistency in the conceptualization of organizational agility. Different fields of research, including strategic management (Goldman, Nagel, & Preiss, 1995; Teece et al., 2016), supply chain management (Sharifi & Zhang, 2001), manufacturing (Katayama & Bennett, 1999) and project management (Highsmith & Cockburn, 2001; Schwaber & Beedle, 2002), offer varying interpretations of the concept.

The second study examines the organizational conditions required for the effective implementation of agile teamwork methods, as there is still a lack of clarity regarding the challenges related to the adoption of organizational agility, such as disruptions to long-term plans, insufficient knowledge transfer, and a poor alignment with organizational culture (Conforto, Salum, Amaral, Da Silva, & De Almeida, 2014; Dikert, Paasivaara, & Lassenius, 2016; Dyba & Dingsoyr, 2009; Rebentisch, Schuh, Dölle, Mattern, & Abel, 2018). Previous

research has not fully addressed the fact that many organizations implement only partial reconfigurations towards internal organizational agility.

My third area of research investigates leadership as a critical success factor for agile work, comparing the impact of directive versus empowering leadership on the effectiveness of agile teams. Prior research has predominantly associated the empowering leadership style with agile teamwork (e.g., Muduli, 2017; Van Oyen, Gel, & Hopp, 2001; Xu & Shen, 2016). However, a few studies suggest that directive leadership can also provide valuable structure for agile teams (Gren & Lindman, 2020; Shen & Xu, 2015; Wageman, 2001). My study explores the situational application of these two leadership styles to enhance the effectiveness of agile teamwork.

The final study shifts focus to individual outcomes of agile working methods, examining their impact on role clarity and motivation. One key assumption underlying agile working methods is that they positively influence individual behavior, making employees work more efficiently and better handle the complexities of modern work. However, understanding about the effects of agile teamwork on individual outcomes remains limited (Tripp et al., 2016; Venkatesh et al., 2020). Some studies report positive effects, such as increased job satisfaction (Tripp et al., 2016) and reduced work exhaustion (Venkatesh et al., 2020). In contrast, other researchers highlight negative effects such as emotional burnout (Ghobadi & Mathiassen, 2017) or stress when agile methods are not implemented correctly (Pfeiffer et al., 2019). This study contributes to addressing this contradiction by demonstrating that agile working methods positively influence motivation through enhanced role clarity, with this relationship being moderated by the frequency of switching projects.

My research activity focuses on organizational agility and its relationship with the application of agile teamwork methods in teams, by addressing the challenges and gaps in the existing research, as mentioned above.

1.2 Research Contribution

With my doctoral research I can significantly contribute to the theoretical and practical comprehension of organizational agility and agile teamwork. The research is structured around four distinct papers, each addressing a specific research question that emerged sequentially through my data collection and analysis process.

In the first paper, a comprehensive literature review, was conducted to examine the fundamental question: “*What is organizational agility?*”. The study responds to the previously postulated lack in the conceptualization and definition of organizational agility, thereby contributing to the standardization of its diverse interpretations, as outlined above.

Additionally, the article introduces a temporal dimension to organizational agility, extending beyond the traditional emphasis on speed and being fast. This perspective enriches the ongoing discourse on temporality within organizational and strategic studies (Bakker, DeFillippi, Schwab, & Sydow, 2016; Vesa & Franck, 2013). Moreover, the paper incorporates a processual view of organizational agility, highlighting the critical role of customer orientation. The key finding of our research is that organizational agility is an ongoing process of sensing and transforming, characterized by perpetual change. This conclusion builds upon prior process-oriented research in organizational studies (Langley, Smallman, Tsoukas, & Van De Ven, 2013; Langley & Tsoukas, 2010; Wenzel & Koch, 2018).

The second paper addresses the research question “*How does incomplete organizational transformation towards agility influence the effectiveness of agile teamwork methods?*”. This analysis is based on interview data collected within an automotive manufacturer. It examines the challenges associated with implementing organizational agility, a topic that has been underexplored in previous research. Specifically, it highlights the issue that some organizations only partially undergo the transformation towards internal organizational agility, leading to challenges that hinder the effectiveness of agile teamwork. Moreover, my findings reveal that the appropriate organizational framework conditions must be established to the effective implementation of agile working methods. In the absence of these conditions, mismatch mechanisms emerge, which impede the transformation process. Finally, the study challenges the notion that agility is a static core competence of an organization, as previously proposed (Sharifi & Zhang, 1999; Sherehiy & Karwowski, 2014; Sherehiy et al., 2007). Instead, it argues that agility should be viewed as an ongoing activity that is essential to achieving the desired state of transformation.

Building on the findings of the second paper, which identified leadership as one key lever influencing the effectiveness of agile teamwork methods, the third article investigates the question: “*How can directive versus empowering leadership facilitate agile team effectiveness?*”. This study is also based on interview data. In doing so, it makes a significant contribution to closing the research gap in the situational application of directive and empowering leadership to enhance agile teamwork effectiveness, as outlined in the section “Relevance of Research”. Furthermore, it advances the existing body of leadership research by integrating both individual leadership theories – directive and empowering leadership – and by analyzing the relationship between leadership practices and team effectiveness. This study demonstrates that the situational application of both leadership styles positively influences team

effectiveness, offering valuable insights into which leadership actions are most effective during each phase of a project.

After analyzing the concept of organizational agility and identifying key prerequisite and leadership principles, I then turned my focus to investigating significant individual outcomes associated with agile working methods. Specifically, my fourth study examines the impact of agile working methods on individual role clarity and motivation while including the frequency of switching between projects, using quantitative data collected from employee surveys. Given the limited understanding of the effects of agile teamwork on individual outcomes (Tripp et al., 2016; Venkatesh et al., 2020), this study investigates these effects with respect to individual-level characteristics, thereby providing a comprehensive theoretical framework. The analysis explores the relationship between agile working methods, role clarity, and intrinsic motivation within the context of the Job-Demand-Control Model. Additionally, the study demonstrates that frequent switching between projects undermines the positive effects of agile working on role clarity and therefore task motivation.

In my research, I refine the analysis by specifying various levels of organizational agility. This ranges from examining high-level organizational agility, to exploring the challenges arising from the partial implementation of organizational agility and its impact on the effectiveness of agile teamwork, to investigating situational leadership actions within agile teams that aim to enhance team effectiveness. Finally, the last study explores the influence of agile teamwork on individual role clarity and task motivation. In doing so, my research significantly contributes to a more nuanced and comprehensive understanding of agility at both the organizational and team levels.

1.3 Method

1.3.1 Research design

To gain a comprehensive understanding and extract pertinent insights into organizational agility and agile teamwork, my research comprises a multi-method approach to data collection and analysis (Leech & Onwuegbuzie, 2009). This approach is grounded in triangulation, which involves the use of multiple, complementary data sources (Glaser & Strauss, 1967; Locke, 2001). Specifically, it includes a literature review, semi-structured interviews, and quantitative data obtained through employee surveys.

First, I conducted a systematic literature review to provide an overview of the current state of research, and to develop a comprehensive overview of the existing state of knowledge (Mulrow, 1994; Tranfield, Denyer, & Smart, 2003). According to Tranfield et al. (2003) a systematic literature review facilitates access to the current state of research, establishes a

robust knowledge foundation, and enhances methodological precision. Furthermore, the systematic review can serve as a basis for the generalization of theory by evaluating the consistency of findings and assessing their relevance (Light & Pillemer, 1984; Morgan, 1986; Mulrow, 1994).

Second, I independently carried out qualitative interviews within a German automotive manufacturer, gathering an extensive set of qualitative data through an in-depth investigation of a single corporate case. This inductive research design enabled me to gain a comprehensive understanding of organizational and team agility from the perspective of employees (Boddy, 2016; Gioia, Corley, & Hamilton, 2013; Suddaby, 2006).

Third, in collaboration with Prof. Dr. Philip Yang, I developed a survey for a field study within the same automotive manufacturer. This survey complemented my qualitative research by adding a broader quantitative data set. We surveyed employees with knowledge in agile and traditional project designs with two questionnaires, one referring to a traditional project setting, the other referring to an agile project. The study design enables the application of an individual fixed-effects model, facilitating the derivation of causal inferences (Antonakis, Bendahan, Jacquart, & Lalive, 2010).

The initiative to implement agile working methods within the selected automotive manufacturer began in 2017 and continued throughout the case study, which focuses on the implementation of organizational and team agility. The study aims to comprehensively analyze particular process-related, social and organizational aspects within a singular organizational context (Eisenhardt, 1989; Locke, 2001; Morgan & Smircich, 1980; Post & Andrews, 1982; Winter, 2000). I selected this particular case study due to its potential to provide valuable insights into the specific implementation of organizational and team agility within this manufacturer, thereby contributing significantly to the broader scope of my research (Denzin & Lincoln, 1996; Eisenhardt, 1989; Locke, 2001). Within the examined organization, agility is primarily practiced within agile project teams, utilizing the Scrum framework (Schwaber & Beedle, 2002; Sutherland & Schwaber, 2007; Sverrisdottir, Ingason, & Jonasson, 2014). The three key roles in these teams are the agile coach, the product owner, and the team members (Sutherland & Schwaber, 2007). These roles were explored through both interviews and surveys, as the individuals in these positions mostly experienced agile as well as traditional project settings. To ensure a robust data set (Mathieu, Maynard, Rapp, & Gilson, 2008), employees from all areas of the company were sampled within the interviews and surveys: Finance & IT, Research & Development, Human Resources, Procurement, Sales & Marketing, Administration and Production. The substantial sample of 108 interviews with 111 participants

(37 female and 74 male) supports robust theorizing (Boddy, 2016; Morse, 1994; Sandelowski, 1995). Moreover, the quantitative sample included 90 employees who participated in the surveys, providing a total of 180 observations. Each employee is represented twice in my survey dataset: once in the context of working in an agile project and once in a traditional project setting.

1.3.2 Data sources and collection

In line with Leech et al. (2009), I adopted a mixed method design for my research, incorporating a literature review, semi-structured interviews, and quantitative data gathered through employee surveys conducted over a three-year period and across three data collection phases. The data collection process in my research is rooted in the practice of triangulation, utilizing data from multiple sources and employing various data collection methods to achieve a more comprehensive understanding of the research topic (Glaser & Strauss, 1967; Leech & Onwuegbuzie, 2009; Locke, 2001).

My data collection started in 2019 and initially involved the identification of papers for the literature in March. Within the systematic literature review, the search platform “Web of Science Core Collection” was used with the keyword “agile*”. A total of 353 research papers published in various journals were identified. The papers that included an overarching organizational perspective and thus contributed to organizational agility were selected.

Subsequently, between May 2019 to September 2021, I conducted 108 semi-structured interviews in three research phases with product owners, agile coaches and members of agile teams. Within the first research phase between May and August 2019, I conducted 28 interviews to explore the benefits and challenges of agile work within the selected automotive manufacturer, with a particular focus on agile collaboration across teams from different departments. The interviews revealed two key research areas: First, participants frequently pointed out that the challenges of agile teamwork are often attributed to the limited organizational framework conditions in place. As a result, the effective adoption of agile methodologies within teams appeared to be contingent on the overall level of organizational agility. Second, many participants highlighted the significant role of leadership in the successful implementation of agile practices within teams. Accordingly, different agile roles faced distinct challenges and exerted varying levels of influence on the success of agile project work. In the second phase of data collection, conducted between April and November 2020, I interviewed further 34 participants to explore their individual experiences and the challenges they perceived in their roles with organizational agility, as well as the influence of leadership on agile teamwork. During this phase the interviews uncovered the phenomenon that agile coaches and

product owners play a significantly larger role in the implementation of agility compared to team members. Additionally, it emerged that both product owners and agile coaches engage in leadership activities within teams, which impact the effectiveness of agile collaboration in various contexts. Building on these findings, I conducted a third phase of data collection between February and September 2021, involving a total of 46 participants. During this phase, I further narrowed down the focus of my interviews with product owners, agile coaches and team members, specifically examining their experiences with the application of agile working methods, as well as their leadership behaviors in particular situations, and the effectiveness of agile teamwork.

The selection of participants for the interviews was based on my existing contacts within the organization, whom I contacted via e-mail or telephone. I further proceeded by using the snowball sampling approach, asking participants to recommend other potential interviewees (Bolderston, 2012; Marshall, 1996; Robinson, 2014). Initially, I targeted individuals from various roles across different teams. However, during the final phase of data collection, I had the opportunity to interview an entire agile team of 12 members who expressed interest in participating in the study. This allowed me to analyze leadership actions and effects of organizational agility within the context of a single team.

All interviews were conducted in German, with a duration ranging from 45 to 90 minutes on average. The majority of the interviews conducted between 2020 and 2021 were carried out virtually via video calls using Microsoft Teams, due to the restrictions imposed by the COVID-19 pandemic. Despite the physical distance, this format allowed for the recording of facial expressions and gestures (Gray, Wong-Wylie, Rempel, & Cook, 2020). Additionally, the virtual setting facilitated an environment in which participants felt comfortable and uninhibited in discussing the individual situations (Bauman, 1993; Deakin & Wakefield, 2014; Gray et al., 2020; Mabragana, Carballo-Diéguez, & Giguere, 2013; Mabragana et al., 2013; Musselwhite, Cuff, McGregor, & King, 2007; Smith, 2005; Sturges & Hanrahan, 2004; Tausig & Freeman, 1988).

The data collection for the quantitative study was based on two surveys: one focusing on agile project work and the other on traditional project work. Each participant was asked to complete both surveys, enabling us to observe each employee in two different settings – once in a traditional project environment and once in the agile project context. The surveys were distributed via e-mail to selected employees based on my existing contacts. The snowball sampling method was then applied, with participants being asked to forward the survey to other potential respondents (Bolderston, 2012; Marshall, 1996; Robinson, 2014). This approach

resulted in 90 participants, yielding a total of 180 observations. For the subsequent analysis, only fully completed surveys were considered. As a result, 90 participants with 180 valid regression observations were included in the final dataset. The surveys utilized a 5-point Likert scale and assessed a range of variables including intrinsic task motivation, agile working methods, role clarity, and frequency of switching projects, as well as control variables such as team size and number of parallel working teams.

1.3.3 Data analysis

Leech et al. (2009) described the mixed methods research process as the collection and analysis of data from different sources that address the same research topic. In my study, by integrating multiple phases of data collection, I initiated the analysis process in parallel with the data collection, as recommended by previous research (Jones & Noble, 2007; Langley, 1999; Lincoln & Guba, 1985; Locke, 2001; Locke & Golden-Biddle, 1997; Robinson, 2014). Accordingly, my data analysis process involved an iterative cycle between data collection and data analysis, with new theoretical insights guiding the incorporation of additional data, as suggested by earlier studies (Glaser & Strauss, 1967; Jones & Noble, 2007; Locke, 2001; Robinson, 2014).

For the literature review and the qualitative data obtained through the interviews, I analyzed the data following the Gioia methodology (Gioia et al., 2013). To derive concepts to the respective research questions, I chose an inductive approach for systematic data analysis (Gioia et al., 2013). The analysis began with open coding, that allowed for the integration of all relevant information from the various data sources (Glaser & Strauss, 1967; Locke, 2001). The further process was structured in four analytical steps: 1. First-order analysis, 2. Second-order analysis, 3. Aggregated analysis and 4. Higher-order analysis.

At the beginning of the first-order analysis, codes were derived closely from the information in the literature or the interview quotes. This approach aimed to capture the direct content without altering its original meaning. As a result, numerous first-order concepts were generated to retain as much of the original content as possible throughout the analysis process (Gioia et al., 2013).

In the second step, these first-order concepts were re-examined in relation to their similarities, differences, and connections in a second-order analysis. New, superordinate clusters, referred to as second-order themes, were developed through a systematic iteration between the data and literature to identify patterns and structures within the analysis (Gioia et al., 2013).

The third step involved investigating the potential to further distill the second-order themes into aggregated dimensions (Gioia et al., 2013; Glaser & Strauss, 1967). This aggregated analysis facilitated the further structuring and theoretical development of a concept.

In the literature review and the study of leadership in agile work design, a final higher-order analysis was conducted to explore the relationships and connections between the aggregated dimensions over time. In this step, higher-order dimensions were derived, integrating the analysis of data with respect to the temporal dependencies.

In the quantitative study, we applied fixed-effect linear regressions, holding the individual participant constant and comparing the same employee working in an agile project with the same employee working in a traditional project (Antonakis et al., 2010). This approach allowed us to control for factors such as skills, age, gender, and experience. Furthermore, to ensure comparability of the coefficient sizes and to avoid multicollinearity, we standardized all non-dummy variables prior to the regression analysis and the calculation of interaction terms (Dawson, 2014; Jaccard, Wan, & Turrisi, 1990).

1.4 Structure of research

The following section provides the structure, content and a brief summary of my research. The aim is to connect the individual studies and explain the overarching approach. Additionally, it demonstrates how the studies have already undergone peer review through their acceptance and presentation at conferences.

1.4.1 Organizational Agility – A Structured Review of the Literature

My first study was developed in collaboration with Dr. Christian A. Mahringer, Dr. Martin Rost, Dr. Steffen Wütz and Prof. Dr. Birgit Renzl from the University of Stuttgart, and is titled “*Organizational Agility – A Structured Review of the Literature*”. The paper was accepted and presented by me at the 11th Strategische Kompetenzmanagement Symposium (SKM) on the topic of agile organizations held in September 2019 at the Institute of Business Administration, University of Stuttgart. Additionally, I presented it at the 82nd Annual Conference of the German Academic Association for Business Research (VHB) in March 2020.

The study presents a structured literature review on organizational agility, with the aim of analyzing its core dimensions with the research question “*What is organizational agility?*”. The findings reveal that organizational agility can be conceptualized as comprising two primary dimensions: sensing and transforming. Furthermore, the transforming dimension can be further divided into proactive and reactive transforming. Additional factors such as customer orientation, temporality, and scope further refine these dimensions of sensing and transforming.

Based on these insights, we propose a conceptualization of organizational agility as a dynamic, continuous process that involves sensing, along with both proactive and reactive transforming, contingent upon appropriate timing, scope and customer orientation.

Through the structured review of literature, we aimed to assess the current state of research and further advance the knowledge on organizational agility (Tranfield et al., 2003; Webster & Watson, 2002). To differentiate relevant literature and studies from those that were less pertinent to the research question (Morgan, 1986; Mulrow, 1994), we conducted a search using the keyword “agile*” within the “business economics” category on “Web of Science Core Collection” platform. We limited our search to journal articles in order to focus exclusively on peer-reviewed publications in scientific journals. This search, conducted in March 2019, resulted in 353 research articles from various journals. Only studies that addressed the organizational level were included to maintain a focus on organizational agility. For data analysis, we applied the Gioia methodology (Gioia et al., 2013).

This study aims to establish a more coherent understanding of the concept of organizational agility, responding to the call by several researchers for a holistic conceptualization of the term (Abdoli Bidhandi & Valmohammadi, 2017; L’Hermitte, Tatham, Bowles, & Brooks, 2016; Sherehiy et al., 2007). We contribute to the establishment of a theoretical and conceptual consensus, an area previously underdeveloped according to Teece et al. (2016) and Chakravarty et al. (2013). Furthermore, we introduce a temporal dimension of organizational agility that extends beyond the traditional focus on speed and being fast, incorporating the elements of continuity, timing, anticipation and surprise. This addition enriches the ongoing discourse on temporality within the fields of organization and strategy (Bakker et al., 2016; Vesa & Franck, 2013). Additionally, our study proposes a processual perspective on organizational agility, emphasizing the role of customer orientation. The key finding of our research is that organizational agility is a continuous process of sensing and transforming, characterized by constant change. This finding builds upon prior process-oriented research in organizational studies (Langley et al., 2013; Langley & Tsoukas, 2010; Wenzel & Koch, 2018).

Finally, this paper provides several contributions to managerial practices. Firstly, our literature review forms the foundation for a managerial dialogue on organizational agility, fostering a shared understanding of the concept. This common comprehension supports clarifying that the term should not be treated as an overarching container for a wide range of assumptions. Furthermore, our research offers practical guidance for organizations seeking to

enhance their agility by engaging in an ongoing process of sensing, alongside both proactive and reactive transforming, given appropriate timing, scope, and customer orientation.

1.4.2 Organizational Agility and the Application of Agile Working Methods

While the first study provides a literature review to establish a comprehensive theoretical framework for organizational agility, my second study, titled “*Organizational Agility and the Application of Agile Working Methods*” expands my research by investigating the challenges commonly encountered in implementing agility within business practice. These challenges, in turn, lead to mechanisms that impair the effectiveness of agile teamwork methods. This paper was accepted for presentation at the 24th Colloquium on Personnel Economics (COPE) in March 2021. The COPE is an annual conference for international personnel economists to present and discuss current research topics (“Colloquium on Personnel Economics – (COPE),” n.d.).

This study is based on 108 interviews conducted within an automotive manufacturer. The analysis revealed that the transformation towards agile teamwork methods remained incomplete for years. Given the limited existing research on organizations that implement internal organizational agility only partially, my study addresses the research question “*How does incomplete organizational transformation towards agility influence the effectiveness of agile teamwork methods?*”. The findings of my study highlight how insufficient organizational conditions contribute to an incomplete transformation towards organizational agility, thereby triggering overarching mismatch mechanisms that undermine the effectiveness of agile teamwork methods. Specifically, I have identified the four key mismatch mechanisms that negatively impact the application of agile teamwork methods: leadership non-acceptance, role conflict, task overload and goal conflict. Finally, I illustrate these findings in a research model.

My study contributes to research in several ways. While prior research primarily focused on the prerequisites for introducing agility (Lu & Ramamurthy, 2011; Rebentisch et al., 2018; Teece et al., 2016), my research identifies the challenges that lead to an unsuccessful transformation towards organizational agility and the effectiveness of agile teamwork. Furthermore, previous research assumed the application of agile working methods was the first step in achieving organizational agility (Gandomani, Zulzalil, Abd Ghani, Sultan, & Sharif, 2013; Highsmith & Highsmith, 2002; Laanti, Salo, & Abrahamsson, 2011). In contrast, the findings of my study demonstrate that the organizational framework conditions must first be in place to effectively implement agile teamwork methods. Otherwise, mismatch mechanisms arise that impede the transformation. Finally, my study challenges the proposition that agility is a core competence of a company, as previously postulated (Sharifi & Zhang, 1999; Sherehiy

& Karwowski, 2014; Sherehiy et al., 2007), and instead argues that agility is an ongoing activity necessary to achieve the target state of transformation.

Furthermore, my research contributes to current management practice by highlighting that the necessary organizational conditions must be established before integrating agile working methods, rather than treating their implementation as a first step. By applying the identified mismatch mechanisms, managers can focus on identifying and actively addressing these challenges. Finally, organizations can leverage the developed model during strategy formulation to intentionally create a supportive framework for agility and agile working.

1.4.3 Leadership in Agile Work Design – Exploring the Effectiveness Implications of Directive and Empowering Team Leadership

My third study, titled “*Leadership in Agile Work Design – Exploring the Effectiveness Implications of Directive and Empowering Team Leadership*” was accepted for presentation at the fall workshop of the Wissenschaftliche Kommission (WK) Personal in the VHB 2021, held at the University of Düsseldorf on September 16 and 17, 2021. The conference, which attracted participants from Germany, Austria, Switzerland, and Italy, focuses on the analysis of work in organizational contexts (“VHB: Personal,” n.d.).

The study explores the situational interplay between empowering and directive leadership styles in agile teams and their impact on team effectiveness. The interview process revealed dynamic roles of product owners and agile coaches, challenging the one-dimensional and static categorization of these roles in previous literature. To examine the two leadership roles within an agile team, the product owner and agile coach, in different situations and their impact on the effectiveness of the work, I posed the research question: *How can directive versus empowering leadership facilitate agile team effectiveness?*

Drawing on 108 interviews with product owners, agile coaches and team members from various agile teams of a German automotive manufacturer, the study demonstrates that, contrary to the prevailing assumption in previous research suggesting a preference for one leadership style (e.g. Gren & Lindman, 2020; Xu & Shen, 2016), a situational combination of empowering and directive leadership approaches enhances agile team effectiveness. I illustrated this situational approach to leadership in agile teams by visualizing the alternating use of the empowering and directive leadership style during the beginning, development and review phase of projects, highlighting the distinct contributions of product owners and agile coaches in each phase.

This study contributes to existing leadership research, both in terms of the individual leadership theories of directive and empowering leadership, as well as the analysis of the

relationship between leadership measures and team effectiveness. Numerous scholars called for a more in-depth investigation of how these two leadership styles influence team performance across different activities (e.g. Martin, Liao, & Campbell, 2013; Zheng et al., 2021). Through this study, I demonstrate that the situational application of both leadership styles positively impacts team effectiveness and provide valuable insights into which leadership actions are most effective during each phase of a project.

This study also offers several practical implications. By illustrating the situational leadership approach, it enables team leaders in agile teams to effectively tailor their empowering and directive leadership actions to the specific context. The phase-oriented approach supports the management and implementation of a project across its different phases – beginning, development and review. To enhance team effectiveness within each phase, product owners switch between directive leadership at the beginning, empowering leadership during development, and return to directive leadership towards the end. In contrast, agile coaches continuously alternate between directive and empowering leadership to target effectiveness mechanisms within the teams.

1.4.4 Motivated by Agility, Hampered by Switching: A Boundary Perspective

Contrary to the studies mentioned above, the fourth study is based on a quantitative analysis of employee surveys, which I conducted in collaboration with Dr. Julian Aljoscha Nüßle and Prof. Dr. Philip Yang. The study, titled “*Motivated by Agility, Hampered by Switching: A Boundary Perspective*” was accepted and presented at the fall workshop of the Wissenschaftliche Kommission (WK) Personal in the VHB 2022, held at the ESCP Business School in Berlin on September 29-30, 2022. Additionally, it was accepted for presentation at the 82nd Annual Meeting of the Academy of Management (AOM) in the Organization Development and Change (ODC) division, held in Seattle, Washington (USA) from August 5-9, 2022. The AOM Annual Meeting is the largest and most prominent conference in management and organizational research, providing a platform for discussing and analyzing the challenges in current management research (“Annual Meeting,” n.d.). In addition, we initially submitted the paper to the Information Systems Journal (ISJ) in January 2022. After receiving constructive feedback, we resubmitted the paper to the Journal of Organizational Behavior (JOB) in August 2022, where it was also declined, but accompanied by insightful and valuable feedback.

Building on the Job-Demand-Control Model (Karasek Jr, 1979), we extend the study by Venkatesh et al. (2020) by demonstrating that employees tend to be more motivated when working in agile environments. Specifically, with our study we propose and empirically test the

hypothesis that role clarity acts as key mechanism linking agile working methods to increased motivation. Therefore, we conducted a field study with 90 employees in an automotive manufacturer, using an individual-level fixed-effects approach. By comparing employees' experiences working in agile projects with traditional projects, we were able to derive causal inferences. This approach provided us with 180 observations. Our findings suggest that agile working methods positively influence task motivation through enhanced role clarity. Additionally, we examined how the frequency of switching between projects moderates the relationship between agile working methods and role clarity. We found that the more frequently employees are required to switch projects, the weaker the link between agile working methods, role clarity and subsequent intrinsic task motivation becomes.

Our study contributes to research in several ways. In this study, we analyze the relationship between agile working methods, role clarity, and intrinsic motivation within the framework of the Job-Demand-Control Model. We demonstrated how agile working methods influence individual-level characteristics, thereby providing a comprehensive theoretical framework. Furthermore, we showed that frequent switching between projects – a common practice in today's work environments (Leroy, 2009) – impedes the positive effects of agile working on role clarity.

This study also provides several managerial implications. Based on our findings, we offer managers valuable insights into the relationship between agile working methods, role clarity, and intrinsic employee motivation. As a result, managers can effectively implement agile working methods, minimize frequent project switching, and thereby enhance both role clarity and intrinsic motivation among employees.

2. Organizational Agility – A Structured Review of the Literature

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2.1 Abstract

Even though organizational agility is a phenomenon of extensive managerial interest, there seems to be widespread confusion about what organizational agility actually is. This confusion concerns managerial practice as well as research. This paper addresses this issue by asking and answering the question “*What is organizational agility?*”. We have conducted a structured review of the literature on organizational agility and analyzed this body of literature to identify the dimensions of the organizational agility concept. The findings show that organizational agility can be decomposed in a sensing and transforming dimension. Transforming can further be decomposed into proactive and reactive transforming. Customer orientation, temporality, and scope further specify sensing and transforming dimensions. Based on these findings we conceptualize organizational agility as a continuous process of sensing, proactive as well as reactive transforming, given appropriate timing, scope, and customer orientation. Contributions to managerial practice as well as research are discussed.

2.2 Introduction

“Agility is a complex issue, because nobody really knows what it includes.”

“Employees often mix up agility with the agile methodology.”

(Managers, leading automotive company)

In recent years, many organizations have started to emphasize the relevance of becoming agile. Organizational agility is important because corporate environments are becoming more and more dynamic, or as Bennett & Lemoine (2014) illustrate: VUCA (i.e., volatile, uncertain, complex, and ambiguous). Agile organizations seem to be able to succeed

in such an environment. Conducting a study of 119 organizations across different sectors, Kroll et al. (2017) find that 83 percent of the respondents perceive a need to further transform into an agile organization. Macias-Lizaso and Thiel (2006) find that nine out of ten managers are convinced that organizational agility is an important success factor. Similarly, Ahlbäck et al. (2017) perform a survey among 2.546 participants and find that agility is highly relevant in dynamic environments, but only 4 percent of the respondents state that they have already mastered the transformation into agile organizations. Agility promises to result in higher productivity, qualitatively better services and products as well as cost reductions (Gothelf, 2017; Swafford et al., 2006; Lin et al., 2006; Bottani, 2009). In summary, organizational agility seems to be an important issue for organizations.

Even though the notion of organizational agility is clearly relevant for practitioners, there is major confusion about the concept of organizational agility, i.e., what organizational agility is. This confusion and ambiguity is not only prevalent in managerial practice, but also in research. Teece et al. (2016) point out that the previous literature does not address when organizational agility should be sought, nor are the main features of organizational agility well understood. Sherehiy et al. (2007) even put it more drastically when they postulate a complete lack of consistency due to the ambiguity of the concept of agility. Bottani (2009) describes the challenge of being able to determine the dimensions of agility and, consequently, demand for the development of a comprehensive metric. Moreover, ambiguity about the agility concept seems to be intensified because the concept is used in different academic disciplines, such as strategic management (Teece 2016; Goldman et al., 1995), supply chain management (Sharifi & Zhang, 2001), manufacturing (Katayama & Bennett, 1999) and project management (Highsmith & Cockburn, 2001; Schwaber & Beedle, 2002).

In this paper, we strive to address this issue by providing a clearer understanding of the concept of organizational agility. We ask the question: “*What is organizational agility?*”. To answer our research question, we conducted a structured review of the literature on organizational agility and identified the core dimensions of the concept. Based on our analysis we conceptualize and define organizational agility as a continuous process of sensing, proactive as well as reactive transforming, given appropriate temporality, scope and customer orientation. We contribute to research by providing a coherent understanding of the concept of organizational agility and identifying the dimensions of the concept. Moreover, our work has practical implications. Clearly defining the concept of organizational agility and its dimensions (1) provides a common ground for knowledge exchange among managers, (2) prevents the

concept from becoming a container for all sorts of aspired outcomes and (3) provides guidance on how to become agile.

The paper proceeds as follows. First, we describe the methodology applied. Second, we show the results of our analysis. Third, we discuss the implications of our work for theory and managerial practice as well as the limitations of our work.

2.3 Research method

2.3.1 Research design

The research design of this paper is a structured review of the literature with the proposed research question “*what is organizational agility?*”. A systematically structured literature review is a well-established methodology to analyze a defined body of knowledge (Tranfield et al., 2003; Mulrow, 1994). The objective of a structured literature review is to illustrate the current state of previous research as well as to further develop the existing state of knowledge (Tranfield et al., 2003; Webster & Watson, 2002). Furthermore, the results of a literature review serve practitioners and researchers for the validation, falsification or critical examination of future quantitative or qualitative studies (Mulrow, 1994). A literature review is a constant and transparent process of analyzing existing literature in order to reduce systematic errors of interpretation (Cook et al., 1997; Tranfield et al., 2003). In addition, it contributes to evidence-based research by providing a precise analysis of current research results and scientific contributions (Tranfield et al., 2003). Moreover, such an analysis separates relevant and critical studies with regard to the research question from literature sources, which are not relevant for this purpose (Mulrow, 1994; Morgan, 1986).

2.3.2 Data sources

To identify relevant papers, we used the search platform “Web of Science Core Collection”. We searched for the keyword “agile*” and selected the category “business economics”. The retrieval date was 07.03.2019. Moreover, we only selected the document type “articles” in order to focus on peer reviewed contributions in scientific journals. The citation indices used were: Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index-Social Science & Humanities (CPCI-SSH) and Emerging Sources Citation Index (ESCI). Furthermore, no explicit limitation of the publication period of the articles in the respective indices has been made. This search resulted in 353 research articles.

The 353 articles represent different fields in management research. Exemplary journals are European Journal of Operational Research, Information Systems Research, Journal of Information Technology as well as for example the California Management Review, Decision Sciences, and the British Journal of Management. After examining the 353 articles, those papers have been selected for further analysis that take an organizational perspective on agility. This overall organizational perspective has been chosen to maintain the focus on organizational agility as an organization-level phenomenon. Accordingly, papers that primarily dealt with aspects such as supply chain agility or agile methods were only included in the further analysis if they contain a clear reference to agility at the overall organizational level. Thus, a connection between agility in subareas of the organization and organizational agility is established.

2.3.3 Data analysis

We analyzed the data by drawing on the Gioia methodology (Gioia et al., 2013). The aim was to further specify the concept of organizational agility by deriving dimensions of this concept. Hence, we will elaborate the theory by using this methodology, based on references from other researchers such as Maitlis (2005) and Mantere et al. (2012). Consequently, a systematic inductive approach is chosen with regard to the development of the concept of organizational agility (Gioia et al., 2013). After selecting the literature that has immediate relevance for the research question “*what is organizational agility?*” as well as a focus on agility at the organizational level, the data analysis has been carried out in four steps: 1. First-order analysis, 2. Second-order analysis, 3. Aggregated analysis and 4. Higher-order analysis (see Figure 2.1).

