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Internal Crowd Work, Empowerment, and Agility

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Vorwort

Das Vorwort zu meiner Dissertation möchte ich gerne nutzen, um mich bei allen zu bedanken, die mich während der Entstehung dieser Arbeit begleitet und unterstützt haben. Stellvertretend für viele möchte ich an dieser Stelle einigen Personen einen besonderen Dank aussprechen.

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Euch ist diese Arbeit gewidmet.

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Zusammenfassung

Ziel: Konfrontiert mit schnelllebigen Umweltveränderungen und immer neuen Anforderungen suchen Unternehmen nach Möglichkeiten, die eigene Anpassungsfähigkeit zu forcieren. Ein Konzept, mit dem Unternehmen die Unternehmensumwelt wahrnehmen und schnell und flexibel darauf reagieren können, ist die organisationale Agilität. Die organisationale Agilität hat in den letzten Jahren sowohl in der Praxis als auch in der Forschung große Aufmerksamkeit erfahren, steht bei vielen Top-Entscheider*innen in Unternehmen auf der Agenda und ist so zu einem festen Bestandteil der Diskussion um die Anpassungs- und Wettbewerbsfähigkeit von Unternehmen geworden. Um die organisationale Agilität zu fördern, setzen Unternehmen vermehrt auf agile Formen der Arbeitsorganisation.

Diese Dissertation untersucht eine bisher vernachlässigte Möglichkeit, die erforderliche Agilität in Unternehmen zu fördern: Interne Crowd Work (ICW). Während ICW als offener Aufruf des Unternehmens oder dessen Mitarbeiter*innen an andere Mitarbeiter*innen zur Übernahme einer bestimmten Aufgabe oder eines Projektes über eine IT-Plattform beschrieben werden kann, wurde es bislang weder in der Praxis noch in der wissenschaftlichen Literatur als agile Form der Arbeitsorganisation betrachtet. Dennoch weist ICW Merkmale einer agilen Arbeitsstruktur auf und zeichnet sich durch eine nicht-hierarchische, flexible, kollaborative und selbstselektive Arbeitsorganisation aus. ICW scheint also das Potenzial zu haben, die Agilität der Belegschaft und der Organisation zu fördern.

Um das Potenzial von ICW als agile Form der Arbeitsorganisation umfassend zu untersuchen, widmet sich die vorliegende Dissertation den folgenden Aufgaben: (1) Zunächst wird der State of the Art zu organisationaler Agilität in der Praxis aus empirischer Sicht erhoben. (2) Darauf aufbauend wird ICW als eine innovative und agile Form der Arbeitsorganisation untersucht. Hierfür werden zunächst die Charakteristika identifiziert, welche die Arbeitsorganisation in ICW determinieren. Zusätzlich werden die Effekte auf die Mitarbeiter*innen und die Unternehmen identifiziert und deren Interdependenzen untersucht. (3) Weiterhin wird im Hinblick auf eine erfolgreiche Implementierung und Anwendung sowie eine empowerment-orientierte und effektive Arbeitsgestaltung von ICW in einem dritten Schritt die Wahrnehmung der im Mittelpunkt von ICW stehenden Mitarbeiter*innen und Führungskräfte untersucht.

Dabei kann das systematische Empowerment von Unternehmen und Mitarbeiter*innen dazu beitragen, Agilität, Innovation, Flexibilität und Wettbewerbsfähigkeit zu schaffen, was die Umsetzung agiler Formen der Arbeitsorganisation wie ICW ermöglicht. (4) Zusätzlich wird mit dem internen Crowdfunding (ICF) eine spezielle Form von ICW untersucht, die insbesondere auf die Innovativität der Unternehmen und das Empowerment der Mitarbeiter*innen abzielt. (5) Infolge der veränderten Arbeitsorganisation wird eine schnelle und kontinuierliche Verbesserung des Geschäftsmodells für Unternehmen im Prozess der agilen Transformation immer wichtiger. Demnach wird auch die selbstorganisierte und systematische Anpassung und Verbesserung der Geschäftsmodelle der Unternehmen adressiert.

Methode: Um die beschriebenen Ziele zu erreichen, setzt die vorliegende Dissertation auf einen multimethodischen Ansatz. Mit Hilfe eines sequenziellen Mixed-method Designs werden über zwei aufeinander folgende Jahre Daten zum State of the Art zu organizationaler Agilität erhoben. Diese Daten basieren auf zwei Interviewserien mit Top-Entscheider*innen und zwei quantitativen Erhebungen mit Mitarbeitenden und Führungskräften. Darauf aufbauend werden in drei Studien insgesamt fünf explorative Fallstudien zur Untersuchung von ICW als eine innovative und agile Form der Arbeitsorganisation und dessen Auswirkungen auf Mitarbeiter*innen und Unternehmen sowie zur Wahrnehmung der Arbeit in ICW und dementsprechend des Empowerments durchgeführt. Hierfür werden u.a. Interviews mit Mitarbeiter*innen, Führungskräften, der Projektleitung, dem Projektmanagement und dem Betriebsrat geführt. In allen Fällen kann ein sehr umfassender Einblick in die Implementierung und Umsetzung von ICW gewonnen werden. Auf einen ebenfalls explorativen Fallstudienansatz wird in der Untersuchung zur Innovativität und zum Empowerment in ICF zurückgegriffen. Auch in diesem Fall werden u.a. die beteiligten Mitarbeiter*innen, Führungskräfte, die Projektleitung und der Betriebsrat in Interviews befragt. Die Integration von Geschäftsmodellverbesserungen zur Wahrnehmung und Reaktion auf häufige und permanente Veränderungen im Geschäftsumfeld von Unternehmen wird mit Hilfe eines Design Science Research Projektes vollzogen. Hierfür wird zunächst der Wissensstand zur Geschäftsmodellverbesserung durch einen Literaturreview sowie eine Interviewstudie erhoben. Darauf aufbauend wird mit Hilfe des Collaboration Engineerings ein systematisches Prozessdesign zur Geschäftsmodellverbesserung erstellt.

Ergebnisse: Diese Dissertation verfügt über vier Kernergebnisse, die es herauszuheben gilt. Zunächst wird der State of the Art zu organisationaler Agilität qualitativ und quantitativ-deskriptiv erarbeitet. Hierfür werden Zahlen, Daten und Fakten sowie konkrete Praktiken zur organisationalen Agilität bzw. der agilen Transformation aufgezeigt. Weiterhin werden theoretische Modelle erarbeitet, die ICW als eine agile Form der Arbeitsorganisation mit einer fördernden Wirkung auf die Agilität der Belegschaft etablieren sowie das Empowerment innerhalb ICW analysieren und somit zu einem umfassenden Verständnis von ICW beitragen. Dabei werden mit Hilfe der theoretischen Modelle die relevanten Konstrukte in ICW identifiziert und deren Dynamiken und Beziehungen in Form von Propositionen erläutert. In diesem Zusammenhang wird auch für ICF ein theoretisches Modell inkl. Propositionen erarbeitet, das die Zusammenhänge von Innovativität und Empowerment in ICF erläutert. Das vierte Kernergebnis stellt ein systematisches Prozessdesign zur kontinuierlichen und iterativen Geschäftsmodellverbesserung dar, das Unternehmen und deren Mitarbeiter*innen in die Lage versetzt, selbstständig sowohl radikal als auch inkrementell das eigene Geschäftsmodell zu verbessern.

Theoretischer Beitrag: Diese Dissertation liefert fünf theoretische Kernbeiträge. Zunächst werden sieben Charakteristika der Arbeitsorganisation von ICW identifiziert, die ICW zu einem leistungsstarken Instrument zur Schaffung von Agilität in Unternehmen machen. Zusätzlich werden die Effekte von ICW auf Mitarbeiter*innen und die Unternehmen inkl. ihrer Interdependenzen identifiziert und erläutert. Die Berücksichtigung von ICW als agile Form der Arbeitsorganisation und Förderer der Agilität der Belegschaft geht über die bisherigen Perspektiven und Vorteile von ICW hinaus und erweitert so den Anwendungsbereich von ICW. Zweitens leistet die vorliegende Arbeit einen Beitrag zur Wahrnehmung von ICW durch die Mitarbeiter*innen und insbesondere zum Bereich des Empowerments, indem die strukturellen Empowerment Determinanten, der mediierende Effekt sowie die Ergebnisse des Empowerments innerhalb von ICW erweitert und detailliert werden. Dabei wird zum einen aufgezeigt, dass ICW als eine Form des strukturellen Empowerments das psychologische Empowerment fördert. Zum anderen werden die empowernden Faktoren innerhalb von ICW identifiziert und erläutert. Zusätzlich wird auch die Ergebnisperspektive der Forschung zu ICW adressiert, indem weitere Ergebnisse von ICW identifiziert und erläutert werden. Drittens werden die Empowerment- und innovationsfördernden Mechanismen und Strukturen innerhalb von

ICF aus einer Ergebnis- sowie psychologischen Perspektive inkl. ihrer Dynamiken und Beziehungen identifiziert und beschrieben. Als vierter theoretischer Hauptbeitrag werden erste Erkenntnisse zu den Effekten, der Relevanz, zur Definition und zur Operationalisierung des agilen Mindsets geliefert. Als fünften theoretischen Kernbeitrag liefert die vorliegende Dissertation eine aufkommende Designtheorie in Form eines iterativen und direkt umsetzbaren Prozessdesigns für die Verbesserung von Geschäftsmodellen (einschließlich spezifischer Aktivitäten, Anweisungen und Werkzeuge).

Praktischer Beitrag: Die Dissertation verfügt über fünf praktische Kernbeiträge. Der erste praktische Beitrag dieser Dissertation adressiert den State of the Art zu organisationaler Agilität. Mit Hilfe der gelieferten Zahlen, Daten, Fakten sowie den erarbeiteten Praktiken zur organisationalen Agilität und den Entwicklungen, die von Top-Entscheider*innen diskutiert werden, erhalten Praktiker ein vertieftes Verständnis zu agilen Transformationsprozessen und zur organisationalen Agilität, die auf die eigenen Transformationsprozesse bzw. das eigene Unternehmen übertragen werden können. Weiterhin beschreibt die Arbeit ausführlich sieben Charakteristika der Arbeitsorganisation in ICW sowie die Implementierung und die Anwendung von ICW inkl. der aufgezeigten Ergebnisse zur Agilität der Belegschaft, zum strukturellen sowie psychologischen Empowerment und den Führungsstilen in ICW. So zeigt die Arbeit, dass die Strukturen von ICW u.a. die Möglichkeit bieten, Agilität auf organisationaler Ebene über Hierarchien und Abteilungen hinweg zu fördern und somit über die bisher verbreitete Anwendung einzelner Praktiken und Maßnahmen oder den Wirkungskreis von Teams, Projekten oder Abteilungen hinauszugehen. Praktiker haben die Möglichkeit, dieses empirisch gewonnene Wissen als Blaupause zu nutzen und es auf ihre eigene Implementierung und Anwendung von ICW anzuwenden. Im Bereich des ICF beschreibt die Arbeit detailliert und entlang aller Prozessschritte, wie ICF genutzt werden kann, um Mitarbeiter*innen zu empowern und die Innovationsfähigkeit zu fördern. Praktiker erhalten so Einblicke in die erfolgreiche Umsetzung und Anwendung von ICF. Diese Erkenntnisse können von den Verantwortlichen auf die eigene Anwendung, Führung und Steuerung der ICF übertragen werden. Das entwickelte Prozessdesign zur Geschäftsmodellverbesserung ermöglicht es Unternehmen und deren Mitarbeiter*innen, eine kontinuierliche Geschäftsmodellverbesserung – sowohl radikal als auch inkrementell – ohne vorherige Schulung in Geschäftsmodellwissen und - zusammenarbeit selbstständig durchzuführen. Die klar strukturierten Anleitungen und

direkten Verknüpfungen zu geeigneten Tools und validierten Methoden ermöglichen es den Unternehmen, sich systematisch und durch die Mitarbeiter*innen selbstorganisiert an die sich schnell verändernden Umweltbedingungen anzupassen.

Ausblick: Diese Dissertation bietet verschiedene Anknüpfungspunkte für zukünftige Forschungsaktivitäten. Sowohl der aktuelle Stand zu organisationaler Agilität als auch die Fallstudien zu ICW und ICF basieren zu großen Teilen auf qualitativen Daten. Die entwickelten deskriptiven Ergebnisse als auch die entwickelten theoretischen Modelle könnten im Rahmen zukünftiger Forschungsaktivitäten die Erkenntnisse sowie die aufgestellten Propositionen aufgreifen und quantitativ und somit explanativ überprüfen. Weiterhin gilt es in künftigen Studien die Wechselwirkungen zwischen den unterschiedlichen Ebenen (bspw. organisationale vs. individuelle Ebene) in den Unternehmen zu adressieren. Die zukünftige Forschung könnte auch vermehrt negative Konsequenzen und somit die „Dark Side" der organisationalen Agilität bzw. ICW und ICF näher beleuchten. Damit zusammenhängend fokussiert die vorliegende Dissertation auf erfolgreiche Implementierungen und Anwendungen von ICW und ICF. In Zukunft sollten ebenfalls nicht erfolgreiche Implementierungen und Anwendung berücksichtigt werden, um bspw. Gründe für das Scheitern zu identifizieren. Außerdem liefert die Dissertation erste Erkenntnisse zur Relevanz und der Operationalisierung des agilen Mindsets als Konstrukt. Dementsprechend sind in zukünftigen Forschungsaktivitäten weitere empirische Untersuchungen des agilen Mindsets in verschiedenen Fällen notwendig. Darauf aufbauend kann das agile Mindset als Konstrukt umfassend operationalisiert und validiert werden, um die Auswirkungen, Konsequenzen und möglichen Folgen detaillierter zu untersuchen. Auch im Bereich der Geschäftsmodellforschung und des entwickelten Prozessdesigns zur systematischen Verbesserung von Geschäftsmodellen gibt es zukünftigen Forschungsbedarf. So ist es wichtig, das Prozessdesign in verschiedenen Kontexten zu evaluieren und kontinuierlich weiterzuentwickeln.

Schlüsselbegriffe: Agilität, Empowerment, Geschäftsmodellverbesserung, Interne Crowd Work, Internes Crowdfunding, Organisationale Agilität

Abstract

Purpose: Confronted with fast-moving environmental changes and ever-new requirements, companies are searching for ways to force their own adaptability. One concept that enables companies to perceive the corporate environment and respond to it quickly and flexibly is organizational agility. Organizational agility has received considerable attention in recent years, both in practice and in research. As a result, it is on the agenda of many top decision-makers in companies and has become an integral part of the discussion about the adaptability and competitiveness of companies. To promote organizational agility, companies are increasingly relying on agile forms of work organization.

This dissertation explores a previously neglected way of fostering the required agility in organizations: internal crowd work (ICW). While ICW can be described as an open call by a company or its employees to the other employees to take on a specific task or project via an IT platform, it has not yet been considered an agile form of work organization in practice or academic literature. Nevertheless, ICW exhibits characteristics of an agile work structure and is characterized by a non-hierarchical, flexible, collaborative, and self-selective work organization. ICW thus seems to have what it takes to promote the agility of both the workforce and the company.

This dissertation comprehensively investigates the potential of ICW as an agile form of work organization by addressing and exploring the following: (1) First, the state of the art of research on organizational agility in practice is investigated from an empirical perspective. (2) Based on this, ICW is examined as an innovative and agile form of work organization in its entirety. The aim is not only to learn about the characteristics that constitute ICW as a form of work organization and, therefore, the positive effects on employees but also to understand the advantages and potentials this brings for companies. (3) Furthermore, regarding successful implementation and application and an empowerment-oriented and effective work design of ICW, the perception of the employees and leaders standing in the spotlight of ICW are investigated in a third step. In this regard, the systematic empowerment of companies and employees can help create agility, innovation, flexibility, and competitiveness, which enables the implementation of agile forms of work organization such as ICW. (4) In addition, internal crowdfunding (ICF), a specific form of ICW that aims at corporate innovativeness and employee

empowerment, is investigated. (5) Lastly, due to the change in the organization of work, the rapid and continuous improvement of the business model has become increasingly important for companies in the process of agile transformation. Accordingly, the self-organized and systematic adaptation and improvement of companies' business models are also addressed.

Methodology: To achieve the described goals, this dissertation employs a multi-method approach. Using a sequential mixed-method design, data on the state of the art of research on organizational agility is collected over two consecutive years through two series of interviews with top decision makers and two quantitative surveys of employees and leaders. Based on these, five exploratory case studies are conducted as part of three studies to examine ICW as an innovative and agile form of work organization and its impact on workforce agility and the perception of working in ICW and empowerment. For this purpose, interviews are conducted with employees, leaders, project leaders, project managers and works councils. In all cases, a very comprehensive insight into the implementation and realization of ICW can be obtained. An equally explorative case study approach is used in this study on innovativeness and empowerment in ICF. Interviews are conducted with employees, leaders, the project manager, and the works council involved as well. The integration of business model improvements to perceive and respond to the frequent and permanent changes in the business environment of companies is accomplished with the help of a design science research project. The state of knowledge on business model improvement is initially assessed through a literature review and interview study. In tandem with collaboration engineering, a systematic process design for business model improvement is developed.

Findings: This dissertation highlights four key findings. First, the state of the art on organizational agility is elaborated upon qualitatively and quantitatively-descriptively. For this purpose, figures, data, facts, and concrete practices on organizational agility and agile transformation are highlighted. Second, theoretical models are developed that establish ICW as an agile form of work organization with a facilitating effect on workforce agility and analyzing empowerment within ICW, thus contributing to a comprehensive understanding of ICW. In doing so, the theoretical models are used to identify the relevant characteristics and constructs in ICW and explain their dynamics and interrelationships in terms of propositions. Third, a theoretical model including propositions is developed for ICF, explaining the interrelationships of innovativeness

and empowerment in ICF. The fourth core result is a systematic process design for continuous and iterative business model improvement that enables companies and their employees to improve their own business models in a self-organized manner, both radically and incrementally.

Theoretical contribution: This dissertation provides five main theoretical contributions. First, seven work organization characteristics of ICW are elaborated upon, which identify ICW as a powerful tool for creating agility in companies. Additionally, the effects of ICW on employees and companies, including their interdependencies, are identified, and explained. Considering ICW as an agile form of work organization and a promoter of workforce agility goes beyond the previous perspectives and benefits of ICW and thus expands the scope of ICW. Second, this study contributes to employee perceptions of ICW, specifically the area of empowerment, by expanding and detailing the structural empowerment determinants, the mediating effect, and the outcomes of empowerment within ICW. Thereby, it is shown that ICW, as a form of structural empowerment, promotes psychological empowerment. Moreover, the empowering factors within ICW are identified and explained. In addition, the outcome perspective of research on ICW is also addressed by identifying and explaining additional outcomes of ICW. Third, the mechanisms and structures within ICF that promote innovation and empowerment are identified and described from both an outcome and psychological perspective, including their dynamics and interrelations. As a fourth main theoretical contribution, initial insights into the effects, relevance, definition, and operationalization of the agile mindset are provided. Lastly, this dissertation provides a nascent design theory in the form of an iterative and directly implementable process design for business model improvement (including specific activities, instructions, and tools).

Practical contribution: This dissertation has five main practical contributions. The first practical contribution of this dissertation addresses the empirical state of the art of organizational agility. With the help of the figures, data, and facts, as well as the identified practices on organizational agility and the developments discussed by top decision makers provided in this dissertation, practitioners can gain a deeper understanding of agile transformation processes and organizational agility, which can also be applied to their own transformation processes or their own company. Furthermore, this dissertation empirically identifies seven main characteristics that

promote ICW as a powerful instrument in establishing workforce agility in organizations and highlights its so far hidden potential. What makes ICW so powerful is that it can function as an organization-wide work structure and, consequently, establish agility on an organization level across hierarchies and divisions. ICW's encompassing work structure with individual, agility-enabling characteristics makes it, per se, beyond the scope of teams, projects, or departments, more powerful than single measures, practices, or instruments. Moreover, this dissertation describes the implementation and application of ICW, including the results shown on structural and psychological empowerment and leadership styles in ICW. Practitioners can use this empirically-derived knowledge as a blueprint and apply it to their own implementation and application of ICW. In the ICF section, along all of the process steps, this dissertation describes in detail how ICF can be used to empower employees and foster innovativeness. Practitioners can gain insights into how to successfully implement and apply ICF. These insights can be transferred by leaders to their own application, leadership, and governance of ICF. The developed process design for business model improvement enables companies and their employees to independently execute continuous business model improvement – both radical and incremental – without prior training in business model knowledge and collaboration. The clearly structured guidance and direct links to the appropriate tools and validated methods enable companies to adapt to rapidly changing environmental conditions in a systematic way that is self-organized by employees.

Outlook: This dissertation offers various starting points for future research activities. Both the state of the art of organizational agility and the case studies on ICW and ICF focus, to a large extent, on qualitative data. In future research activities, the descriptive findings and the developed theoretical models including their propositions can be taken up and tested quantitatively and thus explanatively. Furthermore, future studies could address the interactions between the different levels (e.g., organizational vs. individual level) in the companies. While the studies in this dissertation also include negative consequences of organizational agility, ICW, and ICF, future research could also take a closer look at these negative consequences and thus the dark side of organizational agility, ICW, and ICF. Related to this, this dissertation focuses on successful implementations and applications of ICW and ICF. In the future, unsuccessful implementations and applications could also be considered, e.g., to identify reasons for failure. Furthermore, this dissertation provides initial insights into the relevance and

operationalization of the agile mindset as a construct. Accordingly, further empirical investigations of the agile mindset in different cases are necessary. Based on this, the agile mindset as a construct can then be comprehensively operationalized and validated to investigate its effects, consequences, and potential impacts. There is also a need for future research around business model research and the process design developed to systematically improve business models. Thus, it is important to evaluate and continuously develop the process design in different contexts.

Complete List of Publications

During my time as a doctoral candidate and research associate at the Department of Information Systems at the University of Kassel, I authored and co-authored the following publications under the supervision of Jan Marco Leimeister (doctoral supervisor).

To be Submitted

Simmert, B.; Bretschneider, U.; Peters, C.; Leimeister, J. M. (to be submitted): "Power to the People": How Employee Empowerment Fosters Idea Innovativeness in Internal Crowdfunding. In: Information Systems Journal (ISJ).

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Simmert, B.; Eilers, K.; Leimeister, J. M. (2019): Interne Crowd Work an der Schnittstelle sozialer und technischer Elemente der digitalen Arbeitsorganisation. In: Der mitbestimmte Algorithmus - Gestaltungskompetenz für den Wandel der Arbeit. Ed.: Schröter, W. Talheimer Verlag, Mössingen-Talheim 2019, pp. 151–166.

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[1] Best Paper Nominee – HICSS 2019 Track: Digital Workforce and Crowd Work

Simmert, B.; Weinert, T.; Janson, A.; Peters, C.; Ebel, P.; Leimeister, J. M. (2019): Kontinuierliche Verbesserung von internationalen Geschäftsmodellen in der Berufsbildung. In: Berufsbildung International. Geschäftsmodellentwicklung, DLR Projektträger, pp. 32–33.

2017

Simmert, B.; Ebel, P.; Bittner, E. A. C.; Peters, C. (2017): Systematic and Continuous Business Model Development: Design of a Repeatable Process Using the Collaboration Engineering Approach. In: 13th International Conference on Wirtschaftsinformatik (WI). St Gallen, Switzerland (2017), pp. 957–971.

2014

Simmert, B.; Ebel, P.; Bretschneider, U. (2014): Empirische Erkenntnisse zur Nutzung des Business Model Canvas. In: Working Paper Series, Nr. 5. Kassel, Germany, pp. 1–52.

Since most of these publications are related to this dissertation, the contents of my publications and the dissertation might overlap. I indicate these overlaps by adding a footnote at the beginning of each section to show which publication(s) influenced the content of the section and/ or subsection.

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List of Abbreviations

ACorp	Automotive Corporation
AI	Artificial Intelligence
AIS	Automotive Industry Supplier
AMan	Automotive Manufacturer
BMC	Business Model Canvas
CAT	Consensual Assessment Technique
CE	Collaboration Engineering
CoPDA	Collaboration Process Design Approach
DC	Doctoral Consortium
DSR	Design Science Research
ESP	Engineering Service Provider
FPM	Facilitation Process Model
h5	Google Scholar h5-index
HRM	Human Resource Management
ICF	Internal Crowdfunding
ICW	Internal Crowd Work
IF	Impact Factor
IS	Information System
ISP	Information Service Provider
IT	Information Technology
JQ3	VHB JOURQUAL 3
KPI	Key Performance Indicator
Req.	Requirement
RQ	Research Question
SotA	State of the Art
TelCo	Telecommunications Company
VUCA	Volatility Uncertainty Complexity Ambiguity
WKWI	Wissenschaftliche Kommission für Wirtschaftsinformatik

1 Introduction[2]

1.1 Problem Statement

More than ever before, our ever-more digital, interconnected, and global world is placing companies in an environment of volatility, uncertainty, complexity, and ambiguity (VUCA) (Bennett/Lemoine 2014; Clegg/Voss/Chen 2019). Improving organizational agility plays a crucial role in finding strategies to adapt to this VUCA world (Alt et al. 2020), which is a challenge for many companies (Dove 1999; Harsch/Festing 2019). Agility has, therefore, received immense attention in recent years, both in practice and in research. Organizational agility and agile transformation are at the very top of the agenda of many top decision-makers in companies (Alt et al. 2020; Kappelman et al. 2020) and have become integral parts of the discussion about the adaptability and competitiveness of companies.

Organizational agility represents an *"[...] organization-oriented business concept"* (Wendler 2016, 442) and describes the cross-functional ability of an organization to quickly and flexibly perceive and adapt to the changes and requirements of the organizational environment (Ganguly/Nilchiani/Farr 2009). The perception of market changes and the needs and demands of customers and competitors with a correspondingly rapid response to these changes, plays an important role (Tallon et al. 2019).

The field of information technology (IT) and software development has developed agile concepts for many years now to deliver user-centered solutions (Alt et al. 2020). Many companies use the experiences and concepts that are applied in their IT and software teams (for example Scrum, Kanban, internal crowd work (ICW), etc.) for their agile transformation projects and implement them into other non-IT departments (e.g., innovation and product development), business units, or the entire company (e.g., Amazon) (Gerster et al. 2020; Rigby/Sutherland/Noble 2018). This leads to extensive challenges for organizational structures, processes, and business models of companies

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[2] The introduction is partly based on a research proposal that I submitted to European Conference on Information Systems (ECIS) 2020 Doctoral Consortium (DC). While my research proposal met all requirements and was accepted, the DC was cancelled due to the COVID-19 pandemic. Nevertheless, I thank the two anonymous reviewers for their valuable feedback on my research proposal.
Moreover, the introduction is partly based on my publications related to this dissertation, summarized in Table 1 (Simmert et al. (to be submitteda), Simmert et al. (2019), Simmert/Peters (2022), Simmert/Peters (2020), Simmert et al. (to be submittedb)) as well as Durward et al. (2019b).

(Alt et al. 2020) and to new areas for information systems (IS) research. Although it is of great importance for IS research and practice to better understand the concept of agility and its dimensions (Abrahamsson/Conboy/Wang 2009; Walter 2020), there is still little empirical research that shows what it takes to become or to be an agile company (Harsch/Festing 2019; Walter 2020).

Research Challenge 1 – Limited empirical knowledge about organizational agility and what it takes to be or to become an agile company from an empirical stance

For researchers and practitioners, it is essential to understand how an agile organization is implemented, which important determinants exist, which developments are apparent in practice, and what impact these aspects have on employees, leaders, and top management executives. This is particularly relevant in four areas: (1) Established companies struggle with the application and implementation of agile structures and forms of work organization and their resulting effects (Gerster et al. 2020), especially if areas of application go beyond software development or IT[3]. The new way of working contributes to the confusion of how to measure the success of agility and find new key performance indicators (Ganguly/Nilchiani/Farr 2009). Moreover, the knowledge of the design of internal structures and processes in agile settings and forms of work organization requires more attention (Maruping/Venkatesh/Agarwal 2009; Verhoef et al. 2021). (2) Leaders are called upon here to shape the agile transformation and play a crucial role in agile settings (Eilers/Simmert/Peters 2020). However, they are often faced with the challenge of adapting to their new roles and required behavior patterns outside the familiar traditional work settings (Fuchs/Hess 2018). So far, there have been few studies on leadership in agile settings (Xu/Shen 2015). (3) Getting employees on board and addressing their attitudes and behaviors during the transformation is another major challenge. An agile workforce that has the appropriate attitude, on the one hand, and shows agile behavior on the other is considered an important requirement for organizational agility (Eilers/Simmert/Peters 2020; Sherehiy/Karwowski 2014). (4) Customer and user orientation, as core concepts of agility, represent highly relevant challenges for companies (Conboy/Morgan 2011). Agile forms of work organization iteratively involve customers and users directly in product and service development. This results in new processes and structures of customer and user contact, which must

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[3] Conboy (2009), Gerster et al. (2020), Kiely/Kiely/Nolan (2017), Wendler (2016)

be designed in the best possible way. For this purpose, it is important for companies and their employees to understand the relevance of customer and user orientation.

Research Challenge 2 – Absence of knowledge about ICW as a form of work organization and an enabler of agility

In VUCA situations, companies require adaptability (Verhoef et al. 2021). One frequently used concept for reaching adaptability in VUCA times represents the concept of agility (Wendler 2016). However, traditional company work structures are tremendous hurdles on the path to agility (Lee/Edmondson 2017). For example, strong hierarchies in these work structures hinder both rapid and flexible task processing (Boughzala/Vreede 2015; Edmondson/Harvey 2018) and the decision making power and empowerment of employees (Daft/Lewin 1993).

Accordingly, companies are looking for agile forms of work structures that lead to greater organizational agility and enable them to drive adaptability (Gerster et al. 2020). In literature and in practice different agile forms of work structures have emerged in the past years. For example, many companies are using Scrum to establish agile structures at the team level. To implement agile work structures at the corporate level, for example, SAFe or LeSS are frequently used (Gerster et al. 2020). As described above, companies are struggling with the implementation and application of agile working structures (Gerster et al. 2020).

Interestingly, ICW shows characteristics of an agile work structure, even though ICW, which is referred to as an open call from an employee to other employees to take over a certain task (Durward/Blohm/Leimeister 2016), has not previously been considered as an agile form of work organization, neither in practice nor scientific literature. For example, ICW is characterized by being non-hierarchical, flexible, collaborative and self-selective (Zuchowski et al. 2016). These characteristics are typically associated with agile work structures, such as Scrum, etc. ICW thus seems to have what it takes to establish agility.

Compared to traditional work organizations, where top-down hierarchies with clearly designated positions and responsibilities dominate (Hodson/Sullivan 2008), ICW reflects an innovative kind of organizing work. To fully understand ICW, a better understanding of ICW's role as a new and agile form of work organization in companies

is necessary. What are the characteristics that establish ICW as a form of work organization, and in which way does ICW differ from traditional work organization? In which way does ICW affects employees, in particular, on a behavioral and psychological level? In which way does this form of organizing work benefit companies? So far, we have only limited answers to these questions. However, decoding this perspective of ICW is eminent since ICW constitutes a paradigm shift in organizing work in companies, and employees play the most significant role in this form of work organization.

Research Challenge 3 – Limited empirical knowledge on the perception of work in ICW and the antecedents and outcomes of psychological empowerment in ICW

ICW represents digital gainful employment, which is based on the idea of crowdsourcing and refers to IT-based group or individual activities premised on an open call for participation within a company (Durward/Blohm/Leimeister 2016; Zuchowski et al. 2016). Employees from different hierarchical and functional levels of the organization act as the internal crowd, working on tasks, submitting ideas, or creating forecasts using an internal IT platform where tasks are placed via an open call. These ICW tasks must be handled either parallel or in addition to the normal workload (Durward et al. 2019b). Thereby, ICW can aid the adaptability of organizations in dealing with the rapidly changing environmental conditions described above and enable the rapid processing of important activities and projects through a new form of work distribution and execution (Zuchowski et al. 2016).

ICW has become more and more widespread in recent years. Several companies, such as Allianz (Benbya/Leidner 2018), Evonik (Zhu/Sick/Leker 2016), McKinsey & Company, and Siemens (Benbya/van Alstyne 2011), have implemented ICW. Academic interest has also increased in recent years, leading to the initial studies on ICW (Malhotra et al. 2019; Malhotra et al. 2017). Thereby, most research activities to date have focused on an outcome perspective, which highlights the potentials and benefits for companies using ICW; a task perspective, which focuses on task design; and an employee perspective, which focuses mainly on the characteristics of individuals in ICW. Nevertheless, it remains obvious that research on ICW is still in its inception (Malhotra et al. 2017; Zhu/Sick/Leker 2016; Zuchowski et al. 2016), especially regarding employees in ICW settings (Durward et al. 2019b).

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By leveraging their skills and their internal knowledge, employees are at the heart of the implementation of ICW. Despite their relevance for a successful implementation and application of ICW, the experiences and perceptions of employees have not been in the focus so far. Moreover, there are only a few studies to date that systematically analyze the role of employees in successful ICW and the experiences and perceptions of employees in ICW settings[4]. For example, there is limited empirically-validated insight concerning the psychological effects ICW might have on employees. This is even more important because working in ICW brings new and unfamiliar challenges for employees (Knop/Blohm 2018), and the parallel nature of work structures and processes through ICW increases complexity for employees (Knop/Blohm/Leimeister 2019). On this basis, ICW, with its corresponding structures and tasks, must be analyzed systematically, and employees must be examined regarding their experiences and perceptions (Deng/Joshi/Galliers 2016; Durward et al. 2019b; vom Brocke et al. 2018). One of the established constructs associated with the perception of work by the individual and central success factor in implementing and using digital forms of work organization (i.e., ICW) is empowerment (Durward et al. 2019b). In this context, empowerment can be understood as the ability of employees to achieve their organizational goals effectively and efficiently (Elmes/Strong/Volkoff 2005). The concept of empowerment thus aims to ensure effective work design and offers the possibility of systematically creating structures and procedures for companies and employees. The systematic empowerment of a company and its employees can help to create agility, innovation, flexibility, and competitiveness, which enables the implementation of digital forms of work organization, such as ICW (Durward et al. 2019b). Regarding the relevance of the empowerment concept, previous research has also shown that psychological empowerment is associated, for example, with job satisfaction and employee performance, employee commitment to the company, and employee innovation behavior (Schermuly/Meyer/Dämmer 2013; Seibert/Wang/Courtright 2011). In IS research and research on digital forms of work organization, the concept of empowerment represents an opportunity to exploit the full potential of digital work organization.

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[4] Deng/Joshi/Galliers (2016), Durward/Blohm/Leimeister (2020), Durward et al. (2019b), Simmert et al. (2020)

Research Challenge 4 – Limited empirical knowledge of ICF, particularly regarding employee perceptions in ICF and ICF-induced innovativeness

Moreover, to be successful and compete in challenging environments, companies need innovative ideas. Internal crowdfunding (ICF), as one special form of ICW, is being used more and more by established companies as an instrument to engage employees in proposing, and even implementing, innovative projects that address ideas for new products and services, as well as other diverse organizational challenges, such as the improvement of internal processes (Simons/Kaiser/vom Brocke 2019).

ICF is typically divided into two phases. In the first phase, the so-called ideation phase, employees autonomously team up and propose innovation projects on an Intranet-based crowdfunding platform. Following the principle of crowdfunding, in phase two – the funding phase – other employees can then fund one or more proposed projects that they believe will most value them or their companies (Muller et al. 2014). However, they do not invest their own money but rather receive a virtual budget from the company (Feldmann et al. 2014). With this, ICF not only encourages employees to propose innovative ideas, but also evaluate and select the best ideas (Simons/Kaiser/vom Brocke 2019). Some ICF campaigns even go one step further: In some ICF campaigns, the project team is invited to implement their proposed project (execution phase) in the cases where the proposals reached their funding goals (Simons/Kaiser/vom Brocke 2019).

Over the last several years, large companies, in particular, have successfully driven ICF campaigns. BMW was among the first adopters of ICF (Boeriu 2014; Jovanovic et al. 2017), and in 2014, they launched the "Mobility Experience Challenge". This campaign for the development of car apps was open to all BMW employees, who were invited to propose, describe, and assess innovative ideas (Jovanovic et al. 2017). IBM, Daimler, and Siemens also launched ICF campaigns (Jeltsch 2017; Simons/Kaiser/vom Brocke 2019). Since the launch of IBM's campaign in 2012, ICF has been continuously gaining attention in practice. This underlines the high practical relevance of ICF.

While the relevance of this phenomenon is well recognized in practice, ICF has been widely neglected in literature in recent years, apart from a few exceptions: There are a few examples that describe the basics of ICF, such as the paper by Simons, Kaiser, and vom Brocke (2019). Moreover, literature offers a few research endeavors that investigate the phenomenon in depth, for example, the working paper by Schweisfurth

et al. (2017) or the conference paper by Feldmann et al. (2014), who both researched the evaluation mechanisms of ideas in ICF. However, this gap in research is why our understanding of ICF is still limited today. In their most recent paper, Simons, Kaiser, and vom Brocke (2019) acknowledge that minimal research has been conducted to investigate ICF. Further, Simons, Kaiser, and vom Brocke (2019) also emphasize that more research is needed in this field. Increased basic knowledge would be helpful for both research and practice to understand this phenomenon better and build on these insights for the further design and development of ICF.

Research Challenge 5 – Limited investigation of systematic business model improvement, especially for incumbent companies

As a result of changes in the way organizations orchestrate their work, rapid and continuous improvement of the business model has become increasingly important for companies in the process of an agile transformation. Well-designed business models can be an important factor in ensuring competitiveness (Lee et al. 2011; Veit et al. 2014) and can be the underlying structure for the desired economic success of ideas, products, and services (Roelens/Poels 2015; Teece 2010; Veit et al. 2014). In this vein, companies increasingly consider different approaches towards business model innovation to develop new business opportunities within their economic environment. Nevertheless, the ongoing improvement of business models has only been sparsely researched. While existing literature agrees on the necessity of constantly adapting and renewing a company's business model in order to ensure the company's market position, concrete guidelines on how to conduct this adaption process are not mentioned (Leem et al. 2005; Osterwalder/Pigneur 2010; Palo/Tähtinen 2013).

In summary, this dissertation aims to show how companies explore the agility of their organization (the stat of the art of agility in companies), including agile forms of work organization (i.e., ICW and ICF) and their business model improvement.

1.2 Solution Statement and Research Questions

The aim of this dissertation is to address the five research challenges around organizational agility, ICW as an agile form of work organization, ICW and empowerment, ICF, and business model improvement. To achieve this goal, this dissertation (1) elaborates on the state of the art of organizational agility in practice, (2) explains ICW as an agile form of work organization, (3) develops a deep understanding

of empowerment in ICW and empowerment and innovativeness in ICF, and (4) shows the systematic inclusion of business model improvement. To address these aims, the research agenda of this dissertation follows five main research questions (RQ).

RQ1 addresses empirical knowledge in the form of a state-of-the-art analysis regarding organizational agility. For all four areas mentioned above (structure and organization, leadership, employee-centricity, and customer and user orientation), I provide figures, data, and facts on the state of the art and perceptions in practice as well as concrete procedures, approaches, and practices from the field. Therefore, I examine the current state of the art and developments in organizational agility on an empirical basis using a sequential mixed-method design over two consecutive years with two interview series with top management executives (23 interviews in the first year and 21 interviews in the second year), and two quantitative surveys with employees and leaders (517 participants in the first year and 449 participants in the second year) to collect my data. This enables me to address future research opportunities in the IS field.

RQ1	*What is the state of the art of organizational agility in practice?*
Method	*Mixed-method research design including qualitative interviews and quantitative surveys*
Results	*Empirical insights into organizational agility regarding the areas of structure and organization, leadership, employee-centricity, and customer and user orientation*

The results of the first RQ thus serve as a basis for the dissertation and the further RQs. With RQ2, I aim to investigate ICW as an agile form of work organization. Therefore, I aim to explore ICW as a form of work organization in its entirety. For the first time, I take this perspective of ICW, not only to learn about the characteristics that constitute ICW as a form of work organization and the positive effects this form of organizing work has on employees, but also to understand the advantages and potentials it brings to companies.

RQ2	*How does ICW as an agile form of work organization promote agility?*

For a detailed examination, I formulate two sub-questions, RQ2a and RQ2b. To answer these questions, I conduct an exploratory in-depth case study at a corporation that is one of the world's largest suppliers to the automotive industry. I aim to empirically identify

the work organization characteristics of ICW and the according employees' psychological effects that are elicited by this form of work organization. My in-depth case study also reveals how the employees' positive psychological effects benefit companies. As a result of my empirical-qualitative research, I propose a theoretical model that explains this cause-and-effect chain. My research will not only contribute to understanding this phenomenon in general but also to understanding ICW as an agile form of work organization. Besides these theoretical insights, my research is also relevant for practitioners. For companies, my research findings provide guidance on how ICW can effectively be used as an innovative and agile form of work organization.

RQ2a	*Which characteristics define ICW as a form of work organization in companies?*
RQ2b	*What positive effects does ICW as a form of work organization have on employees and companies?*
Method	*Exploratory case study*
Results	*Theoretical model with elements and causal interdependencies regarding ICW as a form of work organization*

In this highly vibrant VUCA setting, psychological empowerment is highly important. Using the context of ICW as one new form of work organization, in RQ3, I investigate empowerment in ICW in a focused manner in two studies. Thereby, I analyze different companies and their implementation and application of ICW. The focus of the investigations is on work organization, the perception of work by employees, and empowerment and its antecedents and outcomes. From these two studies, I gained very comprehensive insights into the implementation and realization of ICW.

RQ3	*What antecedents and outcomes of ICW can be identified in relation to employee perceptions and, in particular, empowerment?*

My research aims to contribute to a deeper and more fundamental understanding of the employee's perspective in ICW. This knowledge is helpful for both research and practice (especially for the leaders responsible for ICW settings and campaigns) in better understanding ICW and building on these insights for the further design and development of ICW.

First, in RQ3a, I examine employee empowerment in ICW within the unique case of a company that has been using ICW successfully for more than ten years. This study draws on an exploratory mixed-method case study (Yin 2003) of a telecommunications company (TelCo) with more than 200,000 employees out of which 10,000 participate in ICW. The focus of the investigations is on empowerment in ICW. Thereby, I investigate the interrelations of structural and psychological empowerment and their outcomes in ICW.

RQ3a	*How and why does ICW as a form of structural empowerment affect psychological empowerment?*
Method	*Exploratory mixed-method case study*
Results	*Theoretical model with elements and causal interdependencies regarding empowerment in ICW, including structural enablers of empowerment in ICW*

Second, employees are at the heart of any implementation of ICW and must be activated to leverage its potentials. A successful implementation therefore requires suitable leadership. As an instrument of goal achievement, leadership resembles an interaction process involving two or more group members that frequently results in a structuring or reorganization of both the situation and the members' perceptions of it (Bass/Bassi 2008). Against this backdrop, prior studies have examined the relationship between forms of leadership and their effects on the employees (Schermuly/Schermuly/Meyer 2011; Zhu et al. 2012). In particular, leaders have a profound influence on their employees' feelings and cognitions (Dienesch/Liden 1986) and affect employees' perceptions of their roles and experiences at work (Liden/Sparrowe/Wayne 1997). Further studies have identified leadership to be a relevant antecedent of some major work outcomes like job satisfaction (Le Zhou et al. 2012), perceived organizational support (Wayne/Shore/Liden 1997), or commitment (Avolio et al. 2004). In this context, several researchers have found psychological empowerment to be an important mediator between different forms of leadership and work outcomes (Schermuly/Schermuly/Meyer 2011; Zhu et al. 2015). In contrast to organizational structures, Conger and Kanungo (1988) introduced the idea of psychological empowerment, which examines employees' individual experiences and intrinsic motivational aspects (Spreitzer 1995). Thereby, the employees' subjective and individual interactions within given structures have been examined (Spreitzer 2008).

Kirkman et al. (2004) highlight the great importance of psychological empowerment in virtual settings in which employees are not interacting face-to-face and therefore need to work autonomously, such as what can be the case in ICW. Hence, in RQ3b, I focus on leadership in this new work setting and explain its effects on the employee's experience of work. As a result, I present a theoretical model that includes elements and causal interdependencies in ICW regarding leadership.

RQ3b	*How does leadership in ICW affect the employee`s perception of work?*
Method	*Exploratory case studies*
Results	*Theoretical model with elements and causal interdependencies regarding leadership in ICW*

Regarding ICF as one special form of ICW, in RQ4, my research takes the viewpoint of employees who propose ideas. I draw on an in-depth case study at an engineering service provider in the automotive industry. According to Yin's (2003) rationale for single case studies, my case illustrates a classic variant and implementation of ICF. My research aims to take a detailed look at the output of an ICF campaign and what impacts this output. By taking this perspective, my study is the first research endeavor in this particular area. I aim to investigate the innovativeness of the employees' ideas that resulted from the ideation phase of an ICF campaign by examining which factors influenced the degree of innovativeness of these ideas. Thereby, I propose a theoretical model that illustrates the cause-and-effect chain leading to the innovativeness of ideas in ICF campaigns. Thus, my study presents a deeper understanding of the structures and implementation of ICF. Knowledge on this is particularly interesting for companies running ICF campaigns. By knowing the influencing factors of ICF output, organizers of ICF campaigns will be able to specifically govern and influence employees to produce ideas with higher degrees of innovativeness in the future.

RQ4	*How do the innovation-fostering structures in ICF impact innovativeness and empowerment?*
Method	*Exploratory case study*
Results	*Theoretical model including the cause-and-effect chain leading to empowerment and innovativeness in ICF*

While being capable of business model improvement has been always important, the agile transformations that companies currently go through, increase this need to continuously perform business model improvement. Consequently, business models are constantly under pressure to keep up with both the fast-moving environmental conditions and the requirements on the path to becoming an agile organization. Thus, it is evident that companies undergoing agile transformation processes are studying, adapting, and improving their business models. Agile procedures, structures, and approaches are often closely related to the activities used to improve a business model or form the starting point for these activities (see section 4). Therefore, in a fifth step, the integration of business model improvement to sense and respond to the frequent and permanent changes in companies' business environments and therefore agile organizations, is presented. Thereby, in RQ5, I follow the call from practice to design business model innovation processes in the light of agile organizations (see section 4) and contribute by building and evaluating a self-organized process design that allows established companies to rethink, improve, and continually innovate their business models and, consequently, enable an empowerment-oriented adaptivity of the companies.

Therefore, I develop a systematic process design for the autonomous rethinking and improvement of business models. To derive the intended process design, I conduct a design science research (DSR) project (Gregor/Hevner 2013) to develop a new and innovative artifact that helps solve the real-world problem of business model improvement. To conduct my research, I follow the iterative DSR methodology process of Peffers et al. (2007). Therefore, I ground the systematic process design on knowledge of business model development by conducting a systematic literature review and an interview study (11 interviews with business model experts). Based on collaboration engineering (CE), I develop a facilitation process model (FPM) and an internal agenda that enables a systematic integration of employees in a workshop setting. With the help of CE-based evaluation methods and a pilot setting, I demonstrate the successful application of the systematic process design for business model improvement. Subsequently, I evaluate the results with the help of an expert evaluation based on the consensual assessment technique (CAT) (Amabile 1996).

RQ5	What process design would allow established companies to systematically improve their business model?
Method	DSR including CE, literature review, semi-structured interviews, and content analysis
Results	Systematic and evaluated process design for business model improvement

1.3 Structure of the Dissertation

To tackle the highlighted research challenges and address the corresponding RQs (see section 1.1 and section 1.2), Figure 1 illustrates the structure of my dissertation.
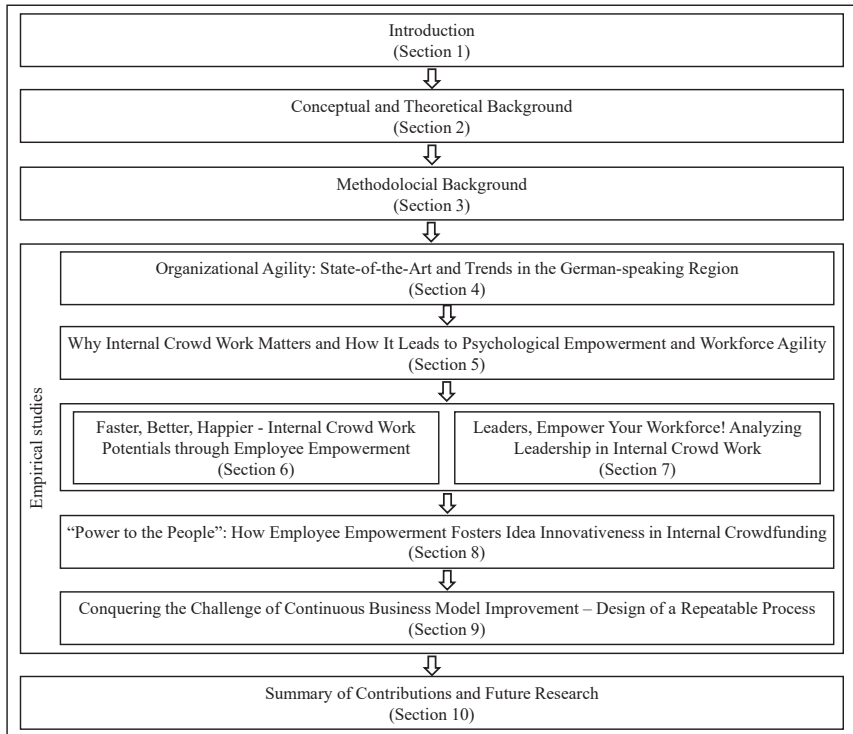
Figure 1: **Structure of the Dissertation**
Source: Own Illustration

Following this introduction, in section 2, I provide the conceptual and theoretical background of work organization, organizational agility, ICW, ICF, and empowerment.

In section 3, I present an overview of the research strategies and methods used in this dissertation. Thereby, I describe the fundamentals of the methods. The concrete application of the methods is described in the respective section in the context of the specific approach. Section 4 provides the results of RQ1 and thus the empirical state of the art of organizational agility in the German-speaking region. I show figures, data, and facts on the state of the art and perceptions in practice as well as concrete procedures, approaches, and practices from practice regarding organizational agility. In section 5, I examine ICW as an agile form of work organization and show the results of RQ2. In doing so, I explain the work organization characteristics of ICW and the according psychological effects on the employees and in which way these psychological effects can benefit companies. In section 6 and section 7, I address RQ3a and RQ3b and show the relevance and impact of empowerment in ICW and the role of leadership in ICW based on concrete ICW cases. In section 8, I examine another form of ICW, namely ICF. I show the results of RQ4 and explain the innovation-promoting structures in ICF, their effects on employee perceptions, and thus empowerment, and the outcomes associated with innovativeness. I emphasize an understanding of the interplay and interrelationships among the aforementioned factors. RQ5 is addressed in section 9 and deals with a systematic process design for continuous business model improvement. Finally, in section 10, I present the overall theoretical and practical contribution and discuss the limitations of the dissertation and the resulting need for future research.

This dissertation is based on and related to six studies that I authored during my time as a doctoral candidate. These publications influence sections in its entirety or subsections and address the RQs raised. Table 1 lists the publications with their relation to the corresponding RQ. Additionally, the outlet metrics (impact factor (IF) according to Clarivate Analytics 2020, Google Scholar h5-index (h5), VHB JOURQUAL 3 (JQ3) ranking, and WI-Journal list 2008 of the Wissenschaftliche Kommission für Wirtschaftsinformatik (WKWI)) are provided (if possible) for each publication. I would also like to emphasize that two of the research papers are about to be submitted to journals. This is indicated in the respective citations. Furthermore, at the beginning of each section, I indicate how these five and other publications have influenced the content of the respective section. For example and in addition to the five papers listed, in some section or subsections, I refer to Durward et al. (2019b).

No.	Publication	Outlet Metrics	RQ
1	**Simmert, B.; Peters, C.; Bretschneider, U.; Leimeister, J. M. (to be submittedb):** Why Internal Crowd Work Matters and How It Leads to Psychological Empowerment and Workforce Agility. In: Journal of Management Information Systems (JMIS).	IF: 7.838 H5: 49 JQ3: A WKWI: A	2
2	**Simmert, B.; Peters, C. (2022):** Faster, Better, Happier – Internal Crowd Work as Form of Structural Empowerment for Employee Empowerment and Success. In: Die Unternehmung – Swiss Journal of Business Research and Practice, Vol. 76 (2022) No. 1/2022, pp. 28–49.	IF: / H5: 7 JQ3: C WKWI:	3a
3	**Simmert, B.; Peters, C. (2020):** Leaders, Empower Your Workforce! Analyzing Leadership in Internal Crowd Work. In: Academy of Management Annual Meeting (AOM) 2020, Vancouver, Canada (Virtual Conference).	IF: / H5: / JQ3: / WKWI: /	3b
4	**Simmert, B.; Bretschneider, U.; Peters, C.; Leimeister, J. M. (to be submitteda):** "Power to the People": How Employee Empowerment Fosters Idea Innovativeness in Internal Crowdfunding. In: Information Systems Journal (ISJ).	IF: 7.453 H5: 47 JQ3: A WKWI: A	4
5	**Simmert, B.; Ebel, P. A.; Peters, C.; Bittner, E. A. C.; Leimeister, J. M. (2019):** Conquering the Challenge of Continuous Business Model Improvement. In: Business & Information Systems Engineering, Vol. 61 (2019) No. 4, pp. 451–468.	IF: 4.532 H5: 42 JQ3: B WKWI: A	5

Table 1:   **Overview of Publications Related to this Dissertation**
         Source: Own Illustration

2 Conceptual and Theoretical Background

2.1 Work Organization[5]

Work systems orchestrate all necessary activities, rules, and procedures to develop, produce, and deliver services and products (Sinha/Van de Ven 2005). In other words, work systems establish a way of describing and organizing work in a company and configure the way workers (employees) perform their tasks and roles in their jobs (Cordery/Parker 2007). In addition to the worker and the tasks, there are other elements that influence the work system that need to be considered, since they represent the overall system in their interaction (Parker/van den Broeck/Holman 2017). These are the organization's structure, the organization's policies and practices, and the organization's leadership practices[6]. The tasks element includes the way tasks are organized, distributed, and completed (Burke 2017; Cordery/Parker 2007; Parker/van den Broeck/Holman 2017). Organization's structure addresses how activities, responsibilities, and resources are allocated and how individuals and their roles are organized with respect to the tasks to be done[7]. The organization's policies and practices include rules and procedures that support organization's structures and classify how work is to be done[8]. Organization's leadership practices coordinate and control the work system, adopt a set of activities designed to meet the organization's goals, and address the content of work tasks[9].

Although the structures and organization of work in companies differ (Tolbert/Hall 2009), there exists a basic form of work organization in companies since decades. This is the so-called bureaucracy (Hodson/Sullivan 2008; Parker/van den Broeck/Holman 2017). An *organization's structure* in a bureaucratic work organization is characterized by hierarchical relations organized in the form of an organizational pyramid (Hodson/Sullivan 2008; Picot et al. 2020; Siedenbiedel 2020). It is a system with top-down hierarchies, clearly designated positions, and responsibilities. This means that certain work and tasks have to be taken over by responsible offices, divisions, and responsibilities only (Hodson/Sullivan 2008). Further, there is a clearly defined vertical

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[5] The theoretical background on work organization presented in this section is partly based on Simmert et al. (to be submittedb). I thank my collaborators for the valuable feedback on my work.
[6] Burke (2017), Cordery/Parker (2007), Parker/van den Broeck/Holman (2017), Turner (2020)
[7] Burke (2017), Tolbert/Hall (2009), Turner (2020), van Bree (2021)
[8] Burke (2017), Cordery/Parker (2007), Hodson/Sullivan (2008), Tolbert/Hall (2009)
[9] Burke (2017), Cordery/Parker (2007), Parker/van den Broeck/Holman (2017), Turner (2020)

"[...] chain of responsibility leading to the top position" (Hodson/Sullivan 2008, 5). In other words, there is centralization in bureaucratic work organization, which means that decision-making typically happens on the higher levels of the pyramid (Hodson/Sullivan 2008; Siedenbiedel 2020). This hierarchical structure is illustrated in Figure 2.
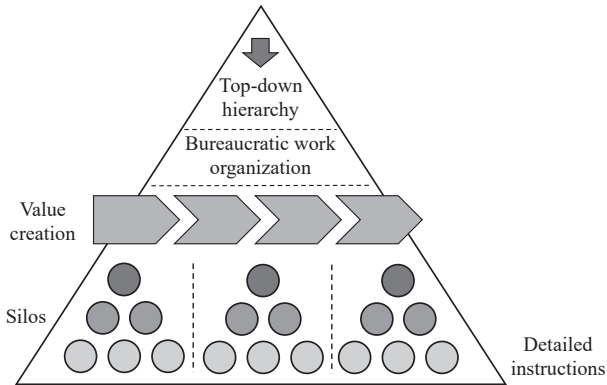
Figure 2:   **Organizational Structure of a Bureaucratic Work Organization**
Source: Simmert et al. (to be submittedb) adapted from Aghina et al. (2018)

Within such a hierarchical form of work organization, the *worker* is obligated to perform the type of work and tasks for which she/he is responsible (Turner 2020). This means that a bureaucratic work organization is based on differentiated and specialized roles within the hierarchy of companies, specialized administrative roles, and standard work practices, which in its entirety leads to a routinization of tasks (Sørensen 2007). Another characteristic regarding the worker in bureaucratic work organization is that workers are bounded to the work instructions and tasks that are assigned to them by leaders of higher hierarchical levels (Parker/van den Broeck/Holman 2017).

As it concerns *organization's leadership practices*, in bureaucratic work organizations the so-called "bureaucratic leadership" is applied. This leadership style is characterized by authority, which means that the lower positions in the hierarchical pyramid are subordinate to the instructions of the higher level (Hodson/Sullivan 2008; Murari 2015; Parker/van den Broeck/Holman 2017). That is why in a bureaucratic leadership style focuses on the organization rather than an individual's contribution (Hodson/Sullivan 2008; Homburg/Schäfer/Schneider 2012).

A bureaucratic work organization typically determines the degree of *organization's policies and practices*. Since the system of a bureaucratic organization requires a well-defined set of rules, regulations, and processes to sustain the work organization, this level is typically high in bureaucratic organizations. This is what is referred to as formalization (Tolbert/Hall 2009). In general, formalization describes the degree to which organizational actions and procedures (e.g., task assignments, job descriptions, or regulatory requirements) are codified and documented in written form (Tolbert/Hall 2009).

Bureaucratic procedures or bureaucratic forms of organization are among the most widespread forms of organization in companies throughout the world (Tolbert/Hall 2009). In post-bureaucratic forms of work organization, the focus is increasingly on greater worker participation and initiative (Hodson/Sullivan 2008). Hierarchy-based organizational forms are thus increasingly being replaced by decentralized, modular structures characterized by autonomy, cooperation, and indirect leadership (Picot et al. 2020). At a first glance, the concept of agility as well as ICW as a form of work organization stand in contrast to the traditional bureaucratic work organization. Companies are therefore transforming their way of working towards increased flexibility and agility and consider ICW, with its flexible and collaborative structures including greater worker involvement and initiative for employees (Simmert/Peters 2022), as a way of achieving this goal. This motivates my research to investigate ICW as an alternative form of work organization.

2.2 Organizational Agility

The concept of agility has received immense attention in recent years (van Oosterhout/Waarts/van Hillegersberg 2017). Researchers and practitioners have made extensive use of the term "agility". One traditional application area of agility is when environmental conditions change faster than companies manage to adapt (Dove 1999). Agility is not necessarily limited to a specific field of application but rather has come into the focus of research and practice through the increased and recurring use of agility, particularly in the field of software development (Wendler 2016). In IS research, agility represents an organization-wide concept (Lu/Ramamurthy 2011) that describes a necessary key factor for the competitiveness of companies that are affected by frequent and unpredictable changes and have (or develop) the ability to perceive changes and

react quickly and adequately to opportunities and risks[10]. Thereby, agility enables the fast combination of necessary assets, knowledge, and relationships as well as the rapid adaptation and redevelopment of internal processes (Sambamurthy/Bharadwaj/Grover 2003). Furthermore, organizational agility represents the interaction of people, processes, and organizational and technological factors (Nerur/Mahapatra/Mangalaraj 2005). Overall, a better understanding of agility for research and practice is necessary (Abrahamsson/Conboy/Wang 2009).

The agility of a company implies a transformation from traditional and, usually. hierarchical structures (Wendler 2016), including bureaucracy, which hinders speed and innovation (Verhoef et al. 2021) towards new forms of agile work design. The resulting transformation strategies differ accordingly but can often be differentiated into incremental approaches that introduce agility step-by-step and wholesale processes that convert entire areas or companies to agility at one point in time. Nevertheless, the application level of agility can also vary between the whole company, business units, processes, and team levels (Tallon et al. 2019). Moreover, it is possible to distinguish between bottom-up and top-down strategies (Klünder/Hohl/Schneider 2018). However, organizational agility and agile transformation processes do not represent a *"one-size-fits-all solution"* (Teece/Peteraf/Leih 2016, 17) and need to be individually tailored to the company (Denning 2019), which can be achieved through different organizational structures, procedures, approaches, and practices. Understanding which of these elements are relevant and promising for one's own company is an important skill for top management executives (Worley/Lawler 2010).

Research and practice have already shown that IS and information technologies (IT) are an essential success factor for organizational agility (e.g., Tallon et al. 2019). Thereby, companies are increasingly digitizing and adopting transparent IS (Worley/Lawler 2010), and IT is enabling many new ways of collaboration and new agile ways of organizing work (Breu et al. 2002). Nevertheless, the relationship between IS/IT and agility needs to be further investigated (Tallon et al. 2019).

Agility thus represents an important factor through which IT can influence business performance (Overby/Bharadwaj/Sambamurthy 2006; Tallon et al. 2019) and support the transformation of companies (Osmundsen/Iden/Bygstad 2018;

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[10]   Overby/Bharadwaj/Sambamurthy   (2006),   Sambamurthy/Bharadwaj/Grover   (2003), Tallon/Pinsonneault (2011), Wendler (2016)

Weritz/Braojos/Matute 2020). For example, to successfully master digital transformation processes, it is important to understand the corporate environment and perceive new opportunities (Leonhardt/Mandrella/Kolbe 2016; Overby/Bharadwaj/Sambamurthy 2006), which is a core capability of agile structures and processes. Moreover, digital technologies and agile structures are often mutually supportive (Hanelt et al. 2021). Thereby, agile structures might be necessary to enable a successful organizational and digital transformation. Empirical research on the organizational structures, processes, and challenges, approaches to agile transformation (Fuchs/Hess 2018) and companies undergoing digital transformation is scarce. Consequently, there is a need to research organizational structures that support both the digital transformation and the agile transformation and thus the agility of companies (Verhoef et al. 2021). Additionally, it is necessary to find out which mechanisms and contexts IS/IT can use to improve the agility of companies (Ravichandran 2018).

