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From Empowerment Dynamics to Team Adaptability: Exploring and Conceptualizing the Continuous Agile Team Innovation Process

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To foster their innovation teams' adaptability, organizations are increasingly relying on agile teams. While research on the adoption of agile methods and practices has grown tremendously in the past decade, little is currently known about the human side of agile teams and how it contributes toward the emergence of adaptability. While the Agile Manifesto states that individuals and interactions are more important for agile product development than tools and processes, research on how these interactions unfold is still in its infancy. To shed light on the human side of adaptability, 44 semi-structured, in-depth interviews were conducted with team members and leaders from various teams at three organizations (i.e., two German and one multinational European firm). The inductive analysis identified empowerment as a focal human factor for adaptability emergence. A model of the continuous agile team innovation process is developed and uncovers the importance of dynamic empowerment states and their temporary equilibria for team adaptability. The underlying findings demonstrate that empowerment is not a static state, but rather emerges through the interactions between various actors. Specifically, the team and its leader engage in both empowerment-enhancing and empowerment-reducing activities. These activities are further influenced by the agile team's immediate context: Two-fold customer influences, that is, supporting and hindering empowerment interactions, and the organizational environment, that is, undergoing an agile transformation and supportive top management behaviors, play an important role in affecting the empowerment dynamics that result in team adaptability. As such, this study contributes to the innovation and management literatures by revealing the dynamic role of the empowerment and adaptability constructs for agile innovation processes and the importance of various actors and the organizational environment for fostering adaptability. Practical insights are offered to management, teams, and team members on how to create conditions for empowerment dynamics and consequently adaptability to unfold.

Practitioner Points

- Agile innovation teams and their leaders should pay particular attention to the dynamics of empowerment. The customer and the organizational environment affect these dynamics between agile teams and leaders.
- The repeated and change-driven iterations and temporary empowerment states foster team adaptability, an important capability for the continuous agile team innovation process.
- Creating conditions for giving and receiving empowerment and training can help both agile teams and their leaders find a suitable level of empowerment that is considerate of potential reasons why complete empowerment might not be necessary or useful.
- Team adaptability as a result of empowerment dynamics requires an environment characterized by empowerment-oriented top management structures and an organizational culture corresponding to agile principles.

Introduction

For an organization to stay innovative and successful in today's fast-paced world, it must adapt quickly to new developments and unexpected changes in its environment. As a response to this need for increased adaptability, agile was

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introduced in the IT industry as lightweight software development techniques (and project management methods) and has continuously grown in popularity (Dybå and Dingsøyr, 2008; Serrador and Pinto, 2015). A significant number of the most innovative companies are relying on agile when it comes to fostering innovation, such as Amazon, Netflix, and Tesla (Rigby, Sutherland, and Noble, 2018). Starting with its formulation in the so-called Agile Manifesto in 2001, it has spread far beyond its original context—software development—as executives from a variety of corporate backgrounds introduce and apply agile methods in their respective organizations (Tessem, 2014). Similar to traditional new product development projects, agile teams aim to develop high-quality, functional, and innovative products (Beck et al., 2001), but how this is achieved differs. While traditional approaches to managing new product development (e.g., the so-called waterfall method) depend heavily on the prior planning and sequencing of deliverables for each stage of the innovation process (Serrador and Pinto, 2015), agile teams have adaptability at their core (Cooper and Sommer, 2016). Agile teams engage in the process of continuously adapting their innovative endeavors to changes in their environments. This behavior makes their product development efforts less rigid, reduces their cycle times, and equips them with the ability to respond quickly to changing customer requirements (Cooper and Sommer, 2016; Serrador and Pinto, 2015; Vidgen and Wang, 2009).

When it comes to achieving such high adaptability in the product development process through agile methods, Scrum is one of the most well-known and applied frameworks under the umbrella of agile methods (Hron and Obwegeser, 2018). It is particularly suited for flexible and adaptive product development and product management and for dealing with complex and creative tasks. Since Scrum is a team-based concept and all of this study's interview participants have, at least some experience with Scrum, this article focuses primarily on Scrum and refers to its roles. The Scrum team is self-organizing, cross-functional, and consists of a development team, a Product Owner, and a Scrum Master. The development team (referred to as the agile team in this article) is empowered and delivers increments of a continuously developing product in regular, short intervals, called Sprints. The Product Owner and Scrum Master both function as external leaders of the agile team; that is, they fulfill a supervisory role but are not regarded as members of the actual team (Kirkman and Rosen, 1999; Manz and Sims, 1987). In this article, they are referred to as leaders and considered as team-external. The Product Owner is accountable for the product and is tasked with ensuring that the goals for the product are achieved in the best possible way while maximizing the product's value. The Scrum Master is responsible for supporting Scrum as a method, overseeing its proper application, and ensuring that the agile team's interactions with external actors are value-creating (Schwaber and Sutherland, 2017).

Furthermore, scholars stress that the social context of agile team members plays a vital role in their adaptability and innovativeness (Annosi, Magnusson, Martini, and Appio, 2016). From this people side of the innovation process, the agile way of working is characterized by continuous reflection, self-organizing teamwork, daily interactions of team members, and close collaboration with the customer (Beck et al., 2001). Agile is an approach deducted from practice (Tessem, 2014), and the few research contributions aimed at advancing theory in this field emphasize software development theory (Dingsøyr, Nerur, Balijepally, and Moe, 2012). Thus, despite the relevance of the people side of agile teams, we currently lack a proper theoretical grounding for explaining how the agile way of working fosters adaptability

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and, consequently, innovation. Developing theory in this regard is particularly important, as it increases our sparse understanding of how to nurture individuals and teams in delivering innovation (Brenton and Levin, 2012). Due to continuous interactions between team members and with leaders and customers, the importance of the people side is even more pronounced in agile teams. Understanding these human elements is central in realizing the often praised adaptability benefits of agile teams. Thus, in developing theory on the people side of agile teams, the following research question provided guidance: *How does adaptability emerge through interactional dynamics in agile team innovation processes?*

To address this research question, this article follows a (modified) grounded theory approach (Strauss and Corbin, 1998) and draws on 44 semi-structured in-depth interviews with team members working in agile teams and the leaders of those teams. From studying the teams and their interactions, the formation of empowerment through continuous interactions with their leaders, customers, and the organizational context emerged as a common theme and the main driver of team adaptability. Highly empowered teams have a high degree of responsibility and power to lead themselves (Dayan and Elbanna, 2011; Manz and Sims, 1991). Empowerment has also been found to be beneficial for innovation-related performance outcomes (e.g., Burpitt and Bigoness, 1997; Chen, Sharma, Edinger, Shapiro, and Farh, 2011) and thereby is highly relevant for innovation team contexts. The present study focuses on the formation of agile team empowerment through interactional dynamics between agile teams and their leaders, influenced by the customer and organizational drivers. The study thus makes two main contributions to the innovation management literature.

First, it offers a conceptual framework that introduces and depicts the continuous agile team innovation process (CATIP). More and more organizations are switching from traditional modes of innovating to agile or hybrid (i.e., combining traditional and agile methods) innovation models (Cooper and Sommer, 2016). The developed framework contributes to the innovation management literature by explaining the interactional dynamics that enable agile teams to continuously adapt. Agile innovation occurs iteratively and repeatedly over time (Pirola-Merlo, 2010) and, therefore, emerges as a continuous process. Prior research has mainly focused on specific success factors driving overall agile team performance or innovativeness (e.g., Lindsjørn, Sjøberg, Dingsøyr, Bergersen, and Dybå, 2016). But those studies remain largely silent about the dynamic interpersonal processes that bring about adaptability. Furthermore, the current literature calls for a stronger human perspective in understanding the dynamics in agile teams that lead to greater adaptability (Schmidt, Kude, Heinzl, and Mithas, 2014). This research attends to this call and further develops theory by integrating the interactional dynamics that lead to the formation of empowerment as an explanatory mechanism for the emergence of the CATIP. In doing so, it builds on team adaptation theory (Burke, Stagl, Salas, Pierce, and Kendall, 2006), which states that adaptability involves team members drawing "from their individual and shared resources to detect, frame, and act on a cue or set of cues signaling the need for functional team-level change" (p. 1192).

Second, this study contributes to a better understanding of the role of leaders, customers, and the organizational environment in fostering adaptability. Thereby, it extends the current research on innovation teams, which also points to the importance of team context in general as well as leadership (e.g., Sivasubramaniam, Liebowitz, and Lackman, 2012), customer involvement (e.g., Stock, 2014), and organizational practices (e.g., Song, Gu, and Cooke, 2019) specifically for project or creative performance. However, the current literature provides a rather fragmented view, as it does not consider the interactional dynamics between the different actors. By pointing to the enabling and hindering factors and activities of the various actors in the CATIP, this article provides a comprehensive understanding of how adaptability can be nurtured or dampened and which contextual circumstances should be present when aiming to foster adaptability through empowerment.

Taken together, the people aspects of agile teams are thoroughly approached and illuminated in this study as opposed to the "technical" or methodology-driven aspects discussed in the existing literature (e.g., Hummel, 2014; Ramasubbu, Bharadwaj, and Tayi, 2015; Vidgen and Wang, 2009). The clear outlining of the CATIP advances (innovation) management theory by integrating the concept of agile into the literatures on organizational behavior and innovation teams.

Theoretical Background and Literature Review

Given the importance of adaptability for innovation and agile's lack of proper theoretical grounding, this investigation takes on the quest to examine how working in an agile way can foster adaptability and consequently innovation. In doing so, it connects to literature streams on team adaptability and empowerment, which constitute the building blocks of the data analysis and theorizing. Therefore, the following section provides a concise literature review of these main constructs along with the definition of the key terms.

Agile Software Development and Agile Teams

The core actor in this study and consequently in its theorizing is the agile team. Building on Maruping, Venkatesh, and Agarwal (2009) and the Scrum Guide (Schwaber and Sutherland, 2017), the actual development team is conceptualized as this article's agile team and referred to as such throughout the further course of this article. The agile team is the core unit in the agile environment and responsible for developing and adapting the product (in the underlying empirical cases, software products). Previous research on innovation or new product development (NPD) teams has considered software development teams as falling into these team categories (e.g., Akgün, Keskin, Byrne, and Gunsel, 2011; Magni, Maruping, Hoegl, and Proserpio, 2013). Therefore, the agile team is viewed as a special type of team under the umbrella of innovation and NPD teams. NPD teams "operate in nonroutinized, ambiguous, resource-constrained, and cross-functional environments tasked with creating innovative outcomes" (Sivasubramaniam et al., 2012, p. 803). Overall, these characteristics also apply to agile teams. However, in addition to that, agile teams display some agile-specific characteristics that distinguish them from "traditional" planned and heavy-weight NPD teams. First, agile teams are usually more or less self-managing in terms of their own processes, deciding how to attain project goals and delegating task responsibility to various team members. In addition to demands for being creative and innovative, agile teams are more exposed to high pressures due to short product cycle times (Maruping et al., 2009). These teams also have to continuously deal with lots of changes in customer and product specifications (MacCormack, Verganti, and Iansiti, 2001), which makes this study's focal topic, adaptability, even more relevant for this type of teams. Their daily work life is characterized by working very closely together as a team, bearing a high responsibility for product-related work outcomes (Beck, 2000), and employing a set of routines stemming from agile practices (Vidgen and Wang, 2009).