First, the data analysis procedure includes the first-order analysis. This step includes an analysis of the literature on the basis of the research question, whereby all definitions, concepts, components, and parts referring to the concept of organizational agility are coded. This coding and categorization comprise the generation of comprehensive first-order concepts from the respective passages in the literature. These first-order concepts cluster a collection of terms and codes within the data set into categories. In this connection, the terms are coined by the data and thus only slightly changed. This first analysis results in an extensive set of categories, which reflect the data as originally as possible (Gioia et al., 2013).

As an example, the quote from Doz and Kosonen (2008) “In contrast, being agile evokes staying nimble and flexible, open to new evidence, always ready to reassess past choices and change direction in light of new developments, and willing and able to turn on a dime.” (p. 95) leads to the first-order concept “Open-minded”. By contrast, the quotation from Naylor et al. (1999) “Agility means using market knowledge and a virtual corporation to exploit profitable

opportunities in a volatile market place” (p. 108) results in the concept “Exploitation of opportunities”.

Second, the second-order analysis is carried out, which includes similarities, demarcations, and superordinate connections between the categories formed in step one. We reduce the categories by clustering them to re-assessed superordinate second-order themes. These themes are paraphrased and summarized under higher-order terms. This clustering on the second level already includes a theoretical consideration of the categories, with the contemplation whether these can be subsumed to higher dimensions (Gioia et al., 2013).

As an example, Worley and Lawler (2009) as well as Doz and Kosonen (2008) suggest that openness to change and new evidence are central aspects of organizational agility. Accordingly, the second-order theme openness was chosen to cluster these first-order concepts. Similarly, Sambamurthy et al. (2003) and Baramichai et al. (2007) state that the exploitation of opportunities and competitive advantages is of particular importance. Consequently, first-order concepts such as the exploitation of opportunities are assigned to the second-order theme exploitation. In some instances, no explicit distinction is made between first-order concepts and second-order themes, since the respective clusters represent both, the data and the literature.

Third, aggregated analysis has been carried out with the aim of checking whether aggregated dimensions can be derived which subsume the findings of the second-order themes even further (Gioia et al., 2013). Hence, these dimensions are aggregations of the previously identified concepts and themes. For example, it is assumed that a company’s response to environmental changes can be both proactive and reactive (Sharifi & Zhang, 1999; Pantouvakis & Dimas, 2013; Saha et al., 2017; Najrani, 2016). Accordingly, Zhang and Sharifi (2000), as well as Saha et al. (2017), postulate that an organization can respond both proactively and reactively to change and environmental transformation. Referring to this, the second-order themes are clustered into aggregated dimensions. In the example above, openness is assigned to the dimension proactivity and exploitation to reactivity. Subsequently, first-order concepts, second-order themes, which are theory-centered, and aggregated dimensions form a derived structure of the data (Gioia et al., 2013; Alvesson & Kärreman, 2007).

Fourth, a higher-order analysis is executed to screen how the dimensions relate to each other, whereby two higher-order dimensions are developed, which can be derived from the literature. Sensing and transforming assert itself as the two central streams within the concept of organizational agility in this paper. Verma et al. (2017) describe that agility consists of two categories, the ability of the organization to respond to changes within the business environment, as well as the collection of information to facilitate the response. Roberts and

Grover (2012a, 2012b) also implement sensing and responding as central, supplementary elements of organizational agility. Finally, Sambamurthy et al. (2003) postulate that companies sense their environment in order to be able to respond afterwards.

To connect these research streams with the dimensions we identify, sensing and transforming are defined as higher-order dimensions. The higher-order dimension sensing summarizes the dimensions scope, temporality, and customer orientation. The higher-order dimension transforming aggregates the dimensions scope, proactivity, reactivity, temporality, and customer orientation. Consequently, we developed a structure of dimensions with four levels and derived a model from these dimensions.

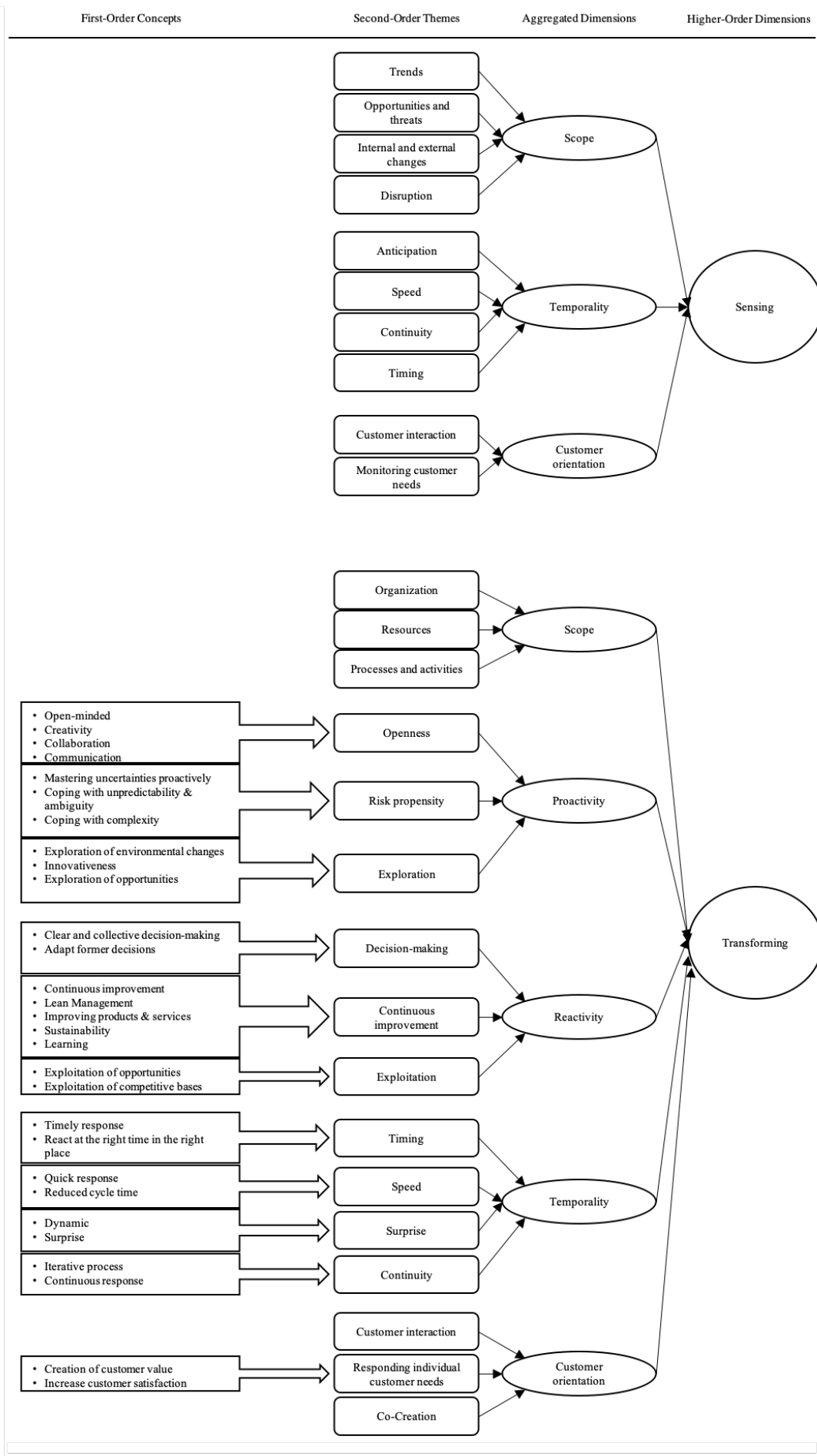


Figure 2.1: Data structure

2.4 Results

Organizational agility can be divided into two dimensions: sensing and responding (Overby et al., 2006; Roberts & Grover, 2012a; Sambamurthy et al., 2003; Tallon & Pinsonneault, 2011; Singh et al., 2013; Žitkienė & Deksnys, 2018). The first describes the acquisition of knowledge through attentive observation of the environment, whereas the latter states the transformations of the agile organization (Overby et al., 2006; Dove, 2001; Dove, 2005; Roberts & Grover, 2012a). Since transformation describes the continuous change and reformation of an organization (Romanelli & Tushman, 1994) it includes an active and passive responding of an organization. Accordingly, we refer to the term transformation in the further course. Based on the consideration of different researchers, the literature review points out two higher-order dimensions: **sensing** and **transforming** (see Figure 2.2). Consequently, further dimensions specify sensing and transforming.

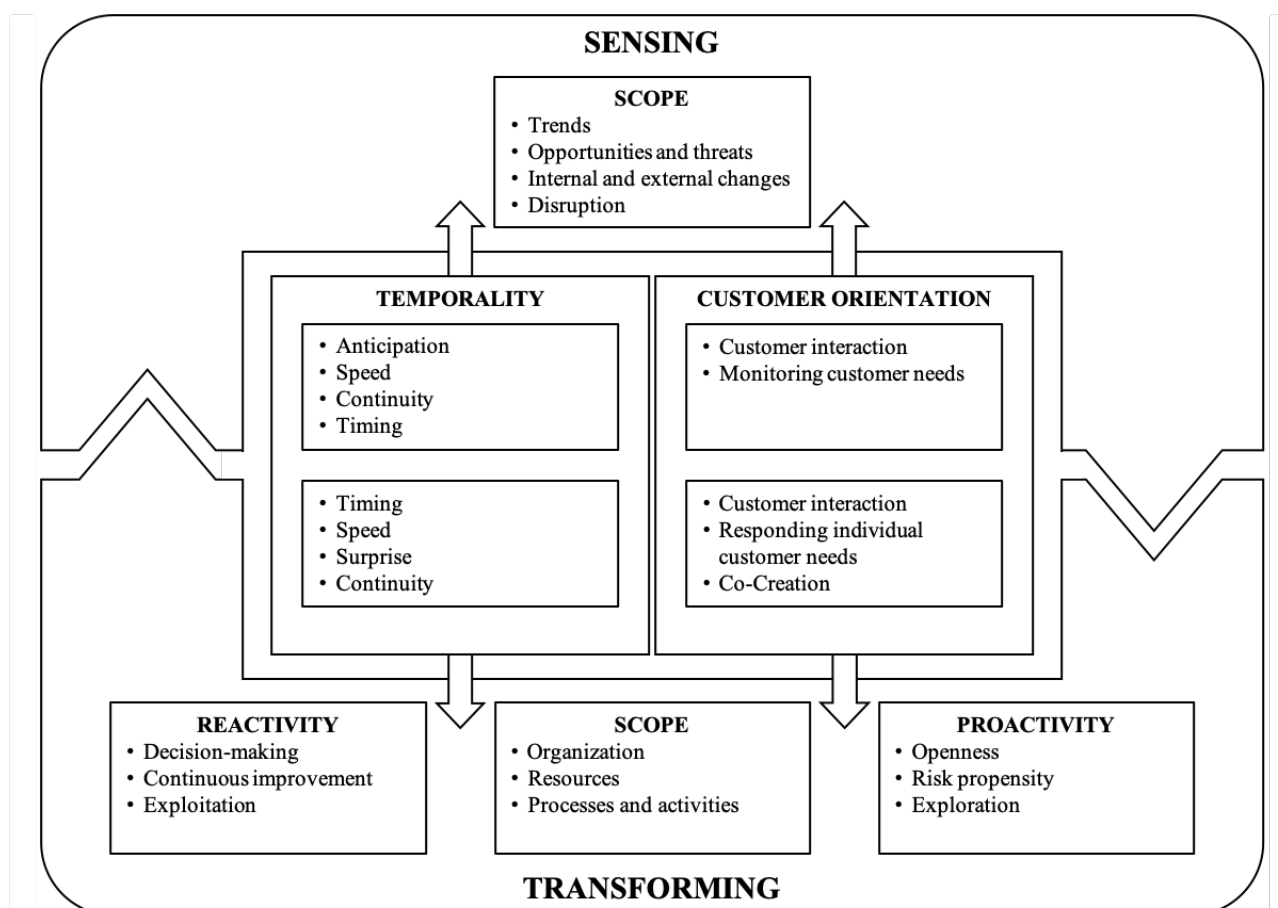


Figure 2.2: Dimensions of organizational agility

Our findings demonstrate, that some dimensions appear in the sensing as well as in the transforming dimension. Resulting that both dimensions include a certain scope, customer

orientation, and temporality. However, the aggregated dimensions differ in the second-order themes and first-order concepts.

2.4.1 Sensing

Sensing is a key characteristic of an agile organization that is sensitive to continuous internal and external change (Saha et al., 2017; Verma et al., 2017; Overby et al., 2006; Roberts & Grover, 2012b). Moreover, sensing comprises perceiving signals from customers and competitors and thus includes continuous vigilance (Panda & Rath, 2017; Sambamurthy et al., 2003; Tallon & Pinsonneault, 2011, Overby et al., 2006). Our findings demonstrate the dimensions: *scope*, *temporality*, and *customer orientation*.

Scope defines sensing from a content perspective. Organizational agility means that the organization senses long-term trends, opportunities and threats, universal changes in the environment as well as within the organization, and short-term disruptions. First, the second-order theme *trends* contains being sensitive for long-term changes in the corporate environment (Brueller et al., 2014; Doz & Kosonen, 2008; Di Minin et al., 2014). Brueller et al. (2014) state that agility is shaped by whether an organization can monitor current trends in the environment. Doz and Kosonen (2008) emphasize the importance of observing environmental trends. Moreover, a continuous observation of trends in customer and competitive behavior is necessary in being agile (Arbussa et al., 2017; Doz & Kosonen, 2008; Verma et al., 2017; Shill et al., 2012; Li et al., 2008; Di Minin et al., 2014).

Second, we identify *opportunities and threats* as part of the scope of an agile organization. Sambamurthy et al. (2003) exemplify the detection of opportunities in the corporate environment as a characteristic of organizational agility. Eisenhardt and Martin (2000) and Winby & Worley (2014) point out identifying opportunities and risks in sensing the environment. Tallon & Pinsonneault (2011) consider the detection of opportunities and threats as a central feature of organizational agility in a company.

Third, the perception of internal changes plays an important role for an agile organization. The second-order theme *internal and external changes* aggregates the sensing of external and internal signals from the corporate environment, as well as within the organization, in order to achieve organizational agility (Verma et al., 2017; Tallon & Pinsonneault (2011); Razmi & Ghasemi, 2015; Grant, 1996; Nold & Michel, 2016). Sensing environmental changes represents the activity of an organization to identify changes in the corporate environment and to observe them from different perspectives (Panda & Rath, 2017; Overby et al., 2006; Tan et al., 2017; Verma et al., 2017; Atkinson & Moffat, 2005; Charbonnier-Voirin, 2011). These changes may include regulatory and technology variation, differences in customer demands,

and in competition with other companies (Overby et al., 2006; Panda & Rath, 2017). Furthermore, an agile organization also recognizes ad hoc disturbances and short-term disruptions. Recognizing short-term changes and discontinuities that may have an impact on the organization is critically important (Lewis et al., 2014; Doz & Kosonen, 2008). Consequently, *disruption* demonstrate another second-order theme.

Temporality defines the temporal dimension of sensing. Di Minin et al. (2014), Verma et al. (2017) and Tallon and Pinsonneault (2011) postulate the importance of timely sensing market changes and trends. Hence, temporality is a central component of organizational agility in sensing of the organizational environment (Sherehiy et al., 2007; Tuan, 2016; Shaw et al., 2005; Goldman & Nagel, 1993; Kidd, 1994; Yusuf et al., 1999). Doz & Kosonen (2008) as well as Di Minin et al. (2014) recommend a punctual combination of different capabilities, whereas Ganguly et al. (2017) and Liang et al. (2017) state a timely sensing of changes and novelties in the internal and external environment. Therefore, an awareness for differences and trends in time is advisable (Li et al., 2008; Dove, 2005; Holsapple & Jones, 2005). Temporality comprises four second-order themes: *anticipation*, *speed*, *continuity*, and *timing*.

First, Razmi and Ghasemi (2015) describe the importance of prevision of relevant transformations, which can be referred to *anticipation*. It refers to the possibility of an organization to predict the future of the environment, which applies to both possible alteration and changes in the business environment (Worley et al., 2010; Razmi & Ghasemi, 2015; Rasouli et al., 2016; Jafarnejad & Shahaei, 2007; Arbussa et al., 2017; Doz & Kosonen, 2010). Arbussa et al. (2017) postulate that an organization can “anticipate the future needs of the customers and users of the product or service” (p. 287). However, Baramichai (2007) emphasizes the importance for an organization to expect future change and uncertainty.

Second, *speed* subsumes the pace of observing and recognizing opportunities, risks, and changes in the market environment (Panda & Rath, 2017; Panda & Rath, 2018; Singh et al., 2013). Roberts & Grover (2012a) describe quickness in sensing and monitoring environmental changes as a relevant aspect of organizational agility. Lee et al. (2015) and Sambamurthy et al. (2003) state the high importance of speed of sensing. Other researchers postulate the importance of speed in identifying opportunities as well (Ivory & Brooks, 2018; McCann, 2004; Weber & Tarba, 2014).

Third, the findings demonstrate the importance of *continuity* within organizational agility. This involves a continuous sensing of the market and the available time for scanning and alertness for changes and opportunities (Arbussa et al., 2017; Breu, 2001; Weick, 1969; Sambamurthy et al., 2003; Verma et al., 2017; Shill et al., 2012; Nijssen & Paauwe, 2012).

Hence, organizational agility does not refer to one-time events, rather it is a continually unfolding process.

Fourth, organizational agility means that sensing happens at the right time. Arbussa et al. (2017) emphasize the importance of ad hoc search and timely perception of change. Doz & Kosonen (2008) also recommend real-time sensing.

Another aggregated dimension that specifies sensing is *customer orientation*. Customer orientation implies communication and interaction with customers, as well as focusing their continuously changing needs. Christopher (2000) and Gligor (2014) describe the importance of focusing and sensing customer needs. Customer orientation consists of two second-order themes: *customer interaction* and *monitoring customer needs*.

First, Hemmati et al. (2016) advocate strong interaction between a company and its customers and the external environment. Furthermore, Li et al. (2008) postulate that “listening to customers” (p. 417) is relevant for identifying environmental changes. Gunasekaran (1998) also recommends cooperation in order to remain competitive. These statements are assigned to the theme *customer interaction*.

Second, *monitoring customer needs* includes a continuous observation and anticipation of changing customer needs (Felipe et al., 2016; Sambamurthy et al., 2003; Kohli & Jaworski, 1990; Li et al., 2008; Roberts & Grover, 2012b).

2.4.2 Transforming

Transforming is a central component of organizational agility. Our results demonstrate five aggregate dimensions: *scope*, *proactivity*, *temporality*, *reactivity*, and *customer orientation*.

First, *Scope* subsumes the second-order themes *organization*, *resources* and *processes*, and *activities*. Bernardes and Hanna (2009) postulate that continuous adaptations of the structure and systems are important for an agile organization. Teece et al. (2016) emphasizes flexible structures as elements of organizational agility which can be adapted continuously to changing conditions. In addition, Worley and Lawler (2009) mention that the entire organizational design should be adaptable to internal and external changes. Moreover, the reconfiguration of resource deployment and resource fluidity is a central component of the second-order theme *resources* (Muduli, 2016). Doz and Kosonen (2010) mention the resource fluidity to change quickly and easily the usage and distribution of resources. The last second-order theme in this dimension implies the handling and adaptation of internal *processes* and business *activities*. Internal processes as well as activities inside a company are continuously

reconfigured to respond to environmental changes and remain agile (Van Oosterhout et al., 2006; Reed & Blunsdon, 1998; Pantouvakis & Karakasnaki, 2018).

Second, **proactivity** includes *openness*, *risk propensity*, and *exploration*. The second-order theme *openness* implies the first-order themes open-minded for change, creativity, collaboration, and communication. Bessant et al. (2001) states openness as willingness to unlearn old rituals and working hacks inside the organization. Lu and Ramamurthy (2011) equate agility with a constant openness and preparedness for change. Consequently, organizational agility comprehends openness towards change and reviewing past decisions (Worley & Lawler, 2009; Doz & Kosonen, 2008). A creative mindset is important to enable proactive transformation within an agile organization (Winby & Worley, 2014; Bessant et al., 2001). In addition, frankness to cooperation and open communication within the company is a core component of agility (Goldman et al., 1995; Li et al., 2011; Novac & Ciochina, 2018; Cooper & Sommer, 2016). *Risk propensity* is about a proactive response to an uncertain business environment, as well as an open attitude towards risks, ambiguity, and complexity (Charles et al., 2010; L’Hermitte, 2015). Gunasekaran (1998) postulates that “In the business world, to be ‘agile’ is to master change and uncertainty [...]” (p. 1224). The second-order theme *exploration* is the investigation of opportunities and changes for the company, as well as a proactive approach to innovation (Sambamurthy et al., 2003; Bessant et al., 2001; Wilson & Doz, 2011; Junni et al., 2015).

Third, we identify **reactivity** as reactive action to previously sensed changes. Our results reveal three second-order themes: *decision-making*, *continuous improvement*, and *exploitation*. *Decision-making* concerns the adaptation and rethinking of past decisions as well as a collective decision-making. Worley & Lawler (2009) and Doz and Kosonen (2008) refer to agility of evaluating past decisions and, if necessary, take new decisions to change the direction. Moreover, decision-making should continuously be reconsidered by pondering different options (Judge & Miller, 1991; Junni et al., 2015). The second theme *continuous improvement* implies the enhancement of products and services, as well as corporate sustainability and integrating parts of the lean management principle and learning (Gunasekaran, 1998; Nijssen & Paauwe, 2012). However, Van Hoek et al. (2001) postulates lean thinking as a central component for the response to requirements in the external environment, whereas Gligor et al. (2015), Naylor et al. (1999), and Nijssen and Paauwe (2012) suppose the reduction of waste and thus sustainability within the concept of organizational agility. Lee and Xia (2010) and Chung et al. (2014) highlight improving products and services. Finally, *exploitation* is a component of reactivity. Sambamurthy et al. (2003) and Naylor et al. (1999) postulate the use

of opportunities for competitive advantages and changes as part of organizational agility. In addition, Baramichai et al. (2007) focus on exploiting the supply chain, e.g. as a core component of reactivity.

Fourth, our results illustrate **temporality** as dimension of transforming. In this case, the temporality dimension includes the themes *timing*, *speed*, *surprise*, and *continuity*. *Timing* is understood as transformation to a certain moment as well as at a certain place (Yusuf et al., 1999; Agarwal et al., 2006; Lin et al., 2006; Bottani, 2009; Braunscheidel & Suresh, 2009; Saha et al., 2017). Roberts and Grover (2012a) also derive the punctual transformation to external opportunities. A company executes its transformation within a certain *speed*, which, e.g., results in a shortened cycle time. Zhang and Sharifi (2007) underline that speed is a central characteristic of agility. Moreover, the special characteristic of an organization to transform rapidly is a central component of organizational agility (Tallon & Pinsonneault, 2011; Christopher, 2000). Baramichai et al. (2007) argue about shorter cycle times in the response behavior of agile organizations. In addition, D'Aveni (1994), Goldman et al. (1995) and Sambamurthy et al. (2003) state that a company reacts dynamically and with *surprise* to changes in order to be agile. Gunasekaran et al. (2008) and Sharma and Kulkarni (2016) focus the dynamic response to changing business environments and customer behavior. Another theme of second-order is *continuity*. Baskarada and Koronios (2018) distinguish between a continuous sequence of impulsive transformation and iterative improvement. Doz and Kosonen (2008) also point out the importance of continuous adaptation of decisions, whereas Gallagher and Worrell (2008) consider agility to be continuous overall.

Fifth, we identify **customer orientation** as the last dimension of transforming. It includes direct *customer interaction*, cooperation in form of *co-creation*, as well as consideration and *responding to individual customer needs*. To focus on *customer interaction*, organizations establish relations and active dialogues with their customers (Sambamurthy et al., 2003; Leite & Braz, 2016; Lee & Yang, 2014). Moreover, organizations address how to utilize requirements of the customers after sensing customer wishes (Kohli & Jaworski, 1990; Sambamurthy et al., 2003). This includes the transition to the next second-order theme: *responding to individual customer needs*. El Mokadem (2017) clearly points out that transforming towards individual customer needs is a central emphasis of agility. Van Hoek (2001) points out the importance of answering to customer requirements. Other authors postulate the focus on customer satisfaction and value creation over the customers within the concept of organizational agility (Tan et al., 2017; Leite & Braz, 2016; Lin et al., 2006). Finally, the involvement of customers in internal company processes in the form of *co-creation* is

significant. Agile organizations involve their customers in product development processes as well as in explorative and exploitative activities (Gunasekaran, 1998; Leite & Braz, 2016; Sambamurthy et al, 2003; Lee & Yang, 2014). We illustrate these dimensions in Figure 2.2.

2.5 Discussion

In summary, this paper answers the research question “*what is organizational agility?*” by conducting a structured review of the literature on organizational agility. The analysis of the literature applied the Gioia methodology (Gioia, 2013). The findings show that organizational agility includes a sensing and transforming dimension. Transforming consists of a proactive and reactive component. The dimensions customer orientation, temporality, and scope specify sensing and transforming. We therefore conceptualize and define organizational agility as a continuous process of sensing, proactive as well as reactive transforming, given appropriate timing, scope, and customer orientation. Our findings provide several implications for research and managerial practice.

2.5.1 Theoretical implications

Our work provides several implications for research on organizational agility. First, by conducting a structured review of the literature, we strive to develop a more consistent understanding of the concept of organizational agility. There is general consensus in the literature that the concept of organizational agility is relevant. However, scholars have emphasized that prior research lacks a coherent definition of what organizational agility means. L’Hermitte et al. (2016) describe the lack of a common understanding of the concept of agility. This assumption is supported by Bidhandi and Valmohammadi (2017). Moreover, Sherehiy et al. (2007) postulate the absence of a distinct conceptualization of organizational agility. In addition, the different understandings of the concept of organizational agility create a lack of theoretical and conceptual consent (Teece et al., 2016; Chakravarty et al., 2013). Furthermore, there is no coherent and complete consideration of the different dimensions of organizational agility available in the literature. Bottani (2009) and Meade and Sarkis (1999) postulate the need for further research concerning various attributes of agility. This paper focuses on developing a consistent definition of organizational agility and thus adds precision to previous research. Even if some authors already consider dimensions of agility in their research (Sherehiy et al, 2007; Sharifi & Zhang, 1999; Saha et al., 2017), these often differ fundamentally and there is a lack of coherence and holistic contemplation. The comprehensive literature review, which takes all these studies into account, guarantees a holistic view and thus creates an overall perspective of the concept.

Second, we specify the temporal dimension of organizational agility. Prior research has acknowledged that temporality is an integral part of agility, but it seems to be unclear how temporality connects with the organizational agility concept. Some researchers have emphasized that organizational agility means to be fast. Sherehiy et al. (2007) as well as Sharifi and Zhang (1999) refer to the speed of internal processes and activities. Saha et al. (2017) adds promptness to the speed dimension by highlighting the importance of acting fast at the right time. We extend these findings and show that the temporal dimension does not only include speed, but also continuity, timing, anticipation, and surprise. Hereby, we address a broader movement that has emphasized the relevance of temporality in organizing (Bakker et al., 2016) and strategy (Vesa & Franck, 2013).

Third, we specify the relevance and meaning of customer orientation for organizational agility. Sherehiy et al. (2007) merely refer to the reaction to changing customer preferences, changes in the corporate environment and the ability to adapt to these changes. Sharifi and Zhang (1999) point out the importance of sensing and responding proactively to changing customer needs. We find that customer orientation also includes the responsibility towards the customer, as well as the continuous interaction and responding to individual customer needs.

Fourth, we take a process approach to organizational agility. We conceptualize organizational agility as a continuous process of sensing and transforming – an organization senses the business environment and simultaneously transforms in a reactive and proactive way. This approach is in line with a broader movement that takes a processual approach to organizing. It implies that an organization is enacted through continuous processes and that it continuously emerges and changes (Tsoukas & Chia, 2002; Langley et al., 2013; Teece, 2007). We follow a movement which has started to consider concepts in strategic management as processes, such as dynamic capability (Teece, 2007), ambidexterity (Benner & Tushman, 2003), strategy making (Burgelman, 1983; Whittington, 1996), and routines (Parmigiani and Howard-Grenville, 2011). Consequently, processes within organizations are interconnected and lead to continuous change and learning from previous processes (Langley & Tsoukas, 2010; Wenzel & Koch, 2018; Langley et al., 2013).

2.5.2 Managerial implications

This paper provides important managerial implications. First, by defining the concept of organizational agility and its dimensions we provide a common ground for knowledge exchange among managers. Gothelf (2019) postulates that managers should have the same understanding of organizational agility and Teece et al. (2016) emphasize that managers often

get wrong advice on this concept. By implementing dimensions of organizational agility, we create a common understanding for further managerial exchange.

Second, our research prevents the concept from becoming a container for all sorts of aspired outcomes. Rigby et al. (2018) point out that not all activities within an organization can be carried out in agile ways. Bergius et al. (2018) describe ‘agile’ as a collective term for all novel ways of thinking and acting. We provide a precise definition of the concept, and hereby also define what is not included in organizational agility.

Third, our identified dimensions provide guidance on how to become agile. Aghina et al. (2015) raise the question what organizations can do to become more agile. Using our model of organizational agility, we demonstrate that an organization is agile when it follows a continuous process of sensing and proactive and reactive transforming, given appropriate timing, scope, and customer orientation. For example, organizations can consider this definition in the process of strategy development, to holistically sense market changes and accordingly transform internal structures, processes, and activities.

2.5.3 Limitations and future research

Our work also has some limitations that we would like to mention here. They might provide opportunities for future research. First, while our focus is on the dimensions of organizational agility (i.e., what organizational agility is), we did not elaborate on the antecedents (i.e., enablers and constraints) of agility.

Second, we regard organizational agility as unfolding actions (i.e., something organizations do), and not as a capability, skill, or competence of organizations. Hereby, we clearly deviate from some prior accounts. Sherehiy et al. (2007), for instance, postulate that the mobilization of core competencies is a central component of organizational agility. Similarly, Sharifi and Zhang (1999) point out the importance of a specified set of competencies to achieve organizational agility. Even though there might be shortcomings of our ontological angle compared to the competence approach, it also provides benefits, because it prevents the shortcomings of capability research, such as the problem of infinite regress and actuality versus potentially (Priem & Butler, 2001). However, we encourage future research to take and compare both approaches to generate a better understanding of the organizational agility concept.

Third, we limited our level of analysis on organizational agility. However, agility has also been elaborated on other levels of analysis. For instance, scholars have focused on agile methods, and hence how teams can become agile. Even though this limitation was a necessary

move to ensure consistency, we acknowledge the need for future research to also clearly define other types of agility and elaborate on how different types of agility are linked.

2.6 Conclusion

Organizational agility is a phenomenon of managerial interest. Hence, it has also become an important topic of the scientific debate. However, prior research seems to lack a consistent understanding of what organizational agility is. In this paper, we address the research gap. We perform a structured review of prior literature to identify the dimensions of the organizational agility concept and reintegrate these dimensions into a consistent model. We hope that our work provides a basis for further managerial and scientific debate on organizational agility.

2.7 References

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3. Organizational Agility and the Application of Agile Working Methods

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3.1 Introduction

A major challenge for contemporary organizations is to survive and grow in an inconsistent environment characterized by changing customer requirements, short product life cycles and increased competition. To meet these environmental challenges, many organizations strive for organizational agility, which has an external and an internal perspective. The external perspective contains the continuous process of fast sensing environmental changes, whereas the internal perspective includes the proactive reconfiguration of the organization (Conboy, 2009; Doz & Kosonen, 2010; Sambamurthy, Bharadwaj, & Grover, 2003; Xu, 2009). Advocates of agility assume that organizational agility transformation supports the implementation of agile working methods in teams.

Compared to traditional project management, agile working methods are based on shorter product development cycles (Conforto, Salum, Amaral, Da Silva, & De Almeida, 2014; Masood & Farooq, 2017), more frequent meetings of team members (Sutherland & Schwaber, 2007), intensive planning and coordination among team members (Serrador & Pinto, 2015) and customer orientation (Denning, 2017; Dikert, Paasivaara, & Lassenius, 2016; Masood & Farooq, 2017).

Previous literature postulates many benefits of agile working methods. These include enhanced product quality, increased team contribution, improved team and customer satisfaction, better communication, increased process speed, and eliminated waste (Boehm & Turner, 2003a; Laanti, Salo, & Abrahamsson, 2011). Very few studies, however, have addressed the challenges associated with its implementation, such as project overload, violation of long-term plans, lack of knowledge transfer, and poor fit with organizational culture (Conforto et al., 2014; Dikert et al., 2016; Dyba & Dingsoyr, 2009; Rebentisch, Schuh, Dölle, Mattern, & Abel, 2018). One particular issue that has not been accounted for is the fact that many organizations only partially reconfigure towards internal agility. *How does incomplete*

organizational transformation towards agility influence the effectiveness of agile teamwork methods?

I contribute to existing literature by analyzing the relevance of internal organizational agility for the effectiveness of agile working methods. Using data from exploratory interviews with agile coaches, product owners, who represent customer interests and have responsibility for the working value (Sutherland & Schwaber, 2007), and team members within an automotive manufacturer, this study shows how a lack of internal organizational agility impedes the effectiveness of agile teamwork methods. The mechanisms underlying this relationship are analyzed in depth.

3.2 Theoretical framework

Based on organizational agility research, the study concentrates on the effectiveness of agile working methods in situations of an incomplete organizational transformation. In the following, previous research related to the research interest of my study will be reviewed.