2.2.1 Agile Forms of Work Organization

Organizational design has the potential to be a core component of a competitive advantage (Worley/Lawler 2010). However, finding an adequate organizational design is even more a major challenge for companies (Wendler 2016). Organizational design describes how organizational structures and processes are organized and how work is performed and orchestrated (Holotiuk/Beimborn/Jentsch 2018). As a result, the focus is increasingly on agile forms of work organization as one form of enhancing agility in an organization-wide perspective (Gerster et al. 2020), which allow flexibility and a rapid response to external and internal changes (Verhoef et al. 2021; Worley/Lawler 2010).

Agile forms of work organization enable the adaptation of techniques, routines, and new options for action (Park/El Sawy/Fiss 2017) including the orchestration of a company's internal resources (people, structures and processes) regarding its ability to adapt and innovate quickly and flexibly. Thereby, agile forms of work organization refer to transparent (decentralized) information and decision-making processes and systems, empowerment and self-organization of employees, flat hierarchies, coordination tasks delegated to employees (Daft/Lewin 1993; Worley/Lawler 2010).

Agile forms of work organization are anchored in the organizational design and go beyond the classical and widespread agile methods such as Scrum or Kanban. The underlying idea goes beyond the application in individual departments or teams that

work in an agile manner and involves the entire organization, because the challenges and problems for companies go beyond the sphere of influence of individual teams or departments and require an organizational response (Gerster et al. 2020; Wendler 2016). Thereby, the corresponding form of agility must be individually adapted to the situation and the area or industry of the company (Worley/Lawler 2010).

In summary, the use of agile forms of work organization is one possible way to achieve agility. Such forms make it easier for organizations to enable the described orchestration of internal resources and to create agile collaboration. It is becoming increasingly clear that the application and use of agile forms of work organization cannot be dismissed as a short-term trend (Gerster et al. 2020), but rather that digitization and digital opportunities for collaboration are creating entirely new forms of agile work organization which can be used by organizations in a targeted manner.

2.2.2   Workforce Agility[11]

Existing research shows that workforce agility is a basic requirement and important factor to ensure and promote organizational agility (Breu et al. 2002; Muduli 2017; Sherehiy/Karwowski 2014) especially for companies that are in a constant change (Storme et al. 2020). Nevertheless, the concept and rationale around workforce agility have not yet been systematically studied (Muduli 2013; Muduli 2017; Sherehiy/Karwowski 2014). While workforce agility can be considered a multivariate construct (Storme et al. 2020), no single definition, common characteristics or attributes of workforce agility has emerged[12].

In the existing literature, there are usually three different approaches to defining workforce agility: ability, attitude and behavior perspective (Muduli 2017). Moreover, Muduli (2013) derives attributes (adaptivity, flexibility, development capability, speed, collaboration, competence, and information search) of an agile workforce. Most common in research is the employee behavior perspective (Ajgaonkar/Neelam/Wiemann 2021) that I also follow in my dissertation. Thereby, workforce agility refers to an observable agile performance or behavior at work (proactive, adaptive, and resilient), not the individual's agile personality, dispositions,

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[11] The theoretical background on workforce agility presented in this subsection is partly based on Simmert/Peters (2020). I thank my collaborator and the anonymous reviewers and attendees of the Academy of Management Annual Meeting (AOM) 2020 for the valuable feedback on my work.

[12] Alavi et al. (2014), Breu et al. (2002), Muduli (2017), Sherehiy/Karwowski (2014)

or attributes. Proactive behavior describes the anticipation of problems in connection with change and the resulting initiation of activities that lead to a solution-oriented general improvement in work. Adaptive behavior describes the necessary professional flexibility and thus the ability to take on responsibility, to change flexibly between roles, teams, and tasks and to adjust to the simultaneity of these activities. In addition, adaptability to interpersonal and cultural differences also plays a role, as does continuous learning. Resilient behavior describes a positive approach to change, new ideas and technology, situations of uncertainty, stress, and stress management (Sherehiy/Karwowski 2014).

From an outcome's perspective, an agile workforce is associated with, for example, competitive advantage, increased productivity, growth in profit and market share, and constant competitiveness in VUCA environments (Muduli 2013). It also shows that workforce agility is an important factor for effectiveness (Doeze Jager-van Vliet/Born/van der Molen 2019) and project success (Sheffield/Lemétayer 2013). On an individual level, workforce agility contributes to the performance and well-being of employees (Sherehiy/Karwowski 2014).

When looking at the antecedent and facilitator side of workforce agility, it is striking that, despite the relevance of this topic, there are few studies to date that explicitly identify organizational antecedents and facilitators (Harsch/Festing 2019; Muduli 2013; Muduli/Pandya 2018). Previous findings in this area can be divided into two clusters. First, I find relevant factors that promote workforce agility. For example, Chonko and Jones (2005) show that culture, collaboration, IS and competencies are important factors in promoting workforce agility. Sherehiy and Karwowski (2014) explain the relevance of autonomy for workforce agility and Muduli (2016) shows that organizational learning and training, organization's team work environment, reward systems are related to workforce agility. In addition, Muduli (2016) shows that employee involvement practices (e.g., job enrichment, job enlargement, and self-managed teams) promote workforce agility. The latter can also be integrated into the second cluster, namely organizational and management practices that promote workforce agility (Ajgaonkar/Neelam/Wiemann 2021; Muduli 2016; Muduli 2017). In this context, the advancement of training, compensation, empowerment, and teamwork (Muduli 2013) as well as the decentralization of decision making, flat structures, and low formalization contribute to workforce agility (Alavi et al. 2014). In particular, the introduction of agile

structures and forms of work organization is also highly relevant (Alavi et al. 2014; Muduli 2017).

In this context, it is important for companies to understand how agile forms of work organization can promote workforce agility (Alavi et al. 2014; Breu et al. 2002). Nevertheless, the effects and demands on work and thus on employees and their performance in agile structures and forms of work organization have hardly been researched so far (Sherehiy/Karwowski 2014). By leveraging their skills and their internal knowledge, employees and leaders are at the heart of implementation of ICW. Organizational structures and procedures, such as the introduction of ICW, influence not only the agility of the company itself but also the agility of the workforce (Chonko/Jones 2005).

Thereby, it is important to gain an understanding of the organizational structures, strategies and procedures within ICW that ensure the development of an agile workforce (Alavi et al. 2014) and to design it in a targeted, design-oriented manner. However, there is a lack of knowledge on the design of internal processes and structures in agile forms of work organization (Maruping/Venkatesh/Agarwal 2009; Verhoef et al. 2021) and their impact on workforce agility (Muduli 2016). Interestingly, ICW previously has not been considered and discussed as an enabler of workforce agility, neither in practice nor in scientific literature.

In addition to the introduction of agile forms of work organization, the antecedents of workforce agility at the psychological level play an important role. Only if companies understand the interrelationships between organizational structures and their psychological effects, they will be able to foster workforce agility (Storme et al. 2020). Nevertheless, the individual (cognitive) level and its impact on workforce agility has rarely been studied (Muduli/Pandya 2018). Initial research on the psychological antecedents of workforce agility, for example, highlights the relevance of psychological empowerment for workforce agility (Muduli 2017; Muduli/Pandya 2018). While a linear relationship between structural adjustments, such as agile forms of work organization, and workforce agility is often assumed, it has been shown, that psychological empowerment can be a moderating factor (Harsch/Festing 2019; Muduli 2016).

Nonetheless, despite its relevance for workforce agility, the impact, and requirements on work and thus on employees and their work performance in agile forms of work organization have hardly been researched to date (Sherehiy/Karwowski 2014). Therefore, this dissertation addresses the lack of knowledge on the design of internal processes and structures in agile forms of work organization (Maruping/Venkatesh/Agarwal 2009; Verhoef et al. 2021), its impact on workforce agility (Muduli 2016), and the psychological antecedents of workforce agility (Storme et al. 2020).

2.3 External and Internal Crowd Work[13]

Crowd work has become a wide-spread societal phenomenon (Durward/Blohm/Leimeister 2020) that has emerged in the context of the digital economy and digital value creation (Durward/Blohm/Leimeister 2016). Crowd work represents a digital form of gainful employment based on crowdsourcing principles (Durward/Blohm/Leimeister 2016). *"In crowdsourcing, a Crowdsourcer (e.g., a company, an institution, a group, or an individual) proposes a task via an open call to an undefined amount of potential contributors (crowd workers)."* (Durward/Blohm/Leimeister 2016, 281)

By definition, there are four characteristics of crowd work (Durward/Blohm/Leimeister 2016): First, crowd workers receive financial remuneration. Second, crowd workers earn part of their income (full-time or part-time) from crowd work. Third, the activities of crowd workers are comparable to those of self-employed workers. They are not traditionally employed by a crowdsourcer. In return, the crowd workers are economically independent and can freely decide which work to take on and thus their working times. Fourth, the interaction of crowdsourcers and crowd workers is coordinated by IT-based crowdsourcing platforms.

Overall, crowd work can be summarized as follows: The fundamental idea of crowd work is that a company, institution, or non-profit organization offers a paid task to an

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undefined group of people (crowd workers), which is presented in an open call. The subsequent interaction process takes place on IT-based platforms connecting both parties (Durward/Blohm/Leimeister 2016). Crowd work affects the labor market, with a growing number of individuals working on a part- or full-time basis through crowd work platforms on the Internet (Durward/Blohm/Leimeister 2020).

Companies have begun making use of the societal phenomenon of ICW by establishing crowd work within the boundaries of their companies. ICW can be defined by four characteristic elements: First, the creation of projects and tasks follows an open call within the company. Second, the employees decide whether they follow the call based on a completely voluntarily self-selection process and thus on their participation. Third, the value creation process is handled via an IT platform (ICW platform). And fourth, the called employees obtain an employment contract from the company (Durward/Blohm/Leimeister 2016; Zuchowski et al. 2016).

Due to fundamental structural differences in the application of external and internal crowd work, a transfer of the findings from external crowd work to ICW is only possible to a limited extent (Knop/Durward/Blohm 2017). One core differentiator from external crowd work is that the company's own employees represent the internal crowd and process ICW tasks and projects during their working hours (Durward/Blohm/Leimeister 2016) but beyond their regular duties. This involves embedding ICW into the existing organizational structures and processes, resulting in intentional collaboration between employees and technology (represented by the ICW platform) (Durward et al. 2019b; Zuchowski et al. 2016).

The structures in ICW thus enable a flexible, time-independent processing of tasks and projects by locally distributed employees. This creates new, agile work structures that transcend departmental boundaries and enable cross-functional collaboration. Overall, companies are trying to engage their employees with ICW to ensure that they can use their innovative and creative ideas, for example, to improve work and production processes (Elerud-Tryde/Hooge 2014; Erickson/Petrick/Trauth 2012). ICW offers employees the opportunity to perform additional or complementary tasks alongside their daily work (Zuchowski et al. 2016). This creates an empowerment-oriented work environment (Durward et al. 2019b; Malhotra et al. 2017) that brings together employees from different hierarchies and functions (Villarroel/Reis 2010) and makes it

possible to combine the knowledge and information of various organizational units, such as local departments and production sites and those abroad (Benbya/van Alstyne 2011).

2.3.1   Variants of External and Internal Crowd Work

There are several organizational variations of external crowd work and ICW. Figure 3 shows the respective variants and their actors. In external crowd work, the crowd workers are external persons who do not necessarily have a relationship to the company. In most cases, these people are located outside the organizational boundaries of the company. In Case I, the crowdsourcer and thus the company operates the crowdsourcing platform itself. There is no mediation by a third party, and the call for tasks on the platform is made directly by the crowdsourcer. In Case II, the crowdsourcing platform is provided by an intermediary so that the crowdsourcer can invite the crowd workers to process tasks with the help of an open call on the platform (Durward/Blohm/Leimeister 2016).

Four typical variants can be identified for ICW. In contrast to external crowd work, the designation of the actors involves changes. In ICW, the crowdsourcers (known from external crowd work) are referred to as requestors or companies, and the crowd workers can be referred to as solvers or employees (e.g., Zogaj/Bretschneider/Leimeister 2014; Zuchowski et al. 2016).

In Case I, the company's employees act as an internal crowd, operating on a company-owned platform. All actors involved act within the boundaries of the company. In Case II, both the company (requestor) and the employees (solver) act through an external ICW platform. The tasks and projects announced by the requestor are addressed by the company's own workforce; only the intermediation is carried out by the external platform. Case III is, again, an ICW platform located within the company's boundaries that is provided by the company. In this case, however, a hybrid crowd consisting of the company's employees and external persons (e.g., customers, suppliers, partners) is invited to participate. In Case IV, a hybrid crowd consisting of employees of the company and external persons is invited to participate in tasks of the company via an external platform (Leimeister/Durward/Simmert 2020).
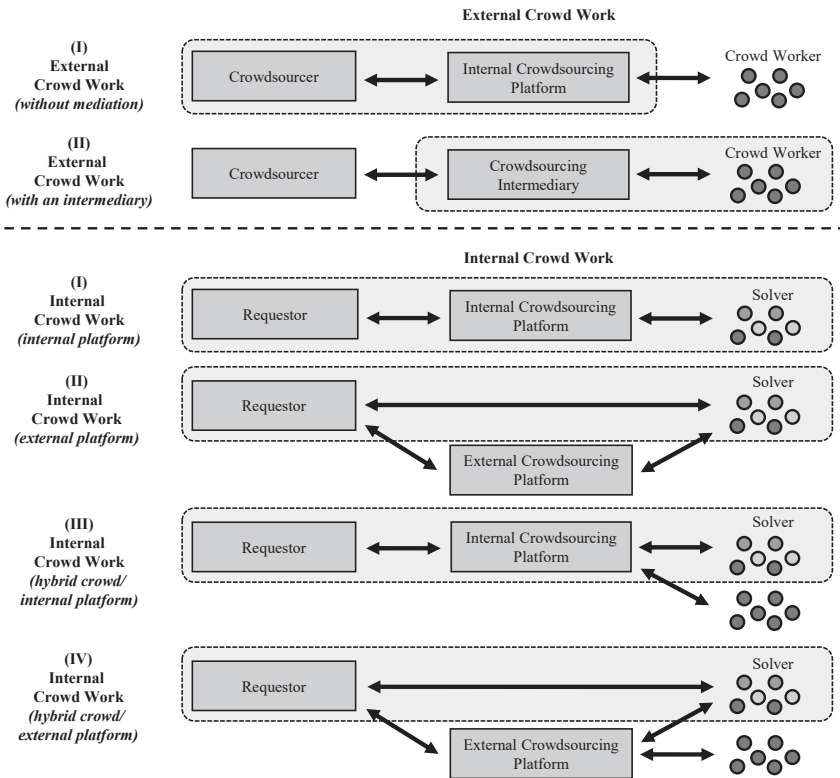
Figure 3: **Variants of External and Internal Crowd Work**
Source: Own Illustration adapted from Durward/Blohm/Leimeister (2016), Leimeister/Durward/Simmert (2020), and Zogaj/Bretschneider/Leimeister (2014)

In typical cases, the described distribution of roles between solver and requestor is clearly regulated (the company represents the requestor of tasks and the employees represent the solvers) (Zuchowski et al. 2016). However, in some ICW cases, not necessarily the company must act as the requestor, rather each employee can act as the solver and requestor and define specific tasks or projects and place an open call to the crowd of employees to take over a task or join a particular project. In such ICW settings, employees initiate projects and try to find other employees who would like to engage in such projects. In the case of a positive match, these employees then work together, for example, to solve complex problems, to develop ideas for new product development, or create new business opportunities. Employees typically search for their project staff via

ICW campaigns to add certain expertise or experience to their project work. Thereby, ICW is a mechanism for leveraging the wisdom of the workforce, meaning exploring the potential of a large pool of employees with different knowledge and experiences, multiple perspectives, and diverse areas of expertise.

2.3.2 Research Perspectives in Internal Crowd Work

In scientific literature, three research perspectives on ICW have emerged: an outcome perspective, a task perspective, and an employee perspective. The outcome perspective focuses primarily on implementation reasons such as the potentials and benefits for companies, e.g., improved productivity or co-creation of corporate strategy (Jette/Breck/Johns 2015), quick access to ideas, competencies, internal knowledge, and innovativeness (Beretta et al. 2021; Malhotra et al. 2017; Zuchowski et al. 2016) beyond the involvement of respective technical experts (Stieger et al. 2012). The task perspective shows initial results on task formulation and definition (Polish 2021), classification (Jette/Breck/Johns 2015; Lopez/Vukovic/Laredo 2010), and decomposition and allocation (Lopez/Vukovic/Laredo 2010; Simula/Ahola 2014). The employee perspective puts the focus on individuals. Thereby, the motivation and incentivization of employees play an important role (Durward 2020; Polish 2021). Furthermore, the focus of investigations has been on the benefits of the congruence of the employees' and companies' aims (Simula/Ahola 2014). Moreover, some studies have addressed the attributes of the employees in ICW, which are characterized as diverse (Simula/Ahola 2014), creative, proactive (Zhu/Djurjagina/Leker 2014), and self-organized (Stieger et al. 2012). Nevertheless, the experiences and perceptions of the employees influence the role of the individual in the success of ICW, which has been neglected in literature. Against this background, my research takes the viewpoint of employees, in particular, in structuring the empowerment determinants in ICW and the empowerment of employees in ICW.

Despite this increasing relevance, research on ICW is still in its early stages (Malhotra et al. 2017; Zhu/Sick/Leker 2016; Zuchowski et al. 2016), especially concerning the people doing the work in ICW (i.e., the employees/ the workforce) (Durward et al. 2019b). Their experiences and perceptions have only so far been focused on to a limited extent (Deng/Joshi 2016; Deng/Joshi/Galliers 2016; Durward/Blohm/Leimeister 2020). While it is important to find out which characteristics, attitudes, and behaviors employees should have to perform well in ICW, I investigate the role of leaders

regarding their effective leadership in ICW. These workforce-oriented aspects also have a major impact on behavior within companies (i.e., workforce agility) and the relationship to traditional work settings (Zuchowski et al. 2016).

In addition, there are a limited number of detailed studies on how companies have successfully applied ICW over a longer period of time. This is because many initiatives around ICW adoption fail (Beretta et al. 2021; Simula/Ahola 2014). One reason why ICW initiatives fail, which, at the same time, reveals the need for systematic empowerment, is that many companies in their change initiatives of organizational structures often focus on the configurations and not on the people who ultimately have to work and adapt within these organizational structures (Schermuly 2019a). In addition, very few studies provide concrete insights on the performance outcomes of ICW (Durward 2020). Knowledge of employees' experiences and perceptions is particularly useful for companies running ICW. By gaining insights into the factors of structural empowerment in ICW in relation to the perception of employees and desired outcomes, such as productivity (Jette/Breck/Johns 2015), quick access to ideas, competencies, internal knowledge, and innovativeness (Beretta et al. 2021; Malhotra et al. 2017; Zuchowski et al. 2016), organizers of ICW will be able to specifically influence and potentially regulate their employees in producing high quality results. In this context, it can be assumed that the company's employees have significantly more expertise – regarding the market and customers – than management would have expected. This knowledge potential can be regarded as essential for the competitiveness of a company (Hammon/Hippner 2012).

2.4 Internal Crowdfunding[14]

From the perspective of the company, ICF constitutes a new and, in particular, an extended form of what in literature is described as crowdsourcing for innovation. The term goes back to Majchrzak and Malhotra (2020) who defined crowdsourcing for innovation as an event *„[...] in which a problem an organization is experiencing is openly broadcasted to a large pool of potentially interested people out of which those self-select to participate in offering innovative solutions to the problem"* (Majchrzak/Malhotra 2020, 5).

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[14] The theoretical background on ICF presented in this section is partly based on Simmert et al. (to be submitteda). I thank my collaborators for the valuable feedback on my work.

In this vein, an organization's problem can be for example the search for innovative products and services in the New Product Development department, the identification of new markets to pursue in the marketing division or the identification how to achieve sustainability, whereas *"[…] pool of potentially interested people […]"* refers to the internal crowd (employees) and/or the external crowd (customers, suppliers etc.) (Majchrzak/Malhotra 2020, 5). In this vein, ICF constitutes a form of crowdsourcing for innovation undertaken inside the company with employees as the crowd.

In general, crowdsourcing for innovation can be illustrated as a process. This process relies on a "funnel" model, which is characterized by stage gates at each step of the funnel (Majchrzak/Malhotra 2020). In the first stage, the organization formulates a problem statement with varying degree of explicitness, which forms the starting point for the crowd's idea generation. The organization then broadcasts this problem to the crowd, who then – in stage two – suggests and sends ideas to the organization. In stage three, the organization selects, develops, and implements the best ideas (Majchrzak/Malhotra 2020). According to this, the crowd in this process is used only in the second stage, meaning the approach to crowdsourcing for innovation originally is crowd's idea sharing. ICF can do even more than pure idea sharing. ICF mirrors not only stage two, but also stage one and three of the above-described process. This means that in the case of ICF the internal crowd of employees covers the whole process, ranging from the definition of problems over the development of ideas to overcome this problem until the selection of the best solution out of the pool of proposed ideas. So, traditional crowdsourcing for innovation leverages the crowd of employees to find the one person with the most appropriate solution/idea (Majchrzak/Malhotra 2020). However, involving the crowd also into the first and third stage of the process implies tremendous advantages: Activating the crowd in the first stage means that the crowd can identify problems that urgently have to be solved, or the crowd can advise that the solution to the problem under consideration is rather misleading and consequently the solution to another possibly larger and more complex problem is more promising (Majchrzak/Malhotra 2020). In stage three the crowd can help to find the most appropriate ideas or solutions with the help of the crowdfunding mechanism. This means that the crowd, respectively the crowdfunding mechanism helps to overcome the so-called absorptive capacity problem that emerges in cases when the ICF campaign attracted hundreds of contributors who create a huge volume of data of wide variety. In this situation the organization is disable to recognize the value of new contributions from

the crowd, to assimilate them, and use them for commercial purposes (Ruiz/Brion/Parmentier 2016). In this vein, ICF helps companies in a manifold way to leverage the wisdom of the crowd by overcoming company boundaries, departmental silos, and hierarchies, and fostering collaboration between different employee groups (Muller et al. 2013). And that is why ICF is seen as a "game-changer" enabled through both the mechanism of crowdsourcing and crowdfunding (Simons/Kaiser/vom Brocke 2019).

From the perspective of the employee the question arise why employees engage in ICF. Until now most scholars have approached this question only from a conceptual perspective and describe that employees' objectives are diverse. For example, Muller et al. (2013) describe, that employees participate in enterprise crowdfunding because they seek individual and organizational challenges, want to participate in or even initiate organizational change processes, and want to be involved in project management. Other employees simply have intrinsic motivation to engage in ICF campaigns, as described for the cases of IBM and Siemens (Jeltsch 2018; Muller et al. 2013; Simons/Kaiser/vom Brocke 2019).

Research on ICF now is more than seven years old. Interestingly, our understanding of ICF is still extremely limited and research in this field has been widely neglected in recent years. There exist only few contributions that I introduce in the following: Muller et al. (2013) examined the IBM case using a social network perspective in order to investigate participation behavior of employees in the ideation phase of ICF. They found that ICF can have considerably higher participation rates compared to other crowdsourcing for innovation instruments, such as suggestion boxes (Majchrzak/Malhotra 2020) or idea generation through enterprise social media (van Osch/Bulgurcu 2020), as it helps to collaborate across hierarchies and departments, and enables employees to drive organizational change (Muller et al. 2013).

Other research papers studied factors that influence funding success in the funding phase of ICF. Muller et al. (2014) elaborated that similarities (e.g., similarities in terms of geography, work group, and department) between project inventors and project investors can lead to higher support/higher investments, whereas the relationship between the participants plays a subordinate role. At the same time, Schweisfurth et al. (2017) found that hierarchical similarities between inventors and investors can lead to more favorable idea evaluation. In addition, Muller et al. (2016) reported that the

number of inventors matters. For example, there is a higher probability of success when multiple inventors initiate a joint project compared to fewer or only a single inventor. Moreover, the social network and thus the visibility of the inventors plays a role for success, whereby this effect can be reinforced by ICF, further expanding the social network of the inventors in question (Muller/Mitra/Geyer 2018). Feldmann and Gimpel (2016) have shown that funding success is related to the elaboration of ideas and proposals, while measures for operationalizing the quality of ideas, such as relevance, feasibility and novelty of ideas, play a rather minor role. Certain design features have also been found to have an impact on funding success (Feldmann et al. 2014; Jovanovic et al. 2017). Beside the investigations that seek to identify the influencing factors on funding success, other research papers investigate in which way the funding phase of ICF works as prediction-market for identifying the best ideas (Feldmann et al. 2013; Feldmann et al. 2014).

Until today, there are only, as the above introduction pictures, a handful of research papers. These research endeavors constitute a first and promising step in better understanding this phenomenon. However, research on ICF is still extremely limited and far away from profound. That is why Simons, Kaiser, and vom Brocke (2019) state that academic research on ICF is still in its infancy and that is why these authors emphasized that more research is needed to better understand ICF. In particular, there are no research papers that investigate the phenomenon from the perspective of employees who propose ideas and later, in case of reaching the funding goal, execute projects (Simons/Kaiser/vom Brocke 2019). In this regard, there are important questions that remained unanswered until today. For example, there are no empirically validated insights concerning the psychological effects ICF might have on these employees. Muller et al. (2013) are the only scholars who provide a first hint in this regard by proposing that ICF might trigger psychological effects inside employees when they have a say in project management. Also, by which further factors these psychological effects are caused and which impact these psychological effects might have on the innovativeness of ideas and projects is not studied yet. My research aims to fill this gap and thereby contributes to a deeper and more fundamental understanding of the employees' perspective in ICF.

2.5 Empowerment[15]

Against the background of digitalization and the fast-moving changes in the environment, the concept of empowerment has regained importance in recent years. To be competitive in today's environment, companies need access to the expertise, ideas, and creativity of all hierarchical levels within the company. Companies can achieve this by enabling their employees to increase their own initiative. The aim is to ensure that employees serve the collective interests of the company (Spreitzer 2008). In this context, empowerment describes *"[…] any increase in worker power (through, for example, increased formal authority or greater access to more useful information) that enables workers (and, collectively, the organization) to achieve institutional objectives with greater efficiency and effectiveness."* (Elmes/Strong/Volkoff 2005, 5)

Empowerment has been established as a construct within the research on work and psychology (Maynard/Gilson/Mathieu 2012). Two approaches have emerged that are widely pursued by researchers and practitioners alike: structural and psychological empowerment (Spreitzer 2008). While some researchers have merged the two concepts (Menon 2001), there is an increasing trend to consider the two concepts separately (Maynard/Gilson/Mathieu 2012; Spreitzer 2008).

Kanter (1977) introduced the concept of empowerment by developing structural ideas to decentralize power and authority in organizations. Accordingly, structural empowerment seeks to transfer the authority and responsibility from management to the employees through the design of work. The focus is on targeted change and adaptation of organizational structures. Along these lines, employees seek improved freedom to act and make decisions with the help of structures, policies, and practices, as well as better access to information, resources, and development options (Kanter 1977; Spreitzer 2008).

These changes in organizational structures are implemented in companies, for example, through the use and introduction of more traditional forms such as job enrichment, job enlargement, job rotation or semi-autonomous groups or more modern forms such as

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new work initiatives and agile methods (e.g., Scrum, Kanban, Extreme Programming, DevOps, Holacracy, Design Thinking, innovation garages) (Schermuly 2019a) or, as in this case, ICW. All these measures provide employees with better access to needed resources, information, and support. In this way, employees at all hierarchical levels are empowered to make decisions in their workspace and about their work themselves (e.g., when and how to do the work) (Spreitzer 2008). One criticism of structural empowerment is that, because it focuses on organizational structures and practices, it considers the individual or the employee only to a limited extent. This is where psychological empowerment comes into action (Spreitzer 2008).The conceptualization of psychological empowerment concentrates on the employees' perceptions and the cognitive states resulting from organizational conditions (Maynard/Gilson/Mathieu 2012), for example, the individual experiences and motivational aspects of employees (Schermuly 2016). According to Conger and Kanungo (1988), empowering organizational structures increases an employee's initiative and motivation, as feelings of self-efficacy are generated through them. Accordingly, Bandura's (1978) theory of self-efficacy expectations forms the basis of the considerations on psychological empowerment. Thomas and Velthouse (1990) define psychological empowerment as a cognitive state that can be described by the four dimensions that influence work perceptions and thus intrinsic task motivation: meaning, self-determination, competence, and impact. This characterization is adopted by Spreitzer (1995), who defines psychological empowerment as a motivational construct.

Meaning refers to the interaction of work-related goals and an individual's values, beliefs, and behaviors (Hackman/Oldham 1980). *Competence* represents the self-efficacy expectation in the context of work and refers to the belief in one's own abilities to successfully master the work (Bandura 1989). *Self-determination* describes the feeling of autonomy and of being able to initiate and execute actions independently (Deci/Connell/Ryan 1989). *Impact* encompasses the extent to which an individual can influence strategic, operational, or administrative outcomes (Ashforth 1989). Combined, these four dimensions reflect an active orientation to one's role at work, in which an individual can and will shape her or his role and context. Moreover, the dimensions can be additively combined to produce an overarching construct of psychological empowerment (Spreitzer 1995).

Against this background, the organizational structures of the structural empowerment approach affect the way psychological empowerment is interpreted on an individual basis. Only by simultaneously incorporating both approaches is it possible to achieve the desired positive empowerment-induced effects (Spreitzer 2008). Figure 4 illustrates the model of empowerment that is well-established in research and explains the relationship between structural empowerment, psychological empowerment, empowerment-induced outcomes, and individual and organizational factors. Structural empowerment influences psychological empowerment, i.e., the structures influence the perception of empowerment. This relationship is moderated by individual (e.g., personality traits, motives) and organizational factors (e.g., size of organization). Thus, employees in similar work settings may be more or less psychologically empowered by the same empowerment practice. The desired outcomes (e.g., work performance, job satisfaction, innovation behavior) do not result from the application of structural empowerment practices alone; they only occur through the mediating effect of psychological empowerment (Schermuly 2019a).
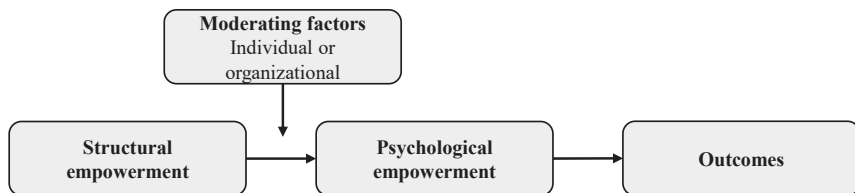
Figure 4:   **Theoretical Model of Empowerment**
Source: Simmert/Peters (2022) adapted from Schermuly (2019a)

In summary, the motivational construct of psychological empowerment is suitable for analyzing the perception of work since it reflects the employee's feeling of being able to successfully master a job that is meaningful to her/him on her/his own initiative and make an impact (Spreitzer 1995). Due to its innovative and digital form of work organization, value creation, and collaboration of employees in ICW, the previous experiences from empowerment research can only be transferred to a limited extent. Rather, it is important to think about empowerment from the very beginning and implement a systematic empowerment of companies and employees to exploit the full potential of such a digital form of work organization (vom Brocke et al. 2018). Thereby, the empowering process describes the changes, enablers, and mechanisms by which cognitions are influenced (Menon 2001). While empowerment research has been

examined in many contexts such as new work (Schermuly 2019b), leadership (Amundsen/Martinsen 2014; Schermuly/Meyer/Dämmer 2013) or agile software development (Tessem 2014), research on how ICW can realize empowerment is only limitedly existent.

3   Methodological Background

In section 3 of my dissertation, I explain the methodological background and my research strategy. As already stated in the introduction, my identified research challenges provide different types of questions, which must be answered with appropriate research designs and methodological approaches. In this context, the selected methods follow the RQs (Venkatesh/Brown/Bala 2013). At this point, I aim to lay the fundamental knowledge for the corresponding methods that I use in this dissertation. I describe the concrete application of the methods in the specific sections respectively in the corresponding studies.

One of the most important steps in developing a research design appropriate to the RQs is the selection of a suitable research methodology. Research methodology is the strategy of inquiry to answer the RQs specifically (Recker 2021). Three variants of approaches can be distinguished: quantitative, qualitative, and mixed-method strategies (Döring/Bortz 2016). The quantitative approach offers procedures for investigating RQs that are based on quantitative data ("numbers"). The collection of data involves, for example, experiments or surveys that are analyzed using quantitative data analysis techniques (e.g., descriptive, or multivariate analyses). The qualitative approach relies on approaches that focus on qualitative data and are oriented towards understanding phenomena in a real-life context (e.g., social, or cultural phenomena). Case studies or ethnographic studies, which often use interviews or observations. are conducted to collect data in this strategy based on a "word" focus. Mixed-method approaches combine and integrate quantitative and qualitative approaches, creating a focus on "numbers" and "words". The sequence of approaches can be either sequential or simultaneous and aims to deliver more robust results by combining the different approaches (Döring/Bortz 2016; Recker 2021).

Recker (2021) complements these approaches with design science methods. These provide procedures for the development and evaluation of innovative or novel artifacts. These artifacts can also include models, methods, and systems. Design science methods are characterized by a focus on the usefulness of the resulting outcome (e.g., artifact, method, model, or system).

Overall, I draw (to varying degrees) on all the described approaches in this dissertation. When looking at the four research approaches presented, it becomes clear that most of

them are particularly well suited for certain RQs. To address research challenge 1 and RQ1 and thus investigate the empirical knowledge on organizational agility, I use a mixed-method approach. For research challenges 2, 3, and 4 and the associated RQs 2, 3, and 4 and thus the exploratory investigation of ICW and ICF, I draw on exploratory case studies. For research challenge 5 and RQ5 and thus for creating a systematic process design for business model improvement, I use the DSR approach.

3.1 Mixed-Method Approach

To address research challenge 1 and answer RQ1, I used a mixed-method approach. Mixed-method research stems from the paradigm discourse around the relevance and value of qualitative and quantitative research approaches (Recker 2021). By combining and integrating qualitative and quantitative approaches, the mixed-method approach seeks to leverage the respective advantages of quantitative and qualitative approaches and their different data sources and types of data. Thereby, questions can be addressed, and problems can be solved that would not be possible using only one direction. Thereby, on the one hand, more robust and in-depth results can be obtained, and on the other hand, rather contrasting approaches, such as exploratory and confirmatory questions or theory-generating and -confirming approaches, can be considered together (Recker 2021; Venkatesh/Brown/Bala 2013).

This makes it possible to investigate aspects in which existing theories and existing results do not sufficiently explain the phenomenon in focus. In this context, the relationship between the quantitative and qualitative sub-studies plays a particularly important role. This means that for the application of mixed-method approaches not only is the methodological knowledge of qualitative and quantitative research necessary, but the methodological knowledge in the field of mixed-method research is also indispensable due to the use of dedicated mixed-method methodologies. At the same time, the data collection, data analysis, validation steps, and the merging of steps and results usually result in an increased effort for mixed-method approaches compared to single-track approaches (Döring/Bortz 2016; Venkatesh/Brown/Bala 2013).

There are several ways to combine qualitative and quantitative data. For example, one data basis can be used to check a second data basis regarding its accuracy or validity. Furthermore, it is possible that one data basis provides the explanatory context for another data basis and additionally investigates other questions. Furthermore, data bases

can build on each other or cross-fertilize iteratively (Creswell 2014). The combination of qualitative and quantitative approaches, and thus their integration, is possible at different levels or stages of the process (i.e., RQ, design of the investigation, data collection, data analysis). In this context, the qualitative and quantitative sub-studies are conducted in a dedicated mixed-method approach, parallel or sequentially, and related to each other (Döring/Bortz 2016).

Mixed-method studies can be designed deductively regarding the application of theory and thus be primarily theory-testing or theory-validating or inductively and thus be more theory-developing. In addition, it is also possible to collect, analyze, and integrate qualitative and quantitative data in a mixed-method manner so that the theory is directly anchored in a mixed-method approach (Creswell 2014).

In the IS field, mixed-method studies are often used in situations where existing theories and findings do not sufficiently and deeply explain or shed light on the phenomenon under investigation and where previous research is too fragmented and ambiguous. Mixed-method studies are particularly suited to provide a holistic understanding of the phenomenon of interest. Furthermore, mixed-method studies can address exploratory and confirmatory RQs within a study or investigation and thus generate and test theory simultaneously (Venkatesh/Brown/Bala 2013).

3.2 Case Study Research

Case study research is a research method widely used in the fields of social sciences and, for example, business administration. Case study research usually falls into the area of qualitative empirical methods and is now one of the most well-established methods in the IS field (Klein/Myers 1999; Recker 2021). Case studies are used for questions in which phenomena are reported and/or theories are described (theory building) or tested (theory testing). Possible result formats are thus theories, models, frameworks, or lessons learned (Robra-Bissantz/Strahringer 2020). Accordingly, the case study method examines (contemporary) phenomena or cases in their context, especially when the boundaries between context and phenomenon cannot be clearly delineated (Recker 2021). Case studies are often used to understand complex social phenomena about individuals in groups or organizations such as management or organizational processes and methods (Yin 2003).

The core advantages of the case study method are that phenomena (i.e., ICW) can be studied in their natural real-life setting and the state of the art in practice can be assessed. Thereby, theory can be generated that is based on a practical approach and the complexity and multidimensionality of, e.g., processes and behaviors, can be understood in depth (Recker 2021). Moreover, insights into emerging issues and challenges can be gained (Recker 2021), and the dynamics and interrelations within the case can be uncovered (Eisenhardt 1989). Case studies focus on the exploration of case dynamics (i.e., presentation and explanation of research subjects) and the verification or generation of theories (Eisenhardt 1989), including the formulation of questions, propositions, hypotheses, or constructs (Yin 2003). A theory-building focused approach is especially relevant in cases where only limited knowledge prevails. However, case studies can, at the very least, reveal missing aspects in theories, animate further research, or refine or fill in theories (Siggelkow 2007).

Thereby, the exploratory approach is particularly useful for emerging problems and challenges (Yin 2003). Explorative studies investigate a phenomenon in detail in relation to the underlying research interest, for example, to develop scientific hypotheses and theories. Explorative studies are often used in areas where only limited knowledge is available. The underlying RQs are often open-ended and are investigated with less structured qualitative research designs (Döring/Bortz 2016). An explorative qualitative study is particularly appropriate when it comes to the investigation of socio-technical elements and their dynamic interrelations and when emerging problems are considered (Yin 2003).

Single case studies are particularly suitable when new or previously hardly considered phenomena and challenges/problems are examined. If the cases are viewed from a broader perspective, the case study is considered to be holistic (Recker 2021). Furthermore, typical, respectively classic, manifestations or atypical, respectively extreme, cases can be analyzed in detail. Multiple case studies draw on several cases, whereby the case design of single and multiple case studies are based on the same methodological principles (Yin 2003). By using multiple case studies, researchers seek to promote the robustness of their results and achieve a high degree of generalizability (Recker 2021). Thereby, the choice of cases plays an important role. For example, each case should have a specific purpose in the research design (Yin 2003) so that several cases can be considered together and thus abstracted from the single case or individual

case studies can be analyzed separately and placed side by side (Döring/Bortz 2016). Data collection is primarily done using qualitative methods, although case studies can generally follow a qualitative, quantitative, or correspondingly mixed-method design. Within case studies, different data analysis and data collection methods can also be used and synergistically combined (Döring/Bortz 2016; Eisenhardt 1989). For theory generation, especially, an iterative procedure and data triangulation through different data collection methods play important roles to provide more robust results (Eisenhardt 1989).

The process for theory building focuses on a procedure of cycling between the data, the evolving theory, and the existing literature (Eisenhardt/Graebner 2007). Thereby, drawing on and comparing the findings with the existing literature can constitute an important factor, especially in comparison to similar findings (e.g., a theory can be strengthened by similar and related constructs) and/or counterintuitive findings and the question of why these findings emerge. Thereby, novelty, evaluability, and empirical validity can be assumed as strengths of the theory arising from case study research and its grounding in empirical evidence. This makes it particularly suitable for new research fields, in which existing approaches and theories either appear inadequate or do not yet exist due to the novelty of the research field (Eisenhardt 1989), the research phenomenon has not yet received the appropriate attention in the literature to date, the existing knowledge can be described as rather vague, or the results are ambiguous (Eisenhardt/Graebner 2007).

3.3 Design Science Research

DSR originates from the idea of supplementing IS research with a more design-oriented paradigm (Recker 2021). The starting point of DSR-based solution approaches are problems, requirements, and needs from practice that connect components around the employees, the organization, and the entrepreneurial tasks and technologies (Hevner et al. 2004; Robra-Bissantz/Strahringer 2020). The solution to such problems is addressed in DSR using novel and innovative artifacts (Hevner et al. 2004). In particular, these are designed to be useful (Peffers et al. 2007), apply existing knowledge, and generate new knowledge (Baskerville/Kaul/Storey 2015). Artifacts describe solutions that do not exist naturally but are constructed by humans. The focus is not on the execution of process steps but rather on the artifact itself (Recker 2021). Thus, artifacts can also be the target of research that does not represent an instantiation, but rather they are, for example,

procedures, principles, or methods for design (Robra-Bissantz/Strahringer 2020). Thereby, five artifact types can be distinguished: constructs, models, methods, instantiations, and design theories, such as design processes or improved design models (Gregor/Hevner 2013; Recker 2021).

There are different ways to develop or design such artifacts, but DSR can generally be described as iterative and incremental (Baskerville/Kaul/Storey 2015). An established process is shown in the approach of Peffers et al. (2007) (see Figure 5). The authors describe a six-phase process that is normally structured and runs through sequentially, although it should not be assumed that it always begins with phase 1. Depending on the problem and the initial situation, it may also make sense to start with one of the other phases.

According to Peffers et al. (2007), phase 1 deals with problem identification and motivation. This involves identifying the research problem, including the state of knowledge and the relevance of the problem, and identifying the value of the solution. This provides the basis for the researcher's further argumentation towards the intended solution. Phase 2 deals with the definition of the objectives of a solution. In this phase, the objectives of the targeted solution are derived from the definition of the problem and the knowledge extracted about it. The objectives can be quantitative or qualitative in nature and can be rationally derived from the existing knowledge about the problem. In phase 3, design and development, the artifact is created. As described earlier, artifacts can potentially be constructs, models, methods, instantiations, or design theories (Gregor/Hevner 2013; Recker 2021). This third phase includes both the definition of functionalities and the structure of the solution as well as the actual development of the artifact. In phase 4, demonstration, the artifact is applied to solve the identified problem or different cases of the problem. For this purpose, suitable activities, such as case studies, experiments, or simulations, are used, from which knowledge about the application of the artifact or the solution of the problem can be gained. In phase 5, the evaluation, the quality of the artifact is checked regarding the problem solution. For this purpose, a comparison is made between the defined goals of the solution and the actual problem solution achieved by the artifact by means of appropriate criteria. Depending on the problem area and the artifact, both quantitative (e.g., production figures or budgets) and more qualitative findings from simulations, observations, and surveys can be used. According to the results, researchers can then decide whether to improve the

artifact and thus jump back to phase 3, design and development. In phase 6, the final communication, the artifact, including the underlying problem, is communicated regarding its innovativeness and usefulness. Aspects related to the rigor of the design also play a role here (Peffers et al. 2007).

If the approach is generally problem-centered, the procedure, as presented here from phase 1 to phase 6 is preferred. If it is a solution-centric approach, the procedure begins with phase 2. Accordingly, a design and development-centered approach begins with phase 3 and a client or context-initiated process, e.g., by observing a suitable solution, with phase 4 (Peffers et al. 2007).
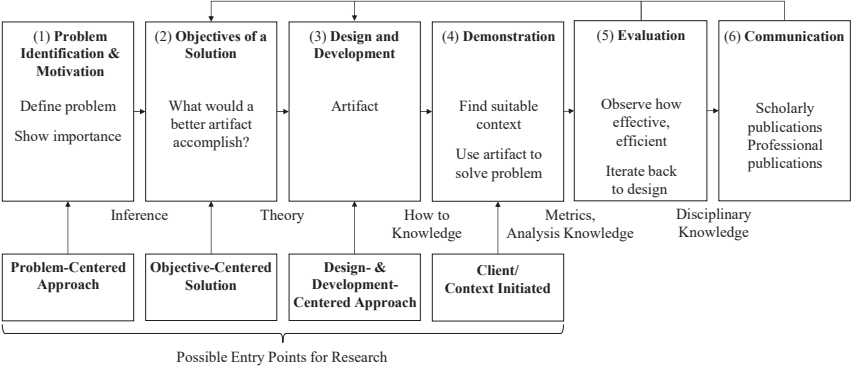
Figure 5:   **Design Science Research Process**
Source: Adapted from Peffers et al. (2007, 48)

Having the theoretical and methodological foundations of the dissertation in mind, in the next sections, I present the six selected studies and their results to answer the RQs raised. Within these studies, I explain the application of the methodological approaches and research strategies and elaborate on the additional theoretical and conceptual foundations relevant to each study.

4 State of the Art and Trends of Organizational Agility in the German-speaking Region[16]

4.1 Introduction

Section 4 deals with RQ1, which examines organizational agility from an empirical stance and represents the starting point for the research process of my dissertation.

RQ1   What is the state of the art of organizational agility in practice?

The field of IT and software development has developed agile concepts for many years now to deliver user-centered solutions (Alt et al. 2020). Research has already shown that IS and IT are essential success factors for organizational agility and agile transformations (e.g., Tallon et al. 2019). Nevertheless, there has been a lack of robust empirical figures, data, and facts on the state of organizational agility in practice. Therefore, this section uses a mixed-method design (top management executive interviews and survey of employees and leaders from the German-speaking region) and investigates the relevant factors of organizational agility, the current status quo, and recent developments. Thereby, this study provides figures, data, and facts on the state of organizational agility and perceptions in practice, as well as concrete procedures, approaches, and practices from the field that assist companies in their endeavor of becoming more agile. Using these data, potential future IS research is shown in the areas structure and organization, leadership, employee-centricity, and customer and user orientation.

This section is structured as follows: First, I explain my research strategy. Subsequently, I describe my findings (including facts, figures, and data) and the insights of top management executives, and show the procedures, approaches, and practices used. Building on the findings, I derive the corresponding future IS research, before coming to the contributions and limitations of this study.

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[16] The study presented in this section is partly based on the research I conducted as part of the Future Organization Report 2019 and 2020 (Peters et al. 2019; Peters et al. 2020). I thank my collaborators for the valuable feedback on my work.

4.2 Research Strategy

To address the recent developments of organizational agility and the corresponding approaches from a holistic viewpoint, my research design is based on two sequentially mixed-method studies with the purpose of expansion (Venkatesh/Brown/Bala 2013). This research design is defined using qualitative and quantitative approaches, whereby results from previous (in my case: qualitative) research steps inform the next research steps (in my case: quantitative) to expand the understanding of the phenomenon (Venkatesh/Brown/Bala 2013). This procedure provides robust insights by conquering the limitation of a single method (Ivankova/Creswell/Stick 2016; Teddlie/Tashakkori 2003). Given the little empirical research that shows what it takes to become or to be an agile company (Harsch/Festing 2019; Walter 2020), a mixed-method design is well suited to my work in understanding and determining the state of the art of organizational agility in companies in the German-speaking region (Germany, Austria, Switzerland). In this way, the mixed-method approach can be used to provide a holistic perspective on the topic, enabling in-depth insights into the interrelationships within organizational agility in practice (Venkatesh/Brown/Bala 2013). I conducted two mixed-method studies (study 1 in 2019 and study 2 in 2020) that complement each other regarding the state of organizational agility. I collected data from the interviews with top management executives and online surveys with employees and leaders both years (see Figure 6).
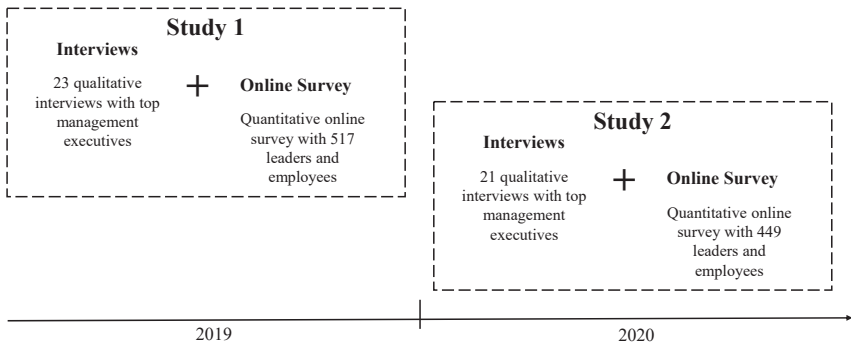
Figure 6:   **Sequential Mixed-method Design in Two Studies**
Source: Own Illustration

4.2.1 Data Collection and Analysis – Study 1 (2019)

Qualitative data collection and analysis. In my first elicitation in 2019, I conducted 23 semi-structured interviews with top management executives (i.e., CEOs, CIOs, Directors, etc.) responsible for organizational agility or the agile transformation in their companies located in the German-speaking area. Building on insights from scientific and practical literature on organizational agility, the focus of the 2019 activities were: generating a status quo regarding organizational agility, workforce agility, leadership and governance, employee-centricity, and performance measurement in companies (see qualitative interview protocol 2019 in Appendix A.1). Each interview lasted about 60 minutes and was held between February and May of 2019. With this, the strategic perspective of the top management and company-wide implementation could be examined across different industries. Table 2 provides detailed interviewee-information.[17]

The interviews were transcribed verbatim, coded, and analyzed following the qualitative content analysis approach of Mayring (2014) using the analysis software MAXQDA. In addition, in the sense of data triangulation, further materials provided by the interviewees and their companies were analyzed and included in the data evaluation. To ensure a comprehensive representation of the state of organizational agility, I resorted to a parallel evaluation system. On the one hand, the data was analyzed deductively using the categories from the literature; on the other hand, however, the data was also analyzed inductively to highlight the explorative aspects from the interviews (Mayring 2014).

Quantitative data collection and analysis. In the second part of my study in 2019, I involved statistical elicitation. Based on the identified topics and the insights from the interviews with the top management executives, I conducted a quantitative online survey on the perception of work of 517 employees and leaders from May to June 2019. I collected data from employees and leaders who were already engaged in agility and had direct experience with agility. The sampling was supported by a market research institute. The duration of the survey was about 15-20 minutes. I analyzed the data using a descriptive approach with SPSS to quantitatively verify and corroborate the insights from interviews. Established and validated scales (i.e., organizational agility, top

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[17] To enable a comprehensible and clear identification of the interviewees, the cases of this state-of-the-art study are marked with the abbreviation SotA.

management support, empowering leadership, workforce agility, psychological empowerment) were used to consider the state of organizational agility in my online survey. All items were rated on a 7-point Likert scale from 1 (= strongly disagree) to 7 (= strongly agree) and showed satisfactory reliability values in my survey (Cronbach´s alpha .83 to .95). For the selection of valid data sets, I checked the processing time and careless responder (Huang et al. 2012; Johnson 2005; Meade/Craig 2012). I considered the level of agreement to be high if the participants answered with a 7 (= strongly agree) or 6 (= agree) on the number scale. After data cleaning, 517 datasets could be obtained and used for further analysis (see Table 3 and Appendix A.3, A.4, A.5 for further details on my sample).

4.2.2   Data Collection and Analysis – Study 2 (2020)

Qualitative data collection and analysis. Based on the insights gained in 2019, from February to June 2020, I set up my second main study and again conducted 21 interviews with top management executives (each approx. 60 minutes). I was able to interview ten interviewees of the first survey again and thus gained a comprehensive insight into their further development within one year. In addition, I conducted eleven further interviews with new top management executives from the German-speaking region (see Table 2). On the one hand, I used topics that I examined over time, and which represented the changes in the state of the art (i.e., organizational agility, workforce agility, empowerment, etc.), and on the other hand, I included new topics and areas of investigation that proved to be highly relevant in the first study (i.e., agile mindset, customer and user orientation, etc.). Along these lines, the range of topics was once again expanded. Complementing this, I again added organizational agility, workforce agility, and employee-centricity to further expand my knowledge on these topics (see qualitative interview protocol 2020 in Appendix A.2). I used the same sample techniques to collect my interview data and further materials from the interviewee companies regarding the interview topics. The interviews were transcribed verbatim and, together with the company material, coded and analyzed according to the qualitative content analysis approach of Mayring (2014) by using the analysis software MAXQDA.

Quantitative data collection and analysis. I also incorporated the newly gained insights from the first main study in 2019 and the findings from the interviews in 2020 into the preparation of the quantitative survey in 2020. Along these lines, I also re-

surveyed some quantitative survey constructs and exchanged others. From May to June 2020, 449 leaders and employees took part in my online survey (duration 15-20 minutes). As I did in 2019, the sampling was supported by a market research institute based on the same criteria as in 2019. Along with that, the samples of the population were not necessarily identical in the 2019 and 2020 studies. Nevertheless, the sample structure was very similar (see Table 3 and Appendix A.3, A.4, A.5 for further details on my sample). After cleaning the data, I descriptively analyzed them with SPSS. To investigate organizational agility, empowerment, workforce agility, and performance over time, I relied on identical scales like in 2019, which were already validated. To further expand the state of the art regarding organizational agility, based on my research insights before, I added customer orientation and corporate environment as new constructs in my online survey.[18] Therefore, I used already validated scales, which also showed satisfying a Cronbach's alpha (between .79 and .92) in my study.

Based on my research design, I was able to gain expanded insights into the state of the art of organizational agility and important developments based on my consecutive research design (expansion approach), different perspectives (top management executives, leaders, and employees), and the different points in time of the results. The findings obtained from qualitative interviews are labeled with the respective year *2019 and *2020.

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[18] I measured organizational agility by the scale of Tallon and Pinsonneault (2011) with eight items (e.g., "How easily and quickly can your firm perform the following actions? Respond to changes in aggregate consumer demand."). Furthermore, I focused on the agility of the workforce by using the scale of Muduli (2017) with seven items (e.g., "I am comfortable with change, new ideas, and new technologies in my organization."). Top management support has been mentioned in literature and the interviews as relevant for agile transformation. To capture this statistically, I used the scale of Hazen et al. (2017) and adapted the subject regarding agile approaches, structures, and methods (e.g., "Influential people in this organization believe that agile approaches, structures, and methods should be used"). Along with that, the role of leadership and empowerment could be identified as critical. I therefore used the scales empowering leadership by Amundsen and Martinsen (2014) with 18 items (e.g., "My leader gives me authority over issues within my department") and psychological empowerment by Spreitzer (1995) with twelve items (e.g., "The work I do is very important to me."). Customer and user orientation, as a relevant variable for organizational agility, is assessed by the scale of market orientation by Deshpandé and Farley (1998) with four items (e.g., "I believe this business exists primarily to serve customers"). Finally, I measured corporate environment by the scale of Lewis and Harvey (2001) with four items (e.g., "How predictable do you estimate the following aspects regarding your company environment: Product demand").

No.	Gender	Position/ Job title	Industry	2019	2020
1	m	CIO – Chief Information Officer	Service	x	
2	m	CTO – Chief Technical Officer	IT	x	
3	m	CPO – Chief Product Owner	Transport	x	
4	m	Director Digital Transformation	Mechanical engineering	x	
5	m	Head of Central Engineering	Mechanical engineering	x	
6	m	Head of Project Integration	Mechanical engineering	x	
7	m	Director Corporate Development	Transport	x	
8	m	Member of the Management Board	Service	x	
9	m	Executive Advisor for Agility	Tourism	x	
10	m	COO – Chief Operation Officer	IT	x	
11	f	Lead Digital Change	Mechanical engineering	x	
12	m, f	Director Organizational Development, Director Human Relations	Banks, Insurance	x	
13	m	Director New Digital Ventures	Mechanical engineering	x	x
14	m	CEO – Chief Executive Officer	Service	x	x
15	m, m	Managing Director, Head of Operations	Health	x	x
16	m	CEO – Chief Executive Officer	Transport	x	x
17	m	Head of Organizational Development	Consumer goods	x	x
18	m	CIO – Chief Information Officer	Mechanical engineering	x	x
19	m	Leader Change Management	Conclomerate (Technology, Electrics)	x	x
20	m, m	Director Agile Transformation, Head of Agile Transformation	Banks, Insurance	x	x
21	m	Head of IT and Business Transformation	Transport	x	x
22	m	Head of Product	Consumer goods	x	x
23	m, m	Director Corporate Organization, Director Culture, Change and Org. Dev.	Health	x	x
24	m	CTO – Chief Transformation Officer	Service		x
25	m	Agile Transformation Coach	Service		x
26	m	Chief Revenue Officer	IT		x
27	m	Manager Steering, Quality and Agile Master	Automotive		x
28	m	CIO – Chief Information Officer	Transport		x
29	f	Director, Chief of Staff	Banks, Insurance		x
30	m	CIO – Chief Information Officer	Health		x
31	f	CEO – Chief Executive Officer, Trainer	Communication		x
32	m	Head of Digital Strategy	Communication		x
33	m	CIO – Chief Information Officer	IT		x

Table 2:   **Interviewees SotA Organizational Agility**
Source: Own Illustration

Sample structure	2019	2020
Participants	517	449
Average age	Approx. 41 years	Approx. 43 years
Gender	68.7% male; 30.9% female; 0.2% diverse; 0.2% no answer	67% male; 32.5% female; 0.4% diverse
Industry	Primarily from services (18.6%) and IT (11.8%)	Primarily from service (18%) and IT (14%)
Department	IT (22.8%)	IT (15.8%); Sales (11.8%)
Number of employees	Many participants (23%) work in companies with 1-100 employees	Many participants (16.7%) work in companies with 1001-5000 employees
Length of service	Many participants have been working for their current company for a longer period. 5-10 years (23.6%); 10-20 years (21.9%)	Many participants have been working for their current company for a longer period. 5-10 years (25.2%); 10-20 years (22%).
Role	62.6% employees with leadership responsibility; 37.4% employees without leadership responsibility	61.7% employees with leadership responsibility; 38.3% employees without leadership responsibility
Country	Germany (64.6%); Switzerland (15.1%); Austria (18.2%); others (2.1%)	Germany (63.3%); Switzerland (19.8%); Austria (14.7%); others (2.2%)

Table 3: **Sample Structure SotA Organizational Agility**
Source: Own Illustration

4.3 Findings

I clustered my findings in four main areas of organizational agility namely (1) structure and organization, (2) leadership, (3) employee-centricity, and (4) customer and user orientation. In the following, I briefly describe these areas and provide insights into the findings and relevant opportunities for IS research.

4.3.1 Structure and Organization

Following, I show the reasons for introducing agile procedures from the perspective of top management executives and demonstrate how employees and leaders assess the agility of their company (organizational agility). Furthermore, I show to which extent agility can contribute value and how companies struggle with key performance indicators to measure the value contribution of agility. Moreover, I describe organizational structures, procedures, approaches, and practices companies use to become more agile.

Organizational agility. Top management executives consider an organization to be agile if it adapts quickly and flexibly to the market and customers and acts transparently. 25% of employees and leaders reported that the agile transformation started with a

complete rollout at a defined time. 75% of them stated that the agile transformation was introduced area by area (often starting from the IT department). Regardless of the method of implementation, my findings showed that it is highly relevant to pursue the implementation consistently and sustainably (*2019). Top management executives described the reasons for introducing agility as follows: (1) increasing complexity, uncertainty, and dynamics of markets; (2) pressure to innovate, which requires digital solutions; (3) the need for faster product and business model development; (4) reducing the product development risk; and (5) addressing customer requirements faster and better (*2019).

> *"What matters is the journey, not the destination. We use agility in an environment that has uncertainty, little predictability, and a high speed of change." (Interviewee 23, SotA 2019)*

Therefore, organizational agility is no longer just a trend in the work organization of companies. For top management executives, organizational agility has become a fundamental facet of work organization and underlying patterns of thought and behavior in the future. Top management executives attribute this development mainly to the digital transformation as an accelerator in the corporate environment, which requires a new mindset and behavior. In this respect, top management executives identify employee empowerment, personal development of employees, and more flexible working practices as opportunities of organizational agility (*2020).

More than a third of the employees and leaders (40.8%) in the 2020 survey (*2019 survey: 27.5%) rated their company's agility as high ("agree" and "strongly agree"). This means that, according to their own perception, they can act in a customer-oriented manner, react quickly to changing customer and user behavior, adapt quickly to new market conditions, and change their products and services or even technologies and suppliers. In the 2020 survey, the employees and leaders surveyed rated their company's agility with a 5.5, on average. In the 2019 study, the average of the sample was 4.7. Looking at sub-aspects of organizational agility (see Figure 7), in the 2020 survey, 69.1% (2019: 53%) of employees and leaders indicated that their company easily and quickly adapts products or services to an individual customer; 66.9% (2019: 48.3%) react to new services or products of the competition; 63.7% (2019: 48.5%) adopt new technologies to produce or provide services better, faster, and cheaper; and 64.1% (2019:

42.1%) respond to changes in overall consumer demand. On average, employees and leaders rated the corporate environment as moderately predictable (3.57).

Organizational agility - How easily can your firm perform the following actions?

Action	2019	2020
Respond to changes in aggregate customer demand.	4,91	5,64
Customize a product or service to suit an individual customer.	5,31	5,82
React to new product or service launches by competitors.	5,21	5,67
Introduce new pricing schedules in response to changes in competitors' prices.	5,08	5,43
Expand into new regional or international markets.	4,70	5,1
Change (i.e., expand or reduce) the variety of products/services available for sale.	5,01	5,38
Adopt new technologies to produce better, faster and cheaper products and services.	5,21	5,66
Switch suppliers to avail of lower costs, better quality or improved delivery times.	5,06	5,35

■ 2019   ■ 2020   1: Strongly disagree; 4: Neither agree nor disagree; 7: Strongly agree

Figure 7: **Organizational Agility Numbers**
Source: Own Illustration; Items adapted from Tallon/Pinsonneault (2011)

Companies use different organizational designs, including organizational structures and forms of work organization, to achieve agility and competitive advantages (Worley/Lawler 2010). Developing such a suitable organizational design represents a challenge for companies (Wendler 2016). Organizational design describes how organizational structures and processes are organized and how work is executed and orchestrated (Holotiuk/Beimborn/Jentsch 2018). To answer the question of which organizational structures and approaches promote organizational agility (Verhoef et al. 2021), I was able to cluster practices and approaches into five areas: (1) organizational structure, (2) work organization, (3) agile methods and frameworks, (4) agile practices, and (5) business model innovation.