Given the main theoretical building blocks, team adaptability and team empowerment, studies that specifically touch upon these topics in agile teams were reviewed. As far as adaptability in agile teams is concerned, previous research has conceptualized and studied the process of team adaptation. It has explained the effect of agile behavior on team performance (Schmidt et al., 2014; Schmidt, Kude, Tripp, Heinzl, and Spohrer, 2013) and identified patterns of agile teams adapting to non-routine events (Kude, Bick, Schmidt, and Heinzl, 2014). While the cited research helps us understand the process of adaptation, ultimately it does not consider innovation as an outcome and does not explore which focal factors of the human side of agile affect the emergence of adaptability.

People- and team-related research from the information systems domain has addressed some issues that connect to the ones examined in the present study. With regard to empowerment, Tessem (2014) found that agile teams feel more empowered than their non-agile counterparts and more strongly emphasize information relevance. Xu and Shen (2016) also studied empowerment in the agile context and developed a theoretical model of how empowering leadership enhances software development agility via transactive memory systems. Moreover, McAvoy and Butler (2009) found that high levels of empowerment in cohesive agile teams can be detrimental as they tend to foster groupthink. However, some of these studies lack substantial theoretical foundations and theorizing and do not concentrate on innovation-related outcomes.

Team Adaptability and Innovation

Maynard, Kennedy, and Sommer (2015) define team adaptability as "the capacity of a team to make needed changes in response to a disruption or trigger" (p. 655). This capability can be seen as an input factor for team adaptation, the actual process of the

team reacting to and changing as a response to stimuli (Maynard et al., 2015).

Team adaptation theory conceptualizes the process of team adaptation as a series of interplays between team actions and emergent states, each following to the next step of the adaptive cycle (Burke et al., 2006). Emergent states are defined as "constructs that characterize properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes, and outcomes" (Marks, Mathieu, and Zaccaro, 2001, p. 357). Agile, and more specifically Scrum, is characterized by phases of action, when product development and improvement happen, and phases of reflection, when said actions from the previous action phase are reflected and adaptations for the next phase are considered (Beck et al., 2001; Schwaber and Sutherland, 2017). This alternating and repeating structure is similar to the interplay of the adaptive cycle and emergent states in the team adaptation model by Burke et al. (2006) and reflects the underlying adaptive nature of the agile concept.

In the cited model, individual and job design characteristics are seen as input factors. It has been suggested to consider empowerment as an input or mediator in team adaptation research as the four dimensions of team psychological empowerment—potency, meaningfulness, autonomy, and impact (Kirkman and Rosen, 1999)—are expected to foster adaptability and the adaptation process (Maynard et al., 2015). However, research on this has been scarce so far. De Jong and De Ruyter (2004) present evidence for the effect of individual empowerment on individual adaptive behaviors, but not on the team level. Thus, there is a significant research gap to be studied, especially given the relevance of adaptability and empowerment for agile teams.

As far as adaptability and innovation are concerned, research mostly happens at the level of the organization. Adaptive capabilities, defined as being able to solve problems and respond quickly to customers (Håkansson, 1982), have been found to foster innovation performance (Akgün, Keskin, and Byrne, 2012; Wei and Lau, 2010). With regard to studying adaptability and innovation outcomes in teams, one prior study pointed to the joint role of adaptability and contextual factors in driving innovative performance (Vera and Crossan, 2005), but the adaptability literature still lacks a comprehensive understanding of how the immediate team context affects adaptability (Maynard et al., 2015). Some scholars even consider team innovation as a subdimension of team adaptation, thus claiming that these two concepts share important characteristics (Burke et al., 2006; Hülsheger, Anderson, and Salgado, 2009).

Team Empowerment and Innovation

Psychological empowerment can be defined as "a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information" (Conger and Kanungo, 1988, p. 474). On the team level, this emergent state is captured by four dimensions: potency, meaningfulness, autonomy, and impact (Kirkman and Rosen, 1999). Psychological empowerment stresses individuals' or teams' perceptions of being in control of their work, whereas structural empowerment "focuses on the transition of authority and responsibility from upper management to employees" (Maynard, Gilson, and Mathieu, 2012, p. 1234). There have been attempts to integrate both the psychological empowerment and the structural empowerment perspectives (Menon, 2001), often positing structural empowerment as antecedent to psychological empowerment (e.g., Arnold, Arad, Rhoades, and Drasgow, 2000; Mathieu, Gilson, and Ruddy, 2006). Within this article, the primary focus is on psychological empowerment, while the findings also shed some light on the relationship between the two.

A substream of the empowerment literature is the research on empowering leadership, defined as "sharing power with subordinates and raising their level of autonomy and responsibility, and it manifests through specific behaviors such as encouraging subordinates to express opinions and ideas, promoting collaborative decision making, and supporting information sharing and teamwork" (Lorinkova, Pearsall, and Sims Jr, 2013, p. 573). Empowering leadership has been found to affect (team) psychological empowerment (Chen et al., 2011; Mathieu et al., 2006). Furthermore, many benefits for individuals, teams, and organizations have been attributed to empowering leadership. These benefits include job satisfaction and organizational commitment (Seibert, Silver, and Randolph, 2004; Seibert, Wang, and Courtright, 2011), psychological ownership of the task, and better coordination (Lorinkova et al., 2013; Zaccaro,

Table 1. Overview of Selected Studies Discussing Agile, Empowerment, and Adaptability

Author(s), Year, and Journal	Type of Study and Sample	Theoretical Building Blocks	Key Insights Relating to Respective Theoretical Building Blocks
De Jong and De Ruyter (2004), *Decision Sciences*	Survey of 809 employees and 1724 customers	Empowerment & adaptability	Individual empowerment positively affects individual adaptive behaviors
Ahearne et al. (2005), *Journal of Applied Psychology*	Survey of 231 salespeople and external ratings of satisfaction from 864 customers	Empowerment & adaptability	Leadership empowerment behavior positively influences salespeople's adaptability
McAvoy and Butler (2009), *European Journal of Information Systems*	Observation over a year and interviews with members from two software development teams	Agile & empowerment	High level of empowerment in cohesive software development teams can lead to groupthink and thus be a negative consequence of empowerment
Kude et al. (2014), *Proceedings of the European Conference on Information Systems*	Qualitative case study of three Information Systems Development teams	Agile & adaptability	Identification of three types of non-routine events and three respective patterns of how the teams reacted to these events
Schmidt et al. (2014), *35th International Conference on Information Systems*	Survey of 81 co-located development teams at a global software development company	Agile & adaptability	Agile practices positively affect agile team performance via the team adaptation components shared mental models and backup behavior
Xu and Shen (2016), *22nd Americas Conference on Information Systems*	Conceptual approach	Agile & empowerment	Development of a theoretical framework in which transactive memory systems are the explanatory mechanism for the relationship between empowering leadership and agility
Present study	Qualitative interview study based on 44 interviews with agile team members and leaders from three companies	Agile, empowerment, & adaptability	Empowerment emerges dynamically in agile team settings as a consequence of empowerment-enhancing and empowerment-reducing interactions between agile teams and leaders as well as influences from the customer and organizational environment, resulting in team adaptability

Rittman, and Marks, 2001). Leadership empowerment behavior has been found to positively influence salespeople's adaptability (Ahearne, Mathieu, and Rapp, 2005). This finding reflects the importance of empowering leadership behaviors and the leader's interactions with the followers when it comes to adaptability. There is also some research on the relationship between empowerment and empowering leadership and creativity- and innovation-related outcomes. Zhu and Chen (2016) showed how, in their sample, group-focused empowering leadership mediated by intra-team collaboration positively affected team innovativeness. Zhang and Bartol (2010) and Zhang and Zhou (2014) found positive (also mediated) links between empowering leadership and creativity measures. In sum, these findings promise the benefits of empowering leadership and, in a wider sense, empowerment interactions between the leader and the team also for agile teams.

Overall, the current state of the literature shows that, although lacking its own theoretical foundations and conceptualization, agile can—to some extent—be related to research on team empowerment and team adaptability. However, due to agile teams' unique characteristics that distinguish them from other teams, these existing theoretical bases do not offer sufficient answers to the focal question on how team adaptability emerges through the interactional dynamics in agile teams. Connecting to agile, adaptability, and empowerment as theoretical building blocks, Table 1 briefly summarizes and presents chronologically the essential research articles and their respective insights as well as the present study in relation to previous work, thus providing the starting point for this article's underlying exploratory empirical research.

Methods

As it has been depicted in the literature overview above, previous research is sparse with regard to how adaptability emerges through interactional dynamics

in agile teams and what, therefore, constitutes the human side of agile when it comes to innovation. The present study addresses this gap and builds coherent theory in which human factors dynamically drive team adaptability emergence. Similar to current qualitative studies (e.g., Andriopoulos, Gotsi, Lewis, and Ingram, 2018; Beverland, Micheli, and Farrelly, 2016), a modified grounded theory approach was applied (Strauss and Corbin, 1998): While this study generally took an exploratory, inductive avenue to develop comprehensive insights of the studied phenomenon, emerging themes were compared and connected with existing theory. Thereby, this study moved from a purely inductive perspective to a perspective that includes both inductive and abductive elements (Alvesson and Kärreman, 2007).