3.2.1 Organizational agility

The superior goal of many organizations in being agile is to reach external and internal organizational agility, to be able to interact flexibly in the corporate environment and within the company itself (Conboy & Fitzgerald, 2004).

External organizational agility contains processual sequences of continual sensing and perceiving environmental changes and opportunities (Conboy & Fitzgerald, 2004; Sambamurthy et al., 2003; Sharifi & Zhang, 1999). To be able to perceive future changes and discontinuities concerning market and business activities, the organization needs to continually observe competitors, society and partners (Sambamurthy et al., 2003; Smith & DeGregorio, 2001). In the following, this study focuses on how the incomplete internal organizational agility influences the effective implementation of agile working methods and therefore only refers to the internal perspective of an organization.

Organizations try to achieve *internal organizational agility* with the proactive and reactive reconfiguration of an organization, including initiative and responsiveness to external and internal change (Conboy & Fitzgerald, 2004; Golden & Powell, 2000; Goldman, Nagel, & Preiss, 1995). Proactive reconfiguration includes initiative and exploratory actions to promote self-directed innovation and change within the organization (Masood & Farooq, 2017; Sharifi & Zhang, 1999; Xu, 2009). Exploration arises from experimentation and the openness of the organization to enable new variation (March, 1991; Sambamurthy et al., 2003). Moreover,

reactive actions focus on continuous adaptation and renewal as well as exploitation and responsiveness to environmental changes (Denning, 2017; Doz & Kosonen, 2010; Sambamurthy et al., 2003; Zaheer & Zaheer, 1997). Exploitation contains taking advantage of opportunities by recombining resources and organizational knowledge (March, 1991; Sambamurthy et al., 2003; Sharifi & Zhang, 1999; Smith & DeGregorio, 2001). Internal organizational agility involves customer integration as an essential part of the innovation process, to satisfy customer needs through entailing additional value (Denning, 2017; Sambamurthy et al., 2003; Van Hoek, 2001). To cope with ongoing environmental change, internal organizational transformation has to be executed fast and continuous (Christopher, 2000; D'Aveni, 1994; Denning, 2017; Goldman et al., 1995; Sambamurthy et al., 2003; Zhang & Sharifi, 2007).

To achieve internal organizational agility and implement agile work, the transformation of organizational structures, processes and corporate culture are postulated to be necessary (Lozo & Jovanović, 2012; Masood & Farooq, 2017; Sambamurthy et al., 2003). Particular importance is attached to the reconfiguration of organizational structures (Teece, Peteraf, & Leih, 2016). Agile structures include flat hierarchies and flexible divisions and teams (Masood & Farooq, 2017; Stare, 2013). These divisions and teams are self-organized, decentralized and take decisions independently (Masood & Farooq, 2017; Owen, Koskela, Henrich, & Codinhoto, 2006; Teece et al., 2016). These characteristics, independent decision-making and flat hierarchies, lead to a high level of responsiveness and sense of responsibility among employees (Teece et al., 2016). Moreover, role models are adapted in agile structures to promote responsibility in teams and enable agile working (Teece et al., 2016).

Another central prerequisite for internal organizational agility is the adaptation of the corporate culture before implementing agile work (Lozo & Jovanović, 2012; Masood & Farooq, 2017; Rebentisch et al., 2018). An agile organizational culture consists of various cultural factors that facilitate the introduction and usage of working agilely (Rebentisch et al., 2018; Strode, Huff, & Tretiakov, 2009). An agile culture includes the flexibility and willingness to change of its organizational members to enable internal transformation and continuous change (Crocitto & Youssef, 2003; Gren, Torkar, & Feldt, 2017; Misra, Kumar, & Kumar, 2009; Othman, Zouaoui, & Hamdoun, 2016; Rebentisch et al., 2018; Siakas & Siakas, 2007; Teece et al., 2016). Other factors of an agile organizational culture are a common mindset among employees and managers including continuous learning and accepting feedback, sharing knowledge and information among each other, and focusing on customers in every

organizational activity (Denning, 2017; Gren et al., 2017; Misra et al., 2009; Rebentisch et al., 2018; Sambamurthy et al., 2003). Another important component to achieve internal organizational agility is organizational trust among employees and managers (Gulati, 1999; Sambamurthy et al., 2003).

In an agile organization, managers are particularly required to exemplify an agile mindset and culture. This includes the permission for employees to take their own decisions, empowering and supporting them in implementing these decisions, and allowing organizational change (Crocitto & Youssef, 2003; Gren et al., 2017; Harper & Utley, 2001; Moreira, 2017; Rebentisch et al., 2018; Sagie, 1994; Vinaja, 2019; Vinekar, Slinkman, & Nerur, 2006). Managers have to recognize these changes and proactively initiate them (Teece et al., 2016).

Internal organizational agility is not entirely achieved if there is a complete or partial lack of transformation of organizational structures, processes, or corporate culture (Teece et al., 2016). For example, an incomplete agile structure is established if hierarchies are not flattened and managers continue to make decisions for agile teams (Masood & Farooq, 2017; Teece et al., 2016). Furthermore, if openness to change, to new information or knowledge sharing is not given, this may impair an agile organizational culture (Teece et al., 2016). Additionally, challenges for achieving internal organizational agility may arise if the understanding of the agile methodology or agile way of working differs across various teams or is missing completely (Dikert et al., 2016; Masood & Farooq, 2017; O'Connor, 2010; Owen et al., 2006). Finally, processual difficulties may arise if teams are performing traditional and agile work in parallel (Dikert et al., 2016; Schatz & Abdelshafi, 2005).

3.2.2 Agile project management

External and internal corporate change not only affects overall organizational conditions, but also the operational project work. A still widely used traditional method to execute projects is called “waterfall project management” (Leybourne, 2009; Masood & Farooq, 2017; Rebentisch et al., 2018; Schuh, 2012; Schuh, Rudolf, & Diels, 2015; Sutherland & Schwaber, 2007). This project approach contains strictly planned and sequential phases and processes, which are implemented without much deviation (Leybourne, 2009; Lozo & Jovanović, 2012; Masood & Farooq, 2017; Sharma, Sarkar, & Gupta, 2012). Drawbacks of waterfall project management are the low adaptability to changing conditions and customer requirements as well as the adherence to rigid plans and processes without customer integration (Karamitsos, Apostolopoulos, & Al Bugami, 2010; Masood & Farooq, 2017; Serrador & Pinto, 2015; Sharma et al., 2012). To be able to execute projects even in complex and changing

conditions, agile project management is used (Cockburn & Highsmith, 2001; Dikert et al., 2016; Highsmith & Cockburn, 2001).

Originated in the IT industry and within manufacturing during the 1990s, agile project management rapidly spread to other industries (Conboy & Fitzgerald, 2004; Conforto et al., 2014; Cowan, 2011; Dove, 1991; Fowler & Highsmith, 2001; MacCormack, Verganti, & Iansiti, 2001; Mafakheri, Nasiri, & Mousavi, 2008; Masood & Farooq, 2017; Qumer & Henderson-Sellers, 2008; Sharma et al., 2012; Sheffield & Lemétayer, 2013). Working agilely in projects includes a set of agile methods, characteristics, and practices to execute projects more easily, efficiently, and flexibly (Augustine, 2005; Boehm & Turner, 2003b; Chin, 2004; Conforto & Amaral, 2010; Conforto, Amaral, Da Silva, Di Felippo, & Kamikawachi, 2016; Conforto et al., 2014; Highsmith, 2009; Sharifi & Zhang, 1999). The overall objective is to create a product in a volatile environment with high efficiency and low complexity (Dikert et al., 2016; Masood & Farooq, 2017; Serrador & Pinto, 2015). Characteristics of agile project work are incremental development, self-organized teams, and regular open communication (Lindvall et al., 2002; Meso & Jain, 2006, 2006; Xu, 2009). Moreover, an agile project needs a project vision that focuses on the fulfillment of customer requirements in the product development, organized in short and reviewed development cycles (Augustine, 2005; Boehm & Turner, 2003a; Chin, 2004; Conforto et al., 2014; Denning, 2017; Highsmith, 2009; Masood & Farooq, 2017). Furthermore, previous research recommends agile teams to work cross-functional and co-located (Chow & Cao, 2008; Conforto et al., 2014; Denning, 2017; Highsmith, 2009; Hoda, Noble, & Marshall, 2011).

One of the most well-known and practiced methods in agile project management is Scrum (Cho, Huff, & Olsen, 2011; Dikert et al., 2016; Fernandes & Almeida, 2010; Hamed & Abushama, 2013; Landim, Albuquerque, & Macedo, 2010; Nathan-Regis & Balaji, 2012; Paulk, Davis, & Maccherone, 2011; Sutherland & Schwaber, 2007). Scrum consists of iterative and incremental product development in short-cycle phases called sprints, within which the project team executes tasks in prioritized order. At the end of each cycle, results are reviewed by various stakeholders (DeGrace & Stahl, 1990; Dikert et al., 2016; Schwaber & Beedle, 2002; Sharma et al., 2012; Sutherland & Schwaber, 2007). The Scrum methodology distinguishes the roles of product owner, scrum master/agile coach and the development team (Sutherland & Schwaber, 2007; Sverrisdottir, Ingason, & Jonasson, 2014). The product owner represents the customer perspective in the project and is responsible for the prioritization of tasks, the review of developed results as well as the overall success of the project (Karamitsos et al., 2010;

Masood & Farooq, 2017; Sutherland & Schwaber, 2007; Sverrisdottir et al., 2014). The scrum master or agile coach supports the team by teaching the methodology and observing the sprint cycles, reviews, and retrospectives to achieve all project goals. Ideally, a scrum master supports the team full-time without additional responsibilities (Schwaber & Beedle, 2002; Sutherland & Schwaber, 2007; Sverrisdottir et al., 2014). The development team is responsible for the development of the product or project result. It decides independently how to complete the tasks and is heterogeneous, as the team includes members of all relevant functions to develop products (Denning, 2017; Sutherland & Schwaber, 2007; Sverrisdottir et al., 2014). Finally, previous research postulates that the agile team is able to work full-time on the project (Carbonell & Rodriguez, 2006; Chen, Damanpour, & Reilly, 2010; Chow & Cao, 2008; Cohn, 2005; Conforto et al., 2014; Highsmith, 2009; Sutherland & Schwaber, 2007).

3.2.3 Benefits and challenges of agile work

Various advantages of agile project management are postulated in the literature (Masood & Farooq, 2017). Compared to traditional project work, both employees and team members are found to be more satisfied with the transparent and self-organized project work of agile teams, as are customers and stakeholders with the high level of involvement (Boehm & Turner, 2003a; Dyba & Dingsoyr, 2009; Mann & Maurer, 2005; Serrador & Pinto, 2015; Xu, 2009). Working agilely also comprises increased productivity and more efficient workflows (Dyba & Dingsoyr, 2009; Masood & Farooq, 2017; Serrador & Pinto, 2015). Thus, a reduction of costs, error rates and waste, as well as an increase in value generation are stated (Boehm & Turner, 2003a; Dyba & Dingsoyr, 2009; Laanti et al., 2011; Masood & Farooq, 2017; Xu, 2009). Another positive impact of agile project work is the increase in speed of project execution and product development (Boehm & Turner, 2003b; Budzier & Flyvbjerg, 2013; Masood & Farooq, 2017; Serrador & Pinto, 2015). Moreover, the implementation of agile methods is assumed to enhance flexibility to external change by increasing innovation and knowledge transparency (Boehm & Turner, 2003b; Dyba & Dingsoyr, 2009; Laanti et al., 2011; Leybourne, 2009; Masood & Farooq, 2017; McHugh, Conboy, & Lang, 2011; Petersen & Wohlin, 2009; Santos, Bermejo, de Oliveira, Tonelli, & Seidel, 2013; Serrador & Pinto, 2015).

However, a few studies reported particular challenges concerning the implementation and application of agile project work (Dikert et al., 2016; Fitzgerald, Hartnett, & Conboy, 2006; Schalliol, 2003; Taber & Fowler, 2000; Xu, 2009). Non-transparent knowledge management is postulated as challenging within agile work, since a large part of knowledge available in the project team remains implicit, by sharing it through communication, and the team does not document it as in traditional project work (Masood & Farooq, 2017; Sharma et al., 2012).

Moreover, a full-time participation of team members in projects is often not possible and thus they may find agile project work exhausting (Conforto et al., 2014; Dyba & Dingsoyr, 2009). In addition, agile teams are assumed to reach limits in long-term planning, as they only plan from sprint to sprint and not for the entire project duration (Kurup & Sidhardhan, 2015; Stare, 2013). Furthermore, a lack of managerial support, and a lacking agile mindset and comprehension of agile project work hinder the application of agile work (Denning, 2017; Kurup & Sidhardhan, 2015; Masood & Farooq, 2017).

Given these issues, it is considered challenging to introduce agile project work in large-scale projects, where adaptation of structures and dependencies is necessary (Dikert et al., 2016; Lindvall et al., 2004; Xu, 2009). Dikert et al. (2016) conduct a systematic literature review investigating the implementation of agile and lean methods in large-scale projects within software companies “focusing on reported challenges and success factors in the transformation” (p.87). In their literature review, they cluster these challenges that hinder the introduction of agile work in large software projects into 9 types: change resistance, lack of investment, agile difficult to implement, coordination challenges in a multi-team environment, different approaches emerging in a multi-team environment, hierarchical management and organizational boundaries, requirements engineering challenges, quality assurance challenges and integrating non-development functions. Since the majority of the studies in their literature review are experience reports, where the authors report their own perceptions, and only six research papers are included, a lack of empirical support for the 9 types can be noted. For example, Dikert et al. (2016) also recommend an empirical investigation to examine the evidence of the previous challenges in practice.

To date, the few studies addressing challenges of implementing agile work in organizations frequently focus on the software industry (Dikert et al., 2016). Furthermore, some studies postulate starting an agile transformation by implementing agile projects and methods in the beginning (Gandomani, Zulzalil, Abd Ghani, Sultan, & Sharif, 2013; Highsmith & Highsmith, 2002; Laanti et al., 2011). A few studies focus on the lack of organizational conditions for the application of agile work and emphasize the importance of further investigation of this influence (e.g. Dikert et al., 2016; Sherehiy & Karwowski, 2014), but do not relate these conditions to the effectiveness of agile working methods. To address this gap, my study strives to answer the following research question: *How does incomplete organizational transformation towards agility influence the effectiveness of agile teamwork methods?*

In doing so, this study contributes to the present research field in two ways. First, I examine how a lack of favorable organizational conditions, in the form of only partially implemented internal organizational agility, inhibits the application of agile work. Second, I investigate mechanisms that limit the effectiveness of agile work, which arise from the mismatch between lacking organizational conditions and agile teamwork methods.

3.3 Method

3.3.1 Research design

To explore the relevance of internal organizational agility for the effectiveness of agile working methods, I consider a qualitative research design with expert interviews most suitable. My qualitative approach allows me to gain a deep comprehension of processes in agile work within an organization (Boddy, 2016). To derive a general explanation about central processes and interactions in agile working situations, I collected field data from individuals involved in agile teams (Creswell & Creswell, 2007; Creswell, Hanson, Clark Plano, & Morales, 2007; Strauss & Corbin, 1990, 1998). Given the aim of understanding the perspective of employees working in agile teams, the inductive approach is the preferable method to explore innovative forms of work (Gioia, Corley, & Hamilton, 2013; Suddaby, 2006).

I conducted an in-depth investigation of a single corporate case within the automotive industry, to gather detailed procedural, social and organizational aspects (Morgan & Smircich, 1980; Winter, 2000). Environmental and technological changes affect the automobile industry intensely. To ensure adaptability in perpetual change, automotive manufacturers strive for organizational agility by implementing agile work (Elkins, Huang, & Alden, 2004). A German-based automotive manufacturer, which launched an agile initiative in 2017 to introduce and promote agile working methods within the company, constitutes the research setting. Agile working methods in this automaker's projects mostly concentrate on procedures based on Scrum (Schwaber & Beedle, 2002; Sutherland & Schwaber, 2007). The dataset consists of interviews with representatives of multiple project teams and roles using agile working methods. Distinguished roles within agile teams are product owners, agile coaches/scrum masters and team members (Sutherland & Schwaber, 2007). Recruiting participants in different organizational departments to generate a robust data set, strengthens the research design (Mathieu, Maynard, Rapp, & Gilson, 2008). Therefore, the sample includes the departments Research & Development, Procurement, Finance & IT, Human Resources, Production, Sales and Administration. Since agile working methods are predominantly applied in teams within the Research & Development and Finance & IT department, proportionally more interviews were conducted in these two departments. My large sample size (Boddy, 2016; Morse, 1994;

Sandelowski, 1995) of 108 interviews with 111 interviewees (three interviews were with two interviewees) 74 male and 37 female interviewees should enable robust theorizing. Table 3.1 includes all relevant information about the mentioned respondents.

Gender	Average age	Function	Functional Area
Male: 8 Female: 4	Ø 37	Agile Coach/Scrum Master	Research & Development
Male: 6		Product Owner	
Male: 2		Team Member	
Male: 3 Female: 1	Ø 33	Product Owner	Procurement
Female: 1		Team Member	
Male: 10 Female: 8	Ø 37	Agile Coach/Scrum Master	Finance & IT
Male: 18 Female: 6		Product Owner	
Male: 6 Female: 4		Team Member	
Female: 3	Ø 39	Agile Coach/Scrum Master	Human Resources
Male: 3 Female: 3		Product Owner	
Male: 2		Team Member	
Male: 1 Female: 2	Ø 36	Agile Coach/Scrum Master	Production
Male: 2		Product Owner	
Male: 1 Female: 1		Team Member	
Male: 4 Female: 1	Ø 35	Agile Coach/Scrum Master	Sales
Male: 2 Female: 1		Product Owner	
Male: 1		Team Member	
Female: 1	Ø 36	Agile Coach/Scrum Master	Administration
Male: 4 Female: 1		Product Owner	
Male: 1		Team Member	

Table 3.1: Overview of interviewees

3.3.2 Data collection

The data was collected in three iteration phases from May 2019 until September 2021, in which I conducted a total of 108 semi-structured interviews with agile coaches/scrum

masters, product owners and agile team members. To ensure insights relevant to my research question, I sought out participants with extensive experience and knowledge in agile work (Bolderston, 2012). I therefore selected informants based on their experiences with agile working methods, being part of an agile project team, and their ability of estimating the organizational agility. Respondents in one of the three agile roles agile coach/scrum master, product owner or team member were approached to report their experiences. These selected roles answered the questions from different perspectives. With the semi-structured interviews, emerging topics of relevance were captured, and at the same time, consistency among all interviews was assured (Barriball & While, 1994). Therefore, this interview method is adequate to capture individual experiences and perceptions, as well as probing the robustness of emerging themes (Hutchinson & Wilson, 1992; Barriball & While, 1994).

I started every interview with questions concerning the interviewees job role, team composition and working method used within the agile teams, continuing with exploratory questions concerning the particular objective of the interviews.

The first research phase started in 2019 with 28 interviews in different agile project teams from May until August 2019. Purpose of the interviews was to analyze the benefits and challenges of agile working within the selected automotive company. To analyze the research interest, questions were asked such as, “What challenges do you face while implementing your project?” or “What limitations are you confronted with while working with agile methods?”. The interviewees frequently stated that challenges and limitations of agile working are not always inherent to the working method, but often due to organizational framework conditions. This salient theme suggests that the application of agile working methods can be affected by the level of organizational agility.

Based on these findings, I conducted 34 interviews in the second iteration phase from April until November 2020, asking more specific questions about challenges of applying agile working methods. In-depth questions, such as “How do you evaluate the effectiveness of agile working methods?” and “Which conditions are challenging in working agile?” helped to ascertain interviewees’ specific experiences in agile work in more detail. Based on the respective role of the interviewee, I subsequently asked probing questions searching for connections between their activity in agile work and organizational conditions such as “In your role as (agile coach/product owner/team member), could you please explain a specific situation in which you were restricted applying agile working methods?”. These interviews uncovered the phenomenon that agile coaches/scrum masters, and product owners are more in contact with other teams and leaders within the organization. Consequently, I focused on these roles in the

interviewees selection in the last interview phase, from February until September 2021, with in total 46 interviews conducted. Accordingly, I centered questions to these respective two roles, e.g. “In your role as agile coach/scrum master or product owner, what are your experiences with leaders and other teams while working agilely?” or “Which situations did you experience where the effectiveness of agile teamwork methods was limited?”.

Initially the selection of potential interview candidates was based on my own contacts with experts in agile working within the organization, and the recruitment was made by e-mail or telephone. Subsequently, I used snowball sampling, asking interview partners to recommend other experts (Marshall, 1996; Bolderston, 2012; Robinson, 2014). Due to the pandemic crisis, all interviews in 2020 and 2021 were conducted virtually via Microsoft Teams, whereas the interviews in 2019 were conducted on-site. Whereas virtual interviews lack of information about mimic and gesture, advantageous of the virtual communication for participants was the open communication and participation without restrictions of the workplace (Creswell, 1998; Musselwhite, Cuff, McGregor, & King, 2007; Sturges & Hanrahan, 2004). All interviews were conducted in German and recorded and transcribed after explicit permission. On average, the interview length was 45 to 90 minutes, depending on the participants' time.

3.3.3 Data analysis

As recommended by Locke (2001), the data analysis process already started parallel to data collection and between the two iteration phases of interviews (Jones & Noble, 2007; Robinson, 2014). Analyzing the data in a first step, I attached open codes to my interview transcripts, summarizing information the interviewees raised (Glaser & Strauss, 1967). To set these codes I used the software Atlas.ti, which is suitable for analyzing and coding qualitative data. Analyzing the interview transcripts in their original interview language German guaranteed the complete preservation of statements without loss of meaning. To have a common understanding, the further codes and stated quotes within this research paper were translated in English. After setting open codes, I clustered them into higher-order categories while continually analyzing and cycling between data and coding (Creswell et al., 2007; Gioia et al., 2013; Locke, 2001; Strauss & Corbin, 1990, 1998). My analysis progressed through three distinct steps.

I started by identifying first-order concepts, which are user centric and retain the interviewee's perspectives. These concepts are close to the interviewees statements and high in number to identify significant findings (Gioia et al., 2013). For example, the quote “[...] If I work somewhere traditional and somewhere else agile, I would say, that agile [working] is more exhausting” (2020_05_AC) resulted in the concept “Agile way of working is exhausting”.

Another example, the quotation “People are tied up to their subjects. They don’t get 30 percent of their capacity free for such things [agile projects]” (2020_08-2_PO) led to the concept “Lacking capacity for agile projects.”.

Aided by systematic cycles between data and literature, I subsequently clustered these descriptive concepts into more abstract second-order themes, which were integrated into a set of core findings regarding the impact of organizational agility on the application of agile working methods (Gioia et al., 2013). For instance, the two concepts “Agile way of working is exhausting” and “Lacking capacity for agile projects” were combined to the second-order theme “Task overload”.

In the final step, similar second-order themes were clustered into aggregated dimensions (Gioia et al., 2013). Analyzing the concepts and themes, two aggregated dimensions evolved: “Lacking organizational conditions” and “Mismatch mechanisms”. The lack of crucial organizational conditions impeded the application of agile working methods within the organizations. The mismatch between a piecemeal implementation of organizational agility and teams working with agile methods limits the effectiveness of agile work through four mechanisms.

A constant comparison of the different interviewee statements, roles, and codes ensured a holistic consideration of data, concepts, themes, and dimensions until I reached theoretical saturation, i.e., the point where further data collection no longer adds significant value to the research process (Locke, 2001; Robinson, 2014; Strauss & Corbin, 1990, 1998). Based on the comparison of statements, different interviews, and role aspects, data analysis considered aspects that supported the emerging theory and others that disconfirmed it, and thus led to further refinements (Marshall, 1996). Through defining and investigating the different concepts, themes, and dimensions, the data structure shown in Figure 3.1 gradually emerged (Gioia et al., 2013).

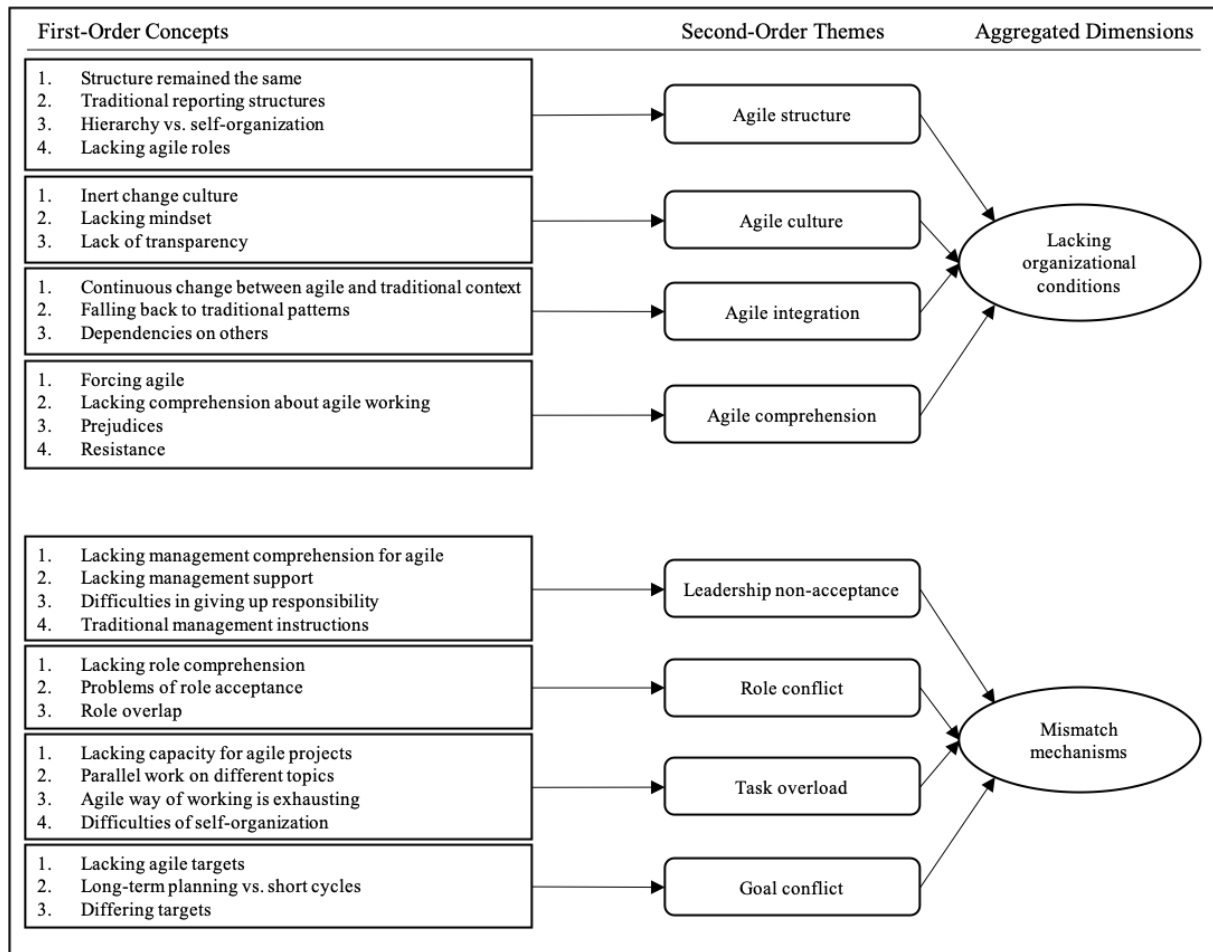


Figure 3.1: Data structure

3.4 Results

Interviewees reported substantial benefits of agile working methods within project work, such as an increase in team communication, collaboration and quality of results. However, the challenges of agile working methods also became highly salient within the interviews. I clustered my findings into the two aggregated dimensions “Lacking organizational conditions” and “Mismatch mechanism”. The lack of existing organizational conditions in the form of agile structure, agile culture, agile integration, and agile comprehension was found to impede the implementation of agile working methods in the organization. This mismatch between organizational frameworks and teamwork methods entails various mechanisms that limit the effectiveness of agile working.

3.4.1 Lacking organizational conditions

My interviews have demonstrated that certain organizational framework conditions are needed to effectively introduce and apply agile working methods. The findings of this study show how the lack of particular conditions of internal organizational agility, specifically agile structure,

agile culture, agile integration, and agile comprehension, impedes the application of agile working methods.

Agile structure

Flexible and flat structures, in which teams are able to make self-organized decisions, are postulated to support internal organizational agility (Masood & Farooq, 2017; Owen et al., 2006; Stare, 2013; Teece et al., 2016). My interviewees stated lacking adaptations of organizational structures as a key reason why internal organizational agility was not fully achieved, making it difficult to apply agile working methods. For instance, one interviewee explained that organizational structures still remained the same and thus were in contrast with flat and flexible agile structures:

“You are somehow still stuck in these-, well, even though you are kind of working agilely, you are still very much stuck in these traditional structures.” (2020_29_AC).

Another employee doubted whether *“the company’s structures are really ready for agile working” (2019_11_PO)*. Informants particularly lamented the still existing traditional reporting structures, where *“committees that are set up hierarchically” (2019_07_PO)* evaluate the work of agile teams and make decisions instead of *“breaking up the structures in terms of an agile organization” (2019_10_PO)*, which would enable flexibility and self-decision making of the teams. This decision-making by management rather than by agile teams led to a constant conflict between hierarchy and a core characteristic of an agile structure, i.e. the self-organization of decentralized agile teams:

“A decision from the boss at every step, thus no decisions made by the team itself.” (2020_10_PO)

“We make people mental immature, because they always have to run to their boss for decisions.” (2019_18_PO)

Lacking agile roles are postulated as another structural challenge within the organization, e.g. *“There is currently no role model for this [agile work].”* and *“We live in this agile construct [in the team], but none of us have in our job title, for example, release train engineer or agile coach. So, by definition I’m not an agile coach, my official role is project coordinator.”*. In agile structures, specific role models are usually established to enable agile work. However, interviewees stated the absence of agile career models and the roles of agile coach and product owner within job descriptions in their corporation.

“So, the product owner role doesn’t really exist at the company. There are people who call themselves that [product owner], but that’s not the role as it should be.” (2020_02_PO)

“You are hired for a role. Then you get the additional task of agile coaching, because that’s the way things have developed. But that wasn’t part of the job description for any of them.” (2019_24-2_AC).

“And if you have someone in the team now, in the scrum team, how do you develop him further? [...] there are no big leaps.” (2019_18_PO)

In line with Teece et al. (2016), my results corroborate that organizational structures have “strong implications for agility” (p. 24). More specifically, Teece et al. (2016) point out that a strong hierarchy impedes agile actions. The results of the present study support this assumption, as the interviewees reported that traditional and hierarchical structures hinder the self-organization of teams. In addition, my results reinforce Masood and Farooq’s (2017) findings that the shift from traditional decision-making structures to decentralized, self-organized decision-making by teams may result in difficulties because managers still frequently interfere in decision-making. In addition to previous findings, this study shows that a lack of agile role models results in structural challenges. Teece et al. (2016) highlight the importance of roles in an agile structure. Their assumptions are corroborated and extended by the present findings, as a lack of agile roles can even lead to structural challenges.

Agile culture

Rigidities in organizational culture may also lead to an incomplete transformation towards internal organizational agility. Teece et al. (2016) postulated that the transformation to organizational agility is most successful in organizations with openness and willingness to continuous change. However, within my interviews, many participants pointed towards a lacking mindset of employees and managers. Interviewees described that:

“The complete mindset that is actually needed for such a method is not yet available.” (2019_07_PO),

“Mindsets, I think we are still very traditional. [...] People are very skeptical and sometimes don’t dare to take responsibility. So, this mindset is simply not yet properly lived, we are still far too traditional.” (2019_02_PO)

which is challenging for the further implementation of organizational agility. For example, a lacking error culture hindered the establishment of an agile mindset within the

organization. Participants pointed out that allowing mistakes is critical to enable continuous learning. However, the *“fault tolerance ... is not there yet”* (2019_07_PO) and interviewees explained:

“The culture we have is interesting. It is, I would say, very political and sometimes very, I would say, too perfect. So, we try to work without mistakes and therefore slow ourselves down in the process. They put a very strong weight on every single word.” (2019_23_TM)

“I always have the feeling that it is not allowed to ask because it is interpreted as weakness if you say ‘I don’t know something’. And if the person doesn’t know anything, then consequently he is not good at what he does.” (2020_29_AC)

Moreover, the interviewees within this study reported of a major difficulty concerning the inert change culture of the organization. Many employees and managers wanted to preserve existing traditional routines instead of embracing continuous change:

“But there will be people who don’t want change, but want to continue with what they know.” (2020_08_PO).

“It is also difficult for many because they have to get out of their comfort zone, because they have to go through the house of change. [...] Some don’t dare enter the house of change at all, find it difficult because they may have certain fears. Others dare to enter, but it’s too much for them because they don’t understand what is happening.” (2020_32_AC)

Some participants pointed out the lack of internal transparency as a consequence of an absent mindset:

“From my point of view, this transparency is completely lacking. That is, that all stakeholders know all the topics and know the order in which these topics will be developed, that doesn’t currently exist.” (2021_32_PO)

“I also notice that knowledge transfer is not really working well, because there is still the fear that of ‘What will happen if I share my knowledge?’” (2021_22_PO)

Furthermore, in contrast to the principles of an agile organizational culture, in which great importance is attached to the transparent provision of knowledge and information, they described a distinct *“need-to-know culture”*, which implies

“Tell only what you think your counterpart needs to get his task done.”
(2020_18_AC),

“I work in an area where need-to-know is very much alive. So, you only get the information you need at that time.” (2020_22_PO)

and not to reveal too much information, because *“Knowledge is power.”* (2020_29_AC).

According to Rebentisch et al. (2018), an open knowledge and information sharing is important to establish an agile organizational culture. Moreover, Teece et al. (2016) postulate a need-to-know knowledge as a reason for failure. Finally, a culture that supports a strict hierarchy was found to hinder the implementation of agility and agile methods (Othman et al., 2016; Rebentisch et al., 2018). These findings are corroborated and extended by the present study, as the interviewees additionally postulated a lacking mindset of employees and managers impeding organizational agility. In addition, my results extend previous literature as a lack of openness to knowledge sharing and a “need-to-know culture” also hinder an agile organizational culture.