4.3.1.1 Organizational Structure

Organizational structure represents a key enabler for agility (Teece/Peteraf/Leih 2016). Overall, most organizations strive for flat hierarchies when assigning decision-making authority and responsibilities to employees (*2019). In practice, changes to the organizational structure of companies often take the form of comprehensive change processes that are either unit-specific, for example in the IT area (i.e., IT operating model - value center organization and IT service organization), or unit-linking (value stream organization). Increasingly, unit-specific change processes in the organizational structure are used as a pilot or initial introduction (i.e., agile lighthouse projects for scaling) of the structures and scaled from there. In some cases, entire divisions (i.e., periodic restructuring) are also structurally adapted. The goal of the change processes around the organizational structure is usually a stronger customer and user orientation and improved collaboration within the affected areas or across departments. Table 4 provides insights from top management executives into concrete structural change processes in companies.

Name	Description	Objective
Periodic restructuring	Every 18 months, the entire company (including structures and roles) is restructured to adapt to new requirements (Case 2).	Customer and user orientation
Value stream organization	In a matrix organization, cross-divisional teams receive end-to-end responsibility "from order to cash" for customer and user orders. In dailies, the order status is determined across teams, and problems are discussed (Case 15).	Customer and user orientation, cross-functional collaboration
Value-centered organization	Parent units (max. 150 employees) orchestrate teams (8-10 employees) that work on customer and user projects in short iterations based on agile methods. Transversely, a chapter organization provides resources for the teams and offers employees an organizational affiliation (Case 19).	Customer and user orientation
IT service organization	A service catalog illustrates the business processes of IT. Cross-functional teams (8-14 employees) bear full responsibility for 3-4 IT services. Teams network to offer overarching solutions or combined services (Case 18).	Business process efficiency, cross-functional collaboration
Agile lighthouse scaling	Agile transformation starts in pioneer areas or departments, which start working successful in an agile way. Starting from this, agile procedures and ways of thinking are scaled (Case 30).	Scaling, cross-functional collaboration

Table 4:   **Organizational Structure**
Source: Own Illustration

4.3.1.2 Work Organization

Agile forms of work organization enable rapid and flexible adaptability and innovation using agile techniques, routines, and courses of action (Park/El Sawy/Fiss 2017) as well

as the orchestration of the people, structures, and processes located within the organization (see Table 5). Hybrid forms of work organization that combine traditional and agile ways of working (Mrass/Peters/Leimeister 2021) as well as autonomous and self-organized teams play an important role in the work organization of companies. These teams are implemented independently of methods or tools and equipped with the necessary skills. The focus is particularly on cross-functional collaboration with a view to customer and user orientation. In addition, hybrid work organizations play a role, which attempt to systematically connect the interfaces between the agile-operating and traditional areas or customers. The company-wide prioritization of tasks (i.e., organizational backlog) and the release of employees to work on their own ideas in the company context (i.e., business development time) is an additional factor for value orientation and the empowerment of employees in the work organization area.

Name	Description	Objective
Hybrid work organization	Hybrid collaboration between agile and traditional approaches in internal settings (non-agile departments) (Case 27) and external customers and users (Case 26).	Customer and user orientation
Business development time	For business development, employees receive the opportunity to invest a certain amount of their regular working time to test and validate business-related ideas (Case 24).	Business model innovation
Organizational backlog	Topics, tasks, and problems are collected in an organizational backlog, which are prioritized regularly (with the management board) and processed iteratively (e.g., by cross-functional teams) (Case 22, 24).	Transparency, value orientation
Autonomous and self-organized teams	Autonomous and self-organized cross-functional teams work on (cross-divisional) projects, problems, tasks, etc. for a limited period (Case 9). - Teams with the role's product owner (product responsibility), agility master (process management responsibility), and implementation team (responsibility for the way the product/service is delivered) (Case 7). - To consider business aspects, teams combine competencies from business, development, and operations (Case 6). - Teams assemble themselves independently (Case 16, 20). - Teams draw projects from an organizational backlog (Case 22).	Cross-functional collaboration, customer and user orientation, empowerment

Table 5:   **Work Organization**
Source: Own Illustration

4.3.1.3 Agile Methods and Frameworks

Probably the most popular option to foster agile transformation and organizational agility is to introduce and use agile methods and frameworks that go beyond their application in software and IT domains (Gerster et al. 2020). The most widespread identified agile methods and frameworks are outlined in Table 6. Companies adapted

my identified methods individually to fit their own context in almost all cases and used parts of the methods separately from the actual application and beyond the individual areas of the companies. The objectives of the application associated with the use of the methods also differed in almost all cases from the textbook application and depended on the individual objectives of the company. Frequently, the focus was on accelerating value-based (cross-functional) collaboration.

"Kanban boards are now hanging in all departments, and people can visualize on their own responsibility what they are doing or where they stand." (Interviewee 9, SotA 2019)

Name	Description	Objective
Scrum	Scrum is used as a framework in project and product management for the development and delivery of complex products. It relies on a lightweight and incremental approach in short iterative phases (Case 1, 2, 5-10, 12, 13, 15, 17-29, 32).	Customer and user orientation, short time to market, speed
SAFe	SAFe is used as a framework for scaling scrum (Case 2, 8, 20, 21, 32).	Cross-functional collaboration, scaling
Disciplined Agile	Disciplined Agile is used as a hybrid approach that combines different agile techniques, approaches, and methods (i.e., to complement Scrum) (Case 20).	Customer and user orientation, short time to market, speed
Kanban	Kanban is used as a method of work organization for a continuous and structured workflow, in which tasks are divided into smaller steps and processed according to the pull principle (Case 2, 5-8, 13, 17, 22-24, 27, 28, 32).	Mindset, fast processing times
Design Thinking	Design thinking is used as an approach for customer-centric and iterative problem solving and developing new and innovative ideas (Case 6, 10, 17, 26).	Innovativeness, problem solving, creativity
DevOps	DevOps is used as an approach to collaboration and integration of development and operations (i.e., in the fields of IT and software) (Case 6, 7, 15, 18, 20, 30).	Speed, cross-functional collaboration

Table 6:   **Agile Methods and Frameworks**
Source: Own Illustration

4.3.1.4   Agile Practices

Agile practices are small-scale tools that are partly extracted from agile methods and frameworks and used for agile collaboration beyond their application context in the methods and frameworks (see Table 7). A well-known example is the sprint. Many companies work in sprints to work iteratively in a time-bound manner and to direct the focus towards certain aspects during this time. The objectives of these agile practices are very heterogeneous, depending on their use.

Name	Description	Objective
Impact mapping	Impact mapping is used as a strategic planning technique to align employees around a common business goal (Case 5, 9).	Value orientation
Standup meetings	Standup meetings are used as time-limited meetings of teams, departments, etc. to ensure a regular exchange and operational planning (beyond scrum) (Case 8, 17, 19).	Efficient workflow, problem solving
Retrospectives/ Feedback meetings	Retrospectives are used as team meetings where reflection on previous tasks and processes serve as an opportunity to learn and improve collaboration (Case 2, 5-7, 9, 13, 17, 19, 20, 22, 24, 27, 28, 32, 33).	Continuous improvement, collaboration, mindset
Sprints	Sprints are used as time-bound iterations to work on predefined tasks and projects (on team, department, or company level) and beyond the application of scrum (Case 1, 5, 6, 8, 9, 12, 13, 17, 19, 20, 23, 24, 26, 27, 33). To synchronize agile and traditional units, sprints start at the same day across departments or companies (Case 18).	Efficient workflow, cross-functional collaboration
Iterative approaches/ Prototyping	Prototyping and iterative processes for the creation of, e.g., MVPs or mock-ups (Case 4, 6, 8, 10, 17, 20) are used to receive early feedback from the stakeholders and users involved (Case 1, 5, 13, 16, 18, 19, 22, 23, 26, 28).	Customer and user orientation, value orientation
Open house feedback	Project owners talk about their projects in sessions that are freely accessible to all employees to receive feedback and communicate the project status (Case 19, 29).	Commitment, empowerment, transparency
Hypotheses team-workshops	In workshops, hypotheses regarding customers' needs and possible solutions are developed, which are questioned and validated in teams of three employees (Case 18).	Transparency, value orientation

Table 7:   **Agile Practices**
Source: Own Illustration

4.3.1.5 Business Model Innovation

Continually rethinking and improving business models is crucial, especially for established companies (Simmert et al. 2019). Top management executives stated that agile transformations offer the opportunity to improve and innovate business models. Agility, an agile work organization, and a digital transformation can enable companies to improve existing or completely new business models, which is not usually possible when applying traditional approaches. This includes faster product and service development and their subsequent implementation. Agile approaches promote connectivity to innovative business models that require rapid responses to customer requirements. Thereby, organizational agility supports faster testing and, if necessary, the adaptation of business models.

> *"We deal strategically with potential and future relevant business models. We subsequently experiment with these more quickly on a smaller scale." (Interviewee 22, SotA 2020)*

Top management executives considered key performance indicators (KPI) and the measurement of the value contribution of organizational agility to be of great added value. Metric measurements are difficult because the transformation is still in progress or the KPIs do not exist and those that adequately cover organizational agility had not yet been developed. Customer feedback was, therefore, a decisive measurement value (*2020). Further existing success measurements were employee and customer surveys; value-driven goals as a criterion for success; conceptual work that does not reach the customer; time from the idea to execution; relationship be-tween process, overhead, and realization effort; and ratio of products sold vs. how many discontinued products. Thereby, different KPI's were considered together so that an objective evaluation could be made and all participants in the learning process were considered (*2019).

To develop, improve, and innovate business models, companies are increasingly relying on venturing or incubation as part of and to improve agile and digital transformation processes (Teece/Peteraf/Leih 2016; Verhoef et al. 2021) (see Table 8). The motive is to extract innovative ideas, products, and services outside of the often traditionally inclined and rigid structures and to develop them in innovative environments with motivated employees. In doing so, companies rely either on ideas from employees (employee-driven), external founders, and startups or they pitch, for example, the problems of the company to interested employees (company-driven), who then take on these problems and work in internal startups, drawing on the network advantages of the parent company in incubators or accelerator programs according to agile procedures.

Name	Description	Objective
From idea to operations (employee-driven)	Full time and outside the regular work schedule, employees receive the opportunity to develop their own ideas in a self-organized manner within the company (Case 10). Internal employees pitch ideas to receive a promotion/funding for 6 weeks as a kick-start (Case 7).	Ownership, business model innovation, employee motivation
Company builder (company-driven)	Internal ventures are founded within the company to identify new business models or market opportunities. - Venture shares are awarded to participants. After 3 years, the shares are converted to 5% to 10% of the ventures sales as a bonus for the individual employees. - In internal pitch days, company challenges are pitched to employees who take up problems in internal startups (Case 13). At least three new companies are founded each year to anticipate disruptive and new digital business models that could not be addressed so quickly in the traditionally-oriented company. The company holds 100% shares in core business relevant startups (at least half of all startups); in non-core business relevant startup, the company holds 20% shares (Case 4).	Business model innovation, problem identification, employee motivation, speed, innovativeness
Incubation of external startups	Integration of startups into companies' incubation. Startups receive infrastructure (e.g., tools or coaching) over 6 months and cooperate with the company and its employees (Case 23).	Business model innovation, innovativeness

Table 8: **Venturing and Incubation**
Source: Own Illustration

Corresponding future IS research. Due to their enormous experiences in designing digital forms of work (Richter et al. 2018), IS researcher can also help in designing agile forms of work organization, agile methods and frameworks, agile practices, business model innovation tools, and venturing and incubation fostering structures. This includes the support of agile forms of cooperation and the workforce through IT. The knowledge gained from the application of agility in software development must be transferred to other areas. Agile methods, processes, and structures can be improved using IT and made accessible to other areas. For example, the scaling of agile methods continues to be a challenge for companies, and research into the systematic scaling of agile methods and practices can help. In the area of business model innovation, IT-supported processes for the systematic improvement of business models can improve the rapid adaptability of companies to rapidly changing environmental conditions (Simmert et al. 2019). The development of technology-based KPIs for measuring the value of agility also plays an important role. The application and composition of KPIs in the context of agile transformation, as well as their suitability and use in the various phases of the transformation processes, require additional research. It is also important to consider how transformation processes influence the usefulness and application of performance indicators (Verhoef et al. 2021).

4.3.2 Leadership

Leadership and top management support play a major role in the entire agile transformation. I show the role of top management and leaders in agile settings and that empowering leadership is a suitable leadership style in agile contexts.

Leadership, as an instrument of goal achievement, represents an interaction between two or more individuals that involves changes in structures and perceptions of those individuals (Bass/Bassi 2008). Compared to traditional contexts, leadership changes in agile settings (Bonner 2010). Although pivotal to employee performance, within agile contexts and structures, there is limited research that addresses leadership (Xu/Shen 2015). A lack of readiness for change can also lead to problems at the level of top management executives. Particularly in the case of changes that are driven from the bottom up, top management that is not willing to change can lead to the non-implementation of initiatives that go beyond the team level (Dikert/Paasivaara/Lassenius 2016).

> *"Now employees and leaders have to meet at eye level, and that's a huge learning process for both of them." (Interviewee 19, SotA 2019)*

4.3.2.1 Top Management Support

In agile transformation processes, top management support is a necessity (Dikert/Paasivaara/Lassenius 2016). 57.9% of the employees and leaders stated that they perceive strong support from their top management in the agile transformation. The leaders (59.9%) and employees (54.5%) had a very similar perception of support from top management. A total of 34.4% of the employees and leaders stated that there is a pronounced awareness of the transformation process (everyone in their company knows or uses agile procedures, structures, or methods). The agile transformation process was identified as particularly challenging by the employees, leaders, and top management executives alike. In this context, top management executives emphasized the importance important not only to assure commitment and support to leaders but also for employees to feel the trust and support of top management. If this is not the case, there is a risk that agile transformation processes will be dismissed as short-term trends (*2019).

4.3.2.2 Empowering Leadership

The transformation to an agile organization entails the reduction of hierarchical levels and thus also the reduction of leadership roles in the traditional sense or the change of

the classic leadership role. According to the top management executives surveyed, leaders in an agile organization should empower employees, hand over responsibility, create freedom, lead in a value-based manner, question and challenge decisions and ways of thinking, and listen. The leader thus becomes a coach, advisor, and moderator, helping in structuring and prioritizing work (*2019). In personnel development, the leader takes on a coaching role to promote the important competencies and mindset of the employees and to create a corresponding culture and transparency (*2020).

In agile contexts and structures (with required creativity and proactivity and flat structures (Sharma/Kirkman 2015)), an empowering leadership style has proven to be appropriate in previous research (Xu/Shen 2015). This involves giving employees the responsibility and authority to allow them to make their own competent decisions (Conger/Kanungo 1988; Thomas/Velthouse 1990). Amundsen and Martinsen (2014) describe empowering leadership as follows:

> *"Empowering leadership is the process of influencing subordinates through power sharing, motivation support, and development support with intent to promote their experience of self-reliance, motivation, and capability to work autonomously within the boundaries of overall organizational goals and strategies."* (Amundsen/Martinsen 2014, 489)

33.9% of the employees and leaders stated that they perceive their leader as empowering. Their leader gives them responsibility and scope for decision-making, listens to them, discusses aspects of the work with them, supports them in achieving their goals, gives them a positive outlook on the future, encourages them to take the initiative, offers insights into their own work, and points out how their work can still be improved. The employees with (40.1%) or without (22.9%) own leadership responsibility assessed this differently. 62.3% of the employees and leaders said that they feel confidence from their leader. An empowering leader relies on the statements of the employees, accepts the employees' decisions, grants the employees' access to all necessary information, and delegates difficult tasks (*2019).

Frequently, leaders are afraid of losing control and have problems finding their way in their new leadership roles. To support leaders, some companies offer leadership training. To sharpen their understanding of problems and transparency, for example, department heads also take part in retrospectives. Moreover, I identified several leadership practices,

tools, and techniques that are used in companies to promote both top management support and leadership in agile contexts and structures and agile transformation processes. In many approaches, the focus was on transparency so that the employees could participate in decisions and procedures. The primary goal is to prepare employees deal with the challenges associated with agility and to understand agile approaches. Leaders are evolving from decision-makers to enablers. Thereby, it is important to set an example and exemplify an agile mindset. Agile coaching and feedback from employees and teams has become established, with the primary focus on the further development of employees. Employees and teams should be offered exactly the right level of guidance and support (see Table 9).

Name	Description	Objective
Top management prioritization process	Monthly key release trains (cross-functional teams working on product or service development in a value-stream) are 'escalated' together with the board (each release train once per quarter) and reviewed on status & roadmap, capacity, resource needs, and priority (Case 3).	Top management support, iterative (strategy oriented) product development
Top management sprint	In an extra sprint event, top management asks the team about possible resource requirements and obstacles and answers open questions regarding their agile working progress (Case 33).	Top management support, obstacle removing
Objectives and key results (OKR)	Leaders use the OKR framework to operationalize corporate strategy and goals across hierarchical levels and link units (Case 3, 9, 13, 15, 22).	Shared vision and focus, clear goals for employees
CIO diary	CIO writes an open diary, transparently sharing thoughts, questions, and ideas regarding the agile transformation of the company and encourages feedback (Case 18).	Transparency, communication
Ninja leaders	Interim leaders support struggling agile teams for 6-12 months in becoming self-organized teams (Case 24).	Self-organization, shared leadership
Agile coaching	Scrum masters, agile coaches, or even Kanban masters support several teams or even the company-wide agile transformation by coaching (Case 13, 26, 28).	Understanding agility, removing obstacles
People and incentive development	Regular development talks with the leader based on feedback from peers (according to criteria of the respective job). Leader summarizes and adds his or her perspective and makes recommendations to a review committee, which releases the scope for promotion, salary adjustment, etc. (Case 22).	People development
Shared leadership	Self-organized teams receive leadership tasks, including project and economically relevant decisions (Case 24).	Ownership, responsibility, fast decisions

Table 9: **Leadership Practices, Tools, and Techniques**
Source: Own Illustration

Corresponding future IS research. The support of leaders through, for example, the design of IT tools to support employees and thus the development of approaches and IT

tools that reflect the new role of leaders in agile settings as coaches and enablers is an important starting point for future IS research. In addition, virtual agile cooperation also needs to be reconsidered and specifically supported.

4.3.3 Employee-centricity

I was able to identify workforce agility, the empowerment of employees and leaders, and the agile mindset of employees as key success factors for agility. I analyzed the extent of empowerment of employees and leaders in agile settings.

4.3.3.1 Workforce Agility

Agility at the individual level, in contrast to the organizational level, has received little attention in research to date (Bala/Massey/Seol 2019). However, workforce agility is an important prerequisite for achieving organizational agility and represents the observable agile performance or behavior at work (proactive, adaptive, and resilient) (Sherehiy/Karwowski 2014).

In the 2020 survey, 63.7% (40.9% in 2019) of the employees and leaders surveyed stated that they consider themselves to be very agile (see Figure 8). They perceived their behavior as flexible and empowered; they are proactive, technically skilled, looking for further development of their skills and collecting information, and feel comfortable in cross-functional project teams, collaborations with other companies, or virtual teams. Broken down according to individual sub-aspects of workforce agility, in the 2020 survey, the surveyed employees and leaders stated the following: 74% (2019: 57.3%) feel flexible with fast changes of tasks, jobs, and locations; 83% (2019: 61.6%) feel comfortable with change, new ideas, and technologies; 78.8% (2019: 60.4%) feel comfortable in cross-functional project teams, cross-company collaborations, and virtual organizations. The agility of the employees and leaders in the 2020 survey averaged 6.0, whereas the 2019 sample average was 5.6. In 2019, however, the percentage of leaders who reported their agility as high was twice as high (50.3%) as the employees. Overall, in both the 2019 and 2020 surveys, workforce agility was significantly higher among the leaders (2020: 6.17 and 2019: 5.8) than the employees (2020: 5.8 and 2019: 5.3).
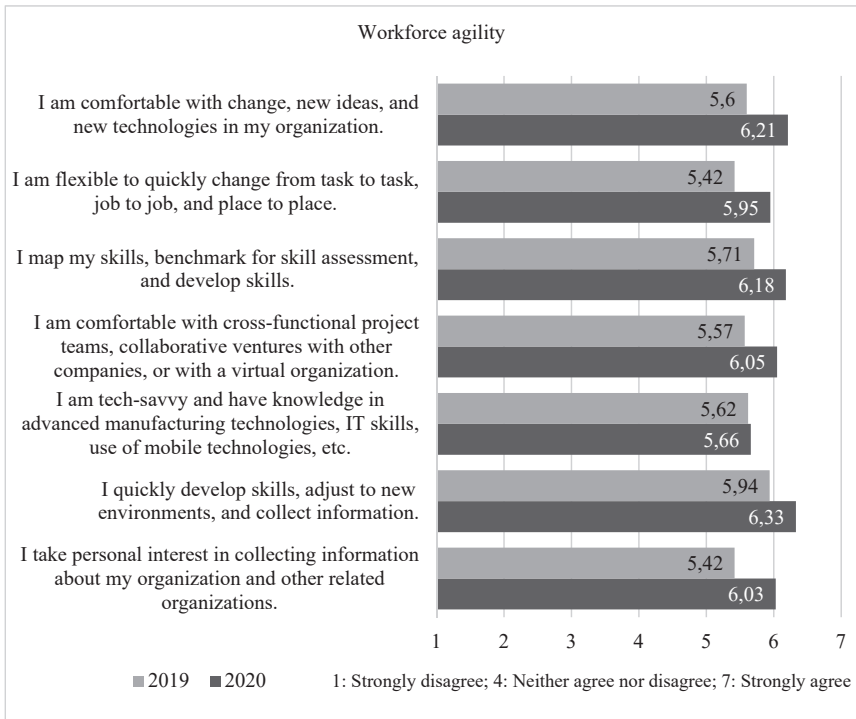
Figure 8: **Workforce Agility Numbers**
Source: Own Illustration; Items adapted from Amundsen/Martinsen (2014)

4.3.3.2 Empowerment

"Empowerment needs to be radically implemented, a little empowerment doesn't work." (Interviewee 7, SotA 2019)

This statement from one of my interviewees is an illustration of the relevance of the empowerment of employees and leaders, which I identified in my studies as an essential element for organizational agility. Furthermore, I measured the extent of psychological empowerment of leaders and employees. Psychological empowerment, as a cognitive state *"[...] refers to a process whereby an individual's belief in his or her self-efficacy is enhanced"* (Conger/Kanungo 1988, 474) and is reflected in the dimensions of meaning, impact, competence, and self-determination (Spreitzer 1995; Spreitzer 1996; Thomas/Velthouse 1990).

58% of the employees and leaders in the 2019 survey and 70.6% in the 2020 survey said they feel very empowered. When broken down into the dimensions of empowerment, this means that 79.8% (2019: 67.1%) of the employees and leaders felt that their work is meaningful. 84.2% (2019: 81.7%) felt that they have the appropriate competencies necessary for their work. 72.5% (2019: 66%) believed they can act in a self-determined manner and 65.3% (2019: 52.4) feel they can impact their work. Overall, the employees and leaders perceived a high level of empowerment in their agile work setting. While psychological empowerment across the employees and leaders increased from 2019 to 2020 (2019: 6.0; 2020: 6.2), the increase was more pronounced among the employees than among the leaders (employees 2019: 5.69, 2020: 6.0); leaders 2019: 6.14, 2020: 6.3). The gap between the extent of employee and leader empowerment, which seems to be closing over time, was clearly reflected in the statistical distribution in 2019: Only 43.8% of the employees felt empowered (6-7 on the Likert scale), while 66.1% of the leaders perceived themselves as empowered.

4.3.3.3 Agile Mindset

The agile mindset has proven to be a crucial factor for agility. With the agile mindset, I define a new construct that deals with the attitude of employees in agile contexts. By doing so, I can give some of the first insights into the perception of the agile mindset of employees and leaders.

While specific external structures, such as agile methods, have been widely researched (Abrahamsson/Conboy/Wang 2009; Nerur/Mahapatra/Mangalaraj 2005; Tallon et al. 2019), the internal structures of the individuals often posed a particular challenge in achieving organizational agility (Dikert/Paasivaara/Lassenius 2016). I can underline this in my research as well. One top management executive commented:

> *"Agile is a mindset, not a method. Therefore, it's a mindset question and a question of how an organization actually deals with all the changes." (Interviewee 21, SotA 2019)*

Tremendous importance is placed on the agile mindset of employees and leaders. While the relevance of the agile mindset is also increasingly pervasive in IS research (Miler/Gaida 2019; Mordi/Schoop 2020), I was able to define the agile mindset and its dimensions based on my study data.

The agile mindset is an attitude of the individual within a dynamic work context that is expressed by four dimensions: attitude towards learning spirit, attitude towards collaborative exchange, attitude towards empowered self-guidance, and attitude towards customer co-creation. Attitude towards learning spirit is the extent to which an individual values continuously seeking new insights regarding their work in order to respond to changes in their work context. Attitude towards collaborative exchange can be defined as the extent to which the individual values transparently sharing and discussing the ways they work and the respective results with colleagues to solve work-related problems. Furthermore, I identified the attitude towards empowered self-guidance as a relevant dimension of the agile mindset. This is the extent to which an individual values deciding for themselves how to achieve work goals and taking responsibility for improving their approach towards their work. Lastly, the focus regarding the customer in agile work can be specified in the dimension attitude towards customer co-creation, which is the extent to which an individual values meeting customers' needs by involving them from the beginning.

4.3.3.4 Practices for Employee-centricity in Organizational Agility

In the interviews, I was able to identify several practices and approaches that companies use to support employees with agility and promote the agile mindset in different ways (see Table 10). Several companies use fun-centric approaches to help employees learn about and embrace agility. For example, with an "agile game box" (Case 23), employees can playfully explore agility (i.e., in retrospectives, workshops, or team building sessions). Also, the representation of one's own person with avatars (Case 5) serves for a humorous identification and motivation with agility. Other companies are deliberately shifting agility into a different non-work-related context, for example, by having the entire company work in an agile way on a project for two days, e.g., building a beer brewing machine or a dancing llama robot (Case 26). Many companies undertake systematic training and/or certification in agile topics with their employees, for example, through training (Case 20, 24, 26), workshops (Case 28), brown bag seminars, (Case 32) and so on. In addition, systematic training paths are defined for entire teams (Case 20). Within the company, employees are often given a support opportunity to promote organizational agility. Transition teams, development coaches (Case 21), or learning assistance (Case 24) are used here. Increasingly, however, companies are also focusing on the self-organized development of employees. Employees choose topics and formats independently and organize the implementation themselves (Case 23, 33). Companies

also make use of communities to promote organizational agility where employees support each other in agile challenges (Case 18, 28) or across hierarchies (Case 9).

Name	Description	Objective
Agile game box	A ready-made game box for a playful exploration of agility via small team exercises designed to stimulate discussion (Case 23)	Mindset, motivation,
Avatars for agile collaboration	Agile team members are represented as self-selected avatars (e.g., Lisa Simpson) used for humorous personalization in team collaboration (e.g., in retrospectives, in task boards) (Case 5).	Identification, motivation
E-Patch days	The entire company works on a non-work-related project (e.g., brewing machine, dancing robot) using agile methods for two days (Case 26).	Mindset, motivation
Transition support and assistance	Different points of contact are set up in the companies for supporting employees with the agile transformation. e.g., - Transition teams and development coaches offer support for individuals and teams (e.g., in applying new methods) (Case 21). - Teams are provided with a learning assistant, removing obstacles, and offering help in agile methods or difficulties in collaboration (Case 24).	Transparency, support
Company driven training and certification for employees	Employees receive development opportunities to learn agile skills and thus support the agile transformation. Some companies have a clear training strategy (Case 26) or allow employees to assemble their own training measures (Case 28). - Workforce trained and certified in agile methods (Case 24, 26). - In-house academy trainings on agile methods (Case 28, 32). - Brown bag seminars (Case 32) or workshops (Case 28) on agility. - Networking evenings / bar camps with guest lectures (Case 28). - New scrum master or product owner given special trainings and feedback loops with the agile transformation manager (Case 20).	Learning and understanding agility, motivation and acceptance, mindset, empowerment
Employee driven trainings	Employees seek out their own learning content and learning opportunities as easily as possible (i.e., online trainings (Case 23)). For larger investments, leaders can be involved (Case 33).	Empowerment, self-organization
Trainings for teams	Teams are systematically moved from traditional to agile ways of working. In the process, several training and practice steps are run through to develop skills in the areas of knowledge, communication, process, and technical aspects (Case 20).	Learning the agile way of working, mindset
Employee communities	Employees support each other in the agile transformation in an organized community. They identify common difficulties and exchange ideas and solutions. Joint training or other initiatives are also organized and implemented to participate in the agile transformation and take responsibility (Case 18, 28).	Learn from each other, mindset
Cross-hierarchical communities	Employees and leaders meet in cross-hierarchical communities to sharpen their understanding of agility and improve cross-functional collaboration, e.g., - In a book club, leaders and employees receive material on agile principles, articles on systems theories, best practices, etc., which are edited and discussed together to reduce resistance to agility (Case 9). - Cross-hierarchical job shadowing is an opportunity to convey agile values and mediate conflicts between hierarchical levels.	Reduction of resistance, introduction to agile procedures, mindset, empowerment

	Leaders take over the job of employees for a week and vice versa (Case 17).	
Agile values	Companies define agile values and make them accessible, e.g., - "IT compass" defining the agile value system in IT and providing guidance for employees (Case 18). - Commonly defined values are kept present on a 'values wall' and serve as a basis for action in the workspace (Case 26, 29). - Vision as input for the operationalization of company values (Case 29).	Giving direction

Table 10:   **Employee-centricity**
                  Source: Own Illustration

Corresponding future IS research. IS research is well equipped to design agile forms of work organization in an empowerment-oriented way. This involves designing and effectively using the interfaces in digital forms of work. The assistance provided by IT, for example, helps employees work in an empowered manner. Digital concepts for the shaping and further development of the agile mindset must also be developed. In connection with this, it is important to systematically develop the agility of the workforce and its characteristics and attributes. At the same time, it is also important to systematically investigate the organizational factors that promote an agile workforce (Sherehiy/Karwowski 2014) and further explore and develop my initial insights in this regard. Concerning the design of the new forms of work organization, I show various forms of work organization and how they are implemented into practice. The aim is to investigate how these individual forms of work organization affect empowerment, the agile mindset and workforce agility, and, ultimately, employee performance (Sherehiy/Karwowski 2014).

4.3.4   Customer and User Orientation

My studies confirm the importance of customer and user orientation as a core component of agility. Thereby, I provide further insight on what role customer and user orientation plays in agile settings, show how customer/user-oriented employees and leaders assess themselves, and demonstrate that customer and user orientation can provide a strategic competitive advantage. Customer and user orientation describes the behaviors of employees and leaders in understanding customer needs, assessing customer satisfaction, and providing excellent quality and service (Deshpandé/Farley 1998). More than half of the employees and leaders (53.8%) perceived a high degree of customer and user orientation in their company (see Figure 9). They believe, for example, that company goals are primarily oriented towards customer satisfaction (65.3%). They reported that customer satisfaction is measured regularly and systematically (65%) and

that their company's strategy for competitive advantage is based on the knowledge of customer needs (68.6%). They rated their employer as particularly customer-oriented compared with competitors (63%) and indicated that their company surveys end users at least once a year to determine the quality of its products or services (64.3%).
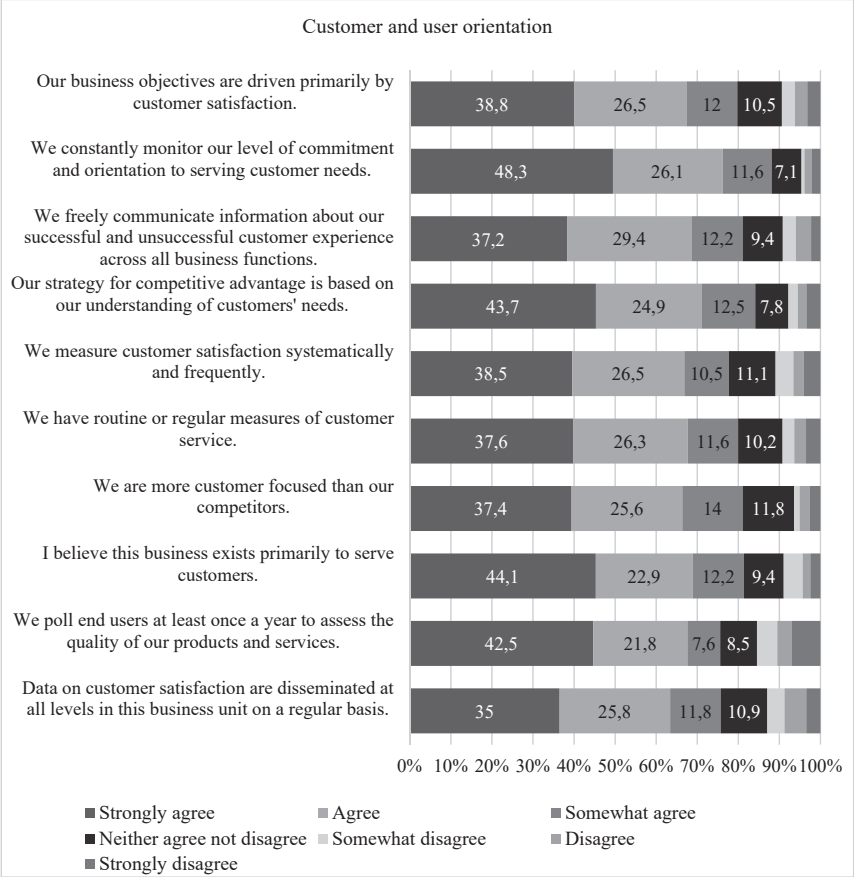
Figure 9: **Customer and User Orientation Numbers**
Source: Own Illustration; Items adapted from Deshpandé/Farley (1998)

Many of the top management executives claimed that their identification and prioritization of customer requirements is a unique selling proposition or their competitive advantage within the company. However, a pure focus on the customer and end user is no longer sufficient in many business areas. The requirements and needs of

business partners, manufacturers, service providers, and other stakeholders are also becoming more important. For example, advertising and product placement, regulatory aspects, data protection aspects, and social responsibility must be considered (*2020).

Direct customer interaction and the orientation of all activities towards the customers' benefit represents an important criterion for success. Thereby, it is important to involve the customer in the entire value-added process at an early stage and minimize non-value-adding processes. In many cases, selling products and services is no longer enough – it is much more important to make the customer experience something unique. Table 11 shows concrete customer and user orientation practices and tools that largely inquire about customer and user needs or directly involve customers/users in the product and service development process. This is increasingly based on data that is systematically collected about customers and users. In addition, methods and tools are used in which employees and leaders try to put themselves in the customers' and users' shoes. It is striking that, despite the very extensive collection of customer satisfaction and needs aspects, little information and few practices and tools were mentioned that deal with the further processing and development of these findings.

Name	Description	Objective
Companies ask customers and users for insights	Customers are surveyed systematically and regularly: - Questionnaires (surveys) for customer feedback (Case 20, 23, 32). - A/B testing for feedback on different content, presentations, or interactions (Case 15, 22, 26, 32). - Net Promoter Score to determine the willingness to recommend a product or service (20, 26, 27, 32). - Directors discuss needs with challenging customers (Case 16). - Quarterly customer report of the quality management regarding customer behavior and customer pain points (Case 27).	Customer data to understand needs
Companies track customer and user behavior	Companies monitor customer and user behavior via heat maps (Case 26), sales figures (Case 17, 18, 20, 22), or customer complaints (Case 16, 22). These insights are available to employees, e.g., in info hubs, providing a comprehensive basis for evidence-based decisions to fulfill customer needs (Case 20).	Customer data to understand needs
Methods and tools to think their way into the customer's and user's mind	Companies use methods and tools to understand customer needs. - Customer journeys describe and analyze a customer's buying process. Potential interruptions or difficulties for customers can thus be identified and eliminated (17, 18, 20, 29, 32) - The working backwards approach organizes the development of products and services based on customer needs (Case 22). - Personas are used as fictional users of a target group specified by their characteristics (Case 5, 22)	Aligning products and services with the customer needs
Integration of the customer and the user in the develop-ment process	The customer is actively integrated into the development process and participates in the creation of a new product or service, e.g., - Key users are invited to reviews to identify deficits in the previous development and generate desirable next steps (Case 6). - In workshops, the developers work together with the customers on specific issues relating to the product or service (Case 16, 26). - User experience labs connect customers, developers, account managers, relationship managers, and marketers to gain experience and make improvements to a process or functionality (Case 29).	Aligning products and services with customer needs

Table 11:   **Customer and User Orientation**
            Source: Own Illustration

Corresponding future IS research. Based on the underlying knowledge about user-centricity, IS research can inform companies on how to design customer/user-oriented structures, processes, and work systems. Moreover, agile IT-enabled solutions for more user-centricity can provide considerable potential for linking up with my results. While the collection of customer data and the satisfaction aspects of the customers is already successful in practice and partly happens systematically, the companies often lack processes for systematically picking up and further elaborating the data. With its experience in the field of software development, IS research can help develop systematic processes for integrating the customer/ user into the development of products and services.

4.4 Contributions

To the best of my knowledge, my study is unique in its kind in the stream of research on organizational agility and IS research. Based on extensive empirical data and two mixed-method studies with a total of 44 interviews with top management executives and 966 surveyed employees and leaders, I investigated the relevant factors of organizational agility and agile transformation processes and identified their status in the companies. My key contributions are:

First, I provide comprehensive numbers, data, and facts on the topic of agility and developments that are discussed at the top management level of companies. I thereby offer insights on four relevant areas: structure and organization, leadership, employee-centricity, and customer and user orientation. Second, I identify specific and concrete practices and their objectives in the field for each area and described them in detail. This helps both researchers and practitioners. Researchers can use these practices and develop them further. Practitioners can benefit from the practices by adopting or adapting the successfully used practices for themselves and their own company to promote organizational agility or the agile transformation. Third, I specify relevant fields of future IS research activities and thereby enable researchers to identify related research activities based on empirical insights into the challenges that companies are currently facing in the areas of structure and organization, leadership, employee-centricity, and customer and user orientation. For example, I provide initial insights into the agile mindset and its operationalization. In doing so, I resolve an uncertainty in this terminology and create a common understanding in order to design concrete actions in a goal-oriented manner in agile transformation. Fourth, I provide practitioners and top management executives with valuable insights on the perception of agile transformation projects and organizational agility from the perspective of employees and leaders. With this, I enable a basis for successful agile transformation and organizational agility, as the perceptions of employees can be specifically addressed, and measures can be taken in advance to avoid difficulties.

4.5 Limitations and Future Research

I have already discussed specific future research opportunities in the respective subsections. Therefore, I will take the opportunity to identify the limitations of my study and link them directly to overarching future research opportunities.

First, I could not control whether the same employees and leaders participated in both studies. Rather, I focused on the participants' prior experience with agility or their own agile work. In this context, it may also be valuable for future studies to survey non-agile workers as well or compare the results of employees and leaders with and without experience with agility (e.g., in terms of the successful application of agile forms of work organization and employee performance). Furthermore, I report descriptive statistics and in-depth qualitative insights from the interviews with top management executives. Accordingly, I did not provide causal relationships of the queried constructs and did not proceed in a model-building manner. While this is adequate for my state-of-the-art section at hand, this also provides an opportunity for future research. In addition, the success of individual practices or forms of work organization can be systematically investigated, e.g., their effects on corporate culture. Also, by restricting my survey to the German-speaking region, I made a restriction in which the results may not be immediately transferable to other cultural groups and their work organization or work culture. Accordingly, it would be desirable for future research projects to examine the transferability of the data to other cultural areas. In conclusion, I have gained very valuable insights on the strategic aspects of agile transformation through my top management executive interviews. However, to further strengthen the perceptions and perspectives of employees and leaders, it would make sense for future research to survey the views of employees and leaders in-depth and in detail, not only quantitatively but also qualitatively, with the help of interviews.

5 Why Internal Crowd Work Matters and How It Leads to Psychological Empowerment and Workforce Agility[19]

5.1 Introduction

In section 5 of my dissertation, I address and answer RQ2 and the two sub questions, RQ2a and RQ2b, which examine ICW as an agile form of work organization, the characteristics that define ICW as this form of work organization, and the effects this has on employees and companies.

RQ2	*How does ICW as an agile form of work organization promote agility?*
RQ2a	*Which characteristics define ICW as a form of work organization in companies?*
RQ2b	*What positive effects does ICW as a form of work organization have on employees and companies?*

Companies increasingly use agile forms of work organization to cope with rapidly changing environmental and market conditions (Gerster et al. 2020). This study sheds light on a so far neglected way of realizing the demanded agility: ICW. Compared to traditional work organizations, where top-down hierarchies with clearly designated positions and responsibilities dominate (Hodson/Sullivan 2008), ICW reflects an innovative kind of organizing work in companies. Because of its newness, however, there has been little peer-reviewed work to date on the ICW phenomenon, especially in forms of ICW in which employees can be both requestor and solver. Since fundamental knowledge on ICW is rare and ICW potentially is disruptive to traditional work organizations my research aims at exploring the characteristics that determine ICW as a form of work organization and that differentiate ICW from traditional approaches. I further aim to explore the positive effects this form of work organization has on employees and the advantages it brings for companies. I applied an exploratory in-depth case study at a corporation that is one of the world's largest suppliers to the automotive industry. As a result of my empirical-qualitative research, I propose a theoretical model that explains how ICW positively affects employees on a psychological level and in which way this benefits the company in terms of agility.

This section is structured as follows: I introduce my case study and give a glance at my data collection process and the analysis. Then, I present my findings and discuss them in relation to the underlying literature and the existing research gaps of the respective concepts and theories. Based on my findings, I propose my theoretical model. Finally, I discuss the limitations and the resulting future research opportunities of my study and explain my theoretical and practical contributions.

5.2 Research Strategy[20]

To investigate ICW's work organization characteristics (RQ2a) and its effects (RQ2b), I applied a longitudinal exploratory in-depth case study (Gerring 2007; Yin 2003). The three main reasons, I chose a case study research design are as follows: First, case studies per se and the intensive study of a single case, in particular, focus on the penetration of dynamics within individual cases, thus enabling, for example, the description and exploring of phenomena of interests, the generation of theory (Eisenhardt 1989) or to determine constructs and its interrelations within a phenomenon of interest (Yin 2003). This exactly goes hand in hand with my research goal. Second, an explorative qualitative case study is particularly appropriate when it comes to the investigation of socio-technical elements and their dynamic interrelations (Yin 2003) and the research phenomenon has not yet received the adequate consideration in the literature to date, the existing body of knowledge can be described as rather vague and the results are ambiguous (Eisenhardt/Graebner 2007), as it all is the case with ICW. Third, case studies are described as methods to gain insight into complex social phenomena on individuals, groups or organizations (Yin 2003) and to gain a detailed understanding of processes and behaviors (Recker 2021). In addition, qualitative research focuses on interactions with people and seeks to uncover unexpected or unanticipated information (Holloway 2005). So, to clearly understand ICW as a form of work organization and the psychological effects of employees in ICW settings, my choice of an in-depth case study seems to be promising.

I conducted an in-depth case study at one of the world's largest suppliers to the automotive industry (hereafter called "automotive industry supplier" (AIS)), who

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applied ICW in their daily routines as a form of work organization. According to Yin's (2003) rationale for single case studies, my case illustrates a classic variant and implementation of ICW (i.e., the voluntary execution of tasks and projects using an IT platform). My case selection was guided by the extreme-case selection technique (Gerring 2007), which is particularly useful for building new theory. Extreme cases are characterized by their extreme values of variables of interest, which are suitable for generating theory using the underlying exploratory approach (Seawright/Gerring 2008). ICW at AIS represents a particularly and unique case, since AIS is one of the few large companies worldwide exemplarily practicing the described form of ICW, whereby employees act as solver or requestor of tasks and projects. This makes AIS's ICW an extreme case and therefore useful for generating theory because of its high values on the variables in focus (Seawright/Gerring 2008).

5.2.1 Case Description

Contrary to many other cases where only the company or respective leaders are considered to be requestors (Zuchowski et al. 2016), in my case both employees and leaders could act as solver and requestor. The tasks and projects are processed via an IT-platform at AIS (Durward/Blohm/Leimeister 2016; Zuchowski et al. 2016). The ICW platform is integrated into AIS's intranet. This IT creates opportunities for all employees at AIS for self-initiated innovation activities as well as cross-divisional projects and tasks and helps to leverage the diverse skills and innovative ideas of all employees within the company across internal organizational boundaries.

AIS is an industrial group with more than 30,000 employees worldwide. At AIS, ICW was introduced in the central management department only, to support management and administration tasks. More than 600 employees and leaders were able to participate completely voluntary and could use 10% of their regular working hours for participation without special approval or release for work in ICW. After consultation with the regular (line) leader, this time restriction could be extended to 30% of regular working hours. An example of a project that has been handled via ICW was: "Artificial Intelligence (AI) to forecast termination of contract". Within a first pilot phase, more than 40 projects and tasks were handled via ICW.

5.2.2 Data Collection

I specified main search criteria that I derived from my two RQs. First, I aimed to identify the characteristics that determine ICW as a form of work organization (work organization-related characteristics of ICW). Second, I sought to find out any of employees' psychological effects that occur during the application of ICW at AIS. Beyond this, the second RQ implies that I had to search for any hints of benefits ICW brings for AIS as an organization. These three criteria guided and formed the strategy for my data collection.

In my data collection, I had the chance to follow every step of the pilot project from preparation and communication to implementation and evaluation of the results. Thereby, I was able to collect unique data through direct integration and thus gain extensive insights into the implementation and realization of ICW. I had access to different data sources over the entire duration of the pilot in the sense of triangulation and to and enable more substantial results (Eisenhardt 1989).

I organized my data collection, which took place within a time frame of 16 month, as follows: As it concerns the search criterion work organization-related characteristics of ICW, I gained access to *AIS-internal documents* on ICW, such as employee handouts that explain the main rules and instructions on the participation in ICW at AIS, presentation slides that were presented to employees and that explain the principles of ICW at AIS or written description of ICW at AIS. Further, I interviewed a representative of AIS's works council, a project leader, and two project managers responsible for the implementation and operation of ICW at AIS (first series of interviews). During these interviews participants were asked to explain the characteristics of ICW at AIS. Because of the semi-structured nature of the interviews, participants were able to freely explain the ICW characteristics from their own point of view. The interviews last approximately 30 minutes each and were conducted face-to-face by two researchers. Whenever possible, the interviews were recorded and subsequently transcribed. In cases where recording was not possible, field notes and memory protocols were made by both researchers during and immediately after the interview. Moreover, I was able to participate in a *steering committee meeting*, where ICW was presented to the leaders of AIS and in the *employee communication* (official launch of ICW at AIS). I further was invited to participate in five meetings of the *review committee* of ICW at AIS. In its

regular meetings the committee members usually reflected on the success and failures of the use of ICW at AIS. I took detailed notes in each meeting.

To identify employees' psychological effects, in this first series of interviews (at the beginning of the data collection period), I conducted interviews with 10 employees and leaders who were actively involved in ICW. Interviewees were asked to freely explain their personal attitudes, motives, values, beliefs, and views on ICW at AIS. To allow an extensive interaction with the interviewees being studied and to uncover unexpected or unanticipated information, I organized semi-structured interviews. This way, the interviewees were able to freely explain their personal inner from their own point of view (Holloway 2005; Schultze/Avital 2011). In order to limit interviewees' biases, I followed the recommendations by Suri (2011) and constructed a maximum variation sample that allows identifying essential features of ICW as perceived by diverse stakeholders among different contexts (Suri 2011). Thus, I selected interviewees who not only differ regarding their function, position, age, and length of service at AIS, but also regarding their role in the ICW context (task-/project-initiator (requestor) vs. task-performer/project-member (solver)). Each interview lasted at least 30 minutes and occurred face to face. Whenever possible, the interviews were recorded and subsequently transcribed.

To find any indications of organizational benefits resulting from ICW at AIS I conducted a second series of interview (at the end of the data collection period) with another 15 employees, leaders, project managers, project leaders and works councils who were actively involved in ICW. Thereby, I interviewed nine participants who had already been interviewed in the first series of interviews. In this way, I assessed changes and developments in the perception of the respondents. In concrete, I asked if interviewees recognized any indications of organizational benefits. To limit interviewees' biases, I again followed the recommendations by Suri (2011) and constructed a maximum variation sample consisting of employees, leaders, project managers, project leaders and works councils who not only differ regarding their function, position, age, and length of service at AIS, but also regarding their role in the ICW context (task-/project-initiator (requestor) vs. task-performer/project-member (solver)). Each interview lasted at least 30 minutes and occurred face to face. Whenever possible, the interviews were recorded and subsequently transcribed. Moreover, I discussed the results of the pilot project in a *final evaluation discussion*. The observations and results were documented in the form

of field notes. All interviewees are listed in Table 12. The interview protocols for leaders, employees, project managers, project leader, and works council are attached in Appendix B.

No.	Age *(Gender)*	Role	Department	Series I	Series II
1	25 *(f)*	Employee	Human Resources	x	
2	24 *(f)*	Employee	Human Resources	x	x
3	38 *(f)*	Employee	Project Management	x	
4	48 *(m)*	Employee	Data Management	x	x
5	42 *(m)*	Employee	Corporate Development	x	x
6	49 *(m)*	Leader	Change Management	x	x
7	52 *(m)*	Leader	Simplicity Management	x	
8	50 *(m)*	Leader	Corporate Marketing	x	x
9	59 *(m)*	Leader	Human Resources	x	
10	54 *(m)*	Leader	Commercial Excellence	x	
11	62 *(m)*	Project leader	Quality Management	x	x
12	27 *(m)*	Project manager	Engineering	x	x
13	32 *(f)*	Project manager	Legal Affairs	x	x
14	51 *(m)*	Works council		x	x
15	27 *(f)*	Employee	Human Resources		x
16	40 *(m)*	Employee	Agile Transformation Coach		x
17	49 *(m)*	Employee	Quality Management		x
18	35 *(m)*	Employee	Purchasing Strategies		x
19	51 *(m)*	Leader	Strategy Deployment		x
20	45 *(m)*	Leader	Human Resources		x

Table 12:   **Interviewees AIS**
Source: Simmert et al. (to be submittedb)

5.2.3 Data Analysis

To analyze my data, I followed the well-established approach of Gioia, Corley, and Hamilton (2013), which is composed of two separate phases of analysis. All documented information were analyzed by using the MAXQDA analysis software.

In a first iteration my analysis inductively followed the terms and concepts taken directly from the interviews (1st order analysis). In this 1st order analysis stage, a myriad of terms, codes, and concepts arose in the analysis process. During this phase of open-coding (Corbin/Strauss 2015), a high number of informant-centric codes were created. To reveal similarities and relationships between the many codes identified, I consolidated the set of codes to a manageable number by relating them to concepts. The objective was to concentrate on concepts and preliminary relationships that emerged from the interviews to develop a comprehensive first-order compendium of terms

(Gioia/Corley/Hamilton 2013). These concepts refer to a vaguely specified expression that captures basic properties that explain a phenomenon (Gioia/Corley/Hamilton 2013).

As a second step, I structured these 1st order concepts into theory-centered 2nd order themes and distilled them into comprehensive theoretical dimensions. These emerging 2nd order themes pointed to concepts that could help explain the identified phenomena. I then distilled the 2nd order themes further into aggregate dimensions (Gioia/Corley/Hamilton 2013). Furthermore, I began cycling between my emergent data, themes, concepts, dimensions and the relevant literature (Gioia/Corley/Hamilton 2013).

In sum, by generating the 1st order concepts, the 2nd order themes, and the aggregate dimensions, I provided the foundation for building a data structure. In addition to its visualization, this data structure describes the process from the original raw data to the terms and themes used in carrying out the analysis and is thus an essential component of demonstrating rigor in qualitative research (Tracy 2010).

I also used various tactics at different stages of my analysis to ensure construct validity, external validity and reliability of my results (Eisenhardt/Graebner 2007; Morrow 2005; Yin 2003): In terms of construct validity, I interviewed employees, leaders, project leader, project managers, and the works council as part of the data collection, thus involving different hierarchical levels, functional levels, and areas. In addition, I created a chain of evidence based on the inclusion of different data sources (e.g., interviews, internal documents, review committee meetings, and evaluation discussions). I addressed external validity directly in the research design and data collection by discussing the generalizability of my findings with ICW experts (e.g., in the various evaluation meetings). I expansively described my research design, participants, analysis, interpretation of results, and emerging theory. To ensure the reliability of my findings, I created a case study protocol in data collection with information on data collection (i.e., interview protocol) and analysis (i.e., coding scheme). Also, I merged all these data (i.e., interviews, transcriptions, field notes, documents) into a case study database. As part of the data analysis, I conducted a multi-stage analysis procedure with several data analysts.

5.3 Findings

To present my results rigorous and comprehensible, I rely on a tandem procedure, presenting the results and underlining them by the voices of the respondents respectively observations or text passages from the documents (Gioia/Corley/Hamilton 2013).

5.3.1 Constitutive Elements of my Theoretical Model

ICW as a form of work organization. In a first step, I aimed at identifying the work organization characteristics of ICW at AIS. I identified seven categories of characteristics from my data (see Figure 10 and Figure 11). The first is what I refer to as *network structure*. It is evidenced that ICW at AIS is characterized through cross-divisional and -functional collaboration activities among employees who were engaged in ICW. There is also collaboration across hierarchies. These collaboration activities among employees are particularly encouraged in the scope of ICW at AIS, which is anchored in the official work agreements at AIS:

> *"In addition to the existing tasks and forms of work, employees are given the opportunity to initiate innovation activities and cross-divisional projects and initiatives." (Works agreement, AIS)*

In the work environment of ICW at AIS the original hierarchical system is of no importance and almost non-existent. So, compared to the pyramid in a bureaucratic work organization, ICW is characterized by flat hierarchies. Because of the fact that every employee, regardless of her/his division affiliation or function, is invited to take over a certain task or join a project and the resulting multi-dimensional collaboration activities, the ICW system can be described as a network structure. The initiated projects are composed of employees from different divisions and form for the duration of the project period a specific network. Also, the allocation of single tasks follows according to the principle of a network-like structure.
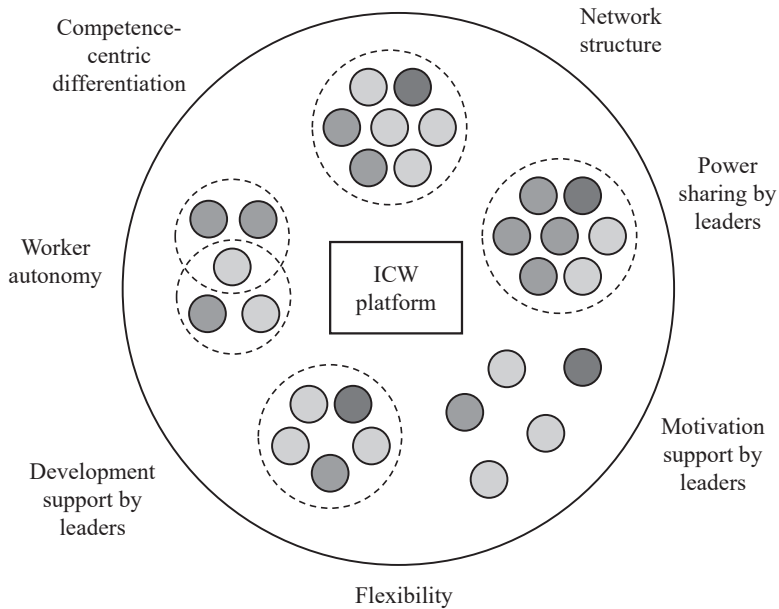
Figure 10: **Network Structure of an ICW Work Organization**
Source: Simmert et al. (to be submittedb) adapted from Aghina et al. (2018)

This network structure affects the decision-making processes in ICW. In contrast to bureaucratic work organizations, in which centralized decision-making is prevailing, in the ICW system of AIS democratic and egalitarian decision-making can be observed. This means that decisions no longer made top down, but on a horizontal level, since every employee freely can decide on the one hand to initiate a project or outsource a task and on the other hand to take over a task or join a project. This stands in sharp contrast to the principle of centralization.

The second element I identified from my data is what I refer to as *competence-centric differentiation*. In bureaucratic work organizations there exists role differentiation and specialization, which means that employees assume specialized roles or job profiles (Sørensen 2007). These roles or profiles, however, typically do not cover employees' whole range of competencies, experiences, knowledge, and skills. Instead, employees only take over that kind of work or tasks she/he is responsible for. This leads to a routinization of activities and monotonous work (Sørensen 2007). ICW paints a completely different picture: In the ICW work organization there is a focus on

employees' individual experiences, knowledge, and skills, which means that employees take over tasks and work that fit to their individual competences. This means that an ICW work organization consists of competence-based differentiation and specialization, which leads – from the perspective of the employees – to changing work routines. Companies benefit from this in that way that the large spectrum of the workforce's wisdom can be leveraged. In other words, the whole pool of employees with different knowledge, expertise, or experiences and multiple perspectives and diverse expertise will be available for overtaking diverse kind of tasks and work.

The third element is what I refer to as *worker-autonomy*. Worker-autonomy means that employees in the ICW environment at AIS initiate certain tasks or projects and then start an open call for undertaking these tasks or projects. Employees at AIS, who form the internal crowd, decide on their own whether to undertake these tasks, respectively to join these projects. As an employee I interviewed explained:

> *"Self-organization is something new compared to the previous work routine. An invitation for those who are willing, but also not an obligation for those who are not." (Interviewee 11 (Series I), AIS)*

This stands in sharp contrast to the situation in bureaucratic work organization, in which employees are bounded to undertake the work assigned to her/him by leaders (Parker/van den Broeck/Holman 2017).

After the decision for undertaking a task or joining a project, employees' freedom in ICW work organizations is continuing: Employees, who decided to undertake an initiators' task then autonomously decide how to edit the task. It is her/his individual responsibility to complete the task. Employees, who decided to join a certain project work together with the initiator of the project in a team, which has to be organized on the team members own responsibility.

The fourth characteristic I identified from my data is *flexibility*. In a first instance, this means that the ICW platform clearly represents the supply and demand of work at AIS. This not only allows for an extensive overview, but particularly for an efficient allocation of work. Even more, the ICW platform allows allocating work in the easiest and fastest way. Another benefit worth to be mentioned is the highly unbureaucratic initiation and processing of work in the ICW work organization. However, what makes

the ICW system even more efficient is the inherent "on-demand character". In case of an employee's or division's work overload the ICW work organization allows to outsource certain tasks to any other employees with free time resources. In this way, ICW enables a fast access to any employee with a knowledge and skill base that is needed to perform this task. The outsourcing argument holds also true when employees are unavailable, in case these employees have no adequate skills, experiences, or competences to process a task, or these employees are unavailable because of any health reasons. As already mentioned, all these characteristics consolidated under this category characterize the ICW work organization at AIS as flexible. Flexibility is discussed in agility and organization-literature as formalization. Both streams of literature define formalization as the degree to which organizational actions and procedures (e.g., task assignments, job descriptions, or regulatory requirements) are codified and documented in written form (Alavi et al. 2014; Tolbert/Hall 2009). For example, Alavi et al. (2014) discuss work organizations, which are characterized through low formalization, as agile. In contrast, bureaucratic work organizations are typically characterized as highly formalized (Tolbert/Hall 2009) and, consequently, not much agile. Against the background of the above-described characteristics, ICW work organizations can be attributed to the opposite emphasis, which means that they have a low degree of formalization and a high degree of agility.

I refer to the fifth element as *power sharing by leaders*, which means that leaders in AIS actively delegate formal responsibility and authority to employees. This is manifested in the fact that the higher management of AIS actively promotes work autonomy, both in terms of task choice and task execution. Further, AIS leaders create freedom for each employee to participate and to spend time in ICW. AIS leaders also remove impediments that hinder employees to engage in ICW. In this context, leaders at AIS have to learn to trust their employees and to express this trust to their employees.

Sixth, I identified a dimension that I named *motivation support by leaders*. I found that leaders at AIS act as a moderator, motivator, and mentor to motivate employees to participate in ICW. They further officially explain their support (e.g., in departmental meetings), assure that participation in ICW has no negative impact or grant trust and freedom for projects and tasks.

Seventh, higher management at AIS actively promote employees to learn and develop in their work roles and the capability to lead themselves in the scope of ICW. I refer to

this as *development support by leaders*, which is manifested as follows: Leaders at AIS advice employees in self-organization of tasks and projects. Leaders at AIS also act as coaches, who are particularly concerned with providing expert knowledge as sparring partners, as one interviewee emphasized:

"Leaders increasingly develop into coaches. In the future, leaders will be contact persons instead of a task distributor." (Interviewee 7, AIS)

1st Order Concepts	2nd Order Themes	Aggregate Dimensions

Organisation's structure
- Flat hierarchies
- Cross-divisional, -functional and –hierarchical collaboration
- Democratic and egalitarian decision-making
- Everyone is invited to take over a certain task or work regardless of division affiliation or function

→ **Network structure**

Worker
- Focus on employees' individual knowledge and skills
- Focus on employees' individual experiences
- Worker takes over tasks and work according to her/his knowledge/skills/experiences
- Changing work routines of employees

→ **Competence-centric differentiation**

- Self-initiated tasks and projects
- Self-determined decision for overtaking a task or project
- Self-organized teams
- When undertaking a task, it is an employee's responsibility to complete this task

→ **Worker-autonomy**

Organisation's policies and practices
- Clearly represented supply and demand of work through ICW platform
- Simple and fast allocation of work through ICW platform
- Non-bureaucratic initiation and processing of tasks and projects
- On-demand request of work in case of short-term work overload
- On-demand request of work in case of any human resource unavailability

→ **Flexibility**

Organisation's leadership practice
- Leaders actively promote autonomous working of employees
- Leaders create freedom to participate in ICW for each employee
- Leaders eliminate impediments for employees
- Leaders learn to trust their employees (including decisions of employees)

→ **Power sharing by leaders**

- Leaders officially explain their support (e.g., in departmental meetings)
- Leaders act as a moderator, motivator, and mentor
- Leaders assure that participation in ICW has no negative impact
- Leaders grant trust and freedom for projects and tasks

→ **Motivation support by leaders**

- Leaders advice employees in self-organization in tasks and projects
- Leaders act as a coach

→ **Development support by leaders**

→ **WO-related characteristics of ICW**

Figure 11: **Work Organization-related Characteristics of ICW**
Source: Simmert et al. (to be submittedb)

In the next categories, I present the **psychological effects for employees** that work in the ICW environment at AIS.