Research Context

Given the underlying research question, a quasi-theoretical sampling strategy was applied: Regarding the sample, the goal was to source a broad range of organizations that applied varying states of the agile methodology and were nested in a dynamic setting. Dynamic setting means that the chosen companies had to experience, at least, some kind of change or changing framework conditions in their environment. This was given by the chosen companies: The first one was a consultancy with a variety of projects where project duration was limited naturally and implied changes in projects and teams. The second company was undergoing an agile transformation. The third one slowly introduced agile in a few different parts of the organization. Having these sampling goals in mind, we referred to our personal network and reached out to potentially suitable companies in Germany. Resulting from this, a diverse set of three organizations covering a spectrum of agile methods application was chosen. The first one, called ConsCo throughout this article, is a medium-sized technology consultancy providing high-quality software development, consulting, and implementation services for agile project management software. Teams sent to customer organizations either completely consisted of ConsCo's employees or were mixed with customer teams, depending on customers' preferences and requirements. This organization has been applying (as much as possible given customer framework conditions) agile methodology, particularly Scrum, since its founding days in the early 2000s. It has been chosen due to its rich experience and broad diversity in customer organizations and respective projects. The second organization, called ManufactCo throughout this article, is a large industrial manufacturer operating at multiple locations worldwide and is currently undergoing an agile transformation of its group-wide IT department, aiming for the transition of all its traditional IT product-related teams to agile teams. This organization enriches the sample by allowing for a thorough insight into one organization with all teams experiencing the same change from traditional to agile project management methods. It creates additional value for the sample because it shows the transformation to agile, a change many (large and not necessarily IT) organizations are currently undergoing. The third organization, called PublicCo throughout this article, is a large multinational public organization with multiple locations spread throughout Europe, doing both industrial engineering and running their products as projects. This organization was chosen because, although agile is just emerging in several software development teams, their physical product development teams apply a very similar approach to agile, thereby constituting "pockets of agility" scattered throughout the organization.

Initially, the study was set up to cover a variety of topics on team effectiveness to understand human factors in agile teams. The concept of agile teams in organizational behavior and innovation management-related research outlets basically has not been addressed so far. Therefore, the study aimed to explore issues in leader and team dynamics, dealing with conflicts, and adapting and responding to change. While conducting the interviews, taking and reviewing notes, and inductively coding the first set of interviews, the relevance and presence of empowerment aspects, particularly as results of team and leader interactions, and adaptability emerged and constituted the chosen focus of the further analyses and refinements.

Data Collection

The unit of analysis is individuals—team members and various manifestations of leaders—in different (project or product-related) agile teams. The category "leader" thereby encompasses Product Owners; Scrum Masters; "classic" project managers; and other, more company-specific leader titles. This

Table 2. Participant Inventory

Interview ID	Organization	Current Project or Department	Concrete Role at Time of Interview	Classification in Study
1	ConsCo	Development of a monitoring system for troubleshooting customers' DSL routers	Developer and project contact person	Team
2	ConsCo	Various	Leader for multiple projects at same customer	Leader
3	ConsCo	Development of a product-materials-database for a sport-apparel manufacturer	Developer and contact person for customer	Team
4	ConsCo	Development and partial maintenance and support of a sales platform	Developer	Team
5	ConsCo	Development and maintenance of customized software packages and code automatization	Developer	Team
6	ConsCo	Development of a customer management system	Developer	Team
7	ConsCo	Development of a customer management system for a telecommunications firm	Scrum Master	Leader
8	ConsCo	Development of a customer management system for a telecommunications firm	Development-lead for multiple teams/projects at the same customer	Leader
9	ConsCo	Currently not assigned to a project	Last role was developer and Proxy Product Owner	Team
10	ConsCo	Development of a customer management system for a telecommunications firm	Developer	Team
11	ConsCo	Development of the catalogue section in an online shop and filling it with product data	Product Owner	Leader
12	ConsCo	Development of a tablet application of a sales platform	Developer	Team
13	ConsCo	Development of a data management system	Developer	Team
14	ConsCo	Development of a customer management system for a telecommunications firm	Developer	Team
15	ConsCo	Not assigned to a customer project	Working on internal projects for company development	Individual internal work
16	ConsCo	Adaptation of a contract management system	Product Owner	Leader
17	ConsCo	Development of a customer management system	Developer	Team
18	ConsCo	Development of a customer management system for a telecommunications firm	Developer	Team
19	ConsCo	Web development project	Project contact person	Leader
20	ConsCo	Development of a webshop	Team-lead	Leader
21	ConsCo	Development of a webshop	Product Owner	Leader
22	ManufactCo	Customer relationship management department	Team lead	Leader
23	ManufactCo	Development and maintenance of database systems for ManufactCo's financial services department	Team lead	Leader
24	ManufactCo	Business intelligence department	Team lead	Leader
25	ManufactCo	IT-quality management department	Team lead	Leader
26	ManufactCo	Providing SAP-based multiproject platforms and building applications on them for users at ManufactCo	Team lead	Leader
27	ManufactCo	Delivery and maintenance of IT products for the healthcare and gastronomy departments of ManufactCo	Team lead	Leader
28	ManufactCo	Development of an online reporting tool for several mangement accounting departments at ManufactCo	IT project manager	Team
29	ManufactCo	Department for business relationship management (link between IT and other departments) at ManufactCo	Key account manager for human relations	Team

Table 2. Continued

Interview ID	Organization	Current Project or Department	Concrete Role at Time of Interview	Classification in Study
30	ManufactCo	Department for developing software and hardware solutions for company workshops	IT specialist	Team
31	ManufactCo	Across departments and projects	Transformation Coach	Transformation Coach
32	ManufactCo	Across departments and projects	Transformation Coach	Transformation Coach
33	ManufactCo	Department for connected services, digital services, and big data	IT enterprise architect	Team
34	ManufactCo	Across departments and projects	Transformation Coach	Transformation Coach
35	ManufactCo	Across departments and projects	Transformation Coach	Transformation Coach
36	ManufactCo	Delivery and maintenance of IT products for the human relations department of ManufactCo	Team lead	Leader
37	PublicCo	Head of an engineering department	Team lead	Leader
38	PublicCo	Head of a strategy department	Team lead	Leader
39	PublicCo	Head of the learning and development service	Team lead	Leader
40	PublicCo	Head of electrical department	Team lead	Leader
41	PublicCo	Department for information security management system	Software engineer	Team
42	PublicCo	Conceptualization and implementation of feasability studies	System engineer and team-lead	Leader
43	PublicCo	Development and maintenance of a system for one of PublicCo's infrastructures	Software engineer	Team
44	PublicCo	Preparation of the implementation of developed product	Project manager	Leader

variety of leader titles is because, in spite of all the teams where the interview participants came from claimed to be agile, most of the teams did not adopt agile methods to their full extent. Table 2 contains the participant inventory where the official names of leader roles—where available—are indicated to give transparent insights into the background of the interview participants. Mostly, there is no distinction among the team members/developers since the majority of the teams adhered to the Scrum rule of not giving the agile team members different names and assigning them to one specific role. Personal contacts in all three organizations provided support and insight for administrative issues, such as contacting participants. Potential participants were informed about the opportunity to partake in the study and self-selected into participation. With regards to the latter, within the theoretical sampling of the three organizations, we built on Lincoln and Guba (1985) and mainly adhered to a "purposeful sampling" approach by defining inclusion criteria for potential self-selecting participants: Interviewees had to have, at least, one year of experience with team-based agile methods (consequently, they all have experience with Scrum but some have also used other agile methods); have participated in, at least, two projects; and had to have a specific agile, that is, Scrum, role, where possible. Given the circumstantial differences between the three organizations, the requirements were adjusted, respectively, for their peculiarities. For example, the experience prerequisite for ManufactCo currently transforming to an agile organization and the narrow definition of agile for PublicCo to cover their agile-equivalent method were relaxed. Potential participants were excluded if they did not meet the inclusion criteria. For five months in the spring and summer of 2017, the first author—with the support of trained research assistants—conducted 46 semi-structured in-depth interviews. Two of them were excluded from the sample since the quality of the audio recording and notes taken during the interview were not sufficient for proper verbatim transcription and analysis, resulting in a total of 44 interviews for analysis.

The interview protocol contained general questions about participants' personal backgrounds and

job experiences working in agile teams as well as comparing the experiences of being an agile team member with working in a traditional team setting. Additionally, the Critical Incident Technique (Flanagan, 1954) was applied for which participants had to focus on one specific team to recall and describe good and bad teamwork incidents. The aspects covered in this section were related to role distribution within the team: leader role, dynamics, and interactions; intra- and inter-organizational interfaces; conflict management with various actors; relevance of agile methods within the team; dealing with and adapting to changes and shocks. Although the critical incidents were supposed to explicitly concentrate on one specific team, this claim was relaxed in case good and bad incidents had not occurred within the same team. Besides, participants would often refer to some experiences outside of the spotlight team to either reinforce a point made or juxtapose an experience with a developed idea. The inductive theory-building approach relied on a comprehensive view of the data and relevant issues as central identified themes were covered both in the critical incidents and the narratives in the other parts of the interviews. Therefore, the boundaries between the discussed incidents versus other incidents from the current team and former team memberships were blurred. Thus, the present investigation embraced this data and no longer distinguished based on incidents but rather saw all the data as basis for the development of the inductive theory. However, all the teams—current and previous—that the participants referred to, applied agile methods to some extent. Further, it was ensured that the participants did not stray too much from the subject. Overall, this procedure added more richness to the data. The protocol was adjusted for each organization's specific characteristics, that is, a stronger focus on the transformation to agile at ManufactCo, and a broader, more permeable understanding of agile at PublicCo, to allow for parallels between agile and its specific agile-equivalent. All interviews were audio-recorded except one (by wish of the participant), which was still included in the analysis due to the comprehensive notes taken throughout the interview. The majority of the interviews was conducted directly at the companies' sites and via telephone when being on site was not possible due to logistical reasons in a few cases at PublicCo.

The first author conducted 21 interviews (3 female, 18 male) with employees from ConsCo. Fifteen interviews (4 female, 11 male) with employees from ManufactCo and eight includable (2 female, 6 male) with participants from PublicCo were conducted by thoroughly trained research assistants. Apart from the training, interview quality was ensured by conducting many interviews in groups of two and cross-checking the audio and transcripts by the first author before their inclusion into the final set for data analysis. Interview duration ranged from 20 to 80 minutes, averaging approximately 60 minutes at ConsCo, 30 at ManufactCo, and 45 at PublicCo. All interviews with available recordings were transcribed verbatim. Interview participants varied in their roles and covered the whole spectrum of agile—that is, Scrum—and organizational roles, namely team members, Product Owners, Scrum Masters, other leaders, and so-called Transformation Coaches driving the transformation at ManufactCo. Transformation Coaches are rather senior and experienced employees at this organization who were specifically trained and released from their previous work duties to guide and provide support during the agile transformation at ManufactCo. Almost all interviewees from ConsCo had experienced more than just one agile role, whereas participants from the other two organizations mostly have had one. In several cases, different participants with different roles within the same projects were interviewed, thus allowing us to confirm the findings by having interview data from multiple perspectives. To further enhance the understanding and ensure context-adequate analysis, we informally drew on notes taken during and after the interviews, off-record conversations with employees from the included firms, and impressions and observations during the interviewers' stay at the organizations' sites. Toward the end of the interview phase, similarities and patterns within the narratives were noticed and marginally few new insights could be extracted—theoretical saturation had been reached.