Agile integration

Another second-order theme I identified within the dimension “lacking organizational conditions” is the incomplete integration of agile principles into daily work by separating it into *“two different worlds”* (2020_15_PO), the traditional and the agile. Informants described the difficulty to switch between different organizational contexts, in which agile and traditional ways of working stood in sharp contrast to each other:

“It was always a struggle to combine both.” (2020_27_AC).

“I spend 50 percent of my work in traditional committees with predefined topics and 50 percent of my world I stand at the backlog and paste sticky notes there. And I have to assure that these worlds fit together somehow.” (2020_15_PO)

Therefore, employees had to switch between self-organization and predefined planning continuously, which led to an increased coordination effort and strain. Moreover, working with agile methods was not popular in every department, because

“The rest of the company is not agile.” (2020_15_PO).

Therefore, interviewees stated that many teams fell back to traditional patterns and continued to work in a traditional manner despite having started agile work. One interviewee postulated the reason:

“You’re sort of trying to integrate a new methodology and then you still fall back into your usual setting, where you might be in your comfort zone [...].” (2019_23_TM).

In addition, in the absence of agile coaches, teams paid less attention to agile methods *“[...] so certain things decline or the focus is lost partially.” (2020_01_AC)*. Due to this inconsistent approach, the benefits of agile work could not be leveraged. Furthermore, participants mentioned high dependencies on others as a challenge in agile work. Differences in methodology, structure and communication, due to a different agile maturity level of teams or organizational units, led to a decline of agility in teamwork:

“This was mainly in collaboration with other teams [...] with whom we had dependencies or we had to work together. In part, that didn’t work at all, due to communication, different methods, and organization.” (2020_13_PO).

“[...] when you work agile, you never work in your bubble, but always with other colleagues who don’t work agile at all. That means I plan something agile and have to work with a colleague who doesn’t work agile at all. And it often happens, that deadlines are postponed by a week or two, but in the agile rhythm, the sprint then finished and I have not achieved my sprint goal. So, if this deadline is postponed once, my entire sprint is screwed. And that’s the problem, that we always need to readjust our topics.” (2019_09_AC).

“[...] we can’t work agile properly, because we are far too dependent on external decisions, influencing factors, supplies, partners.” (2019_27_AC).

According to Dikert et al. (2016), “the coexistence of two different ways of working is problematic” (p. 105), and therefore continuing with traditional project management may also result in advantages in some cases. They recommend to further investigate these contradictory findings (Dikert et al., 2016). The results of my study demonstrate that continuing with traditional and agile work in parallel may lead to difficulties in context switches, dependencies and adherence to traditional project work. Moreover, Dikert et al. (2016) postulate “reverting to old way of working” (p. 97) as one reason for difficulties in implementing agility. For example, teams like to work with familiar practices when challenges arise (Dikert et al., 2016; Schatz & Abdelshafi, 2005). Consistent with their findings, the study results confirm that teams fall back in their comfort zone. Furthermore, my data suggests that a short- or long-term absence of agile coaches also leads to teams falling back into old patterns, which extends the current state of research.

Agile comprehension

Another aspect of lacking organizational conditions for internal organizational agility that emerged saliently from my investigation is employees' and managers' deficient comprehension of agile work principles. Numerous top managers were forcing agile work as a new approach to project work, due to the novelty of the method or the understanding of agile being faster, without considering if working agilely was appropriate for the respective projects:

“My impression is that the top-management has the requirement or goal: reorganize as many projects as possible agile.” (2020_32_AC).

“Right now, the approach is to try to organize all projects agile somehow. But at the moment, I don't have any choice or decision-making opportunity if I work agilely or traditional.” (2019_12_PO).

However, many managers and employees only partially understood what agile work actually entails. Different qualification levels in agile work led to lacking knowledge about agile projects in some departments. As a consequence, numerous prejudices in the organization arose. Interviewees described prejudices against agile working methods, which stood in contrast to the distinct structure and definition of agile work, e.g.

“Ah the agility [...] always just a bit of bullshit bingo.” (2020_12_PO).

“Scrum is [...] considered more like freelance artistry. The teams do something unplanned and, in the end, we will see what emerges.” (2020_14_AC).

In some terms, employee resistance arose from these prejudices. Participants reported that *“[...] some, they even actively work against it.” (2019_05_PO)* and that some employees *“[...] boycotted this rollout somewhat.” (2019_12_PO).*

The results of the study support previous research findings that differences in agile qualification and understanding lead to challenges in implementing agile project work (Dikert et al., 2016; Masood & Farooq, 2017; Owen et al., 2006). Therefore, employees may react skeptically to the introduction of agile work (Dikert et al., 2016; O'Connor, 2010). Additionally, my interviews not only document prejudices against working agile that arose from this skepticism, but even active resistance of the employees. In line with Dikert et al.'s (2016) and Spayd's (2003) proposition that an exclusive top-down decision for agility leads to challenges in implementation, the interviews showed employees feeling forced to execute the agile way of working.

3.4.2 Mismatch mechanisms

This lack of organizational conditions impeded the implementation of agile teamwork techniques. The mismatch between only partially adopting an agile framework and teams working with agile methods was found to cause four mechanisms, which limit the effectiveness of agile work within the organization.

Leadership non-acceptance

Difficulties arose when leaders failed to fully adapt to the principles of agile working methods. As mentioned above, interviewees reported that the top management forced the agile way of working, but middle managers had often insufficient knowledge to implement it. Such a lack of management comprehension for agile work greatly diminished leadership acceptance and posed challenge for agile teams.

“If a team leader who has been part of the company for 20 years doesn’t know what a product owner’s job is and now suddenly is confronted with such a role in his team, then the whole thing can’t work.” (2020_32_AC).

Another difficulty for the performance of teams working in an agile manner was the lack of support from middle management. Interviewees explained situations in which managers refused working agilely and actively offered resistance due to lacking comprehension or sticking to familiar practices.

“And then there are those ultra-conservatives, who say ‘you with your colorful post-its, white sneakers and somehow your Denglish, stop what you’re talking about. We used to do it very differently and I don’t need that shit.’ And that’s just this categorically rejecting crowd. But they are critical for success. Because these rejecting personalities are usually those who are also in leadership positions, who just like to cross-shoot and can kill a thing like that.” (2019_10_PO).

The absence of stakeholders or product owners at planned and cyclic meetings, in most cases due to reprioritization in favor of other meetings, also represented a challenge. Furthermore, employees reported that some leaders were not willing to hand over decision making-authority or tasks to their subordinates. Often based on the fear of a “loss of control” and “loss of power” (2019_10_PO), managers partially confirmed this challenge:

“Yes, it’s really hard for me to give up [responsibility] and pull myself out completely.” (2019_24-2_AC).

“Also, it sounds stupid, but to give up some of your power, that's something, you have to get used to it first – and that's hard.” (2019_15_PO).

Challenging for agile teamwork were strict traditional management instructions and leaders who often interfered top-down in the decision-making process that were in contrast to the self-organization principle of agile working teams. Employees confirmed that

“Of course, they can indicate their wishes and requirements, but the problem is that they overcontrol. They just say: You have to do it. And then the employee does it, because this traditional hierarchy always wins.” (2019_03_PO).

My results support previous research findings which have postulated that a lacking comprehension about the implementation of agile working methods leads to a deficient leadership acceptance (Benefield, 2008; Dikert et al., 2016). Therefore, some researchers describe that managers merely consider agile work as an IT method, rather than a continuous change process (Denning, 2016; Denning, 2017; Dikert et al., 2016; Nerur, Mahapatra, & Mangalaraj, 2005). In addition, interviewees reported of managers having difficulties in understanding agile roles and their differentiation. This often led to a lacking support for agile work among managers. Furthermore, the results of my study indicate that leaders like to adhere to existing practices and perceive progress as suspicious. Previous studies postulate an unclear leadership role in agile work designs and consequently managers who are struggling to give up command and control leadership functions to enable self-organization of the team (Cowan, 2011; Dikert et al., 2016; Kurup & Sidhardhan, 2015; Masood & Farooq, 2017; Yi, 2011). The study results extend these findings, as interviewees reported of a lacking leadership acceptance due to the fear of losing power or control. Consequently, leaders continued to exert influence by giving top-down traditional management instructions to the team.

Role conflict

Employee role conflict is another challenge impeding the complete implementation of agile working methods, arising due to lacking role comprehension, problems of role acceptance, and role overlap. Interviewees reported a deficient comprehension of agile roles within project teams and management, which led to collaboration problems.

“They didn't see themselves as product owners, because they didn't understand what that actually means.” (2020_06_AC).

This lacking role comprehension is related to an overall deficient comprehension of the principles of agile work. Closely related to this, the interviewees described that agile working

methods were not fully implemented. Firstly, roles and tasks of agile work were not accepted and secondly, employees reported that specifically the authority of agile coaches was questioned frequently. Although the agile coach supports the team to achieve the project goals, the tasks of the agile coaches were not taken seriously, nor evaluated as equivalent to a development activity within the team:

“The [agile] coaches, they have a nice life. They go to different teams, stand with them a bit and give a few recommendations, which in my opinion seems unnecessary for most parts [...] for this, you can also hire an intern.” (2019_04_TM)

“I don’t think the role is valued. It’s also hard to grasp, of course. Setting meetings is something obvious, but when the coach is sparring with individuals, it is not visible [...] and then justifying why you need this is always a difficult point.” (2020_20_AC)

Moreover, employees reported a role overlap, as all of them remained bound to a line organization with clear assignment of employees to departments and one manager, while being full-time integrated with another role in an agile project, reporting to a different manager. Simultaneously engaging in different roles within traditional and agile work is often overstraining for employees. For instance, one employee reported:

“[...] in general, I already feel under pressure, because of the parallel work and frequent role reversal.” (2020_06_AC).

Another interviewee stated that this problem is not only experienced by employees, but also by some managers:

“the main problem [...] was that our product owner is our head of department, too.” (2019_09_AC).

The results of my study reinforce previous research, which postulates that also managers have difficulties in understanding agile roles (Dikert et al., 2016). In line with Stray et al. (2018) the interviewees described difficulties in role or task comprehension within team members and product owners that resulted in a lacking role acceptance. Moreover, lacking role acceptance may arise due to fear of new agile roles or responsibilities (Dikert et al., 2016; Schatz & Abdelshafi, 2005). The study results corroborate preceding research findings, which assume the parallel usage of agile and traditional methods to be difficult (Abdelnour-Nocera & Sharp, 2007; Dikert et al., 2016; Laanti, 2008). My data further suggest that the parallel engagement in different roles within agile and traditional teams leads to a role conflict among team members.

Task overload

Also, highly challenging for teams striving to implement agile working methods is task overload due to lacking organizational conditions for internal organizational agility. The main reasons for employee task overload that emerged from my study are lacking capacity for agile projects, parallel work on different topics, participants recognizing that agile way of working is exhausting, and difficulties of self-organization among employees. The scarce capacities for agile projects were a very salient concern among our interviewees, e.g.

“But a lot is always ‘no capacity, no capacity, no capacity’.” (2019_09_AC) and

“I don’t have a team with 100 percent capacity for the project. Currently, there is not even the capacity of 20 percent. There is no capacity commitment.” (2019_17_AC).

These capacity challenges often resulted from parallel work on different topics, which stood in contrast to the focus on the iterative work in sprints, a core principle of agile work. Interviewees found it difficult to concentrate on the agile project while at the same time performing other tasks in the organization. Furthermore, team members indicated being torn between many projects at the same time, some of which followed agile methods and some of which remained traditional. For instance, participants explained

“That’s basically against this agile method. That a person is working at the same time on ten different projects.” (2019_06_AC) and

“At the moment, I still have about forty innovation projects running in parallel [...]. And I work on them partly with agile and partly with traditional methods.” (2020_26_PO).

Given these circumstances, employees experienced the agile way of working as more exhausting compared to the traditional one, e.g.

“[...] If I work somewhere traditional and somewhere else agile, I would say, that agile [working] is more exhausting.” (2020_05_AC) and

“[...] I think it’s exhausting, it’s really exhausting.” (2019_24-2_AC).”.

Based on the frequency of appointments and large number of different topics, agile work seems to be particularly exhausting in the absence of organizational agility or in situations where organizational agility is implemented incompletely. Moreover, the high amount of self-organization and self-decision making within agile work was difficult for many employees.

Some team members admitted that they experienced difficulties of self-organization, because they were still used to traditional project work. In contrast to more empowering agile work, traditional projects are mainly driven by the manager, who is responsible for the project work and who delegates tasks to the team members.

“If you have a person who only worked [traditional] for most of his life, then he is not used to assume responsibility.” (2019_24-2_AC).

“In fact, often the response is 'How do you imagine me to do this, we've always been told [the tasks] by our boss and now I don't even know what to do'. In fact, I underestimated what I always read in literature, that not everyone can work independently and autonomously. When I have someone in front of me, I think he is able to self-organization, but it's not the fact, if they had it modeled differently for years, then it's very difficult for people to make decisions on their own. It was not even possible to hear their own opinion, but they always asked for the opinion of their boss and then repeated it.” (2021_26_PO)

Overall, my results corroborate Conforto et al.'s (2014) previous findings that only a small percentage of team members work full time in projects. Whereas my interviewees reported of a low capacity for agile projects, recent publications postulate the requirement of full-time work in agile project teams (Carbonell & Rodriguez, 2006; Chen et al., 2010; Chow & Cao, 2008; Cohn, 2005; Conforto et al., 2014; Highsmith, 2009; Sutherland & Schwaber, 2007). My study investigations show that parallel work on different topics with various methods is challenging for team members. In addition, a very high workload in agile teams was found to increase strain and may lead to an overload of individual team members (Dikert et al., 2016; Dyba & Dingsoyr, 2009; O'Connor, 2010; Rodríguez, Mikkonen, Kuvaja, Oivo, & Garbajosa, 2013; Stray, Moe, & Hoda, 2018; Whitworth & Biddle, 2007). This assumption is extended by the results of this study, as team members reported feeling more exhausted in agile, compared to traditional work designs, if organizational agility is implemented incompletely. Furthermore, my results support Kropp et al. (2014) findings, that self-organization and self-decision making is difficult for team members, even if they are highly motivated to work agile.

Goal conflict

Interviewees addressed the tension between agile team goals and an organizational target system as a goal conflict. In some cases, agile team members reported lacking agile targets as challenge,

“It was difficult because there was no real goal in the agile team. The right goal and also the time [to achieve the goal] were missing. And then you noticed that there was a bit of a crisis because the pressure was off and it became difficult, because everyone was doing different things.” (2019_06_AC)

“One limitation is, if agile projects don’t have real targets, because then the team members don’t know what they are supposed to achieve by working agile.” (2019_01_AC)

whereas in other cases, the differences between long-term planning and short cycles, as well as differing targets, result in an overall goal conflict. Participants indicated that while working agile in teams, traditional long-term targets remained the same instead of introducing short-term agile targets

“Achieving these classical targets with agile projects, that’s a very, very big problem.” (2020_29_AC).

“We plan our goals on an annual basis in the organizational goal system, which is difficult because [...] nowadays, we have a highly dynamic, volatile environment. The goals you define today may no longer be relevant tomorrow or the day after. Therefore, it is more important to define and adjust agile targets in short cycles.” (2020_17_AC)

Moreover, employees explained that board members were expecting detailed long-term planning cycles and goals, which were contrary to the short iterative cycles of agile work. For instance, an interviewee stated:

“[...] it is a challenge when you are asked to do long-term planning, because you always have to explain that ‘we don’t really plan for that long time’, and I think that crashes the traditional approach.” (2020_13_PO).

While having commonly accepted and harmonized goals within the agile project team, every employee was additionally given individual objectives by the organization, which partially differed from the team goals. Employees reported about the non-transparency of individual goals within the organization

“Because everyone has their own individual goals, not only in terms of compensation, but also personal goals, and it is very difficult to be really open and being able to announce them.” (2020_29_AC).

This led to differing targets, because team goals were set without the knowledge of motivation and incitement of the individual team members

“[...] the topic of goals, rules, the whole system of goals that we have is advantageous, but has also the disadvantages that people work in a team who could have contradictory goals.” (2019_19_AC).

Previous literature assumes that a lacking goal set for the implementation of agile methods, as defined by leaders, often leads to difficulties in comprehension for team members (Dikert et al., 2016; Evans, 2008). Furthermore, team members frequently focus on their individual targets if major differences between individual, team, and organizational goals exist and are less seeking for an equilibrium in target achievement (Berczuk & Lv, 2010; Dikert et al., 2016). My findings further extend these assumptions, as interviewees specifically reported about completely lacking agile goals. Long-term goals were set without focusing on short-cycle team goals. In other cases, team members indicated contrary individual goals, which led to a lacking achievement of agile team goals. In contrast to traditional projects, which involve long-term planning, agile projects focus on short-cycle planning (Cohn & Ford, 2003; Dikert et al., 2016; Kurup & Sidhardhan, 2015; Misra, Kumar, & Kumar, 2010; Sutherland & Schwaber, 2007). Recent research findings postulate the challenge if stakeholders or customers demand long-term goals or planning, but the agile team is not able to provide them (Boehm & Turner, 2005; Chung & Drummond, 2009; Cloke, 2007; Cohn & Ford, 2003; Dikert et al., 2016; Kurup & Sidhardhan, 2015; Laanti, 2008; Maples, 2009; Misra et al., 2010; Stare, 2013). Consistent with these findings, my study's results show that managers often expect long-term planning despite agile project work and therefore team challenges arise in working agilely.

In summary, interviewees of the study reported difficulties in working with agile methods while organizational conditions to implement internal organizational agility are still lacking. The relationship between the two aggregated dimensions will be systematized in the following.

3.5 Discussion

To systematize the results of my study, I derived a model (Figure 3.2) discussed in the following. This model illustrates how an incomplete organizational transformation to internal organizational agility influences the effectiveness of agile teamwork methods through mismatch mechanisms. My study revealed that lacking organizational conditions create an incomplete organizational transformation towards organizational agility and therefore provoke

overarching mismatch mechanisms that reduce the effectiveness of agile teamwork methods. On the organizational level, four lacking organizational conditions could be identified that create an only partially implemented internal organizational agility: a lack or incomplete agile structure, agile culture, agile integration, and agile comprehension. The resulting incomplete internal organizational agility provokes four mismatch mechanism categories that reduce the implementation of agile ways of working on an individual level: leadership non-acceptance, role conflict, task overload, and goal conflict.

3.5.1 Theoretical significance

First, I contributed to literature in elaborating organizational conditions that influence the achievement of organizational agility and lead to an incomplete organizational transformation. Previous research mostly concentrates on the analysis of requirements that are needed to achieve organizational agility (e.g., Lu & Ramamurthy, 2011; Rebentisch et al., 2018; Teece et al., 2016). However, organizations nowadays fail to fully achieve this organizational agility. The effects caused by the absence of organizational conditions have been insufficiently studied. Consequently, the addition of conditions that impede the achievement of organizational agility complements agility research for an addition perspective.

Second, I demonstrated with my study that, to implement agile methods in teams, organizational conditions should be integrated first to support the successful adoption within teamwork. These results differ from previous research findings, which assume agile methods to be the first step towards organizational agility (Gandomani et al., 2013; Highsmith & Highsmith, 2002; Laanti et al., 2011). My findings demonstrate, that an incomplete transformation to internal organizational agility impedes the effectiveness of agile teamwork methods.

Third, the study extends current research by providing evidence that a partial organizational transformation provokes mismatch mechanisms that hinder the effectiveness of agile methods in teams. Several researchers asked for further investigations of mechanisms that influence the adoption of agile working methods. Within this study, the four central mismatch mechanisms leadership non-acceptance, role conflict, task overload, and goal conflict were substantiated that affect agile teamwork.

Fourth, besides providing a link between the research stream of organizational agility and agile working methods, this study also contributes to each of the research areas. Organizational agility is reduced by the absence of framework conditions, which in turn reduces agile work at individual level. Thus, agility is not considered as capability, but rather as a target state and activity of the individual company. These findings contradict previous research, which

consider agility as a core competence and capability of an organization (Junker, Bakker, Derks, & Molenaar, 2022; Lu & Ramamurthy, 2011; Sharifi & Zhang, 1999; Sherehiy & Karwowski, 2014; Sherehiy, Karwowski, & Layer, 2007).

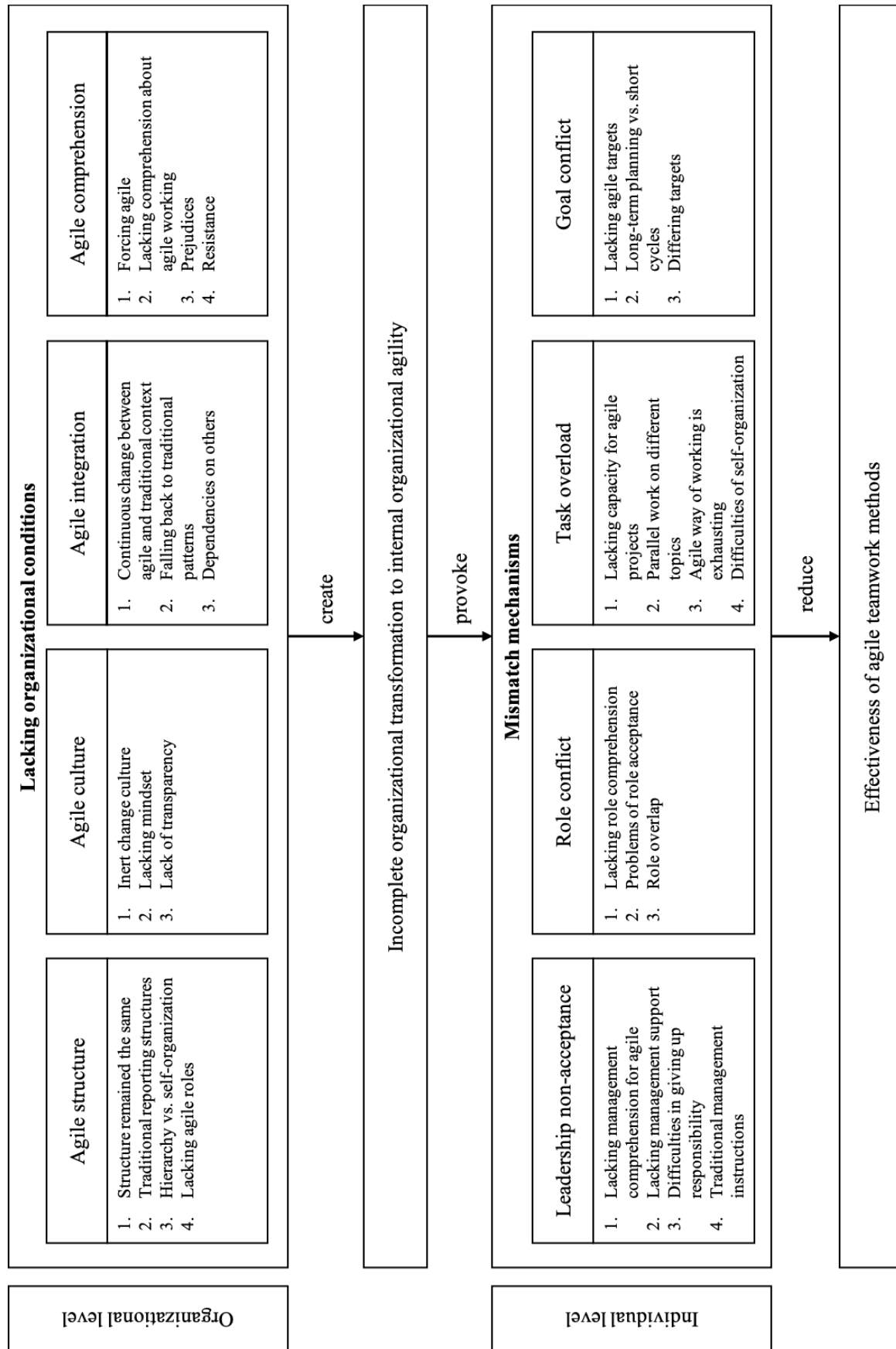


Figure 3.2: Overview of mismatch mechanisms provoked by an incomplete organizational transformation to internal organizational agility which reduce the effectiveness of agile teamwork methods

3.5.2 Practical implications

The successful implementation of agile working methods is part of current discussions within various industries and sectors besides software companies (Conforto et al., 2014; Cooper, 2021; Hewett & Shantz, 2021; Junker et al., 2022; Mergel, Ganapati, & Whitford, 2021; Uludağ et al., 2022). However, many organizations strive to implement agile methods while being only partially transformed towards organizational agility, and central components of this transformation have not yet taken place. My findings contribute to practice in three ways:

First, a lack of favorable organizational conditions inhibits the application of agile work in companies. Junker et al. (2022) asked for a further investigation of organizational conditions that enhance the implementation and impact of agile working methods. My results suggest that organizations should first focus on completing the transformation towards internal organizational agility by concentrating especially on agile structure, agile culture, agile integration, and agile comprehension to ensure the effectiveness of implemented agile working methods.

Second, distinguishing identified mismatch mechanisms that limit the effectiveness of agile teamwork methods, which arise from the mismatch between those lacking organizational conditions and agile teamwork methods, support companies in identifying obstacles in implementing agile methods. Lu & Ramamurthy (2011) pointed out the need to examine different mechanisms for implementation of agility and agile work. Furthermore, the identified mismatch mechanisms give companies that have already adopted agile methods clear guidance for internal analyses, according to the four mechanisms: leadership non-acceptance, role conflict, task overload, and goal conflict, which hinder agile work within teams.

Third, the clear distinction between organizational conditions for agility and mechanisms that influence agile work at the individual level provides a common ground for agile organizational development. Companies can integrate the developed model as a basis for strategy development in agile organizational transformation to achieve overall internal organizational agility and fully exploit the potential of agile methods in teams.

3.5.3 Limitations and future research

Although, this research study contributes to enhance theoretical and practical literature, it also has several limitations that need to be acknowledged.

Within my research, I consider both internal organizational agility and agile working methods as target states and activities that an organization strives for. This differs considerably from the view in several former research papers, that agility is a capability or competence of a

company (e.g., Sharifi & Zhang, 1999; Sherehiy & Karwowski, 2014; Sherehiy, Karwowski, & Layer, 2007). This perspective offers several advantages, e.g., in considering potentially versus actuality (Priem & Butler, 2001), but may also limit the results. In the future, an analysis of both approaches may have further insights in analyzing the impact of lacking organizational conditions on the implementation of agile methods.

The dataset of the study is based on semi-structured interviews within one company of the automotive industry. While a robust theorizing was possible due to the large sample size, additional insights could possibly be gained through additional case studies in other companies or industries. Future studies could focus on additional industries or sectors to validate or extend my research findings and apply them to other industries.

Furthermore, explorative expert interviews are the first step of analyzing the impact of internal organizational agility on the effectiveness of agile working methods. In a next analytical step, a quantitative employee survey could be conducted to test the emerging findings.

Moreover, even if the company within this study operates internationally, the culture of a country also determines the organizational structures and conditions to cooperate within an organization. A future analysis of companies in various countries with different working cultures could extend these findings.

3.6 Conclusion

Recent research has increasingly addressed the benefits and aspirations of companies, especially in software industries, regarding organizational agility as well as implementation of agile methods. However, prior research has not addressed the mismatch in organizations that have only partially transformed towards internal organizational agility, while at the same time implementing agile working methods in teams. My study addressed this research gap in contributing to existing literature by analyzing the influence of incomplete internal organizational agility for the effectiveness of agile working methods. Through a qualitative in-depth investigation with a strong dataset of 108 interviews I showed evidence that lacking organizational conditions impede the effective implementation of agile methods through four mismatch mechanisms. Hopefully, this research study encourages further research and discussions at the intersection of organizational agility and the implementation of agile collaboration in teams.

3.7 References

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4. Leadership in Agile Work Design – Exploring the Effectiveness Implications of Directive and Empowering Team Leadership

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4.1 Introduction

As today's organizations are constantly challenged by volatile business environments, outstanding leaders, both on the corporate and the middle management level, are essential to manage these changes (Geffers, Bretschneider, Eilers, & Oeste-Reiß, 2024; Ramakrishnan, 2021). Corporate leaders often rely on agile working methods to build adaptability into their organizations and drive work units, which are typically organized in teams, to higher performance (Geffers et al., 2024; Uludağ et al., 2022). This entails new leadership challenges at the level of agile teams, concerning the implementation of different leadership functions.

Current research controversially discusses empowering and directive leadership as two leadership styles within teams (Lorinkova, Pearsall, & Sims, 2013; Martin, Liao, & Campbell, 2013). Empowering leadership includes delegating authority to support employees in being self-responsible (Hakimi, Van Knippenberg, & Giessner, 2010; Lorinkova et al., 2013; Martin et al., 2013), whereas directive leaders concentrate on clear instructions by continually monitoring performance (House, 1996; Lorinkova et al., 2013; Martin et al., 2013; Yukl & Falbe, 1991). However, it is unclear how conducive these two leadership styles are for agile teamwork.

Agile teamwork includes an iterative project implementation in cycles (Conforto, Salum, Amaral, Da Silva, & De Almeida, 2014), self-organization as well as continuous integration of customer feedback (Denning, 2017; Dikert, Paasivaara, & Lassenius, 2016). Moreover, most agile teamwork methods include two leadership roles in agile teams, which pursue different objectives and follow different approaches: the agile coach supports the team in achieving project objectives, whereas the product owner ensures that customer requirements are met (Sutherland & Schwaber, 2007; Sverrisdottir, Ingason, & Jonasson, 2014).

First studies linking leadership and agility primarily relate empowering leadership to agile teamwork, as it supports the principles of agile work, such as accountability and decision making within teams (Muduli, 2017; Van Oyen, Gel, & Hopp, 2001; Xu & Shen, 2016). However, a few studies also posit that directive leadership provides helpful structure for agile teams (Gren & Lindman, 2020; Shen & Xu, 2015; Wageman, 2001). This contradiction could be resolved by investigating whether empowering and directive leadership in agile teamwork shift in importance, depending on particular situations, or by exploring possible complementarities between both styles. To extend our general understanding of the relationship between different leadership styles, my study explores the interplay of empowering and directive leadership in agile teams within the automotive industry. Analyzing the different leadership roles and measures of product owners and agile coaches in various situations, I ask: *How can directive versus empowering leadership facilitate agile team effectiveness?*

Presenting a dynamic perspective of empowering and directive leadership, my exploratory interviews with 111 product owners, agile coaches, and team members of different agile teams within an automotive manufacturer show how each of these leadership styles promotes the effectiveness of agile teamwork in different situations. I contribute to research on agile methods by analyzing the impact of different leadership approaches on the effectiveness of agile teams. In addition, I advance situational leadership research by mapping empowering and directive leadership actions to different situational contexts. Finally, my findings contribute to business practice by promoting a dynamic approach to empowering and directive leadership actions in agile teamwork.

4.2 Theoretical framework

4.2.1 Leadership

This study examines the situational integration of empowering and directive leadership styles in agile teams by different leadership roles, and how this affects agile team effectiveness. Based on the leadership literature the study concentrates on the two central leadership approaches of empowering and directive leadership. Previous literature identified these two leadership approaches as central to enhance organizational performance (Srivastava, Bartol, & Locke, 2006; Yun, Faraj, & Sims Jr, 2005; Zheng et al., 2021). Moreover, previous studies identified the impact of empowering and directive leadership on teamwork outcome variables such as performance (Lam, Huang, & Chan, 2015; Li, Liu, & Luo, 2018; Lorinkova et al., 2013; Newman, Rose, & Teo, 2016) and effectiveness (Li et al., 2018; Lorinkova et al., 2013; Yun et

al., 2005). In the following, the current state of research will be analyzed in the interest of this study.

Directive leadership

With the directive leadership style, the leader focuses on clear instructions and guidance. Directive leaders structure subordinates' work by setting a clear direction regarding the tasks and activities of the team (House, 1996; Lorinkova et al., 2013; Martin et al., 2013; Pearce et al., 2003; Somech, 2006; Yukl & Falbe, 1991). Employees' involvement in the decision-making process is limited, instead, the leader sets clear instructions with rules to be followed (House, 1996; Judge, Piccolo, & Ilies, 2004; Katzenbach & Smith, 1992; Lorinkova et al., 2013; Mesu, Sanders, & Riemsdijk, 2015). Furthermore, directive leaders set targets for teamwork, as well as a psychological structure for their employees, including clear processes, procedures and working policies (House, 1996; Li et al., 2018; Lorinkova et al., 2013; Martin et al., 2013). These clear structures also include the specification and sequential planning of employees' tasks to achieve the planned targets (Dolatabadi & Safa, 2010; House, 1996; Judge et al., 2004; Martin et al., 2013; Mukherjee & Mulla, 2022; Zheng et al., 2021).

Directive leadership is based on monitoring subordinates' performance as well as project success with milestones and reviews (House, 1996; Lorinkova et al., 2013; Martin et al., 2013; Sagie et al., 2002; Somech & Wenderow, 2006; Yukl & Falbe, 1991). This performance is actively rewarded by extrinsic factors, like salary increase or further development (House, 1996). Therefore, the assessment of performance contains active feedback from the directive leader by awarding rewards and sanctions (House, 1996; Kahai, Sosik, & Avolio, 2004; Lorinkova et al., 2013; Martin et al., 2013; Sagie, 1997). In addition, directive leaders support their employees in role and task comprehension by setting clear requirements and reducing role ambiguity (House, 1996; Kahai et al., 2004; Li et al., 2018; Lorinkova et al., 2013; Pearce et al., 2003; Sagie, 1997; Zheng et al., 2021).