Psychological empowerment. In my data, I found several indications for psychological empowerment (see Figure 12). In general, psychological empowerment is referred to as a process of strengthening an employee's belief in her or his self-efficacy (Conger/Kanungo 1988) and represents a mental sta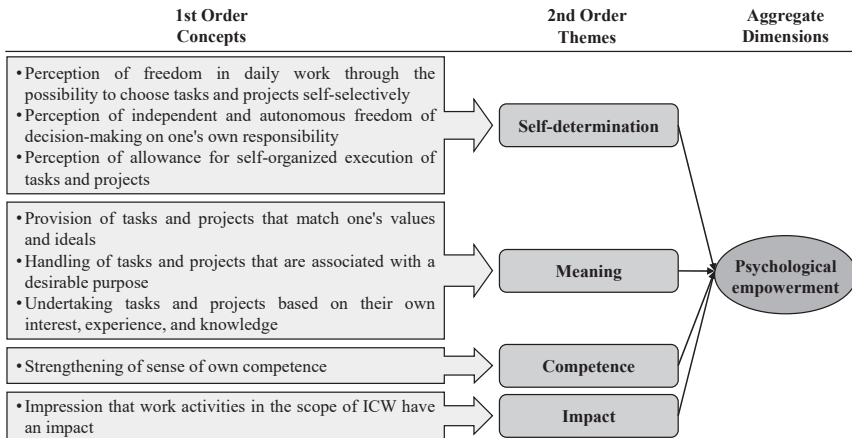te of an employee (Amundsen/Martinsen 2014). As described, the psychological empowerment construct is manifested through four dimensions (*meaning*, *self-determination*, *competence*, and *impact*) that reflect the individual's perception of her or his working role (Spreitzer 1995). I found indications for each of these four dimensions in my data. As it concerns self-determination, I found that employees feel a stronger freedom in their daily work through the possibility to choose tasks and projects self-selectively based on their own interest, experience, and knowledge. Employees also reported in the interviews that they perceive an independent and autonomous freedom of decision on one's own responsibility as well as the allowance of self-organized execution of tasks and projects, as two employees reported:

> "I […] decide for myself if a task is important for the company and then continue with it." (Interviewee 1, AIS)

> "I have to feel the freedom through my direct leader. Only when I feel this freedom, I take the initiative to do something else." (Interviewee 13, AIS)

In relation to the dimension meaning, I also note that employees – when working in ICW at AIS – perceive that they work on tasks and projects that (1) align with their own values and ideals, (2) that they associate with desirable purposes, and (3) that are based on their own interest, experience, and knowledge. In relation to the dimension competence, employees reported in the interviews, that when they work in the ICW environment of AIS, they feel strengthening of the self-recognition their own competences when performing a task or project. Concerning the dimension impact, interviewed employees reported of their impressions that through ICW their contributions and work have an impact upon AIS's value creation. For example, one employee said:

> "It is important what I do here." (Interviewee 7, AIS)

1st Order
Concepts

2nd Order
Themes

Aggregate
Dimensions

- Perception of freedom in daily work through the possibility to choose tasks and projects self-selectively
- Perception of independent and autonomous freedom of decision-making on one's own responsibility
- Perception of allowance for self-organized execution of tasks and projects

Self-determination

- Provision of tasks and projects that match one's values and ideals
- Handling of tasks and projects that are associated with a desirable purpose
- Undertaking tasks and projects based on their own interest, experience, and knowledge

Meaning

- Strengthening of sense of own competence

Competence

- Impression that work activities in the scope of ICW have an impact

Impact

Psychological empowerment

Figure 12: **Psychological Empowerment**
Source: Simmert et al. (to be submittedb)

Agile mindset. From my data, I could conclude that employees, who actively participate in ICW at AIS, have certain personality traits that are associated with agility. In general, scholars from psychology define personality traits, which are also known as personal dispositions, as relatively stable, consistent, and enduring internal characteristics that specify a person's behavior in a multitude of settings and that are inherent to and expressed by that person in a unique way (Abel 2021; Kassin 2003). Further, a person's behaviors, attitudes, feelings, and habits serve as basis of these inner characteristics (Abel 2021; Kassin 2003). I found that employees actively participating in ICW at AIS show mainly three personality traits that stand in relation to agility (see Figure 13). The first is *self-determination*. This means that these employees enjoy autonomously working and freedom in decision making. They further love self-organization in their ICW work activities. The second personality trait is *social interaction*. Employees characterized by this personality trait can be described as enjoying teamwork and avoiding egoism. They also enjoy helping others and searching for common solutions. They further can be described as being willing to ask for support and enjoy offering support. The third and most obviously personality trait is *openness*. This trait includes items such as the looking for opportunities to grow and develop as well as the willingness to think outside the box and to learn new things. Employees characterized by openness also have no fear of making mistakes and are open to new ways of working and thinking. Further, they are interested, curious, and enjoy trying out things

proactively and self-initiatively. For example, two interviewees describe employees' personality traits openness and social interaction as follows:

"So that's the kind of personal attitude you need to have - the willingness to have a look at new things." (Interviewee 12, AIS)

"Employees will have more confidence to tackle things proactively, for example in idea generation or collaboration with colleagues." (Interviewee 3, AIS)
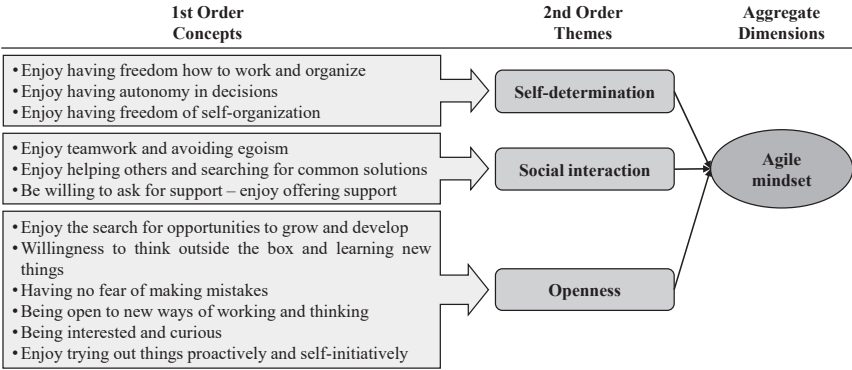
Figure 13: **Agile Mindset**
Source: Simmert et al. (to be submittedb)

I subsume these three personality traits under one variable, which I name agile mindset. I chose this naming based on latest insights from agility practitioners and scholars. The term agile mindset more and more is used in practice to express that agility in organizations not only depends on introducing adequate work designs, practices, instruments, and employees' certain competencies. Employee cognition is also conductive to agility in organization (Dikert/Paasivaara/Lassenius 2016), which means that employees have to bring in a pro-agile mindset. I believe that the three personality traits *self-determination*, *social interaction*, and *openness*, which I identified from my data, have a direct bearing upon the topic of agility because they reflect employees' positive attitude towards the principles of agility.

In general, agility scholars more and more begin researching the phenomenon of agile mindset. Nevertheless, the sparse knowledge gained until today is largely based on practice-driven insights; scientific empirical and theoretical insights are still rare

(Miler/Gaida 2019; Mordi/Schoop 2020). Overall, there neither exist a comprehensive and profound conceptualization or description, nor empirical validations of this phenomenon. Initial research insights point to the relevance of employees' agile mindset and first, inconsistent attempts to define this phenomenon. For example, Mordi and Schoop (2020, 9) propose that agile mindset could be defined with the help of certain, individual-based values and principles, such as "a willingness to learn", and „openness and willingness to continually adapt and grow", that have been described in the Agile Manifesto. In addition to that, Miler and Gaida (2019) propose that an *"[…] proactive and open mind of the individuals"* (Miler/Gaida 2019, 848) should constitute one possible element of a definition of agile mindset. For the naming of my above-described personality trait *openness*, I leant on these insights.

Based on the three personality traits, that I identified through the analysis of my empirical data, as well as based on the sparse extant body of knowledge on the phenomenon of agile mindset, I define the phenomenon as follows: Agile mindset is a set of personality traits or personal dispositions in employees, consisting of self-determination, social interaction, and openness, that reflect the employee's positive attitude toward the concept of agility.

The next category presents benefits for the company.

Workforce agility. I found several indications for AIS employees, who were actively involved in ICW, showing workforce agility in my data. As described above, the large majority of agility scholars define workforce agility from the perspective of the behaviors that individuals or groups require in order to be said to be agile (Muduli 2017). For example, Sherehiy and Karwowski (2014) categorized the characteristics of an agile workforce into three dimensions, namely *proactive behavior*, *adaptive behavior* and *resilient behavior* (see section 2.2.2).

My data show that all employees involved in ICW at AIS show these three dimensions of behavior (see Figure 14). In terms of *proactive behavior*, employees per se can be described as proactive according to the above definition, since these employees show strong tendencies of anticipating problems and initiating activities, which result in solutions to these problems, through their active initiation of an ICW campaign or through their engagement in the different ICW campaigns. *Adaptive behavior* of employees, who are often involved in multiple ICW campaigns in parallel, is

characterized by fast and flexible role handling, which refers to different role types such as team member or project manager in different ICW tasks and projects at AIS. It is also characterized through employees' quick change between different tasks and projects of different content. They also show a high flexibility of work execution in different team compositions. It can also be recognized that these employees show a high level of willingness to continuously develop their own skills and abilities when working on different tasks and projects, for example in new areas of work that have not been the focus so far. As one interviewed person said:

> *"So, I think this is the definition of agile work, that I think in an interdisciplinary way, that I support elsewhere, that I get support when I need it and that I don't think in such a small-minded way." (Interviewee 2 (Series II), AIS)*

Employees also show *resilient behavior*, which is manifested in their positive attitude regarding changes, new ideas, and problems to be solved as well as tolerance towards stressful situations and coping with stress when engaging in ICW campaigns.
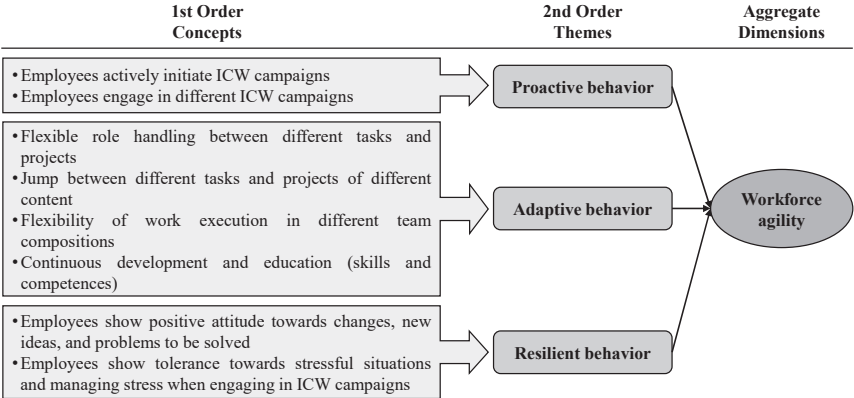
Figure 14: **Workforce Agility**
Source: Simmert et al. (to be submittedb)

5.3.2 Theoretical Model of Agility in ICW

The created data structure represents the basic in-depth knowledge on my case. Nevertheless, it is static knowledge in a dynamic environment (i.e., ICW). Accordingly, I follow Gioia, Corley, and Hamilton (2013) and develop an inductive model based on the data obtained that represents the dynamic relationships between ICW's work

organization-related characteristics, psychological empowerment, agile mindset, and workforce agility (see Figure 15).

As described, I identified *autonomy* as one element of the work organization of ICW at AIS. Autonomy, as I refer to this phenomenon, is very close to what human resources scholars refer to as employee autonomy. It is discussed for decades as an important element of designing work in companies. For example, Hackman and Oldham (1976) describe employee autonomy as: *"The degree to which the job provides substantial freedom, independence, and discretion to the individual [...]"* (Hackman/Oldham 1976, 258) in choosing which task to do, in scheduling the work, and in organizing how to carrying it out. In the agility literature, employee autonomy is discussed for more than 15 years as an empirically validated influencing factor of workforce agility. For example, in their empirical study, Sherehiy and Karwowski (2014) investigated dimensions of agile work organizations in small manufacturing enterprises. These authors stated that employee autonomy is a key determinant of an agile workforce (Sherehiy/Karwowski 2014). Further, in their work, Vinodh et al. (2008) identified different agility dimensions of work design and categorized them into five subclasses. According to them, one of these subclasses is the workforce dimension, in which the phenomenon of employee autonomy also is highlighted as an essential criterion (Vinodh et al. 2008). In addition to this, Kidd (1994) as well as Van Oyen, Gel, and Hopp (2001) emphasized employee autonomy as a key element of an agile workforce.

I further identified *network structure* as a characterizing element of ICW at AIS. In agility literature organizational structures are described to have a positive impact on workforce in terms of agility. For example, Alavi et al. (2014) described and empirically validated organic structures – characterized by flat structures, just like in my element network structure – as main antecedent of workforce agility. As described, I further found cross-divisional, -functional and –hierarchical collaboration among employees of AIS as an element of network structure. In general, collaboration is widely discussed in agility literature as an essential criterion that influences workforce agility. For example, in his investigation on dimensions of an agile work design Muduli (2017) found – backed by empirical evidence – teamwork on an internal, external, intragroup, and cross-functional level to be an influencing factor of workforce agility. This is also evidence and emphasized by numerous other scholars, including Chonko and Jones (2005), Cheng, Pan and Harrison (2000) and Lin (2007).

In general, lower levels of formalization, meaning the degree to which organizational activities are regulated unbureaucratic, is discussed in agility literature as a driver of workforce agility (Alavi et al. 2014). Low formalization is synonym for my ICW element *flexibility*.

Based on these insights from agility literature, in which the discussed work design elements from other contexts have been proven to be enabler of workforce ability, I assume that the elements of the ICW work organization will have an impact on workforce agility. Even more, I postulate that ICW – in concrete the various work organization elements of ICW – function as enabler of workforce agility. Hence, I assume:

ICW, characterized through its inherent elements "worker autonomy", "network structure" and "flexibility", positively affects workforce agility **(Proposition 1)**.

ICW's work design elements *power sharing by leaders*, *motivation support by leaders*, and *development support by leaders* can be grouped into a variable that in human resource management (HRM) literature is discussed as empowering leadership. In general, empowering leadership is referred to as a process whereby the higher management of a company influences *"[…] subordinates through power sharing, motivation support, and development support with intent to promote their experience of self-reliance, motivation, and capability to work autonomously within the boundaries of overall organizational goals and strategies."* (Amundsen/Martinsen 2014, 489). Power sharing refers to delegation of formal responsibility and authority (Amundsen/Martinsen 2014). However, giving employees formal autonomy may not be enough, therefore, employees should also be actively motivated by the higher management to work autonomously as well as actively encouraged by higher management to develop and work on their self-leadership skills (Amundsen/Martinsen 2014).

In general, the "empowering" character of empowering leadership indicates an underlying purpose; *"that is, the empowering "actions" (i.e., behaviors) taken by leaders should create specific empowering "reactions" in subordinates"* (Amundsen/Martinsen 2014, 490). Prior agility research has shown that this reaction by employees is manifested, among others, in employees' workforce agility behavior. For example, Sherehiy and Karwowski (2014) found that through power sharing empowered employees show higher levels of workforce agility. Further, train employees'

knowledge and skills in their role as holder of shared power (development support dimension of empowering leadership) has been demonstrated to be an effective way to achieve workforce agility (Hopp/Oyen 2004; Iravani/Krishnamurthy 2007). So, based on these arguments ICW's inherent empowering leadership elements on their own will lead to workforce agility and will support the first proposition of my theory development. However, I believe that the empowered "reactions" in employees should be explained in more detail. I argue that this relationship can be explained through the variable psychological empowerment and its mediating role in more detail.

As described above, psychological empowerment is described as mental state, defined through intrinsic task motivation manifested in the four cognitions of *meaning*, *competence*, *self-determination*, and *impact* (Amundsen/Martinsen 2014; Seibert/Wang/Courtright 2011). An employee's active alignment with her or his work role is evident through the interaction of these four cognitions (Amundsen/Martinsen 2014; Spreitzer 1995), assuming that employees experience this state themselves (Greasley et al. 2008). This implies that when leaders in ICW settings actively empower employees with the intention that employees react with an increase in workforce agility behavior then this effect will emerge only if employees feel psychologically empowered. In several studies in the field of HRM, the positive relationship between empowering leadership and psychological empowerment has been empirically shown (Amundsen/Martinsen 2014). These studies also identified psychological empowerment as a mediating mechanism linking empowering leadership with employee outcomes (Amundsen/Martinsen 2014). Based on these arguments, I assume:

ICW, characterized through its inherent elements "power sharing by leaders", "motivation support by leaders" and "development support by leaders", positively affects psychological empowerment (Proposition 2).

Psychological empowerment positively affects workforce agility (Proposition 3).

Beyond this, I propose that agile mindset moderates the relationship between work organization elements of ICW and workforce agility. More specifically, I contend that the association between work organization elements of ICW and workforce agility may depend upon the mindset that the employees in an ICW context hold. I build my assumption upon the following argumentation: The relationship between work organization elements of ICW and workforce agility is characterized through the

triggering of a behavior, which means that the underlying work organization elements of ICW provoke workforce's agility behavior. Higher levels of employees' agility-related personality traits, which determine their general level of agile mindset, even strengthen this behavior-triggered process. This is because scholars from psychology define individuals' specific personality traits to determine individuals' behavior in certain situations (Abel 2021; Kassin 2003). Hence, I assume:

The association between ICW and workforce agility is moderated by higher levels of agile mindset that the employees in an ICW context hold **(Proposition 4)**.

The resulting research model is summarized in Figure 15.
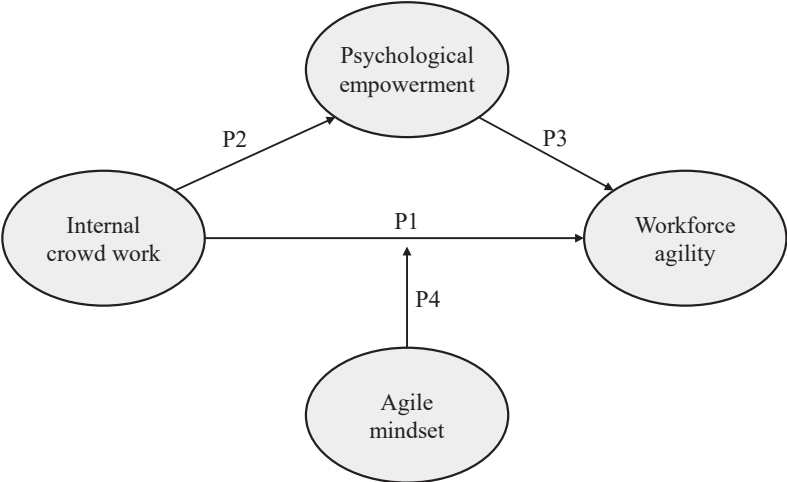
Figure 15:   **Theoretical Model of Agility in ICW**
Source: Simmert et al. (to be submittedb)

5.4 Limitations and Future Research

While my study provides some promising insights, my research also has some limitations, which has to be taken into account and also present opportunities for future research. First, while I conducted a case study with very extensive data access and – as described above – my study design fulfilled all requirements that are necessary for a single case study, future research should compare the identified results with further cases from other companies and contexts. This is highly recommendable in order to further confirm the generalizability of the results (Walsham 2006).

Second, my case study has generated very comprehensive findings in the form of a theoretical model. To validate this theory development, I used a tandem procedure, consisting of a thoroughly data analysis and an inclusion of previous research results. Nevertheless, my theory development based on a qualitative data analysis that per se is subjective in nature. To further validate my research model, future research therefore should examine and empirically validate the postulated effects and relationships in my model in the scope of quantitative research.

Third, my research examined ICW as a new form of work organization at AIS, which – compared to previous work structures at AIS – represents a radical change. Certainly, not all employees and individuals at AIS were equally open and receptive to ICW as a work organization. For example, there were some employees who behaved passively, were unwilling to take ownership of decisions or who, due to their inexperience in ICW settings, and were reluctant to participate in self-determined work. However, I did not consider these kinds of employees in my research adequately. Future research endeavors that investigate ICW as an agile work practice should explicitly include employees, who remain skeptical about ICW, in the focus of their examinations.

Fourth, my empirical setting was "hybrid", so additionally to the ICW setting there was still a "line organization" with bureaucratic structures in place. So, this hybrid setting might have led to undesired effects. We need more research on "pure" ICW settings to ensure that undesired effects distort the picture.

5.5 Contribution to Theory

5.5.1 Internal Crowd Work

My research contributes to the body of knowledge on ICW. Although scholars are looking at the phenomenon of ICW for more than six years now, research on ICW is still in its infancy. One stream of research has begun to explore the characteristics of this phenomenon and in particular the advantages and outcomes ICW offers for companies. For example, fast access to internal knowledge or innovativeness are discussed as such advantages (Malhotra et al. 2017; Zuchowski et al. 2016). However, this stream of research on ICW so far lacks to take a broader perspective and to capture the full potential of ICW. In particular, ICW previously has not been considered and discussed as an agile form of work organization or enabler of agility, neither in practice nor in scientific literature. For the first time, I demonstrated ICW's potential to establish

workforce agility. I found that ICW includes seven characteristics (i.e., network structure, competence-centric differentiation, worker-autonomy, flexibility, power sharing by leaders, motivation support by leaders, and development by leaders) that positively impact the agility of the workforce. This new view reveal ICW as an important and powerful instrument for establishing workforce agility in organizations and highlights ICW's potential beyond its already known advantages that are discussed in extant literature. I also explain how ICW, as a new and innovative form of work organization, differs from traditional forms of work organization. Thereby, I show what determines ICW as an agile form of work organization (e.g., the inherent network structure of ICW). Hence, my research findings significantly expand the existing understanding of ICW as well as of agile forms of work organization. My insights contribute to broadening the definition and perspective of ICW. In future, ICW's work organization characteristics should be considered as a constitutive element of ICW definitions.

5.5.2   Influencing Factors on Workforce Agility and Psychological Effects

As described, for a long time scholars assumed that there exists only a linear relationship between the antecedents that positively impact workforce agility and workforce agility (Harsch/Festing 2019). Younger research in the field of workforce agility, however, has begun proposing to consider employees' psychological effects. It is assumed that the relationship between specific methods, practices, instruments etc. and workforce agility could be supported and explained in more detail through these psychological effects (Harsch/Festing 2019; Storme et al. 2020). However, research endeavors in this area are still in their infancy and only on a theoretical level. My findings contribute to this specific research field in two ways.

First, based on my empirical data, I propose that psychological empowerment in employees play an important role in this relationship. I found that psychological empowerment has an inherent mediating mechanism that functions between ICW's empowering leadership character and workforce agility. This psychological effect in employees explains ICW's influence on workforce agility in more detail. It certainly can be assumed that this insight from my context can be generalized in some way. It can be concluded that – for example – psychological empowerment may also mediate the linear relationship between autonomy and workforce agility. This is because autonomy, which in agility literature is discussed for more than ten years now as an empirically validated

influencing factor of workforce agility (Sherehiy/Karwowski 2014), is very close to what I identified as self-organization characteristic of ICW.

Second, I looked at agile mindset as a psychological effect. Based on my empirical data, I further postulate that the linear relationship between ICW and workforce agility is moderated by higher levels of agile mindset that the employees in an ICW context hold. It certainly can be concluded that this insight from my context can also be generalized and that the linear relationships between, for example, autonomy (Sherehiy/Karwowski 2014), collaboration (Muduli 2017), and other factors on the one side and workforce agility on the other side are influenced by the agile mindset moderator. This is because each measure, mechanism, instrument, or practice that shall establish workforce agility also depends on the inner attitude of an individual towards agility.

In sum, these two insights that I gained from my research contributes to the young research field that looks on the role of psychological effects in the relationship between enabler that impact workforce agility and workforce agility. I contribute by deepening and empirically validating the first attempts to understand employees' psychological effects in this relationship.

5.5.3 Agile Mindset

My research contributes to the body of knowledge on agile mindset. As described, research on agile mindset is at the very beginning. The sparse knowledge gained until today is largely based on practice-driven insights, scientific empirical and theoretical insights are still rare (Miler/Gaida 2019; Mordi/Schoop 2020). Initial research provides first, inconsistent attempts to define this phenomenon (Miler/Gaida 2019). Overall, there neither exist a comprehensive and profound conceptualization, definition, or description, nor empirical validations of this phenomenon. Against this backdrop, my qualitative research offers a first endeavor to define the phenomenon of agile mindset. Based on my empirical data validation, I deliver a three-dimensional definition that profoundly explains agile mindset as a multidimensional attitude of employees in agile work environments for the first time. By so doing, my research significantly contributes to that kind of attempts in the research area of agile mindset that until today seeks to determine and define this so far unclear phenomenon. I therefore contribute by providing more clarity and an expansion of the body of knowledge.

5.5.4 Relationship between Enabler that Impacts Workforce Agility and Workforce Agility

As described there exist a bunch of studies that explicitly identify single influencing factors, such as collaboration (Chonko/Jones 2005), autonomy (Sherehiy/Karwowski 2014), or job enrichment (Muduli 2017), that positively impacts workforce agility (Harsch/Festing 2019; Muduli 2013; Muduli/Pandya 2018). However, the extant studies in this area deliver insights only on an abstract level. While it is indisputable that the existing works empirically validate that there exists a correlation between the introduced influencing factors and workforce agility, however, on a deeper view there are important questions that until today remained unanswered. My research findings contribute by delivering answers to some of these questions.

For example, as it concerns collaboration one can ask how must collaboration on an employee level be arranged so that it positively influences workforce agility? My results reveal that collaboration not only must be characterized through cross-divisional and -functional collaboration activities among employees, but also across hierarchies. In terms of autonomy, so far it was unclear how employee autonomy has to be designed in order to have an impact on workforce agility. Here, I found that it would be good that employees can decide on their own whether to undertake a certain task. Further, it is important to allow teams of employees, who jointly work on a certain task, to organize the work on this task on their own responsibility. In terms of employee job enrichment, until today it remained unclear which kind of jobs will enlarge, respectively enrich employees' range of tasks so that it has a positive effect on workforce agility? I found that task should be of higher complexity, which means that these tasks and projects are fare more than daily routine work that require only a few minutes to be completed. On the other side, these tasks and projects are actionable and uncomplicated enough to be completed within a relatively short timeframe of weeks instead of years. These are only a few examples. Overall, my finding deepens the extant understanding on the various influencing factors that impacts workforce agility and therefore, expands knowledge in the research area around workforce agility.

5.6 Conclusion and Managerial Implications

In my research, I decoded the work organization characteristics of ICW. I empirically identify seven main characteristics of ICW that elevate ICW to a powerful instrument for establishing workforce agility in organizations and highlights ICW's so far

undetected potential. What makes ICW so powerful is that it can function as an organization-wide work structure and as a consequence ICW can establish workforce agility on an organizational level across hierarchies and divisions. ICW's character of an encompassing work structure with its individual, agility-enabling characteristics makes it per se more powerful compared to single measures, practices, or instruments, such as employee autonomy, collaboration, flat structures, etc., that shall contribute to more workforce agility. In practice, there are already different forms of work structures, that shall establish agility, in use (see section 4.3.1). For example, many companies are using Scrum, SAFe or LeSS to establish agility (Gerster et al. 2020). However, all these forms of work organization are made to establish agility on a team or project level or within separate divisions only.

Following the call from practice for more detailed knowledge on how to design company-wide work processes and structures that positively impacts workforce agility in organizations (Verhoef et al. 2021), the insights gained from my research can be taken by practitioners as a blueprint to implement ICW as an encompassing instrument for establishing workforce agility at their organization. My research findings demonstrate that ICW provides a combined set of different characteristics that positively impacts workforce agility. Beyond this my findings show which psychological effects ICW triggers at employee level. So, my research not only provides a concrete guideline how to implement the ICW instrument but also how to govern the workforce systematically and effectively on their way to more agility.

6 Faster, Better, Happier – Internal Crowd Work as Form of Structural Empowerment for Employee Empowerment and Success[21]

6.1 Introduction

In section 6 of my dissertation, I address and answer RQ3, which examines the perception of work by employees and, in particular, empowerment and its antecedents and outcomes in ICW.

RQ3   *What antecedents and outcomes of ICW can be identified in relation to employee perceptions and, in particular, empowerment?*

In RQ3a, I focus on the understanding of ICW as a structural empowerment mechanism enabling psychological empowerment.

RQ3a   *How and why does ICW as a form of structural empowerment affect psychological empowerment?*

ICW is gaining increasing importance as an innovative concept of digital work organization. By leveraging their skills and company-specific knowledge, employees are at the core of the implementation and application of ICW. This study examines ICW and its role as a structural empowerment vehicle driving the psychological empowerment of employees. This is done through a case study of a telecommunications company that has successfully used ICW for more than ten years and has more than 10,000 employees as part of the internal crowd. Using a mixed-method approach, a model for an in-depth understanding of empowerment in ICW is exploratively developed based on qualitative data (232 free-text responses, an interview with the works council and the project manager plus document analysis). This shows that ICW is a form of structural empowerment that promotes psychological empowerment. Furthermore, organizational enablers of empowerment in ICW are identified as important prerequisites and success factors. Additionally, the study shows how ICW promotes psychological empowerment and can lead to higher speed, increased

synergies, and higher employee satisfaction. A quantitative deep-dive (survey with 413 employees) provides additional figures on the structural empowerment mechanisms in ICW as well as on reasons for participation, task choice, and employee perceptions.

Therefore, this section is structured as follows: First, I present my research strategy for the study. In addition, I give an overview of the case I have chosen and describe the data collection and the analysis of the qualitative and quantitative data. Subsequently, I present my findings. Thereby I address the qualitative and quantitative insights. Following this, I discuss my theoretical and practical contributions, my limitations, and future research opportunities. Afterwards, a conclusion summarizes the most important aspects of the study.

6.2   Research Strategy

To investigate empowerment in ICW, I used an exploratory case study including a mixed-method design (Guetterman/Fetters 2018; Yin 2003). My aim was to examine work organization, the management of the platform, and the structural and psychological empowerment in an exploratory manner and to understand the phenomenon in its entirety in order to enable the transfer of the knowledge gained to other settings (Orlikowski/Baroudi 1991) of digital forms of work organization. The exploratory approach is particularly useful for emerging problems and challenges (Yin 2003). Thereby, I illustrate the established theoretical understanding on empowerment within a polar case in order to better understand boundary conditions and limitations of the prevailing perspective in novel digital work contexts (Eisenhardt/Graebner 2007; Siggelkow 2007).

In my study, I complied with the requirements of appropriateness of case studies by Yin (2003) and build on existing empowerment research to shed light on empowerment in the specific context of ICW: I investigated structural empowerment in detail and how employees perceive their psychological empowerment in ICW. Furthermore, I investigated which organizational enablers influence structural and psychological empowerment and how this is achieved. I had no influence on the execution of ICW or the employees in my case, and, as described above, I investigated a novel phenomenon in digital work organization (i.e., ICW). In doing so, I provided conceptual insights into ICW, particularly on empowerment in ICW, in addition to descriptive explanations of ICW (Siggelkow 2007). Therefore, I examined an outstanding case of ICW that was

characterized by the very successful application of ICW over a period of more than ten years and with more than 10,000 registered employees. My case was exceptional and unlike most other cases (Siggelkow 2007) because it focused on the successful application of ICW (Beretta et al. 2021; Simula/Ahola 2014). Despite this uniqueness of my case, it is still a classic form of ICW, where the requestor is the company and the employees are the solvers (Zuchowski et al. 2016).

While I had a unique case and comprehensive access to data, I chose a holistic investigation of a successful application of ICW regarding the structural and psychological empowerment of employees (Walsham 1995; Yin 2003). Therefore, to obtain a complete and comprehensive understanding, I used a mixed-method research design to investigate my case. To conduct my mixed-method study, I used a parallel procedure in which the qualitative and quantitative data were collected in one step (Guetterman/Fetters 2018) and merged afterwards using a side-by-side approach (Creswell 2014). To comply to my explorative approach, the qualitative data was first analyzed in a context-specific manner and transferred into a model including the description of relationships and dependencies (big picture). Subsequently, the quantitative data was analyzed in the form of a deep dive with a focus on structural empowerment. It is supposed to provide a context-specific, i.e., ICW-specific, illustration of the guiding model derived from the qualitative data. From a mixed-method perspective, the inclusion of quantitative methodologies and data, for example, allowed for broader insights and more generalizable results, assuming the approach was logically chosen and the sample was appropriately large enough (Guetterman/Fetters 2018).

6.2.1 Case Description

The aim of TelCo is to reduce the risk of new production development and create an understanding for upcoming trends and topics using crowd intelligence of their employee base. Finding a way to reduce high rate of failures and the attached costs (i.e., risk-management) in product development and idea funding is one of the most pressing concerns for the company. Therefore, an ICW platform was created as a crowd intelligence approach. In addition, the platform was intended to increase employee participation and reduce the influence of single decision-makers on project direction and funding estimations as well as to support risk minimization and market-oriented product development.

The company's ICW platform was launched in 2010 and experienced steady growth and has been in regular operation since being fully implemented in 2013. By the end of 2018, more than 460 tasks had been completed via the platform. In 2020, more than 10,000 employees were registered on the ICW platform, with a participation per task ranging from 200 to 1,500 employees. The crowd is made up of employees from all hierarchical levels and all functional areas. Participation is completely voluntary, open for all, and the tool is available 24 hours a day. Employees can participate both in their free time or during their workday. According to the company, most employees use the tool during work hours.

TelCo uses ICW mainly for business model development, product development, and innovation (idea) management. Thereby, business and innovation areas are analyzed, and business ideas and models are evaluated and developed regarding market opportunities, risks, and customer benefits. In the area of product development, functionalities are tested, and customer benefits are evaluated or developed based on use cases. In addition, the willingness to pay for products and services is surveyed, and pricing models are developed, which are closely linked to the development of sales incentives. Therefore, the company works with four different types of task formats, which vary in the degree of complexity. *Voting and microtasks* deal with crowd evaluations. *Forecasting* tasks deal with the employees' ability to predict specific issues. The *ideation* challenge focuses on the knowledge of the crowd (e.g., customer pain point analysis, design thinking). This method provides detailed insight into customer pain points and can be used to find weak points in a service or product. In *business case* tasks, the employees' business experiences are the focus. Based on the concept of design thinking this method is applicable to more specific questions and business-concepts. After completion of the task format, the results are published with additional infographics via the ICW platform itself and on its intranet appearance.

6.2.2   Data Collection

To gain a comprehensive insight into empowerment in ICW and explore both the psychological empowerment of employees and the organizational enablers of empowerment in ICW, I used multiple qualitative and quantitative data sources enabling triangulation by comparing, completing, and complementing insights with the aim of providing a more comprehensive answer in my case (see Table 13) (Eisenhardt 1989).

Source	Description	Type of data
Interview	60-minute interview with works council member of the company (also initiator of ICW), and the project leader of ICW on detailed insights into the development of ICW, the organization of work, the implementation of individual tasks, the management of the platform, and psychological empowerment (see interview protocol project leader and works council in Appendix C).	Qualitative data
Documents	Analysis of several internal documents, presentations, and data on ICW success metrics.	Qualitative data
Meetings	Several coordination meetings with the parties involved (works council, project manager, ICW senior manager, data analyst) during the preparation and follow-up of the survey. Two informal discussions with the responsible works council.	Qualitative data
Survey	Survey with 413 employees active in ICW • 232 qualitative responses from 136 employees were generated by open questions about reasons for participation and dropout, topics, and suggestions for improvement. • Questions on motivation, choice and variety of topics, reasons for participation and dropout, usage using a number scale from 1 (= strongly disagree) to 5 (= strongly agree) including "no answer" option.	Qualitative data Quantitative data

Table 13:   **Data Collection**
Source: Simmert/Peters (2022)

6.2.3 Data Analysis of Qualitative Data

In terms of methodology, I used qualitative content analysis according to (Mayring 2014) to analyze the qualitative data (interviews, free-text responses from the survey, field notes, memory protocols, and internal documents). In doing so, I examined the available data material sentence by sentence and respective free-text responses in an iterative procedure using the software MAXQDA. The focus was on both structural and psychological empowerment as well as their interrelations with the organization of work and the management of the platform. I was able to cluster and name the initial codes directly from the material. I then enriched these initial codes with further text-based interview quotations, free-text answers, and quotations from the documents and consolidated the codes into overarching outcome categories that, for example, either provided information about the impact of ICW and its structural empowerment characteristics on psychological empowerment or represented important organizational enablers and factors for psychological empowerment in ICW. To ensure the validity and reliability of my qualitative data, I undertook several actions, which are summarized in Table 14.

Test	Tactics – How did I proceed?	Phase – Which stage?
Construct validity	• I selected interviewees in the data collection phase who differed in terms of their role and their function • I created a detailed and traceable chain of evidence by applying multiple sources of evidence with the interview, free-text responses, internal documents, presentations, data on ICW success metrics, coordination meetings, and informal discussions	• Data collection • Data collection
External validity	• I discussed the generalizability of my findings with ICW experts • I described my research design, analysis, participants, and interpretation of results in detail	• Research design and data collection
Reliability	• I developed and applied a detailed study protocol for collecting (e.g., interview guideline) and analyzing (e.g., coding scheme) the data • I assembled the interview recording and transcript, the free-text responses, and my field notes in a database • I followed an iterative coding process by two analysts in the data analysis	• Data collection • Data collection • Data analysis

Table 14: **Validity and Reliability of Qualitative Data**
Source: Simmert/Peters (2022) based on Eisenhardt/Graebner (2007), Morrow (2005), and Yin (2003)

6.2.4 Data Analysis of Quantitative Data

I used a descriptive approach to analyze the quantitative data. To show a comprehensive view of employee perceptions, I show the percentage of employees who answered each question on the 1-5 Likert scale. The definition of a high agreement includes participants who chose a 5 (= strongly agree) or 4 (= agree) on the number scale. 21% of respondents were female and 79% were male. On average, the respondents participated in 27 tasks (SD: 28.59). After the individual analysis of the quantitative data, I present the results and merge and compare the data on structural empowerment with the qualitatively obtained results. This allows me to consider and discuss converging and diverging results from the qualitative and quantitative data in addition to the deep dive into structural empowerment (Creswell 2014).

6.3 Findings and Insights

In this section, I explain the characteristics and interrelations of structural empowerment, psychological empowerment, its outcomes, and organizational enablers in ICW (see Figure 16). Therefore, I show that ICW as structural empowerment with its identified characteristics leads to psychological empowerment. In addition, I address the outcomes of empowerment in ICW and identify the organizational enablers of structural empowerment in ICW. Therefore, I use my qualitative data as basis for the developed

model of empowerment in ICW. Following I dive into structural empowerment and its characteristics in ICW using a deep dive of my quantitative data.

6.3.1 Empowerment in ICW (Qualitative Insights)

Based on the theoretical background of empowerment and with the help of the propositions, I explain the Figure 16 below, including the individual aspects of structural and psychological empowerment, the outcomes, and the organizational enablers of structural empowerment.

From the very beginning of ICW, the employees were involved in all steps from the development to the implementation and operation of the platform. Accordingly, the employees were to be given a voice to influence corporate activities in an autonomous manner. The employees can do their job in ICW freely and independently. In addition, it is shown that the work in ICW means something to the employees and that there is an opportunity for the employees to have an impact on what happens in the company.

> *"ICW is a grassroots tool and thus also allows employees to influence corporate activities." (Works council, TelCo)*
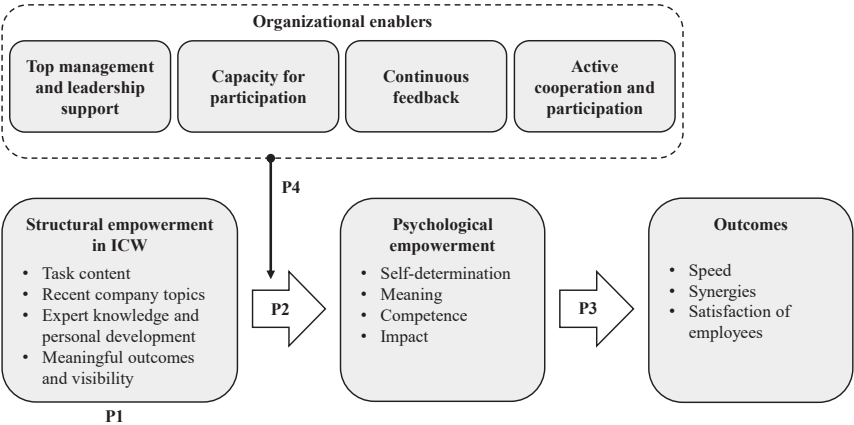
Figure 16:   **Model of Empowerment in ICW**
Source: Simmert/Peters (2022)

6.3.1.1 Structural and Psychological Empowerment in ICW

I identified a structural empowerment in ICW (i.e., task content, recent company topics, expert knowledge and personal development, meaningful outcomes, and visibility) and explain these characteristics including their interrelations to the dimensions of psychological empowerment (i.e., self-determination, meaning, competence, and impact).

I identified *task content* as the characteristic of ICW that especially fosters the self-determination of employees. Thereby, the topics and content of the tasks in ICW play a major role. For example, employees participate in particular because of their interest in the topics of the tasks. In addition, interesting and diverse tasks are requested by the employees so that a high variety of topics is available to the employees. The possibility of the employees being able to decide at any time voluntarily and autonomously when and in which tasks they participate represented an enriching experience for the employees.

> *"Often the topics are exciting and some of them are completely new to me. Thank you for this interesting opportunity to contribute to the topics via ICW." (Employee 7, TelCo)*

Moreover, I identified *recent company topics* as one characteristic of ICW that fosters the meaning dimension of psychological empowerment. Knowledge of what the company is working on was considered very valuable by the employees. Thereby, the participation in ICW provides them with information on topics that are being discussed in the company. Additionally, I found that employee curiosity can be a reason for participation. This gives employees the feeling of working on something meaningful and contributing to a large company.

> *"Creating a motivating, involving, good feeling so that everyone understands that their contribution can be innovative capital and could be beneficial to everyone in the company." (Employee 8, TelCo)*

> *"But I think the biggest incentive to participate in ICW is that employees in the individual units really get to see what's going on in the company. So, if a technician joins us, it is certainly also interesting for him to see what innovative product developments there are." (Project leader, TelCo)*

Expert knowledge and personal development were further characteristics of ICW that fostered psychological empowerment and, in particular, the competence dimension. In the area of expert knowledge, developing one's own expertise can become a motivator for employees. In doing so, employees apply both professional and private or privately acquired knowledge in ICW. Additionally, I found that the complexity of the problems also promotes the perception of competence of employees.

Expert knowledge is not limited to the core professional activity; it is evident that knowledge acquired privately is also in demand and applied. This gives employees the feeling that their knowledge and skills are valued. It also shows that prior knowledge of the topics increases the probability of participation in the tasks.

> *"I am both an expert in certain areas and a technology/innovation manager. Both can be motivating. " (Employee 10, TelCo)*

For employees, participation in ICW results in the opportunity for personal development, either by strengthening their knowledge in their areas of expertise or by gaining insights into other areas through dealing with new topics.

> *"I learn through questions and comments even in areas where I am not an expert. This helps me in my further development." (Employee 9, TelCo)*

Moreover, *meaningful outcomes and visibility* represented a characteristic of ICW that must be considered in terms of impact. Employees are motivated by the visibility of their work performance and by having a stake in the overall result. Helping colleagues develop products and services is also seen as important and valuable by employees. Moreover, employees' own responsibility out of a sense of responsibility toward the company's success, also plays a role.

> *"It's great to be able to contribute as an employee to bring great products to market and avoid failure." (Employee 12, TelCo)*

The employees also emphasized the importance of generating meaningful and useful outcomes through ICW. Thus, the targeted use of competencies plays an important role for employees. It turns out that employees sometimes decide not to participate in tasks because they do not meet the requirements for the required knowledge as perceived by

themselves. This procedure often occurs out of a sense of responsibility towards the company.

> *"If I have absolutely no idea about a topic, I drop the task to avoid distorting the result." (Employee 11, TelCo)*

I identified four characteristics of structural empowerment and consequently assume that ICW constitutes a structural empowerment practice. Hence, I assume:

*Structural empowerment in ICW is created by task content, recent company topics, expert knowledge and personal development and meaningful outcomes and visibility **(Proposition 1)**.*

The identified characteristics of structural empowerment in ICW foster the dimensions of psychological empowerment. Thereby, ICW represents a structural enabler of psychological empowerment of employees. Thus, I assume:

*ICW positively affects the psychological empowerment of employees **(Proposition 2)**.*

6.3.1.2 Outcomes of Psychological Empowerment in ICW

I identified speed, synergies, and satisfaction of employees as outcomes of psychological empowerment in ICW.

By specifically integrating ICW into the product and service development process, it is possible to obtain customer feedback in the sense of agile and iterative development. This enables an iterative approach and the integration of ICW into the development process at any time. In particular, the fast processing and thus direct integration possibility of the results enables *speed*.

> *"We are super-fast. From task definition to result report, we usually need three weeks." (Project leader, TelCo)*

In addition, there are organizational advantages through the identification and creation of **synergies** within the company, especially when the employees recognize that other departments and divisions are also working on similar issues, products, and services.

"We can create synergies. We regularly notice that several departments (sometimes up to 5) are working on the same topic but have no information about each other." (Project leader, TelCo)

Furthermore, the privately acquired knowledge of the employees, which goes beyond the actual core activities, can be used in a targeted manner.

"Employees have many competencies that we as a company don't know about because they go beyond the employees' core competencies." (Project leader, TelCo)

Moreover, regarding *satisfaction of employees*, it was shown that employees are satisfied with their work in ICW. This includes, for example, satisfaction with the tasks in ICW. In addition, most employees even identified with this new form of work organization and consider themselves as a part of the crowd.

To achieve the results described above – speed, synergies, satisfaction of employees – and thus to exploit the potential of ICW, it is necessary for employees to feel a sense of psychological empowerment. This is even more important because ICW is a form of work organization in which employees participate voluntarily and based on a self-selection process. It is therefore important to protect the self-determination of the participating employees in ICW. Furthermore, it is important to continuously provide interesting and challenging tasks that promote the employees' experience of competence and personal development. In addition, employees are more inclined to participate and thus get involved if they feel that they have an impact on what is happening in the company. Only when employees feel they are successful in ICW can the identified outcomes be created. It is of particular importance that the identified organizational enablers of psychological empowerment are considered within the ICW system. The realization of the desired results is thus closely related to psychological empowerment, because speed, synergies and satisfaction depend on numerous participants and the extensive and motivated involvement of employees.

To tap into the desired outcomes of ICW, the psychological empowerment of employees is a basic requirement. Therefore, I assume:

The psychological empowerment of employees positively affects the desired outcomes of ICW (i.e., speed, synergies, and satisfaction of employees) **(Proposition 3)**.

6.3.1.3 Organizational Enablers in ICW

I identified five organizational enablers for successful ICW and the enhancement of psychological empowerment within ICW: top management and leadership support, capacity for participation, active collaboration and participation, and continuous feedback. These organizational enablers serve as important factors within the ICW system in the interplay of structural and psychological empowerment.

Top management and leadership support. I found that top management and leadership support have an important role in ICW (Leung/van Rooij/van Deen 2014). Top management should act as an active ambassador of ICW. This can encourage employees to participate in ICW and convey the relevance of ICW from the beginning. For example, members of top management are active in the crowd.

> *"The crowd includes employees from all over the company, from all areas and all levels, from employees to top management."* (Project leader, TelCo)

However, it is not only top management that plays a decisive role. The focus is also on the active support of leaders. Thus, it is important for leaders to give the employees the feeling of support and encouragement to participate in ICW.

> *"Leaders should encourage ICW and not see it as a necessary evil that takes away resources in their own area."* (Employee 2, TelCo)

In addition, team leaders sometimes demonstrate a lack of understanding, which leads employees to question how their participation might negatively impact them.

> *"I need time for participation; team leaders sometimes show no understanding."* (Employee 3, TelCo)

Capacity for participation. In this regard, the available capacity of the participants or the free space granted for participation represents another important aspect. Thus, most employees participate in ICW when their time permits with other requests often taking priority. Therefore, the regular job takes priority over the ICW job.

> *"I had more important official activities to complete than ICW."* (Employee 5, TelCo)

Employees often lack the time to participate (Malhotra et al. 2017). Consequently, the lack of freedom to participate represents a major barrier to participation.

> *"I can only participate in ICW activities if I am not already 120% busy with my regular duties."* (Employee 4, TelCo)

To enable employee participation despite their extensive regular work, the employees request an extension of the processing period.

> *"I could imagine that more participants would become active if the deadline pressure were a little less."* (Employee 6, TelCo)

Active cooperation and participation. Employees expressed a desire for more participation both in designing and bringing their own topics to ICW.

> *"It would be great if you could determine topics to be discussed yourself."* (Employee 14, TelCo)

The employees were also looking for active cooperation or participation in the further development of tasks that are processed in ICW. Along these lines, the employees could further develop ideas, products, and services sustainably.

> *"Better question and answer system on forecasts. Since all comments are anonymous, it is difficult to have a dialogue between ideators and commenters."* (Employee 15, TelCo)

Continuous feedback. In addition, the employees need to be continuously informed about the results of tasks, especially regarding what will be made of the topics (Malhotra et al. 2017). Showing the outcome to participants increases their feeling of involvement with the whole process and their willingness to stay active. Thereby, employees request feedback on how results are used in the departments. On the one hand, this applies to the business impact created by the tasks and their results.

> *"I demand much greater transparency about the results and consequences of completed tasks."* (Employee 16, TelCo)

On the other hand, employees also request feedback on their individual performance within the tasks in ICW. Only in this way is it possible for employees to assess their

competency in the subject areas and thus increase their sense of competency in terms of psychological empowerment.

> *"Feedback on whether and how the tasks have had an impact on product development, for example, would be nice and motivating."* (Employee 17, TelCo)

Overall, I found that my identified organizational enablers reinforce the effects that structural empowerment has on psychological empowerment. I can therefore assume that my identified organizational enablers play a moderating role. Hence, I assume:

Top management and leadership support, capacity for participation, active cooperation and participation and continuous feedback represent organizational enablers that influence the effect of structural to psychological empowerment in ICW ***(Proposition 4)****.*

6.3.2   Deep Dive on Structural Empowerment in ICW (Quantitative Insights)

Following the qualitative results of my exploratory study, which provided a better understanding of empowerment in ICW with the presented model on empowerment in ICW, I now want to take a deep dive into structural empowerment. Structural empowerment represents an important factor for the successful long-term application of ICW. To further understand the characteristics, boundary conditions and limitations of structural empowerment as well as to support organizers of ICW with insights on how to successfully manage and influence employees to achieve superior results, I draw on my quantitative data and their results (see Figure 17).

In the dimension *task content*, interest and the variety of tasks play a particularly important role. 88% of respondents take part in the tasks in ICW if they consider the respective topic to be interesting. At the same time, 81% of respondents state that a reasonable variety of topics is available and 79% rated the topics as interesting. As a result, companies using ICW should place particular emphasis on topics and tasks that reflect the interests of the employees. This helps to achieve a high level of employee participation. The voluntary nature of participation in ICW is the focus in this regard. It is therefore important to design the tasks in such an interesting way that many employees feel addressed.

In the characteristic of *current company topics*, employees' need for information represents an important factor. 87% of respondents stated that their participation provides them with information about topics being discussed in the company. In addition to employees' need for information about current topics, employees' curiosity also plays a role, with 82% of respondents stating that their curiosity is a reason for participating.

In ICW, *expert knowledge* also emerges as a dimension of structural empowerment. Thus, 80% of the interviewees take part in tasks if these are related to their professional or private knowledge. Thus, ICW offers employees the opportunity to contribute a wide variety of their skills and knowledge, which goes beyond professional knowledge and includes privately acquired knowledge. A high degree of complexity is also appreciated by employees. For example, 74% of respondents said they enjoyed working on complex tasks. Thus, ICW could be used as an opportunity to break out of daily routines and pursue new or challenging tasks in a professional context.

In the dimension *meaningful outcomes and visibility*, 90% of respondents said that they enjoy the development of new products and services through ICW tasks. 77% of respondents contribute to product development with the help of ICW out of a sense of responsibility towards the company's success, and even 91% of respondents enjoy helping their colleagues in product development.
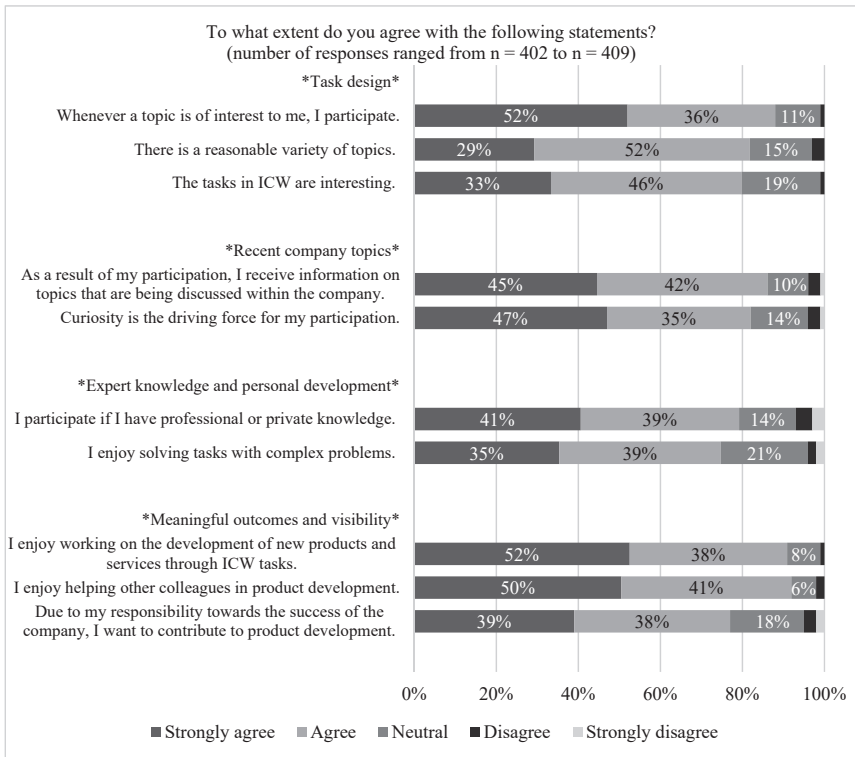
Figure 17: **Deep Dive Structural Empowerment**
Source: Simmert/Peters (2022)

6.4 Theoretical and Practical Contributions, Limitations, and Future Research

My theoretical contributions focus on the research fields of ICW and empowerment. Based on my qualitative data, I illustrate the established theoretical model of empowerment with deep situated insights and show how it can be contextualized in the context of ICW (see Figure 16). This allows me to gain a deeper and more fundamental understanding of empowerment in the ICW and thus understand the psychological implications around employee experiences and perceptions, which has not been the focus of research to date[22]. Thereby, I first show that ICW represents a form of structural

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[22] Deng/Joshi/Galliers (2016), Durward/Blohm/Leimeister (2020), Durward et al. (2019b), Simmert et al. (2020)

empowerment that has a positive antecedent effect on the psychological empowerment of employees. Following the call of Maynard, Gilson, and Mathieu (2012) to investigate structural empowerment bundles and their relationship on psychological empowerment, I identify characteristics of structural empowerment in ICW (i.e., task content, recent company topics, expert knowledge and personal development, meaningful outcomes and visibility) that foster psychological empowerment. In doing so, I explain how these characteristics promote the four dimensions of psychological empowerment (i.e., self-determination, meaning, competence, and impact). Second, I explain the outcomes that result from the empowerment-oriented application of ICW. Thus, I show that with the help of ICW, a fast task completion, and creation of content, the uncovering and creation of synergies can be achieved. I also identified satisfaction as employee-oriented outcome variable (Durward/Blohm/Leimeister 2020). Thereby, I show that empowerment as hitherto not yet well investigated mechanism, fosters the success of ICW and thus the mentioned outcomes. Hence, I extend the research on ICW respectively the outcomes perspective in ICW research by adding the aspect of empowerment. Third, I identified organizational enablers of empowerment in ICW. These organizational enablers reinforce the effect of structural empowerment on the psychological empowerment of employees. Only when the interplay of these aspects is considered, ICW can be successful and unfold its empowering effect on employees while delivering the desired outcomes.

To further understand structural empowerment and its relevance, I used my quantitative data for a deep dive. In doing so, I provide figures on the identified characteristics of structural empowerment in ICW based on a descriptive analysis and can thus underline the relevance of the individual characteristics and show boundary conditions and limitations of the prevailing perspective in a novel digital work context. In addition, with the complementary quantitative insights, I provide rationales for employees' participation in ICW, choice of tasks in ICW, and employees' perceptions.

Regarding my practical contributions, I provide practitioners with the opportunity to benefit from insights into successful and empowerment-oriented ICW implementations. Thereby, my very detailed case description offers valuable insights for the leaders responsible for ICW settings and campaigns. In particular, my identified and described structural empowerment characteristics in ICW, as well as my identified and explained organizational enablers for the successful application of ICW, give responsible leaders the opportunity to guide ICW and the involved employees in a targeted way.

As with every study, ours has limitations. I hereby discuss them, accompanied by terms of future research opportunities. First, despite my very extensive quantitative data, I conducted an analysis based on descriptive statistics. Further extensive surveys to illustrate interrelationships should therefore be undertaken in future research. Along these lines, antecedents, and outcome variables on psychological empowerment in ICW could be further explored and quantified so that my exploratory propositions are tested explanatorily. In particular, the organizational enablers that I have identified qualitatively can also be examined quantitatively in terms of their respective effectiveness. In terms of qualitative data, I was able to gain valuable insights into the views of a company representative who was the ICW's project leader at TelCo. I also gained valuable insights from the free-text responses of employees through a survey. At this point, future studies could ask employees in more detail and, for example, use in-depth interviews to explore attitudes and perceptions related to structural and psychological empowerment in ICW. Furthermore, I focused on the experiences and perceptions of psychological empowerment as an individual success factor in ICW. Other people-related factors, such as workforce agility or leadership behaviors, should be considered in future research to ensure a comprehensive understanding of the context in ICW. While my case examines an outstanding (successful over a long period of time) implementation and application of ICW, future research can also look at unsuccessful or failed implementations and applications of ICW and examine their inclusion and psychological empowerment. In addition, it would be exciting to examine other forms of crowdsourcing, such as internal crowdfunding, regarding their empowering effect.

7 Leaders, Empower Your Workforce! Analyzing Leadership in Internal Crowd Work[23]

7.1 Introduction

In section 7 of my dissertation, I address and answer RQ3, which examines the perception of work by employees and, in particular, empowerment and its antecedents and outcomes in ICW.

RQ3   *What antecedents and outcomes of ICW can be identified in relation to employee perceptions and, in particular, empowerment?*

In this section, I focus on RQ3b and therefore leadership in ICW.

RQ3b   *How does leadership in ICW affect the employee`s perception of work?*

New digital and agile forms of work organization require new leadership styles and competencies. Still, the understanding of leadership in these new forms of work is in its infancy (Xu/Shen 2015). For the individual employees, the procedural changes caused by ICW have an impact on the existing hierarchical structures and the authority to issue directives. In this regard, the use of ICW changes the existing leadership structures in the company. Nevertheless, new forms of delegating are emerging in practice, which, due to the use of ICW, change the traditional powers of instruction. In other words, the way in which tasks come from the company or designated leader to the employees is changing. The very heterogeneous group of people who can assume leadership or management within the context of ICW is conspicuous in operational practice. The active involvement in the management of the crowd not only gives employees new tasks but also more responsibility and decision-making power.

This poses a challenge for the leaders. Leaders find themselves in a wide variety, and sometimes numerous of roles and functions. In addition to their traditional leadership work in the line, they can continue to act as contact persons for any organizational issues and any questions from the employees within the ICW and/or can participate in the ICW itself. Participation in ICW gives leaders the opportunity to either take the lead in tasks

and projects or become a normal team member. With this, it is important for leaders to continue to assume leadership tasks but, at the same time, sometimes give up their decision-making powers and thus some of their power within ICW. These new tasks and approaches require a new way of leadership in ICW's digital work organization. To this end, it is necessary to first examine ICW's leadership structures and challenges.

Therefore, I first explain the conceptional background on leadership in ICW, including further leadership styles (flexible leadership, shared leadership, empowering leadership, and e-leadership). Afterwards, I explain my research strategy, provide insights into my cases, and show how I collected my data. Following this, I explain the constitutive elements of my theoretical model and how they relate to each other. Finally, I discuss limitations, future research opportunities, and provide insights into the contributions of the study.

7.2 Conceptual Background on Leadership in ICW

7.2.1 Flexible Leadership

A constantly changing corporate environment, such as changes in social values, the ability to lead organizational change and the influence of strong stress on employees leads to leaders also having to adapt their leadership behavior (Marques 2015). Thereby, new types of leadership styles are emerging. In addition, uncertainties and unusual, unplanned situations require an immediate response from the leader. In order to be able to react to such events and to ensure the continuity of a company, leaders need to be flexible and adaptable (Yukl 2008). Flexibility and adaptability are becoming more and more important, as changes in organizations take place faster and faster (Dess/Picken 2000; Yukl/Mahsud 2010).

Northouse (2018) describes leadership styles as patterns of behavior that show one person wanting to influence another. However, leadership style is not the only component that affects employee performance and the achievement of organizational goals. Of particular importance is the perception of leadership style from the employee's perspective and the perception of the relationship with their leader and the support they receive from the leader (McColl-Kennedy/Anderson 2002). However, there are first approaches that show the combination of different leadership styles. It is important to apply the appropriate leadership styles in each situation, especially in fast-paced new and agile forms of work organization. In this section I respond to the call for future

research in this area and systematically investigate the simultaneous existence or simultaneous application of different leadership styles (Günzel-Jensen et al. 2018).