Data Analysis

For this study, an iterative approach to make sense of the data and develop theoretical themes (Miles and Huberman, 1994) was applied and the software package MAXQDA 12 was used to manage codes and codings. As mentioned above, the study initially did not set out to focus only on empowerment but rather to also explore a range of themes with regard

to the human factors for agile working and adaptability. Therefore, we coded the first batch of interviews inductively, following an open coding approach to detect common themes and patterns (Strauss and Corbin, 1998). It quickly became noticeable that the central interactions that occurred related to being empowered and empowering compared to situations where these empowerment endeavors were limited, interestingly caused by both agile teams and leaders. This empowerment theme was found to interweave all the other dimensions and incidents covered in the interview protocol. Similar to Heaphy (2017) and as often happens with qualitative inductive research, the research question and focus were refined (Charmaz, 2006) to now specifically look at the dynamics of empowerment formation and their role for adaptability emergence. Therefore, we recoded the first batch and coded the rest of the total interview set, this time being particularly mindful of the mentioned outstanding themes. Following Gioia, Corley, and Hamilton (2013), we cycled multiple times through the data and could reduce the amount of and label the first-order concepts properly, constantly going back into the literature to compare, embed, and make sense out of them. Given the detected interplay of both actors and both sets of activities, the first-order concepts were naturally connected and melted onto the second-order themes in the form of empowerment-fostering and empowering-reducing clusters of activities, organizational factors, and adaptability. These, in turn, could then be combined into the aggregate dimensions based on actors engaged in this dynamic empowerment and adaptability formation process. The above constituted "the basis for building a data structure" (Gioia et al., 2013, p. 20). At this point, we fully embraced the existing literature and started to make sense of how the findings fit into prior work, thereby switching from "inductive" to "abductive" research, with data and existing theory going hand in hand (Alvesson and Kärreman, 2007; Gioia et al., 2013). The data analysis process was concluded with the development of an empirical model to show how empowerment-enhancing and empowerment-reducing interactions between an agile team and the leader interact with customer and organizational factors and ultimately result in the emergence of adaptability as an essential capability for innovation. Figure 1 depicts the identified first-order concepts, second-order themes, and aggregate dimensions that will be presented and discussed hereinafter.

Table 3 provides additional representative quotes to support the data structure.

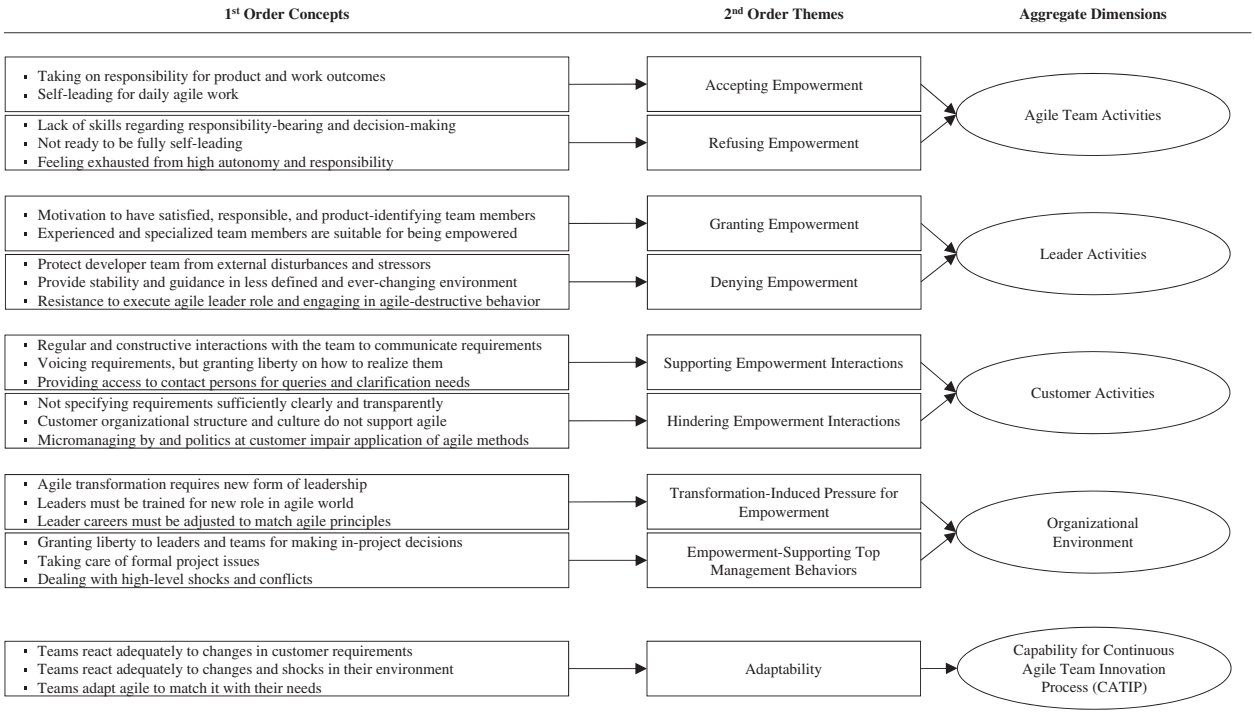

Figure 1. Data Structure

Table 3. Representative Supportive Data for Each Second-Order Theme

Dimensions	Themes	Illustrative Quotes
Agile team activities	Accepting empowerment	"Our new leader represents the new [agile and empowering] leadership culture which we value a lot, so we work in a self-responsible way. There are no commands regarding what we have to do next. You do not have to tell us [what to do] because we know that we have [our] software out there [that needs to run perfectly]. You have to really let it [our responsibility] sink in: When one of the Product Owners or one of the team members makes a mistake, this will affect 5000 [end customers]." (Interviewee no. 30)
		"Everyone improves his or her way of working constantly. How they work together, how they do this, it's completely self-organized." (Interviewee no. 31)
	Refusing empowerment	"I am rather self-organized (…) and I tried to bring it [self-organization as agile principle] into my team as well and then it became difficult. It [agile transformation] is a huge change that we have to deal with. (…) We are not there yet with self-organized teams. (…) Employees really need to be brought on board because currently they are in a hierarchical system where they simply get the tasks assigned." (Interviewee no. 25)
		"Team members often are worried that the Product Owner does not assume responsibility. (…) Also many people [team members] are not encouraged (…) to assume responsibility and make decisions and also stand by those decisions." (Interviewee no. 36)
Leader activities	Granting empowerment	"And motivation is present as well because naturally it motivates you that you can make decisions as a team and these decisions are relevant for you later on." (Interviewee no. 14)
		"(…) but there are plenty of people who bring in lots of experience, so that when it comes to certain issues, their opinion simply counts more and it is also more important to the others (…)." (Interviewee no. 2)
	Denying empowerment	"We had the Scrum Master and Product Owners (…) who did a very good job in shielding us developers from the external influences." (Interviewee no. 17)
		"I could, for instance, not convince the project leader to abandon his very rigid partial-project management approach because that's what he knew from the waterfall model, which has a certain structure and a hierarchical nature." (Interviewee no. 25)
Customer activities	Supporting empowerment interactions	"That the customer allows such a close collaboration within teams consisting of ConsCo and customer team members or that we [ConsCo team members and leaders] are invited to their company parties or that we have a Product Owner actually being one of the customer's employees [reflects a good and constructive way of collaborating and communicating]." (Interviewee no. 11)
		"And sometimes the customer simply said that he just wanted something to happen. But how, that is where we could decide and assess what makes sense and make suggestions." (Interviewee no. 1)
	Hindering empowerment interactions	"The requirements-side was a bit more difficult. Where do requirements come from, how are they deducted? [The customer] is a pretty large corporation with own processes, own departments, rather lots of politics. And there was a lot of intransparency: who does actually decide what and why is then suddenly everything changed all over again?" (Interviewee no. 11)
		"To put it like this: If we now transform into an agile department, that is only a fraction of what is necessary. Because it gets difficult if the users and customers (…) do not have and also do not develop an agile culture and if they do not reserve enough time for participating in product development (…)." (Interviewee no. 25)
Organizational environment	Transformation-induced pressure for empowerment	"We are still a very hierarchy-characterized organization. (…) also the role of the leaders will have to change." (Interviewee no. 31)
		"(…) we think, in collaboration with the human relations department, about what kind of professional development paths exist for people in such an agile environment. Because if I do not have a strong hierarchy, basically I just have the team left. People want to progress professionally and that is totally fine. Then you could start as a team member and become a senior or advisory team member after five years." (Interviewee no. 22)
	Empowerment-supporting top management behaviors	"I knew that a decision was needed and that if I made it to my best knowledge, top management would stand behind me. (…) They trust me as an employee." (Interviewee no. 3)

Table 3. Continued

Dimensions	Themes	Illustrative Quotes
Capability for continuous agile team innovation process (CATIP)	Adaptability	"Top management took care that contracts were made with the customers, so that we could get paid. It is very good if someone takes care of this and one does not have to be bothered with things like this." (Interviewee no. 12) "What I have come to realize is that fast feedback is very important for our work. (…) that we also present what we have built to the customer every two to three weeks and then based on their reaction we see whether it's what they wanted or whether they have said one thing, but actually meant something different and we still have to adapt some parts. So this process of reacting fast and seeing that we are on the right track is what feels very good and makes lots of sense from my point of view." (Interviewee no. 1) "Last year the supplier of the system that we use quit the collaboration (…), six weeks before the go-live, and asked us whether we could manage the system on our own. And somehow we made it: we took over the system, have made it faster and better like it was required, all in that short time frame. This was really an extreme situation. But it was something extremely positive." (Interviewee no. 2)

Findings

Overview

The main research motivation was to understand how adaptability in agile teams emerges through interactional dynamics. Empowerment-focused interactions between the agile team and leaders that range from embracing to rejecting empowerment as an essential component of human interaction within the agile environment were identified. The following subsections elaborate in more detail on two sets of activities: the empowerment-driving interactions of the agile team accepting empowerment and the leader granting it, on the one hand, versus the empowerment-reducing interactions of the agile team refusing empowerment and the leader denying it, on the other hand. Two-fold customer activities and the organizational environment both influence the empowerment interplay between the agile team and the leader. These empowerment activities and interactions are dynamic, as they move continuously back and forth, leading to temporary empowerment states, which ultimately support the development of adaptability capabilities in agile teams.

By building upon the data structure presented in Figure 1, a model of interactional dynamics of empowerment that foster adaptability is developed, which is depicted in Figure 2.

Accepting Empowerment and Granting Empowerment as Empowerment-Enhancing Interactions

The agile team and the team leader may both engage in empowerment-enhancing interactions. Agile teams and their respective team members signaled a readiness to be empowered while leaders engaged in empowering behaviors.