Directive leadership has been shown to positively affect team collaboration and performance (Martin et al., 2013). Previous literature reports on an increase in effectiveness and efficiency of teamwork, as well as improved self-efficacy, resulting in timely and better outcomes (Kahai et al., 2004; Li et al., 2018; Martin et al., 2013, 2013; Mesu et al., 2015; Pearce & Sims Jr, 2002; Somech, 2006; Wendt, Euwema, & Van Emmerik, 2009). Furthermore, directive leaders accelerate the decision-making process which leads to a reduction in process losses by improving process control and transparency about target achievement (House, 1996; Kahai et al., 2004; Lorinkova et al., 2013; Sagie, 1997; Sagie et al., 2002; Somech &

Wenderow, 2006; Zheng et al., 2021). On the other hand, a highly directive context is linked with a negative relation to team cohesiveness, due to the integration of directive leadership behavior to focus on monitoring and instructions (Martin et al., 2013; Wendt et al., 2009). According to Wendt et al. (2009), directive leadership actions are necessary in teams to enhance productivity and provide a clear structure for achieving goals, even if team cohesiveness is not supported. Moreover, directive leaders can help to increase role clarity and task proficiency due to specifically defined processes and instructions that guide employees in the aimed direction (Dolatabadi & Safa, 2010; Mukherjee & Mulla, 2022; Zheng et al., 2021).

Empowering leadership

Previous literature postulates that the core activities of empowering leadership consist in sharing and delegating autonomy, responsibility, and power with subordinates (Hakimi et al., 2010; Lorinkova et al., 2013; Martin et al., 2013; Mills & Ungson, 2003). Therefore, empowering leaders integrate employees actively in the decision-making process, and delegate authority and responsibilities of processes and tasks to them (Ahearne, Mathieu, & Rapp, 2005; Amundsen & Martinsen, 2015; Arnold, Arad, Rhoades, & Drasgow, 2000; Hakimi et al., 2010; Martin et al., 2013). Sharing power also includes incorporating the opinions of subordinates and actively encouraging them to share knowledge and contribute ideas (Arnold et al., 2000; Chen, Sharma, Edinger, Shapiro, & Farh, 2010; House, 1996; Lorinkova et al., 2013; Pearce et al., 2003; Spreitzer, 1996; Yun et al., 2005).

Moreover, empowering leadership behaviors include to encourage employees in self-management, authority, and ownership of tasks through feedback and continuous support (Ahearne et al., 2005; Amundsen & Martinsen, 2015; Arnold et al., 2000; Cohen, Chang, & Ledford, 1997; Lorinkova et al., 2013; Martin et al., 2013; Sims, Faraj, & Yun, 2009; Zaccaro, Rittman, & Marks, 2001). Self-management of employees leads to a high responsibility and self-confidence in taking decisions and takeover of organizational tasks (Ahearne et al., 2005; Amundsen & Martinsen, 2015; Arnold et al., 2000; Chen et al., 2010; Mukherjee & Mulla, 2022; Sims et al., 2009). Empowering leaders minimize bureaucratic impediments to enable continuous communication and support employees in reaching goals (Forrester, 2000; Hakimi et al., 2010; Seibert, Wang, & Courtright, 2011; Spreitzer, 1995, 1996; Yu, Vaagaasar, Müller, Wang, & Zhu, 2018; Zheng et al., 2021). Furthermore, empowering leaders generate a supportive and friendly team atmosphere, which increases well-being and satisfaction, to achieve the best possible performance (House, 1996; House, Filley, & Kerr, 1971).

Previous literature describes effects of empowering leadership on teamwork. For example, empowering leadership increases employees' intrinsic motivation and trust, resulting in a higher employee potential (Forrester, 2000; Hakimi et al., 2010; Lorinkova et al., 2013; Martin et al., 2013; Spreitzer, 1995, 1996; Zheng et al., 2021). In addition, subordinates develop an affective commitment to the tasks and team (Albrecht & Andreetta, 2011; Mukherjee & Mulla, 2022). Moreover, empowering leaders facilitate higher proactivity and risk management within their teams due to higher autonomy and self-decision making (Martin et al., 2013; Zheng et al., 2021). Ownership of tasks and responsibility leads to higher efficacy and better performance of employees due to commitment and enhanced self-fulfillment (Arnold et al., 2000; Biemann, Kearney, & Marggraf, 2015; Blomquist, Farashah, & Thomas, 2016; Cohen et al., 1997; Hao, He, & Long, 2018; House, 1996; House et al., 1971; Kahai, Sosik, & Avolio, 1997; Lorinkova et al., 2013; Mukherjee & Mulla, 2022; Zheng et al., 2021). Furthermore, due to higher independence and exploration of team members, empowering leadership positively affects coordination and information sharing in teams (Zheng et al., 2021).

4.2.2 Agile teamwork

Agile project management

Agile project management emerged in the 1990s, primarily in software development, but is now also used as a teamwork method in other industries (Conboy & Fitzgerald, 2004; Conforto et al., 2014; Dove, 1991; Fowler & Highsmith, 2001; MacCormack, Verganti, & Iansiti, 2001; Mafakheri, Nasiri, & Mousavi, 2008; Qumer & Henderson-Sellers, 2008; Sharma, Sarkar, & Gupta, 2012; Sheffield & Lemétayer, 2013). The characteristics of agile project management are the fast and continuous integration of customer feedback (Denning, 2017; Dikert et al., 2016), incremental product development, self-organized teams, and continuous communication (Lindvall et al., 2002; Meso & Jain, 2006, 2006; Xu, 2009).

In previous research, Scrum is a well-known and highly recommended project management methods for agile teams (Cho, Huff, & Olsen, 2011; Dikert et al., 2016; Fernandes & Almeida, 2010; Hamed & Abushama, 2013; Landim, Albuquerque, & Macedo, 2010; Nathan-Regis & Balaji, 2012; Paulk, Davis, & Maccherone, 2011; Sutherland & Schwaber, 2007). In this agile teamwork method, products are developed, tested, and finally delivered incrementally and iteratively in short cycles called sprints (DeGrace & Stahl, 1990; Dikert et al., 2016; Schwaber & Beedle, 2002; Sharma et al., 2012; Sutherland & Schwaber, 2007).

The implementation of agile project work in teams aims to increase effectiveness and performance (Li et al., 2018). According to previous studies, agile teamwork characteristics

need to be implemented and adhered to in order to increase effectiveness (Masood & Farooq, 2017; Serrador & Pinto, 2015). An increase in effectiveness through agile teamwork is often associated with faster implementation and an increase in project team performance due to an enhanced flexibility and self-organization of team members (Boehm & Turner, 2003a; Budzier & Flyvbjerg, 2013; Dyba & Dingsoyr, 2009; Laanti, Salo, & Abrahamsson, 2011; Leybourne, 2009; Masood & Farooq, 2017; McHugh, Conboy, & Lang, 2011; Petersen & Wohlin, 2009; Santos, Bermejo, de Oliveira, Tonelli, & Seidel, 2013; Serrador & Pinto, 2015). Moreover, the high level of involvement of customers and stakeholders leads to an increase in transparency over project work, as well as responsiveness to changing conditions (Chow & Cao, 2008; Conforto et al., 2014; Highsmith, 2009; Hoda, Noble, & Marshall, 2011). Agile project management is often associated with a high satisfaction and motivation of team members due to discretion in self-decision making and development, which leads to higher engagement and commitment in the team (Boehm & Turner, 2003b; Dyba & Dingsoyr, 2009; Mann & Maurer, 2005; Serrador & Pinto, 2015; Xu, 2009).

Temporal perspectives of agile work

Previous literature on agile teamwork shows temporal perspectives of agile project work. In agile development, various phases are identified that cover product development, from initiation to the rollout of the product or the refactoring of the software (Destefanis, Concas, Marchesi, & Tonelli, 2012). Agile project management comprises several project phases that include different task and project statuses to be used in complex and changing conditions (Cockburn & Highsmith, 2001; Dikert et al., 2016; Highsmith & Cockburn, 2001). This form of project management involves iterative project implementation in cycles. A distinction can be made between the beginning phase, the development phase, and the review phase (Augustine, 2005; Boehm & Turner, 2003b; Cohn, 2005; Conforto et al., 2014; Highsmith, 2009; Molhanec, 2010; Schwaber, 2004). First, the beginning phase comprises the start of the project, the definition and validation of the project scope and requirements, ideally with support of customer representatives, as well as the collection of all relevant information for the initiation of the project (Molhanec, 2010; Owen, Koskela, Henrich, & Codinhoto, 2006). Second, the development phase includes the development of the project, as well as designing, testing, and recreating the product (Destefanis et al., 2012; Molhanec, 2010). Third, the review phase integrates feedback and review loops with stakeholders, reworking, completing the project, and releasing the product to the customers (Molhanec, 2010). In addition to the initiation or beginning phase, the development phase, and the review phase, Molhanec (2010) includes the

support phase. This phase comprises the after sales interaction with the customer after product delivery, including support with defects. This support phase is not further considered in this paper, as the project has already been completed at this point and the after sales operation starts. Owen et al. (2006) report considerable advantages in the temporal subdivision of agile projects, due to the incremental and iterative development that reacts flexibly to changing requirements, as well as the facilitation to develop creative solutions (Owen et al., 2006).

Leadership roles in agile teamwork

Within agile teamwork two leadership roles are distinguished, which include different objectives and approaches. The agile coach supports the team in achieving project objectives, whereas the product owner ensures that customer requirements are met (Sutherland & Schwaber, 2007; Sverrisdottir et al., 2014). The agile coach is responsible for teaching the methodology, structuring and facilitating teamwork, reviewing and tracking sprint cycles, and executing retrospectives and reviews (Schwaber & Beedle, 2002; Sutherland & Schwaber, 2007). Moreover, the coach protects the team from disruptions during the product development and is in charge of transformation management within the team (Sutherland & Schwaber, 2007). In contrast, the product owner sets targets, prioritizes tasks, reviews the results of the development teams, and evaluates the target achievement (Karamitsos, Apostolopoulos, & Al Bugami, 2010; Masood & Farooq, 2017; Sutherland & Schwaber, 2007; Sverrisdottir et al., 2014). In addition, product owners are responsible for the profitability and results of the product, as well as the value contribution of the team (Sutherland & Schwaber, 2007).

In previous literature, empowering leadership has been predominantly linked to agile project work, as self-organization and shared decision making are common principles (Gunasekaran, 1998; Muduli, 2017; Van Oyen et al., 2001; Xu & Shen, 2016). Accordingly, empowering leadership supports proactive, flexible, and fast actions of employees through intrinsic motivation, which promotes agility in teamwork (Gunasekaran, 1998; Muduli, 2017). Only few authors recommend the integration of directive leadership within agile teamwork, due to supposed contradictions, such as active structuring and guiding compared to self-organization (Gren & Lindman, 2020; Shen & Xu, 2015; Wageman, 2001). The agile coach is typically ascribed a more empowering leadership role whereas a project manager, or in an agile context, a product owner, is rather assigned a more directive leadership role in the team (Shen & Xu, 2015; Sutherland & Schwaber, 2007). Applying the right management style can have a major impact on project performance (Turner & Müller, 2005; Zheng et al., 2021).

While Martin et al. (2013) as well as House (1996) assume that leaders either follow an empowering or a directive leadership style and do not switch between different situations, other researchers recommend a closer examination of the application of various leadership styles in different project situations (Mukherjee & Mulla, 2022; Sims et al., 2009; Turner & Müller, 2005; Zheng et al., 2021). In addition, some studies report an increase in team performance if different leadership styles are used complementarily (Rosing, Frese, & Bausch, 2011; Smith & Lewis, 2011; Zacher & Rosing, 2015; Zhang, Waldman, Han, & Li, 2015; Zheng et al., 2021). To date, previous literature has not investigated whether empowering and directive leadership in agile project management can be used in a complementary manner, depending on different situations, in the two leadership roles of agile coach and product owner to increase agile team effectiveness. To address this gap and resolve the contradiction between studies recommending empowering or directive leadership for agile teams, this study explores possible shifts between leadership styles depending on agile project situations within both agile leaders, the agile coach and the product owner, and examines their impact on agile team effectiveness.

4.3 Method

4.3.1 Research design

This study explores the impact of directive versus empowering leadership on agile team effectiveness based on a qualitative research design with expert interviews. My inductive research design allowed me to gain an in-depth understanding of leadership processes in agile teams (Boddy, 2016; Gioia, Corley, & Hamilton, 2013; Suddaby, 2006). To gain comprehension of leadership and the concerns in agile teams, I collected field data from members within these teams and leaders in both roles, agile coaches and product owners (Creswell & Creswell, 2007; Creswell, Hanson, Clark Plano, & Morales, 2007; Glaser, 2001; Jones & Noble, 2007; Strauss & Corbin, 1990, 1998).

I conducted a case study within one automotive manufacturer to be able to analyze and deeply understand leadership dynamics within one organizational context (Locke, 2001; Morgan & Smircich, 1980; Post & Andrews, 1982). To cope with continuous changes within the automotive industry, agile working methods are often implemented in organizational units and teamwork (Elkins, Huang, & Alden, 2004; Qamar, Hall, Chicksand, & Collinson, 2020). These new methods require novel leadership functions and may lead to unique challenges for leaders. The chosen automotive manufacturer launched an agile transformation process in early 2017 to enable agile work in teams. These teams mostly implement the project management method Scrum (Schwaber & Beedle, 2002; Sutherland & Schwaber, 2007; Sverrisdottir et al.,

2014). Within those Scrum teams, I differentiate between three agile roles - product owners, agile coaches and team members - to compare various leadership contexts. Therefore, the dataset included interviews with product owners, agile coaches and team members of different agile teams. To strengthen the robustness of the emerging theory (Eisenhardt & Graebner, 2007; Mathieu, Maynard, Rapp, & Gilson, 2008), I sampled agile teams from various departments: Finance & IT, Human Resources, Research & Development, Procurement, Production, Sales, and Administration. Comparatively more teams were working with agile methods in the departments Finance & IT and Research & Development. Accordingly, a large proportion of the interview partners were found in these two departments. The large sample of 108 interviews with 111 interviewees (37 female and 74 male participants) facilitates convincing theorizing (Boddy, 2016; Morse, 1994; Sandelowski, 1995). Table 4.1 shows the gender, average age, function, and functional area of interviewees participated.

Gender	Average age	Function	Functional Area
Male: 8 Female: 4	Ø 37	Agile Coach/Scrum Master	Research & Development
Male: 6		Product Owner	
Male: 2		Team Member	
Male: 3 Female: 1	Ø 33	Product Owner	Procurement
Female: 1		Team Member	
Male: 10 Female: 8	Ø 37	Agile Coach/Scrum Master	Finance & IT
Male: 18 Female: 6		Product Owner	
Male: 6 Female: 4		Team Member	
Female: 3	Ø 39	Agile Coach/Scrum Master	Human Resources
Male: 3 Female: 3		Product Owner	
Male: 2		Team Member	
Male: 1 Female: 2	Ø 36	Agile Coach/Scrum Master	Production
Male: 2		Product Owner	
Male: 1 Female: 1		Team Member	
Male: 4 Female: 1	Ø 35	Agile Coach/Scrum Master	Sales

Male: 2 Female: 1		Product Owner	
Male: 1		Team Member	
Female: 1	Ø 36	Agile Coach/Scrum Master	Administration
Male: 4 Female: 1		Product Owner	
Male: 1		Team Member	

Table 4.1: Interviewees overview

4.3.2 Data collection

Seeking in-depth information of employees working in agile teams, I considered semi-structured interviews with representatives of different agile roles as most suitable for data collection (Barriball & While, 1994). To comprehend the leadership contexts and answer the research question adequately, I conducted interviews with participants in various agile teams, aiming for insights of team situations and opinions relevant to the research field (Bolderston, 2012; Crouch & McKenzie, 2006; Mason, 2010; Silverman, 1993). Agile coaches, product owners and team members were able to answer my questions from different individual perspectives of the situations. As semi-structured interviews include consistent questions, but also allow participants to address additional relevant topics, I was able to integrate emerging issues into theory building (Barriball & While, 1994; Myers, 2019). Accordingly, the interviewer as well as the interviewees are able to ask further inquiries with this interview method and thus are able to probe topics (Hutchinson & Wilson, 1992; Louise Barriball & While, 1994; Nay-Brock, 1984; Smith, 1992; Treece & Treece, 1986).

In three research phases, I conducted a total of 108 interviews. The first 28 interviews were conducted from May until August 2019, with questions mostly targeting the challenges of applying agile working methods. In the beginning, I asked questions about the team context and personal experience, e.g. the participants respective roles within the agile teams, the team composition, methodological sequences, and individual tasks. Subsequently, in-depth questions followed concerning the challenges in applying agile teamwork, e.g., “What challenges arose for you and your team since the introduction of agile working methods?” or “What supports or hinders agile work within your team?”. Within these interviews the participants frequently addressed that the respective leaders have a significant influence on the successful implementation of agile teamwork.

To investigate the challenges for different roles in agile project work, I started the second research phase from April until November 2020 and interviewed 34 participants about their individual activities and respective challenges they experienced. Questions like “In your

role as (agile coach/product owner/team member), could you please explain specific situations in which you were facilitated or restricted in applying agile working methods?” or “From your role perspective, what does an agile coach/product owner need to do to enhance successful agile teamwork?” supported the exploration of the effects of implementing agile work. Within these interviews, the phenomenon arose that different leadership actions of product owners and agile coaches may influence the efficiency of agile teamwork differently, depending on the specific situation.

Based on these findings, I collected further data in the third interview phase from February until September 2021 with in total 46 participants, to ask more specific questions about leadership actions of product owners and agile coaches in different contexts, e.g., “In your agile teamwork, which leadership elements are performed by the agile coach and which by the product owner in different situations?”. As these emerging findings resonated with the concepts of directive and empowering leadership, I focused more specifically on directive and empowering leadership actions in different situations and the resulting consequences for team effectiveness within this iteration phase. Probing questions like “Which elements of empowering and which of directive leadership do you observe in different project situations?” and “How does empowering/directive leadership impact the team in these situations?” helped to investigate different leadership elements and the consequences in various agile team situations.

I selected and recruited the interview candidates based on my contacts of agile project work experts within the automotive manufacturer, by e-mail or telephone. The snowball sampling strategy (Bolderston, 2012; Marshall, 1996; Robinson, 2014) supported the identification of further experts. First, interview participants of all three roles from various teams were asked about their different perspectives. Subsequently, in 2021 an agile IT development team was interested in this study and I was able to conduct interviews with all 12 team members about different leadership situations and their effects on agile team effectiveness. This additional data collection within one full team enhanced my comprehension of different project situations in agile teams and served to gain an overall understanding of emerging leadership actions and their impact on team effectiveness.

The interviews of 2019 were performed on-site, whereas all interviews of the second and third iteration phases were conducted virtually via the Microsoft Teams enterprise platform, due to the pandemic crisis. Despite the postulated challenges of lacking information of gestures and facial expressions in virtual interviews (Creswell, 1998; Musselwhite, Cuff, McGregor, & King, 2007; Sturges & Hanrahan, 2004), I was able to collect information about reactions and

non-verbal expressions of the participants by using the video function in all interviews (Gray, Wong-Wylie, Rempel, & Cook, 2020). Further advantages of open communication, increased participant comfort, and the absence of workplace disruptions emerged due to the protected environment of the home office, as opposed to the transparency of an open-plan office (Bauman, 1993; Beck et al., 2001; Deakin & Wakefield, 2014; Gray et al., 2020; Mabragana, Carballo-Diéguez, & Giguere, 2013; Musselwhite et al., 2007; Smith, 2005; Sturges & Hanrahan, 2004; Tausig & Freeman, 1988). The interviews lasted from 45 to 90 minutes, depending on the interviewees' time budgets.

4.3.3 Data analysis

To adapt the data collection process and interviews to emerging findings, the data analysis already started during the data collection period, especially between the three research phases (Jones & Noble, 2007; Langley, 1999; Lincoln & Guba, 1985; Locke, 2001; Locke & Golden-Biddle, 1997; Robinson, 2014). Data analysis represented an iterative process of data collection, data analysis, and formation of categories in order to develop a theoretical model (Glaser & Strauss, 1967; Jones & Noble, 2007; Locke, 2001; Robinson, 2014). Based on initial findings, the second and third round of data collection served to deepen emerging insights (Glaser, 1992; Glaser & Strauss, 1967; Locke, 2001). All interviews were transcribed in German, as the statements and opinions of the participants should not be distorted (Bolderston, 2012; Lee, Mitchell, & Sablynski, 1999). The interview transcripts were analyzed with the software Atlas.ti in several steps.

The first step included open coding to integrate all information that emerged from the interviews (Glaser & Strauss, 1967; Locke, 2001). These codes were translated into English, ensuring a common understanding and consistent messages. The first step of analysis produced a large number of codes remaining close to the messages in the transcript to faithfully capture all relevant statements (Gioia et al., 2013).

In the second step, I clustered these codes into first-order concepts, which comprised labels that also remained close to the original statements. This first-order analysis focused on the search for differences and similarities within the data and codes to identify a deeper structure (Gioia et al., 2013; Strauss & Corbin, 1998). For example, the statement of an interviewee "*We [product owners] agree what the project framework is, what the project goal is and when is the next time we should look again at how the project stands in terms of goal achievement and when we have the project completion.*" (2021_09_PO) resulted in the concept "Structured target setting". Further quotations, e.g., "*The first time that I as a PO really had the time to think*

strategically, to build up visions in order to keep sharpening them” (2020_13_PO) was clustered with other similar statements to the concept “Defining the project vision”.

In the third step, I structured the data into more abstract second-order themes to link my data to leadership theory and the impact of directive vs. empowering leadership on team effectiveness. Ideally, patterns relating to the research interest can be identified through cyclical analysis of data and literature (Gioia et al., 2013; Glaser & Strauss, 1967). The two examples “Structured target setting” and “Defining the project vision” were clustered to the second-order theme “Setting targets”.

In step four, these concepts and themes were summarized into aggregated theoretical dimensions (Gioia et al., 2013; Locke, 2001; Strauss & Corbin, 1990, 1998). Various aggregated dimensions evolved from the previous second-order themes. Referring to the examples above, “Setting targets” was grouped with another identified second-order theme, “Organizational coordination”, into the aggregated dimension “Directive leadership elements product owner”.

Finally, the fifth step comprised a higher-order analysis to analyze how the identified aggregated dimensions are interrelated in time. Three higher-order dimensions derived from the comparison of data and situational analysis: “Beginning phase”, “Development phase” and “Review phase”. Due to the five-step analysis, a holistic examination of the data in comparison with literature was possible. With the identification of first-order concepts, second-order themes, aggregated dimensions, and higher-order dimensions based on the analysis of my 108 interviews, it was possible to reach theoretical saturation according to Glaser & Strauss (1967), as a further data collection would not contribute significantly to enhance the research value (Glaser & Strauss, 1967; Locke, 2001; Marshall, 1996; Robinson, 2014; Strauss & Corbin, 1990, 1998). By constantly comparing data with results from previous literature, existing findings could be confirmed, disproved, or new findings could be obtained (Gioia et al., 2013). The following data structure in Figure 4.1 emerged, which was gradually created based on the analysis steps performed to reach rigor in the data analysis process (Gioia et al., 2013; Pratt, 2008; Tracy, 2010).

First-Order Concepts	Second-Order Themes	Aggregated Dimensions	Higher-Order Dimensions
1. Performing management function 2. Stakeholder management 3. Coordination of team members	Organizational coordination	Directive leadership elements product owner	Beginning phase
1. Structured target setting 2. Defining the project vision 3. Prioritizing the backlog			
1. Focus through prioritizing backlog 2. Start efficient collaboration	Productivity	Effectiveness mechanisms: directive leadership product owner	
1. Transparency through prioritizing backlog and stakeholder management	Transparency		
1. Sprint planning direction for team members 2. Provide clear instructions to the team members	Instructing	Directive leadership elements agile coach	
1. Structuring teamwork	Structuring teamwork		
1. Dynamic employee engagement 2. Involvement through structured teamwork	Engagement	Effectiveness mechanisms: directive leadership agile coach	
1. Encouraging team members 2. Facilitate team cohesion 3. Asking questions	Encouraging	Empowering leadership elements agile coach	
1. Clarify expectations and objectives 2. Explore the agile status quo of the team 3. Explore problems and fears of team members	Exploring		
1. Exploring expectations enables role clarity 2. Clarity of roles and tasks leads to efficiency	Role clarity		
1. Motivation of team members through encouraging	Motivation	Effectiveness mechanisms: empowering leadership agile coach	
1. Promoting agility to the team 2. Promote self-organization of the team 3. Integrating Team members in decisions	Promoting	Empowering leadership elements product owner	
1. Create conditions that the team is able to work agile 2. Giving team freedom to work 3. Removing impediments for team members	Enabling		
1. Commitment through integrating team in decision-making 2. Commitment through freedom of team members	Commitment	Effectiveness mechanisms: empowering leadership product owner	
1. Faster product development through freedom of team members 2. Higher efficiency through freedom of team members	Velocity		
1. Setting operational conditions 2. Setting structural framework	Setting conditions	Directive leadership elements agile coach	
1. Demanding discipline in the team 2. Making team perform	Disciplining		
1. Guide team in a specific direction 2. Process responsibility and control	Guiding		
1. Acceptance of team members through guidance 2. Trust of team members with the process through setting conditions	Trust	Effectiveness mechanisms: directive leadership agile coach	
1. Efficiency through disciplining 2. Target achievement through guidance	Efficiency		
1. Facilitating continuous improvement 2. Facilitating communication 3. Supporting team in self-organization	Facilitating	Empowering leadership elements agile coach	
1. Asking questions to activate discussions in the team 2. Conveying safety	Activating		
1. Team members take responsibility 2. Proactivity of the team	Proactivity	Effectiveness mechanisms: empowering leadership agile coach	
1. Speed through facilitating communication	Development acceleration		
1. Evaluating progress and success 2. Reviewing tasks and performance	Evaluating	Directive leadership elements product owner	Review phase
1. Stimulation through evaluation	Stimulation	Effectiveness mechanisms: directive leadership product owner	
1. Tracking key figures and performance 1. Directing reviews and retrospectives	Tracking	Directive leadership elements agile coach	
	Directing		
1. Quality through tracking performance	Quality	Effectiveness mechanisms: directive leadership agile coach	
1. Providing advice to the team	Advising	Empowering leadership elements agile coach	
1. Acceptance through advising	Acceptance	Effectiveness mechanisms: empowering leadership agile coach	

Figure 4.1: Data structure

4.4 Results

My analysis yielded situation-specific influences of agile coaches' and product owners' leadership actions on the effectiveness of agile teamwork. These two roles serve to elucidate the relationship between empowering and directive leadership actions. Although the agile coach tends to be assigned the empowering and the product owner the directive role, both roles exhibited elements of empowering and directive leadership depending on the team situation. The various team situations were grouped into three phases:

Beginning phase: This phase included the start of the project, the sprint (development cycle) and backlog (list of tasks) planning of teams.

Development phase: The product increments were developed in sprints. This included daily coordination rounds (dailies), as well as other project meetings.

Review phase: This phase contained review and retrospective ceremonies of the product and team cooperation, as well as the project completion.

Within these project phases, directive and empowering leadership actions became vital for agile team effectiveness, depending on particular situations. Furthermore, within the different project phases, various mechanisms became salient through which directive or empowering leadership fostered the effectiveness of agile teamwork (called “effectiveness mechanisms” in the following). I clustered my findings into empowering and directive leadership elements, assigned to the roles of product owner and agile coach. These two leadership directions were found to influence the effectiveness of agile teams differently, depending on the team situation, and entail various effectiveness mechanisms. To systematically analyze the results of this study, I derived a model (Figure 4.2) to illustrate the investigated situational leadership of product owner and agile coach during a project lifecycle including beginning, development, and review phase, and its effects on agile teamwork. This model will be explained in more detail in the following chapter, where the results will be presented.

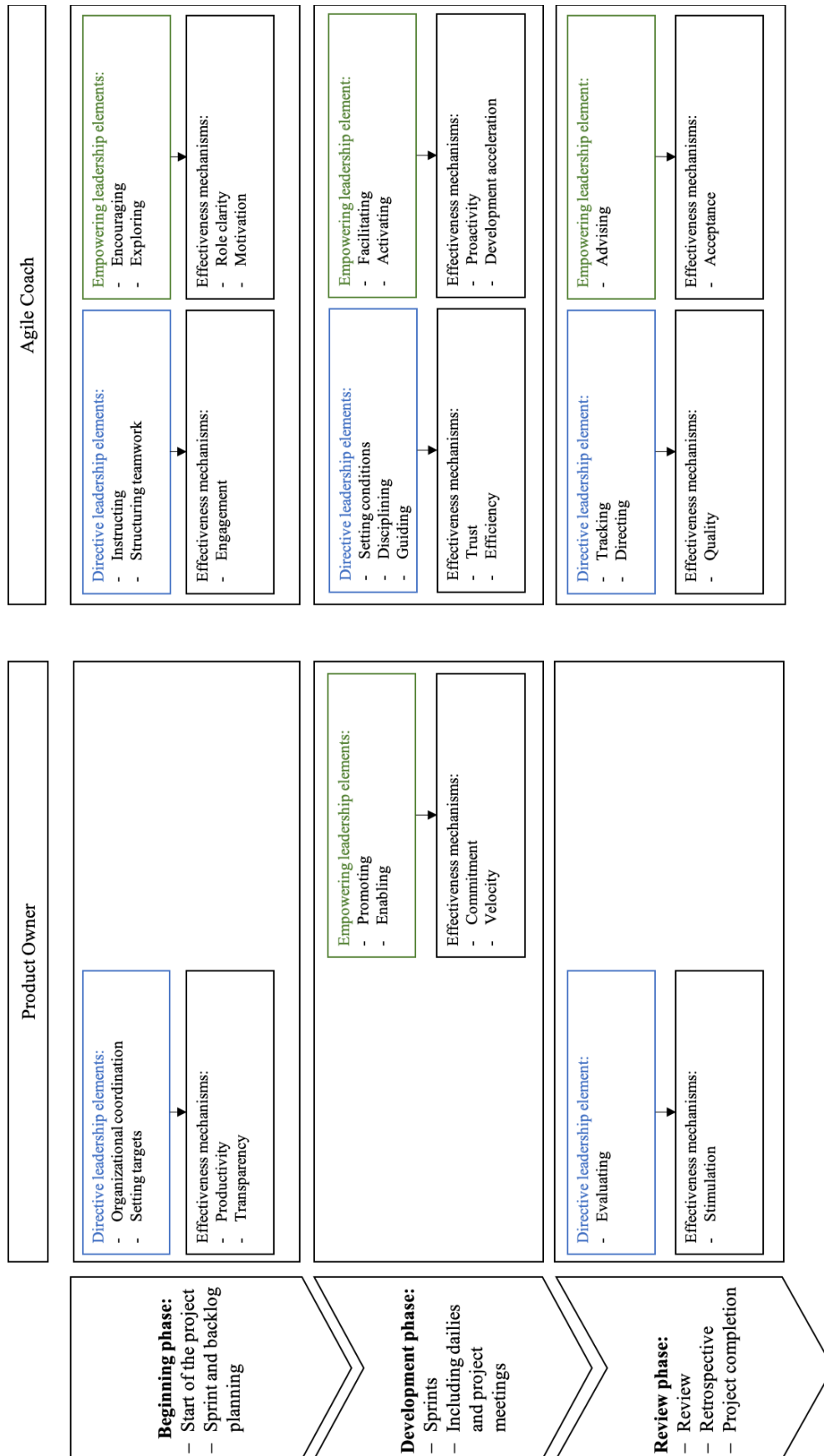


Figure 4.2: Overview of situational leadership of product owner and agile coach during a project lifecycle of beginning, development, and review phase

4.4.1 Beginning phase

Interviewees reported a clear role differentiation between product owners and agile coaches in the beginning. Whereas product owners performed more directive leadership elements, agile coaches alternated between directive and empowering leadership elements. The beginning phase included all activities for the start of a project, such as kickoffs, planning sessions, backlog refinements, and estimations to plan tasks, and necessary development activities of the team.

Directive leadership elements performed by product owners:

Organizational coordination. Interviewees reported that in the beginning product owners performed an organizational coordination role by taking decisions and delegating tasks to the team. Participants pointed out the high decision-making ability of product owners in the beginning:

"The PO then decides when to do it [the task], when it makes sense [to work on the task]." (2019_15_PO)

Moreover, the interviewees within this study indicated that Product Owners spend a lot of time on these management functions within agile teamwork:

"And then I suddenly only have these management functions, [...] because I basically just jump in [to the project] one after the other or in fractions and say [to the team members]: Okay, run around to the left, run around to the right." (2021_10_PO)

Leadership tasks by product owners also included stakeholder management. Both the assignment and the responsibility for the performance of the activities lied in the directive role of the product owner at the beginning of an agile project.

"In principle, my PO role is characterized by the fact that I commission the external service provider. This means that at the end of the day, I'm basically responsible for what they do vis-à-vis the department. And that's basically my basic role." (2020_24_PO)

Some interviewees reported that the organizational coordination also involved selecting and aligning team members for the project, a highly important task of a product owner. Important for staffing the team were the right skills to complete all tasks and features during the project work.

“The Product Owner has to take care to create a diverse team that also has the appropriate skills and capacities.” (2021_06-3_PO)

“And I believe that this is really the biggest challenge, that as a manager you also have to help employees to use their resources where it really makes sense.” (2021_11_AC)

Previous leadership research postulates that directive leaders influence team members to achieve desired results by guiding them in a clear direction regarding tasks and activities (House, 1996; House et al., 1971; Martin et al., 2013; Pearce & Sims Jr, 2002; Somech & Wenderow, 2006; Yukl & Falbe, 1991). Moreover, directive leaders give clear instructions regarding tasks and procedures to be carried out in the team (House, 1996; Martin et al., 2013; Pearce & Sims Jr, 2002). My study supports and extend previous research findings, as interviewees reported that product owners take on a management role in the beginning of a project. This means that they coordinate team members and stakeholders, as well as take decisions. The clear responsibility for coordinating all stakeholders, selecting team members, and ensuring the right skills are represented is not explicitly assigned to directive leadership in existing literature.