Flexible and adaptive leadership generally includes the ability of a leader to adapt to different changing situations and to react adequately to these situations. Flexible leadership can be necessary in various situations. For example, flexibility may be needed in one and the same position when conditions change. However, flexibility may also be needed when a leader changes leadership positions and is confronted with other responsibilities and challenges (Yukl/Mahsud 2010). According to Kaiser and Overfield (2010), flexible leadership is defined as *"[…] adjusting one's leadership style, method, or approach in response to different or changing contextual demands in a way that facilitates group performance."* (Kaiser/Overfield 2010, 106) Flexible leadership implies that a flexible leader needs a broad repertoire of behaviors to respond to different situations and different types of social and organizational roles (Kaiser/Overfield 2010).

7.2.2 Shared Leadership

Pearce and Conger (2003) define shared leadership as:

> *"[…] a dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals or both. This influence process often involves peer, or lateral, influence and at other times involves upward or downward hierarchical influence."* (Pearce/Conger 2003, 1)

Shared leadership is a dynamic process. In contrast to most leadership theories, which focus on the leadership role of a leader, the shared leadership approach focuses on the role of team members in team-leadership processes (Carson/Tesluk/Marrone 2007; Pearce/Conger 2003). The shared leadership approach relies on the fact that leadership can be provided by more than one person in a group or team. In shared leadership, the source of leadership is distributed among different team members and not concentrated on one individual. This can result in team members leading in one area and following in another at the same time. With a high degree of shared leadership, different members of the team can take the lead at different times and situations (Carson/Tesluk/Marrone 2007; Pearce/Conger 2003).

There are different approaches to shared leadership. A general approach is that joint leadership takes place as an attribute at group level. Leadership behaviors are implemented collectively by group members (Pearce/Conger 2003). In this process, the team members influence each other and take on the various leadership functions in turn. In distinctive shared leadership teams, leadership tasks rotate between the team members. Thereby, studies have shown that shared leadership can have a positive impact on team performance (Carson/Tesluk/Marrone 2007).

7.2.3 Empowering Leadership

Employee empowerment from the perspective of leadership is a form of behavior in which responsibility and authority are shared with subordinates. The subordinates then have the responsibility to make competent decisions (Conger/Kanungo 1988; Thomas/Velthouse 1990). According to Amundsen and Martinsen (2014), empowering leaders can influence their subordinates by three different factors: The first possibility is 'power sharing'. The second possibility is 'motivation support'. In this motivational approach, leaders should motivate their employees to work autonomously and sharing power. The third possibility is described by 'development support'. Leaders should promote the growth and learning of their employees in their daily work tasks and the ability of self-leadership (Manz/Sims 2001). Empowered employees therefore require two key characteristics. On the one hand they have to feel empowered on a psychological level and on the other hand they have to have the ability to lead themselves (Amundsen/Martinsen 2014). Further details on empowering leadership can be found in section 4.3.2.2 and section 5.3.2.

7.2.4 E-Leadership

E-Leadership, also known as virtual leadership, is very diverse. In e-leadership, IT is the intermediary between geographically dispersed employees, teams and leaders (Avolio/Walumbwa/Weber 2009). In this context, e-leadership represents an influencing process that uses technical resources to address the attitudes, mindsets, behavior of employees and groups, and subsequently their performance. This involves all hierarchical levels and collaboration constellations, such as one-to-one or one-to-many relationships in departments or entire companies. Leaders are required to take an active role in their leadership and to create the appropriate social structures for the appropriate use of technology (Avolio/Kahai/Dodge 2000). Effective e-leaders regularly perform several leadership roles simultaneously and communicate with their team

members, answer their questions, give feedback or instructions (Kayworth/Leidner 2015) in an environment characterized by time differences, geographical distance, and cultural differences (Avolio et al. 2014).

7.3   Research Strategy[24]

To understand leadership in ICW, I applied an exploratory case study approach (Yin 2003). My aim was to investigate ICW, leadership, and the perception of the participants, to understand the phenomenon in its entirety in order to transfer the knowledge gained to other settings (Orlikowski/Baroudi 1991) of agile and digital forms of work organization. Without explicitly building on a predetermined conceptualization (Gioia/Corley/Hamilton 2013; Klein/Myers 1999), I provide new and innovative insights into ICW and leadership including detailed insights and descriptions of the leadership styles, the perception of work of employees and the important factors within ICW. Moreover, I derive a theoretical model including interrelationships of leadership styles and outcomes in ICW. Therefore, I investigate four different global companies. In all my cases the employees of the companies act as internal crowd worker and process projects and tasks via an IT platform based on an open call for participation (Durward/Blohm/Leimeister 2016; Zuchowski et al. 2016).

7.3.1   Case Description

The first investigated case is in a multi-national automotive corporation (hereafter called "ACorp") that has started ICW in 2016 to foster knowledge sharing within the company. For this purpose, the company has introduced an IT platform that helps to solve regularly occurring problems and tasks and to improve internal cooperation. In particular, the focus is on process and interface optimization. In my second case, a globally operating information service provider (hereafter called "ISP") in the field of software development relies on ICW to improve business processes, especially in the areas of quality assurance. The focus of the projects and tasks is on programming, testing and design tasks. The third case describes another globally acting automotive manufacturer (hereafter called "AMan") that wants to become a more agile company through the introduction of ICW. The focus is on collaboration in agile and cross-functional projects and tasks in complex environments. In particular, projects and tasks beyond the regular

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line business are solved. My fourth case is one of the world's largest suppliers to the automotive industry, called AIS as described in section 5. At AIS, ICW is applied within the scope of an ongoing cultural change and change in working methods towards an agile organization. Thereby, employees work on various projects, tasks, and ideas from all areas involved using the IT platform.

To prevent elite bias (Myers/Newman 2007), I have chosen these four diverse cases and companies to overcome single case biases and to address the different characteristics of ICW. Therefore, my four selected cases are very diverse in their implementation. In Case 4, for example, 10 percent of the regular working time is made available to employees for work on the IT platform. The resulting working time is freely assignable and does not require any further coordination with the leader. In Case 3, on the other hand, the employees are usually released for work in ICW, especially in long-term projects.

7.3.2 Data Collection

In all cases I had very extensive insights into the implementation and realization of ICW (e.g., scientific long-term observation of pilots). As my main data source, I was able to conduct in-depth interviews with the stakeholders involved (leaders, employees, project leaders, project managers and works councils). My aim is to provide an unbiased data basis. Therefore, I constructed a maximum variation sample that allows to identify essential features of a phenomenon (i.e., ICW) as perceived by diverse stakeholders among different contexts (i.e., employees, leaders, project leaders, project managers and works councils of four organizations) (Suri 2011). Thus, I selected interviewees who differ regarding their function, position, age, and length of service. In this way I am able to reflect all points of view with my data. In total I have conducted 30 semi-structured interviews (see Table 15). With this kind of interviews, I can examine the attitudes, values, beliefs, and the views of a person towards a phenomenon of interest in detail (Schultze/Avital 2011). To achieve my research goal of investigating leadership in ICW, I have developed case specific interview guidelines with a focus on the understanding of ICW (including working conditions), experiences of employees, management, and leadership (see Appendix B and D). All interviews in the four cases were conducted between May 2017 and August 2018. The time benchmark was approximately 45 minutes each. In this way, interviews with a length of 30-90 minutes were created. Most of the interviews were conducted face-to-face. In cases where a personal interview was

not possible, Skype or telephone was used. Subsequently, the interviews have been analyzed by using the analysis software MAXQDA.

Case	No.	Age (Gender)	Type of stakeholder	Department
ACorp IT-platform for collaborative problem solving and task processing to improve internal cooperation	1	52 (f)	Leader	Sales
	2	56 (m)	Employee	IT
	3	42 (f)	Project leader	Supply Chain
	4	48 (f)	Employee	After Sales
	5	58 (m)	Leader	IT
	6	53 (m)	Employee	Supply Chain
ISP IT-platform for cross-functional improvements of business processes, especially in software development	1	35 (m)	Leader	Marketing
	2	39 (f)	Leader	Human Resources
	3	46 (f)	Leader	Sales
	4	35 (m)	Leader	IT
	5	45 (f)	Leader	Development
AMan IT-platform for agile and complex cross-functional projects outside the formal processes	1	30 (m)	Employee	Accounting
	2	37 (m)	Employee	IT
	3	37 (m)	Leader	Management
	4	43 (f)	Project leader	Administrator
	5	51 (f)	Works council	
AIS IT-platform for processing tasks and projects from various areas and contexts	1	25 (f)	Employee	Human Resources
	2	24 (f)	Employee	Human Resources
	3	38 (f)	Employee	Project Management
	4	48 (m)	Employee	Data Management
	5	42 (m)	Employee	Corporate Development
	6	49 (m)	Leader	Change Management
	7	52 (m)	Leader	Simplicity Management
	8	50 (m)	Leader	Corporate Marketing
	9	59 (m)	Leader	Human Resources
	10	54 (m)	Leader	Commercial Excellence
	11	62 (m)	Project leader	Quality Management
	12	27 (m)	Project manager	Engineering
	13	32 (f)	Project manager	Legal Affairs
	14	51 (m)	Works council	

Table 15: **Overview of Conducted Interviews in Four Cases of ICW**
Source: Simmert/Peters (2020)

7.3.3 Data Analysis

In contrast to quantitative research, qualitative data can provide insight into and explain complex social processes. This is especially true when researchers are investigating an interesting phenomenon for which previous explanations do not fit, but theory can be derived from the data to explain it (Glaser/Strauss 1967; Suddaby 2006). In this regard, Conger (1998) and Insch, Moore, and Murphy (1997) demonstrate the significance of qualitative research in the research field of leadership. First, I try to understand each case individually in detail, including its peculiarities and characteristics (Eisenhardt

1989). Afterwards, analogous to the study in section 5, in which I examine ICW and its relation to agility, in this study, I also follow Gioia, Corley, and Hamilton's (2013) well-established approach to analyze the qualitative data collected in my four cases. Accordingly, my approach is based on the described procedure from section 5.2.3.

7.4 Results and Discussion

7.4.1 Constitutive Elements of my Theoretical Model

For my theory development, I created a basic data structure consisting of 1st order concepts and 2nd order concepts. 1st order concepts refer to the action leading aspects identified in the interviews for all stakeholders involved and refer, in particular, to leaders and employees. In a second step, these aspects were transferred into 2nd order concepts. These form the extraction of the 1st order concepts. By means of these two iterations I am able to derive the aggregate dimensions. The aggregate dimensions are briefly presented and explained in the following (including some but not all exemplary quotes from interviewees) and can be viewed in detail from Figure 18 to Figure 23. To present my results rigorous and comprehensible, I use a tandem procedure, underlining the findings together with supporting voices of the interviewees, observations or text passages from the documents (Gioia/Corley/Hamilton 2013).

Flexible leadership. The results indicate a necessary situational choice of different leadership styles and an optional combination of leadership styles (see Figure 18). In ICW, leaders face different situations, work, and task contexts. While their knowledge and skills are in demand in some contexts as mentors and coaches (cf. empowering leadership), there are also tasks and projects in which they have to put themselves in the role of workers as team members. Leaders need to adapt quickly and flexibly to new, different, and complex situations, functions, and work contexts.

> *"It will be more difficult for leaders to lead, steer, control and evaluate their team. Employees are no longer just part of the line organization and always available. They work together with the leader in other contexts. This changes the way we deal with employees. Leaders must adapt to these situations." (Interviewee 8, AIS)*

| | 1st Order Concepts | 2nd Order Themes | Aggregate Dimensions |
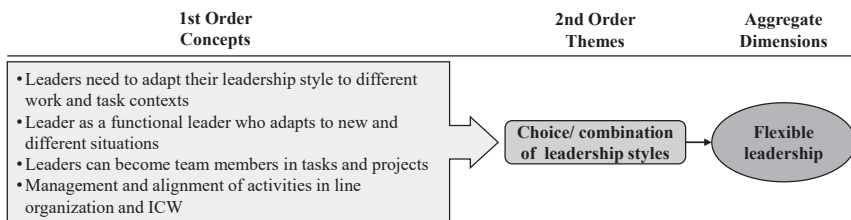
Figure 18:   **Flexible Leadership in ICW**
Source: Simmert/Peters (2020)

Shared leadership. My results indicate a clear orientation and shift of leadership in digital forms of work organisation (i.e., ICW) towards a shared leadership that is designed as a dynamic process (Pearce/Conger 2003). In this context, I have identified four key factors for leaders that need to be considered. First, it is a top priority to communicate to employees that they have the full commitment of their leaders to participate in ICW. This requires a self-reflective approach to the loss of power that comes with shifting leadership tasks to the internal crowd. For example, one interviewee stated:

> *"It is therefore important to have the complete commitment of the leader. Often, however, this commitment does not exist because the leaders do not want to give up their best employees." (Interviewee 8, AIS)*

Moreover, the focus in ICW is on the mutual support of employees. Proposals for solutions and their implementation are intensively discussed in teams. Through a special commitment, employees receive recognition of the other team members. This leads to an interplay between leaders and employees, in which all team members can take the lead within the project or the task. In this context one interviewee stated:

> *"Ideally, the principal should have the required skills. [...] Ultimately, the role of the principal or project leader can be performed by any employee." (Interviewee 4, AIS)*

In addition, it is of great importance to ensure the independent processing of tasks and projects. At this point the result of the work is in the foreground. The result is evaluated at the end. The way to achieve this is left to the employee or the team. More detailed insights into shared leadership in ICW are provided in Figure 19.
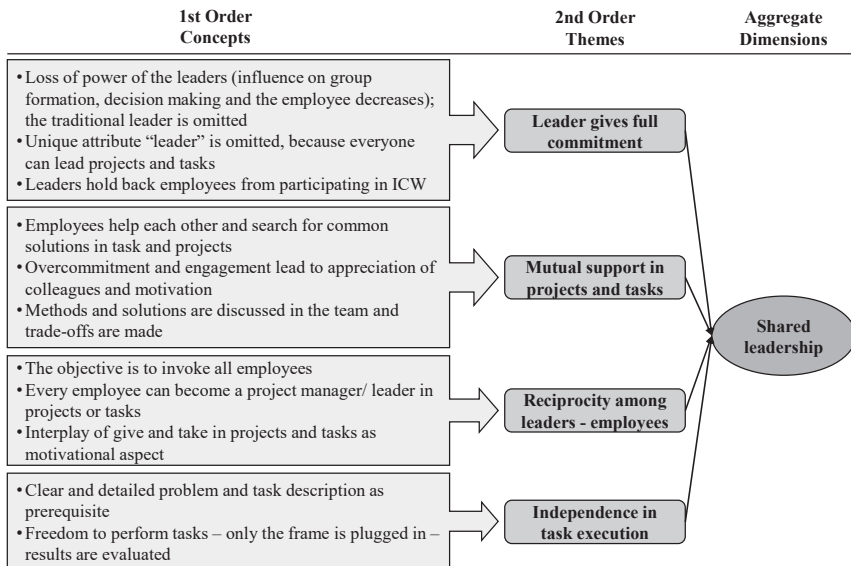
Figure 19: **Shared Leadership in ICW**
Source: Simmert/Peters (2020)

Empowering leadership. In the ICW cases, I also found a strong indication for empowering leadership. My results show that enabling autonomy plays an important role in the implementation process of this new form of work. On the one hand, the leader has an enabling and motivating role. On the other hand, the leaders themselves can benefit from a perceived workload relief. Furthermore, the role of leaders in digital and agile projects and tasks is changing via the IT platform in ICW. The leader is expected to play a supportive role as an agile mentor, e.g., by removing obstacles for project teams and individual employees.

> "Each team requires a facilitator who ensures compliance with the agile work, moderates meetings, ensures that overall framework conditions are respected." (Interviewee 4, AIS)

In the area of empowering leadership, the self-leadership (Manz 1986) of both the employee and the leader himself is also a key factor. The aim is to promote the self-organization of employees on an ongoing basis and to support it with ongoing development measures. In addition, the challenges presented in such new digital forms

of work also challenge leaders with their self-leadership skills. The aim is to develop one's own knowledge of this new form of work with a perspective of trust-based management. Figure 20 provides a detailed insight into empowering leadership in ICW.
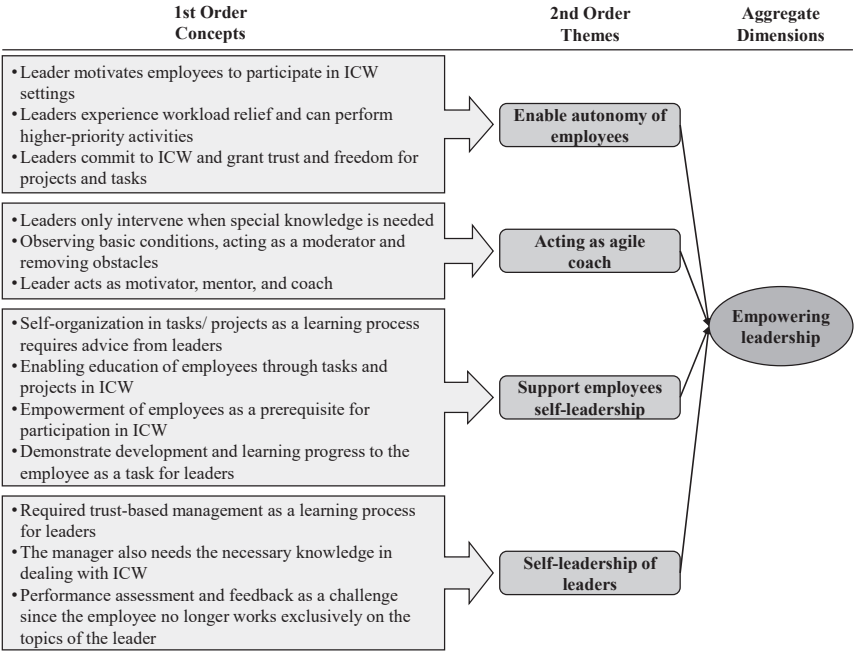
Figure 20:   **Empowering Leadership in ICW**
Source: Simmert/Peters (2020)

E-leadership. My results also demonstrate the increased use of concepts from the field of e-leadership (Avolio/Kahai/Dodge 2000; Avolio/Walumbwa/Weber 2009). According to the digital organization of work via an IT platform, finding evidence for e-leadership in ICW is not surprising. Nonetheless, in this context there is not only the challenge of managing a completely new digital workplace (for example: ensuring that all tasks and projects are presented clearly and in detail) but also the challenge of penetrating and managing the technical aspects of the IT platform. In this context two interviewees stated:

"We have this sharepoint representing our digital location, including calendar, etc." (Interviewee 1, AMan)

"We need a better description of the problem and the solution from the beginning, so that the processing times are shortened, and the understanding of the problem is strengthened." (Interviewee 5, ACorp)

In addition to these organizational requirements, cross-cultural aspects, which are reinforced by the work on an IT platform, must also be considered against the background of the very diverse participants worldwide. For more details, please see Figure 21.
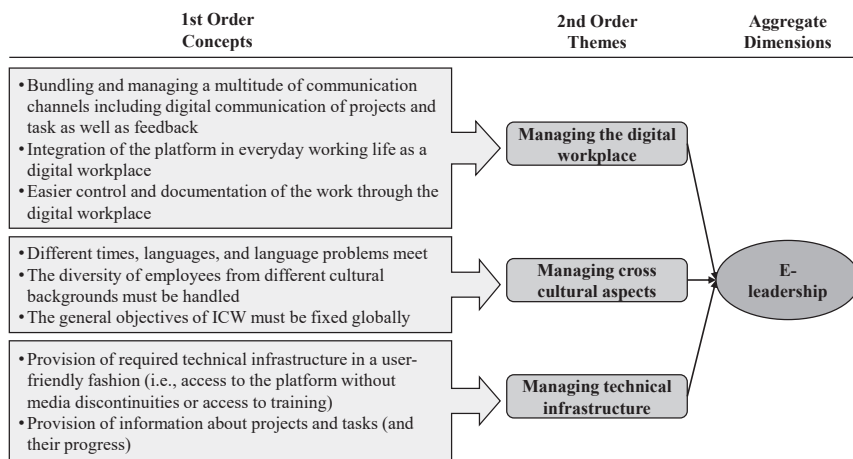
Figure 21: **E-Leadership in ICW**
Source: Simmert/Peters (2020)

Psychological empowerment. My results indicate that the focus is particularly on the intrinsic motivation of the participating employees and therefore psychological empowerment with its dimensions self-determination, meaning, competence and impact (Spreitzer 1995) (see Figure 22). The voluntary self-selection of participants plays a particularly important role regarding self-determination of employees.

"It is currently the case that the employees can all say on their own responsibility: I want to get involved now. Without consultation of the leader." (Interviewee 12, AIS)

Thus, according to the competence dimension, projects and tasks can be chosen based on one's own abilities and interests or initiated by the participants themselves. The

employees are given complete responsibility for the solution fostering the feeling of impact. In this way, employees also have the opportunity to develop themselves personally and receive a proper appreciation of their work, which strengthens their sense of significance. On the basis of these results I see a clear indication that employees are empowered in their work and that a psychological empowerment (Conger/Kanungo 1988; Spreitzer 1995) is fostered.
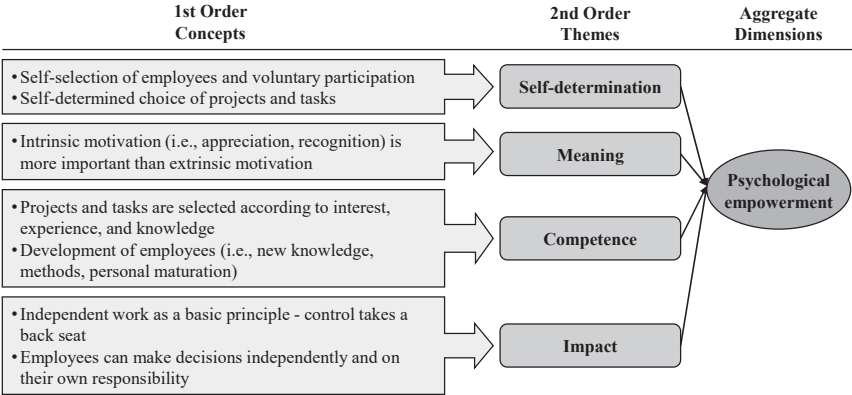
Figure 22: **Psychological Empowerment in ICW**
Source: Simmert/Peters (2020)

Workforce agility. Since ICW can be considered as an agile form of work organisation, my results indicate the emergence of workforce agility promoted by ICW (see Figure 23). By focusing on collaborative work beyond department boundaries and putting together cross-functional teams for projects and tasks, department silos are reduced, and company-wide cooperation is promoted. Moreover, through cross-functional collaboration with experts from other areas of work, employees disseminate their knowledge within the company. In this way, silos of knowledge are avoided, and expert knowledge can be used precisely. Consequently, a proactive behavior of the employees can be identified. Summarizing this, an interviewee explains:

"The nature of the work is now really shared with different departments and areas. You get to know completely new people, and it promotes networking. You get new ideas or new knowledge, simply because you get involved in other topics." (Interviewee 12, AIS)

Moreover, the hierarchy-free and capacity-based processing of tasks and projects enables problems to be solved quickly and in a responsive manner. Furthermore, enforced by the possibility to solve own ideas, problems, tasks, and projects at any time or to put them out to employees, an accelerated problem solving and processing and therefore an adaptive behavior of the employees develops. In addition, the working time of the individual employees can be optimally used. Finally, the mutual support and trusting cooperation between employees and leaders leads to an improved working atmosphere within the company. This triggers a completely new sense of group cohesion and commitment representing a resilient behavior of employees.

> *"The implementation of the same solutions would save a lot of work for everyone and would also help to further strengthen the sense of community within the group." (Interviewee 2, ACorp)*

1st Order Concepts	2nd Order Themes	Aggregate Dimensions
Enforced cross-functional collaboration • Focus on cross-functional group formation and collaborative work beyond departmental boundaries and cooperation across divisions, functions and hierarchies • Divers Teams enable a broader view in task and project processing **Enforced Knowledge Sharing** • Knowledge sharing between employees and in the company by cross-functional collaboration • Employees transfer their knowledge gained in internal crowd work into regular activities	Proactive behavior	Workforce agility
Accelerated problem solving and processing • Quick discussion of problems and solutions • Quick responsiveness through ad hoc team composition and task processing as well as omitted hierarchy levels and decision paths • Fast capacity provision and compensation of peak loads	Adaptive behavior	
Enforced group cohesion • Sense of community and mutual support among employees and leaders as well as the entire company • Networking within the company **Efficient use of resources** • Expert knowledge (including privately acquired knowledge and skills) can be optimally used through an ideal task-employee match • Productive use of idle times and thus better utilization of working time	Resilient behavior	

Figure 23: **Workforce Agility in ICW**
Source: Simmert/Peters (2020)

7.4.2 A Model of Leadership in ICW

The created data structure represents the basic in-depth knowledge on my cases. Nevertheless, it is static knowledge in a dynamic environment (i.e., ICW). Accordingly, I follow Gioia, Corley, and Hamilton (2013) and develop an inductive model on the basis of the data obtained that represents the dynamic relationships between leadership and an empowered workforce in digital forms of work organization (i.e., ICW). My model is shown in Figure 24.

My identified leadership styles indicate an important success factor regarding the emergence of empowerment in the workforce. Due to the multifaceted nature of the tasks and projects in ICW, it is important for leaders to react flexibly to the respective situations. Leaders must always take on different and new roles in ICW and draw on different leadership styles. Leaders can be team members in one situation, task, or project and at the same time coordinate the project in another team. Leaders must therefore react to the situation and apply the necessary leadership style (i.e., shared leadership, empowering leadership, e-leadership). Hence, I assume:

Leaders must adapt to different situations and must select the appropriate leadership style or combine the leadership styles according to the respective task or project *(Proposition 1)*.

The commitment of the leaders in ICW settings gives employees the confidence to work effectively. In this way, employees experience the ability to devote themselves independently to tasks and projects.

> *"There is a basic trust in the independent work of the employees." (Interviewee 11, AIS)*

> *"Employees can decide voluntarily whether they want to make a contribution to the solution-finding process." (Interviewee 1, ISP)*

Employees are also empowered to take on responsibility in projects and tasks in which they feel the necessary sense of competence and autonomy. Hence, I assume:

A supportive shared leadership in ICW settings, in which leaders are directly involved in projects and tasks, positively affects an employee's psychological empowerment *(Proposition 2)*.

Furthermore, the autonomy of employees plays a crucial role in digital and agile forms of work organization. The constant support of self-leadership and the promotion of self-organisation by leaders makes it possible to establish a new role.

> *"Today the employees are told to organize it themselves (self-determined), something like this would not have been intended in the past. As an employee, you have to see ICW as an opportunity to successfully implement new working methods." (Interviewee 4, AIS)*

As agile mentors, leaders can accompany employees on their own path to self-determination. That is why I believe that psychological empowerment is achieved with the help of a shared leader in ICW. Therefore, I assume:

*An ongoing empowering leadership in supporting employees in the participation of ICW positively affects an employee's psychological empowerment **(Proposition 3)**.*

Moreover, I observed that the consideration of work execution via IT-facilitated platforms also enables cross-cultural cooperation. Therefore, the management and technical maintenance of the digital workplace plays a particularly important role. The employees need access to the necessary information (i.e., access to information about task and project descriptions) and technical infrastructure to provide employees independent task and project choice based on their competences and interests.

> *"The employees also have access to the entire internal know-how and technologies. Those who are interested should only be willing to deal with the topics." (Interviewee 4, ISP)*

Hence, I assume:

*A supportive e-leadership in the implementation and operation of ICW positively affects an employee's psychological empowerment **(Proposition 4)**.*

Finally, I observed that an empowered workforce is a prerequisite of workforce agility.

> *"Our company wants to become more agile on all levels and therefore a mindchange is necessary." (Interviewee 8, AIS)*

Accordingly, empowered employees form the basis for implementing and continuing a new culture of cooperation and work implementation. Employees who are equipped with the necessary competence and decision-making authority represent a decisive adjusting screw. In my cases, it is evident that motivated and independently working employees bring the intended new kind of cooperation as ambassadors into the organization and furthermore promote the continuous use of IT platforms. Consequently, empowered employees are a prerequisite for the emergence of an agile workforce. In summary, I assume:

An empowered workforce positively affects the emergence of workforce agility (Proposition 5).
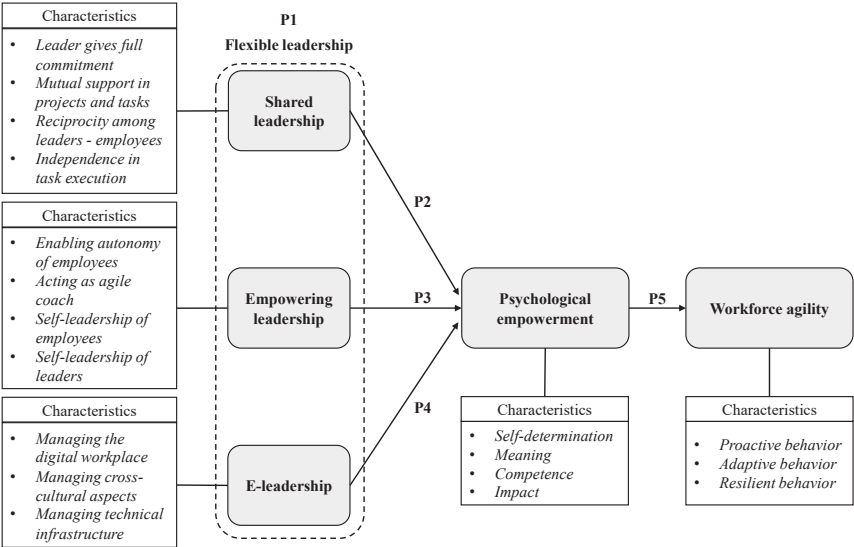
Figure 24:   **Theoretical Model of Leadership in ICW**
Source: Own Illustration adapted from Simmert/Peters (2020)

7.5 Limitations and Future Research

As all studies, my study nevertheless has some limitations and paves way for future research activities. First, I need to discuss the qualitative database of my results. While I have gained very comprehensive insights with my four very heterogeneous cases from ICW and the very extensive qualitative data collection, my theoretical model is based only on qualitative data. Thus, one approach for future studies should be to check the

propositions I postulated on a quantitative basis. Furthermore, the transferability of the data I have obtained from my case study ICW should be discussed. With ICW I have chosen a very clearly defined digital and agile form of work organization. In a next step, the knowledge gained in this study must now be specifically transferred to other digital and agile forms of work organization and their usefulness must be reviewed. While the presented ICW case studies investigate structural changes in the way work is organized and their effects on the agility of companies and employees, subsequent studies must also include individual aspects of an agile mindset and compare these with the structural aspects and adapt them to each other. Regarding leadership aspects, future work should consider several leadership styles simultaneously, as their effects may be interdependent. Moreover, the simultaneous application and situation-, project-, and task-specific application of different leadership styles should be considered in future studies.

7.6 Contributions and Conclusion

To my best knowledge, this is the first study to investigate leadership in ICW settings and thus in a clearly defined agile form of work organization. Using four case studies and rich set of qualitative data, I provide three theoretical main contributions. First, I detail and extend the findings of existing ICW research by addressing a previously non-represented field of research within crowd work, namely leadership (Zuchowski et al. 2016). Therefore, I can show that leadership is an enormously important aspect within digital and agile forms of work organization. In this context, I provide a detailed explanation how the internal workforce can be empowered by ICW (Deng/Joshi/Galliers 2016). In doing so, I contribute to prior research on empowerment[25] by extending and refining structural antecedents (detailed elaborated leadership styles including their requirements for leaders) and outcomes of empowerment (i.e., workforce agility) within ICW as a new form of work organization. Thereby, my theoretical model depicts, structural antecedents that enhance the emergence of psychological empowerment and, thus, lead to an increased employees' feeling of self-determination, meaning, competence, and impact.

Second, I expand the scope of three different leadership styles and demonstrate their explicit configuration in a digital and agile form of work organization (i.e., ICW). ICW

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[25] Conger/Kanungo (1988), Seibert/Wang/Courtright (2011), Spreitzer (2008), Spreitzer (1995)

enables several processes and structures (for example, hierarchy and cross-functional collaboration and strength- and motivation-oriented team composition) between employees and the system itself that are inherent to the nature of ICW. Thereby, ICW requires the combination of well-known leadership styles, in my case shared leadership, empowering leadership and e-leadership. In doing so, I go beyond the simple choice and description of leadership styles. I rather dive into the complex contexts and interrelations of flexible adaption of leadership styles to different situations and work and task contexts (Günzel-Jensen et al. 2018). Thereby, a combination of different leadership styles enables leaders a flexible handling of challenging situations, projects and tasks. Moreover, for leaders it is immensely important to choose the right leadership style for each situation, project, or task (for example, shared leadership projects and tasks in which leaders are directly involved as part of the team, or empowering leadership for leaders in supporting employees in the participation of ICW). Thereby, I am the first to explain leadership in ICW. Consequently, my findings indicate that leadership in ICW settings requires a fundamentally new approach. Especially employees acting based on self-selection and self-organization require a new role of the leaders. Agile mentors who act away from a control function towards supporting employees are therefore in demand. In summary, I expand prior research on leadership and transfer this knowledge from my cases to shared leadership (Pearce/Conger 2003), empowering leadership (Amundsen/Martinsen 2014; Conger 1989) and e-leadership (Avolio/Kahai/Dodge 2000; Avolio/Walumbwa/Weber 2009). Based on that, my results enable me to develop explicate guidelines for leaders in agile and digital forms of work organization (i.e., ICW). This simultaneously represents one of my main practical contributions.

Third, I generate important new insights to collaborative team literature (Maruping/Magni 2015) and agility in companies (Muduli 2017). Therefore, I found evidence of workforce agility enforced by ICW. Based on my cases I was able to formulate what constitutes an agile workforce and provide explicit data-based descriptions for the case of ICW. In this regard, I demonstrate that an empowered workforce is an important prerequisite for workforce agility. Therefore, I follow Day et al. (2014) and propose a new outcome of leadership mediated by psychological empowerment in ICW settings, i.e., enforced cross-functional collaboration, enforced knowledge sharing, accelerated problem solving, task and project processing, proactive behavior of employees, and enforced group cohesion as part of workforce agility

(Muduli 2017). In addition, my findings represent the outstanding role of leadership in digital and agile forms of work organization.

Regarding the study's practical contributions: I provide evidence of successful implementation and realization of ICW as a form of agile organization that meets the general need of companies for more agility. Through my clear definition of ICW, based on clearly identified crowd mechanisms, I provide starting points for transferring knowledge to other new digital and agile forms of work organization. In addition, I provide clear insights into what and, above all, why leaders should focus on in the new agile contexts. Furthermore, I offer knowledge about the important aspects of leadership in digital and agile contexts: In the future, leaders will have to be able to deal with new agile and digital settings in which the simultaneous combination and task-related application of leadership styles as well as the corresponding ability to retreat in certain situations to act as a normal team member. By demonstrating that leadership in the agile world needs these aspects, implications for the recruiting of executives can be drawn accordingly, but also appropriate personnel development and further training formats can be newly built or adapted. Finally, my results show that by flexible handling of different context-specific situations, projects and tasks of leaders combined with the choice of the appropriate leadership style, the employee potential, and the potential of capacity management in ICW can be managed and used in a targeted manner.

8 "Power to the People": How Employee Empowerment Fosters Idea Innovativeness in Internal Crowdfunding[26]

8.1 Introduction

In section 8 of my dissertation, I address and answer RQ4, which examines innovativeness and empowerment in ICF.

RQ4   *How do the innovation-fostering structures in ICF impact innovativeness and empowerment?*

ICF more and more is used by established companies as an instrument to engage employees in proposing and even implementing innovation projects that address ideas for diverse organizational challenges, such as improvement of products and services or the identification of how to achieve sustainability (Majchrzak/Malhotra 2020). While ICF is well recognized in practice for several years now, this phenomenon has been widely neglected in literature (e.g., Simons/Kaiser/vom Brocke 2019). In my research, I examine the perspective of employees who propose ideas in the first phase of ICF campaigns. I aim at exploring which psychological factors influence the degree of innovativeness of ideas and propose a theoretical model that illustrates the underlying cause-and-effect chain. I draw on insights gained from an in-depth case study at an engineering service provider. I found that, in particular, psychological empowerment plays an eminent role. My study contributes to theory by delivering first and profound insights in this field.

Therefore, the structure of this section is as follows: First, I explain my research strategy including the case description, data collection, and data analysis. Afterwards, in my findings section, I analyze the application and implementation of ICF in my case in detail and show a cause-and-effect model for innovativeness and empowerment in ICF. Following this, I explain my contributions, limitations of the study, and future research opportunities.

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[26] The insights presented in this section are partly based on Simmert et al. (to be submitteda). I thank my collaborators for the valuable feedback on my work.

8.2 Research Strategy

ICF research is in its infancy. Therefore, I chose an explorative case study setting (Yin 2003), thereby also following Eisenhardt and Graebner (2007) who argue this kind of research being appropriate in contexts where shedding light on so far under-researched phenomena is needed. This setting also deems appropriate as explorative qualitative research is capable to deal with phenomena that are of dynamic nature, are part of sociotechnical systems and their interrelated elements and are subject to emerging problems (Yin 2003). This case study setting is facilitated to describe and explain a phenomenon – here ICF – by enabling rich insights into individual cases. The intention is to enable theory testing or generation (Eisenhardt 1989) or to derive and determine questions, propositions, hypotheses, or constructs within an empirical study (Yin 2003). Within this research, I explicitly neglect building on predetermined conceptualization (Gioia/Corley/Hamilton 2013; Klein/Myers 1999) in order to allow for grasping new insights. For this purpose, I focus on valuable insights into the key factors in ICF, corresponding antecedents, and consequences including their relationships in the cause-and-effect chain in ICF leading to innovativeness.

I examine my case using a holistic approach to do best justice to my deep data access and the uniqueness of my case, and to consider the application, the effect in terms of innovativeness of the company, as well as the perceptions of employees, leaders, project leader, and works council (Walsham 1995; Yin 2003). With its implementation and application as well as the process (ideation phase, funding phase and execution phase; virtual coins, ideas, and decisions from employees, etc.) of ICF, my case represents a classic variant of ICF according to Yin's (2003) rationale for single case studies.

8.2.1 Case Description

My case represents a leading engineering service provider (hereafter called "ESP") in the automotive industry from Germany with more than 2,500 employees. This company is a subsidiary of a leading global automotive supplier and is responsible for the development of innovative engineering solutions. Within the company, access to traditional innovation channels and traditional innovation management is a major challenge for individual employees and teams. The classic process for submitting an idea or an innovation project can be characterized as very complex. To successfully convince the relevant committees, the ideas and projects should demonstrate the expected successes at an early stage as part of a comprehensive business plan.

Optimally, a customer has already signaled interest. As a result, the development manager decides on the idea or project. It has been shown that radical ideas or unusual ideas are often not considered in the normal innovation funnel. To address these problems of classic innovation management, to increase its own innovativeness, and to give employees an opportunity to participate in the innovation process based on their own ideas and projects, the company introduced ICF.

In the introduced case of ICF, employees can transform their own ideas and concepts into innovation projects and submit them to the ICF platform (ideation phase). Employees can act as individuals or in teams. I refer to them as inventors. Since almost all the projects examined are initiating teams, I speak of teams, or inventor teams. These innovation projects have an average budget requirement (funding target) of 10,000 € to 60,000 €. To put the projects on the platform, a short description of the projects is created by the inventors. In addition, further detailed descriptions of the idea and the project can be added. All employees of the company act as investors and receive 500 virtual coins at the beginning of each year. The investors can invest these coins in the projects and thus promote the implementation of the projects. The 500 coins can be divided holistically on a project but also on different projects. During a period of six month, teams can submit their projects to the platform and investors can distribute their virtual coins (funding phase).

The inventors must promote their projects to the investors on their own initiative. This advertising usually takes place outside the ICF platform to also reach employees (investors) not active on the ICF platform itself and thus to reach a broad circle of investors. Especially with high funding targets, it takes a lot of effort to make the projects known.

The managers of the ICF campaigns identified the fit of the topic or the project to the company as factors for successful funding or successful projects. Furthermore, the identification of the employees with the ideas and projects is in the foreground. Do employees, and thus the investors, understand the problem and put themselves in its shoes? The concreteness of the projects also plays a role, so that results-oriented projects and innovations tend to have better chances in the funding process. In addition, the focus of the innovation projects can be described as rather technology focused.

If the ideas and projects do not reach the funding target, it has been shown that leaders with own cost center responsibility as well as the top management can provide a so-called overfunding, where they can provide the budget needed and not found by the investors.

As soon as the specified funding target is reached by the virtual coins of the investors, the project is marked as funded and transferred to the regular project management tool of the company. The funded budget is released and made available to the teams - the execution phase begins (at the latest after the end of the funding phase). The teams can now start working on their projects and charge them directly in the project management tool or purchase the required products and services. Figure 25 illustrates the described ICF process.
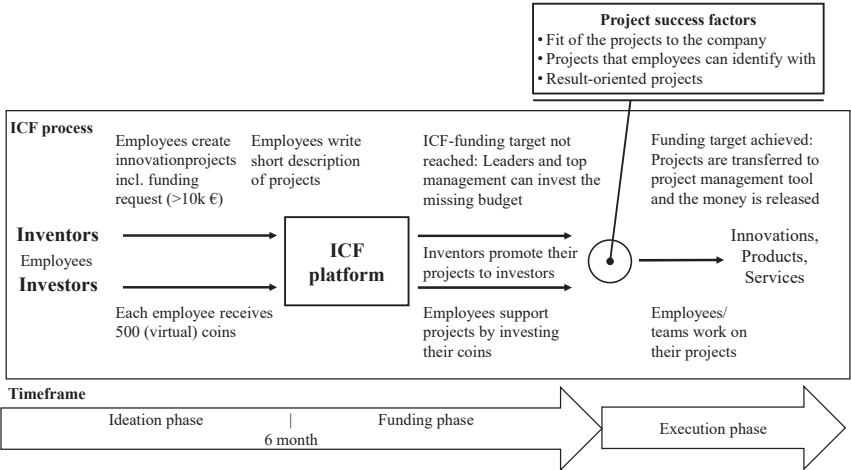
Figure 25: **ICF Process**
Source: Simmert et al. (to be submitteda)

The total annual budget for all projects in ICF is 500,000 €. This money is available for the funded projects. It is important to note that money can only be released for fully funded projects. Every year, a review committee, consisting of ICF project management, top management, development managers, executives, and the works council, discusses the budget for the upcoming year. At the beginning of the ICF's first year, 2,100 employees were eligible to participate, of which 1,050 employees (50%) fulfilled their investor role and actively contributed. 31 ideas were submitted, of which 12 reached the

funding target (equivalent to 39% funding rate). Another 7 ideas reached the funding target through additional cost center budget. In total, 445,000 € were spent in the first year of the ICF, 89% of the total budget. In the second year, 2,400 employees were eligible to participate, of which 420 employees (17.5%) actively participated. 8 ideas were submitted, of which 5 ideas reached the funding target (equivalent to 62.5% funding rate). Another project reached the funding target through additional cost center budget. In total, 228,000 € were spent in the second year, 46% of the total budget. The decrease can be explained by limited and more focused marketing regarding idea and project quality for ICF by project management.

The ICF platform is integrated into the company's intranet and thus offers all company employees access and the opportunity to actively participate as inventors or investors. The integration of the projects directly into the project world, namely the regular project management tool of the company, is also established. This direct integration enables both the allocation of the budget found and the standing of ICF to be positively occupied by the allocation of fixed project numbers and assigned budgets and employees. In this way, ICF is not seen as a cross-cutting issue at risk of losing importance through lack of support. The interviewees also see the transparent process and outcomes as an important point. This applies to transparency regarding the project proposals and whether and by whom they are funded as well as to clearly defined and transparent rules for dealing with ICF such as the rules governing the ICF process during the funding and execution phase, or the transfer of projects to the company's project management tool.

8.2.2 Data Collection

For my data collection, I was able to access different data sources (i.e., interviews, participation in evaluation discussion, internal documents). Data collection activities took place for a period of five month. Data triangulation allowed me to develop more robust findings (Eisenhardt 1989). I conducted five semi-structured interviews with several stakeholders (employees, leaders, project leader and works council) (see Table 16). Semi-structured interviews allowed me to analyze the attitudes, values, and beliefs of the interviewees in addition to the process and operations of ICF (Schultze/Avital 2011). In addition, the different backgrounds and functions/roles of individuals in their regular job as well as in ICF (i.e., inventors and investors) allow for the identification of essential factors and features in ICF (Suri 2011). The interviews had a length of 30 to 45 minutes and were conducted on site in the company and thus face-to-face. For this

purpose, I created a semi-structured interview guideline that addressed aspects of understanding, process, outcomes, and perceptions of ICF (see interview protocols in Appendix E). The interviews were recorded and subsequently transcribed for analysis. In addition, I participated in an evaluation discussion in which the goals and goal achievement status of ICF were discussed. I recorded the insights in the form of field notes. Furthermore, I had access to several internal documents on ICF and explanations and insights into ICF itself. These include presentations on the organization of ICF and insights from the annual ICF review including reports with figures, data, and facts about ICF. All data sources and information were collected in written form and analyzed with the help of the data analysis software MAXQDA.

No.	Role (age)	Department
1	Employee (30)	Mobile Robotics
2	Project leader (55)	Innovation Management
3	Employee (38)	Research & Development
4	Leader (44)	Industry 4.0
5	Works council (51)	

Table 16: **ICF Interviewees**
Source: Simmert et al. (to be submitteda)

8.2.3 Data Analysis[27]

With my qualitative approach I want to shed light on the understanding and the complex social relationships in ICF (Eisenhardt/Graebner 2007). In doing so, I aim to use my data to derive theory for my phenomenon (Glaser/Strauss 1967; Suddaby 2006). Methodologically, I follow the well-established procedure of Gioia, Corley, and Hamilton (2013), splitting the analysis into two separate phases. The first iteration starts with the inductive analysis of terms and concepts obtained directly from the interview material (1st order analysis). In this phase of open coding (Corbin/Strauss 2015), a large number of terms, codes, and concepts emerged. I then filtered out similarities and relationships among these codes and combined them into concepts. The focus of this approach was to create interview-centric 1st order concepts that capture basic properties of the identified phenomena (Gioia/Corley/Hamilton 2013). In the second phase, I summarized the 1st order concepts in comprehensive theoretical dimensions in a structured manner (2nd order themes). These elaborated 2nd order themes help to

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[27] The insights presented in this subsection on data analysis are partly based on Durward et al. (2019b). I thank my collaborators and the mini track chairs, anonymous reviewers, and attendees of the HICSS 2019 for the valuable feedback on my work.

explain the observed phenomena. Subsequently, I summarized and synthesized the 2nd order themes into aggregate dimensions. In doing so, I started to reflect my identified phenomena in the themes and dimensions with the relevant literature (Gioia/Corley/Hamilton 2013). Through this tandem procedure, I was able to align existing knowledge on the topics of innovativeness and empowerment with my data (Alvesson/Kärreman 2007), focusing in particular on those aspects for which knowledge and literature have so far provided scarce insights (Gioia/Corley/Hamilton 2013). An even more detailed description of the data analysis can be found in section 5.2.3.

I transformed the obtained 1st order concepts, the 2nd order themes, and the aggregate dimensions into a data structure that shows the process from the collected raw data to my themes and dimensions and is thus a cornerstone of rigor in my qualitative research (Tracy 2010) (see Figure 29). Finally, I took the dynamic relationships between the 2nd order concepts and aggregate dimensions and transformed them into a theoretical model (Gioia/Corley/Hamilton 2013).

To ensure the validity and reliability of my qualitative study, I undertook several actions that are summarized in Table 17.

Test	Tactics – How did I proceed?	Phase – Which stage?
Construct Validity	• In my case I chose interviewees from varied hierarchical levels, functional levels, and areas • I employed a comprehensible chain of evidence by using multiple sources of evidence, including interviews, various internal documents incl. slide decks, evaluation discussion, and data available online	• Data collection • Data collection
External Validity	• I discussed the generalizability of the findings with internal crowdsourcing experts • I described the research design, participants, analysis, interpretation of results, and emerging theory in detail	• Research design/ data collection
Reliability	• I developed a case study protocol, including information on data collection (e.g., interview guideline) and analysis (e.g., coding scheme) • I created a case study database, consisting of the recorded interviews, transcriptions, field notes, and coding procedure • I followed a multi-step coding process by different data analysts	• Data collection • Data collection • Data analysis

Table 17: **Ensuring Validity and Reliability of the Chosen Research Methodology**
Source: Simmert et al. (to be submitteda) based on Eisenhardt/Graebner (2007), Morrow (2005), and Yin (2003)

8.3 Findings

For my theory development and thus the development of my model, I have developed a data structure with 1st order concepts, 2nd order themes, and aggregate dimensions (see Figure 26 to Figure 29). In the following I explain the data structure. Paying attention to rigor and comprehensibility, I use a tandem procedure to substantiate the results with interview quotes, observations, and citations from the documents (Gioia/Corley/Hamilton 2013).

8.3.1 Constitutive Elements of my Theoretical Model

Innovation-fostering structures in ICF. First, I identified innovation-fostering structures in ICF (see Figure 26). With its mechanisms and structures, ICF offers the opportunity to address early ideas from employees. While traditional innovation channels often focus on already mature ideas, innovations, and projects, ICF can also focus on early ideas and innovations that are still at the beginning of their development. These ideas can receive a budget for the first time and thus to be further developed. This also creates the opportunity to receive budgets for innovative ideas and projects outside of the otherwise strict innovation planning cycles (usually annually).

> *"Our innovation process was a bit different before. ICF is now part of the innovation management in the company. To enable employees to be active in several ways, that is the added value for the company." (Interviewee 4, ESP)*

> *"We basically needed start-up funding like this to tackle a new market. This way, I also get much better feedback right away. Instead of getting it from a person who might be my group or department head, I get it from the whole company right away and can then assess much better whether it's a good idea or not." (Interviewee 1, ESP)*

This is based on an intuitive approach to ICF, where quick feedback is enabled by the investors. Thereby, an initial proof of concepts quickly becomes apparent, which enables the further assessment of the ideas and is seen as feasible by a broad mass. In this way, the principle of fast and inexpensive failure is addressed.

> *"From my point of view, the important thing with innovation is this quick turn-over. Fail fast, fail early, fail cheap. Because the bad ideas usually fall out very quickly. They are never funded. There were also a few fundings where the*

colleagues got to the point and very quickly said, no, it's not worth it. It's not that good or it's already on the market or something. Where you can say, yes, okay, game over, next topic." (Interviewee 2, ESP)

If the idea has passed the funding by the investors and reached the funding target, the idea also receives a higher standing, in the sense that the idea has prevailed based on the distributed budget responsibility.

"Just do a proof of concept. Doing things with which you can also inspire customers. The project we did last year means that today we can approach a certain market with much more clarity and develop it." (Interviewee 4, ESP)

1st Order Concepts	2nd Order Themes	Aggregate Dimensions
• Pre-innovation, initial funding, countercyclical innovation budget • Intuitive access to ICF • Fast feedback, proof of concept, fail fast - fail cheap • Distributed budget responsibility – higher standing of the idea for further funding	Innovation mechanisms	Innovation-fostering structures
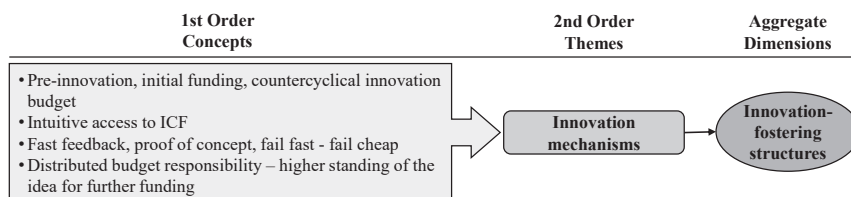
Figure 26:   **Innovation-Fostering Structures in ICF**
Source: Simmert et al. (to be submitteda)

Psychological empowerment. I also identified psychological empowerment in ICF (see Figure 27). Two role-specific variants of psychological empowerment emerge, inventor empowerment and investor empowerment. Psychological empowerment represents a mental state of employees (Amundsen/Martinsen 2014), which is manifested by individual perceptions of their own work role in the four dimensions of self-determination, impact, competence and meaning (Spreitzer 1995). In the dimension of inventor empowerment, ICF offers the opportunity to innovate through quick and easy access to the company's innovation management. In addition, ICF makes it possible to fail relatively quietly with one's own ideas without looking negative in front of decision-makers on a grand scale.

"The biggest problem is the failure culture. When I fail, it hangs over me. And I think ICF is very good in that aspect. Because if I fail, it's an internal problem among the colleagues and not in front of the executive board. If I fail with the executive board, it has a completely different level of failure than if I fail with my colleagues." (Interviewee 2, ESP)

For inventors, a sense of *meaning* comes from the self-selection process in deciding to push and work on their own ideas. The dimensions of competence are fostered through personal development beyond the actual routine activities of daily work. The focus here is on learning from one's own experiences.

> *"Otherwise, it is classic employee development when someone thinks outside the box." (Interviewee 5, ESP)*

For inventors, the *impact* dimension is particularly evident in recognition and visibility within the company. There is the possibility to make a name for oneself in the company as an expert for certain topics and issues and to perceive oneself as an expert by intensively dealing with the topics. It is striking those successful projects and inventors often receive support beyond ICF.

> *"Several people approached me about our own project and said, Hey, great idea. Or where are you right now?" (Interviewee 1, ESP)*

> *"The possibility to present the things you do. So, what we already experience is that a certain visibility is possible with ICF." (Interviewee 4, ESP)*

Self-realization, self-financing and self-organization are the main cornerstones of an increased sense of *self-determination*. The possibility to work in a self-determined and self-organized way is often emphasized by inventors and constitutes a partial contrast to the daily regular work.

> *"The incentive for an engineer is still to have the possibility to do things he wants to do. Because that's a creative act. Developing. That gives a lot of intrinsic motivation." (Interviewee 4, ESP)*

ICF also gives all employees as investors the opportunity to participate in the company's innovation process in a recurring manner and over a long-term period. Through their budget responsibility, they can actively participate in deciding which ideas and projects are promoted. Through the actual implementation in the project tool, the investors experience that they are not only handling virtual money but have a real impact. This promotes especially *competence* and *meaning* as dimensions of psychological empowerment.

"I think the number of wild ideas that are difficult to assign is decreasing. And my feeling is that they are not declining because more rules have been introduced, but perhaps they are also declining because they are not catching on." (Interviewee 4, ESP)

Investors also get an insight into what issues are being dealt with in the departments. This helps, for example, to identify points of contact and to avoid redundant activities.

"You can contribute financially and identify exciting projects in which you would like to participate and offer your skills. So, let's say we also got to know some new contacts. Once again, we found out who is actually doing something else in our company or even privately on this topic. That expanded our network once again." (Interviewee 4, ESP)
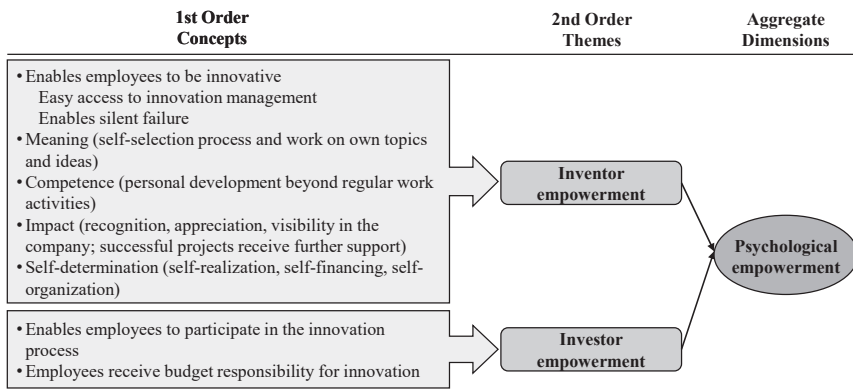
Figure 27: **Psychological Empowerment in ICF**
Source: Simmert et al. (to be submitteda)

Organizational enablers. I identified *coaching by leaders* and *top management support* as important organizational enablers (see Figure 28). ICF shows that leaders are increasingly taking on a coaching or mentoring role. They act as sparring partners and offer support to the employees, especially since hierarchical organization is subsidiary in ICF projects.

"There is an accelerator team. That is known. Employees can always come and ask for support, coaching or mentoring. We are happy to do that. But that also comes from us. I have already called a few people and asked, what do you

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actually want to do with this idea or where do you want to go? I am asking, where are you actually going? We do a little more mentoring/coaching and ask where we can help?" (Interviewee 2, ESP)

One of the main tasks is to remove obstacles for the employees and especially the inventors. In particular, the provision or creation of the necessary free space through time and available capacity for the implementation of ideas and projects plays an important role. The agreement of these mechanisms takes place on an individual basis between leader and employee (inventor).

"If the project should be successful, the employees must of course be given the time they need. That means that an employee who first has an idea in mind must also have a certain amount of time to develop and implement the idea in addition to the day-to-day business and other projects where sales and earnings are involved. And perhaps also to find advocates for it." (Interviewee 5, ESP)

Furthermore, the leaders have the possibility to increase projects and ideas, which are promising from their point of view, through their own cost centers. In this way, projects that have not reached their funding target are still given the opportunity to be implemented.

"My department head gave 2,000 €. However, I have seen it in other cases that 10,000 or 20,000 € were additionally funded by executives for valuable projects. Often the project fits in well with their own department." (Interviewee 1, ESP)

Another important organizational enabler for ICF is top management support. The commitment and support of top management must be ensured on an ongoing basis and in the form of a role model.

"The executive board promotes ICF and says that it makes sense for us. That we also generate business ideas that help us generate sales and earnings. And this fact alone gets into the heads of leaders and employees, for example." (Interviewee 5, ESP)

This includes continuously and sustainably providing the innovation budget for ICF and specifically promoting ICF within the company to ensure appropriate dissemination and awareness. In addition, top management also makes use of the possibility of

overfunding, in which particularly eligible ideas and projects that have not reached the funding target are increased with additional budget.

> *"We received an increase from top management to 120,000 € for our project."*
> *(Interviewee 1, ESP)*
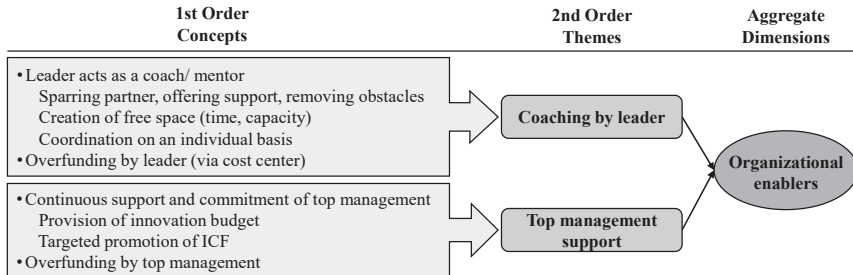
Figure 28:   **Organizational Enablers in ICF**
Source: Simmert et al. (to be submitteda)

Innovativeness. Furthermore, I was able to identify work behavior of employees and innovative output regarding innovativeness in ICF (see Figure 29). *Innovative work behavior* is the ability of employees to generate and implement ideas. Employees not only generate new ideas, but they also seek support for their ideas and implement them (Jong/den Hartog 2010; Martin/Liao/Campbell 2013; Schermuly/Meyer/Dämmer 2013). Often, for innovative work behaviors, engaging in non-routine activities is purposeful (Jong/den Hartog 2010). In ICF structures, employees (inventors) not only have the opportunity to pursue their own ideas, but they also have to actively seek support from investors and convince them that their ideas are worth implementing. The realization and improvement of the projects is independent and self-organized.

> *"There is an example of someone who started to realize the project through ICF. And the customer liked it very much. And then the company took over the idea and continued to explore it."* (Interviewee 2, ESP)

> *"We have equipped a product with sensors and can use it to test additional features. With the help of the experience we gained, we were able to convince a customer to do a study with us later this year."* (Internal documents ESP)

Moreover, I was able to identify the dimension *innovative output*. In general, innovative output can be measured in quantifiable and objective metrics (i.e., patents). This is often useful for innovation or technology-focused employees and departments. In addition, innovative output (i.e., in knowledge work) also includes less quantifiable metrics such as ideas, innovations and new products, and process improvements (Jong/den Hartog 2010). In ICF, innovative output can be seen, for example, in unconventional ideas that go beyond the regular innovation funnel and would not have a chance in regular innovation management. However, these unconventional ideas besides the mainstream innovation focus often deliver very large potential that would otherwise remain unused.

> *"That's why it is very difficult to bring in such completely fancy ideas that no one has tried out yet, that are still completely new. And to get budget for it. Because you often have to try it out. You first have to show that it works."* (Interviewee 3, ESP)

This facet is also reflected in innovation projects that are taken up by the company and jointly developed further or even incorporated directly into the company's innovation portfolio. During the ICF process, employees build up additional innovation know-how. Additional, patent applications and finished patents can also be measured in ICF.

> *"Well, the technical hurdles and the market actually spoke in favor of not realizing or funding the idea. Nevertheless, it was good that work was done on it, because the employee and the company built up an incredible amount of know-how. In addition, the company gained completely new insights into new markets."* (Interviewee 3, ESP)
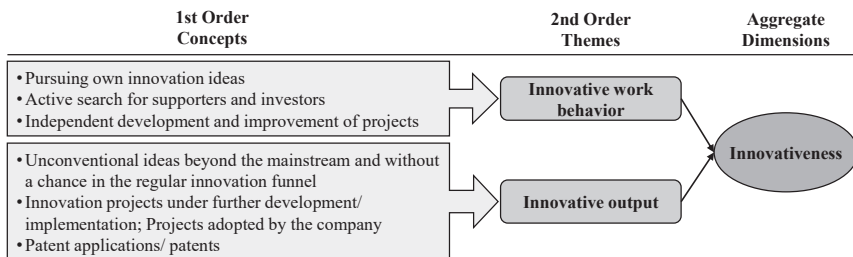
Figure 29:   **Innovativeness in ICF**
Source: Simmert et al. (to be submitteda)

8.3.2   A Model of Innovativeness in ICF

The data structure shown provides the detailed knowledge necessary to understand and apply ICF. However, while my data structure provides a static picture and ICF is a dynamic concept, I follow Gioia, Corley, and Hamilton (2013) and develop and explain an inductive model that addresses the relationships and interdependencies of the constructs and dimensions shown (see Figure 30).

The mechanisms and structures described for promoting innovation through ICF enable all employees to participate in the company's innovation management (often for the first time). In this way, employees with innovative ideas are given the opportunity to place them within the company in a meaningful way. Low-threshold access to ICF plays a particularly important role here. While in the regular innovation management of the company the requirements for potential ideas and resulting projects are to be classified as high and neglect in particular ideas in the initial stage or ideas that lie outside the strategically intended paths, ICF nevertheless enables the realization and implementation of these ideas. This concept thus stands out not only from classic innovation management, but at the same time also from corporate idea management, which often focuses on generating ideas but not on implementing them for employees.