As far as accepting empowerment as empowerment-enhancing team action is concerned, the teams took on the responsibility for the product and its related work outcomes, as stated by the Agile Principles. Associated behaviors included deciding what is done during a Sprint and deciding how to carry out tasks. This made perfect sense, given their proximity to the product and their understanding of the tasks that required completion to further develop the product.

Interviewee no. 11 recalled how she and her team colleagues worked on a former project:

> *The team could pretty much organize itself and in that sense could define its way of agile working. It could also decide how much work it would take on for one iteration. That worked rather well. And also decide freely to do daily [stand-ups], retrospectives, and review meetings.*

Another leader (interviewee no. 2) summed it up for his current team:

> *The team decides what is done during a Sprint.*

Team members also perceived and valued the freedom they got for deciding how to do tasks during Sprints and the project in general, reflected by the following quote from interviewee no. 1, one of ConsCo's team members:

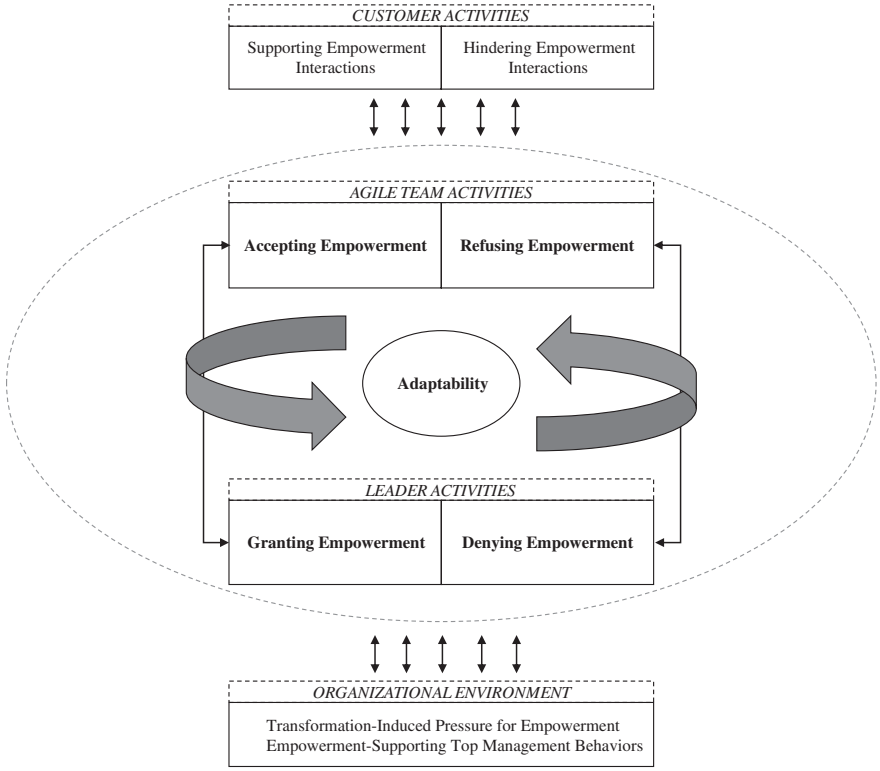

Figure 2. Model of the Continuous Agile Team Innovation Process (CATIP)

It [the work within the project] was actually very pleasant and we had the freedom to decide how to design and implement everything. And like that it worked really well because we could do it [the work] like we wanted and what we considered as making the most sense.

Accepting empowerment by the team was also embodied by self-leading for daily agile work, as partly reflected by the quotes mentioned above and the following quote by interviewee no. 22 who talks about how the team self-organized their daily stand-up meetings:

The teams did their daily [stand-ups]; every single morning for half an hour they gathered for this occasion. (…) Each team did this on their own and organizing it this way has really worked.

This empowerment-enhancing behavior by the team can be mirrored by the corresponding leader-perspective, namely granting empowerment. The promise of satisfied team members who identify with and act responsibly regarding the product is the main motivation to engage in empowering behavior. Several of the interviewed leaders stated that team members should be empowered to also increase their identification and involvement with the product.

Interviewee no. 21, a leader at ConsCo, explained how he set up and developed a team and positively pointed out the effect of having transferred responsibility to the team:

(…) the point is simply that it's mostly rather a technical coordination process. And from my point of view, the developers are simply the ones who are the best to do this. And in that sense, on the one hand, it was important to us to gain an understanding of the product. Second, to empower the developers to make autonomously tech-related agreements with other departments.

Empowering the team can also mean letting it directly interact with customers to get a better understanding of their needs and requirements.

Interviewee no. 38, a leader at PublicCo, told a story of how his team was working on developing a product for the customer, but given the low degree of agile and thus, no built-in customer interface, the team lacked a full understanding of the requirements. They approached the leader and the customer and started

interacting. Being supported and empowered by the leader gave them a boost in their work morale, as the following quote by this interviewee reflects:

> *The software development team feels that they are able to meet the users' needs. And consequently have more satisfaction on the job and more motivation (…).*

Additionally, team members' experience and specialization, and thus, suitability for empowerment, constituted a motivator for empowerment. Team members with higher levels of experience had more say in the decision-making process and were assigned leadership tasks more often. Although the idea of general empowerment for the whole team was prevalent, experience was a decisive factor. Empowering leaders felt more confidence in granting empowerment to teams and team members with high degrees of expertise and were convinced of their competence.

Interviewee no. 43 described it as follows:

> *So I felt that one or two people had the better knowledge because they were there for a longer time. The others relied on their opinion and input, at least in the beginning, to be able to estimate what has been asked for. But it is not really leadership like "I am your boss," it is really more about "I just have more knowledge than you."*

With his statement, interviewee no. 43 also emphasized another important aspect: While there was a certain hierarchy based on experience, other team members' opinions were still valued, which reflects an empowerment-enhancing environment, and they had the chance to get a stronger voice with more experience, as interviewee no. 18's following statement reflects:

> *I did not have a say that much, but I had the impression that, if I learn more, become better, and immerse myself more deeply into the subject, then I can also make better use of this option [to have more say in team discussions and decisions].*

The effect of specialization is very similar to the power through experience. This aspect was included in this theme as well since specialization is associated with fundamental expertise and experience in one specific field.

Refusing Empowerment and Denying Empowerment as Empowerment-Reducing Interactions

The team or team members may refuse to be empowered and prefer to be equipped with less responsibilities and decision-making power, while leaders may limit or deny empowerment of agile teams.

Various reasons emerged from the interviews as to why teams more or less choose to refuse empowerment. First, there can be a lack of skills regarding the level of responsibility and decision-making that is required from teams working in an agile way. Whereas experience and specialization were mentioned before as motivators for empowerment, they referred to technical expertise. In contrast, teams were categorized as refusing empowerment when they lacked the capability to work autonomously.

Some teams were found to be too insecure. This is, for instance, reflected by the following statement from interviewee no. 34, a transformation coach at ManufactCo:

> *But what I currently realize is that it [the change of the leader role] is not that easy because there are people who are used to getting told what they have to do. (…) That's different in an agile and self-organized team. I consider this as a huge challenge (…).*

From a leader-perspective, factors like these obviously make it difficult to empower and consequently impede leaders from stepping back and fully empowering the team.

Not being fully ready to be self-leading was also reflected by unproductive discussions and the inability to find a consensus.

One former team leader recalls a time when the team was not experienced enough and displayed a lack of self-leadership skills. Consequently, the granted autonomy resulted in team members' lengthy discussions, not agreeing on important issues, and thus, not progressing with technological advancements. Once a new, more experienced colleague was staffed to the team, he detected and voiced the issues, as reflected by the following quote from interviewee no. 15:

> *And he [the new, experienced team member] said that the team members probably had rather too much than too little autonomy. (…) A colleague*

put it like this: "I mean, we also realized that it was a mistake. You just want to introduce a new programming-paradigm in Java and then the whole team rebels against you." Obviously, that was not advantageous.

Finally, working in such an empowered, self-leading way places high demands on individuals. This can cause them to feel exhausted from the high autonomy and responsibility that are associated with the agile way of working. While requirements like this are listed in job postings and recruiters should select suitable candidates for the job, there is a natural variance in people's skills.

One leader, interviewee no. 11, observed some cases throughout her career where team members could not deal with the high autonomy and responsibility that agile entails:

And not everyone feels comfortable with that much liberty and responsibility, also not with so much teamwork. There are people who prefer to work alone on a topic, zooming in for a couple of months instead of working together on a matter. [They prefer] to work on small tasks and then to transfer them to others.

Overall, the lack of certain skills and mindset needed to succeed in an agile world explains the observations of teams not fully taking on the empowerment behaviors of leaders.

Analogous to the empowerment-enhancing view, for the empowerment-reducing interactions, there are also the leader activities as the counterpart to the team aspects presented above, categorized as denying empowerment. In general, some of these empowerment-reducing activities can be perceived as positive, for example, leaders helping the team, whereas others can be classified as negative, for example, leaders clinging to their formal power. One leader activity is the attempt to protect the developer team from external disturbances and stressors. Therefore, this can be seen as a reaction to the lack of skills and feelings of exhaustion experienced by the team and representing a positively intended empowerment-denying activity. Protection of the team can be done by liberating the team from non-core tasks and shielding it from customer-related issues. Particularly, the latter matters highly in the agile world since close customer interaction is required to build better software but can put high strain on the developers. These very often purely technically oriented individuals prefer to be able to work on the product without constantly being disturbed with queries, as interviewee no. 18 put it:

We had a very good Scrum Master who kept trivialities away from the team. We were able to concentrate well on the Stories and work on them.

Even more often than the Scrum Master, the Product Owner was most often associated with protecting the developers from external distractions and disturbances. Although the Product Owner role is conceptualized to somewhat support customer interaction, it has been found that this is one rather stressful task for the team. It is a task they are happy to pass over to the Product Owner or leader in general, making them the primary link between the agile team and the customer.

Another reason for the leader to somewhat limit empowerment behaviors is motivated by the external environment: In times of frequent change, providing guidance and stability helps to deal with less defined and ever-changing framework conditions. Leaders are aware of the insecurities that might come with a more dynamic environment and reflect on changes that are necessary when it comes to their role. ManufactCo, the organization undergoing a transformation to agile structures and work methods, was particularly affected by this.

Interviewee no. 24, a leader at ManufactCo, put it as follows:

In sum and also in exchange with other organizations, we experience that the more agile there is in an organization, the more need for leadership there is. (…) the leader demands are higher than ever because self-leading teams hit limits everywhere and this in a context that is not defined at all anymore.