Setting targets. One central task of product owners is to define objectives in the beginning and continuously monitor the achievement of those objectives during the agile teamwork. My interviewees described this target setting as core activity of a product owner at the start of a project. For instance, some interviewees stated that objectives are recorded, monitored and reported in a very structured way:

“It is clearly recorded what and which target achievements are for the next sprint. And this is written down and monitored. And then it changes again. So, it's a very, very, very stringent structure and processual view of it.” (2021_06-3_PO)

“We [product owners] agree what the project framework is, what the project goal is and when is the next time we should look again at how the project stands in terms of goal achievement and when we have the project completion.” (2021_09_PO)

This also includes defining the project vision in the beginning and aligning it with customer needs. One product owner described this activity as *“the first time that I as a PO really had the time to think strategically, to build up visions in order to keep sharpening them” (2020_13_PO)*. Participants emphasized the task of a PO was to describe the direction and

content of the working activities and less the methodology of how the task is carried out, e.g. *“the Product Owner defines the “what” in the beginning, i.e. “Where do we want to go, what do we have to do to get there?” (2020_17_AC).*

Participants reported that product owners structured tasks, team members and targets in the beginning phase. By coordinating product requirements and customer needs, product owners structured the projects and tried to reduce process deficits. To structure the team’s development work, the product owner prioritized the backlog, i.e. the list of tasks that the team worked on. The interviewees stated the advantage that the priorities of the stakeholders are continuously considered and a clear focus is created in the team’s development work without considering unnecessary activities.

“That’s my role, to plan it out and say: ‘Okay, we have to do this and that until then and then, so that we can deliver the planned status to the committee on that day. And be able to answer XY’s questions from last time, for example.’” (2021_43_PO)

“The core competency of the PO is prioritizing the backlog. If I do that, the team members see, okay, someone has already looked at the contents. And if I look through the content in the beginning, I might reject some of it straight away and say ‘That’s too imprecise.’ So that the team only has to deal with the prioritized content that has already survived a certain pre-filtering, which, of course, also helps the team with structuring.” (2019_05_PO)

In line with Lorinkova et al. (2012), my results corroborate that in the beginning of a project work a directive leader “provides detailed goals and instructions for each team member” (p. 577). More specifically, House (1996) points out that a directive leader provides structure by scheduling and sequential planning of tasks. The results of this study support this assumption, as the interviewees reported, that in the beginning the product owner clearly defines project objectives and structures the development work by prioritizing the list of tasks in the backlog. In addition to previous findings, my study exhibits a temporal component by showing the importance that product owners define targets and tasks in the beginning of a project to provide structure and direction for team members. Moreover, my findings extend previous results with the task “defining project vision” of a directive leader at the beginning of a project. Literature to date (e.g. House, 1996; Lorinkova et al., 2013; Martin et al., 2013) focuses primarily on setting targets and clear structure by the directive leader. The specification of a project vision is not further mentioned.

Effectiveness mechanisms: directive leadership product owner

Productivity. As a result of the directive leadership elements performed by the product owner, the interviewees noted some positive effects that influenced the effectiveness of agile teamwork. Through managing and clear target definitions of product owners, the interviewees stated a stronger focus through backlog prioritization and a more efficient collaboration within the agile teams. Moreover, the participants linked clear target setting by the product owner to increased focus and productivity in achieving these targets.

“Most people also think it's really great that we can now drop topics that are not prioritized. So, we [product owners] communicate this out loud and say: ‘So guys, the following topics have now made it into the top ten priorities. And the other forty are optional. When we've finished the first ten, they're the focus for now, and once we've finished them, we can pull more topics. But be careful, it is not required that all topics run in parallel. But rather a clear focus.’ And that is something that creates a lot of transparency on the one hand, but also a lot of focus, because they work in a more focused way.” (2021_23-2_PO)

“I would say we work more productive. Because with agile work, you always set the team goals in short iterations. And you have a much stronger focus on where you actually want to go with your time. And especially in this operational business, where you have a lot of requests, a very broad spectrum of topics, it has helped some people to have this goal to focus on. And the feedback was also positive.” (2021_42_PO)

“The direct positive effect is that, of course, the clear objectives and coordination [by the product owner] ultimately pushed the team forward and they were able to meet additional requirements. And were therefore able to work efficiently. Because imagine if they hadn't understood the objective for the last two weeks. Then they would have gone into the sprint change after two weeks and would have had no result.” (2021_06-3_PO)

The results of this study support previous research findings that directive leadership positively affects team productivity through prioritizing tasks and setting focus (Kahai et al., 2004; Mesu et al., 2015; Zheng et al., 2021). According to Lorinkova et al. (2012), “teams led by a directive leader exhibit higher initial performance”, which can be confirmed as my interviewees report about higher productivity in the beginning phase through the directive

leadership of the product owner. Additionally, the interviews document a stronger team focus on assigned tasks to meet additional requirements and objectives more efficiently.

Transparency. Interviewees noted an increase in transparency through backlog prioritization of product owners in the beginning. In addition, the product owner's continuous stakeholder management provided these stakeholders with transparency about the expected product and timeframe, which increased the transparency of the agile team in achieving their goals. One product owner described the interaction of clear stakeholder management by showing them what they can expect through the prioritization of the backlog. Therefore, the pressure of expectations within the team decreased and transparency towards all stakeholders increased.

“So, the more success [of the product owner] there is, the more the individual team members are willing to embrace transparency. Apart from, I'm doing something important, you have to believe me. Towards, okay, it's not about control. It's simply about being transparent and measuring. To see what's coming in the product in the future. Can I [as a team member] do that to give commitment to customers and stakeholders?” (2021_42_PO)

“And even if someone [in the team] says, ‘I have so much work, I simply have too much, now we really have to prioritize together. We can't get everything done, something will fall through.’ Then you've also created transparency towards the stakeholder if you do not simply say: ‘we can't do it’, but instead ‘we can't do it because we do this and this and this’. If you now think that the priority has been assessed incorrectly, then we can go over it again together. But the fact is, something is not developed. And this transparency alone also helps to take the power out of the boiler.” (2021_42_PO)

Previous literature reports about an increase in team clarity through directive leadership concerning roles and duties (Lorinkova et al., 2013; Martin et al., 2013). The results of my study strengthen and extend previous research by showing an increase in transparency not only within the team, but also towards stakeholders by prioritizing tasks and activities and thus making them transparent. To date, research focused primarily on increasing role clarity and reducing role ambiguity through directive leadership (e.g. Kahai et al., 1997; Mukherjee & Mulla, 2022; Zheng et al., 2021). The increase in transparency beyond the team, especially during the start of a project, has not yet been considered.

Directive leadership elements performed by agile coaches:

Instructing. Within my study, the participants reported that to structure the teamwork and instruct the employees, agile coaches also integrated directive leadership elements at the beginning of the project work. Some interviewees reported that the agile coach was responsible for sprint planning and briefing of the team members.

“Especially in cooperation with the PO, creating all the stories, preparing the sprint planning and then carrying out the sprint planning in the team.” (2019_17_AC)

“And it is usually the case that a coach says: ‘I’m here to guide you.’ So, demonstrate, let them do it themselves, observe, and then just let them go.” (2020_14_AC)

One agile coach described how he held the project strings together to maintain an overview about all tasks and also provide clear instructions to the team members to start the project work.

“Because, even within the team, there are sometimes just flows where you should simply know your way around as the agile coach. And then simply say: ‘Ah, okay, that suits him. No, don’t do that, the other person will do it.’ I mean, the team members also talk to each other, of course. But sometimes it’s just about details that one person should somehow be in control of. In other words, the strings. And that’s more for a Scrum Master.” (2020_28_AC)

According to Martin et al. (2013) as well as Pearce and Sims (2002), directive leaders instruct their subordinates what needs to be done and what is expected of them. These findings are supported and extended by the present study, as my interviewees reported of instructions from the agile coach in the beginning. Therefore, agile coaches were in control of holding the team together and instruct team members with clear direction and commands.

Structuring teamwork. Some interviewees also stated that the agile coach not only maintained an overview of the project work, but also actively structured the teamwork. Agile coaches provided the structure and framework where the team developed the product or project. Participants described these actions as directive leadership, where the agile coach provided the structure of the team:

“So, the agile coach [...] provides a kind of structure in which the team members work.” (2021_06_PO)

“And with special projects like this in particular, it is very important that they have a structure and know what the homework for the week is. What do I have to do to meet the team's expectations? [...] That's why you need a lot more structure at the beginning.” (2021_11_AC)

In line with Lorinkova et al. (2012), my results corroborate that directive leaders structure teamwork at the beginning of the project by providing guidance and direction. More specifically, House (1996) points out that leaders set a psychological structure for the team which helps them in scheduling and clarifying their work. The results of my study support these findings, as the interviewees reported about agile coaches structuring their teamwork in the beginning of the project through helping to organize the tasks in a chronological order and setting framework conditions for the project.

Effectiveness mechanisms: directive leadership agile coach

Engagement. Within my interviews, many participants pointed towards an increased engagement after directive leadership elements of the agile coach. For example, one agile coach pointed out that after she structured the project and the teamwork, the team members were very grateful and engaged dynamically in their work:

“With one project, I noticed that there was no structure at the beginning and everyone was a bit free floating. We did something new every time, and we weren't really goal-oriented, and we were very dissatisfied because we weren't making any progress. So, I took on this role [Agile Coach]. And it was received extremely positively. And everyone joined in. It was suddenly such a driving force that people were grateful that someone was now taking the lead. I think it's also important to have a lead like that because it takes the pressure off the others. And then they can perhaps concentrate more on content.” (2021_11_AC)

Especially at the beginning, various interviewees emphasized the importance of clear instructions from the agile coach regarding project structure and organization. Some participants viewed these structuring and instructing actions as valuable for enhancing involvement.

“The added value [from the agile coach], especially at the beginning, was what the structure should look like. Especially in terms of how [...] one thing or another should be structured. That was an added value. And then to bring in the first structure.” (2021_38_TM)

In addition, one team member pointed towards an active structuring by the agile coach, and therefore higher involvement of team members, which led to a quicker success in smaller stages and being able to react more flexibly.

“But I think many colleagues have now realized that it's structured really good. That we can build with small components and then turn them into a big work of art later on. That we made really good progress with our parts. We also noticed in many areas that if we pack a topic that might take three or four months into small chunks, then you can also see progress. And you can also show and present something earlier. And you can say, this is how it turned out. Does that work for you or do you have to bend it in a different direction? Reacting to problems in a much more agile way, that's just great about the whole thing.” (2021_45_TM)

The results of this study extend previous research findings by identifying an effectiveness mechanism within the team: engagement, resulting through directive leadership actions of the agile coach in the beginning of a project. Wendt et al. (2009) noted that teams ‘showing less initiative and fewer extra-role activities’ (p. 359) as a result of directive leadership behavior of managers. Moreover, prior research recommends that directive leadership is particularly effective in teams with low productivity and motivation (Muczyk & Reimann, 1987; Wendt et al., 2009). In contrast, the present study found that various team members and coaches described that the engagement of the team members was explicitly fostered after the agile coach provided more structure and clear instructions. One agile coach described this as a ‘driving force’ (2021_11_AC) that emerged. Thus, this study argues that, in addition to positively influencing team collaboration (Martin et al., 2013), directive leadership also contributes to increased engagement within the team. Engagement encompasses the employee’s commitment and involvement in dedicating themselves to their work, as well as a certain level of devotion and enthusiasm for contributing (Boon & Kalshoven, 2014; Schaufeli, Salanova, González-romá, & Bakker, 2002).

Empowering leadership elements performed by agile coaches:

Encouraging. An essential characteristic of the empowering leadership style is to encourage team members in various situations to be able to carry out new tasks. In my study, many interviewees stated encouraging as essential leadership task of agile coaches at the beginning of agile teamwork. Some interviewees stated that the agile coach encouraged the team members in change situations and *“In some cases, maybe tickling people a little and luring them out of things.” (2020_03-2_AC)*. One agile coach described his work in identifying the

willingness to change of the employees and encouraging them in their different situations to enter the house of change:

“On the other hand, there are also employees who are getting to know this type of collaboration for the first time. They may also find it difficult because they have to get out of their comfort zone, because they have to go through the house of change. There are different types of people when they face a change. Some don't dare to enter the house of change, they find it difficult because they may have certain fears. Others dare to enter, but they get dizzy because they don't understand what's happening and have to find their way around. And others already know how things work and find their way around after a certain amount of time. And everyone has their own pace at which they have to go through this house of change, through their own personal change. One person will succeed more quickly and another will simply need more time.” (2020_32_AC)

Moreover, one interviewee reported that a central leadership task of the agile coach is *“to build the team into a good team” (2020_18_AC)*, which included the leadership performance *“to get the team to build a real [...] relationship with the product, to create a good basis of trust and also a certain consistency” (2020_30_AC)* as well as integrating teambuilding elements, e.g. *“I incorporate a lot of team-building elements like that, which are initially ridiculed, but that's really important because it allows people get to know each other anyway, which is even more difficult virtually than in person.” (2021_11_AC)*.

Furthermore, some participants reported about the central management task of an agile coach at the beginning of a project was to ask questions. Key element was to encourage team members to evaluate all relevant requirements and to adopt different perspectives, e.g. *“put your finger in the wound a bit with questions. So that you have the necessary discussion at the beginning.” (2021_44_AC)*. One agile coach described a situation where she used questions to encourage the team members to participate in the project:

“At the beginning, you could tell that there was a lot of uncertainty [in the team]. And the, in several sessions, they kept going around in circles a bit, but then you could also tell that this was encouraging. I kept throwing questions in, and that led to someone picking up on it because they thought, ‘Oh, now someone has to pick up the ball.’ As a result, some people who might not have been as involved initially started engaging, people who maybe wouldn't have otherwise.” (2021_11_AC)

These results support previous findings that empowering leadership includes encouraging team members to share knowledge, contribute ideas and their opinions in the project work (Arnold et al., 2000; Chen et al., 2010; House et al., 1971; Lorinkova et al., 2013; Pearce et al., 2003; Yun et al., 2005; Zheng et al., 2021). In line with Arnold et al. (2000) empowering leaders encourage their subordinates emotionally to “solve problems together” (p. 255). My findings corroborate these discoveries, as many interviewees report about agile coaches encouraging team cohesion. Moreover, some interviewees refer to the empowering role of agile coaches to achieve more participation and involvement of team members in the project by asking specific questions to stimulate discussion and team building.

Exploring. To prepare the agile team for the project, one key role of the agile coach is to explore the team’s readiness for the start of the project. Participants reported that agile coaches first explored and clarified the participants' expectations of the agile project, e.g. one agile coach described “*If I am now an agile coach, I naturally take a look at what the expectations were and what the goal was.*” (2020_26_AC). Moreover, agile coaches explored the teams’ and stakeholders’ objectives to gain transparency about anticipated tasks and team performance:

“And then, of course, keep checking - this sounds a bit pathetic, but: What is the goal for the year or the next year or two? How does this relate to your project plan or your daily goals? And can the agile method support you in this and perhaps give you a certain amount of motivation in your everyday life to support this?” (2019_23_TM)

In addition, interviewees reported that an essential task of the agile coach in empowering the team was to explore the teams’ status quo of agile knowledge. One agile coach described his team as inexperienced, therefore he had to clarify the level where to start teaching the agile methodology:

“In the team, people were inexperienced when it came to agile working. That would be the first point, to find out in the team, of course, what is the level of knowledge about agile working? Is it an experienced team, have they done it before? Do they not even know what it is?” (2020_04_AC)

Moreover, employees highlighted exploration of problems and conflicts as central elements of agile coaches’ empowering leadership actions in the beginning. Responding to fears of team members concerning agile practices was found to be essential at this stage.

“There were two or three colleagues who were very anxious. And the agile coach helped to simply explore these fears and say ‘What's putting you off? What are you afraid of?’ And then it was possible to address these fears and take them away to a certain extent, because they were generally unfounded.” (2021_17_PO)

In addition to previous findings, this study identifies exploring the status quo of the team - e.g., regarding agile knowledge - as a major activity of empowering leaders at the beginning of a project. Previous literature postulates encouraging self-management, delegating autonomy and responsibility, as well as minimizing bureaucratic impediments as empowering leadership tasks (e.g. Hakimi et al., 2010; Lorinkova et al., 2013; Martin et al., 2013). Many of the interviewees in my study stated that a central task of agile coaches at the beginning of the project work is to find out the expectation of the team members and explore the team's prior knowledge and fears. This exploration supports in identifying team goals and gain transparency about tasks and performance. In previous literature, this explorative approach is not explicitly mentioned in the activities of empowering managers. Therefore, the results describe a new aspect of empowering leadership of agile coaches in the beginning of a project.

Effectiveness mechanisms: empowering leadership agile coach

Role clarity. Within my study, some participants stated that the agile coach's role in exploring the team's status, clarifying expectations, and encouraging team members contributed to increased role clarity within the team by conveying both the methodology and the specific roles involved in agile project work.

“Yes, I simply believe that at the beginning, the agile coach encouraged everyone, but especially the product owner as person responsible, how everything works. And I think the team understands this structure, they learn it. However, they haven't done it often and sometimes don't know where the fine boundaries lie between the different tasks of the roles. Over time, I believe the product owner felt quite insecure at the beginning about what exactly her tasks and role were. And over time, this became much clearer not only to her, but also to everyone else [in the team].” (2021_16_TM)

“Everyone has learned much about their roles and what they have to do in the organization. Because it wasn't entirely clear at the beginning what you actually had to do, and that then increased.” (2021_16_TM)

One interviewee stated that a high level of role clarity in the team led to highest efficiency:

“It was most efficient when everyone knew their role and the tasks could be assessed very well by the respective people. And then I often saw that if you shared a lot about your successes and failures, a lot of progress was made.” (2021_16_TM)

In leadership literature, an increase in role clarity is predominantly associated with the directive leadership style (Dolatabadi & Safa, 2010; Muczyk & Reimann, 1987; Zheng et al., 2021). According to Dolatabadi & Safa (2010) directive leadership positively influences role clarity in project teams, whereas the investigated empowering leadership style has no direct effect on role clarity. These findings are contradicted by the results of this study, where an increase in clarity within the team is achieved through the exploring and encouraging activities of the agile coach. Some interviews indicated that the clarification of expectations and the analysis of the team’s knowledge level by the agile coach with subsequent methodical clarification significantly increased clarity about the roles in the team.

Motivation. A second effectiveness mechanism is the higher motivation of the team to work on the project initiated through the encouraging role of the agile coach in the beginning. One interviewee reported *“Yes, clarity increased, but I also think of motivation for the team [increased].” (2021_40_PO).*

“And there was one topic where the department, the colleague who was explicitly working on this task, really jumped on it and said ‘Wow really cool.’ Boa, cool, he thinks it's amazing, he thinks it's great, he wants to do it right away and where does he have to sign.” (2021_17_PO)

Previous research postulates that empowering leadership positively influences the affective commitment, i.e. the emotional bondage of an employee to the team and his work in the company (Allen & Meyer, 1990; Mukherjee & Mulla, 2022). Moreover, the intrinsic motivation and potential of employees is positively affected by empowering leadership (Forrester, 2000; Hakimi et al., 2010; Spreitzer, 1995, 1996). The above-mentioned findings confirm the positive effect of empowering leadership of the agile coach on the motivation of the team members in the beginning of the project. Accordingly, the continuous encouragement of the agile coach supports the team members in being motivated by questioning and facilitating team cohesion.

4.4.2 Development phase

Interviewees pointed out that during the development phase agile coaches not only performed empowering leadership, but also elements of the directive leadership style, whereas product owners changed from directive leadership in the beginning phase to empowering leadership in the development phase.

Empowering leadership elements performed by product owners:

Promoting. Agility promoting within the team was also reported as an empowering leadership element of the product owner's actions, with them being assigned the function of a role model. By giving feedback, they were expected to promote team members to continual improvement within the application of the agile methodology.

"It's something that each individual has to learn and understand and feel that it's an advantage for them. So, there is an understanding, also in the discussion, the coordination with my colleagues, that it really only works if the employees are convinced of it [agility] and if the employees understand that it is the right way of working. You can't impose it on someone who has an aversion to it or doesn't benefit from it, it simply doesn't work. The employees really have to be convinced. You can't do that through training, you can only do it by living and practicing this way of working." (2021_29_PO)

"Yes, because of the PO role, I have to exemplify agility to a certain extent, just like the Scrum Master." (2019_05_PO)

Moreover, product owners promoted self-organization as part of agile teamwork to the project team, by giving the team members freedom to take decisions about how they want to achieve the targets. One interviewee stated *"Ultimately, the product owner doesn't really care how you get to your goal."* (2021_06-3_PO), instead, the product owner set the framework and defined the target, but did not interrupt the team in defining how they achieved this target. Other product owners reported about empowering the team by giving the team freedom to work:

"I didn't find it difficult to let go. As I said, because I've often had leadership situations in my life where I've said: Okay, this part of the cake is now one level below me and you can do it on your own. I might have the right of veto to say: friends, that's not the way to do it. But that's why it was easy for me to choose between this, shall I say, classic structure [...] or the change, to say: Okay. I'll just set a target here and you plan the individual steps yourself." (2020_15_PO)

“The work is distributed and then everyone goes off and works on their topic. Then you sit down together, we now have a weekly two-hour status meeting in one project where we synchronize briefly.” (2021_29_PO)

Furthermore, product owners reported about integrating team members in decisions as part of empowering the team and promoting agile working:

“These are always decisions that I can't make on my own. If it's on a scale that it's going to keep us busy for a few days, it's a story in a sprint, I'm always making decisions like that on my own. It can also be a bigger issue. But then you have to be more transparent. For example, by saying: So, we urgently need to do XY in the next quarter. Then we have to allow more buffer for maintenance work, for operations.” (2020_23_PO)

“I am actually fully integrated into the projects. Not as a project manager who stands on top and supervises the teams, but as part of the team. For this reason alone, I am actually involved in all decisions.” (2021_29_PO)

Leadership research shows that empowering leadership strongly promotes the self-organization and autonomy of team members, as well as their integration into decision-making (e.g. Hakimi et al., 2010; Lorinkova et al., 2013; Martin et al., 2013). In line with previous research that focused on empowering subordinates with decision-making authority and delegating authority to team members (Ahearne et al., 2005; Leach, Wall, & Jackson, 2003; Lorinkova et al., 2013), this study identifies product owners promoting the team members' ability to organize themselves and actively involves them in the decision-making process during the development phase of the project.

Enabling. Interviewees stated enabling agile project work, development, and target achievement of agile teams as key elements of empowerment by product owners within the development phase of a project. One product owner described his enabling work as setting traffic lights to ensure there is no traffic jam and bottleneck in their work environment *“I see it a bit as my job to set the traffic lights in such a way that the teams can always drive through the traffic somehow and that there are no hitches anywhere.” (2021_35_PO)*. Other interviewees stated that the product owner was responsible for simplifying the teamwork and enabling them with the support and freedom they needed:

“In the sprint work, I also tried to be supportive by organizing rooms, organizing workshops, also doing workshops myself. And simplify people's work, making it easier for them. So, I mainly tried to simplify the work and not so much to reflect this agile context.” (2020_22_PO)

“He makes sure that they achieve their goals, so he can support them. He has to clean up the environment. He has to make the environment nicer. He also has to give them the training they need. He has to give them the support they need.” (2021_39_AC)

Other interviewees reported about the importance to give team members freedom to work and don't interrupt the workflow with other tasks and synchs:

“I think it worked very well to give people freedom, also from the product owner side, because a lot of further development was done in the time when this enablement could be carried out. Because all these other things [that disrupted development] were simply taken care of by the product owner.” (2021_16_TM)

“And then, of course, I also say: ‘Okay, it's now actually clear what needs to be done over the next two months, now the teams can actually coordinate with each other, we've defined everything, we don't really need weekly syncs anymore. Work together now, clarify things with each other. If there are any problems, just let us know, but otherwise we'll just let it go.’ Yes, as I said, depending on the situation.” (2021_29_PO)

Moreover, various participants within my study pointed to removing impediments and solving problems as other empowering leadership elements of product owners within the development phase:

“Clarifying questions, clarifying disputes, ambiguities, role conflicts, whatever comes up sooner or later. And especially at the interfaces with other areas of the company. And then it needs a lot of support. And for me, that's one of the product owner's main areas of activity. And it's more about being the problem solver. It can also help here and there, definitely. Specially to get impediments out of the way, that also helps, definitely.” (2021_24_PO)

“The impediments are also addressed by the individual teams via the agile coaches. This means that if there is an impediment that I can now solve in my role, the agile coaches of the respective teams often come to me.” (2021_23-2_PO)

My results support previous research findings which have postulated that empowering leaders focus on minimizing bureaucratic impediments (Forrester, 2000; Hakimi et al., 2010; Spreitzer, 1995, 1996). Various interviewees pointed out that product owners concentrate on enabling the team members through removing impediments and solving problems. In addition, empowering leadership contains providing employees with autonomy and self-responsibility to give them freedom in development (House, 1996; House et al., 1971; Lorinkova et al., 2013; Martin et al., 2013). These findings are confirmed by the results of this study, as product owners reported about giving the team members freedom to do their work during the development process and taking care that the team is not interrupted. Moreover, interviewees stated that the product owners actively set the conditions for the project work and ensure that there are no disruptions, which underlines previous research that postulates empowering leaders to enable employees in reaching the (project) goals (Hakimi et al., 2010; Yu et al., 2018; Zheng et al., 2021).

Effectiveness mechanisms: empowering leadership product owner

Commitment. In my study, various participants stated that empowering leadership of the product owners during the development phase of agile project work led to increased commitment within the team. For example, some interviewees experienced that commitment arose through the integration of the team in the decision-making process, as well as independent decision-making within the team.

“It only works if the team really believes that this is the best solution. That only one person - if only the team leader or the project manager is of the opinion that it has to work this way, then it won't work. So, the team has to be of the opinion, the majority of the team has to be of the opinion, for it to be the right approach. If that's not the case, then it won't lead to the goal.” (2021_29_PO)

“In the beginning, I always checked with my colleague. Over time, your expertise simply grows. The more decisions you make, the more confidence you have, the more commitment you get within the team. [...] Yes, from that point of view, I do think that this work ethic that we have in the team helps me and my decisions.” (2021_34_TM)

“And so we have a motivation: we manage to achieve something as a team, which has also led us in this agile environment to deploy some things at 10 p.m. and be happy to have finally solved this issue instead of saying: "This is not included in our assignment. We won't do it that way." Instead, we have created the freedom [...] to

work hand in hand as a team being equal, so I feel that productivity has increased dramatically, in any case.” (2021_35_PO)

Moreover, enabling the team members with freedom and not interrupting their workflow with parallel tasks led to higher commitment of the team during the development phase.

“I have the feeling that we had more freedom to develop personally and found our work less stressful and so on. And somehow, we enjoyed our work much more. I had the feeling that this made a big difference, yes, compared to project management activities, for example.” (2021_16_TM)

“I think it worked very well to give people freedom, also from the product owner side, because a lot of further development was done in the time when this enablement could be carried out. I think that was very, very well received. And it was actually a very good basis for commitment.” (2021_16_TM)

Overall, my results corroborate Albrecht & Andreetta's (2011) previous findings that empowering leadership enhances employees affective commitment with the teamwork and organization. By encouraging employees to take their own decisions, the commitment of these employees will increase (Albrecht & Andreetta, 2011; Mukherjee & Mulla, 2022). My study investigations show that integrating team members in the decision-making process during the development phase of a project leads to higher employee commitment. Moreover, my study shows that the freedom granted to employees with the empowering leadership of the product owner also leads to a higher level of commitment in the team. In contrast to the previously mentioned effectiveness mechanism of engagement, which is triggered by the directive leadership actions of the agile coach, employee commitment is elicited through the empowering leadership actions of the product owner. Commitment reflects the employee's connection and attitude towards the team and the organization, whereas engagement is characterized by a high level of energy, strong dedication, and immersion in the work (Boon & Kalshoven, 2014; Schaufeli et al., 2002).

Velocity. During the development phase, team members reported about faster product development through the empowering leadership style of the product owner. For example, a team member identified that *“the product grew faster” (2021_16_TM)* due to being able to take decisions independently.

“So, I think it worked very well to give people freedom, also from the product owner side. [...] I simply believe that the product grew faster, that it was technically clearer.” (2021_16_TM)

“But I would say that the main added value for me is when you create the structures on the outside. [...] And then also empowering the teams so that they can make decisions independently. It is certain to simply pick up speed again.” (2021_38_TM)

Participants identified higher efficiency as another effectiveness mechanism triggered by the empowering leadership style of the product owners. Some participants stated that the empowering attitude of the product owner to give the team members freedom, allowed them to work efficiently, resulting in new created features and the team was able to work efficiently even in the absence of the product owner.

“Yes, for example, one team member efficiently integrated a completely new feature and started a completely new collaboration with another company. And that certainly wouldn't have worked if it had somehow been a much stronger, stricter team setting. So, I couldn't imagine that working out at all.” (2021_16_TM)

“And that's what I meant by that: If I were a week out of office now, the world wouldn't stand still at all. So that's actually exactly where you want to go. The team now also has a technical understanding of our processes, so they can communicate with the specialist departments and work something out without any problems.” (2021_35_PO)

The study results show that the empowering leadership of product owners during the project development phase increases the speed of development. Due to the freedom of team members to carry out the development independently, the product development is faster and more efficiently. Efficiency refers to achieving a project goal with a reduced allocation of resources: time, budget, and scope (Serrador & Pinto, 2015; Shenhar, Levy, & Dvir, 1997). In the case of the interviews mentioned above, the primary focus was on accelerating product development through the empowering leadership of the product owner. To date research confirms the effect of empowering leadership on increased efficiency in teamwork (e.g. Cohen et al., 1997; Lorinkova et al., 2013; Zaccaro et al., 2001). However, an increase in velocity through empowering leadership is not explicitly confirmed in the literature to date. Accordingly, the results presented here extend the findings of previous leadership research by showing an effect of empowering leadership elements on development velocity.

Directive leadership elements performed by agile coaches:

Setting conditions. The participants also reported that the agile coach set and specified many operational conditions independently. For example, he adjusted the stage plans, specified deadlines and the content, and tidied up the backlog. Furthermore, setting meeting structures in the team, by making the team stick to deadlines, and providing the time structure were further tasks reported.

“I do the whole organizational side of things. Whether it's about the premises, or how the agenda should be drawn up, or how it makes the most sense to organize the teams. That's where I help out. I support the POT [Product Owner Team], that's why I'm involved everywhere. I make sure that the stage plans are up to date. I make sure that everything is always prepared when the appointments are made. That we always have something in place so that everyone isn't standing there somehow unprepared and saying: "Okay, what are we going to do now?" So, I definitely do that.”
(2019_06_AC)

“I would say the agile coach provides the structure [...] directives through these meeting methods in the teams. In the sense that they stick to regular dailies, regular print planning, reviews and so on.” (2021_23-1_PO)

Team members also described the setting of structural framework conditions as an essential task of the agile coach during the development phase:

“That's exactly how I would see it, he [the agile coach] prioritizes the topics, he takes care of the progress of the project and of course also the implementation within the framework of the project and agility. But he also guides the team to ensure that they comply with the rules of the game.” (2021_16_TM)

“So, if we had different cadences within the teams, it would be the case that one team is constantly waiting for the release of another, but one team only releases every month, even though the other releases weekly. Then we would already be at odds with each other. Therefore, that this does not happen, I think it's important to give the teams freedom, but to have a clear structure: When do we have to run together again? When are the touchpoints where we all meet as a project? These are really the deadlines for us. But there are many other structuring elements that we simply have to provide to make it work across so many people. I mean, we're talking about 150 people, 200 people in some cases, who are involved.” (2021_19_AC)

As at the beginning of a project, my interviewees reported about agile coaches strongly setting the structural framework conditions in the development phase of the project. While the agile coach establishes the project structure in the beginning phase, i.e., organizing the collaboration between team members, the coach expands this structure during the development phase to include clear framework conditions for project development, such as updating stage plans, ensuring continuous progress, and ensuring adherence to guidelines. Thus, the coach sets the framework within which project development can occur. This supports the thesis of House (1996), as well as later research streams (e.g. Li et al., 2018; Lorinkova et al., 2013) that directive leaders strongly shape the structure of teamwork, including the processes and procedures of cooperation and development. Accordingly, the results show that agile coaches take a strong directive lead during the development phase of projects by setting framework conditions.

Disciplining. Participants reported that during the development phase, the agile coach continuously demanded discipline in the team as a directive part of his leadership style. One agile coach explained “*I have tried to intervene. I think it's also very important to clearly remind people of the rules.*” (2020_27_AC). Disciplining the team was reported to specifying timescales and demanding rules within the team.

“Putting individuals in their place and saying, for example: ‘Dear PO, it is not your responsibility how it is implemented. You do not dictate this to the implementation team.’ Or, ‘dear stakeholder, yes, we have included your requirements, but you only actually have a role in the daily if we invite you because we have questions. But it's not a status report to you every morning, it's at working level, who has to do what today.’ I think [...] it's an advantage if you have a coach. [...] He can simply tell us how things should be done.” (2019_15_PO)

“And it started with teaching the team discipline in the first place. Telling the team what it means to be on time. And it sounds so banal, but also keeping to a timebox and things like that. So, I don't know if you've noticed, but even when we go through the review like this, the team already has a very good sense of time. But that wasn't the case at all at the beginning. So, a lot of 1,000 adjusting screws.” (2020_01_AC)

“In this respect, the agile coach also has to be a bit of a watchdog and say, ‘No dear friend, please don't do that anymore and I'll slap you on the wrist’, to put it a bit more drastically.” (2020_17_AC)

In addition, the agile coach disciplined the team for continuous improvement to achieve a high-performance team, e.g. *'And with this frame, I simply try to discipline the team in a way that provides them with the greatest possible security, so that they then, as I said, get to the next, and next, and next level, and then gradually become a high performing team.'* (2020_17_AC). The interviewees described this as making the team perform, e.g. *'The role of this agile coach is to drive the process forward and make the team perform.'* (2020_14_AC). Moreover, one participant stated the *'Scrum Master must try to provide the leadership that [...] performance can be increased.'* (2020_32_AC).