> *"I think ICF is an important platform for us, because employees can place their*
> *project or business ideas in a certain way." (Interviewee 5, ESP)*

For the investors, the shared budget responsibility also results in an opportunity to participate in the company's innovation process and, consequently, to have a say in decision-making because of the decision-making power they have gained. In summary, ICF, including its mechanisms and structures, can be seen as a form of structural empowerment that promotes psychological empowerment and thus self-determination, competence, meaning, and impact among the employees (inventors and investors). Hence, I assume:

The innovation-fostering structures in ICF positively affect the psychological empowerment of employees (inventors and investors) **(Proposition 1)***.*

I identified coaching by leaders as an important organizational enabler for the connection between the innovation-fostering structures in ICF and psychological empowerment. In ICF, leaders take on the role of coaches and mentors who create the

necessary freedom for employees to work on ideas and innovation projects. Only if the employees (inventors) are given the necessary freedom in terms of both time and capacity will they be able to use the innovation-fostering structures in ICF. Furthermore, the empowering effect on the psychological empowerment of the employees can only be achieved if they feel the commitment and support of the leaders. Active support of the leaders in the sense of a coaching approach helps here. In this context, overfunding by the leader can also signal to the employees the necessary support, that their activities not only exist formally, but are also desired and encouraged.

> *"If you give the employees the freedom to really experiment with ideas and also give them the budget to buy components, for example, then you can create very valuable products and turn the employees into intrapreneurs." (Interviewee 3, ESP)*

In summary, I assume:

Coaching by leaders represents an enabler of ICF and moderates the effect of innovation-fostering structures in ICF on psychological empowerment. The higher the extend of coaching by leaders, the greater the influence of innovation-fostering structures in ICF on psychological empowerment **(Proposition 2)**.

Another important organizational enabler for the connection between innovation-fostering structures in ICF and psychological empowerment is top management support. Employees who feel the commitment of top management are more likely to get involved, participate in ICF, and come up with innovative ideas than those who do not. This includes, for example, that top management provides the necessary financial resources for ICF. Targeted promotion of ICF by top management also supports its dissemination and acceptance among employees. In addition, employees have a positive attitude when top management continues to promote what they see as valuable ideas or takes over the missing budget for the funding target. Such behavior on the part of top management signals that ICF is a desirable concept.

> *"Top management is supporting ICF. There are already a few people at our management level who are constantly trying to support innovation. They offer employees a place to try things out." (Interviewee 2, ESP)*

Accordingly, I assume:

Top management support represents an enabler of ICF and moderates the effect of innovation-fostering structures in ICF on psychological empowerment. The higher the extend of top management support, the greater the influence of innovation-fostering structures in ICF on psychological empowerment **(Proposition 3)**.

To be able to work successfully within the structures of ICF and thus demonstrate innovative behavior, employees need to be psychologically empowered. In general, psychological empowerment is a basic prerequisite for innovative employee behavior (Schermuly/Meyer/Dämmer 2013; Seibert/Wang/Courtright 2011). The psychological empowerment of employees, which is brought about by the innovation-promoting mechanisms and structures in ICF, thus ensures increased innovative work behavior among employees. Only if employees feel comfortable and empowered in and through the structures of ICF will they take the risk of participating in the company's innovation process. Psychological empowerment is the basis for the provision of innovative ideas by employees, the active search for supporters and investors, and the independent improvement and implementation of projects.

> *"I started a survey, in our department. Hey, give ideas for cool ICF projects. It's an opportunity where we can do great things. We then did a collection of ideas. Evaluated the ideas and then picked one that we actually implemented and operated." (Interviewee 1, ESP)*

In summary, I assume:

Psychological empowerment of employees positively affects the emergence of innovative work behavior **(Proposition 4)**.

The innovative work behavior that emerges within the scope of ICF can then be regarded as the basic building block and prerequisite for innovative output and therefore organizational success and continuous innovativeness. As a result, innovative output is the consequence or the countable result of innovative work behavior. The application of ICF results in employee-driven innovative ideas, implemented projects and products and, for example, patents. The innovation know-how gained should not be neglected either. Therefore, it can be concluded that employees who have a higher innovative work behavior also deliver more innovative output.

"So, there are some things that would never have happened without ICF. They would never have been financed in any other way. That means that the innovation management would probably have rejected this idea very quickly and said no, we won't do it." (Interviewee 3, ESP)

Consequently, I assume:

*Innovative work behavior of employees positively affects the emergence of innovative output **(Proposition 5)**.*
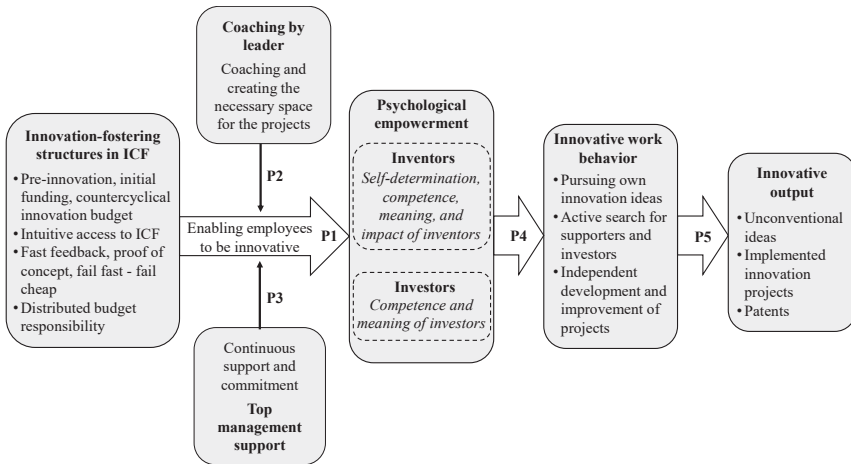
Figure 30: **Theoretical Model of Innovativeness in ICF**
Source: Simmert et al. (to be submitteda)

8.4 Limitations and Future Research

As each research my study involves limitations, which, in turn, provide opportunities for future research activities. First, further studies need to critically examine and confirm the results I identified in my single case study. Even though I meet all the requirements for single case studies and consider the rarely found successful application of ICF in practice, future research should try to compare the present RQ with other ICF cases or even with other innovation-promoting tools and forms of work organization with regard to the innovativeness and empowerment of employees or to confirm the generalizability of the results (Walsham 2006). Other forms of ICF may also provide further interesting insights. The innovation-based application and comparison of and with internal

crowdsourcing may also play an important role here for future studies. It is also important to consider other factors influencing employee empowerment and employee and company innovativeness.

Furthermore, I have been able to provide very extensive and rich results based on my various data sources (i.e., interviews, documents, discussions). Nevertheless, my insights and research model are based on qualitative data. Thus, my statements on innovativeness and innovative output are also based on qualitative data. To this end, it makes sense to also collect quantitatively measurable success indicators on innovativeness in the companies in studies and to confirm my results. While qualitative data can stand on its own in the research process and regarding its results (Gioia/Corley/Hamilton 2013), I provide concrete entry points for quantitative and hypothesis-testing research through my theoretical model and my detailed insights into the mechanisms of action in ICF.

8.5   Theoretical and Practical Contributions

Based on my findings, I provide the following core theoretical contributions. First, regarding ICF, I am the first to elaborate the innovation-fostering mechanisms and structures of ICF and to show the chain-and-effect chain including the existing dynamics and relationships. In this way, I provide fundamental knowledge for the targeted construction and application of ICF systems. In addition, I address a previously unrepresented area of research in ICF with my empowerment-oriented approach focused on the individual (i.e., employees and therefore inventors and investors). Furthermore, with top management support and coaching by the leader, I identify important organizational enablers for the success of ICF. Against this backdrop, I not only significantly enhanced the body of knowledge on ICF, but also answered ongoing calls for research in this field, e.g., the calls by Simons, Kaiser, and vom Brocke (2019).

In this context, I also contribute to empowerment research by showing and explaining that ICF is a structural enabler (antecedent) of psychological empowerment and innovative work behavior. In addition, I confirm initial research approaches that consider the relationship of psychological empowerment and innovative work behavior and postulate innovative work behavior as consequence of psychological empowerment (Schermuly/Meyer/Dämmer 2013). Moreover, I show that ICF also provides an empowering environment for employees by distributing budget responsibility to them.

In this way, ICF creates many benefits. Not only employees directly involved with their own ideas and innovation projects benefit, but also the entire workforce can benefit individually through their participation in the funding phase. Furthermore, the company is supposed to benefit from new ideas and bottom-up approaches that drive innovation.

By looking at ICF as an innovation-enhancing form of work organization, I also provide a variant of innovation management and innovation promotion that has hardly been considered in research so far. With my results, I provide detailed insights into the implementation and promising mechanisms and structures that can also be transferred to other tools and forms of work organization. In this context, the involvement of employees, who not only provide the ideas and innovations, but also evaluate them and take responsibility for them, should be mentioned. Innovation management is democratized in this way. In addition, ICF with its lightweight and simple structures enables the implementation of ideas and innovations that would remain unconsidered in regular innovation management due to high administrative hurdles or a lack of innovation focus. Smaller innovation projects, which initially need to be explored, benefit from ICF. Thereby, practitioners gain insights into the mechanisms, core factors, and pitfalls in implementing and applying ICF. Through my detailed insights from my qualitative data, practitioners will have the opportunity to transfer and successfully apply the lessons learned to their own ICF projects. This is particularly relevant for managing and governing ICF campaigns and influencing employees in a targeted manner.

9 Conquering the Challenge of Continuous Business Model Improvement – Design of a Repeatable Process[28]

9.1 Introduction

In section 9 of my dissertation, I address and answer RQ5, which examines the development of a systematic process design for the autonomous rethinking and improvement of business models.

RQ5 *What process design would allow established companies to systematically improve their business model?*

Due to frequent and permanent changes in their business environment, companies must constantly contend with new challenges. Globalization and the corresponding development of the global economy bring increased transparency to the markets by using new and innovative technologies. Customers have more options than ever to choose the right offer for themselves. These developments, in conjunction with increasingly homogenous products and services, result in constantly increasing competition. Consequently, a major task for companies is to distinguish themselves from their competitors[29].

Business models can help organizations achieve this differentiation (Zott/Amit/Massa 2011). Well-designed business models can be an important factor in ensuring competitiveness (Lee et al. 2011; Veit et al. 2014) by helping to commercialize relevant products and services (Chesbrough 2010). Well-functioning business models can be the underlying structure for the desired economic success of ideas, products, and services (Roelens/Poels 2015; Teece 2010; Veit et al. 2014).

Generating innovative and sustainable business models is one of today's most challenging tasks for companies (Chesbrough 2006), and at the same time continuing

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business model innovation is a key source of competitive advantage (Mitchell/Coles 2003). In this vein, companies increasingly consider different approaches towards business model innovation to develop new business opportunities within their economic environment.

When innovating these new business opportunities, companies can build new business models from scratch. Literature often refers to this as business model development (Osterwalder/Pigneur 2010; Palo/Tähtinen 2013). In the course of such a business model development, the company's environment is analyzed, and new business models are developed that aim at generating completely new business opportunities for the company (Peters/Blohm/Leimeister 2015). An example for this kind of business model development would be the creation of a new product or service that results in a completely new value proposition that the company can offer to its customers. Based on this new value proposition, the company has to develop all other aspects of the corresponding business model from scratch in order to commercialize this new product or service.

For established companies, another approach towards business model innovation is to improve their existing business models. Within this stream of research, the process of business model innovation is perceived as a continuous reaction to changes in a company's environment (Demil/Lecocq 2010) or as an on-going learning process (Chanal/Caron-Fasan 2010; McGrath 2010; Sosna/Trevinyo-Rodríguez/Velamuri 2010) which requires an ongoing discovery-driven process (McGrath 2010; Smith/Binns/Tushman 2010; Sosna/Trevinyo-Rodríguez/Velamuri 2010). When improving their business models, one option for companies is the complete revision of their business model. I will refer to this as radical improvement. An example of such radical improvement is the decision of a company to extend their business to new market segments that it has not addressed before. As a consequence of such a decision, the company has to define new customer segments, the types of relationships that it will be established with these customers, and the channels it will use to interact with them. In addition, it might also be necessary to align its internal activities and resources towards that new way of value creation.

Another option is to revise only parts of the business model. I will refer to this as incremental improvement. An example of incremental improvement is the generation of a new revenue generation mechanism for an existing product or service.

In recent years, there has been increased interest in academic literature regarding how companies can continuously improve business models while maintaining their high quality (Chatterjee 2013). Existing literature shows that the number of approaches to developing business models has increased in recent years (Zott/Amit/Massa 2011). Good examples in this context are the common approaches for business model development of Osterwalder and Pigneur (2010), Gassmann, Frankenberger, and Csik (2014), Grasl (2009), and Wirtz (2011).

Despite these approaches and their description of methods and tools in the field of business model development (Ebel/Bretschneider/Leimeister 2016), the research area of tool and method support in business model improvement has not been addressed in a sufficient manner (Giessmann/Legner 2016; Osterwalder/Pigneur 2013; Zott/Amit 2010). Detailed instructions and systematic process models are largely neglected, thus hindering an autonomous and sustainable implementation of the tools and methods by companies. In this study, I contribute to this research gap by building and evaluating a systematic process design for business model improvement that considers the legacy of established companies in a continuous manner.

If such a process for business model improvement can be easily set up in-house, the continuous improvement of the business model to address changing environmental requirements using their own resources can become increasingly plausible and important for many established companies. Therefore, the development of a systematic process design for the autonomous rethinking and improvement of business models can be seen as the logical next step in the strategic handling of companies' business models (Osterwalder/Pigneur 2013). Consequently, I investigate, what process design allows established companies to systematically improve their business model?

Therefore, in this section, I first explain my research strategy. Then, I show the conceptual background including the theoretical and practical requirements for developing a business model improvement process. Subsequently, I show the development of the process design for business model improvement. Next, I demonstrate the application of the process design and its evaluation. Finally, I discuss the contributions, limitations, and future research opportunities.

9.2 Research Strategy

To derive the intended process design, I conducted a DSR project (Gregor/Hevner 2013) to develop a new and innovative artifact that helps to solve the real-world problem of business model improvement. Such novel artifacts that extend the current body of knowledge can take the form of constructs, instantiations, models, or methods (Hevner et al. 2004). My developed process design pertains to methods as it delivers a step-by-step guidance for business model improvement.

To conduct my research, I followed the iterative DSR methodology process of Peffers et al. (2007) consisting of six phases: (1) problem identification and motivation; (2) objectives of a solution; (3) design and development; (4) demonstration; (5) evaluation; and (6) communication.

The introduction section of this study addresses phase 1, "problem identification and motivation". The second phase, "objectives of a solution", consists of determining the requirements for business model improvement from literature and practice; therefore, I conducted a literature review (section 9.3) and an interview study (section 9.4). The third phase, "design and development", focuses on how to transfer the identified theoretical and practical requirements into a systematic process design for business model improvement using CE. Therefore, I explain and then use the Collaboration Process Design Approach (CoPDA) of CE in section 9.5 of this manuscript. In the fourth phase of the DSR process, "demonstration", I apply the developed process design within a pilot setting to demonstrate its applicability (section 9.6). With the help of the CoPDA, the results of the evaluation were transferred back to the "objectives of a solution" and "design and development" phases. In the fifth phase, "evaluation", I evaluate the process design for the quality of the improved business models within the pilot setting (section 9.7). Using this multi-step ex-ante and ex-post evaluation, I intend to ensure the validity of my results (Sonnenberg/vom Brocke 2012). Based on the feedback received concerning the problem definition and the process itself, it was also possible to iteratively adjust the goal and the developed process design. Subsequently, I outline my contribution and discuss limitations and future research (section 9.8). The described procedure is also depicted in Figure 31.
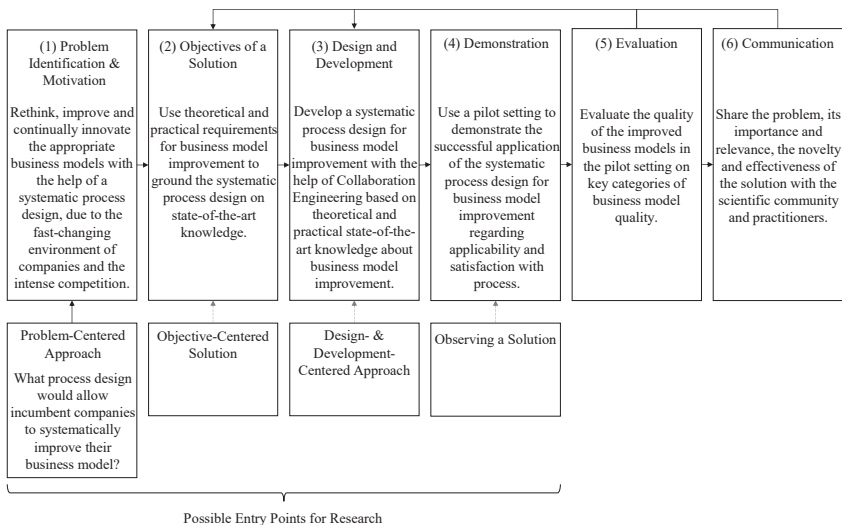
Figure 31: **The DSR Approach Employed in this Study**
Source: Simmert et al. (2019) based on Peffers et al. (2007)

9.3 Conceptual Background

9.3.1 Contributing Knowledge for Developing a Business Model Improvement Process

To ensure an effective process design, I analyzed extant research for theoretical and practical requirements for improving existing business models. In this context, I first identified theoretical requirements by means of a systematic literature review.

For the systematic literature review, I used the multi-step process proposed by Zott, Amit and Massa (2011). First, I searched in leading scientific databases (i.e., Business Source Premier, Emerald insight, IEEE Xplore, JStor, Science Direct, and Springer Link) for peer-reviewed journal articles and conference articles published from January 2000 to March 2017, dealing with the requirements of business model improvement. I used broad-based keywords (i.e., Business Model *Design, *Development, *Engineering, *Framework, *Innovation, *Process, *Tools) and received 1850 hits. Then, I compared the results and eliminated duplications. Based on a structured review of the title, keywords, abstract, and introduction (including forward and backward search), 79 relevant sources – including referenced books, conference articles, and

dissertations that dealt with requirements of business model improvement – were identified. Table 18 gives an overview of the described search process.

Database	Search string	Search fields	Coverage	Number of Hits	Reviewed
Business Source Premier	'business model' AND ('design' OR 'development' OR 'engineering' OR 'framework' OR 'innovation' OR 'process' OR 'tool')	Title, abstract, keywords, introduction	January 2000 – March 2017	402	14
Emerald insights				86	9
IEEE Xplore				154	10
JStor				22	3
Science Direct				804	16
SpringerLink				382	11
Added books, conference articles, and dissertations by forward and backward search					16

Table 18: **Overview of the Literature Search Process**
Source: Simmert et al. (2019)

To develop an overarching process for the improvement of business models, I conducted a qualitative content analysis of the publications identified in the course of the literature review (Mayring 2014). I screened each article for activities that are necessary for improving and managing business models. After this, I searched for existing requirements on how to conduct these activities to inform my process design. As the different publications provided different labels for the activities necessary to improve a business model, I had to synthesize the different labels to derive an overarching process. At the end of this analysis, I derived a set of five distinct phases that are necessary to conduct a business model improvement process:

Mobilization phase. At the beginning of the business model improvement process, some authors recommend conducting a mobilization phase (Fritscher/Pigneur 2010; Osterwalder/Pigneur 2010) wherein the workshop participants are introduced to each other, are motivated to participate in the workshop, and develop a shared understanding concerning the aims and the scope of the workshop.

Analysis phase. During the second phase, the project team analyzes the company's competitive environment. Main fields of this analysis include the industry context (Giesen et al. 2007; Nesse et al. 2012), the current market situation (Lee et al. 2011; Palo/Tähtinen 2013), the competitors within the market (Leem et al. 2005), and the customer's needs (Johnson 2010; Osterwalder/Pigneur 2010).

Design phase. This is a three-step phase pertaining to the actual design of the business model. In the first step, participants analyze the company's current business model[30]. Next, they analyze future market developments (Im/Cho 2013; Leem et al. 2005; Palo/Tähtinen 2013) in order to develop value-capturing mechanisms that will allow the company to react to these developments and realize future profits[31]. In a last step, the project team uses predefined frameworks in order to consolidate the results of the design phase[32].

Implementation phase. In this phase, the project team decides whether the improved business model can be implemented within the existing structure of the company, or if a new venture has to be established in order to commercialize the improved business model (Chesbrough 2007; Johnson 2010; Palo/Tähtinen 2013). Additionally, the project team develops operational processes that will allow the execution of the business model[33] as well as the execution of mechanisms to prevent imitation of the business model (Giesen et al. 2007; Teece 2010).

Management of the business model. Last, the project team must manage the improved business model. Within this phase, the business model has to be constantly adapted and renewed in order to ensure the company's market position[34].

Out of the 79 articles identified during the review, 19 addressed at least one of these five phases.

9.3.2 Findings from the Literature Review

Although there are five phases of the business model improvement project described above, most extant research focuses on the design phase. Accordingly, the variance of the several sub-steps in this phase is rather high, ranging from the sole development of a customer value proposition (Lee et al. 2011) to the derivation of several building blocks that a holistic business model has to address (Osterwalder/Pigneur 2010).

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[30] Fritscher/Pigneur (2010), Giesen et al. (2007), Lee et al. (2011), Osterwalder/Pigneur (2010)
[31] Chatterjee (2013), Giesen et al. (2007), Lee et al. (2011), Teece (2010)
[32] Fritscher/Pigneur (2010), Im/Cho (2013), Lee et al. (2011), Osterwalder/Pigneur (2010)
[33] Chatterjee (2013), Fritscher/Pigneur (2010), Lee et al. (2011), Leem et al. (2005), Osterwalder/Pigneur (2010), Osterwalder/Pigneur/Tucci (2005)
[34] Achtenhagen/Melin/Naldi (2013), Im/Cho (2013), Leem et al. (2005), Osterwalder/Pigneur (2010), Palo/Tähtinen (2013)

Consequently, there is no consensus regarding the precise steps that are necessary to improve business models.

My literature review also reveals that the ongoing improvement of business models has only been sparsely researched. While existing literature agrees on the necessity of constantly adapting and renewing a company's business model in order to ensure the company's market position, concrete guidelines on how to conduct this adaption process are not mentioned[35].

However, as I have outlined in the previous sections, it is increasingly important to constantly adapt a company's business model to strengthen its competitive position. Such a continuous refinement of their business models represents a challenging task for companies (Palo/Tähtinen 2013; Zott/Amit 2010). Therefore, companies need support in executing and implementing the appropriate improvements of business models (Giesen et al. 2010).

Finally, there is only sparse knowledge concerning the requirements that must be fulfilled to successfully execute the different phases within a business model improvement project. Therefore, there is a need for directly implementable process designs for business model improvement with clear links to required methods and tools. Improvement of business models must be a continuous reaction to changes in a company's environment (Demil/Lecocq 2010) as well as an on-going learning process (Chanal/Caron-Fasan 2010; McGrath 2010; Sosna/Trevinyo-Rodríguez/Velamuri 2010).

To complement existing literature regarding the three aspects that have been outlined above, I conducted an interview study with experts in the domain of business model improvement. In doing so, I intended to collect further knowledge concerning the content of the phases that are necessary for improving business models. I also aimed at completing the literature-based business model improvement process, not only according to the identified process phases, but also to the requirements within the different phases.

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[35] Achtenhagen/Melin/Naldi (2013), Im/Cho (2013), Leem et al. (2005), Osterwalder/Pigneur (2010), Palo/Tähtinen (2013)

9.4 Identification of Practical Requirements for Conducting Business Model Improvement

To develop a systematic process design for business model improvement, I interviewed experts in the field of business model improvement about the goals they would propose for a business model improvement workshop and the main products that must be achieved when conducting such workshops. In addition to that, I tried to identify basic conditions that must be met when conducting business model improvement workshops. *Goals* of the process design represent targets in the form of desired states or desired results of the group. *Group products* are the material or immaterial artifacts or conditions of the group that mark the results of the collaboration process. *Basic conditions* represent important steps, procedures, tools, behavior, or requirements that frame the process of business model improvement. Goals, group products, and basic conditions represent categories in a classification system which serve as the basis for the derivation of requirements; this is reflected in the structure of Table 19.

In sum, eleven semi-structured interviews were conducted with experts in the field of business model improvement: i.e., consultants, enterprise architects, business developers, and entrepreneurs from different industries with a minimum of three years of experience in business model improvement. The interviews were each 30-55 minutes long and were transcribed for analysis. The interview guideline was based on the insights from the literature review and addressed the business model improvement process, the tools and methods used in the process, as well as the conditions, best practices, and general experiences in business model improvement. The interview guideline (see Appendix F.1) served as a starting point for in-depth questions. By using the classification system shown in Table 19, the interview results could confirm the literature review findings. Moreover, additional requirements and deeper insights could be derived. In this context, one author of this study defined the respective requirements of the interview study with the help of an iterative and detailed coding based on a 15-step process, which was inspired by the qualitative content analysis according to Mayring (2014). Then, the results were examined and improved by the remaining authors with the help of a joint vote. The results of the literature review and the interview study were combined and are presented in Table 19. By including theoretical and practical requirements (Req.), a detailed basis to develop a systematic process design for business model improvement is created.

Category	Requirements	Literature	Inter-views
Goals	**Theoretical Requirements**		
	Improve the current business model (G1)	Ebel/Bretschneider/Leimeister (2016), Peters/Blohm/Leimeister (2015)	x
	Structural procedure (G2)	Peters/Blohm/Leimeister (2015), Wiesner/Padrock/Thoben (2014)	x
	Create awareness for the need for change (G3)	Osterwalder/Pigneur (2010), Wiesner/Padrock/Thoben (2014)	x
	Practical Requirements		
	Fast and easy application of the process design (G4)		x
	Continuous documentation of the results (G5)		x
Group products	**Theoretical Requirements**		
	Mobilized business model improvement team (P1)	Ebel/Bretschneider/Leimeister (2016), Fritscher/Pigneur (2010), Osterwalder/Pigneur (2010)	x
	Created team spirit in the group (P2)	Ebel/Bretschneider/Leimeister (2016)	x
	Executed environmental analysis of the existing business model (P3)	Ebel/Bretschneider/Leimeister (2016), Gassmann/Frankenberger/Csik (2014), Osterwalder/Pigneur (2010), Papakiriakopoulos/Poylumenakou/Doukidis (2001), Peters/Blohm/Leimeister (2015)	x
	Elaborated tool/framework for business model improvement (P4)	Ebel/Bretschneider/Leimeister (2016), França et al. (2017), Fritscher/Pigneur (2010), Giessmann/Legner (2016), Im/Cho (2013), Lee et al. (2011), Osterwalder/Pigneur (2010), Osterwalder/Pigneur/Tucci (2005), Papakiriakopoulos/Poylumenakou/Doukidis (2001), Peters/Blohm/Leimeister (2015)	x
	Shared understanding about the project scope (P5)	Ebel/Bretschneider/Leimeister (2016)	x
	Shared knowledge of basics of business model improvement (P6)	Gassmann/Frankenberger/Csik (2014), Osterwalder/Pigneur (2010), Wiesner/Padrock/Thoben (2014)	x
	Analyzed existing business model (P7)	Ebel/Bretschneider/Leimeister (2016), França et al. (2017), Gassmann/Frankenberger/Csik (2014), Giesen et al. (2007), Giessmann/Legner (2016), Grasl (2009), Palo/Tähtinen (2013), Peters/Blohm/Leimeister (2015), Wirtz (2011)	x
	Practical Requirements		
	Shared knowledge about the existing business model (P8)		x
Basic conditions	**Theoretical Requirements**		
	Use and prepare a wide range of materials and tools (post-its, index cards, mind maps) (Bc1)	Ebel/Bretschneider/Leimeister (2016), Fritscher/Pigneur (2014a),	x

		Fritscher/Pigneur (2014b), Osterwalder/Pigneur (2010)	
	Visual representation of operating steps and results (Bc2)	Fritscher/Pigneur (2014a), Osterwalder/Pigneur (2010), Wirtz (2011)	x
	Arrange enough time (Bc3)	Ebel/Bretschneider/Leimeister (2016)	x
	Use interdisciplinary teams (Bc4)	Ebel/Bretschneider/Leimeister (2016), Eppler/Hoffmann (2012), Gassmann/Frankenberger/Csik (2014), Osterwalder/Pigneur (2010)	x
Practical Requirements			
	Use technical options for storing the results (Bc5)		x
	Design simple procedures (Bc6)		x
	Enable cross-divisional communication (Bc7)		x
	Convince doubters (Bc8)		x
	Achieve commitment (Bc9)		x
	Despite technology, use face-to-face approaches (Bc10)		x

Table 19:   **Theoretical and Practical Requirements of Business Model Improvement**
Source: Simmert et al. (2019)

9.5 Development of a Process Design for Business Model Improvement

In the search for a design approach that allows the systematical derivation of a collaborative process in a step-by-step manner and is grounded on sound theoretical and practical knowledge, I chose CE. CE addresses the challenge of designing and deploying collaborative work practices for high-value recurring tasks and transferring them to practitioners to execute them on their own without ongoing support from a professional collaboration expert (Kolfschoten/Briggs/Vreede 2006; Vreede/Briggs/Massey 2009). Pre-scripted instructions in the form of a detailed agenda, specific prompts, and restrictions by pre-configured tool-support functionalities help group members combine their knowledge and skills to achieve a defined goal (Kolfschoten et al. 2006). With the help of validated, transparently documented, collaborative work practices, practitioners are enabled to execute the tasks of professional collaboration experts.

CoPDA represents the central design approach for collaborative processes in CE. Based on this structured approach to detailed collaboration process scripts, a detailed process design for business model improvement can be created and documented. The CoPDA consists of five iterative steps (see Figure 32) which are explained below and applied in their respective order.
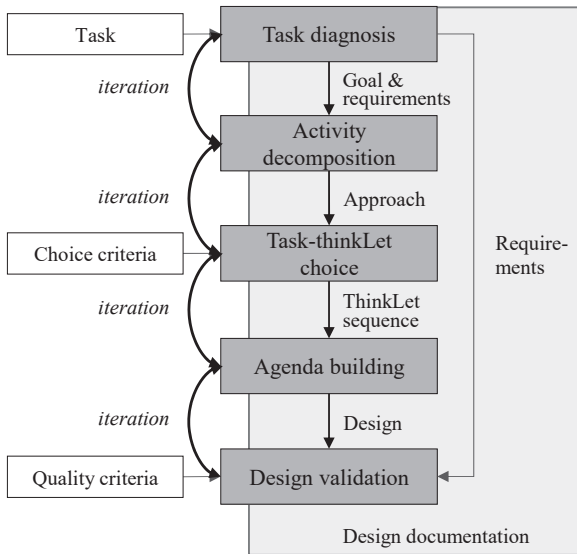
Figure 32:   **Collaboration Process Design Approach**
Source: Simmert et al. (2019) based on Kolfschoten/Vreede (2014)

9.5.1   Task Diagnosis

In this first step of CoPDA, task diagnosis, an analysis of required tasks, stakeholders, resources, facilitators, and practitioners is conducted. To address the respective goals and requirements for business model improvement, I identified theoretical and practical requirements (Table 19). Furthermore, the group products (outcomes) and the basic conditions (e.g., the agreed-upon business model draft, awareness for a need to change, etc.) are considered when formulating the objective. Consequently, the overarching objective of the process design for business model improvement can be defined as follows: *The purpose of the process design is a structured improvement of a business model for an established company with a cross-functional group of up to seven people with heterogeneous experience in a one-day-workshop. In addition, the compiled results of the workshop are continuously documented. Furthermore, an awareness of the need for change is created within the group (G1-G5).*

9.5.2   Activity Decomposition

The second step of CoPDA, activity decomposition, deals with the determination of the sequence of activities necessary for reaching the defined goal. These activities are

derived from the group products by identifying the intermediate results necessary to build these products. These intermediate products are considered inputs and outputs of the activities. I derived the flow of activities by sequencing the inputs and outputs and defining which modifications (activities) are needed to achieve them. In the case at hand, every participant needs to be aware of his own understanding of the current business model before a shared conception of the current business model can be negotiated (Ebel/Bretschneider/Leimeister 2016), which in turn is a prerequisite for business model improvement.

9.5.3 Task-thinkLet Choice

In the third step, thinkLets are assigned to each of the previously defined activities. ThinkLets are design patterns in the form of documented techniques that have proven to be useful in facilitation practice. They are used for evoking a certain predictable behavioral pattern in teams, for example for quickly organizing a large number of contributions (PopcornSort) or generating ideas on a specific topic in a small group (OnePage, see also Appendix F.2) (Briggs/Vreede 2009). Thus, when designing new collaboration process scripts, as for business model improvement, out-of-the-box thinkLet techniques can be used and configured for the specific application domain. ThinkLets are used in process design to build on the experience of collaboration experts who documented the flow of actions and prompts, usage rules, and necessary conditions and restrictions as well as instructions for non-expert facilitators that evoke a certain replicable result. To demonstrate the concept of thinkLets, Table 20 shows the general documentation of the thinkLet "OnePage". In addition to a brief overview and the selection criteria to choose a suitable thinkLet for a certain type of activity and setting, the documentation lists necessary inputs and outputs (hinting on which activities may need to precede or follow the thinkLet) as well as the procedure the facilitator and team should follow (Briggs/Vreede 2009). Appendix F.2 contains the remaining thinkLets used in the process design (PopcornSort, ChauffeurSort, MultiCriteria, StrawPoll, OnePage and RichRelations) in the original notation. The instantiation of the thinkLet design patterns for the given problem and the process design is described briefly in Table 20 as well as in more detail in Appendix F.3.

thinkLet: OnePage	
Choose this thinkLet	**Do not choose this thinkLet**
• to generate a few (less than 80 or so) comments on one topic • when 5 or fewer people will brainstorm together • when 6 or more people will brainstorm for fewer than 10 minutes. • when there aren't likely to be many comments generated on the topic under discussion. • to support back-channel communication among distributed team members.	• when you expect more than 80 or so comments because it may cause information overload. Consider FreeBrainstorm or ComparativeBrainstorm instead. • when six or more people will brainstorm until they run out of ideas. Consider FreeBrainstorm or ComparativeBrainstorm instead. • when the team must address more than one topic at a time. Consider LeafHopper or Dealer's choice instead.
Overview	
In this thinkLet, team members will all contribute comments simultaneously to the same electronic page or list at the same time.	
Inputs The brainstorming question or prompt.	**Outputs** A set of comments in response to a brainstorming question or prompt.
How to use OnePage	
Setup 1. Open a single list or comment window in Topic Commenter, Vote, Group Outliner, or Categorizer. 2. Match views with participants to open the same list or card on their screens.	
Steps 1. Make sure the participants understand the brainstorming question or prompt. Say this: a) If you have any questions with respect to the brainstorming question or assignment, please speak up. 2. If necessary, facilitate a verbal discussion to address any understanding difficulties. If necessary, re-formulate the question or prompt. 3. Inform the participants of time limits, if any. 4. Let the participants contribute comments until they run out of ideas or until the run out of time.	

Table 20: **thinkLet OnePage**
Source: Simmert et al. (2019) based on Briggs/Vreede (2009)

9.5.4 Agenda Building

In the fourth step, agenda building, thinkLets are transferred into an executable script using an internal agenda and a formal modelling approach, the FPM (see Figure 33). In this step, the general design patterns are adapted to the specific application domain by, for example, adding appropriate guiding questions or setting the time boxes for each activity.

To ensure the mentioned applicability of the process by practitioners without major facilitation experience, a conclusive internal agenda of the collaborative process was created. The internal agenda shown in Table 21 offers detailed activities including action-guiding instructions and questions, group formations, thinkLets, Pattern of

Collaboration (PoC), the duration of activities, and tool support. These specifications enable an immediate implementation of the process design. A detailed description of the activities of the internal agenda is available in Appendix F.3. Additional tools created for the execution of the process are available in Appendix F.4. Moreover, the internal agenda indicates how outlined requirements (Req.) of business model improvement (identified group products, and basic conditions) are incorporated into the systematic process design.
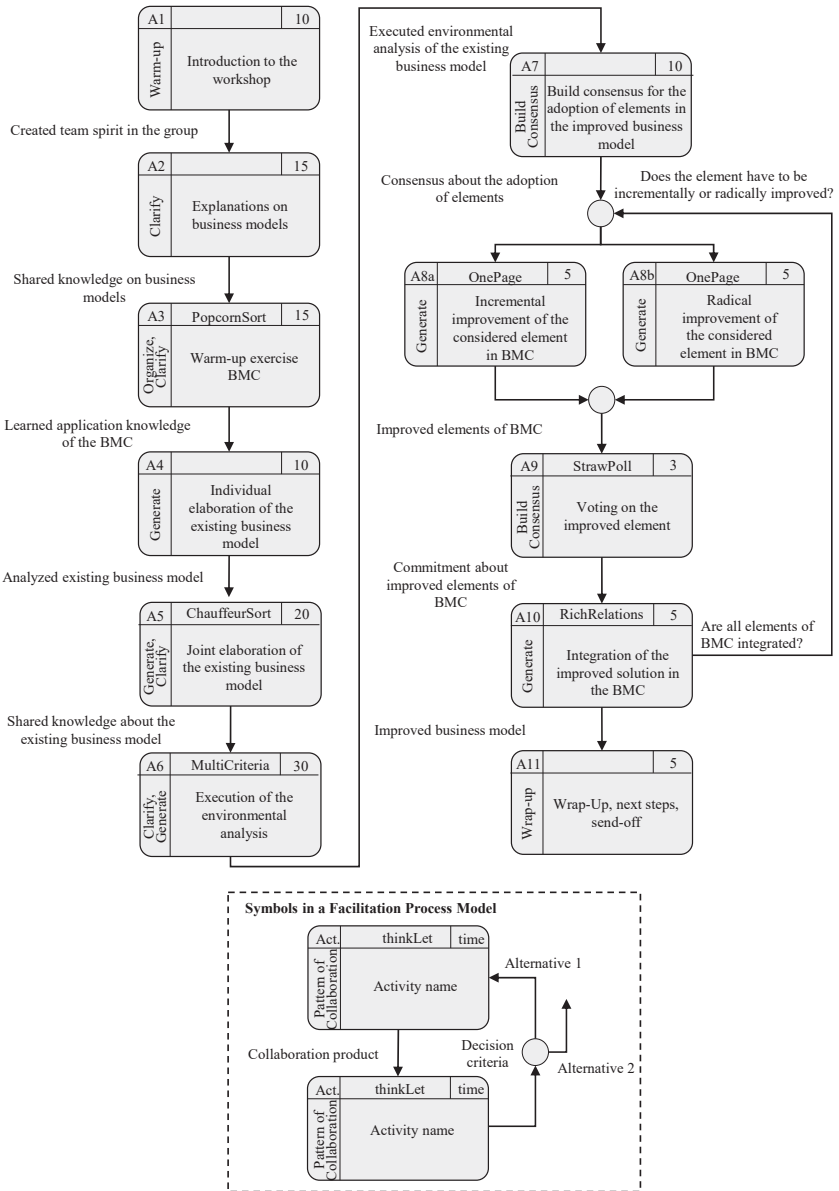
Figure 33: **Facilitation Process Model – Systematic Process Design of Business Model Improvement**
Source: Simmert et al. (2019) adapted from Kolfschoten/Vreede (2014)

Act. min.	Group Formation	Activity	Group Products	PoC/ *thinkLet*	Instructions		Tools	Req.
					Preparatory activities prior to the workshop: Mobilize an interdisciplinary team of 4 to 7. Prepare all necessary tools for conducting the process.			Bc4
A1 10	Plenary Group	Intro-duction to the work-shop	Created team spirit in the group	Warm up	Facilitator and practitioners introduce themselves. Facilitator presents the agenda and goals of the workshop. Achieve commitment to the goals from practitioners.		Presen-tation intro-duction	P1; Bc9; P5
A2 15	Plenary Group	Expla-nation on business models	Shared knowledge on business models	Clarify	Emphasize the relevance of BMs and explain the basic knowledge about BMs and the BMC. Ask: Do you understand the basics of business models?		Presen-tation BM/ BMC know-ledge	P2; Bc9
A3 15	Subgroup	Warm-up exercise BMC	Learned application knowledge of the BMC	Organize, Clarify *Popcorn Sort*	Practitioners create the business model (prepared example of a well-known company) in subgroups based on content predefined in the BMC.		Presen-tation warm up, BMC (DIN A3), pre-pared post-its	P2; Bc1; Bc2
	Plenary Group				Discuss the solutions in the plenary group.			
A4 10	Individual	Individ-ual elab-oration of the existing business model	Analyzed existing business model	Generate	Practitioners individually elaborate the existing BM in the BMC.		Existing BMC (DIN A3), small post-its, pens	P6; Bc1
A5 20	Plenary Group	Joint elabora-tion of the existing business model	Shared knowledge about the existing business model	Generate, Clarify *ChauffeurS ort*	Prepare the post-its of the existing BM for the BMC. Present the post-its and discuss which field is addressed. Stick the post-its to the right place as soon as consensus has been reached. Achieve commitment and perform these steps for all predefined post-its. Summarize the existing BM and take a picture of the elaborated BMC.		Prepared BMC post-its (current BM), BMC (DIN A0)	P6; P7; Bc9; Bc1; Bc2; Bc5
A6 30	Plenary Group	Execu-tion of the environ-mental analysis	Executed environ-mental analysis of the existing business model	Clarify, Generate *Multi Criteria*	Prepare the environmental analysis questionnaire for each practitioner and introduce the practitioners to the environmental analysis (EA).		Presen-tation EA ques-tion-naire, EA ques-tionnaire	P8; Bc1; Bc2; Bc5
	Individual				Each participant answers the EA questionnaire (20 min.).			
	Plenary Group				Consolidate (for example: calculate the average of the EA questionnaire for each element of the BMC) and present the results of the EA questionnaire.			
A7 10	Plenary Group	Build consen-sus for the adop-tion of elements in the im-proved business model	Consensus about the adoption of elements	Build Consensus *StrawPoll*	Remind the participants of the results of the respective element from the EA questionnaire. Ask: Does the element have to be incremental or radical improved? Facilitate the (optional) transfer of the existing elements in the new BMC. Stick the transferred elements (post-its) to a new BMC. Take a picture of the new BMC.		BMC (DIN A0), EA question-naire	P8; Bc1; Bc2; Bc5
A8 05	Plenary Group	Incre-mental or radi-	Improved elements of BMC *One Page*	Generate	**Yes**: Incremental improvement of the considered element	**No**: Radical improvement of the considered element	Presen-tation with guiding	P3; Bc1; Bc2

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		cal improvement of the considered element in BMC			Ask: How can the considered element be incrementally improved? Orient yourself to the key questions of the respective element. The practitioners can add the existing solution and stick post-its with suggestions to the BMC.	Ask: How can the considered element be radically improved? Orient yourself to the key questions of the respective element. The practitioners are intended to stick post-its with suggestions to the BMC.	questions of BMC, BMC (DIN A0)	
A9 03	Plenary Group	Voting on the improved element	Commitment about improved elements of BMC	Build Consensus *StrawPoll*	Read each post-it of the element concerned in the BMC and ask for commitment. In case of objections, facilitate a discussion and ensure a solution (majority decision).		BMC (DIN A0)	P3; Bc9; Bc1
A10 05	Plenary Group	Integration of the improved solution in the BMC	Improved business model	Generate *Rich Relations*	To adapt the interrelations between the elements in the BMC, the facilitator gives an overview of each relationship of each element and asks for necessary additions or objections. Facilitate the discussion and ensure a solution (majority decision). The activity must be performed for each element in the order of the BMC.		Presentation with interrelationships of BMC, post-its, pens	P3; Bc1; Bc2
A11 05	Plenary Group	Wrap-Up, next steps, send-off			Summarize the workshop and the improved BM. Check if you have achieved the goals of the workshop and take a picture of the final BMC.		Presentation wrap up	Bc2; Bc5

Table 21: Internal Agenda of the Systematic Process Design
Source: Simmert et al. (2019)

9.6 Demonstration of the Resulting Business Model Improvement Process

The last step of the CoPDA, design validation, represents the evaluation of the developed collaborative process (Kolfschoten/Vreede 2014). The aim of the design validation step is to test whether the collaborative process design succeeds in leading to the pre-defined goal and products. Combining different evaluation methods allows me to identify potential flaws or inefficiencies of the process design, ambiguities in the process documentation, and potentials for design optimizations (Kolfschoten/Vreede 2014; Vreede/Briggs/Massey 2009). Triangulation of different evaluation methods is a common and essential way in CE to ensure an effective and robust process design.

I validated the process design in four iteration loops. After each iteration loop, the process design was revised and adjusted accordingly. To uncover hidden weaknesses and improve the process design continuously, I used three evaluation methods: design

simulations, walk-throughs, and pilot tests. Figure 34 depicts the evaluation process including the evaluation methods and the corresponding iteration loops.

I began in the first loop, V1, with a design simulation of the process design initially created. In CE, design simulations represent a detailed step-by-step review of the process design by the Collaboration Engineer. They enable the elimination of major stumbling blocks, more integration of the structure, and testing the correctness and consistency of the process (Kolfschoten/Vreede 2014).

In the second loop V2, I conducted walk-throughs. Walk-throughs are based on detailed step-by-step reviews of the process design by experts. During walk-throughs, valuable ideas and alternative solutions can be collected and discussed (Beecham et al. 2005; Jørgensen 2007). I conducted two walk-throughs with experts of CE, that is, CE researchers with more than 5 years of experience in CE. This ensured the correct application of CE and collection of valuable suggestions for the adaption of individual activities and sequences from validated prior collaboration process designs. I also included two more thinkLets and adapted them to business model improvement. Furthermore, the experts highlighted the need to allocate sufficient time for each activity. Based on that, I adjusted the timelines for several activities. In addition to the walkthrough, I carried out a design simulation to verify the consistency of the revised process design. The results were included in the second version of the process design (V2).

In the third loop, I conducted two walk-throughs with business model improvement experts (business model researchers with more than 5 years' experience in business model improvement projects) to ensure the correct transfer of the theoretical and practical business model requirements. Moreover, I achieved additional insights into the facilitation of workshops on business model improvement. A design simulation also completed the third iteration loop. This way, I created the version V3 of the process design.

As a final iteration loop and to check the applicability of the process design by practitioners without the ongoing support of a professional facilitator, I conducted two pilot tests. Many well-respected collaboration process design papers mainly report action research studies or experiments for the design evaluation that are facilitated by the researchers themselves (Bittner/Leimeister 2014; Kamal et al.;

Vreede/Fruhling/Chakrapani 2005). These studies provide in-depth insights for validating and improving the designs. However, I see sound practical value in going beyond this point and testing the designs with non-expert facilitators.

The pilot tests were applied within an experimental setting consisting of a master's course in IS. In these pilot tests, the participants improved the existing business model of an energy consultant platform. While my developed systematic process design does not require domain knowledge about business models or collaboration (both areas of knowledge are imparted and implemented directly in the process), students represent a suitable target group for the implementation of the process. Accordingly, it is possible to evaluate whether novices and non-experts can successfully carry out the process without training. Against this background, both pilot tests used the guidelines and instructions of the process design. The Collaboration Engineer conducted the first pilot test (n=7 participants). A practitioner conducted the second pilot test (n=7 participants). Initially, using a questionnaire, the participants were interviewed about their previous experiences and skills in the field of business model improvement. Based on their experiences, the participants were randomly allocated to the groups. The findings obtained were subsequently incorporated into the process; for example, I refined the assignment of tasks for participants and adjusted the internal agenda. In addition, the facilitators of the pilot tests documented their experiences in a protocol. Following a last design simulation, the final version **V4** of the process design was created.
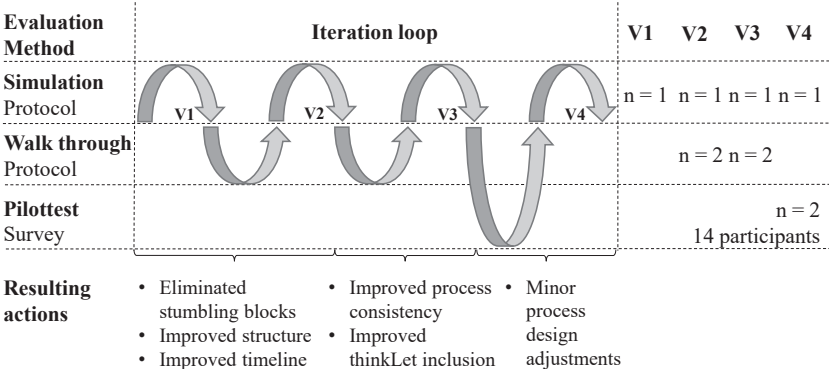
Figure 34: **Iterative Evaluation of the Process Design**
Source: Simmert et al. (2019) adapted from Sein et al. (2011)

The pilot tests were analyzed using a questionnaire to evaluate the process design from the perspective of the participant. Participants views concerning "satisfaction with process", "tool difficulty", "process difficulty", and "satisfaction with outcome" ("commitment", "efficiency", "effectiveness", "productivity") were examined using a 5-point Likert scale (Briggs et al. 2013; Briggs/Reinig/Vreede 2006; Kolfschoten 2007). All in all, I asked eight blocks of questions, with each block consisting of five questions. Table 22 summarizes the results of the survey. Both groups, the 7 participants of the first pilot test run by the CE and the 7 participants of the second pilot test run by the practitioner – achieved high average scores across all categories. "Satisfaction with process" showed a high average value, indicating that the participants were very satisfied with the process design. In addition, "tool difficulty" also showed especially high results, suggesting that the selection and application of the tools used in the process design had been effective. Furthermore, the results and the protocol used by the practitioner facilitator indicate that the process can also be autonomously performed by practitioners. In conclusion, I can assume that the process can be implemented and used in organizations without major training in business modelling or CE, and without the ongoing support of a collaboration engineer or a professional facilitator. Overall, the participants of the pilot tests were satisfied with the improvement of the business models as well as with the results of the process.

Category of questions	Group led by collaboration engineer mean (SD)	Group led by practitioner mean (SD)
Satisfaction with process	4.51 (0.50)	4.31 (0.36)
Tool difficulty	4.23 (0.69)	4.40 (0.61)
Process difficulty	4.25 (0.45)	4.06 (0.43)
Satisfaction with outcome	3.92 (0.52)	4.37 (0.56)
commitment	4.03 (0.48)	4.17 (0.47)
efficiency	3.77 (0.43)	3.74 (0.52)
effectiveness	4.06 (0.46)	4.11 (0.62)
productivity	3.83 (0.67)	3.89 (0.53)

Table 22: **Results of the Survey**
Source: Simmert et al. (2019)

9.7 Evaluation of the Business Model Improvement Process

To assess the value and utility of my process design, I evaluated the outcome of the business model improvement workshop against a baseline setting. The control group was first provided with theoretical input (Osterwalder/Pigneur 2010) on how to improve business models. Then they were provided with an existing business model that was depicted by means of the Business Model Canvas (BMC) (Osterwalder/Pigneur 2010).

Using the canvas and the guiding questions that are part of the BMC, they had to develop an improved version of the existing business model. After this was done, I evaluated the quality of the improved business models.

As business models can be interpreted as creative products, I examined creativity literature to identify a procedure for evaluating the business models improved during this study. Research efforts that focus on assessing creative products cover the evaluation of both the assessment scale and the assessment process (Amabile 1996). Consequently, I considered both aspects, as will be described below.

9.7.1 Scale for Assessing the Improved Business Models

As the quality of creative products is a complex construct, various metrics for assessing it have been discussed in literature. To develop a reliable scale, I followed Ebel, Bretschneider, and Leimeister (2016) and identified several research papers that dealt with an empirical evaluation of the quality of creative products. I then took the scales and dimensions from the identified research papers and selected six dimensions relevant for the development of the metrics used for my evaluation.

I operationalized each dimension using one item (see Table 23). With the help of these items, I assessed the quality of the business models that had been developed with my process design and without it.

Dimensions	Corresponding item	References
Novelty	The business model delivers an unprecedented new approach.	Binnewies/Ohly/Niessen (2008), MacCrimmon/Wagner (1994)
Originality	The business model is unusual, fanciful, original, and surprising.	Binnewies/Ohly/Niessen (2008), Dean et al. (2006), Kramer/Kuo/Dailey (2007), MacCrimmon/Wagner (1994), Mumford et al. (2001), Potter/Balthazard (2004)
Feasibility	The business model is easy to implement.	Potter/Balthazard (2004)
Acceptability	The business model has the potential to meet the goodwill of future customers.	Cooper et al. (1998), Dean et al. (2006)
Effectiveness	The business model has the potential to generate new revenue streams.	Barki/Pinsonneault (2001), Valacich et al. (1995)
Elaboration	The idea is complete and mature.	Dean et al. (2006)

Table 23:   **Operationalization of Dimensions for Business Model Evaluation**
Source: Simmert et al. (2019) adapted from Ebel/Bretschneider/Leimeister (2016)

9.7.2   Process for Assessing the Improved Business Models

Following prior research on creativity, I adopted the CAT (Amabile 1996) to assess the quality of the generated business models. This technique has been used to evaluate creative outcomes in various innovation projects (Blohm et al. 2011; Magnusson 2009; Matthing et al. 2006). Using CAT, the quality of the improved business models was assessed by three experts in the field of business model improvement. All three experts possess extensive market and technical knowledge and have participated in several business model improvement projects before. They were not aware of the business models' source: i.e., improved with the help of my process design vs. improved without using my process design.

First of all, the experts were trained regarding the evaluation criteria and their proper application (Hayes/Krippendorff 2007; Krippendorff 2004). Next, the experts were asked to assess whether the business models were described in a way that would allow evaluation. Then, the actual evaluation by each of the experts took place. For this evaluation, every business model was described on a separate piece of paper. Each paper also included the six different evaluation dimensions on a rating scale ranging from 1 (lowest) to 5 (highest). These papers were presented to the experts in random order.

9.7.3   Data Assessment and Findings

When assessing the resulting quality scores, I adapted a procedure proposed by Poetz and Schreier (2012). I first averaged the three experts' scores for each of the six dimensions. In addition, I created a six-way interaction term (novelty x originality x feasibility x acceptability x effectiveness x elaboration) to compare the overall quality of the business models.

Quality scores for business models improved by the group using my process ranged from 73 to 85 (see Table 24). Quality scores for business models improved by the control group using the standard procedure ranged from 53 to 69. The average value for the overall business model quality was 79 for my process group and 61 for the control group. Compared to the maximum achievable 120 points per business model, the business models of the groups that used my process design scored significantly above the medium level of 60. These results indicate a good level of business model quality when using my process.

	Quality scores for my process design	Quality scores for standard process
N	2	2
Average value	79	61
Standard deviation	8.485	11.313
Minimum	73	53
Maximum	85	69

Table 24: **Comparison of Quality of my Process Design Versus Standard Process**
Source: Simmert et al. (2019)

Looking at the six different dimensions for accessing the improved business models, the group using my newly-developed process design achieved better results than the group using the standard procedure. Figure 35 shows the quality dimensions for each group.
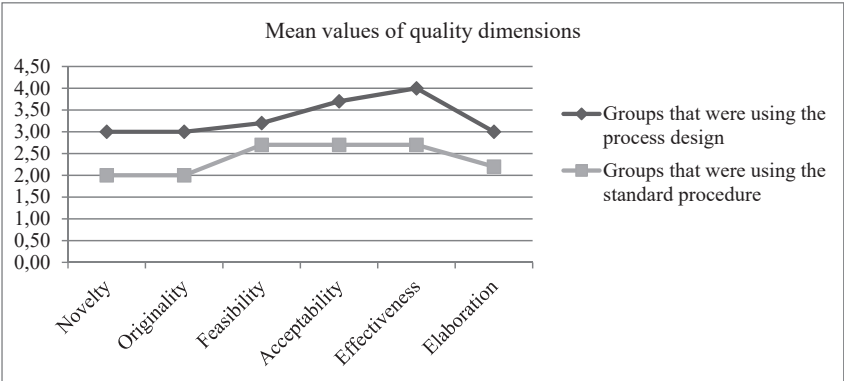
Figure 35: **Mean Values of Quality Dimensions**
Source: Simmert et al. (2019)

9.8 Contributions, Limitations, and Future Research

My study makes several major theoretical contributions and a key practical contribution.

Using a DSR approach, CE, and a multi-level evaluation including iteration loops, I created a recurring and directly implementable process design – including specific activities, instructions, and tools for business model improvement – that contributes to business model research. This process design is the major contribution of this study, as it constitutes an "invention" type of knowledge and represents a nascent design theory according to Gregor and Hevner (2013). My collaborative group process enables established companies to systematically improve their existing business model by themselves, using clearly structured instructions and direct links to appropriate tools and

validated methods. In sum, it is possible at any time to adapt a business model to address constantly changing environmental conditions with less preparation time and without need to hire expensive external facilitation expertise.

Furthermore, I consider my study to be an additional contribution to the knowledge base in the field of business model improvement. When developing my process design, I started by consolidating knowledge in the application domain that would be capable of informing my design. Using leading scientific databases, I conducted a literature review concerning the requirements of business model improvement. Thus, my literature review synthesizes representative literature on a topic in an integrated manner so that new processes, frameworks, and perspectives on the topic of business model improvement are generated (Torraco 2005). Following Gregor and Hevner (2013), my study delivers additional descriptive knowledge in the problem domain. Based on the results of my interview study with experts in the field of business model improvement, I was able to complement existing literature in the field by delivering additional descriptive knowledge, which could inform later design choices for developing other business model improvement processes (Gregor/Hevner 2013).

Additionally, I expanded the scope of CE to a new application field. CE has already proven beneficial in many domains, such as requirements engineering (Hoffmann/Bittner/Leimeister 2013), ideation (Briggs et al. 1997; Reinig/Briggs/Nunamaker 2007), shared understanding (Bittner/Leimeister 2014), and collaborative learning (Oeste-Reiß/Bittner/Söllner 2017). However, the use of the CE approach is also on the rise in the promising new field of business model improvement. The innovative combination of CE and business model improvement enables new and interesting application opportunities in the research fields of both CE and business model improvement.

Regarding the practical contribution of this study, the individual activities in my process design represent sophisticated procedural patterns for the use and development of the BMC. Consequently, the design process of elaborating the BMC has been transferred into a clear and structured approach that uses validated building blocks and decades of knowledge in collaboration and business modelling expertise to make this knowledge accessible to practitioners. As a result, it is possible to use the existing BMC in a structured and detailed manner and without training in business model knowledge and collaboration.

Despite its theoretical and practical contributions, this study is not without limitations. The focus of this study was on the "design" phase of CE (Vreede/Briggs/Massey 2009) and on the sample of the fourth evaluation loop. Additional evaluations in various contexts are needed to confirm the generalizability and effectiveness of the process design and to further improve the process design itself. In particular, the process design should be tested in more and different organizational settings and with different constellations of heterogeneous teams to further validate optimal team composition and identify potential needs for the organizational roll-out in the "deploy" phase of CE (Vreede/Briggs/Massey 2009). Another avenue for future research is to create a toolbox tailored to the needs of individual organizations. Thus, the process design can be converted into structured patterns, allowing the targeted use of individual parts of the process according to an organization's needs.

My process design is collaboration-intensive, technology-independent, and paper-based. IT-enablement of this process might further increase flexibility and provide greater scalability and faster adoption of small changes. Future research should design (Kleinschmidt et al. 2016), observe and evaluate (Kleinschmidt/Peters 2017) the underlying process design principles and leverage the strengths of IT and online collaboration in this highly human-centered environment (Kleinschmidt/Peters/Leimeister 2016). For example, IT could be used in the environmental analysis step, where mobile apps or online collaboration tools can help the team conduct the analyses. In this context, the intelligent design and orchestration of IT (or even AI) as well as non-IT parts (Peters 2016) and their effects for business model improvements need further investigation. Moreover, additional mechanisms to build business models in a more modular fashion in order to combine several business models could be implemented with the help of IT. Future research has also to consider the new digital ways of working (vom Brocke et al. 2018), for example internal and external crowd work platforms (Mrass/Peters/Leimeister 2017), and the necessity to improve business models so that empowerment of employees can be leveraged.

10 Summary of Contributions and Future Research[36]

In the following, and in addition to the discussed (partial) contributions in the appropriate studies, I summarize and discuss the overarching main theoretical and practical contributions of this dissertation. Furthermore, based on these contributions, I derive and discuss future research opportunities.

First, however, I draw on the research challenges and RQs I have presented and answer them in the logical order of my dissertation. Thereby, it is important to keep in mind that the different types of contributions arise from the different research challenges, RQs and methodologies.

With RQ1, I addressed the concept of organizational agility (Abrahamsson/Conboy/Wang 2009; Walter 2020), the empirical knowledge on organizational agility, and what it takes to be an agile company (Harsch/Festing 2019; Walter 2020). Organizational agility is a relevant concept in science and practice that can help companies with the challenges around the adaptation of organizational structures, processes, and business models (Alt et al. 2020), leading to the first RQ of my dissertation:

RQ1   *What is the state of the art of organizational agility in practice?*

My study presented in section 4 outlines the current status quo of agile transformation and organizational agility. It draws on rich data from an extensive mixed-method study spanning two consecutive years (2019 and 2020) and integrates both qualitative (i.e., interviews with top management executives) and quantitative (i.e., surveys of employees and leaders) data. As for results, I identified four relevant core aspects (structure and organization, leadership, employee-centricity, and customer and user orientation), for which I have provided corresponding figures, data, and facts. I also identified concrete, successful procedures, approaches, and practices that are currently applied in companies and that are assisting companies in their endeavor of becoming more agile. The consolidated and concise presentation of these figures, data, facts, and

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[36] The summary of contributions and areas for future research section is partly based on my publications related to this dissertation (especially the conclusions sections), summarized in Table 1 (Simmert et al. (to be submitteda), Simmert et al. (2019), Simmert/Peters (2022), Simmert/Peters (2020), Simmert et al. (to be submittedb)).

practices in section 4 contributes to practice by providing helpful insights into how to realize agile transformations successfully. Thereby, in the field of structure and organization, I have shown the reasons for introducing agile procedures from the perspective of top management executives and how employees and leaders assess the agility of their company. Furthermore, I have described organizational structures, procedures, approaches, and practices that companies use to become more agile. In terms of leadership, I have highlighted the role of top management and leaders in agile settings and shown that empowering leadership is an appropriate leadership style in agile contexts. In the field of employee-centricity, I have identified, analyzed, and described employee and leader empowerment and the agile mindset of employees as key success factors for agility. In terms of customer and user orientation, I have provided insight into the role of customer and user orientation agile settings, shown how customer/user-oriented employees and leaders assess themselves, and demonstrated that customer and user orientation can represent a strategic competitive advantage. As for the advancements of scholarly excurse, my study outlines potentials for future IS research within these four identified core concepts.