Even though a guiding leader role as presented here comes with good intentions, there is still a limiting effect compared to full empowerment.

The drivers for denying empowerment presented so far have a well-intentioned, supporting function. The third detected reason and behavior denying empowerment is the resistance to executing a more agile leader role and even engaging in agile-destructive behavior,

thus reflecting a negative intention for empowerment-reducing actions by the leader.

It could be observed at ConsCo that leaders from many of their customer organizations, especially the large and hierarchical ones, were often found to not agree with their role associated to the projects. Instead of adopting a more empowering and transforming leadership style and moving to the sideline for the team to be self-leading, they often clung to their old ways. One leader from ConsCo, interviewee no. 2, portrayed it with the following story:

> *They [change-resistant managers in the customer organization] have clear hierarchies and decision pathways. And when someone tells them, "You are not a project manager or department head anymore, but a Product Owner," then he will say "I've worked for 30 years to be a project manager, I am a project manager!"*

Above that, many informants reported cases where resistant leaders even engaged in agile-harming behavior.

Interviewee no. 38, a leader at PublicCo, recalls an incident where agile was introduced in one of the organization's software development teams and the team's leader did not behave in an agile way:

> *Actually he was even making decisions without consulting the team. It was quite hard for the software development team to hold him to what we talked about and what we had agreed.*

Interviewee no. 10, a team member from one of ConsCo's project teams, described his experiences with regards to micro-management:

> *In some cases some of the project team leaders do some kind of micro-management and interfere with things, something that I was not used to in my former team. In my former team, I was used to taking care of those things and organizing them on my own. (…) One example would be how to organize your board. So we have physical boards hanging everywhere. Normally, when we do our daily stand-up meetings, the project team leaders are present as well and have certain expectations of what the board has to look like, that certain conventions have to be adhered to.*

Particularly in times of a transformation, such as ManufactCo was undergoing at that time, committed and transformation-supporting leaders are needed to lead by example, and thus, to also convince team members to support the transformation.

The Role of Customer Activities for Empowerment Interactions and Adaptability

Overall, so far, it has been shown that empowerment in agile teams is a consequence of interactional dynamics between the agile team and its team members and the leader. There are various reasons and actions from both actors to foster empowerment, on the one hand, but to also reduce it, on the other hand. Beyond that, certain customer activities, as well as characteristics of the organizational environment, affect these interactional dynamics between agile teams and leaders.

The integration of the customer is one of agile's core principles. Working closely with the customer is intended to get regular and timely feedback that allows the team to iteratively improve products and foster adaptability, which is supportive for innovation-related outcomes. As explained above, the agile team and the leader in the developed model are in constant interaction, negotiating and balancing empowerment-enhancing and empowerment-reducing activities. Repeating these interactions throughout the multiple iterations inherent in the agile methodology supports the development of adaptability as an essential capability for innovation.

It has been found that the customer's actions can have a supporting or a hindering effect on the empowerment dynamics between the agile team and the leader and consequently adaptability development. A supportive effect occurs when the customer regularly and constructively engages with the team and communicates the requirements and requirement changes, thereby basically fulfilling his obligation based on the agile principles.

Interviewee no. 6, a team member from ConsCo, remembered his first project, which involved a cooperative and well-communicating customer:

> *In my first project, it [application of agile] worked relatively well. It was a small team with a relatively small customer [-organization] who was very progressive. [It was] a setting where it worked pretty well to develop software in a two-week-rhythm and where you immediately got feedback whether the customer liked it or not, whether you had somehow*

to readjust or whether future development had to take another direction.

Another customer behavior that fosters empowerment interactions between the team and the leader is voicing clear requirements but granting enough liberty on how to accomplish them. Most of the team members appreciated the opportunity to get creative and present potential prototypes of software products. Even if some team members felt overwhelmed by having this high responsibility, balancing empowerment interactions between team and leader took place to negotiate a suitable level of empowerment and a way to deal with the situation.

Interviewee no. 1 and his team made this kind of positive experience, which he narrated as follows:

In our case the customer had a general idea and told us he would like to have something like this and that. Basically a direction or some idea how it was supposed to be. And we had the liberty to say: "Let's implement it like this and that, let's do it this way." We made suggestions how it could work.

Finally, the customer also supported empowerment and adaptability evolvement by providing access to contact persons for queries and clarification needs.

Interviewee no. 2 spoke about how communication with the customer in the current project is handled:

… well, we are in constant exchange with the customer, have daily calls, stand-ups and so on, and then [there are] also weekly calls with estimation meetings, backlog-grooming. Also, in-between [there are] quick calls to clarify issues. So basically it's a short way and I talk to the business analysts and the Product Owner a couple of times per day to clarify things.

While all these actions so far represent customer activities supporting empowerment interactions and consequently adaptability, a hindering customer side affects the empowerment and adaptability endeavors between the agile team and leader in an empowerment-reducing manner. The first type of behavior identified for this category occurs when the customer does not specify his requirements clearly and transparently enough.

Interviewee no. 12, a developer in one of ConsCo's teams, recalled unfavorable work conditions where poor specifications and not well thought-through requirements led to confusion and an unsteady work pace, both things that agile is actually meant to bypass:

Partly I'd say that we are more blocked than that we have too much work. There were blockages where we had built things and then thrown them away. (…) The stress comes from having suddenly to say: "Hey, now we build a totally different solution than we had initially planned." As soon as you know what has to happen you can easily implement it. You just need to know that it has to happen. So the stress stems from poorly specified requirements and not from too many.

Behavior and situations like this make it difficult for agile teams to work in an empowered and self-organized way since a sufficient amount of support is often required. Usually, this leads to interference by the leader in an empowerment-denying way to protect the agile team from the uncertainties. Naturally, not experiencing sufficient empowering hampered the team from developing stronger adaptability capabilities.

Second, it turned out to be problematic when the customer (organization) had organizational structures and an organizational culture in place that did not support agile. This problem was particularly relevant for ConsCo, since they often worked with large, non-agile organizations, and ManufactCo, whose IT department was undergoing its major transition to agile but the IT department's internal customers were not applying agile. Instead, both ConsCo and ManufactCo's customers were following a waterfall project management method.

Interviewee no. 6 reflected on his team's current customer:

With my current customer it [application of agile] is a bit more difficult. Above our actually intended agile development process lies a waterfall process that is driven by the customer. Developing one of the customer's ideas until it goes live can easily take 12 months. So there are no feedback cycles in sight anywhere.

Finally, the customer turned out to be problematic for the team's empowerment and, ultimately, adaptability goals when micromanaging by and politics at the customer organization impaired the application of agile methods.

A developer at ConsCo, interviewee no. 10, described it as follows:

> *The work atmosphere could be better if the customer did not want too many things that are actually not relevant to them. For instance, they want to sign off on any change in the developer team composition, even though we mostly exclusively consist of ConsCo team members and although the ConsCo leaders know us much better. (…) The customer also wants to have a relatively high amount of reporting. Their classical management methods asking for status updates generate lots of overhead effort for us, on top of the regular Stories estimation.*

The Role of the Organizational Environment for Empowerment Interactions and Adaptability

Besides customer activities, the organizational environment has also been found to influence the empowerment interactions between agile teams and leaders.

First, the transformation-induced pressure for empowerment at ManufactCo turned out to be an essential driver for empowerment interactions. Having empowered teams is one of agile's core values; therefore, undergoing an agile transformation clearly impacted how agile teams were seen or, at least, intended to operate at ManufactCo. Leadership and transforming how leaders acted in this "new" agile world played a pivotal role.

It was pretty clear that the agile transformation and the following new agile culture required a new form of leadership, and that this requirement could be met by empowering leadership, among other things. Both leaders and team members emphasized the importance of the changing leader role and addressing it by training leaders.

One of the transformation coaches, interviewee no. 34, put it as follows:

> *Leadership will definitively change if you live it properly. Because it often happens that a leader says, "These are our goals, you have to do something this or that way." The leader's role at this point changes completely. The focus is on the team or the product, [on] the customer.*

This quote is embedded in interviewee no. 34's explanations of how leadership structures will change and leaders will have to depart from giving meticulous instructions for the team members to do their tasks, give them the room to do those tasks on their own, and also trust them in doing so while the team members have to be capable and willing to take this responsibility. Overall, the strength of the motivation to empower team members in agile teams is salient.

For leaders to achieve this new agile-suited leading behavior, training them for their new role became necessary. For this reason, ManufactCo engaged in providing training opportunities and also introduced the concept of the so-called Transformation Coaches: These well-trained and often experienced professionals from ManufactCo were assigned to guide teams and departments through the unknown of the agile transformation. They introduced, taught, and carried out agile practices and routines, were available for questions and concerns, and overall provided a safe space for learning and changing.

A Transformation Coach, interviewee no. 32, gave an overview of the situation:

> *There are professional trainings for leaders with regards to agile, also offered by external training providers. What we also have inside the company are colleagues who practically drive this cultural change. And they also take a look at what the current values at ManufactCo are and whether they fit agile and, if not, how they have to be adapted. They also explore what this agile culture actually entails and how its values can more or less be implanted at ManufactCo.*

Consequently, with all the views on how agile leadership has to occur and the cultural changes happening, structural changes have to mirror them by adjusting leader careers to match agile principles.

The second influence of the organizational environment on the central empowerment dynamics between an agile team and its leader is empowerment-supporting top management behavior, happening partly at PublicCo and ManufactCo, but mostly at ConsCo given their full internalization of agile and having built the company on agile pillars.

Top management granted liberty to leaders and teams to make in-project decisions on their own, which reflects a substantial amount of trust in the teams and their leaders. Top management also took care of formal project issues, such as project contract negotiations and staffing, as well as dealt with high-level shocks and conflicts.

Interviewee no. 6 remembered a significant incident when the customer organization had to let go of the majority of ConsCo's project team. The team was able to deal relatively well with this shock since they could rely on top management:

> *The direct communication with top management was very helpful. They told us not to worry and that they would take care of it and assign us to another project.*

Overall, top management structures and behaviors like this helped the team to keep a clear mind and empowered them to concentrate on the essential aspects of their work, allowing them to excel and adapt in product development and deliver innovative solutions.

Adaptability as an Essential Capability for the CATIP

So far, it has been shown how agile teams and leaders engage in interactional empowerment dynamics and reach temporarily stable empowerment states before changes and new iterations let them initiate the interactions again. Customer activities and the organizational environment also affect these interactional dynamics of empowerment formation. All this forces the team to become adaptive and adapt to the new framework conditions. Being adaptive is the central capability of the introduced CATIP.

The analysis has identified three ways by which adaptability in the agile team setting can occur. First and most obvious, agile teams react adequately to customer requirement changes. This is one of agile's core principles since product development has to be customer-centered.