Previous literature on directive leadership in teams mainly focuses on monitoring the team, e.g. by setting milestones, to achieve performance and success (House, 1996; Judge et al., 2004; Lorinkova et al., 2013; Martin et al., 2013; Sagie et al., 2002; Somech & Wenderow, 2006; Yukl & Falbe, 1991). In addition, previous research postulates that directive leaders actively provide feedback through rewards and sanctions to influence the team performance (House, 1996; Kahai et al., 2004; Lorinkova et al., 2013; Martin et al., 2013; Sagie, 1997). The results of this study extend previous research findings. My participants reported that agile coaches discipline the team members and stakeholders by giving clear specifications regarding working methods, time, or framework conditions. The agile coaches do not resort to punishment, but instead provide clear discipline that is intended to enhance team performance.

Guiding. Leading agile meetings, dailies, and processes were stated as core activities of agile coaches. By concentrating on methods, agile coaches were able to give direction to the team by *"Taking the lead in a group and steering people in a certain direction."* (2020_03-2_AC).

"To limit the risk of going in the wrong direction. That's really all it's about."
(2020_06_AC)

"There were often times in such rounds that we completely lost the thread and they [the team] got completely lost in technical topics and didn't get to the point. [...] Then I simply tried to guide them directly, so I was always there in the rounds and simply pointed this out directly." (2020_27_AC)

Moreover, interview participants discussed the process responsibility and process control as integral part of the agile coach's directive leadership style during the development phase. For instance, one agile coach described this process responsibility with *"I'm responsible for keeping the work flowing."* (2020_09_AC). Other participants added that the agile coach

was responsible for ensuring that the right people take the decisions and adhere to the defined processes.

“That's where an agile coach is important, simply to keep an eye on who is allowed to decide what.” (2019_15_PO)

“In other words, he controls the process, enables the agile teams to apply the agile principles and provides procedural support, carries out the planning, is the methodical contact person, also controls the communication between the business owners, etc.” (2020_16_AC)

“If you live the role properly, that is exactly the role of the Scrum Master, to define processes and adhere to processes.” (2020_19_PO)

In line with Dolatabadi and Safa (2011), directive leaders influence the team by guiding them in a specific direction. Moreover, the team is guided towards a desired result by a clear direction, which the directive leader always keeps in mind (House, 1996; House et al., 1971; Martin et al., 2013). My findings confirm the existing literature, as the interviews reveal that the agile coach provides the team with clear direction during the project's development phase. Furthermore, the agile coach takes on process responsibility and control within the team to achieve the desired project goal. In addition to the above-mentioned role of setting framework conditions, the agile coach takes on explicit process responsibility by guiding the team, ensuring that this responsibility is fulfilled through the direction provided to the team.

Effectiveness mechanisms: directive leadership agile coach

Trust. The participants confirmed that the directive leadership elements had a positive influence on their teamwork. Two effectiveness mechanisms were identified. Firstly, some interviewees indicated that the trust of the team members increased. They mentioned that the acceptance towards the agile coach increased, as he achieved positive effects on the team work by taking over organizational tasks and guidance.

“In my opinion and in my experience, the teams are always very grateful for this. Because on the one hand, it's a kind of appreciation. Here is someone who is simply helping us to work together sensibly and efficiently. He may not be able to help us with the topic, but he is there for us. And if there's a problem somewhere, he jumps in and guides. That is very, very positively received.” (2021_44_AC)

“In general, you know that if you had to do it all yourself, you can see what the difference would be. So of course, that's a very positive thing. This organization, where you say, we actually have to get the facts here and there, can you arrange an appointment with these people. If someone takes that, it's really positive. In appointments, when you have someone who says that time is running out, we have to step on the gas and so on, that is of course also helpful. I think the perception is positive, just this guidance character.” (2021_46_PO)

Moreover, the team's trust in the process increased, because the team trusts the agile coach that he did his job in setting conditions, guiding through the process and knowing the method.

“And then it creates a completely different basis of trust when you coach, because they know, okay, he has already seen all the other projects and that must be good somehow if they do it [the process] like that.” (2020_30_AC)

“Well, we know that our colleague knows the methods better than we do, so we trust him. So that's his main job, to take care of it and spend time on it, while we do other things, it's his main job to take care of things like that. And he does that too. I like to compare it to when you go to the dentist and he tells you something, you have some impression of whether it makes sense or not. Even though a) you can't see your teeth, b) you're not a professional, and yet you have some kind of impression does it make sense, does it work, does it fit together or not. And of course, the same thing happens when the coach sets the framework conditions.” (2021_20_PO)

According to Dolatabadi and Safa (2011) directive leaders guide employees to specific directions to influence their performance. Some of my interviews indicated that this guidance by agile coaches during the development phase leads to an increase in trust within the team concerning the development process. The team's trust in the agile coach relates to his methodical abilities, and is therefore considered to be cognition-based trust as defined in previous trust research (McAllister, 1995; Schoorman, Mayer, & Davis, 2007). Moreover, the acceptance of team members towards the agile coaches increases through setting conditions within the development process. This connection between directive leadership and increased employee trust has not yet been addressed in the literature. Instead, a positive correlation between empowering leadership and increased trust has been established (Mukherjee & Mulla, 2022; Zheng et al., 2021). Accordingly, the interviews in this study reveal that directive

leadership through guidance from the agile coach can also create a high level of trust among employees during the development phase through the setting of conditions.

Efficiency. Some interviewees also perceived an increase in efficiency as a result of the agile coach's directive leadership elements. Participants reported time efficiency gains when the agile coach disciplined the team members and ensured that there was no duplication of work.

“Yes, it's definitely more efficient. You simply lose a lot of time with discussions that are held at the wrong time and in the wrong circle, which costs a lot of time. And if you really focus on it and say: ‘We've now divided up the day.’ [...] And I do think, yes, it's supportive when he intervenes and disciplines.” (2021_29_PO)

“But for me, efficiency is also something where I look to the right and left and see it from an overall economic perspective. Simply that there is no duplication of work, that people support each other. That the capacities are somehow balanced. You always have a colleague with you who is simply full of issues and needs support. And that you pick up the slack. I count that as efficiency in the broadest sense. Which in the end may not always be measurable in hard figures. But it's simply part of keeping the overall project in a green zone.” (2021_44_AC)

“If you now have the agile coach watching, who puts a bit of pressure on you so that you perhaps get through a few more topics and then don't get lost in things that you could perhaps do in other appointments that are specially designed for this. So, of course, you have an efficiency advantage.” (2021_46_PO)

Some interviewees stated that the targets were better achieved because the agile coach regularly pushed and guided the team:

“Of course, there is target achievement. I've noticed that when the coach has to make a push, people are happy afterwards. They're happy that it's somehow done and that the result has come out.” (2021_17_PO)

“So that he [the agile coach] also says in these six weeks when there are points for efficiency. And it's just that the results still have to be presented in some leadership meeting. And that, I'd say, 90 percent of us then have a check mark behind it as to how they want it.” (2021_38_TM)

Previous literature assumes that directive leadership elements lead to an increase in efficiency as well as timely and better outcomes within the project work (Kahai et al., 2004; Li et al., 2018; Martin et al., 2013). Efficiency involves achieving a project objective while minimizing the use of resources such as time, budget, and scope (Serrador & Pinto, 2015; Shenhar et al., 1997). My findings corroborate these assumptions, as interviewees specifically reported about an increase in efficiency during the development phase due to the disciplining of the agile coach during the process. In addition, my results confirm that the targets were better achieved because the agile coach continuously guided the team in the right direction during the development phase. While the above-mentioned increase in velocity through the empowering leadership of the product owner pertains solely to the temporal dimension of efficiency, the effectiveness mechanism “efficiency” in this context encompasses all dimensions. For instance, the interview participants reported not only about reduced time, but also about capacity savings, a reduction in work duplication, and improved achievement of project goals.

Empowering leadership elements performed by agile coaches:

Facilitating. One empowering leadership element of agile coaches within the development phase of projects was facilitating continuous improvement. The interviewees reported that agile coaches continuously triggered and empowered the team for improvement steps.

“To introduce this mindset of continuous improvement or to question things first. So to speak, I don't have to keep working like this just because I've always done it this way.” (2020_04_AC)

“I think, to stay with the trainer term from before, you can try to tease out more and more without overtaxing or exhausting people, because that shouldn't be the goal, to burn someone out. But it's still a continuous improvement process. You optimize yourself in the teams. And that should be encouraged by the agile coach in order to improve, let's say, a millimeter in every sprint in a certain way, so that the whole thing runs more and more smoothly.” (2020_32_AC)

Moreover, my study participants indicated that facilitating communication was another part of facilitating the team during the development phase. Therefore, agile coaches introduced meetings to share best practices, promoted communication between roles, and supported the team in balanced communication.

“And I think what makes a good coach above all is the topic of communication and I think that is also a bit of a main task, to promote communication between the different roles, because it is usually not intentional that this does not take place, but sometimes it is simply forgotten.” (2020_16_AC)

“Also, precisely because we have very different levels of practical experience in the team. With a lot of work experience and relatively little work experience. At the beginning, for example, I worked very hard to ensure that this exchange took place. Then there was also a regular meeting just for the team, where different skills could be exchanged and one could learn from the other, so to speak. And that was also an appointment that I helped to introduce.” (2020_29_AC)

In addition, team members stated that agile coaches strongly facilitated and coached the team in self-organization. Accordingly, some interviewed agile coaches reported how they attached great importance to the team thinking for itself, making decisions and, as one agile coach reported, helping to solve their problems *“I'm not the babysitter, I don't try to take all the issues off their hands, but I support them in solving their problems themselves.” (2020_16_AC)*. Moreover, another agile coach defined it as *“I am the one who inspires you to act in a self-organized and self-directed way.” (2020_18_AC)*.

“An agile coach once said to me that, ideally, you only really need the agile coach on paper. So, to the extent that we simply want to get the team to think along with us and also think about the individual details. And that I, as coach, am not required to carry out mindless operational activities because the team has forgotten something again, so to speak, but that we get to the point where the team thinks for itself. [...] And that's how you make the team feel responsible, make individuals feel responsible, and, in an emergency, things would work without me.” (2020_01_AC)

Previous research postulates empowering leadership contains facilitating employees to enhance self-organization (Ahearne et al., 2005; Martin et al., 2013; Sims et al., 2009; Zaccaro et al., 2001). In line with Zaccaro et al. (2001), empowering leaders engage in facilitating the team to increase effectiveness in teamwork. The interviewees in my study report about agile coaches facilitating team members in continuous improvement, communication, and self-organization. Accordingly, the findings support the thesis that self-organization, as well as continuous improvement, i.e., the effectiveness of the team, is facilitated by empowering leaders.

Activating. Many participants mentioned the activation of team members in various situations during the development phase of the project as a key component of the empowering leadership style of the agile coach. Activation was often achieved by asking questions, e.g. some participants described that the agile coach sometimes has to activate people to participate and discuss within the team by asking questions. In addition, agile coaches empowered the team members to find the solutions themselves by asking questions:

“I really take the time to call the individual team members personally and ask what kind of problems they are having. And one of my key questions is always simply: ‘Well, as an agile coach, what can I actively do to help you with your problem?’ And often, the team members simply realize that they haven't really reflected on or dealt with their problem up to that point. And if you then try to find your way into it and encourage them, let's say in a smaller group, to first name their problems and say: ‘Well, how can I help you or what's the problem?’ And I always try to ask questions iteratively in the sense of: Yes, what would be the next step? So, it really is always a trick to ask the right questions in order to get the right answers.” (2020_01_AC)

“I see my role in asking questions. I ask questions and they have to provide the solutions. [...] It's more like what do you think would be good for you? What would be good for your team? Because then they can identify better with the results than if I tell them the solution. But sometimes I also have to let them go, just let them fall flat on their face.” (2020_18_AC)

Moreover, participants mentioned conveying safety through the agile coach as another integral part of activating team members in the development phase. Only in a safe work environment team member feel able to actively participate in product development. For example, one agile coach described the basis for teamwork was security that the agile coach conveyed to empower the team.

“And there is one theoretical topic that you also know: Maslow's pyramid of needs. The foundation is safety. And especially now with us, with the whole changeover and the various corona topics, including capacity, these are of course all factors somewhere that are responsible for a certain amount of uncertainty. And my understanding as an agile coach is to give the team as much security as possible for the things that are now in my role and in my power, so that the team can reach the next levels of Maslow's pyramid of needs, so that they become a high performing team. In other words, you really start with safety and say, ‘Okay. I'm going to give

you', which of course also involves the role, 'security in how we do the whole thing.'"
(2020_17_AC)

"The goal is for the agile coach to provide the framework and security. And I think that's what the managers and the team needed, that he provides the security of the method." (2020_26_PO)

"Leave room for open communication and offer a protective space. In other words, where you can really say: 'Hey, you can tell me anything. No matter what. It stays here in the team.' And then respond to that." (2020_30_AC)

Current leadership research assumes that empowering managers activate employees to openly share ideas and opinions (Arnold et al., 2000; Chen et al., 2010; House et al., 1971; Lorinkova et al., 2013; Pearce et al., 2003; Yun et al., 2005; Zheng et al., 2021). Moreover, Yun et al. (2005) argue that empowering leaders continuously engage employees "to actively participate in decision-making and task management" (p. 1289). These assumptions are supported and further extended by the interviews in this study. Agile coaches activate the team members to foster taking responsibility for product development and, through the use of questions, enhance discussions within the teams. Additionally, building on previous research, it is observed that empowering leaders, such as agile coaches, create a safe environment where team members feel comfortable actively contributing to new product development. In the beginning phase, the agile coach adopts an encouraging approach, promoting team cohesion by asking questions to stimulate discussions and engaging in team-building activities. However, in the development phase, the coach's focus shifts from strengthening team cohesion to activate team members to take responsibility for product development, communicate effectively within the team, and actively contribute to product creation within a secure environment.

Effectiveness mechanisms: empowering leadership agile coach

Proactivity. During the development phase of the project, some participants perceived that the empowering leadership elements of the agile coach activated the team members and that the project work became faster. Initially, the participants stated that the facilitation and support of the agile coach for self-organization enabled the team members to proactively take responsibility themselves. For example, one agile coach noticed that the team applied the skills and methods independently:

"And that's been my experience, so let them [the team] go a little bit and also let them hit the wall sometimes. That doesn't do any harm. But I've never had the feeling

that something has escalated completely. But rather that after a relatively short time, what you simply gave them at the beginning, explained to them, they took it from there and transferred it. And they do their own thing with it, which then works.” (2021_44_AC)

“And that we really know in principle what needs to be done independently. [...] So I thought that was good, yes. I think that also helped the team. [...] And as I said, everyone knows what they have to do. You just have to get to grips with it. And once you get the hang of it, I think it's quite a good thing, yes.” (2021_31_PO)

In addition, through the activating actions and continuous questioning of the agile coach, the team members were proactive in communication, shared their results, and were enthusiastic about the project:

“When you do other workshops and we simply apply one of his [the agile coach's] methods, it's really amazing how quickly you get people talking or saying what they really think.” (2020_02_PO)

“It's just a bit more proactive there. Everyone wants to talk about what they've achieved during the day. It's not like that in terms of reporting. [...] From that point of view, the willingness to present, to give the status of your user story, is a little different in terms of feeling.” (2021_34_TM)

“And you can tell that the group is totally enthusiastic. And this enabling, I think that's just super important. And then it's also skills-based, so you think about who has what strengths and give them the opportunity to train and practice them.” (2021_11_AC)

According to Martin et al. (2013), empowering leadership positively influences proactivity within teams. Moreover, previous research postulates a positive link between empowering leadership and subordinates' affective commitment by enabling them to establish a better connection to the team and tasks (Albrecht & Andretta, 2011; Mukherjee & Mulla, 2022). The findings of the present study support and supplement previous research results. The empowering leadership elements of agile coaches during the product development phase lead to a higher level of proactivity among team members. Accordingly, team members took on responsibility independently and were enthusiastic about their work. Therefore, the study confirms that empowering leadership also leads to more assumption of responsibility and

ownership of tasks within the team, as postulated by previous researchers (Ahearne et al., 2005; Amundsen & Martinsen, 2015; Conger & Kanungo, 1988).

Development acceleration. Finally, some interviewees stated a development acceleration through facilitating communication by the agile coaches:

“[...] The whole topic of communication is very strong. That's right, there was a lot in his (the agile coach) area and that helped me incredibly, took an incredible amount of work off my hands. And I also found that we were really quick as a result.” (2021_41_PO)

“And then I've often seen that if you've communicated a lot about your successes and failures, a lot of progress has been made. [...] Then I had the feeling that, hey, something is moving forward really quickly. And everyone is growing and the product is also growing a lot. [...] So, I think it was also a psychological thing. I had the feeling that there was a lot going on.” (2021_16_TM)

As with the empowering leadership of the product owner during the development phase, the interviewees perceive a development acceleration in product development through the leadership actions of the agile coach. Accordingly, the facilitation of communication and the constant activation of team members by the agile coach lead to an acceleration in development, as successes and failures are transparent and the project can evolve more quickly. This connection is not explicitly stated in current literature. To date, empowering literature focuses on the effect of increased efficiency and efficacy in teamwork (e.g. Biemann et al., 2015; Cohen et al., 1997; House, 1996; Lorinkova et al., 2013; Zaccaro et al., 2001).

4.4.3 Review phase

In the review phase, the status of the project was monitored and the achievements were communicated to customers and stakeholders. Moreover, the review phase included the completion of the sub-project or the entire project. Within my study, the interviewees pointed out that towards the end, the product owner switched back to his original directive role, while the agile coach continued to perform both leadership styles.

Directive leadership elements performed by product owners:

Evaluating. Product owners were stated to prioritize project tasks and supervise customer centricity in reviews. Moreover, my participants pointed towards the evaluating

leadership elements of product owners, because they tended to monitor the progress and success of the team after the development.

“But you still really have to check, or put the whole thing to the test, whether the decision was the right one once you have achieved the initial results. So, I would also take the liberty of putting something like this to the test. Whether the approach is the right one or whether you need to take adjustments at some point. It doesn't have to be the biggest decision [...] that can also be individual adjustments in the agile approach, which you then have to adapt somehow depending on the situation or the topic.” (2019_12_PO)

“In principle, I'm very stubborn when it comes to the review and I'm also the bad boy because I take on the role of the customer. That means I'm always stressing about what we're going to get out of it. So, is the user story finished or not? Then I say, is there a value, what do we get out of it now? Is something live? Okay, can someone access it? No. Okay. Then we don't get anything out of it. In other words, as a PO, at least I personally am very involved in the review and always stress these value criteria. [...] So I'm simply very rigorous about that.” (2021_42_PO)

In addition, the product owners also reviewed the tasks and performance achieved by the team members during the review phase. This involved checking the level of target achievement and quality of development.

“I also use it a bit as quality control, I have to say. So, the quality assurance function, at that point. Depending on how strong the need is to go into a review to look at it again. Or whether you say, no, the quality is fine so far.” (2019_15_PO)

“And then in the final phase, of course, we have someone who takes responsibility. And then also says, okay, how much do we specify now, what is to be done, how do we deal with mistakes that arise, what do we do now, and also makes decisions quickly.” (2021_32_PO)

According to House (1996) directive leaders evaluate the performance of their employees by either rewarding or reprimanding them. Previous research also postulates that directive leaders play an active role in monitoring team performance and project outcomes (Martin et al., 2013). The results of this study support these claims and confirm the conclusion that the product owner evaluates the performance of the project team as well as the outcomes during the review phase. Some interviewees indicated that the product owners evaluate the

results and progress very strictly. These findings align with those of the existing literature, thereby contributing to the validation of the hypotheses formulated there.

Effectiveness mechanisms: directive leadership product owner

Stimulation. Due to the evaluative leadership attitude of the product owner during the review phase, some interviewees highlighted the effectiveness mechanism of stimulation among team members. They reported that the review of tasks and performance, along with continuous feedback, stimulated team members to perform and make further efforts to improve the product in the final phase. Even if motivation wanes towards the end of the project, they are still stimulated to make improvements, gather their focus, and complete the project. Furthermore, even negative feedback from the product owner led to positive stimulation, driving the team to achieve better results.

“And that’s why I would say, yes, it’s now working very well. People in the team have noticed it and appreciate it. They are getting more and more involved.”
(2021_42_PO)

“To be honest, I have to say that regardless of whether it’s positive or negative feedback from me [as product owner], both actually stimulate the team, because you simply have to process this feedback and say: ‘Okay, the department isn’t happy. But we want to make them happy. So now we’re going to make the solution better than we imagined.’ Or, if it’s positive feedback, of course, that you then say: ‘Yes, exactly, perfect. And now let’s do more things like that.’” (2021_29_PO)

“We’ve always tried to really, let’s say, sell the fact that this is a chance to show what you’ve achieved. And, as I said, you can also give yourself a pat on the back. And then also show how far you’ve come.” (2021_38_TM)

Previous leadership research on the effectiveness mechanisms of directive leadership postulates an enhancement of team collaboration (e.g. Kahai et al., 2004; Mesu et al., 2015; Zheng et al., 2021). It is further assumed that directive leadership leads to improved outcomes that are delivered on time (Kahai et al., 2004; Li et al., 2018; Martin et al., 2013). The findings of my study support these assumptions and show that the directive leadership actions of the product owner, particularly the evaluation of team performance, lead to increased stimulation of the team. Both positive and negative feedback during the review phase stimulated the team members to deliver better results and finalize the project. The impact of evaluation through the directive leader on team stimulation has not yet been addressed in previous research. Therefore,

the results of this study provide a new and relevant contribution to effectiveness mechanisms of directive leadership in teams.

Directive leadership elements performed by agile coaches:

Tracking. The interviewees stated that during the review phase of a project, the agile coach adopts a strongly directive leadership style through closely monitoring the project's progress as well as the performance of the project team. Some participants indicated that the agile coach is responsible for continuously tracking the progress with particular focus on the final phase of a project. The tracking includes both, key figures on the current status and success of the project, as well as the review of task fulfillment and team performance.

"My task is to look at our key metrics. This includes how many tasks we've completed, what we promised, and our velocity. I make this transparent for the entire team during our reviews. We look at what we planned, what we've accomplished, the number of tasks - in other words, how much we've achieved. Additionally, we review how many errors we have in our tracking system, how many we've identified in the quality assurance tests, what we've automated, and what still needs to be automated. We also have test cases." (2020_25_AC)

"This is what I mean: we've set up a reporting system through the coach, as we conduct quite elaborate reviews and retrospectives." (2021_46_PO)

In line with previous research, which emphasizes that directive leaders continuously monitor the performance of subordinates and the success of the project (House, 1996; Kahai et al., 2004; Lorinkova et al., 2013; Martin et al., 2013), my study shows that agile coaches track project performance during the review phase using key metrics. Here, the interviewees emphasize that both the task fulfillment and the progress of the project are tracked by the agile coach with key figures. Moreover, they reported that agile coaches monitored goal adherence as well as process steps and demanded discipline during the review phase of the project.

Directing. The directive leadership actions of the agile coach during the review phase also involve directing the reviews and retrospectives. The participants indicated that the agile coaches maintained a clear focus on the retrospective process and took a structured approach to project completion at the end of the project.

"The [Agile Coach] directs us through the retrospectives and reviews, for example. He also moderates them and [...] takes us through the process smoothly, documenting

it as well. For instance, we might have noted down some action points." (2020_08-1_PO)

"I'm always present in the reviews. What I really insist on are the retrospectives. [...] But that's something where I would say an [Agile Coach] is really needed, [...] to reorganize, bring it together, moderate, and direct the process – I think that's really important. And you need someone who can look at it from the outside and direct it strongly." (2021_44_AC)

Previous leadership research postulates that directive leaders provide their employees with clear guidance regarding tasks and activities (House, 1996; Lorinkova et al., 2013; Martin et al., 2013; Pearce et al., 2003; Somech, 2006; Yukl & Falbe, 1991). For instance, House (1996) argues that directive leaders ensure that “subordinates know what they are expected to do” (p. 326). Additionally, Pearce & Sims (2002) explain that directive managers issue clear instructions and orders for execution. These assumptions are supported by my study results. The participants reported that the agile coach strongly set the direction during the review phase of a project, regarding the implementation of retrospectives and reviews. Here, the agile coach clearly shows the strongly directive leadership action by directing retrospectives.

Effectiveness mechanisms: directive leadership agile coach

Quality. Directive leadership actions of the agile coach during the review phase were reported to enhance the quality of the project. The interviewees indicated that the agile coach's tracking of metrics, performance, and goal achievement contributed to improved quality during the review phase. For example, one agile coach explained that the customer satisfaction was continuously monitored, which enabled the team to develop the product in alignment with the customer's expectations.

"So, at the end of the day, when the customer says, 'Okay. The topic has been implemented the way I want it to be', then it has been rated 100 percent in terms of quality and we have measured that." (2020_07_AC)

"So that really does make a difference in quality at the end of the day." (2021_33_TM)

According to Mesu et al. (2015) directive leadership positively impacts team outcomes. To date, leadership literature assumes that the structure and clear guidelines of the directive leadership style improve the results of a team (e.g. Kahai et al., 2004; Li et al., 2018; Martin et al., 2013; Mesu et al., 2015). The results of my interviews confirm and expand on these

assumptions. The team members' statements further clarify that the quality of the project outcomes improves through the agile coach's tracking of various parameters within the project.

Empowering leadership elements performed by agile coaches:

Advising. Respondents indicated that agile coaches provided feedback towards the end of the sprint or project, as well as expressed appreciation and recognition to the team. Furthermore, agile coaches offered additional support towards the project's conclusion, providing advice and suggestions for improvement, to empower the team members and guide the project in the right direction.

"I also passed this information on to the project team. [...] And I gave them these topics, suggestions for improvement, and things like that. And they then tried to incorporate them bit by bit." (2020_27_AC)

"The agile coach then praised me again and again, saying: 'Hey good. It's nice that you as PO only do the introduction and then let the team take the lead, so to speak, in presenting all the things.' And then occasionally said: 'Yes, it might have been better here and there if you had jumped in with this and that question in particular. If you had left it to the stakeholder and not the team. Because you are simply stronger rhetorically or something.' So, he gave me some good feedback and advice. And also, for the team." (2020_12_PO)

Previous research on empowering leadership has indicated that empowering leaders actively advice team members to share their knowledge and contribute ideas (Arnold et al., 2000; House, 1996; Lorinkova et al., 2013; Pearce et al., 2003; Spreitzer, 1996; Yun et al., 2005). Furthermore, these leaders foster a supportive and friendly team environment, which is believed to enhance team member satisfaction (House, 1996; House et al., 1971). My interview findings support and expand upon previous research by highlighting that agile coaches assume an advisory role towards the end of a project, guiding both team members and the product owner towards the optimal completion of the project.

Effectiveness mechanisms: directive leadership agile coach

Acceptance. The participants reported that due to the ongoing advice provided by the agile coach during the review phase, team members exhibited greater acceptance of feedback and decisions made during the project's completion. For instance, one product owner stated that by involving the agile coach in the decision-making process, he received valuable guidance, which led to a significantly higher level of acceptance of the decisions by the team.

“And then the feedback from the team is also right, it really has had an effect in terms of acceptance. We need an agile coach for this.” (2021_26_PO)

“I think involving the teams is extremely important because you avoid a lot of feedback. [...] In other words, I think it's always important to have a few people who you can involve in the decision-making process, in the structuring for advising, so that you simply have acceptance later on when you roll it out. So, I think it's extremely important to have this kind of management style, to get agile coaches involved.” (2021_19_AC)

Research on empowering leadership in teams has shown that, among other effects, team members develop what is known as affective commitment to both the tasks and the team (Albrecht & Andretta, 2011; Allen & Meyer, 1990; Mukherjee & Mulla, 2022). Additionally, it has been found that empowering leadership enhances intrinsic motivation, which in turn leads to increased employee potential (Forrester, 2000; Hakimi et al., 2010; Lorinkova et al., 2013; Martin et al., 2013; Spreitzer, 1995, 1996; Zheng et al., 2021). The findings from my interviews extend existing research by introducing the effectiveness mechanism of heightened team acceptance. By assuming an advisory and supportive role towards the end of the project, the agile coach fosters greater acceptance among team members regarding feedback, decisions, and the direction of project completion.

4.5 Discussion

This study explores the situation-specific salience and complementarity of empowering and directive leadership in agile teamwork. I analyzed the various leadership actions of agile coaches and product owners in different project phases. In the beginning, a clear role differentiation between directive product owners and empowering agile coaches was found. However, during the development, product owners switched to empowering leadership, whereas agile coaches continued to perform both leadership styles. Towards the end, agile coaches proceeded to perform both leadership styles, while product owners switched back to directive leadership.

4.5.1 Theoretical significance

First, whereas previous research in agile teams focused either empowering or directive leadership (Gren & Lindman, 2020; Xu & Shen, 2016), my study contributes leadership research in agile teams by developing a situational approach of the interplay between empowering and directive leadership to increase agile team effectiveness. Martin et al. (2013)

postulate the need to explore the impact of hybrid combinations of empowerment and directive leadership styles on performance. I contribute to situational leadership research by showing the complementarity of empowering and directive leadership actions in changing situations, influencing team effectiveness.

Second, previous studies primarily linked empowering leadership to agile teamwork, as it obviously supports the principles of agility, such as shared decision-making and delegating autonomy (Muduli, 2017; Van Oyen et al., 2001; Xu & Shen, 2016). Only a few previous studies relate directive leadership to agile teamwork to embed structures for development (Gren & Lindman, 2020; Shen & Xu, 2015; Wageman, 2001). My study resolves this contradiction by demonstrating the complementarities between both leadership styles in different agile team and project situations to promote the effectiveness of agile teamwork.

Third, I contribute to research on agile methods by assessing the impact of various leadership approaches on the effectiveness of agile teams. My study points towards various mechanisms how particular leadership measures influence the effectiveness of agile teamwork. The results demonstrate that, in various situations during agile teamwork, the effectiveness of collaboration is significantly enhanced by alternating between empowering and directive leadership styles. These results contrast with previous research findings which assume leaders of agile project teams should adhere to a single leadership style, typically empowering leadership, to improve team effectiveness (Kahai et al., 2004; Lorinkova et al., 2013).

Fourth, in addition to establishing a connection between the research streams on empowering and directive leadership in teams, this study also contributes to each of the respective leadership research domains. Depending on the specific context of teamwork, leaders apply different forms and attributes of the relevant leadership style, which in turn influence the effectiveness mechanisms of project work tailored to the particular situation. Several prior studies specifically highlighted the need for further exploration of the two leadership styles affecting team performance in various contexts with different activities (Martin et al., 2013; Zheng et al., 2021). The present study explores the contextual application of empowering and directive leadership through various leadership actions and examines the resulting effectiveness mechanisms throughout the project lifecycle.

4.5.2 Practical implications

Today leadership in volatile times within agile project teams is part of current discussions in various industries (Sharma, Luthra, Joshi, & Joshi, 2022; Stewart, 2023). In many organizations, leadership in agile projects is predominantly associated with empowering

leadership (Muduli, 2017; Wendt et al., 2009; Xu & Shen, 2016). However, a few studies hinted at a possible need also for directive leadership within agile teams (Gren & Lindman, 2020; Shen & Xu, 2015; Wageman, 2001). The present study investigates the situational application of both empowering and directive leadership styles by agile coaches and project owners during agile teamwork, with a focus on the resulting mechanisms of effectiveness. My findings contribute to business practice in three ways:

First, my findings provide guidelines for agile team leaders to optimally target their empowering and directive leadership measures to different situations. Stewart (2023) asked for a further investigation of leadership styles in different situations. My results suggest that agile leaders should adapt their empowering and directive leadership elements to the respective project phase. Product owners alternately apply directive leadership at the beginning, followed by empowering leadership during the course of the project, and return to a directive leadership style towards the end. In contrast, agile coaches employ both directive and empowering leadership elements consistently throughout the project lifecycle.

Second, Mukherjee and Mulla (2022) pointed out the need to examine “the interaction between leadership styles and follower responses [...] to understand the effects of leadership styles and changes in leadership styles on followers” (p. 263). My study offers valuable insights for agile coaches and product owners regarding the leadership actions that can be applied to elicit specific effectiveness mechanisms throughout the project lifecycle. These findings contribute to the strategic alignment of leadership practices with the goal of optimizing team performance and achieving project objectives.

Third, my findings contribute to business practice by promoting a structured approach to agile project management in different phases. Koi-Akrofi et al. (2019) pointed out: “As much as there is a need to churn out products quickly, it is also very essential to deliver without chaos.” The results of my study offer insights into a phase-oriented approach to project work, which incorporates the cyclical nature of agile project management across three distinct phases: the beginning phase, the development phase and the review phase. This framework allows for more effective project planning, enabling management actions to be tailored to the specific needs of each phase.

4.5.3 Limitations and future research

Despite the valuable contributions to leadership research and business practice, my study has some limitations. Firstly, the study was conducted with interviewees from a single company within the automotive industry. Although the large sample size of 108 interviews

supports robust theorizing, contextual factors such as industry-specific leadership practices or organizational culture cannot be entirely excluded. A meaningful extension of this study would involve validating the findings across different industries.

Furthermore, I conducted interviews with agile coaches, product owners, and team members from various agile teams to gain in-depth insights into situational leadership within project structures. Future research could extend this study by collecting data from line management, which, while less directly involved in project activities, offers valuable perspectives on organizational structure.

Finally, my data collection includes a multi-wave research designs as the interviews were held in three research phases from 2019 until 2021. The advantage of this research design is that temporal context factors and project-specific variables exert less influence on the findings (Thomson & Holland, 2003; White & Arzi, 2005). However, since the interviews were conducted within agile projects with defined start and end points, the long-term effects and impacts of directive and empowering leadership on agile teams could only be examined to a limited extent. Future research could focus on longitudinal studies of single teams to better capture the long-term effects of situational leadership within agile contexts.