While companies are struggling to cope with the rapidly changing environmental and market conditions, they are increasingly relying on agile forms of work organization. Most companies do so by introducing Scrum or scaled approaches such as LeSS. RQ2 sheds light on a so far neglected way of realizing this demand for agility: ICW. Accordingly, with RQ2, I addressed the second research challenge that was raised, which deals with this previously underrepresented research on ICW as an agile form of work organization and its effects on employees and companies. For this purpose, I used an overarching RQ and included two sub-questions:

RQ2   *How does ICW as an agile form of work organization promote agility?*
RQ2a   *Which characteristics define ICW as a form of work organization in companies?*
RQ2b   *What positive effects does ICW as a form of work organization have on employees and companies?*

With RQ2a, I examined the characteristics that establish ICW as a form of work organization and explained how ICW differentiates from traditional approaches of work organization. Based on this, with the second sub-question, RQ2b, I examined the

positive effects this form of work organization has on employees and the advantages it brings to companies.

Answering these questions, in section 5, I demonstrated that ICW enables digital collaboration to engage employees, accelerate collaboration, and support ideation, which fosters workforce agility and therefore performance. Following an extreme case study approach as a research strategy, I examined how an automotive industry supplier implemented ICW as an agile form of work organization to foster agility and then collected unique data from all of the relevant project stakeholders. In this examination, I empirically identified seven main characteristics of ICW (i.e., network structure, competence-centric differentiation, worker-autonomy, flexibility, power sharing by leaders, motivation support by leaders, and development by leaders) that elevate ICW to a powerful instrument for establishing workforce agility in organizations and highlights ICW's previously undetected potential. Thus, in contrast to traditional forms of work organization, I have shown what constitutes ICW as an agile form of work organization (e.g., the inherent network structure of ICW). What makes ICW so powerful is that it can function as an organization-wide work structure and, therefore, can establish workforce agility on an organizational level across hierarchies and divisions. ICW's encompassing work structure, with its individual, agility-enabling characteristics, makes it, per se, more powerful than single measures, practices, or instruments, such as employee autonomy, collaboration, flat structures, etc. Moreover, I explained the psychological effects within ICW regarding employees and companies. Besides its effect on workforce agility, I also found that ICW plays an outstanding role in the empowerment of employees. Empowerment is therefore a key factor in the implementation and application of ICW. Perceived self-determination, impact, competence, and autonomy in work enables a successful application of ICW and workforce agility. Furthermore, an agile mindset is a key factor for employees in ICW. Thereby, I described the configuration of an agile mindset within ICW as an agile form of work organization.

For an effective use of ICW, the focus should be especially on the employees. Research challenge 3 considered this aspect and addressed the hitherto limited knowledge of the experiences and perceptions of employees in ICW[37]. In particular, the concept of

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[37] Deng/Joshi/Galliers (2016), Durward/Blohm/Leimeister (2020), Durward et al. (2019b), Simmert et al. (2020)

empowerment is one of the most established constructs of how employees perceive their work (Durward et al. 2019b). I addressed this with an overarching RQ3:

RQ3   *What antecedents and outcomes of ICW can be identified in relation to employee perceptions and, in particular, empowerment?*

RQ3 was further divided into two additional sub-questions. First, to gain a better understanding of empowerment in ICW, with RQ3a, I examined the interrelations of structural and psychological empowerment and their outcomes in ICW:

RQ3a   *How and why does ICW as a form of structural empowerment affect psychological empowerment?*

In section 6, I shed light on structural and psychological empowerment in ICW. In my case study, I examined a telecommunications company that has been successfully applying ICW for more than ten years. The company draws on an internal crowd of more than 10,000 employees and regularly mobilizes up to 1,500 employees. I investigated the case using a mixed-method research design including quantitative (a survey with 413 employees) and qualitative (232 free-text answers of employees, an interview with a works council and a project leader, and a document analysis) data and presented deep insights into understanding successful and empowerment-oriented ICW. Thereby, my research provides qualitative insights on employee perceptions of ICW enriched with quantitative data and insights. To the best of my knowledge, this is the richest scientific examination of empowerment in ICW to date, being one of the first to focus on employees in ICW in detail (Durward et al. 2019b). Therefore, in section 6, I presented a model for empowerment in ICW (see Figure 16) and outlined structural and psychological empowerment, organizational enablers as influencing effects and success factors, and outcomes of empowerment in the context of ICW. Thereby, I investigated ICW as a form of structural empowerment and identified and explained its characteristics (i.e., task content, recent company topics, expert knowledge and personal development, and meaningful outcomes and visibility) in detail. Moreover, I identified and described organizational enablers (i.e., top management and leadership support, capacity for participation, continuous feedback, and active cooperation and participation) and explained their influence on structural and psychological empowerment in ICW. My study contributes by explaining how ICW as a form of structural empowerment fosters psychological empowerment and can lead to increased

speed, synergies, and employee satisfaction. In sum, I have provided a deeper and more fundamental understanding of empowerment in ICW. Building on these insights is meant to inform the further design and development of ICW.

Second, another important factor related to employee perception, and thus empowerment, concerns leadership. Accordingly, RQ3b addressed leadership in ICW:

RQ3b *How does leadership in ICW affect the employee`s perception of work?*

In section 7, I investigated leadership in ICW. Therefore, I selected ICW as one, clearly defined, new form of work and increased the understanding of leadership in this context by analyzing four distinct cases of ICW. Based on this exploratory case study design, which included qualitative interviews, I described how employees perceive psychological empowerment and develop workforce agility through different leadership styles in ICW. As my main contribution, I detailed and extended the existing research regarding ICW and empowerment by identifying both the structural antecedents that affect psychological empowerment of ICW and the consequences of an empowered workforce in ICW. Thereby, I have indicated that an empowered workforce is an important factor in the implementation of workforce agility in ICW. Moreover, regarding leadership, I explained the design and changes of leadership in ICW in detail and explicated a new requirement for leaders in agile and digital forms of work organization: the flexible handling of different context-specific situations, projects, and tasks. For this purpose, I developed a theoretical model (see Figure 24) that describes the effects of shared leadership (i.e., leader gives full commitment mutual support in projects and tasks, reciprocity among leaders - employees independence in task execution), empowering leadership (i.e., enabling autonomy of employees, acting as agile coach, self-leadership of employees, self-leadership of leaders), and e-leadership (i.e., managing the digital workplace, cross-cultural aspects, and technical infrastructure) on workforce agility mediated by an empowered workforce.

Research challenge 4 addressed ICF, a special form of ICW, which was particularly aimed at the innovativeness of companies. Following the call for research in ICF (Simons/Kaiser/vom Brocke 2019), I addressed interrelationships and employee perceptions in ICF as well as ICF-induced innovativeness:

RQ4   *How do the innovation-fostering structures in ICF impact innovativeness and empowerment?*

To the best of my knowledge, this study is the first to investigate ICF as novel form of innovation management and work organization from an outcome (i.e., innovativeness) and a psychological (i.e., employee empowerment) perspective of employees based on an in-depth case study at an engineering service provider. Thereby, I have provided detailed knowledge on how companies can use ICF to promote company and employee innovativeness on the one hand and involve and empower employees throughout each step on the other hand. In doing so, by means of my data structure, I provide holistic and in-depth insights based on different perspectives (i.e., employees, leaders, project leader, works council) for the further design and development of ICF. Furthermore, in my theoretical model (see Figure 30), I provided detailed descriptions and explanations from a cause-and-effect view of ICF, including the dynamics and relationships (Gioia/Corley/Hamilton 2013) of the identified constructs (i.e., innovation-fostering mechanisms and structures in ICF, top management support, coaching by leader, psychological empowerment, innovative work behavior, and innovative output), thereby significantly contributing to the understanding of ICF (Simons/Kaiser/vom Brocke 2019). In summary, I demonstrated that the innovation-fostering structures in ICF (i.e., pre-innovation, initial funding, countercyclical innovation budget, intuitive access to ICF, fast feedback, proof of concept, fail fast - fail cheap, and distributed budget responsibility) enable employees to innovate and participate in the innovation process. This has positive effects on the psychological empowerment of inventors and investors. Top management support and coaching by leaders are found to be important influencing factors for the implementation of ICF and the emergence of empowerment. The structures of ICF together with empowered employees lead to innovative work behavior (i.e., pursuing own innovation ideas, active search for supporters and investors, and independent development and improvement of projects) and consequently to a higher innovative output (i.e., unconventional ideas implemented innovation projects, and patents) for the company.

Given the described changes in the fast-paced environment of organizations, the corresponding agility-induced response of organizations, and the resulting changes in the way work is done, there are also implications for business model improvement.

Research challenge 5 addressed the need to create a systematic process design for business model improvement in the light of agile organizations:

RQ5   *What process design would allow established companies to systematically improve their business model?*

In existing literature, the focus is on business model development rather than business model improvement, which takes the legacy of established companies into account. Knowledge concerning the method, form, and function of a process design has been lacking. Therefore, today's companies do not know how interactive patterns and activities can be used to systematically improve their business model without relying on outside business model experts and consultants. Furthermore, the collaborative nature of improving business models has sparsely been investigated.

I have addressed these research gaps and presented a systematic process design that allows companies to rethink, improve, and continually innovate their business models (see Figure 33 and Figure 34). The process particularly addresses established companies with a legacy and guides them through their business model innovation and improvement without the constant need for ongoing and costly professional facilitation.

I used a DSR approach and CE with a multi-level evaluation including iteration loops to create this process design. In this context, both theoretical and practical requirements of business model improvement were identified to ground the design decisions. The process design provides details of procedural steps, materials, and documents that are necessary for facilitation and implementation. To ensure that it reaches the defined collaboration goal effectively and efficiently, the process design was tested and improved using a multi-level and iterative evaluation. Moreover, the quality of the improved business models was evaluated against a baseline. The triangulation of evaluation methods provides a strong indication that the process design is suitable for its aspired application domain and for autonomous use by practitioners without further ongoing and costly support by professional facilitators.

10.1 Theoretical Contributions

Following this concluding overview to address the research challenges and answer the derived RQs presented in my dissertation, I now summarize my overarching main theoretical contributions. I provide theoretical contributions on five topics in particular:

ICW as a form of work organization and enabler of agility, empowerment in ICW, ICF, agile mindset, and business model improvement.

To the best of my knowledge, I am the first to investigate ICW as an agile form of work organization and an enabler of agility. In two studies (section 5 and section 7), I developed theoretical models regarding workforce agility in ICW, including the interrelations and dynamics of the identified constructs. In section 5, I identified seven work organization characteristics in ICW that are positively related to workforce agility. Therefore, I described and explained in detail how these work organization characteristics of ICW foster workforce agility. Thus, in contrast to traditional forms of work organization, I have shown what constitutes ICW as an agile form of work organization.

Moreover, in both studies, I detailed and extended the knowledge on workforce agility, i.e., proactive, adaptive, and resilient behavior, and formulated constitutive data-based descriptions of workforce agility in ICW. I addressed the need for knowledge on the antecedents of workforce agility (Harsch/Festing 2019), and, in line with initial research on psychological antecedents (Muduli 2017), I explained that ICW represents an important antecedent of workforce agility.

In addition, I identified leadership styles (i.e., flexible leadership, empowering leadership, e-leadership, and shared leadership) as further antecedents of workforce agility in ICW.

In summary, I have significantly expanded the understanding of ICW. Thus, by showing what constitutes ICW as an agile form of work organization (i.e., characteristics of work organization) and explaining how ICW fosters agility (i.e., workforce agility), I go beyond the existing perspectives and advantages of ICW. Hence, my approach expands the research focus of ICW to a new field (i.e., agility).

As a second main theoretical contribution, I have contributed to the employees' perception of ICW and, in particular, to prior research on empowerment[38] by extending and refining structural antecedents, the mediating effect, and the outcomes of empowerment within ICW. Thereby, I have extended the existing knowledge of the empowering effect of ICW on employees in these initial studies (e.g., ideation and

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[38] Conger/Kanungo (1988), Seibert/Wang/Courtright (2011), Spreitzer (2008), Spreitzer (1995)

innovation (Durward et al. 2019b; Malhotra et al. 2017), software testing (Durward et al. 2019a), and collaborative problem solving (Durward et al. 2019b)) by investigating an overarching and thematically unrestricted ICW (employees can be both requestors and solvers) (section 5), ICW as market-oriented product development approach (section 6), ICW for collaboration, ICW for business process improvement, and ICW for cross-functional projects (section 7).

My theoretical models depicted structural antecedents that enhance the emergence of psychological empowerment, leading to an employee's increased feeling of self-determination, meaning, competence, and impact. First, I followed the call of Maynard, Gilson, and Mathieu (2012) to investigate new and further structural empowerment forms and instruments and established ICW as a form of structural empowerment that promotes psychological empowerment. I addressed this, in particular, in the study in section 6, where I used qualitative and quantitative data to elaborate the empowerment concept with detailed, in-depth findings and explained its contextualization in ICW. In doing so, I have detailed and extended the knowledge of structural empowerment and created a deeper fundamental understanding of empowerment in ICW.

Furthermore, in addition to the work organization-related characteristics of ICW (section 5), previously described above, I identified leadership styles as structural empowerment determinants within ICW (section 7). In doing so, I am the first to examine leadership in ICW (Zuchowski et al. 2016). I identified three leadership styles (i.e., shared leadership, empowering leadership, and e-leadership) that act as structural empowerment determinants in ICW and promote the psychological empowerment of employees through their combination in a flexible leadership style. I also described the leadership styles and their interaction in detail.

In addition, in my studies on ICW and empowerment, I confirmed the mediating effect of psychological empowerment (e.g., Maynard/Gilson/Mathieu 2012; Seibert/Wang/Courtright 2011) between the structural empowerment determinants I identified and the ICW-induced outcomes. In this context, I also explained the interrelationships and dynamics that arise within ICW in the theoretical models I developed.

Furthermore, I explained the outcomes that result from the (empowerment-oriented) application of ICW. Thus, I contribute to the outcome perspective of the research around

ICW (see section 2.3). Besides the already described outcomes around workforce agility, in section 6, I presented speed, synergies (for example between employees or departments), and satisfaction of employees as three further outcomes that result from the application of ICW. Furthermore, in sections 5, 6, and 7, I showed that the application of ICW promotes the psychological empowerment of employees, and that the empowerment concept is shown to be effective in both the application of ICW and the promotion of agility.

My third main theoretical contribution relates to ICF and the study presented in section 8. Therewith, to my knowledge, I am the first to look at ICF from an outcome perspective (with a special focus on innovativeness) and, at the same, time with a psychological component centered on employees (with a special focus on employee empowerment). In doing so, I considered ICF as an innovative form of work organization and innovation management. In this context, I identified and described in detail the innovation-fostering mechanisms and structures in ICF. Thereby, I explain the interrelationships and dynamics in a theoretical model and describe how ICF helps companies be innovative. This provides fundamental knowledge for the application and development of ICF systems. In relation to empowerment research, I have shown that ICF is a form of structural empowerment that is positively related to the psychological empowerment of investors and inventors. Furthermore, I have shown the relevance of top management support and coaching within ICF and complemented the outcome perspective of ICF research. In summary, I have shown that ICF has the potential to democratize innovation management in organizations.

With the fourth main theoretical contribution, I contribute to the body of knowledge on the agile mindset. I identified the agile mindset as a psychological effect, respectively, multidimensional attitude and described dimensions of the agile mindset in two studies (section 4 and section 5). While the agile mindset has received little attention in research, in section 5, I demonstrated its critical relevance to ICW success using empirical data. In doing so, I explained how the agile mindset operates within an agile form of work organization (i.e., ICW). In section 4, based on empirical data from employee and leader perceptions, I have shown the relevance of the agile mindset for both agility and agile transformation processes. Overall, I have provided initial insights into the agile mindset and its operationalization.

My fifth main theoretical main contribution addresses business model research. The presented recurring and directly implementable process design for business model improvement (including specific activities, instructions, and tools) in section 9 represents a nascent design theory (Gregor/Hevner 2013), as the built-and-evaluated process represents design knowledge as operational principles. The new process is both a new problem – not considering the systematic development of business models but rather their improvement – and a new solution. Therefore, it is an "invention" type of knowledge contribution (Gregor/Hevner 2013) in the form of "theory of design and action", as defined by Gregor and Jones (2007). Moreover, I have enriched the existing business model literature with descriptive knowledge that could inform subsequent design decisions for the development of other business model improvement processes (Gregor/Hevner 2013). Additionally, I contributed to CE research in section 9 by applying CE to a new application area (i.e., business model improvement).

10.2 Practical Contributions

In the following, I summarize the main practical contributions of my dissertation. My first main practical contribution concerns the state of the art of organizational agility in section 4, providing comprehensive numbers, data, and facts on the topic of agility and developments that are discussed at the top management level of companies in the four relevant areas I identified: structure and organization, leadership, employee-centricity, and customer and user orientation. Thereby, I have provided quantitative insights of employees and leaders to give practitioners a deep understanding of how agile transformation processes and organizational agility are perceived, which can be applied or transferred to their own agile transformation processes. As a second main practical contribution, I have extracted practices from my empirical data and described them in detail in the areas shown. According to the interviewed top management executives, these practices have proven to be effective and can be specifically used by practitioners to promote organizational agility and agile transformation processes. Moreover, I have derived relevant areas for IS research and practice in the future, which are also particularly relevant for companies and their current and future challenges.

In addition, I have examined the agile mindset in more detail. Practitioners can use my findings on the agile mindset and transfer them to recruiting processes and the training and further development of employees and leaders. In addition, the knowledge gained about the agile mindset can be transferred to the design of work and tasks.

My third main practical contribution addresses the implementation and application of ICW. In sections 5, 6, and 7, I extensively described the implementation and application of different types of ICW. In doing so, I decoded the work organization characteristics of ICW; I established and explained ICW as a form of structural empowerment (section 6); and I identified and described leadership styles in ICW (section 7). Additionally, I have described the dynamics and interrelationships of ICW in the theoretical models developed. Practitioners can use this empirically gained knowledge as a blueprint and apply it to their own implementation and application of ICW. Based on the knowledge gained from successful ICW applications, best practices from the cases described can be used regarding the implementation and application of ICW, leadership in ICW, and employee engagement. Thus, my results contain detailed descriptions of which approaches have proven effective for which variant and scope of ICW. My findings help leverage the so-far undetected potential of ICW in companies and, for example, promote workforce agility in the company and empower employees.

My fourth main practical contribution concerns the field of ICF and therefore employee-initiated innovation. Thereby, I described a step-by-step guide for successful implementation and application of ICF and explained how ICF can be used to empower employees and foster innovativeness. With this, practitioners can gain insight into the successful implementation and application of ICF. This can be transferred by the responsible persons to their own application, management, and governance of ICF.

My fifth main practical contribution addresses the field of business model improvement. The elaborated process design for business model improvement integrates knowledge from business model research, collaboration research, and empirical knowledge from practice. I have transferred this knowledge into a process design that enables employees of (established) companies to perform continuous business model improvement - both radically and incrementally - on their own without prior training in business model knowledge and collaboration. The clearly structured instructions and direct links to appropriate tools and validated methods enable companies to adapt to the fast-moving environmental conditions systematically and independently in a continuous and iterative way.

10.3 Future Research Opportunities

In the respective studies within my dissertation, I have discussed in detail the respective limitations and the resulting need for future research. In this section, I summarize the overarching future research opportunities of my dissertation.

First, and regarding the state of the art of organizational agility in the German-speaking region (section 4), my findings are based on qualitative and descriptive-quantitative data on the identified relevant areas: structure and organization, leadership, employee-centricity, and customer and user orientation. I derived comprehensive numbers, data, and facts on the topic of agility as well as practices from practice. Due to the descriptive nature of my results, future studies can especially be conducted in quantitative-explanative approaches. In this regard, the causal relationships of the constructs I used can be investigated, and thus, the connections of the relevant areas can be focused on. Furthermore, in particular, the practices I identified in the companies can be examined with regard to the forced use of IT. Consequently, the targeted further development of the practices can be supported with the help of IT. In addition, I primarily considered the positive effects and focus on the resulting opportunities of organizational agility. This has provided the opportunity to examine the negative consequences of organizational agility as such as well as the practices regarding the dark side of agility.

Furthermore, the agile mindset plays an important role in future agility-related research opportunities. While in this dissertation I have presented initial attempts of definition and operationalization, including the identification of dimensions, and described the effect of the agile mindset in an ICW case in detail, the construct of the agile mindset needs to be further developed. Accordingly, further empirical investigations of the agile mindset in different cases are needed in future research activities. Building on this basis, the agile mindset as a construct can then be comprehensively operationalized and validated so that the effects, consequences, and possible outcomes can be examined.

Further research is also needed in the field of ICW. While I was able to collect extensive qualitative data using my case study approach in sections 5, 6, and 7 and develop theoretical models that demonstrated an understanding of ICW, the relevant constructs within ICW, the outcomes of ICW, and the interrelationships and dynamics within ICW, future studies may use my developed propositions and test them quantitatively-explanatively. Additionally, it is important to note that I was able to examine a total of five different forms and variants of ICW. In particular, the case presented in section 5,

in which employees could be both solvers and requestors, has hardly been considered in previous research. While I was able to find evidence of ICW as an agile form of work organization in all cases, it may be useful for future studies to examine the different variants of ICW in terms of their varying degrees of agility-enhancing effects. In addition, further cases in different contexts and with different types of ICW can also promote the generalizability of my findings. Furthermore, I focused on successful implementations and applications of ICW in my dissertation. In this context, future research could also examine unsuccessful cases of ICW. Moreover, the ICW cases I studied also revealed approaches of negative aspects, especially in the perception of employees, which I also considered in my cases and the corresponding findings. Nevertheless, the dark side of ICW was not the focus of my research. Therefore, it is worthwhile in future studies to examine the negative consequences of ICW more closely as well. Long-term studies that address changes in employee perceptions are particularly useful for this purpose. Additionally, in my studies, I have largely focused on ICW participants. However, it is apparent that, even in the ICW concept, which is designed to be voluntary, employees have reservations or do not participate for various reasons. These doubters need to be investigated more specifically in future studies. How does non-participation affect this group of people, for example? What are the possible negative consequences? What dynamics emerge between ICW participants and doubters? And in practical terms, what reasons convince people to take part in ICW after all?

The future research opportunities I have identified for ICW can also be applied to ICF – a special form of ICW – which I also investigated in a case study approach. For ICF, my qualitative findings should also be examined quantitatively, and unsuccessful cases as well as negative consequences could be focused on. For both ICW and ICF, future research activities need to examine the transferability of my findings to other agile and digital forms of work organization. This is even more true when external parties are also involved in tasks and projects and hybrid forms of collaboration emerge.

Another aspect that affects both ICW and ICF is the parallel nature of work structures and processes (Durward et al. 2019b; Knop/Blohm/Leimeister 2019). Thus, both forms can be implemented and operated in parallel to the actual established form of work organization. First of all, this has the advantage that the outcomes that result from the introduction and application of ICW and ICF can be used without radically changing

the complete form of work organization in the company. Along these lines, as in the case of ICW, it is possible to increase the agility of the company on an organizational level, which supports the focus of many companies on holistic, organization-wide agile forms of work organization (Gerster et al. 2020). For future studies, this results in the need to investigate the parallelism of different forms of work organization. In previous introductions of agile structures parallel to the established form of work organization, employees have often worked in either the old or the new form of work organization. The focus was thus more on the interfaces between these forms of work organization; whereas, in the context of ICW and ICF, the focus is particularly on the employee, who can be on the move in both worlds in parallel. It is important to investigate how this regular and short-term change between the forms of work organization affects the employees and the work results. Nevertheless, it is interesting to investigate whether, and to what extent, the motivation of employees changes during work in the different forms of work organization. There is also a need for future research in the field of business model research and my developed process design for the systematic improvement of business models. Thus, it is important to evaluate my process design in various contexts and to continuously develop it further. For example, partial aspects of the process design can be transferred into agile patterns that can be used specifically in agile forms of work organization such as ICW or ICF. These patterns must then be validated and adapted to different contexts.

Overall, in this dissertation, I address all elements and therefore all levels of the work organization (i.e., tasks, organization's structure, organization's policies and practices, organization's leadership practices, and workers)[39]. I combine and link these levels in my studies and draw on different constructs within these levels. To purposefully carry out this linking of the different levels, I use two concepts: the work organization concept and the empowerment concept. For example, in section 5, I first elaborated on the characteristics of the work organization in ICW and thus address the organizational level. In a second step, I focused on the employees and their perceptions as well as the resulting effects. In this context, I draw on the concept of empowerment. The concept of empowerment works on the different levels of the company and links them (Schermuly 2019a). Structural empowerment addresses the organizational design of structures and processes. In this context, psychological empowerment shows the individual perception of employees of these structural and organizational structures. The

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[39] Burke (2017), Cordery/Parker (2007), Parker/van den Broeck/Holman (2017), Turner (2020)

empowerment concept is thus a mediator between the organizational changes (i.e., the introduction and application of ICW) and the desired effects or outcomes (Schermuly 2019a). An introduction of agile forms of work organization such as ICW thus requires a holistic perspective (Schermuly 2019a). Nevertheless, it is important to address the different levels and units of analysis in future research and to work out, in a differentiated way, how the interactions between them work. For example, it could be assumed that the effects at the different levels reinforce each other. In particular, the effects at the organizational level, which go beyond the effects and outcomes at the individual level, need to be investigated in future studies. For example, in section 8, the relationship between innovative work behavior of employees and quantifiable innovative output that I identified through a tandem process, alternating between insights from the data and the literature, must be examined in future studies using measurable KPIs.

This dissertation presents ICW as a platform-based agile form of work organization and a new way to foster agility in companies. Consequently, the question arises which methods, models, and tools support the introduction and application of ICW-induced agility in companies. For example, DSR-based research can support the development of guidelines or procedures for the use of ICW. Furthermore, relevant outcomes of ICW-induced agility and their effects on employees and companies need to be investigated. A combination of qualitative and quantitative methods may be suitable for this purpose.

Furthermore, the trend toward platformization has reached the work context of companies. In addition to the increased use of ICW and ICF, first companies are starting to experiment with internal online labor markets. Such internal online labor markets rely – similar to ICW – on a platform-based matching of projects or tasks and the appropriate employees or teams. The matching is based on the skills, interests, and competencies of the employees. The self-selective matching mechanism can be simultaneously supported by AI-based mechanisms and algorithms (Peters et al. 2021). Internal online labor markets thus represent a scaled and evolved form of ICW approaches. Therefore, it is necessary to examine the effects on companies and employees. Based on this, research can then be conducted on the development of specific methods, models, and tools for the development, introduction, and application of internal online labor markets.

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Appendix

Appendix A   Appendices to Study Presented in Section 4

Appendix A.1   Qualitive Interview Protocol 2019

Interview-Leitfaden zur Studie „Transformation agiler Organisationen"

Allgemeine Angaben

Name: Alter:

Position:

Unternehmen:

Datum: Durchführung:

Themenblock	Inhalt/ Fragestellungen
Ziel der Untersuchung	Qualitative Analyse zur Transformation agiler Organisationen
Intention des Interviews	Detaillierte Informationen über die Erfahrungen und Sichtweisen zum Thema aus Sicht von Top-Level Führungskräften *Fragen und Erfahrungen möglichst konkret an Beispielen erläutern lassen.*
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufnahme des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen. • *Alternativ Protokoll + Gedächtnisprotokoll*
Ausgangslage	

Eisbrecherfrage (Auswahl)	• Wie ist Ihr beruflicher Hintergrund? Können Sie Ihre Position noch einmal beschreiben?
	• Was heißt es eigentlich für ein Unternehmen in einer sich schnell verändernden Umwelt (VUCA) tätig zu sein / wie macht sich das bemerkbar?
	• Wie sind Ihre persönlichen Erfahrungen mit Agilität im Allgemeinen?
	• Was verstehen Sie unter einer „agilen Organisation"?
	   o Welche alternativen Begriffe verwenden Sie für „Agilität"
	   o Was wir im Kontext des Interviews unter Agilität verstehen:
	   Schnelle und proaktive Handlungsfähigkeit auf den Ebenen Organisation, Arbeitsorganisation, Führung und Individuum.

Reifegrad der Umsetzung	• Inwiefern arbeiten Sie aktuell in (Teilen) Ihrer Organisation an der Steigerung der Agilität oder haben Sie die „Transformation" bereits vollzogen? • Auf einer Skala von 1-10, inwiefern würden Sie Ihre Organisation als agil bezeichnen?

	o Und warum? Wie kommen Sie zu dieser Einschätzung?

Beweggründe	• Welches waren die Gründe, sich mit dem Thema Agilität auf Organisationsebene überhaupt auseinander zu setzen?
	  o Gab es einen konkreten Auslöser?
	  o Wer treibt das Thema?
	  Top Management? Oder kommt die Bewegung von innen heraus? Oder wird es nur in/von einzelnen Bereichen getrieben?
	• Welche Ziele verfolgt Ihr Unternehmen mit der Steigerung der Agilität in der Organisation?

(Digitale) Kompetenzen (Fähigkeiten)	• Inwiefern hängt für Sie die digitale Reife des Unternehmens mit der Agilität des Unternehmens zusammen?
	  o Ist ein hoher digitaler Reifegrad eine Voraussetzung für Agilität?
	• Inwiefern treiben Sie „Digitalisierung" und „Agilisierung" des Unternehmens gemeinsam voran?
	  o Inwiefern gibt es hierbei strategische Schnittstellen?

Voraussetzungen	• Welche Voraussetzungen werden für eine erfolgreiche Umsetzung einer agilen Arbeitsorganisation benötigt?
	  o Abfrage auf den Ebenen
	    ▪ *Voraussetzungen auf organisationaler Ebene*
	    ▪ *Voraussetzungen auf Ebene der Arbeitsorganisation*
	    ▪ *Voraussetzungen auf Ebene Führung*
	    ▪ *Voraussetzung auf Ebene Individuum*
	• *Welches sind Ihrer Meinung nach die Top 3 Voraussetzungen?*

Agile Arbeitsorganisationsformen	• Welche Schritte vollziehen Sie bzw. haben Sie vollzogen auf dem Weg zu einer agilen Organisation?
	  o *Fokus Arbeitsorganisation*
	• Welche agilen Arbeitsformen wenden Sie an? *(Fokus Arbeitsorganisation; nicht einzelne Frameworks oder Methoden)*
	  o Wie gehen Sie hierbei vor?
	    ▪ *Lehrbuch (welches / welche Grundlage?) oder eigenes Vorgehen?*
	    ▪ *In welchen Bereichen verwenden Sie diese?*
	  o Wie lange verwenden Sie besagte Arbeitsformen bereits?
	    ▪ *Running Case? Was war das Interessanteste/ Spannendste?*
	• Welche neuen „Rollen" entstehen dabei? Inwiefern verändern sich Rollen?
	  o *Agile Coach, Ambassador, Multiplikatoren*
	• Welche Auswirkungen hat das auf Hierarchien im Unternehmen?
	• *Welche Form der Arbeitsorganisation ist nach Ihrer Meinung die Wichtigste? Heute und in Zukunft?*

Kultur & Mindset	
Vermittlung agiler Werte/ Prinzipien	• Was ist für Sie eine agile Unternehmenskultur? • Wie ist es bei Ihnen, inwiefern ist eine agile Unternehmenskultur eine Voraussetzung für Agilität? → *Wechselwirkung* o Inwiefern verändert sich die Unternehmenskultur durch Agilität?

	• Wie gehen Sie vor, um eine agile Unternehmenskultur zu implementieren?
	• Welche Werte und Prinzipien werden benötigt, um Agilität auf organisationaler Ebene erfolgreich umsetzen zu können?
	    ◦ *Bsp.: Fehlerkultur, Mitarbeiterzufriedenheit, Kundenzufriedenheit, Kundenfokus, Transparenz, Dialog*
	• Was sind Erfolgsfaktoren zur nachhaltigen Verankerung von Agilität in der Unternehmenskultur?
	• Wie stellen Sie sicher, dass die agile Unternehmenskultur auch gelebt wird?
	    ◦ *Bspw. auch die Umsetzung durch die Führungskräfte*

Collaboration & Knowledge Sharing
 	
Mitarbeitenden-Diversität
	• Welche Relevanz hat das Thema Wissenssilos und Knowledge Sharing in der Diskussion um Agilität?
	    ◦ Welche Maßnahmen vollziehen Sie in diesem Zusammenhang?
	• Wie fördern Sie abteilungsübergreifende Zusammenarbeit?
	• Wie organisieren Sie global agierende Teams? *Stichwort: Distributed Teams*
	    ◦ *Wie sind die Teams strukturell aufgestellt?*
	    ◦ *Wie agieren diese Teams im Hinblick auf ihre Geschwindigkeit?*

Führung & Governance	

Rollenverständnis der Führungskraft	• Wie verändert sich Führung in einer agilen Organisation?
	    ◦ Können Sie dies an einem konkreten Beispiel erläutern?
	        ▪ *Running Case?*
	• Wie verändert sich die Rolle der Führungskraft?
	    ◦ Können Sie dies an einem konkreten Beispiel erläutern?
	        ▪ *Running Case?*
	• Welche Maßnahmen sehen Sie für Führungskräfte in diesem Zusammenhang vor?
	    ◦ Wie stellen Sie das Commitment der Führungskräfte zu den Werten und Prinzipien/ der neuen agilen Unternehmenskultur sicher?
	        ▪ *Wie stellen Sie sicher, dass Führungskräfte die vorgegebenen Werte und Prinzipien auch vorleben?*
	• Inwiefern suchen Sie Führungskräfte nach bestimmten Kompetenzen aus?

Incentive-Strukturen	• Wie gehen Sie vor dem Hintergrund einer agilen Organisation mit Zielvereinbarungen um? • Inwiefern spielen Incentive-Strukturen dabei eine Rolle? ◦ Welche Rolle spielt die Führungskraft dabei? • Gibt es Ihrer Überzeugung nach „Gos/No-Gos" in diesem Bereich?
Vision & Mission	• Inwiefern ist ein (agiles) Zielbild für Ihr Unternehmen formuliert? • Wurde dieses Zielbild vom Top Management vorgegeben oder gemeinsam mit den Mitarbeitenden entwickelt?
Lernende Organisation	• Gibt es Freiräume/ Experimentierräume, die Mitarbeitende nutzen können? ◦ Welche Voraussetzungen gibt es hierfür?

	• Verweis Knowledge Sharing
Organisationsstruktur & Prozesse	
Organisationsform & Arbeitsweise	• Wie ist Ihr Unternehmen strukturell organisiert? o *Netzwerkstrukturen? Hierarchische Strukturen? Selbstorganisation?* • Welche hybriden Formen der Zusammenarbeit gibt es? • Wie funktioniert deren Co-Existenz?

Skalierung	• Wie skalieren Sie agile Vorgehensweisen im Unternehmen?
	  o In welchen Bereichen haben Sie mit der Einführung von agilen Vorgehensweisen begonnen? Wohin geht es weiter?
	• Welche Herausforderungen sehen Sie im Bereich Skalierung?
	  o *Wie haben Sie dies gelöst?*

Interne Prozesse & Entscheidungswege	• Welche Hierarchiestufen gibt es in Ihrer Organisation? Welche Hierarchiestufen sind neu dazu gekommen?
	  o *Oben bereits abgefragt?*
	• Welche Veränderungen ergeben sich für interne Prozesse durch eine agile Arbeitsorganisation?
	• Welche Veränderungen ergeben sich für Entscheidungswege durch eine agile Arbeitsorganisation?
	  o Wer entscheidet, wer überhaupt agil arbeiten darf?
	  o Wer entscheidet, welcher Mitarbeitende welche Aufgaben übernimmt?
	    ▪ Gibt es hierzu eine Zielvision? Bspw. Mitarbeitende sollen zukünftig selbstorganisiert entscheiden?
	• Wie sind die Schnittstellen zwischen agilen Bereichen und nicht agilen Bereichen ausgestaltet?

Negative Erfahrungen	• Bei welchen Initiativen, Vorgehensweisen oder Formen der Arbeitsorganisation haben Sie am meisten dazugelernt? o Warum war das so? • Welche Initiativen, Vorgehensweisen oder Formen der Arbeitsorganisation sind gescheitert? • Welche Schlüsse haben Sie daraus gezogen?
Mitarbeitender/ Mensch	

Fähigkeiten/ Kompetenzen der Mitarbeitenden	• Welches sind die aus Ihrer Sicht wichtigsten Fähigkeiten und Kompetenzen, die Mitarbeitende für agile Arbeitsformen benötigen?
	  o *Methodische Aspekte*
	  o *Was verstehen Sie unter einem "agilen" Mindset?*
	• Welche Maßnahmen ergreifen Sie, um Mitarbeitende für agile Arbeit zu befähigen?

Widerstände bei den Mitarbeitenden	• Welche Widerstände existieren bei den Mitarbeitenden vor dem Hintergrund einer agilen Arbeitsorganisation?
	  o Bewusst oder unbewusst
	    ▪ *Running Case*: Können Sie dies an einem Beispiel erläutern?
	• Was ist das Besondere an diesen Widerständen verglichen mit anderen Change-Projekten oder der Digitalisierung?

Motivationale Faktoren	o Woran liegt das?

	• Wie bauen Sie Widerstände bei den Mitarbeitenden ab / Wer ist hierbei involviert? • Wie bauen Sie Widerstände bei den Führungskräften ab / Wer ist hierbei involviert? • Inwiefern werden Mitarbeitende, die sich sträuben, trotzdem mit agiler Arbeit konfrontiert? o Welche Konsequenzen ergeben sich für Mitarbeitende/ Führungskräfte, die sich weigern? • Wie motivieren Sie Mitarbeitende/ Führungskräfte in agilen Settings?
Karriere	• Inwiefern achten Sie bei der Personalauswahl bereits auf die Offenheit für agile Strukturen bei potenziellen Mitarbeitenden? • Welche Karriereoptionen ergeben sich in einer agilen Organisation? o *Aufstiegsmöglichkeiten, Führungskraft werden* • Wie werden agil Arbeitende beurteilt? Wie wird die Leistungsbeurteilung vollzogen?
Empowerment	• Inwiefern setzen Sie auf die Selbstorganisation von Mitarbeitenden und Teams? • Inwiefern stimmen Sie der Aussage zu, dass agiles Arbeiten höhere Anforderungen an die Mitarbeitenden stellt als traditionelles Arbeiten?
Erfolgskriterien/ -messung	

Qualitative & quantitative Messgrößen	• Wie beurteilen Sie den Erfolg der Agilitätsmaßnahmen?
	   o Unterscheidung nach Ebenen
	      ▪ *Organisation*
	      ▪ *Arbeitsorganisation*
	      ▪ *Führung*
	      ▪ *Mitarbeitende*
	• Welche Kennzahlen nutzen Sie?
	• Welche neuen Messgrößen haben sich etabliert / welche sind vorstellbar (auch Art der Ziele, insb. hart/weich)? Laufen die alten Messgrößen weiter?
	   o *Unterscheidung nach bzw. Kombination von qualitativen und quantitativen?*
	   o *In welchem Turnus werden diese erhoben?*

Erwartungen	• Inwiefern haben sich die Erwartungen erfüllt? • Inwiefern ist der erwartete Nutzen eingetreten? • Inwiefern wurden die gesteckten Ziele erfüllt? • Inwiefern erfordern soziale/ gesellschaftliche Anpassungen, dass man auf eine agile Organisationsform umstellt?
Überraschungen	• Was haben Sie nicht vorhergesehen? • Was war das Positivste für Sie persönlich? • Was war das Positivste für das Unternehmen?
Next Steps	• Wie sieht Ihre Roadmap aus? Wie geht es weiter? o *Gibt es eine nächste „Ausbaustufe"?*
Abschluss	
Was fehlt?	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde?

	• Mit wem sollten wir Ihrer Meinung nach unbedingt noch sprechen, um ein möglichst umfassendes Bild zu erhalten?
Bitte vervollständigen Sie	• Bei der Transformation unseres Unternehmens hin zu einer agilen Organisation wünsche ich mir, dass… • Wenn wir als Unternehmen die agile Transformation verpassen, dann… • Bei der Transformation unseres Unternehmens hin zu einer agilen Organisation darf auf keinen Fall passieren, dass… • Die größte Chance in der Agilität liegt für mich in…
Organisatorisches	• Follow-Up-Mail o Umfrage (2-4 Minuten) • Dokumente

Appendix A.2   Qualitive Interview Protocol 2020

Interview-Leitfaden zur Studie „Transformation agiler Organisationen"

Allgemeine Angaben

Name: Alter:

Position:

Unternehmen:

Datum: Durchführung:

Themenblock	Inhalt/ Fragestellungen
Ziel der Untersuchung	Qualitative Analyse zur Transformation agiler Organisationen
Intention des Interviews	• Detaillierte Informationen über die Erfahrungen und Sichtweisen zum Thema aus Sicht von Top-Level Führungskräften *Fragen und Erfahrungen möglichst konkret an Beispielen erläutern lassen.*
Anonymität	Anmerkungen zu Vertraulichkeit, Anonymität und Datenschutz
Aufnahme des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen. • *Alternativ Protokoll + Gedächtnisprotokoll*
Status Quo / Agilität	
Eisbrecherfrage (Auswahl)	• Wie ist Ihr beruflicher Hintergrund? Können Sie Ihre Position noch einmal beschreiben? o *In unserem letzten Interview haben Sie uns schon einiges über die agile Transformation in Ihrem Unternehmen berichtet. Was hat sich seit unserem letzten Interview verändert?* • Wie sind Ihre persönlichen Erfahrungen mit Agilität im Allgemeinen? • Was verstehen Sie unter einer „agilen Organisation"?

	- Wie leben Sie persönlich Agilität?
	    o Was wir im Kontext des Interviews unter Agilität verstehen:
	      Schnelle und proaktive Handlungs- und Veränderungsfähigkeit auf den Ebenen Organisation, Arbeitsorganisation, Führung und Individuum.

Reifegrad der Umsetzung	- Auf einer Skala von 1-10, inwiefern würden Sie Ihre Organisation heute als agil bezeichnen?
	    o Und warum? Wie kommen Sie zu dieser Einschätzung?
	    o In welchen Bereichen des Unternehmens sind Sie besonders weit?
	      ▪ Wie entscheiden Sie, welche Bereiche agil arbeiten?
	        • Wie unsicher/ komplex schätzen Sie Ihre Unternehmensumwelt ein?
	      ▪ Gibt es unterschiedliche Arbeitsorganisationsformen für unterschiedliche Bereiche?
	    o Gibt es Unterschiede auf den Management-Ebenen (strategisch, koordinativ, operativ)?
	    o Gibt es Unterschiede zwischen den Führungskräften und den Mitarbeitenden?
	- Wie werden die Schnittstellen zwischen den Bereichen gemanagt?
	- Inwiefern arbeiten Sie aktuell in (Teilen) Ihrer Organisation an der Steigerung der Agilität oder haben Sie die „Transformation" bereits vollzogen?
	- *Was hat sich im letzten Jahr verändert?*
	    o *Woran liegt das? Was machen Sie anders?*
	    o *In welchen Bereichen haben Sie die größten Fortschritte gemacht?*
	    o *Was haben Sie Neues im letzten Jahr gelernt?*
	    o *Inwiefern hat sich das Zielbild verändert, auf das Sie hinarbeiten?*
	    o *In welchen Bereichen konnten Sie Erfolge feiern? Welche waren dies konkret?*
	    o *Was hat nicht funktioniert? Und warum?*
	      ▪ *Welche Konsequenzen haben Sie daraus gezogen?*
	      ▪ *Was machen Sie nun konkret anders?*

Wertbeitrag / Messung	- Welchen Wertbeitrag liefert Ihnen Agilität in Ihrem Unternehmen? o Wie messen Sie das? Welche KPIs verwenden Sie dafür? - Inwiefern hängt Agilität mit der Unternehmensleistung zusammen?

Investition	- Was / Worin und wie viel hat das Unternehmen investiert, um sich agil aufzustellen?
	- Wie messen Sie die Investitionen in Agilität in Ihrem Unternehmen?
	    o Investitionsvolumen/ Weiterbildungsbudget /zeitlicher Aufwand
	    o Ausmaß der Investitionen?
	- Wie beurteilen Sie den Erfolg der Agilitätsmaßnahmen?
	- Welche Kennzahlen nutzen Sie?
	- Welche neuen Messgrößen haben sich etabliert / welche sind vorstellbar (auch Art der Ziele, insb. hart/weich)? Laufen die alten Messgrößen weiter?
	    o *Unterscheidung nach bzw. Kombination von qualitativen und quantitativen?*
	    o *In welchem Turnus werden diese erhoben?*

Ausrichtung der Arbeits-organisation	- Welche Schritte vollziehen Sie bzw. haben Sie vollzogen auf dem Weg zu einer agilen Organisation? o *Fokus Arbeitsorganisation* - Wie ist Ihre Roadmap? Wie stellen Sie sich Ihre zukünftige Arbeitsorganisation vor? (Beyond agile)

	• Ist Agilität in Ihren Augen ein Trend? Wird die Zukunft von anderen Arbeitsorganisationsformen bestimmt? (Trends)
	• Bei welchen Initiativen, Vorgehensweisen oder Formen der Arbeitsorganisation haben Sie am meisten dazugelernt?
	    ◦ Warum war das so?
	• Welche Initiativen, Vorgehensweisen oder Formen der Arbeitsorganisation sind gescheitert?
	    ◦ Welche Schlüsse haben Sie daraus gezogen?

Deep Dive 1: Kund/innenfokus (Value Stream) Sense & Respond	

Kund/innen & Kunden-bedürfnisse erkennen	Sense:
	• Was bedeutet für Sie Kundenzentrierung?
	• Wie definieren Sie, wer Ihre Kund/innen sind?
	    ◦ Inwiefern wird dabei zwischen internen und externen Kund/innen unterschieden?
	• Wie messen Sie Kundenzentrierung in Ihrem Unternehmen?
	• Welche Maßnahmen nehmen Sie vor, um nah an Ihren Kund/innen dranzubleiben?
	    ◦ Wie werden die Kundenbedürfnisse erkannt?
	    ◦ Wie erkennen Sie Veränderungen im Unternehmensumfeld / bei den Bedürfnissen Ihrer Kund/innen?
	Respond:
	• Wie richten Sie sich nach den Kund/innen aus?
	    ◦ (Datenbasiert, Valuestream,...)
	• Welche Strukturen haben Sie implementiert, um kundenzentriert arbeiten zu können?
	• Was macht in Ihrem Unternehmen die Kundenzentrierung aus?
	• Können Sie mir eine Situation beschreiben, in der Sie sich sehr gut am Kund/innen ausgerichtet haben?
	• Können Sie mir eine Situation beschreiben, in der Sie sich nicht ausreichend nach den Kund/innen ausgerichtet haben?

Deep Dive 2: Mitarbeitendenentwicklung	
Kompetenzen & Fähigkeiten	• Welches sind die aus Ihrer Sicht wichtigsten Fähigkeiten und Kompetenzen, die Mitarbeitende für agile Arbeitsformen benötigen? ◦ Warum benötigen Sie diese? In welchen Situationen braucht es diese? • Wie entwickeln Sie die benötigten Kompetenzen bei sich im Unternehmen?

Mindset	• Können Sie anhand Ihrer eigenen Erfahrungen erzählen, was es bedeutet Agilität in Ihrem Unternehmen zu leben?
	• Was ist für Sie ein agiles Mindset?
	• Was für Kernbestandteile macht für Sie ein agiles Mindset aus? (Gerne Running Case/ Situationsbeschreibungen)
	    ◦ Wie denken Menschen, die ein agiles Mindset haben?
	    ◦ Was ist Mitarbeitenden mit agilem Mindset wichtig?
	    ◦ Wie verhalten sich Mitarbeitende mit agilem Mindset? Welche Überzeugungen haben Mitarbeitende mit einem agilen Mindset?
	• Woran erkennen sie, dass jemand ein agiles Mindset hat? (Situationsbeispiele)
	• Woran erkennen sie, dass ein Mensch kein agiles Mindset hat? (Situationsbeispiele)
	• Inwiefern ist das agile Mindset in Facetten veränderbar?
	    ◦ Wo ja, wo nicht?

	• Wie wichtig ist das agile Mindset für ihre Arbeit? (Zusammenhang mit Performance) • Welche Konsequenzen hat es, wenn Mitarbeitende kein agiles Mindset mitbringen? • (Verwenden Sie den Begriff agiles Mindset? Welche Alternative verwenden Sie?)

Personal-entwicklung	• Welche Maßnahmen ergreifen Sie, um Mitarbeitende für agile Arbeit zu befähigen?
	    o Wie erfolgreich waren diese?
	    o Zielten diese konkret auf das Mindset oder Fähigkeiten ab?
	 • Wie werden die Mitarbeitenden motiviert, in die eigene Weiterentwicklung zu investieren?
	 • Wer ist bei Ihnen im agilen Kontext für die Entwicklung der Mitarbeitenden verantwortlich?
	 • Welche Rolle spielt die Führungskraft bei der Mitarbeitendenentwicklung bei Ihnen im Unternehmen?
	    o Führungskraft als Netzwerker/in? Empowernde Führungskraft?
	 • Wie sehen Entwicklungspfade / Karrieren bei Ihnen im agilen Kontext aus? (Führungskarriere vs. Fachkarriere)
	 • Welches Budget/ pro Person steht für die Weiterentwicklung der Mitarbeitenden zur Verfügung?

Nachhaltigkeit / Transfer	• Wie stellen Sie sicher, dass Ihre Aktivitäten in der agilen Transformation nachhaltig im Unternehmen implementiert sind? • Welche Auswirkungen hat Agilität/ haben agile Strukturen auf das Geschäftsmodell Ihres Unternehmens? • Welche Herausforderungen bestehen bei der Übertragung agiler Strukturen in das Geschäftsmodell Ihres Unternehmens? • Wie übertragen Sie konkret Veränderungen in der Art und Weise der Arbeit in Ihrem Unternehmen in das Geschäftsmodell Ihres Unternehmens?
„Corona"	• Inwiefern sind Sie von der aktuellen Situation rund um Covid-19 betroffen? • Welche Herausforderungen treten durch Corona besonders hervor? • Welche Änderungen nehmen Sie aktuell im Rahmen der Corona-Situation vor? • Wie unterstützt Sie Ihre agile Arbeitsorganisation bei der Bewältigung der Situation? • Welche Erkenntnisse konnten Sie bislang gewinnen? • Welche Änderungen werden nach Corona bleiben?
Abschluss	
Erwartungen	• Inwiefern haben sich die Erwartungen erfüllt? • Inwiefern ist der erwartete Nutzen eingetreten? • Inwiefern wurden die gesteckten Ziele erfüllt? • Inwiefern erfordern soziale/ gesellschaftliche Anpassungen, dass man auf eine agile Organisationsform umstellt?
Überraschungen	• Was haben Sie nicht vorhergesehen? • Was war das Positivste für Sie persönlich? • Was war das Positivste für das Unternehmen?
Was fehlt?	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde? • Mit wem sollten wir Ihrer Meinung nach unbedingt noch sprechen, um ein möglichst umfassendes Bild zu erhalten?

Bitte vervollständigen Sie	• Bei der Transformation unseres Unternehmens hin zu einer agilen Organisation wünsche ich mir, dass… • Um unsere Mitarbeitenden in der agilen Transformation zu unterstützen, braucht es… • Wenn Mitarbeitende ohne agiles Mindset in agilen Settings arbeiten, dann… • Die größte Chance in der Agilität liegt für mich in…
Organisator-isches	• Follow-Up-Mail o Dokumente

Appendix A.3   **Age of Surveyed Employees and Leaders**

Age of surveyed employees and leaders
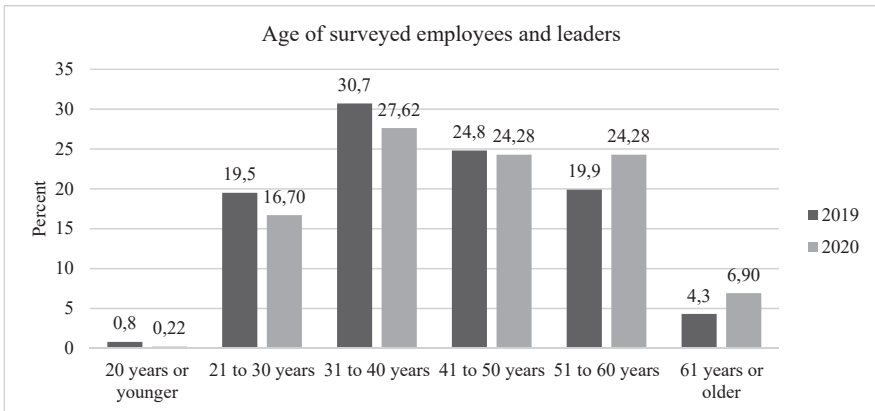
Appendix A.4   Number of Employees

Number of employees

Category	2019	2020
More than 100,000	8,3	5,12
20,001-100,000	13,4	6,24
5,001-20,000	10,3	8,46
1,001-5,000	17,7	16,7
501-1,000	6,8	11,58
251-500	11,3	10,69
101-250	7,6	7,57
1-100	23,1	33,63

Appendix A.5   Industries

Industries

Industry	2019	2020
Vehicle construction	5	8,24
Health care	8,3	8,91
Transport	5,2	4,68
Communication	1,9	2,67
Consumer goods	6,6	6,24
Supplier	3,1	3,56
Mechanical Engineering	5,8	8,24
Chemistry/ Pharma	4,3	2,9
Service	18,6	18,04
Finance/ Insurance	10,6	8,91
Electrics/ Electronics	2,5	2
IT	11,8	14,03
Others	16,2	17,15

Appendix B   Appendices to Study Presented in Section 5

Interview Protocols for Leaders, Employees, Project Managers, Project Leader, Works Council

Themenblock	Inhalt/ Fragestellungen
	Führungskräfte/ Management
Ziel der Untersuchung	Qualitative Analyse der Erwartungen und Einschätzungen zum Einsatz von ICW aus Sicht der Führungskräfte/ des Managements bei einem Zulieferer der Automobilindustrie
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Eisbrecherfragen	• Wie ist ihr beruflicher Hintergrund? Funktion im Unternehmen? • Haben Sie bereits Erfahrungen sammeln können im Bereich plattformbasierter Arbeit in Unternehmen?

Ablauf, Erwartungen, Ziele	• Wie sind Sie bisher bei der Planung von Kapazität für Projekte/Initiativen vorgegangen (*ohne ICW*)?
	    o Personaleinsatz/ Zeit/ Budget/ Kapazität
	    o Welchen Herausforderungen sehen Sie sich hierbei gegenüber?
	    o Seit wann wissen Sie von der Einführung von ICW?
	• Inwiefern verändert sich diese Planung durch den Einsatz von ICW?
	• Was verändert sich darüber hinaus in Ihrer Arbeit durch den Einsatz von ICW? (*z.B. Führungsarbeit, Operative Tätigkeiten*)
	• Welche allgemeinen Ziele hat der Einsatz von ICW?
	• Welche Ziele verfolgen Sie persönlich beim Einsatz von ICW?
	• Welche Erwartungen haben Sie an den Einsatz von ICW?
	• Welche Herausforderungen sehen Sie im Einsatz von ICW?
	• Bitte beschreiben Sie ein typisches Projekt, welches Ihrer Meinung nach über ICW abgebildet werden kann.
	• Wann / unter welchen Kriterien würden Sie ICW als erfolgreich bewerten?
	• Welche Maßnahmen beeinflussen Ihrerseits den Erfolg von ICW am stärksten?
	--- 	
	• Auf einer Skala von 1-10, inwiefern würden Sie Ihre Organisation als agil bezeichnen?
	    o Und warum? Wie kommen Sie zu dieser Einschätzung?
	    o Inwiefern hilft ICW das Unternehmen agiler zu machen?
	• Was hat sich darüber hinaus in Ihrer Arbeit durch den Einsatz von ICW verändert? (*z.B. Führungsarbeit, Operative Tätigkeiten*)
	• Inwiefern haben sich Ihre Erwartungen an den Einsatz von ICW erfüllt?
	    o Was lief gut?
	    o Was lief schlecht?
	    o Was war überraschend? Was haben Sie nicht vorausgesehen?
	    o Welches Verbesserungspotenzial sehen Sie?
	• Welches sind die größten Herausforderungen in Bezug auf ICW?
	    o Welches sind die größten Herausforderungen für das Unternehmen in Bezug auf ICW?

	• Bitte beschreiben Sie ein typisches Projekt, welches sich gut über ICW durchführen lässt.
	• Inwiefern würden Sie ICW als erfolgreich bewerten?
	    o Welche Kriterien nutzen Sie für Ihre Einschätzung?
	• Welche Maßnahmen beeinflussen Ihrerseits den Erfolg von ICW am stärksten?
	• Inwiefern stimmen Sie der Aussage zu, dass Arbeiten über ICW höhere Anforderungen an die Mitarbeitenden stellt als traditionelles Arbeiten?
	    o In welchen Bereichen ist dies der Fall?

Führung	• Inwiefern informieren Sie Ihre Mitarbeitenden zu ICW über die allgemeinen Bekanntmachungen hinaus?
	• Welche Maßnahmen treffen Sie, damit Ihre Mitarbeitenden gut und effektiv über ICW arbeiten können?
	• Inwiefern informieren Sie sich über die Arbeit Ihrer Mitarbeitenden über ICW?
	    o Wie erkennen Sie, dass Ihre Mitarbeitenden ICW sinnvoll nutzen
	• Inwiefern gibt es Ihrerseits Vorgaben für die Nutzung bzw. das Arbeiten über ICW?
	• Wie stellen Sie einen regelmäßigen Austausch mit den Mitarbeitenden zu deren Tätigkeiten über ICW sicher?
	• Was würde Ihnen im Rahmen von ICW helfen, Ihre Mitarbeitenden zu führen?
	• Inwiefern profitieren Sie selbst (in Ihrer Position als Führungskraft) von dem Einsatz von ICW?
	• In welcher Form verdeutlichen Sie Ihren Mitarbeitenden, die Unterstützung Ihrerseits in Bezug auf ICW?
	• Wie bauen Sie potenzielle Widerstände bei Ihren Mitarbeitenden in Bezug auf ICW ab?
	-- 	
	• Inwiefern waren alle Mitarbeitenden über den Einsatz von ICW informiert?
	• Wie verändert sich Führung durch/ in ICW?
	    o Können Sie dies an einem konkreten Beispiel erläutern?
	• Wie verändert sich die Rolle der Führungskraft in ICW?
	    o Können Sie dies an einem konkreten Beispiel erläutern?
	• Welche Eigenschaften benötigt eine erfolgreiche Führungskraft im Rahmen von ICW?
	• Wie gehen Sie als Führungskraft mit dem Thema „Machtverlust" durch ICW um?
	• Inwiefern verändern sich Karriereoptionen für die Mitarbeitenden durch ICW?
	• Welche Auswirkungen hat ICW auf Hierarchien im Unternehmen?
	• Welche Widerstände zur Teilnahme an ICW haben Sie bei Ihren Mitarbeitenden erlebt?

Potenziale	• Inwiefern verändert sich das Tagesgeschäft Ihrer Mitarbeitenden durch ICW? • Inwiefern fördert ICW neue Problemlösungen oder Ideen? • Inwiefern wird die bisherige Arbeit der Mitarbeitenden abwechslungsreicher durch ICW? ---

	• Inwiefern glauben Sie, dass sich die Unternehmenskultur des Unternehmens durch den Einsatz von ICW ändern wird? • Inwiefern glauben Sie, dass sich die Zusammenarbeit unter den Kolleg/innen durch den Einsatz von ICW ändern wird?
Fähigkeiten, Motivation, Support	• Inwiefern motivieren Sie Ihre Mitarbeitenden zur Teilnahme an ICW? • Inwiefern setzen Sie konkrete Anreize zur Teilnahme an ICW? • In welcher Form unterstützen Sie Ihre Mitarbeitenden beim Einsatz von ICW? (*z.B. Schulungen, Einweisung, Trainings*) • Inwiefern können Mitarbeitende ihre Fähigkeiten/ Kompetenzen durch die Teilnahme an ICW weiterentwickeln?
Abschluss	• Beim Einsatz von ICW würde ich mir wünschen, dass… • Beim Einsatz von ICW sollte auf keinen Fall passieren, dass… --- • Welche next Steps empfehlen Sie für die Weiterentwicklung von ICW? • Inwiefern können Sie sich vorstellen, dass ICW unternehmensweit eingesetzt werden kann? • Wenn ICW noch einmal neu starten könnte, würde ich mir wünschen, dass… • Wenn ICW noch einmal neu starten könnte, sollte auf keinen Fall passieren, dass…
Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde? • Mit wem sollten wir Ihrer Meinung nach unbedingt noch sprechen, um ein möglichst umfassendes Bild von ICW zu erhalten?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind? • Wie lange sind Sie bereits im Unternehmen beschäftigt? • Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?

Themenblock	Inhalt/ Fragestellungen Mitarbeitende
Ziel der Untersuchung	Qualitative Analyse der Rahmenbedingungen und des Erlebens von ICW aus Sicht der Mitarbeitenden bei einem Zulieferer der Automobilindustrie
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Eisbrecherfragen	• Wie ist ihr beruflicher Hintergrund? Ausbildung? Hauptberuf? • Haben Sie bereits Erfahrungen sammeln können im Bereich plattformbasierter Arbeit in Unternehmen?

Erwartungen und Sonstiges	• Wann haben Sie das erste Mal von ICW gehört?
	  ○ Was haben Sie genau gehört?
	  ○ Wie haben Sie von ICW und dessen Möglichkeiten erfahren?
	• Inwiefern fühlen Sie sich jetzt nach der Einführung befähigt mit und über ICW zu arbeiten?
	  ○ Welche Informationen fehlen Ihnen?
	• Welche Erwartungen haben Sie an die Arbeit über ICW?
	• Inwiefern können Sie sich vorstellen regelmäßig über ICW zu arbeiten?