One example of how this happens was given by interviewee no. 19, a leader at ConsCo:

> *You can react faster to market changes. Ideally and in the mentioned project, it happened like that. We had a backlog, which contained maybe 3–5 iterations, but as developers we knew roughly what would come next. However, when the Product Owner saw, "Alright, we are done with that, next iteration," he obviously put it live and got feedback from the customers and then told us, "Ok, so let's indeed do something different during our next Sprint or move up some features."*

Adaptability was also demonstrated when the agile teams adequately reacted to changes and shocks in their environment without losing their drive and experiencing a drop in their performance, for instance when hardware defects happened and forced the team to change their work activities and try to solve the problem at hand.

Finally, adaptability was also manifested via adjusting agile as a method to the team's needs and peculiarities, for instance by switching meetings or using elements of Kanban[1] while generally applying Scrum, as recalled by interviewee no. 2:

> *… but I barely know a team that does not use swim-lanes. Most have a high-priority lane which picks up issues during a Sprint, which then are favorably addressed instead of some [previously planned] Story.*

Taken altogether, it becomes visible how different actors and constant empowerment interactions as focal principles of the human side of agile lead agile teams (and leaders) to be adaptive, thereby fostering their innovativeness. Since these interactions occur constantly and repeatedly and ultimately drive innovation in an agile setting, this process is called the CATIP.

Discussion

This research commenced with the quest to understand how human interactional factors in agile teams affect adaptability, which is an essential capability for innovation. Based on data from three organizations and subsequent analysis, empowerment has been identified as a focal human factor within agile teams. A model of interactional dynamics of empowerment that foster adaptability has been developed, which is depicted in Figure 2. Agile teams and their leaders engage in empowerment-enhancing activities (i.e., accepting and granting empowerment) and empowerment-reducing activities (i.e., refusing and denying empowerment). These interactions occur repeatedly and are dynamic. Thus, temporary empowerment states emerge as a consequence of

[1]Kanban as an agile method builds on the principles of lean manufacturing and utilizes visualizing workflows as one of its main principles. It aims at improving the prioritization of work tasks, for example, via Kanban boards. So-called swim lanes, that is, columns on the board, allow the team to sort tasks according to their degree of completion and visualize the tasks' prioritization (Anderson, 2010).

balancing and negotiating empowerment, wherein agile teams (and leaders) must constantly adapt to new circumstances. Customer activities and organizational factors impose further pressure to adapt upon agile teams. Given the iterative nature of agile, the establishment of recurring elements (i.e., Sprints and associated meetings) helps a team repeatedly interact and trains its members to adapt to changing empowerment dynamics, customer requirements, and other external changes. During these repeated and change-driven iterations, products that are developed are continuously adapted and improved based on the feedback received and knowledge gained through the previous iteration. Since product development, and thus innovation, occur among the team in such an iterative and continuous manner, we conceptualize agile innovation as a CATIP.

As far as adaptability is concerned, previous research has studied antecedents (for a review, see Maynard et al., 2015) and conceptualized the team adaptation process (Burke et al., 2006). The emergence of an empowerment state that fosters or inhibits adaptability should also be considered from the processual perspective. Leadership influence in teams emerges over time and through continuous interactions between actors (DeRue, Nahrgang, and Ashford, 2015). Similar to the process of identity construction, which explains the emergence of leader and follower roles by claiming and granting their respective identities (DeRue and Ashford, 2010), this study demonstrates that the development of empowerment is a dynamic social process. Agile teams and their leaders interact back and forth via empowerment-enhancing and empowerment-reducing activities. These interactions force the team to adapt and the resulting (more or less) empowered state both helps the team to react and adapt to changes in product requirements and their external environment as well as actively adapt agile as an applied method by tailoring it to their unique team needs and circumstances.

In connecting with the findings from previous research that empowerment can indeed be burdening for team members (Cheong, Spain, Yammarino, and Yun, 2016), this study's findings postulate that full empowerment is not necessarily the ideal state for every team. For instance, the frequently changing customer requirements and short cycle times—both of which are characteristics that distinguish agile teams from other teams (Maruping et al., 2009)—paired with high product responsibility can be perceived as stressors within the agile context, resulting in refusing and denying empowerment. Although such stressors might represent a challenge that motivates team members to invest effort in overcoming them (Cavanaugh, Boswell, Roehling, and Boudreau, 2000; LePine, LePine, and Jackson, 2004), stressors can still cause team members to feel overwhelmed or overburdened by the amount of autonomy and the number of decisions to be made. With its insights, this study proposes that empowerment does not need to be complete but instead may rather dynamically change according to the circumstances it faces.

Furthermore, this multifaceted view of empowerment may best be exemplified through an innovation-relevant aspect—that is, the customer boundary. The agile world of product development is the place where denying empowerment is most justified because the empowerment-denying leader provides support and, where necessary, guidance, both of which are essential leader roles (Morgeson, 2005; Zaccaro et al., 2001). Including the customer in the agile product development process is crucial in an agile context and has positive effects for the products built and delivered (Acuña, Gómez, and Juristo, 2009; Lindsjørn et al., 2016) as well as innovativeness-outcomes (Cui and Wu, 2017; Morgan, Obal, and Anokhin, 2018). Nevertheless, it puts a strain on the developers. Therefore, leaders are likely to step in and provide support by interacting with the customer and transmitting relevant information from the customer to the agile team. In doing so, they protect the agile team from customer-related disturbances and information overload. Overall, this study's findings show that empowerment-reducing activities can be perceived as positive or negative.

Finally, the data and model reveal two types of influence from the organizational environment for empowerment dynamics and adaptability formation: pressure for empowerment by an agile transformation and top management behaviors that support empowerment by simultaneously granting liberty and freeing agile teams from dealing with formal issues. Considerable uncertainty, nevertheless, surrounds how the new roles within agile align with the traditional role perceptions of project managers or leaders (Cooper and Sommer, 2016). Previous research has identified management skepticism with regard to agile as a challenge when introducing agile (Barlow et al., 2011), which can also be observed to a certain degree in the present study. This study further demonstrates that organizational environment factors reflect

awareness as to why agile is needed and that implementing agile entails changes in leadership, individual mindsets and attitudes, and organizational values. The findings additionally reveal that the agile empowerment orientation is not exclusively relevant at the team and leadership levels, but must also generally exist at the top management and organizational levels. Research on the antecedents of psychological team empowerment supports this organization-inclusive stance and has identified structural empowerment, organizational support, and external managerial support as influencing factors for team empowerment (Maynard, Mathieu, Gilson, O'Boyle, and Cigularov, 2013). Following the integrative view on structural and psychological empowerment described in the theoretical background and literature review sections of this article, the empowerment-related agile team activities are of a psychological empowerment nature, while some of the leaders' empowerment activities and the organizational factors can be associated with the concept of structural empowerment. As such, this study does not see structural empowerment as an unequivocal antecedent of psychological empowerment, but rather shows that the interaction between these concepts can occur both ways.

Theoretical Implications

This study's findings contribute to an increasing interest in adaptability and adaptation (Maynard et al., 2015). Research on organizational adaptation has long found its way into innovation management literature (Kelley, 2009; Meeus and Oerlemans, 2000). Surprisingly, however, team adaptability and adaptation—despite their importance for (Vera and Crossan, 2005) and commonalities with (Hülsheger et al., 2009) innovation—has not been extensively discussed in the innovation literature. But similar to how organizations must be adaptable, teams also require adaptability to be able to respond to changing demands and environmental challenges when developing products. By examining team adaptability in the context of agile teams that have adaptability as their core capability, several important implications are offered to the innovation and management literature.

First, the study broadens our current knowledge of adaptability by introducing a dynamic interactional mode. Specifically, the CATIP model derived from this study's data increases our understanding of how teams develop their adaptability. With the introduction of the CATIP, the agile innovation process is demarcated from "traditional" innovation processes that mostly follow the sequential steps of invention, development, and implementation (Garud, Tuertscher, and Ven, 2013). The "Waterfall" software development process, with its specific sequential process steps from requirement definition to finished product, was, prior to agile, very popular in software product development projects (Boehm, 2006), same as the previously mentioned Stage-Gate Approach (Cooper, 1994). Being adaptive allows the team to reach a higher speed of innovation, as speed is often claimed as a necessity for innovation (Pirola-Merlo, 2010). Theory on adaptation refers to team adaptation as an adaptive cycle of situation assessment, plan formation, execution, and learning (Burke et al., 2006) and sees adaptability as the team's adaptive capability (Burke et al., 2006; Maynard et al., 2015). But the theory does not consider that the antecedents leading to this capability may also be quite dynamic. This theory and current research are extended by demonstrating that adaptability emerges through continuous and dynamic interactions among the agile team, its leader, the customer, and the organizational environment. These interactions result in enhanced or reduced empowerment formation of the agile teams and thereby foster or inhibit the capacity of the team and its members to adapt. From a theoretical perspective, empowerment is viewed as giving team members the enabling competence to adapt (Burke et al., 2006), but surprisingly, research has not yet linked team empowerment to team adaptation (Maynard et al., 2015). As a rare study of the empowerment–adaptability relationship at the team level, the present study advances results of prior individual-level findings on self-managing team members' empowerment and its effect on individual-level adaptive behaviors (De Jong and De Ruyter, 2004) by identifying agile teams and their leaders' empowerment interactions to dynamically enhance team adaptability.

Second, the conceptualization of empowerment is further extended. The current innovation management literature acknowledges empowerment as a key factor in driving innovative outcomes (Brenton and Levin, 2012; Dayan and Elbanna, 2011; Ebers and Maurer, 2014; Odoardi, Montani, Boudrias, and Battistelli, 2015) but takes a rather one-sided perspective. The present study's new conceptualization of empowerment as interactional dynamics between the team and the leader advances and challenges

this current one-sided perspective of empowerment. Empowerment tends to be studied either from the perspective of the leader engaging in empowering leadership behaviors to foster, among other aspects, the self-leadership of teams (e.g., Pearce et al., 2003) or from the perspective of the team's collective sense of being empowered (e.g., Kirkman, Rosen, Tesluk, and Gibson, 2004). Research considering both perspectives tends to view empowering leadership behaviors as antecedents of team empowerment (e.g., Lorinkova et al., 2013). Within the agile team context, this view can be extended by not simply showing reasons for a partial renunciation of empowerment but rather by conceptualizing such a partial empowerment as resulting from mutual and dynamic interactions between empowerment givers and empowerment receivers. As such, this study also challenges current views prevalent in agile team research that imply fully empowered and self-leading teams as an ideal state (Beck et al., 2001). Thus, it urges the consideration of reasons for why limiting empowerment occurs and is perceived as making sense, for example, teams refusing to be empowered. One crucial aspect within the agile context is the necessity for a leader to protect the team from external disturbances, such as demanding customer requests, by denying empowerment. By showing this aspect, we point to the importance of finding the right balance between empowerment-enhancing and empowerment-reducing behaviors for team adaptability and of not supporting a "the more, the better" perspective with regard to empowerment. Such a view strengthens the recently emerged leadership contingency perspective on empowerment pointing to the boundaries of the beneficial effects of empowerment (Lee, Cheong, Kim, and Yun, 2017).