4.6 Conclusion

This study examined the situational complementarity and switching between empowering and directive leadership within agile project teams, focusing on two leadership roles: agile coach and product owner. Prior to this, research predominantly focused on either empowering or directive leadership, with empowering leadership, in particular, being strongly associated with agile teams. My study provides several theoretical and practical contributions by examining the impact of the situational application of empowering and directive leadership on the effectiveness of agile teams. A qualitative in-depth research design was employed, consisting of a strong dataset of 108 expert interviews conducted between 2019 and 2021 within a single automotive manufacturing company. Hopefully, this research study will stimulate further research and discussion on the situational integration of empowering and directive leadership in teamwork, as well as the resulting mechanisms of effectiveness.

4.7 References

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5. Motivated by Agility, Hampered by Switching: A Boundary Perspective

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5.1 Abstract

While agile working methods become more and more important in practice, the implications from applying this new work form are largely underexplored. In this paper, we contribute to the literature on the downstream effects of agile working methods from a Job-Demand-Control perspective. Our moderated mediation model suggests that agile working methods increase employees' intrinsic task motivation through role clarity. Furthermore, we argue that this indirect effect diminishes with the frequency of switching projects. We find empirical evidence for both hypotheses using data from a field study in a manufacturing company with 180 observations of 90 employees, who were surveyed in terms of their experience with working in agile and traditional projects.

Keywords: agility; motivation; role clarity; frequency of switching

5.2 Introduction

Teams have become the key strategic response to the growing complexity of environmental circumstances (Hollenbeck et al., 2012) due to more and more demanding customers, non-stop Mergers & Acquisitions, tougher financial targets and highly competitive global markets (Lochmann & Steger, 2002). In order to cope with these challenges, organizations adapt their working statutes and increasingly apply agile working methods instead of traditional, waterfall-like methods (Allon et al., 2021).

One key assumption of agile working methods is that it influences individual-level behavior in a way that renders employees working agile to be more productive and better suited to handle the complexity of nowadays work. However, whether this assumption holds true or not is less clear (Tripp et al., 2016; Venkatesh et al., 2020). On the one hand, some studies

report positive individual-level effects of working agile such as increased job satisfaction (Tripp et al., 2016) or reduced work exhaustion (Venkatesh et al., 2020). Another stream of literature yet reports adverse effects such as being emotionally drained (Ghobadi & Mathiassen, 2017) or stressed if agile working methods are not applied the correct way (Pfeiffer et al., 2019).

We contribute to the literature on the downstream effects of agile working methods from a Job-Demand-Control perspective in three ways. First, we contribute to the work of Venkatesh et al. (2020) on the implications of agile work by providing a holistic picture of the interplay between agile working methods, role clarity and intrinsic task motivation recurring to the Job-Demand-Control-Model (Karasek, 1979). Our moderated mediation model suggests that agile working methods increase employee intrinsic task motivation through role clarity and hereby sheds light on an important mechanism that ties agile working methods to intrinsic task motivation.

Second, we analyze a boundary condition to the indirect effect of agile working methods on intrinsic task motivation through role clarity. We argue that the frequency of switching between projects moderates this positive indirect effect in a way that the more often employees switch between projects, the weaker the link between agile working methods, role clarity and subsequent intrinsic task motivation becomes.

Third, we address causality concerns by considering a within individual design that applies an individual-level fixed-effect. In doing so, we observe and compare the same employee once working in an agile project and once working in a traditional, waterfall-like project, allowing us to derive causal inferences (Antonakis et al., 2010).

We find empirical evidence for our hypotheses in a field study in a manufacturing company with 180 observations of 90 employees who we surveyed with respect to their experience in one agile project and one traditional, waterfall-like project. Results from fixed effect regressions show a positive indication of agile working methods on task motivation through role clarity. Moreover, our results from the moderated mediation model imply a moderating effect of the frequency of switching between projects on this indirect effect, which decreases when frequency of switching between projects increases.

5.3 Theory development

The job demand-control model (JDCM) postulates that the work evaluation of employees and the resulting learning motivation as well as the physical and mental effects are influenced by the two factors job demands and job control (Häusser et al., 2010; Karasek Jr, 1979; Van Der Doef & Maes, 1999; Venkatesh et al., 2020; Windeler et al., 2017). Job demands include work requirements of employees that are needed to perform their tasks and are often

operationalized by workload, time pressure, and role conflicts (Häusser et al., 2010; Karasek Jr, 1979; Karasek, 1985; Karasek et al., 1998; Van Der Doef & Maes, 1999; Venkatesh et al., 2020; Windeler et al., 2017). Job control implies an employee's self-organization and decision-making ability to control own activities (Häusser et al., 2010; Karasek Jr, 1979; Van Der Doef & Maes, 1999; Venkatesh et al., 2020; Windeler et al., 2017). In this study, we analyze the implications of agile working methods for intrinsic task motivation through role clarity from a JDCM perspective.

Intrinsic task motivation is defined as positive association of individuals with their work roles and tasks (Muduli & Pandya, 2018; Spreitzer, 1996; Thomas & Velthouse, 1990). This positive attitude motivates an employee to devote all energy, time and attention to these upcoming working tasks and away from other things (Csikszentmihalyi & Csikszentmihaly, 1990; Grant, 2008; Kanfer & Ackerman, 1989; McHugh et al., 2011; Menges et al., 2017; Shin & Grant, 2019; Vallerand, 2001). Accordingly, the employee is satisfied during task completion and develops an intrinsic intention to complete the task well (Grant, 2008; Kehr, 2004; Locke, 1968; Shin & Grant, 2019).

Role clarity implies that an individual has a well-defined comprehension and transparency of the position, tasks, objectives and purposes that are assigned to the job role (Hinkin & Schriesheim, 2008; Katz & Kahn, 1978; Kauppila, 2014; Wong et al., 2007). Thus, role clarity is associated with an employee having high levels of overlap between their perception of the role's requirements, definitions and responsibilities and the true role characteristics (Eatough et al., 2011; Kauppila, 2014; Windeler et al., 2017). Accordingly, consequences of role performance and task fulfillment are clearly communicated and transparent to employees (Elovainio & Kivimäki, 2001; Fried et al., 2003; Rizzo et al., 1970).

Agile working methods focus on self-organized and flexible collaboration of team members, where employee motivation, self-decision-making and cyclical interactions are key characteristics (Abrahamsson et al., 2017; Beck et al., 2001; Cockburn & Highsmith, 2001; Conboy et al., 2011; Fowler & Highsmith, 2001; Laanti et al., 2011; Masood & Farooq, 2017; Melo et al., 2012; Miller & Lee, 2001; Serrador & Pinto, 2015). This leads to an increased social interaction and communication between team members, beyond a mere information and knowledge exchange (Cesarotti et al., 2019; Cockburn & Highsmith, 2001; Hoda et al., 2012; Whitworth & Biddle, 2007). Furthermore, task rotation in agile work enables team members to switch tasks between each other and take multiple roles within the project, instead of being responsible for one specific task (Hoda et al., 2012; Kollmann et al., 2009; Tripp et al., 2016). This goes along with increased peer pressure (Hidalgo, 2019; Stray et al., 2018; Takeuchi &

Nonaka, 1986). Former research identified an increase in employee satisfaction (Tripp et al., 2016) and reduced work exhaustion (Venkatesh et al., 2020) through agile working. We complement this literature by focusing on intrinsic task motivation as another important individual downstream effect through the introduction of agile working methods.

5.3.1 Agile working methods, role clarity, and intrinsic task motivation

A role includes requirements of a team or an organization about an employee's tasks, expectations and responsibilities as well as demands on how to fulfill them (Banton, 1965; Barke & Prechelt, 2019; Whitaker et al., 2007). In order to perform their work successfully, team members need to have clarity about their own roles (Beauchamp et al., 2002; Bray & Brawley, 2002; Windeler et al., 2017), as well as each other's area of responsibility (Faraj & Sproull, 2000; Venkatesh et al., 2020) and in particular in a complex and challenging work environment (Beauchamp et al., 2002; Bray & Brawley, 2002; Kauppila, 2014; Windeler et al., 2017; Wong et al., 2007). Thus, high levels of role clarity empowers the employee with control regarding task strategy, environmental challenges or team interaction, paving the way for learning and motivation (Banker et al., 1998; Swanson & Power, 2001; Windeler et al., 2017; Wong et al., 2007).

We argue that agile working methods improve team members' role clarity through increased social interactions and exchange as well as increased employee autonomy. The high flexibility due to flat structures, personal responsibility, and continuous feedback cycles leads to information sharing and close cooperation in agile teams (Dingsøyr et al., 2012; Holbeche, 2019; Venkatesh et al., 2020). The increased communication and information sharing in agile teams directly translates into a common understanding of role requirements and tasks (Kudaravalli et al., 2017; Spiegler et al., 2019; Venkatesh et al., 2020; Yu & Petter, 2014). Furthermore, the rotation of tasks and multiple roles by agile team members enables them to develop a comprehensive understanding of all role-specific characteristics in the team (Barke & Prechelt, 2019; Hoda et al., 2012b; Hoda & Murugesan, 2016; Kollmann et al., 2009; Kundu et al., 2020; Tripp et al., 2016; Venkatesh et al., 2020). By continuously collecting feedback on tasks, performance, collaboration and strategies, role expectations and goals become clearer in agile projects (Maruping et al., 2009; Mukherjee & Malhotra, 2005; Ramesh et al., 2012).

The self-organization in agile teams supports the process of role clarity through task ownership, self-reflection of task requirements and the self-decision-making of team members (Barke & Prechelt, 2019; Holbeche, 2019; Kundu et al., 2020; Maruping et al., 2009; Mukherjee & Malhotra, 2005; Windeler et al., 2017). These aspects of employee autonomy in agile work leads to self-dependent learning and task completion of team members (Noe, 1986; Parker &

Sprigg, 1999; Shih et al., 2011; Theorell & Karasek, 1996; Van Yperen & Hagedoorn, 2003), resulting in an improved understanding about their role.

Role clarity has a direct impact on employees' intrinsic motivation, due to employees feeling increasingly motivated if they know exactly how their role is defined, what expectations managers have on their roles, and that their efforts can fulfill these expectations (Ivancevich & Donnelly Jr, 1974; Kundu et al., 2021; Tubre & Collins, 2000). In addition, employees feel more involved and engaged in their tasks if their job roles are clearly defined and communicated, which can lead to a positive impact on their behavior and innovative capacity (Kundu et al., 2020; Moynihan & Pandey, 2007; Sherman, 1989; Taştan, 2013).

Thomas and Velthouse (1990) attribute four influencing factors to intrinsic task motivation: competence, meaningfulness, impact and choice. Competence of an employee refers to the ability to execute the task (Thomas & Velthouse, 1990). Meaningfulness reflects the employee's identification with the task and its purpose (Hackman et al., 1980; Thomas & Velthouse, 1990). Impact through self-efficacy assessment of an employee refers to the effectiveness of an employee's task completion (Abramson et al., 1978; Hackman et al., 1980; Moynihan & Pandey, 2007; Rotter, 1966; Thomas & Velthouse, 1990). Choice involves the employee's evaluation of the own task responsibility and self-determination (DeCharms, 1968; Deci & Ryan, 1985; Hackman et al., 1980; Thomas & Velthouse, 1990). An employees' ability to execute the task, identification with the respective activities, and the possibility for self-efficacy and autonomy in task selection are increased by role clarity (Thomas & Velthouse, 1990). Based on these arguments we postulate the following hypothesis:

H1: Agile working methods increases task motivation through role clarity

5.3.2 Frequency of switching between projects as a boundary condition

As organizations strive for an increase in flexibility and productivity while often facing resource limitations, employees are usually assigned to several project teams in parallel (DiMaggio, 2001; Espinosa et al., 2002; González & Mark, 2004; Katumba & Knauss, 2014; Leroy, 2009; Patanakul et al., 2016). Therefore, employees are forced to divide their working time and capacities among various activities between their projects. Unexpected changes, postponements of meetings, or delays within the project work often lead to employees switching back and forth between different project activities (Czerwinski et al., 2004; Jett & George, 2003; Leroy, 2009; Perlow, 1999), which can be similar but also completely different in process, methodology or content (Katumba & Knauss, 2014).

Transitioning between different activities and contexts can be exhausting for employees, especially if tasks cannot be completed due to constant distraction (Beal et al., 2005; González & Mark, 2004; Kahn, 1990, 1992; Leroy, 2009; Perlow, 1999; Zijlstra et al., 1999). Continuous interruptions cause workers to have difficulties in resuming back to their previous activities, in particular when contexts change (Jett & George, 2003; Leroy, 2009; Speier et al., 1999; Tetard, 1999). This is associated with a decreased ability of employees to process information while performing different tasks at the same time due to limited cognitive resources (Dijker & Koomen, 1996; Gilbert et al., 1988; Gilbert & Hixon, 1991; Kahneman, 1973; Leroy, 2009; Norman & Bobrow, 1975; Pashler, 1998; Schneider & Fisk, 1982). Consequently, the performance and decision-making ability of employees in their current and subsequent projects decreases while switching back and forth (Jett & George, 2003; Leroy, 2009; Speier et al., 1999; Tetard, 1999). This leads to several challenges, especially in collaboration and communication as well as autonomy, that employees face when switching constantly between projects.

Patanakul et al. (2016) argue that higher autonomy in multiple project settings result in better performance, motivation and clarity of team members. However, in switching situations employees are often not able to determine the rotation rhythm, the project assignment or the task completion themselves, but are controlled by managers due to competing priorities resulting in a lack of autonomy (Patanakul, 2012; Patanakul et al., 2016). Since autonomy and self-organization ability of team members are central for the relationship between agile working methods and role clarity (Barke & Prechelt, 2019; Holbeche, 2019; Kundu et al., 2021; Maruping et al., 2009; Mukherjee & Malhotra, 2005; Windeler et al., 2017), a decrease in individual autonomy diminishes it.

Even though agile work is popular for high flexibility, frequent switching between different projects while working in an agile team can be challenging (e.g. Wijnands & Van Dijk, 2007). Previous research recommends agile teams to work full-time on their agile project, instead of switching back and forth between different projects (Carbonell & Rodriguez, 2006; Chen et al., 2010; Chow & Cao, 2008; Cohn, 2005; Conforto et al., 2014; Highsmith, 2009; Sutherland & Schwaber, 2007).

Further, switching between project activities and contexts can deteriorate cooperation, delay agile cycles, resulting in lost productivity (Franch et al., 2017; Monsell, 2003; Sedano et al., 2017). Katumba and Knauss (2014) indicate multi-tasking as a challenge in agile working. Therefore, parallel work on different projects is associated with long communication paths, coordination problems, and loss of information, as agile working is based on regular communication meetings, co-location, and low complexity in collaboration.

In addition, multi-tasking within and between roles can challenge employees. Due to a higher number of tasks and responsibilities, roles become larger and less precise, which results in focus difficulties and lacking role understanding for employees (Katumba & Knauss, 2014). Moreover, collaboration conflicts can occur due to confusion of role or task contents and priorities in handling multiple projects (Fricke & Shenbar, 2000; Patanakul, 2012; Patanakul et al., 2016). This threatens the benefit of agile teamwork in form of an increased transparency of team members about all tasks and activities and hence harms role clarity (Laanti et al., 2011; McHugh et al., 2011a; Petersen & Wohlin, 2009; Santos et al., 2013).

Moreover, the close collaboration and transparent information sharing within agile work support individual role clarity of team members, due to clear expectations of tasks and requirements (Dingsøyr et al., 2012; Holbeche, 2019; Kudaravalli et al., 2017; Spiegler et al., 2019; Venkatesh et al., 2020; Yu & Petter, 2014). However, if these team members work on multiple projects and thus asynchronously to the team, ambiguities in tasks and roles may occur and consequently more rework may be required (Katumba & Knauss, 2014; Wijnands & Van Dijk, 2007). Furthermore, frequent project switching often results in changing project partners as well as shifting role and task distribution, which may extend project duration and learning time of team members about their roles and lead them to potentially blur their roles (Wijnands & Van Dijk, 2007).

Based on the previous arguments we derive the following hypothesis:

H2: *The indirect effect of agile working methods on task motivation through role clarity will be weaker when frequency of switching between projects is higher than lower.*

Figure 5.1 represents our theoretical research model including the hypotheses and their proposed directions.

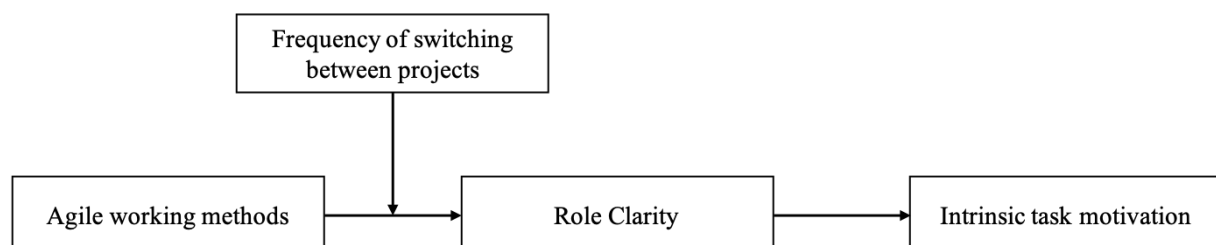


Figure 5.1: *Research model*

5.4 Methods

5.4.1 Study and participants

To test our theoretical model, we conduct a field study at a large German manufacturing company that heavily depends on using information technology. The firm has introduced agile working methods for its employees; yet importantly not firm wide for all projects. This allows us to observe each employee twice, once working in an agile project and once in a traditional, non-agile but rather waterfall-like project. We collect data on our variables of interest using a survey where participation of employees was voluntary. Thus, participants took part in two surveys, one referring to an agile project and one referring to a traditional project. This study design allows us to run an individual fixed-effect and to derive causal inferences (Antonakis et al., 2010).

After restricting our sample to employees who participated in both surveys referring to both (agile and non-agile) working methods, it consists of 90 employees that participated in our survey leveraging us with 180 regression observations where each employee appears twice in our data set once related to working in an agile project and once working in a traditional project. These employees work in various departments including software development ($\approx 41\%$), marketing ($\approx 12\%$), human resource management ($\approx 6\%$) consulting ($\approx 12\%$) and others (29%).

5.4.2 Measurement

Intrinsic task motivation

We measured intrinsic task motivation based on a German translation of the four-item scale by Shin & Grant (2019). Participants rated their level of intrinsic task motivation on a 5-point Likert-scale ranging from one (strongly disagree) to five (strongly agree) and where high values reflect high levels of intrinsic task motivation. A sample item reflects the extent to which they found each task engaging. We performed a confirmatory factor analysis to generate our measure for intrinsic task motivation and the scale produced a high construct reliability of $\alpha = .93$.

Agile working methods

We base our measure for agile working methods on previous research (Venkatesh et al., 2020) and approximate it as a dummy variable, where one reflects that the respective employee worked in an agile project and zero that the employee worked in a traditional, non-agile project.

Role clarity

We measured role clarity based on a German translation of the three-item scale developed by Brake et al. (2020). Participants rated role clarity based on a Likert-Scale ranging from one (strongly disagree) to five (strongly agree). A sample item reflects the extent to which they know what is expected from them. Again, we approximated our measure for role clarity using a confirmatory factor analysis. The scale produced a high construct reliability with a Cronbach's alpha of .82.

Frequency of switching projects

We measured the frequency of switching between projects based on the idea of previous research (Leroy, 2009) using a 5-point Likert-scale where one represents that employees seldom switched between projects and five indicates that employees switched between projects very often.

Control variables

We control for project-level characteristics in order to isolate the effect of our variables of interest. Precisely, we controlled for team size as well as the number of parallel working teams as both might make it more difficult to establish clear and well-defined role perceptions (Venkatesh et al., 2020; Windeler et al., 2017).

Procedure and analysis

We conduct fixed-effect linear regressions holding the individual constant which allows us to interpret our results as causal (Antonakis et al., 2010). Thus, we compare the same individual working in an agile project with the same individual working in a traditional, non-agile project. As a result, the estimated coefficients refer to the within treatment effects that account for any time invariant individual characteristics. By holding the individual constant, we effectively control for e.g., gender, skills, age or experience. Further, prior to the regression analysis and prior to calculating the interaction terms, we standardize all non-dummy variables in order to make the coefficient sizes comparable and to avoid problems of artificially generating multicollinearity (Dawson, 2014; Jaccard et al., 1990). All standard errors are robust and clustered at the department level as we assume the observations to be correlated within each department (e.g. agile working methods might be interpreted slightly different in different departments). Last, we use structural equation modeling (SEM) to test our moderated mediation model.

5.5 Results

Table 5.1 shows the descriptive statistics, reliabilities and correlations. Our correlations show no serious concerns with multicollinearity and post estimation analysis reveals variance inflation factors around 1 (max 1.33 for frequency of switching) supporting this view.

	Mean	SD	CA	Min	Max	(1)	(2)	(3)	(4)	(5)
(1) Intrinsic task motivation	3.89	.87	.93	1	5	-				
(2) Agile	.5	.5	NA	0	1	.413*	-			
(3) Role clarity	3.88	.80	.82	1	5	.546*	.142	-		
(4) Frequency of switching teams	3.13	1.44	NA	1	5	.172	-.017	.125	-	
(5) Number of project teams	2.4	1.59	NA	1	10	.040	-.031	.101	.416*	-
(6) Team size	13.62	14.02	NA	0	85	.117	.151	.147	-.229*	.041

Notes: This table shows the non-predicted values for reasons of interpretability and understandability. * donates bivariate correlation with $p < .01$; CA = Cronbach's alpha

Table 5.1: Descriptive statistics, reliabilities, and correlations

In model specification 1 in table 5.2, we test the direct effect of working in an agile project on role clarity. Linear regression modeling holding the individual constant reveals a positive direct effect of working agile on role clarity ($\beta=0.359$; $p=0.070$). This indicates that when employees work in an agile project their role clarity is increased by 0.359 standard deviations. Model specification 2 & 3 relates to our second hypothesis, namely that a higher level of role clarity through agility subsequently translates into an increase level of an employee's intrinsic task motivation. We first show that agile working methods are directly related to an employee's intrinsic task motivation ($\beta=0.863$; $p=0.002$) and that this effect is substantially decreased to $\beta=0.661$ when controlling for role clarity ($\beta=0.564$; $p=0.003$).

Dependent variable	(1) Role clarity	(2) Intrinsic task motivation	(3) Intrinsic task motivation	(4) Role clarity
<i>Controls</i>				
Team size	0.001 (0.019)	-0.003 (0.003)	-0.004 (0.010)	0.000 (0.023)
Number of teams	0.066 (0.084)	0.110** (0.030)	0.072* (0.030)	0.071 (0.093)
<i>Main effect</i>				
Agile working methods	0.359* (0.156)	0.863*** (0.154)	0.661*** (0.066)	0.394** (0.123)
Frequency of switching teams				0.157 (0.179)
<i>Interaction effect</i>				
Frequency of switching teams * Agile working methods				-0.459** (0.128)
<i>Mediator</i>				
Role clarity			0.564*** (0.082)	
Individual-fixed effects	Yes	Yes	Yes	Yes
Hypothesis	H1	H1	H1	H2
Observations	180	180	180	180
R-squared	0.555	0.661	0.801	0.588

Notes: Coefficients refer to linear regression results with robust standard errors clustered at the department level.

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 5.2: The implications of agile working methods on intrinsic task motivation through role clarity and the moderating role of switching between teams

In Model 4 of table 5.2, we test the moderating effect by interacting the frequency of switching variable with the agile working methods variable to predict role clarity. Our findings imply that the positive effect of agile work on role clarity is clearly diminished as the frequency of switching between projects increases ($\beta = -0.459$; $p = 0.016$).

We test our moderated mediation model with SEM with bootstrapped standard errors of 200 replications. The results are reported in table 5.3 and support our hypotheses. The indirect effect of agile working methods on intrinsic motivation through role clarity is positive and significant when the frequency of switching between projects is low ($\beta = 0.271$; $p = 0.020$). However, this indirect effect becomes much weaker and statistically insignificant when the frequency of switching between projects is high ($\beta = 0.045$; $p = 0.578$).

Switching	Indirect effect	Bootstr. s.e.	p-value	95%	
				Lower	Upper
Low	.2707	.1162	.020	.0428	.4985
High	.0451	.0809	.578	-.1135	.2037

Table 5.3: The indirect effects of agile working methods on intrinsic task motivation through role clarity for high and low switching

5.6 Discussion and implications

We shed light on how agile working methods affect an employee's intrinsic task motivation and thus contribute to the scarce literature analyzing individual-level effects of agility (Venkatesh et al., 2020). Our results represent an important qualification of Venkatesh et al. (2020), as we show that role clarity, enhanced by agile working methods, does not only decrease work exhaustion but also increases intrinsic task motivation. By analyzing agile working methods, role clarity and intrinsic task motivation against the backdrop of the Job-Demand-Control-Model, we show how agile working methods effect individual-level characteristics and thus provide a holistic theoretical framework.

We further analyze a practically highly important boundary condition on the link between agile working methods and role clarity, as employees are nowadays often forced to work on several projects in parallel and, importantly, to switch between these projects, often on a daily basis (Leroy, 2009). We theoretically argue and empirically show that this endangers the positive effect of agile working methods on role clarity.

Our results also offer implications for managerial guidance. First, firms should be aware of agile working methods being positively related to an employee's level of intrinsic task motivation. In particular, firms should be aware of role clarity being a driver of the relationship between agile working methods and intrinsic task motivation, and aim to increase the role clarity when assigning employees to projects. Second, our results also offer guidance on how not to apply agile working methods. When employees are forced to switch between several projects many times, they might blur their responsibilities, task strategies and thus loose on role clarity. Importantly, assigning employees to several projects does not endanger the positive implications of agile working methods, but forcing them to switch many times between those projects does.

5.7 Limitations and future research

As with all studies, also our study has notable limitations. First, we could have potential self-selection into the organization and into the survey. Our firm represents an IT heavy firm

where employees work on product development and optimization. It is for firms that share similarities with these characteristics for which our results are in particular informative. Replicating our results in different contexts in order to increase the generalizability of our results could potentially yield fruitful future research. Further, participation in our survey was voluntarily and employees could self-select into participating and not participating. Yet, as long as there is no systematic bias in the characteristics of employees taking part in the survey our results stay robust. Still, we cannot rule out that our results are biased due to self-selection as, e.g., more conscientious employees might have participated in the survey. Second, employees potentially work simultaneously in several traditional and several agile projects. Although this setting implies a strength of our survey as it allows us to compare the same individual working agile with the same individual working non-agile and thus to derive causal inferences, it also implies that the employees had to randomly choose one agile and one non-agile project as a blueprint when participating in the surveys. Again, as long as there is no systematic bias in choosing the respective projects, our results are unaffected. Yet, when employees chose two projects where the differences in, e.g., role clarity are in particular large, our results might potentially be affected by the choice of project by the employees. Future research could address this by running an experimental design with random assignment of participants in agile and non-agile software development.

5.8 Conclusion

Agile working methods are a widely used practice, especially in product development (Hoda et al., 2018). We theoretically proposed and empirically showed that agile working methods positively relate to an employee's intrinsic task motivation through increased role clarity. Yet, when agile working methods are applied incorrectly and employees are simultaneously forced to switch between several projects too often (Leroy, 2009), these positive implications are endangered and weakened, as employees will have worse levels of role clarity.

5.9 References

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6. Conclusion

Organizations are increasingly facing a fast-evolving business environment marked by uncertainty, complexity, and unforeseen events (Bennett & Lemoine, 2014; Cascio, 2020; Geffers et al., 2024). In this context, organizational agility has become more critical than ever, as it allows organizations to sense environmental shifts and proactively reconfigure in response to these changes (Conboy, 2009; Doz & Kosonen, 2010; Sambamurthy, Bharadwaj, & Grover, 2003). This dissertation, “*Organizational Agility and Agile Teamwork: Evidence from Industry Data*”, examines the conceptual foundations, organizational prerequisites, success factors, and outcomes of organizational agility and agile teamwork. The findings are presented within four studies, addressing different levels of organizational agility. This research contributes to a more comprehensive and nuanced understanding of organizational agility and agile teamwork.

First, my research establishes a foundational framework for organizational agility within the first study, “*Organizational Agility – A Structured Review of the Literature*”, by delineating novel dimensions and providing a clear definition. This approach addresses the considerable ambiguity in both academic literature and management practice concerning the conceptualization and definition of organizational agility (Bottani, 2009; Sherehiy et al., 2007; Teece et al., 2016). Thus, organizational agility is conceptualized as a continuous process of sensing, proactive as well as reactive transforming, given appropriate timing, scope, and customer orientation.

Second, building on this foundational framework, the second study, “*Organizational Agility and the Application of Agile Working Methods*”, investigates the organizational conditions required for the effective application of agile teamwork methods. It addresses the lack of clarity surrounding the challenges associated with adopting organizational agility (Conforto et al., 2014; Dikert et al., 2016; Dyba & Dingsoyr, 2009; Rebentisch et al., 2018). These challenges often lead to only partial reconfiguring of organizations towards organizational agility, thereby limiting the effectiveness of agile teamwork methods. As a result, insufficient organizational conditions contribute to an incomplete transformation towards organizational agility, triggering four mismatch mechanisms that negatively affect the application of agile teamwork methods: leadership non-acceptance, role conflict, task overload, and goal conflict.

Third, building on these findings that identified leadership as one key lever influencing the effectiveness of agile teamwork methods, the third study, “*Leadership in Agile Work Design – Exploring the Effectiveness Implications of Directive and Empowering Team Leadership*”,

explores the complementary roles of directive and empowering leadership styles, as applied situationally by agile coaches and product owners, in enhancing agile teamwork effectiveness. These results expand upon previous research that primarily linked empowering leadership to agile teamwork and assumed that leaders must adopt a single leadership style to improve effectiveness (Kahai, Sosik, & Avolio, 2004; Lorinkova, Pearsall, & Sims, 2013; Muduli, 2017; Van Oyen et al., 2001; Xu & Shen, 2016).

Fourth, after analyzing organizational-level agility, exploring the challenges associated with its implementation, and examining the impact on agile teamwork effectiveness, as well as investigating the role of situational leadership enhancing the effectiveness of agile teams, the focus shifts to individual-level outcomes of agile teamwork methods. Accordingly, the fourth study, titled *“Motivated by Agility, Hampered by Switching: A Boundary Perspective”*, addresses the previously limited understanding of the effects of agile teamwork on individual outcomes (Tripp, Riemenschneider, & Thatcher, 2016; Venkatesh, Thong, Chan, Hoehle, & Spohrer, 2020). It demonstrates that agile working methods are positively related to an employee’s intrinsic task motivation through increased role clarity, with this relationship being moderated by the frequency of switching projects.

Moreover, my research also offers several important implications for management practice. The comprehensive perspective on organizational agility across multiple levels provides organizations with an overview and support for the adoption and implementation of organizational agility and agile teamwork methods.

First, the foundational framework and clear definition of organizational agility promote a shared understanding and offer practical guidance on the ongoing process of sensing, as well as both proactive and reactive transforming, considering appropriate timing, scope, and customer orientation.

Second, after establishing a clear understanding of the foundations, my research contributes to strategy formulation and execution by identifying the organizational conditions that must be established before integrating agile working methods. By recognizing the mismatch mechanisms identified in my research, managers can focus on pinpointing and addressing these challenges proactively.

Third, the investigation into the situational leadership approach equips leaders in agile teams with the tools to effectively adapt their empowering and directive leadership behaviors to the specific context, thereby enhancing team effectiveness during the beginning, development and review phases of agile projects.

Finally, this research offers managers valuable insights into the effects of agile working at the individual level. As a result, managers can implement agile working methods more effectively, reduce the frequency of project switching, and enhance both role clarity and intrinsic motivation among employees.

My research adopts a multi-method approach to data collection and analysis to gain a comprehensive understanding and extract relevant insights into organizational agility and agile teamwork (Leech & Onwuegbuzie, 2009). This approach is grounded in triangulation, which entails the use of multiple, complementary data sources to enhance the robustness and validity of the findings (Glaser & Strauss, 1967; Locke, 2001). Specifically, the research combines an extensive literature review of organizational agility with qualitative data from semi-structured interviews and quantitative data from employee surveys, all conducted within a German automotive manufacturer. Data collection took place between 2019 and 2021, employing a multi-method strategy for both gathering and analyzing the data.

It is important to note that several limitations arise from using data from a single German manufacturer. First, while the large sample size of 108 qualitative interviews and 180 quantitative observations involving 90 employees provides a solid foundation for robust theorizing, the findings may still be influenced by contextual factors such as industry-specific practices and organizational culture. To enhance the generalizability of the results, future research could extend these studies by incorporating data from multiple industries and organizations.

Second, my data collection employed a multi-wave research design spanning from 2019 to 2021. This design offers the advantage of minimizing the influence of temporal context factors and project-specific variables on the findings (Thomson & Holland, 2003; White & Arzi, 2005). However, as the interviews were conducted within the framework of agile projects with defined start and end points, the long-term effects on agile teams could only be assessed to a limited extent. Future studies could focus on longitudinal research involving individual teams to capture more comprehensively the long-term impacts of situational leadership within agile contexts.

Third, both the selection of interview participants and survey participation were based on voluntary involvement. Initially, participants were selected through my own contacts within the organization, and snowball sampling was subsequently employed, asking interviewees to recommend other experts or to participate in the survey (Marshall, 1996; Bolderston, 2012; Robinson, 2014). Consequently, this selection process may be subject to bias, as employees

who are more conscientious or motivated, or those within my extended network, may have been more likely to participate. Future research could consider using mandatory participation in interviews and surveys to ensure the inclusion of a sample from all employee groups.

Finally, in this research, organizational agility and agile teamwork methods are treated as target states and activities that an organization aspires to achieve. This perspective contrasts with that of several previous studies, which conceptualize agility as a capability or competency of an organization (e.g., Sharifi & Zhang, 1999; Sherehiy & Karwowski, 2014; Sherehiy, Karwowski, & Layer, 2007). Future research could explore the interaction between these two approaches, offering valuable insights in different perspectives of organizational agility and agile working methods.

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