- Welche Herausforderungen sehen Sie in Bezug auf ICW auf sich zukommen?
  - Welche Herausforderungen kommen auf das Unternehmen in Bezug auf ICW zu?
- Welche Risiken sehen Sie in Bezug auf ICW auf sich zukommen?
  - Welche Risiken kommen auf das Unternehmen in Bezug auf ICW zu?
- Inwiefern glauben Sie, dass Sie 10 % Ihrer Arbeitszeit von Ihrer herkömmlichen Arbeit abgrenzen können?
- Inwiefern glauben Sie, dass sich die Unternehmenskultur des Unternehmens durch den Einsatz von ICW ändern wird?
- Inwiefern glauben Sie, dass sich die Zusammenarbeit mit Ihren Kolleg/innen durch den Einsatz von ICW ändern wird?

- Auf einer Skala von 1-10, inwiefern würden Sie Ihr Unternehmen als agil bezeichnen?
  - Und warum? Wie kommen Sie zu dieser Einschätzung?
  - Inwiefern hilft ICW Ihr Unternehmen agiler zu machen?
- Nehmen Sie am Piloten von ICW teil?
  - Nein – Was sind die Gründe, warum Sie nicht an ICW teilnehmen?
  - Ja – Wie viel Prozent Ihrer Arbeitszeit verwenden Sie durchschnittlich für Tätigkeiten im Rahmen von ICW? Was würden Sie schätzen (in %)?
- Inwiefern haben sich Ihre Erwartungen an den Einsatz von ICW erfüllt?
  - Was lief gut?
  - Was lief schlecht?
  - Was war überraschend? Was haben Sie nicht vorausgesehen?
  - Welches Verbesserungspotenzial sehen Sie?
- Inwiefern können Sie sich vorstellen auch weiterhin regelmäßig über ICW zu arbeiten?
- Welches sind die größten Herausforderungen in Bezug auf ICW?
  - Welches sind die größten Herausforderungen für Ihr Unternehmen in Bezug auf ICW?
- Inwiefern können Sie 10 % Ihrer Arbeitszeit von Ihrer herkömmlichen Arbeit abgrenzen?
- Was hat sich grundsätzlich im Unternehmen durch den Einsatz von ICW geändert? *(Bspw. Unternehmenskultur, Zusammenarbeit)*
  - Inwiefern hat sich die Zusammenarbeit mit Ihren Kolleg/innen durch den Einsatz von ICW verändert?
- Welche Fähigkeiten benötigt man für ein erfolgreiches Agieren in ICW?
- Welche Eigenschaften benötigt man für ein erfolgreiches Agieren in ICW?
- Welches Mindset benötigt man für ein erfolgreiches Agieren in ICW?
- Inwiefern stimmen Sie der Aussage zu, dass Arbeiten über ICW höhere Anforderungen an die Mitarbeitenden stellt als traditionelles Arbeiten?

Allgemeines	• Wie verändert sich ihr Tages-/ Arbeitsablauf durch ICW?
	   o *Zeitplanung, operative Tätigkeiten*
	   o *Arbeitsaufwand*
	• Welche Chancen ergeben sich durch ICW?
	   o *Für das Unternehmen*
	   o *Für Sie persönlich*
	• Welche Risiken ergeben sich durch ICW?
	   o *Für das Unternehmen*
	   o *Für Sie persönlich*
	• Welche Ziele verfolgen Sie persönlich mit der Teilnahme an ICW?

Aufgabe/ Tätigkeit	• Welche Tätigkeiten erledigen Sie über ICW?
	   o Bitte beschreiben Sie ein typisches Projekt
	   o Wie würden Sie die Vielfalt Ihrer Tätigkeiten beschreiben?
	• In welcher Form unterstützen Sie andere Mitarbeitende, Vorgesetzte oder ICW-Verantwortliche bei den Tätigkeiten?
	• Inwiefern erhalten Sie Rückmeldung von Anderen zu Ihrer Arbeitsleistung? *Führungskräfte, Kolleg/innen, etc.*
	• Inwiefern sind die Informationen und Tätigkeiten im Rahmen von ICW verständlich?
	--- 	
	• Bei welcher Aufgabe/ Projekt haben Sie am meisten gelernt?
	   o Was haben Sie gelernt?

Hauptteil	• Inwiefern haben Sie durch Ihre Tätigkeiten im Rahmen von ICW neue Dinge gelernt? • Inwiefern konnten Sie Ihr Netzwerk durch Ihre Tätigkeiten im Rahmen von ICW erweitern?
	• Machen Ihnen die Tätigkeiten über ICW Spaß? → Warum? • Sind Sie zufrieden mit Ihren Tätigkeiten über ICW? → Warum? • Haben Sie sich im Rahmen von ICW schon einmal unfair oder besonders fair behandelt gefühlt?
	• Welche Aspekte der Tätigkeiten über ICW sind besonders anstrengend? • Inwiefern ist diese Belastung gleichbleibend oder in unterschiedlicher Intensität? • Wie werden Ihre Ergebnisse kontrolliert? o Was halten Sie von diesen Qualitätssicherungsmaßnahmen?
	• In welchen Bereichen hatten Sie generell schon einmal Probleme im Rahmen von ICW? • Was gefällt Ihnen nicht im Umgang mit ICW? • Wo sehen Sie konkretes Verbesserungspotenzial?

	• Kommt es oft vor, dass Sie gelobt oder belohnt werden?
	   o Welche Formen der Anerkennung sind Ihnen über ICW bekannt?
	   o Welche Form der Anerkennung oder Belohnung ist Ihnen persönlich über ICW wichtig?
	• Inwiefern ist Ihnen der Austausch mit anderen Mitarbeitenden in und über ICW wichtig?
	• Welche Fähigkeiten finden Sie persönlich wichtig im Rahmen von ICW?
	• Was würde Sie im Rahmen von ICW generell zu noch mehr Engagement „anspornen"?

Abschluss	• Beim Einsatz von ICW würde ich mir wünschen, dass… • Beim Einsatz von ICW sollte auf keinen Fall passieren, dass… --

	• Inwiefern können Sie sich vorstellen, dass ICW unternehmensweit eingesetzt werden kann?
	• Wenn ICW noch einmal neu starten könnte, würde ich mir wünschen, dass…
	• Wenn ICW noch einmal neu starten könnte, sollte auf keinen Fall passieren, dass…
Weitere Anmerkungen	• Darf ich fragen, wie alt Sie sind?
	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde?
	• Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?

Themenblock	Inhalt/ Fragestellungen
	Projektmanagement, Projektleitung, Betriebsrat
Ziel der Untersuchung	Qualitative Analyse der Rahmenbedingungen und des Erlebens von ICW aus Sicht des Projektmanagements, der Projektleitung und des Betriebsrats bei einem Zulieferer der Automobilindustrie
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Eisbrecherfragen	• Wie ist ihr beruflicher Hintergrund? Ausbildung? Hauptberuf? • Haben Sie bereits Erfahrungen sammeln können im Bereich plattformbasierter Arbeit in Unternehmen?

Allgemeines	• Wie haben Sie von ICW und dessen Möglichkeiten erfahren?
	• Was ist Ihre Aufgabe im ICW Pilot?
	• Wie ist die Entstehungsgeschichte von ICW?
	   ○ *Allgemein – Wo und wie wurde ICW entwickelt?*
	   ○ *Im Unternehmen – Wie ist die Entstehungsgeschichte des Piloten?*
	• Welche Ziele verfolgen Sie persönlich beim Einsatz von ICW?
	• Welche Erwartungen haben Sie an den Einsatz von ICW?
	• Welche Herausforderungen sehen Sie im Einsatz von ICW?
	• Welche Chancen ergeben sich durch ICW?
	   ○ *Für das Unternehmen*
	   ○ *Die Mitarbeitenden*
	   ○ *Für Sie persönlich*
	• Welche Risiken ergeben sich durch ICW?
	   ○ *Für das Unternehmen*
	   ○ *Die Mitarbeitenden*
	   ○ *Für Sie persönlich*
	• Welche Ziele verfolgt das Unternehmen mit der Einführung von ICW?
	• Was hat sich grundsätzlich im Unternehmen durch den Einsatz von ICW geändert? *(Bspw. Unternehmenskultur, Zusammenarbeit)*
	• Welches sind die rechtlichen Anforderungen im Rahmen von ICW?
	• Welches sind die technischen Anforderungen im Rahmen von ICW?
	• Was verändert sich für die Führung der Mitarbeitenden durch ICW?
	• Inwiefern besteht Top Management Support für ICW?
	• Wie erkennen Sie, dass die Mitarbeitenden ICW sinnvoll nutzen?

	• Wann/ unter welchen Kriterien würden Sie ICW als erfolgreich bewerten?
	• Welche Maßnahmen beeinflussen Ihrerseits den Erfolg von ICW am stärksten?

	• Auf einer Skala von 1-10, inwiefern würden Sie Ihr Unternehmen als agil bezeichnen?
	o Und warum? Wie kommen Sie zu dieser Einschätzung?
	o Inwiefern hilft ICW Ihr Unternehmen agiler zu machen?
	• Inwiefern haben sich Ihre Erwartungen an den Einsatz von ICW erfüllt?
	o Was lief gut?
	o Was lief schlecht?
	o Was war überraschend? Was haben Sie nicht vorausgesehen?
	o Welches Verbesserungspotenzial sehen Sie?
	• Inwiefern würden Sie ICW als erfolgreich bewerten?
	o Welche Kriterien nutzen Sie für Ihre Einschätzung?
	• Welches sind die größten Herausforderungen in Bezug auf ICW?
	o Welches sind die größten Herausforderungen für Ihr Unternehmen in Bezug auf ICW?
	• Inwiefern stimmen Sie der Aussage zu, dass Arbeiten über ICW höhere Anforderungen an die Mitarbeitenden stellt als traditionelles Arbeiten?
	o In welchen Bereichen ist dies der Fall?
	• Was verändert sich für die Führung der Mitarbeitenden durch ICW?
	• Inwiefern besteht auch weiterhin Top-Management Support für ICW?
	• Wie erkennen Sie, dass die Mitarbeitenden ICW sinnvoll nutzen?
Aufgabe/ Tätigkeit	• Welche Tätigkeiten werden über ICW durchgeführt?
	o Bitte beschreiben Sie ein typisches Projekt
	o Wie würden Sie die Vielfalt der Tätigkeiten beschreiben?
	• In welcher Form unterstützen Sie andere Mitarbeitende, Vorgesetzte oder ICW-Verantwortliche bei den Tätigkeiten?
	o Bei Problemen in ICW
	o Bei der Umsetzung von ICW
	• Was kann an ICW verbessert werden?
	• Wie bauen Sie potenzielle Widerstände bei Ihren Mitarbeitenden in Bezug auf ICW ab?
Hauptteil	• In welcher Form werden die Mitarbeitenden beim Einsatz von ICW unterstützt? (*z.B. Schulungen, Einweisung, Trainings*)

	• Welche Auswirkungen hat ICW auf die Hierarchien im Unternehmen?
	• Inwiefern verändert sich das Tagesgeschäft Ihrer Mitarbeitenden durch ICW?
	• Inwiefern fördert ICW neue Problemlösungen oder Ideen?
	• Inwiefern wird die bisherige Arbeit der Mitarbeitenden abwechslungsreicher durch ICW?
	• Inwiefern glauben Sie, dass sich die Zusammenarbeit unter den Kolleg/innen durch den Einsatz von ICW ändern wird?
Abschluss	• Beim Einsatz von ICW würde ich mir wünschen, dass…
	• Beim Einsatz von ICW sollte auf keinen Fall passieren, dass…

	• Welche next Steps empfehlen Sie für die Weiterentwicklung von ICW?

	• Inwiefern können Sie sich vorstellen, dass ICW unternehmensweit eingesetzt werden kann? • Wenn ICW noch einmal neu starten könnte, würde ich mir wünschen, dass… • Wenn ICW noch einmal neu starten könnte, sollte auf keinen Fall passieren, dass…
Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde? • Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind? • Wie lange sind Sie bereits im Unternehmen beschäftigt?

Appendix C   Appendix to Study Presented in Section 6

Interview Protocol Project Leader and Works Council

Themenblock	Inhalt/ Fragestellungen
	Betriebsrat und Projektleitung
Ziel der Untersuchung	Qualitative Analyse der Einstellungen, Rahmenbedingungen, Erwartungen, Risiken und Chancen von ICW aus Sicht des Betriebsrats und der Projektleitung bei einem Telekommunikationsanbieter
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Allgemeines	• Können Sie Ihre Funktion im Unternehmen beschreiben? • Können Sie aus Ihrer Sicht ICW in Ihrem Unternehmen beschreiben? o Historie, Entwicklung, Formen der Arbeit in ICW, Funktionen
Rolle des Betriebsrats/ der Projektleitung	• Wie würden Sie die Rolle des Betriebsrats/ der Projektleitung im Rahmen von ICW beschreiben? • Wer kann an ICW teilnehmen? • Was kann der Betriebsrat in diesem Kontext für die Einzelnen tun? • Welche Auswirkungen auf die Belegschaft und Veränderungen der Arbeitsorganisation beobachten Sie durch ICW? • Gibt es weitere ähnliche Formen von Arbeit/ Arbeitsorganisation im Unternehmen?

Hauptteil	• Welche Anreize gibt es zur Teilnahme an ICW? Wieso nehmen die Mitarbeitenden daran teil? → Wie beurteilen Sie diese?
	    o Welche Entlohnungsformen gibt es für die Tätigkeit in ICW?
	    o Inwiefern können hierbei faire Arbeitsbedingungen sichergestellt werden?
	    o Inwiefern liegen Gamification-Ansätze zugrunde?
	• In welchen Bereichen würden Sie sich noch mehr Möglichkeiten der Mitbestimmung der Einzelnen in ICW wünschen?
	• Welche Chancen (Potenziale) ergeben sich aus Ihrer Sicht durch den Einsatz von ICW?
	• Welche Risiken (Herausforderungen) können Sie im Zuge von ICW identifizieren?
	• Anhand welcher Kriterien bemessen Sie den Erfolg von ICW?
	• In welchen Bereichen sehen Sie in Bezug auf ICW noch Handlungsbedarf/ Verbesserungspotenzial?
	    o Welche Maßnahmen würden Sie sich hierbei wünschen?
	• Was sind die wichtigsten Aspekte, die ein „mitarbeiterfreundliches" ICW im Allgemeinen beinhalten muss?
	• Wie wird sich ICW Ihrer Meinung nach in Ihrem Unternehmen in der Zukunft entwickeln?
	• Wie werden sich allgemein solche neuen Formen agiler Arbeit (plattformbasierter Arbeit) in Ihrem Unternehmen entwickeln?

Abschluss	• Beim Einsatz von ICW würde ich mir in Zukunft wünschen, dass… • Beim Einsatz von ICW sollte in Zukunft auf keinen Fall passieren, dass…

Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde? • Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind? • Wie lange sind Sie bereits im Unternehmen beschäftigt?

Appendix D   Appendices to Study Presented in Section 7

Interview Protocols for Leaders, Employees, Project Managers, Project Leaders, Works Councils

Themenblock	Inhalt/ Fragestellungen
	ACorp
Ziel der Untersuchung	Qualitative Analyse zu den Rahmenbedingungen, der Arbeitsorganisation, zum Management und zum Erleben von ICW
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Allgemeines	• In welcher Abteilung sind Sie tätig? • Was sind Ihre Hauptaufgaben im Unternehmen? • Wie viel Prozent Ihrer Kapazität werden mit der Lösung von Problemen eingeplant? *(Projektarbeit)* • Welche Rolle führen Sie im XYZ-Prozess aus? • Sie haben das Video gesehen. Haben Sie Fragen dazu? Denken Sie, dass der XYZ-Prozess dem allgemeinen ICW-Prozess entspricht? ○ Begründen Sie dies bitte.
Aufgaben/ Problem-behandlung	• Wie beurteilen Sie die internationale Zusammenarbeit im XYZ-Prozess? • Inwiefern sind Sie mit den Aufgaben (Problemen), die über die Plattform kommen, vertraut? • Inwiefern sind die Informationen, die Sie im Rahmen der Problembeschreibung bekommen, ausreichend, um ein Problem zu lösen? • Inwiefern finden die Probleme Übereinstimmung mit Ihrer Tätigkeit?
Governance/ Management	• Wie würden Sie den Prozess des XYZs kurz beschreiben? *(Eigenes Prozessverständnis)* • Welche Rolle spielt, Ihrer Meinung nach, das XYZ-Tool für den Arbeitsprozess? Wie sollte es sein?

Personen/ Mitarbeitende	• Am Hauptstandort sind ca. zehn Personen im XYZ-Gremium vertreten. Wie bewerten Sie diese Größe?
	• Sind Ihrer Meinung nach, alle relevanten Personen/ Abteilungen vertreten? Begründen Sie bitte.
	• Beschreiben Sie bitte die Zusammenarbeit mit den internationalen Lieferanten.
	    ○ Wie empfinden Sie die Zusammenarbeit?
	• Wie kann man die internationale Zusammenarbeit verbessern?
	    ○ Was würden Sie sich für eine bessere Zusammenarbeit wünschen?

IT-Plattform	• Inwiefern ist das XYZ-Tool benutzerfreundlich? • Inwiefern sind die Schritte im Tool nachvollziehbar? ○ Worin bestehen Probleme? • Welche Schwächen weist das XYZ-Tool auf? • Inwiefern lassen sich alle Vorgänge des XYZ-Prozesses mit dem Tool steuern? • Wie bewerten Sie das XYZ-Tool in Bezug auf die internationale Zusammenarbeit? • Kommen viele Nachfragen zur Anwendung des XYZ-Tools?

	o Bitte nennen Sie Gründe hierfür.
	• Inwiefern finden Sie es hilfreich, dass es die Möglichkeit gibt, über eine einheitliche Plattform zu kommunizieren und zu verwalten?
	• Was würden Sie gerne am XYZ-Tool ändern?
	• Welche Medien werden ebenfalls im Rahmen des XYZ-Prozesses zur internationalen Zusammenarbeit verwendet?
	• Welche Vorteile und Nachteile sehen Sie am Einsatz eines einheitlichen Tools?
Prozessphasen	• Inwiefern ist der XYZ-Prozess, Ihrer Meinung nach, übersichtlich bzw. klar strukturiert?
	• Nennen Sie mir Punkte, mit denen Sie am Prozess nicht zufrieden sind?
	• Wie lässt sich Ihr Entscheidungsspielraum hinsichtlich eines freigegebenen Change Requests beschreiben?
	o Müssen Sie sich dabei mit anderen Personen abstimmen?
	o Wie schätzen Sie die Bearbeitungszeit eines Change Requests/ Problems ein?
	• Wie bewerten Sie die Qualität der Lösungsvorschläge?
	• Wie bewerten Sie die Zusammenarbeit zwischen den Lieferanten und dem Hauptstandort in Bezug auf den XYZ-Prozess?
	• Könnte man Ihrer Meinung nach, den XYZ-Prozess in andere schon vorhandene Prozesse integrieren?
	o Wenn ja, in welche Bereiche/ Strategien?
	o Wenn nein, warum nicht?
Ergebnisse	• Wie bewerten Sie den Zusammenhang zwischen Problem und Lösung?
	• Worin könnte man Ihrer Meinung nach Zeit und/ oder Kosten sparen?
	o Existieren Optimierungspotenziale?
	• Sind die Lieferanten mit Ihren Entscheidungen für die Lösungen zufrieden?
	• Inwiefern sind die Lösungen, die gefunden wurden, strategisch/ auf längere Zeit ausgerichtet?
	• Inwiefern können Ihrer Meinung nach, die Probleme mit Hilfe einer Plattform zum Erfolg führen?
Abschluss	• Haben Sie noch Fragen oder Anmerkungen?

Themenblock	Inhalt/ Fragestellungen ISP
Ziel der Untersuchung	Qualitative Analyse zu den Rahmenbedingungen, der Arbeitsorganisation, zum Management und zum Erleben von ICW
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Aufgaben/ Problem- behandlung	• Auf welcher Management-Ebene werden unternehmensrelevante Probleme wahrgenommen?
	• Wie werden die Probleme klassifiziert?
	• Wie werden die Probleme behandelt bzw. kommuniziert?
	• Wie werden die Probleme delegiert?
	• Wie werden die Probleme in Aufgaben bzw. in Teilaufgaben zerlegt?
	o Wie werden die Fristen bestimmt?

Governance/ Management	• Wie erfolgt die Qualitätssicherung einzelner Teilaufgaben? • Wer trifft die Entscheidung über die Gruppenbildung?

Personen/ Mitarbeitende	• Welche Motivationsanreize existieren zur Unterstützung interner Lösungsfindungs-Prozesse?
	• Bewerten Sie die Unternehmenskultur anhand folgender Eigenschaften (0 = sehr schlecht; 10 = sehr gut):
	    ○ Offenheit
	    ○ Transparenz
	    ○ Vertrauen innerhalb des Unternehmens
	    ○ Wertschätzung neuer Ideen (unabhängig von der Hierarchie)
	• Wer übernimmt die Rolle des Auftraggebers/ der Auftraggeberin?
	• Wer übernimmt die Rolle des Aufgabenlösers/ der Aufgabenlöserin?
	• Welche Vor- und Nachteile sehen Sie bei der Nutzung der sozialen IT?
	    ○ Was fehlt Ihnen?

IT-Plattform	• Welche IT-Plattformen werden im Unternehmen eingesetzt?
Prozessphasen	• Wie werden die Aufgabenstellungen, Erwartungen und Ziele formuliert? • Wie wird die Ausschreibung (open call) durchgeführt?
Ergebnisse	• Wie werden die generierten Lösungsvorschläge bewertet und selektiert? • Wie werden die Ergebnisse verwendet?

Themenblock	Inhalt/ Fragestellungen AMan
Ziel der Untersuchung	Qualitative Analyse zu den Rahmenbedingungen, der Arbeitsorganisation, zum Management und zum Erleben von ICW
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Aufwärmphase	Wie ist Ihr beruflicher Hintergrund?

Arbeitsorganisation	• Bearbeiten Sie Aufgaben über eine IT-gestützte Plattform?
	    ○ Wenn ja, um was für eine Plattform handelt es sich?
	    ○ Wird die Plattform von Ihrem Unternehmen oder einem externen Anbieter betrieben?
	• Inwiefern bearbeiten Sie die Aufgaben gemeinsam mit anderen?
	• Gibt es für Sie Anreize für die Teilnahme an dem Projekt?
	• Bekommen Sie während des Projektes Ihr ursprüngliches Gehalt oder wird dieses angepasst?
	• Inwiefern bekommen Sie Prämien, wenn eine innovative Lösung/ Idee umgesetzt wird?

Aufgaben/ Tätigkeiten	• Bitte beschreiben Sie eine typische Aufgabe?
	• Gibt es zeitliche Vorgaben zur Bearbeitung der Aufgaben?
	    ○ Wenn ja, wie lang benötigen Sie durchschnittlich für eine Aufgabe?
	• Wie viele Stunden pro Woche wenden Sie für die plattformbasierten Aufgaben auf?
	• Benötigen Sie zusätzliche Qualifikationen zur Bearbeitung der plattformbasierten Aufgaben?
	    ○ Wenn ja, werden Ihnen entsprechende Schulungen oder Weiterbildungen angeboten?

Personen/ Mitarbeitende	• Inwiefern können Sie Ihre Arbeit über die Plattform selbstständig planen und einteilen? • Inwiefern ermöglicht Ihnen die plattformbasierte Arbeit, dass Sie Ihre Fähigkeiten weiterentwickeln können? • Haben Sie Zugriff auf alle Informationen und Daten, die Sie für die Aufgabenbearbeitung benötigen? • Erhalten Sie Hilfe und Unterstützung bei plattformbasierten Aufgaben von Ihren Kolleg/innen, wenn Sie diese benötigen? • Wie oft fühlen Sie sich von der plattformbasierten Arbeit gehetzt oder stehen unter Zeitdruck? • Inwiefern würden Sie Ihre Tätigkeiten als komplex bezeichnen? • Inwiefern beinhaltet die Arbeit häufigen Umgang mit Problemen? • Inwiefern sind Sie mit der plattformbasierten Arbeit zufrieden? • Inwiefern macht Ihnen die plattformbasierte Arbeit Spaß? • Welche Aspekte Ihrer Arbeit sind besonders anstrengend? • Inwiefern empfinden Sie Ihre Arbeit als digitale Fließbandarbeit? • Wie werden Ihre Ergebnisse kontrolliert? • Was gefällt Ihnen nicht an der Arbeit mit der Plattform? • Wo sehen Sie konkretes Verbesserungspotenzial?
Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind?

Appendix E   Appendices to Study Presented in Section 8

Interview Protocols for Leaders, Employees, Project Leader, Works Council

Themenblock	Inhalt/ Fragestellungen Betriebsrat, Führungskräfte und Projektleitung
Ziel der Untersuchung	Qualitative Analyse der Rahmenbedingungen, des Managements und des Erlebens von ICF
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Eisbrecherfragen	• Wie ist Ihr beruflicher Hintergrund? Können Sie Ihre Position noch einmal beschreiben? • Haben Sie bereits Erfahrungen im Bereich plattformbasierter Arbeit in Unternehmen sammeln können?

Allgemeines	• Wie wurde ICF bei Ihnen im Unternehmen eingeführt?
	• Wie wurden die Mitarbeitenden und Führungskräfte informiert?
	• Welche Regelungen zu ICF bestehen?
	• Wie hoch sind die Teilnehmerzahlen/ Projekt- und Aufgabenzahlen?
	• Wie sind Sie bisher bei der Planung von Kapazität für Projekte/ Initiativen vorgegangen?
	    o Personaleinsatz/ Zeit/ Budget/ Kapazität
	    o Welchen Herausforderungen sehen Sie sich hierbei gegenüber?
	• Welche Tätigkeiten werden über ICF erledigt?
	    o Bitte beschreiben Sie ein typisches Projekt
	    o Wie würden Sie die Vielfalt der Tätigkeiten beschreiben?
	• Welche Ziele verfolgt die Nutzung von ICF?
	• Wie verändert sich ihr Tages-/ Arbeitsablauf durch ICF?
	    o Zeitplanung, operative Tätigkeiten, Arbeitsaufwand
	    o Wie viel Prozent Ihrer Arbeitszeit verwenden Sie durchschnittlich für Tätigkeiten im Rahmen von ICF? → Was würden Sie schätzen (in %)
	• Welche Ziele verfolgen Sie persönlich innerhalb von ICF?
	• Inwiefern besteht auch weiterhin Top Management Support für ICF?
	• Welche Maßnahmen beeinflussen Ihrerseits den Erfolg von ICF am stärksten?
	• Welche Widerstände zur Teilnahme an ICF haben Sie bei Ihren Mitarbeitenden erlebt?
	• Welche Auswirkungen hat ICF auf die Hierarchien im Unternehmen?
	• Was gefällt Ihnen nicht im Umgang mit ICF?

Chancen, Risiken, Potenziale	• Welche Chancen ergeben sich durch ICF?
	    o Für das Unternehmen
	    o Führungskräfte und Mitarbeitende
	    o Für Sie persönlich
	• Welche Risiken ergeben sich durch ICF?
	    o Für das Unternehmen
	    o Führungskräfte und Mitarbeitende
	    o Für Sie persönlich
	• Welches sind die größten Herausforderungen in Bezug auf ICF?

	○ Welches sind die größten Herausforderungen für Ihr Unternehmen in Bezug auf ICF? - Inwiefern stimmen Sie der Aussage zu, dass Arbeiten über ICF höhere Anforderungen and die Mitarbeitenden stellt als traditionelles Arbeiten? ○ In welchen Bereichen ist dies der Fall? - Inwiefern haben Sie durch Ihre Tätigkeiten im Rahmen von ICF neue Dinge gelernt? - Inwiefern können Mitarbeitende ihre Fähigkeiten/ Kompetenzen durch die Teilnahme an ICF weiterentwickeln? - Inwiefern konnten Sie Ihr Netzwerk durch Ihre Tätigkeiten im Rahmen von ICF erweitern? - Inwiefern fördert ICF neue Problemlösungen oder Ideen? - Inwiefern wird die bisherige Arbeit der Mitarbeitenden abwechslungsreicher durch ICF?
Führung	- Welche Maßnahmen treffen Sie, damit Ihre Mitarbeitenden gut und effektiv über ICF arbeiten können? - Wie verändert sich Führung durch/ in ICF? ○ Können Sie dies an einem konkreten Beispiel erläutern? - Wie verändert sich die Rolle der Führungskraft in ICF? ○ Können Sie dies an einem konkreten Beispiel erläutern? - Welche Eigenschaften benötigt eine erfolgreiche Führungskraft im Rahmen von ICF? - In welcher Form unterstützen Sie andere Mitarbeitende, Vorgesetzte oder ICF-Verantwortliche bei den Tätigkeiten? ○ Bei Problemen in ICF ○ Bei der Umsetzung von ICF? - Wie gehen Sie mit dem einhergehenden Machtverlust der/ für Führungskräfte um? - Inwiefern informieren Sie sich über die Arbeit Ihrer Mitarbeitenden über ICF? ○ Wie erkennen Sie, dass Ihre Mitarbeitenden ICF sinnvoll nutzen? ○ Inwiefern greifen Sie ein, wenn Sie merken, dass Mitarbeitende nicht zielführend in ICF arbeiten? - Was würde Ihnen im Rahmen von ICF helfen, Ihre Mitarbeitenden zu führen? - Inwiefern profitieren Sie selbst (in Ihrer Position als Führungskraft) von dem Einsatz von ICF? - Inwiefern motivieren Sie Ihre Mitarbeitenden zur Teilnahme an ICF? - Inwiefern setzen Sie konkrete Anreize zur Teilnahme an ICF?
Bewertung	- Auf einer Skala von 1-10, inwiefern würden Sie Ihre Organisation als agil bezeichnen? ○ Und warum? Wie kommen Sie zu dieser Einschätzung? ○ Inwiefern hilft ICF Ihrem Unternehmen agiler zu werden? - Inwiefern haben sich Ihre Erwartungen an den Einsatz von ICF erfüllt? ○ Was lief gut? ○ Was lief schlecht? ○ Was war überraschend? Was haben Sie nicht vorausgesehen? ○ Welches Verbesserungspotenzial sehen Sie? - Inwiefern würden Sie ICF als erfolgreich bewerten? ○ Welche Kriterien nutzen Sie für Ihre Einschätzung? - Was hat sich grundsätzlich im Unternehmen durch den Einsatz von ICF geändert? *(Bspw. Unternehmenskultur, Zusammenarbeit)*

Abschluss	• Welche next Steps empfehlen Sie für die Weiterentwicklung von ICF? • Inwiefern können Sie sich vorstellen, dass ICF unternehmensweit eingesetzt werden kann? • Beim Einsatz von ICF würde ich mir wünschen, dass… • Beim Einsatz von ICF sollte auf keinen Fall passieren, dass… • Wenn ICF noch einmal neu starten könnte, würde ich mir wünschen, dass… • Wenn ICF noch einmal neu starten könnte, sollte auf keinen Fall passieren, dass…
Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde? • Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind? • Wie lange sind Sie bereits im Unternehmen beschäftigt?

Themenblock	Inhalt/ Fragestellungen Mitarbeitende
Ziel der Untersuchung	Qualitative Analyse der Rahmenbedingungen, des Managements und des Erlebens von ICF
Anonymität	Anmerkungen zu Vertraulichkeit und Anonymität
Aufzeichnung des Gesprächs	Falls Sie nichts einzuwenden haben, würde ich das Gespräch zwecks wissenschaftlicher Analyse gerne aufzeichnen
Eisbrecherfragen	• Wie ist Ihr beruflicher Hintergrund? Können Sie Ihre Position noch einmal beschreiben? • Haben Sie bereits Erfahrungen sammeln können im Bereich plattformbasierter Arbeit in Unternehmen?

Allgemeines	• Nehmen Sie an ICF teil?
	    o Nein – Was sind die Gründe, warum Sie nicht an ICF teilnehmen?
	    o Ja – Wie viel Prozent Ihrer Arbeitszeit verwenden Sie durchschnittlich für Tätigkeiten im Rahmen von ICF?
	• Welche Ziele verfolgen Sie persönlich mit der Teilnahme an ICF?
	• Welche Tätigkeiten erledigen Sie über ICF?
	    o Bitte beschreiben Sie ein typisches Projekt
	    o Wie würden Sie die Vielfalt Ihrer Tätigkeiten beschreiben?
	    o Bei welcher Aufgabe/ Projekt haben Sie am meisten gelernt?
	• Wie werden Ihre Ergebnisse kontrolliert?
	    o Was halten Sie von diesen Qualitätssicherungsmaßnahmen?
	• Inwiefern sind Sie zufrieden mit Ihren Tätigkeiten über ICF?
	• Inwiefern haben sich Ihre Erwartungen an den Einsatz von ICF erfüllt?
	    o Was lief gut?
	    o Was lief schlecht?
	    o Was war überraschend? Was haben Sie nicht vorausgesehen?
	    o Welches Verbesserungspotenzial sehen Sie?
	• Inwiefern können Sie sich vorstellen auch weiterhin an ICF teilzunehmen?
	• Auf einer Skala von 1-10, inwiefern würden Sie Ihre Organisation als agil bezeichnen?

	o Und warum? Wie kommen Sie zu dieser Einschätzung? o Inwiefern hilft ICF Ihr Unternehmen agiler zu machen? • Was hat sich grundsätzlich im Unternehmen durch den Einsatz von ICF geändert? *(Bspw. Unternehmenskultur, Zusammenarbeit)* • Welche Fähigkeiten benötigt man für ein erfolgreiches Agieren in ICF? • Welche Eigenschaften benötigt man für ein erfolgreiches Agieren in ICF? • Welches Mindset benötigt man für ein erfolgreiches Agieren in ICF?
Chancen, Risiken, Potenziale	• Wie verändert sich ihr Tages-/ Arbeitsablauf durch ICF? o Zeitplanung, operative Tätigkeiten o Arbeitsaufwand • Welche Chancen ergeben sich durch ICF? o Für das Unternehmen o Führungskräfte und Mitarbeitende o Für Sie persönlich • Welche Risiken ergeben sich durch ICF? o Für das Unternehmen o Führungskräfte und Mitarbeitende o Für Sie persönlich • Welches sind die größten Herausforderungen in Bezug auf ICF? o Welches sind die größten Herausforderungen für Ihr Unternehmen in Bezug auf ICF? • Inwiefern stimmen Sie der Aussage zu, dass Arbeiten über ICF höhere Anforderungen and die Mitarbeitenden stellt als traditionelles Arbeiten? o In welchen Bereichen ist dies der Fall? • Inwiefern haben Sie durch Ihre Tätigkeiten im Rahmen von ICF neue Dinge gelernt? • Inwiefern konnten Sie Ihr Netzwerk durch Ihre Tätigkeiten im Rahmen von ICF erweitern? • Inwiefern fördert ICF neue Problemlösungen oder Ideen? • Inwiefern wird die bisherige Arbeit der Mitarbeitenden abwechslungsreicher durch ICF? • Haben Sie sich im Rahmen von ICF schon einmal unfair oder besonders fair behandelt gefühlt?
Motivation	• Inwiefern kommt es vor, dass Sie gelobt oder belohnt werden? o Welche Formen der Anerkennung sind Ihnen über ICF bekannt? o Welche Formen der Anerkennung oder Belohnung sind Ihnen persönlich über ICF wichtig? • Was würde Sie im Rahmen von ICF generell zu noch mehr Engagement „anspornen"? • Inwiefern ist Ihnen der Austausch mit anderen Mitarbeitenden in und über ICF wichtig?
Abschluss	• Welche next Steps empfehlen Sie für die Weiterentwicklung von ICF? • Beim Einsatz von ICF würde ich mir wünschen, dass… • Beim Einsatz von ICF sollte auf keinen Fall passieren, dass… • Wenn ICF noch einmal neu starten könnte, würde ich mir wünschen, dass… • Wenn ICF noch einmal neu starten könnte, sollte auf keinen Fall passieren, dass…
Weitere Anmerkungen	• Möchten Sie noch auf weitere Punkte eingehen, denen Ihrer Meinung nach im Verlauf des Interviews zu wenig Beachtung geschenkt wurde?

	• Darf ich Sie bei Fragen, die im Nachgang aufkommen, noch einmal kontaktieren?
Statistische Angaben	• Darf ich fragen, wie alt Sie sind? • Wie lange sind Sie bereits im Unternehmen beschäftigt?

Appendix F   Appendices to Study Presented in Section 9

Appendix F.1   Interview Protocol for Semi-structured Interviews of Experts*

1. Could you please explain your business model development process in detail?
2. What are your requirements/conditions for business model development?
3. What are your difficulties with business model development?
4. What methods do you use for business model development? How do you use them?
5. What tools do you use for business model development? How do you use them?
6. What frameworks do you use for business model development? How do you use them?
7. At which points/areas/stages do you need more support?
8. Who should participate in business model development?
9. What skills are required for business model development?
10. What is the most important aspect of business model development?
11. What are your best practices in business model development?

* To ensure a shared understanding and practice-oriented vocabulary of terms, I used the term "business model development" in the interviews.

Appendix F.2   thinkLets Used in Process Design

The following thinkLets are taken from: Briggs/Vreede (2009)

thinkLet: PopcornSort	
Choose this thinkLet	**Do not choose this thinkLet**
• after a divergence activity like FreeBrainstorming and a summarizing activity like FastFocus, ThemeFinder or RichRelations. • to quickly organize an unstructured set of 50-1000 brainstorming comments into related clusters. • to validate a summarization or convergence	• to converge on key issues. This thinkLet is for organizing lots of contributions, not for converging on the few that are worth further attention.
Overview	
Team members drag-and-drop comments from an unsorted list into a set of electronic "buckets," each of which represents a category for related concepts.	

Inputs
  1. Unordered list of comments from a brainstorming activity.
  2. List of categories for organizing the ideas.
	Outputs
	A set of comments organized into categories.

How to use PopcornSort	

Setup
1. Post the unordered list of comments into a single bucket in Categorizer.
2. Post the list of organizing categories as additional buckets in Categorizer as well.
3. Open the bucket containing the unordered list on the screens of the participants.

Steps
1. Make sure the group understands the meaning of each category.
2. Say this:
a) In a few moments we are going to organize these comments into these categories.
b) When I say "go" you will use your mouse to drag-and-drop comments from the blue list into the appropriate bucket.
c) You'll have to work quickly, because while you are thinking about an item, someone else may grab it and drag it away.
d) The screen is going to be popping like popcorn. It gets pretty lively, so have some fun, and work fast.
e) Any questions? OK. On your mark, get set, GO!

thinkLet: ChauffeurSort	
Choose this thinkLet	**Do not choose this thinkLet**
• when you want to assure that the placement of every item in a category is carefully considered by the team • when creating a shared understanding of the categories is as important as the actual placement of an item in a category	• when time is of the essence. A sequence of PopcornSort followed by BucketWalk is far faster. • if the appropriate placement of each item is straightforward or not likely to spark discussion.
Overview	
Team members discuss the placement of each item within a pre-defined set of categories. Categories may have been previously derived with thinkLets like ThemeSeeker or RichRelations, or may be pre-defined in a methodology.	
Inputs	**Outputs**
1. A set of brainstorming comments. 2. A list of categories for organizing the brainstorming comments.	A set of brainstorming comments organized into categories.
How to use ChauffeurSort	
Setup 1. Post the category names as buckets in Categorizer. 2. Post the brainstorming comments as list items in a bucket in the same tool.	
Steps 1. For each comment on the list, ask the group, a "In which bucket does this comment belong, and why?" 2. Facilitate a verbal discussion about the reasons for placing the comment into a bucket. 3. When there is sufficient consensus, drag-and-drop the comment into the bucket (category) where it belongs. 4. Repeat steps 1-3 until all comments have been placed in the appropriate buckets.	

thinkLet: MultiCriteria	
Choose this thinkLet	**Do not choose this thinkLet**
• to evaluate a list of items against multiple criteria when the team wants to make sense of complex issues surrounding a decision	• as a final decision-making process. Odd anomalies can crop up in the results of a MultiCriteria analysis.

• to provoke useful, focused discussion about a set of options	

Overview

Participants rate each of a set of ballot items on two or more criteria. Results are sometimes aggregated, sometimes graphed. Results are usually used to provoke conversations. Occasionally they are used to make a decision.

Inputs	Outputs
1. A list of items to be evaluated.	1. A table showing how the group rated each item against each criteria, along with other statistical analyses and graphs showing patterns of consensus.
2. A list of criteria for evaluating each item.	
3. A list of criteria weights for regulating the influence of each individual criterion on the complete evaluation (optional).	2. A prioritized list of items.

How to use MultiCriteria

Setup
1. Post the list of items to be evaluated as the Primary List in Alternative Analysis.
2. Post the list of criteria as the Secondary List in the same tool.
3. Select a polling method (See the Insights section of the StrawPoll thinkLet for discussion of polling methods).
4. Open ballots on the screens of the team members.
5. When the results are in, post the list of criteria weights in the results matrix of Alternative Analysis.

Steps
1. First make sure the group understands the items to be evaluated. Say this:
   a) If there are alternatives that you have clarifying questions about, please raise your hand.
2. If people raise their hand, facilitate a verbal discussion to address any understanding difficulties. If necessary, re-formulate the alternative concerned.
3. Make sure the group understands the criteria. Say this:
   a) If there are criteria that you have clarifying questions about, please raise your hand.
4. If people raise their hand, facilitate a verbal discussion to address any understanding difficulties. If necessary, re-formulate the criteria concerned.
5. Explain how to enter votes (it varies by polling method).
6. Explain how to submit ballots.
7. Allow the team to rate each alternative against each criteria, saying:
   a) If there are no further questions, let's get started. Please rate each alternative with respect to the criteria we have defined.
8. Review the results with the team, e. g. using Crowbar techniques.

thinkLet: StrawPoll	
Choose this thinkLet	**Do not choose this thinkLet**
• to measure consensus within a group.	• to make a decision.
• to reveal patterns of agreement or disagreement within a group.	
• to assess or evaluate a set of concepts.	

Overview

In this thinkLet, participants gain a "sense of the group" by casting votes and reviewing results. They do this to start a discussion rather than to end it.

Inputs	Outputs
A set of items to be evaluated.	1. An ordered list of evaluated items.
	2. A tabular and graphical display of the patterns of consensus in the group.

How to use StrawPoll
Setup
1. Post a set of issues to Vote.
2. Select a voting method (there is magic in this).
3. Establish the voting criteria (there is magic here, too).
Steps
1. Say this
a) We are going to take a straw poll. We are not making a final decision right now. We just want to get a sense of the group so we can focus our subsequent efforts where they should be focused.
b) I've sent you a ballot containing a set of X items.
c) Please rate each item on a scale from Y to Z.
d) A rating of Y means…
e) A rating of Z means…
f) When you are done voting, click the SUBMIT BALLOT button that appears just above the ballot on the left.

thinkLet: OnePage	
Choose this thinkLet	**Do not choose this thinkLet**
• to generate a few (less than 80 or so) comments on one topic • when 5 or fewer or fewer people will brainstorm together • when 6 or more people will brainstorm for fewer than 10 minutes. • when there aren't likely to be very many comments generated on the topic under discussion. • to support back-channel communication among distributed team members.	• when you expect more than 80 or so comments because it may cause information overload. Consider FreeBrainstorm or ComparativeBrainstorm instead. • when more six or more people will brainstorm until they run out of ideas. Consider FreeBrainstorm or ComparativeBrainstorm instead. • when the team must address more than one topic at a time. Consider LeafHopper or Dealer's choice instead.
Overview	
In this thinkLet, team members will all contribute comments simultaneously to the same electronic page or list at the same time.	
Inputs The brainstorming question or prompt.	**Outputs** A set of comments in response to a brainstorming question or prompt.
How to use OnePage	
Setup 1. Open a single list or comment window in Topic Commenter, Vote, Group Outliner, or Categorizer. 2. Match views with participants to open the same list or card on their screens.	
Steps 1. Make sure the participants understand the brainstorming question or prompt. Say this: b) If you have any questions with respect to the brainstorming question or assignment, please speak up. 2. If necessary, facilitate a verbal discussion to address any understanding difficulties. If necessary, re-formulate the question or prompt. 3. Inform the participants of time limits, if any. 4. Let the participants contribute comments until they run out of ideas or until you call time.	

thinkLet: RichRelations	
Choose this thinkLet	**Do not choose this thinkLet**
• to create a set of categories for organizing brainstorming comments. • after any brainstorming and before a PopcornSort.	• to converge many ideas to a few ideas. • when categories for organizing are already known.
Overview	
In this thinkLet you create a set of categories for organizing ideas from a brainstorm session. Participants browse their brainstorming comments and find two items that are related in some way. They articulate the relationship between the two items, and if the group agrees, that relationship becomes the name of a category.	
Inputs Comments from a brainstorming activity.	**Outputs** A set of category names for summarizing or organizing the comments from a brainstorming activity.
How to use RichRelations	

Setup
  1. Post the brainstorming comments in Categorizer.
  2. Display the bucket (category) column.
  3. Prepare to add a new bucket (category).	

Steps
  1. Say this:
     a) Please read through the comments on your screen. If you find two or more comments that are related in some way, tell me how they are related.
     b) Add a bucket (category) with the relationship as a label.
     c) Continue the process until participants can find no more relationships.	

Appendix F.3   Detailed Process Design Including Adapted thinkLets

A1 – Introduction to the workshop

Summary: In the first activity, you welcome the participants and prepare them for the workshop. In doing so, you focus on the objectives of the workshop and create a joint commitment with the participants regarding the workshop goal.

Tools

- Presentation introduction

Steps

1. Say this: *Thank you for your participation.*
2. Introduce yourself.
3. Present the workshop schedule.
4. Present the objectives of the workshop and get participants' agreement on them. Say this: *Do you understand the objectives of the workshop and agree with them?*

A2 – Explanation on business models

Summary: In this activity, you give the participants an understanding of the foundations of the business models under discussion. To this belong general foundations in the scope of business models and the improvement of business models with the help of the BMC. Furthermore, you communicate to the participants the relevance of business model improvement for companies.

Tools

- Presentation BM/BMC Knowledge

Steps

1. Introduce the participants to the background, the foundations, and the relevance of business models and their improvement. Use the corresponding prepared slides.
2. Ensure that all participants have both understood the basics and are aware of the relevance of business models.

A3 – Warm up exercise BMC

Summary: This activity serves as an exercise in dealing with the BMC. A BMC of a well-known company is being created for this purpose. The activity is divided into three content-related steps. In three teams of two people each, the participants should first think about the respective business model. Afterwards, the participants will receive pre-designed post-it's with which they can put together the business model on a canvas (PopcornSort). In the third step, the facilitator submits a solution proposal.

Tools

- Presentation Warm up, BMC (DIN A3), prepared post-its

Steps

1. Divide the group into groups of two. If you have more or less participants, adjust the group size. In this activity the participants should get used to working with the BMC.
2. Explain the task to the participants. Distribute one BMC (DIN A3) per group. First, ask participants to think about the business model and the contents of the elements based on the BMC. In this step, the participants should not write or paint anything in the elements. The focus is on discussion.
3. Application of thinkLet PopcornSort
   a. Once the teams have discussed and exchanged ideas about the elements, hand out the pre-designed post-its for the business model. Explain to the

participants that they should now discuss the post-its and stick them into the corresponding elements of the canvas.

    b. Once the participants have worked out their solutions, let them present the proposed solution Ask participants to compare their design with the proposed solution. If necessary, clarify questions about the individual post-its, elements, or the overall context.

A4 – Individual elaboration of the existing business model

Summary: In this activity the improvement of the existing business models begins. Within this activity the existing business model of the company is individually developed by each participant with the help of the BMC.

Tools

- Existing BMC (A3), small post-its, pens

Steps

1. In this first step, each participant develops an individual BMC for the company's existing business model. Ask the participants to create the existing business model of the company with the help of the BMC in DIN A3 size, which you give to them. Tell the participants to work directly with the post-its. Tell the participants that, besides words, drawings and charts can emphasize the content of the written words. Also tell the participants there is a deadline of 10 minutes for this step.

2. Take a photo of each BMC created by the participants. Tell them that the photos are important for the later documentation of the improvement of the business model.

A5 – Joint elaboration of the existing business model

Summary: After each participant has individually thought about the business model, the joint business model of the company is worked out in this activity. The development takes place with the help of the thinkLets ChauffeurSort. In this context, the prepared post-its – which in their entirety depict the current business model – are discussed and pasted into the canvas.

Tools

- Prepared BMC post-its (current BM), BMC (DIN A0)

Steps - Application of thinkLet PopcornSort

1. Gather the participants around the BMC, and then read out each post-it aloud to the participants and ask in which element this post-it should be placed.
2. If there is a consensus in the group about the classification (according to your sample solution), glue the respective post-it into the element.
3. If there are different opinions in the group, moderate a short discussion about where the post-it should go. Note that ultimately the post-it should be placed in the correct element according to your proposed solution. For this reason, you should steer the discussion in the right direction, indicate the correct classification, and explain the reasons for it.
4. Once you have given the solution, ask whether the participants have understood your arguments and the classification. If necessary, explain again.
5. Perform the above steps for each and every post-it.
6. After you have discussed all post-its with the participants and glued the post-its into the canvas, briefly summarize the business model again.

A6 – Execution of the environmental analysis
Summary: In this activity, the foundation for the environmental analysis in the BMC is laid down. The facilitator clarifies the important basics and relationships of the environmental analysis and its implementation in the BMC. The first step of thinkLets MultiCriteria is carried out as part of this activity.
In this activity, the prepared questions for environmental analysis are dealt within the BMC. For this purpose, the corresponding questionnaires are issued to the participants. These are then processed individually on the basis of the current business model.
Tools
- Presentation EA questionnaire, EA questionnaire

Steps - Application of thinkLet MultiCriteria
1. First, introduce the participants to the environmental analysis by using the Power-Point presentation. Explain that the BMC delivers the nine elements to be evaluated. Tell the participants that the internal and external effects in this context are classified as criteria.
2. After the presentation, make sure, that all participants have understood the foundations of environmental analysis. For this purpose, use the corresponding slide.
   Say the following: *Have you understand the foundations of environmental analysis and its implementation in the BMC?*

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3. Ask each participant to individually answer the questions of the environmental analysis by referring to the current business model and the corresponding elements of the BMC.
4. Also inform participants of the 20-minute time limit to answer all questions.
   Say the following: Please also make sure that you answer every question in detail. The allotted time is 20 minutes.
5. Give each participant the prepared questions of the environmental analysis.
6. Evaluate the results of the environmental analysis. Depending on the results, there are good and badly rated elements. Present the participants the results of the single elements. Please go through each element in the BMC in the given order of processing:

   > 1. Value proposition, 2. Customer Segment, 3. Channels, 4. Customer Relationship, 5. Revenue Streams, 6. Key Activities, 7. Key Resources, 8. Key Partners, 9. Cost Structure

   Ensure that the recommendations are based on the selected questions of the environmental analysis.

A7 – Build consensus for the adoption of elements in the improved business model
Summary: This activity determines for each element whether it is to be improved incrementally or radically. For this purpose, the corresponding post-its of the current BMC are implemented (incrementally) in the new BMC or the elements are not implemented, and a regeneration occurs (radically). This decision is based on the results of the environmental analysis. Voting is done using the thinkLet StrawPoll.
Tools
- BMC (DIN A0), EA questionnaire

Steps
1. Remind the participants of the results of the respective element from the EA questionnaire.
2. The aim of this activity is to identify those elements and their post-its that the participants want to use as a working basis in the new BMC.
3. Tell the participants that their decision regarding each element is to be improved incrementally or radically is not final. It is possible to change the post-its in the elements later. The elements and their corresponding post-its simply serve as an initial working base for the improvement of the business models.

4. Go through the single elements in the known order of the BMC and ask the participants: Should the element be improved incrementally or radically?
5. Build consensus on the decision taken.
6. In the case of an incrementally improvement, move the post-it from the old BMC to the new BMC.

A8 – Incremental or radical improvement of the considered Element in BMC

Summary: In accordance with the decision made in the previous activity, the single elements are improved incrementally or radically.

The improvement takes place corresponding to the order of the BMC.

Tools
- Presentation with guiding questions of BMC, BMC (DIN A0)

Incremental Improvement	Radical Improvement
Steps	**Steps**
1. If the participants have decided for an incremental improvement for the corresponding element, the post-its are already glued in the improved BMC.	1. If the participants have decided for a radical improvement for the corresponding element, ask them to newly design the element.
2. Application of the thinkLet OnePage	**2. Application of the thinkLet OnePage**
2.1 Conduct a brainstorming session based on the post-its already glued in the BMC. The following question applies as a guiding principle: How can the element based on the existing post-its be improved? Say this: How can the considered element be incrementally improved for our business model? Consider the key questions of the respective element.	2.1 Conduct a brainstorming session for a radically improvement of the element. How can the element be radically reworked and thus improved? Say this: How can the considered element be radical improved for our business model? Consider the key questions of the respective element.
2.2 The participants can add the existing solution and stick post-its with additional suggestions to the BMC.	2.2 The participants are intended to stick post-its with suggestions to the BMC.

A9 – Voting on the improved element

Summary: In this activity, the incrementally or radically improved proposals for the elements in the improved BMC are voted on. The vote refers in each case to the item under discussion. The voting is done with the help of the thinkLet StrawPoll.

Tools
- BMC (DIN A0)

Steps

1. Read each post-it of each element on the BMC and ask for commitment to the corresponding content.
2. In case of disagreement, facilitate a discussion and ensure a solution (majority decision).

A10 – Integration of the improved solution in the BMC

Summary: The incrementally or radically improved elements can influence the other elements of the BMC. Therefore, this activity considers adaptions to the other elements that have to be undertaken as a result. This activity is supported by the thinkLet RichRelations.

Tools

- Presentation with interrelationships of BMC, post-its, pens

Steps

1. Review the relationships among the elements of the BMC.
2. Take the participants through the elements step by step.
3. Ask for necessary adaptions.
4. Moderate the discussion and find a solution. In case of doubt or disagreement, use a majority decision.

Perform activities A8-A10 for all elements.

A11 – Wrap-Up, next steps, send-off

Summary: In the final activity, the workshop is summarized, and the achievement of the objectives is checked. Furthermore, the next steps are presented. Finally, the group is thanked and bid good-bye.

Tools

- Presentation wrap up

Steps

1. Firstly, summarize the workshop and the activities of the workshop.
   Mention the following aspects:
   - Introduction
   - Business model basics
   - Creation of the current business model

- Environmental analysis of the current business model
- Improved business model

2. Check with the participants whether the aims of the workshop have been reached.
3. Inform the participants of the next steps. These are the finishing of the documentation by the facilitator and the subsequent sending of the documentation to the participants. Furthermore, make sure that the assumptions regarding the elements made in the business model workshop today are tested. This step is the logical continuation of today's workshop.
4. Thank the participants for their participation and say goodbye.
5. Take a picture of the improved BMC.

Appendix F.4   Additional Tools for the Process Design

The following tables represent the content of the additional tools (presentations) for the process design.

Presentation introduction
Input: Preparation of a presentation to introduce the workshop
Content: • Welcome • Expectations for the workshop and the participants • Goals of the workshop • Commitment to the objectives of the workshop

Presentation BM/ BMC knowledge
Input: Preparation of a presentation to introduce and explain Business Models and BMC

Content:
• Business Model Definition
• Relevance of Business Models
• Management of Business Models
• Business Model Elements
• Nine Elements of BMC
  o Introduction of Value Propositions including guiding questions
  o Introduction of Customer Segments including guiding questions
  o Introduction of Channels including guiding questions
  o Introduction of Customer Relationships including guiding questions
  o Introduction of Revenue Streams including guiding questions
  o Introduction of Key Activities including guiding questions
  o Introduction of Key Resources including guiding questions
  o Introduction of Key Partnerships including guiding questions
  o Introduction of Cost Structure including guiding questions
• Commitment to the explanations and relevance of Business Models

Recommended Reading:
- Osterwalder A, Pigneur Y (2010) Business model generation: A handbook for visionaries, game changers, and challengers. Wiley, Hoboken, NJ
- Wirtz BW (2011) Business model management: Design - instruments - success factors, 1. ed. Gabler, Wiesbaden

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Presentation warm up

Input: Preparation of a presentation to introduce and conduct the warm-up exercise

Content:
- Description of the task
    - o Preparation of a business model known to all participants
    - o Participants are divided into subgroups of 2
    - o Subgroup receives a BMC (DIN A3)
- Discussion of the task in subgroups of 2
- Participants receive pre-defined post-its for the creation of the business model
- BMC solution presented for discussion in the plenary group

Presentation EA questionnaire

Input: Preparation of a presentation to introduce and explain the environmental analysis

Content:
- Introduction to environmental analysis
- Explanations to environmental analysis
- Procedure for environmental analysis in BMC
- Commitment to the environmental analysis and their application to the BMC

Presentation with guiding questions of BMC

Input: Preparation of a presentation including guiding questions of BMC

Content:
- Nine Elements of BMC
    - o Guiding questions of Value Propositions
    - o Guiding questions of Customer Segments
    - o Guiding questions of Channels
    - o Guiding questions of Customer Relationships
    - o Guiding questions of Revenue Streams
    - o Guiding questions of Key Activities
    - o Guiding questions of Key Resources
    - o Guiding questions of Key Partnerships
    - o Guiding questions of Cost Structure

Recommended Reading:
- Osterwalder A, Pigneur Y (2010) Business model generation: A handbook for visionaries, game changers, and challengers. Wiley, Hoboken, NJ

Presentation with interrelationships of BMC

Input: Preparation of a presentation to introduce and explain the environmental analysis

Content:
- Nine Elements of BMC   - Interrelationships of Value Propositions   - Interrelationships of Customer Segments   - Interrelationships of Channels   - Interrelationships of Customer Relationships   - Interrelationships of Revenue Streams   - Interrelationships of Key Activities   - Interrelationships of Key Resources   - Interrelationships of Key Partnerships   - Interrelationships of Cost Structure
Recommended Reading:
Osterwalder A, Pigneur Y (2010) Business model generation: a handbook for visionaries, game changers, and challengers. Wiley, Hoboken

Presentation wrap up
Input: Preparation of a presentation to summarize the workshop
Content:
- Summary/ wrap up of the workshop   - Goals of the workshop   - Next Steps

The following tables represent the questions of the environmental analysis (sorted by elements of the BMC). The questions are adapted from: Osterwalder/Pigneur (2010).

EA questionnaire

Value Proposition		Approval ← low high →				
Internal factors	Our value propositions are well aligned with customer needs.	1	2	3	4	5
	Our value propositions have strong network effects.	1	2	3	4	5
	There are strong synergies between our products and services.	1	2	3	4	5
	Our customers are very satisfied.	1	2	3	4	5
External factors	No substitute products and services are available.	1	2	3	4	5
	There are no competitors who are threatening with better price or value offers.	1	2	3	4	5
	By converting products into services, we cannot generate recurring revenues.	1	2	3	4	5

Customer Segments		Approval ← low high →				
Internal factors	Customer churn rates are low.	1	2	3	4	5
	Customer base is well segmented.	1	2	3	4	5
	We are continuously acquiring new customers.	1	2	3	4	5
External factors	Our market is not saturated yet.	1	2	3	4	5
	There are no competitors who are threatening our market share.	1	2	3	4	5

	We are not able to serve new customer segments.	1	2	3	4	5
	We cannot better serve our customers through finer segmentation.	1	2	3	4	5

Channels		Approval				
		← low				high →
Internal factors	Our channels are very efficient.	1	2	3	4	5
	Channels are well matched to customer segments.	1	2	3	4	5
External factors	Competitors do not threaten our channels.	1	2	3	4	5
	Our channels are not in danger of becoming irrelevant to customers.	1	2	3	4	5
	We cannot better align our channels with the customer segments.	1	2	3	4	5

Customer Relationships		Approval				
		← low				high →
Internal factors	We have strong customer relationships.	1	2	3	4	5
	Relationships bind customers through high switching costs.	1	2	3	4	5
External factors	Our customer relationships are not in danger of deteriorating.	1	2	3	4	5
	The personalization of our customer segments cannot be improved.	1	2	3	4	5
	The switching costs cannot be increased.	1	2	3	4	5

Revenue Streams		Approval				
		← low				high →
Internal factors	We benefit from strong margins	1	2	3	4	5
	Our revenues are predictable.	1	2	3	4	5
	We have recurring revenue streams and frequent repeat purchases.	1	2	3	4	5
	Our revenue streams are diversified.	1	2	3	4	5
External factors	Competitors or technologies do not threaten our margins.	1	2	3	4	5
	We are not excessively depending on one or more revenue streams.	1	2	3	4	5
	We cannot replace one-time transaction revenues with recurring revenues.	1	2	3	4	5

Key Activities		Approval				
		← low				high →
Internal factors	We efficiently execute key activities.	1	2	3	4	5
	Our key activities are difficult to copy.	1	2	3	4	5
	Balance of in-house versus outsourced execution is ideal.	1	2	3	4	5
External factors	Our key activities cannot be disrupted.	1	2	3	4	5
	The quality of our activities is not threatened in any way.	1	2	3	4	5
	We can standardize some key activities.	1	2	3	4	5

Key Resources		Approval				
		← low				high →
Internal factors	Our key resources are difficult for competitors to replicate.	1	2	3	4	5
	Resource needs are predictable.	1	2	3	4	5
External factors	The quality of our resources is not threatened in any way.	1	2	3	4	5
	We are not able to face a disruption in the supply of certain resources.	1	2	3	4	5
	We can use less costly resources to achieve the same result.	1	2	3	4	5
	We have no unused intellectual property of value to others.	1	2	3	4	5

Key Partners		Approval				
		← low				high →
Internal factors	We are focused and work with partners when necessary.	1	2	3	4	5
	We enjoy good working relationships with key partners.	1	2	3	4	5
	We are in danger of losing one or more partners	1	2	3	4	5
External factors	We are not dependent on any of our partners.	1	2	3	4	5

Cost Structure		Approval				
		← low				high →
Internal factors	Our costs are predictable.	1	2	3	4	5
	Our cost structure is correctly matched to our business model.	1	2	3	4	5
	Our operations are cost-efficient.					
External factors	No costs threaten to become unpredictable.	1	2	3	4	5
	We can reduce costs.	1	2	3	4	5

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In a rapidly changing business environment, organizational agility has become a critical factor for companies seeking to enhance adaptability and competitiveness. This dissertation explores the untapped potential of Internal Crowd Work (ICW) as an innovative and agile form of work organization.

Employing a multimethod research approach that includes case studies, a mixed-methods approach, and design science research, this work investigates the characteristics of ICW's work organization and its impact on employees and organizations, such as its role in fostering empowerment and workforce agility. It also examines Internal Crowdfunding as a specific ICW variant aimed at boosting corporate innovativeness and employee empowerment. Furthermore, it presents a systematic process design for continuous business model improvement, enabling companies to effectively adapt to environmental changes.

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