Third, by integrating the roles of various actors as part of the CATIP, a comprehensive understanding of how adaptability emerges in teams as a function of its immediate environment is provided. The CATIP offers an extended view on team adaptability by outlining that team adaptability is dependent not only on individual and job design characteristics (Burke et al., 2006), but also on team external contingencies. By clearly highlighting the role of the customer and the organizational context, current calls for considering the team's immediate context in the development of adaptability are addressed (Maynard et al., 2015). Innovation management literature underlines the importance of the team context, such as the integration of the customer (Cui and Wu, 2017), for new product development. Yet, research investigating the immediate context of the team tends to focus on one aspect of the context at a time. The present study provides a more encompassing granular perspective by integrating all important immediate contextual actors that contribute to team adaptability through empowerment formation.

Finally, by examining the agile way of working from a dynamic interactional perspective, research on the human side of agile teams is extended (Schmidt et al., 2014). Research on the people side of innovation is still less pronounced compared to the strategic side of being innovative (Brenton and Levin, 2012). As the current literature on agile teams also overly emphasizes the importance of the adoption of agile methodologies and practices (Hummel, 2014), this study provides a necessary extension to the current view by clearly outlining how human interactions in agile teams lead to the emergence of adaptability.

Managerial Implications

In addition to the implications for theory discussed above, some managerial implications for organizations are also provided with this study. Based on the underlying findings, there are three main levers that managers and organizations can address to reap the most practical benefits.

First, given the focal role of empowerment for agile; adaptability; and consequently, innovation, it can be suggested to organizations and, in particular, strategic and human relations departments to center work design and human development practices around empowerment. For teams, that would translate into establishing work practices that map to the four dimensions of team psychological empowerment (Kirkman and Rosen, 1999): Experiencing autonomy could mean transferring monitoring and managing the technical progress of certain features to the team and training them on how to react within a certain frame. Leaders should not have the option to request reports; rather they should attend the respective agile meeting where team members give updates on the state of the product. Experiencing potency could mean praising teams adequately for their successes and not punishing them for mistakes when switching to a more empowered culture. Experiencing impact could mean actually involving the customer so that teams can see how their developed products reach their intended receiver. Experiencing meaningfulness could mean that teams

see how incremental parts of the product actually make up the whole product and can make it viable. Agile practices address most of these dimensions but do not factor in the role of the leader who, besides the organization, is ultimately the one to grant empowerment. Therefore, like the team members who have to be trained in their skills and self-efficacy to take on an empowered role, leaders also have to receive substantial training. They need to understand that their role does not become less important but rather takes on a different focus. Analogous to team members, they need to be made aware of the impact that their behavior has on the team members. Titles should be adapted (e.g., Product Owner instead of project manager) to associate the new role with the new title.

Second, as the findings and the model reveal, empowerment as a central predecessor to adaptability is not a pure empowerment state but rather a temporary empowerment equilibrium that results from empowerment-enhancing and empowerment-reducing interactions. This dynamic nature of empowerment is rooted in its theoretical foundations with empowerment being considered as relationally dynamic between leaders and subordinates sharing power (Conger and Kanungo, 1988). Additionally, team empowerment is often viewed as emergent state (Marks et al., 2001), and thus, demonstrates a dynamic nature by definition (Maynard et al., 2013). Even though valid reasons for reducing empowerment (feeling overburdened as a team, taking on a protective role as a leader) have been identified, it has still to be ensured that these actions do not get out of hand. Again, it can be suggested not only to train team members to strengthen their skills for dealing with challenging situations, but also to staff teams in a balanced way to ensure that team members with high skill levels and extensive experience in the agile way of working are present in every team and might serve as role model for their colleagues and trigger a ripple effect. It might also mean creating a work mode with the customer where a clear requirement voicing process and contact persons exist so that the impact of the customer turns out to be supportive. In addition, managers could suggest working with contact persons at the customer organization who have experience with agile methods or are trained before being assigned to the team. This would potentially make the interactions between the team and the customer less draining.

Third and finally, as balancing empowerment activities and dealing with customer and organizational factors result in iterative adaptations, it is important to provide an environment where team adaptation can occur. Based on the review by Maynard et al. (2015), research on organizational-level inputs for team adaptation is scarce. Organizational context (performance management and social context) has been found to influence ambidexterity, consisting of alignment and adaptability, and thus, enhance the adaptability of the studied business units and consequently their performance (Gibson and Birkinshaw, 2004). On an individual level, culture has been shown to affect the individuals' adaptability (Harrison, McKinnon, Wu, and Chow, 2000). These findings highlight the importance of the organizational context. The present study's findings indicate that empowerment-oriented top management structures turned out to be helpful for empowerment-enhancing temporary states and consequently adaptability and adaptation. It may not be feasible to have a fully agile organization, but managers should be aware that other organizational units interact with the agile team and might negatively impact the agile way of working. The responsibility of agile teams and the leaders should be clearly stated and the required interaction with other organizational units potentially needs to be supported by the leader so that hierarchical structures in the immediate context of the agile teams do not interfere with their work.

Additionally, Table 4 presents selected key findings along with recommendations for managerial actions.

Limitations and Avenues for Further Research

No study comes without limitations; however, some of these limitations can provide opportunities for further research. First, the sample has been chosen purposefully, starting with the organizations and then, following the defined inclusion criteria for participants within these organizations. While this approach was essential for the exploration of the research question and contributions to theory, as well as an attempt to capture a broad spectrum of organizations, one can only cautiously generalize the results. Therefore, the first suggestion is to take this study's findings as a starting point and explore how the identified process unfolds in other contexts than IT. A related concern stems from a potential self-selection bias as interview participants could select themselves into the study. Therefore, it is likely that they had an interest in the general research topic of the study and the time to participate, which may have impacted the results. To

Table 4. Selected Key Findings and Recommendations for Managerial Actions

Important Contributors to Agile Team Adaptability	Key Findings that Require Managerial Attention	Recommendations for Managerial Actions
Agile team	Lack of skills regarding responsibility-bearing and decision-making can cause team members to refuse empowerment	Train team members to take on more responsibility both in trainings and on the job by gradually granting them more responsibility; staff teams with a mix of experienced and new team members to foster on-the-job learning
	Feeling exhausted from high autonomy and responsibility can cause team members to refuse empowerment	Let team members participate in development programs that train them in coping with agile and its challenges
Leaders	Experienced and specialized team members and teams are suitable for being empowered	Make leaders aware that they should not use a one-size-fits-all strategy but that the degree of empowerment they grant should depend on the experience and skills of the respective agile team (members)
	Resistance to execute agile leader role and engaging in agile-destructive behavior	Inform and train leaders with regard to agile and the adaptation of their leader role
Customers	Hindering empowerment interactions	Provide simple and low-effort templates and guidelines for customers on how to properly specify requirements and raise their awareness of the importance of realiable contact persons (Product Owner and possibly others)
Organizational context	Transformation-induced pressure for empowerment	Provide leadership training for new agile way of leading; adapt former leader roles, titles, role descriptions, and incentive systems to fit agile principles
	Empowerment-supporting top management behaviors	Create organizational structures that reflect empowerment and support agile principles, e.g., granting autonomy to follow a Sprint structure within formal project duration, etc.

limit the impacts from self-selection, clear inclusion criteria for participating in the study have been applied and the participants have been sourced from different teams and respective team environments and had different roles within the organizations (e.g., Scrum Master, developer). Participants that did not meet the inclusion criteria outlined in the methods section were not considered for participation.

Second, although the sample has been chosen purposefully, the agile teams under study have adopted varying degrees of agile methods. While it has been highlighted that the organizational context might partly explain these variations, future research should investigate why some teams apply agile methods at full force while other teams in the same organizations use a hybrid structure of traditional and agile methods. Agile teams are a special type of innovation/NPD team and primarily differ from more "traditional" NPD teams by having to deal with short cycle times (Maruping et al., 2009), continuous change requests (MacCormack et al., 2001), and being expected to be self-leading and closely collaborating within the team (Beck et al., 2001). Additionally, the studied projects in the present study's sample can be classified as engaging in incremental innovation. Therefore, its findings rest on the described boundary conditions and are mostly applicable to agile teams and NPD teams displaying similar characteristics. In this regard, it would be interesting to consider whether the type of innovation, such as incremental versus radical, may have an impact on the degree of agility and on the emergence and nature of empowerment dynamics and their influence on team adaptability.

Third, an interesting direction for future research includes studying the emergence of empowerment over time. The underlying interviews have been conducted at one point in time and captured a temporal component inherent in the interviewees' narratives

throughout the interviews. An interesting extension to this approach can be a dynamic perspective with interviews over several points in time. This would allow us to examine how the temporary empowerment states stemming from the interactions between agile teams, their leaders, and external factors transform into other empowerment states, depending on the customer-related and organizational factors. Thus, this would illustrate how empowerment evolves over time. Building on the present findings and prior research indicating that empowering leadership behaviors result in performance improvements over time (Lorinkova et al., 2013), future studies could investigate whether team longevity results in increased empowerment and, consequently, adaptability. This would be particularly interesting as team longevity is assumed to foster groupthink and reduce the communication intensity with team-external parties and is thus regarded as impairing innovativeness in NPD teams (Katz and Allen, 1982; West and Anderson, 1996). Team longevity will build up experience and routines that may result in empowerment-enhancing activities. As agile teams require continuous reflection and the integration of the customer, longevity potentially does not result in reduced but even increased innovativeness for agile teams. Furthermore, the CATIP considers the agile team's immediate context and the interactional dynamics between the team and the various actors (i.e., leaders, organizational context, and customer). Future studies should aim to identify the most important success factors for explaining the emergence of empowerment and adaptability.

Finally, an adaptability focus was taken in the present study given its emergence from the data. However, adaptability is only *one* beneficial capability for innovation among many others. Prior research has looked at, for instance, resilience (Todt, Weiss, and Hoegl, 2018), absorptive capacity (Backmann, Hoegl, and Cordery, 2015) or paradox mindset (Miron-Spektor, Ingram, Keller, Smith, and Lewis, 2018) as useful capabilities for innovative endeavors. Therefore, studying those in connection with empowerment might constitute an interesting avenue for future research.

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