Exploring the Handling of Critical Work Practices in Rapid Change Contexts

A study of an industrial startup and the COVID-19 pandemic

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Abstract

The accelerating pace of change in our society requires organisations to efficiently manage day-to-day operations while simultaneously innovating and developing new concepts for the future, all within an environment of rapidly evolving circumstances. Specifically, organisations must quickly be able to handle the work practices that are critical to organisational development, and this thesis focuses on the handling of these practices.

Critical work practices (CWPs) are here defined as operational management practices that are quickly initiated or adjusted – either scaled up or down – in response to new developmental needs or emerging acute situations. Commonly, there are limitations to CWPs ingrained in previous structures, methods, or knowledge. The thesis aims to explore the handling of CWPs in rapidly changing contexts and how this handling is enabled or constrained by the influencing organisational factors of ‘active ownership’, ‘stakeholder collaboration’, and ‘developmental learning’.

The empirical foundation of the thesis builds on an interactive research approach. It utilises data from case studies in two rapid change contexts: an industrial startup in the green transformation and organisations’ response during the initial stages of the COVID-19 pandemic.

Results from the studies show that organisations demonstrated agility by mobilising resources and fostering collaboration in novel ways, guided by overarching objectives that transcended local concerns. Identified CWPs were characterised by their innovative nature and various degrees of newness and time constraints, which necessitated new approaches and provided opportunities for adaptive and developmental learning.

Three conclusions can be drawn from the analysis in the thesis: first, disruptive changes trigger entrepreneurship and innovations through enhanced space of action and seamless cross-collaborations. Second, the interaction between intermediaries, managers, and employees fosters a holistic understanding and proactivity. Third, rapid change contexts stress-test organisations, where strengths, constraints, and new opportunities become visualised.
Theoretically, the thesis contributes with a conceptual model highlighting essential factors of organisational conditions and their interconnections. An additional contribution is made in introducing the concept of CWPs and identifying prerequisites for handling different forms of such practices in rapid change contexts.

The practical implications of this research include that different types of CWPs are a source that can be utilised for continuous improvements, supporting organisations’ ability to handle increasing uncertainties. Moreover, the conceptual model provides analytical support of work practices that intend to contribute to transitions related to development areas such as a circular economy, electrification, digitalisation, and resilience.

**Keywords:** Critical work practice, organisational change, crisis, operations management, human factors, active ownership, stakeholder collaboration, developmental learning, sustainable development, Industry 5.0, social sustainability, sustainable work, case study research, interactive research.
Sammanfattning

Den accelererande förändringstakten i vårt samhälle kräver att organisationer effektivt hanterar den dagliga verksamheten samtidigt som de förnyar och utvecklar nya koncept för framtiden, allt i en miljö med snabbt förändringar som höstas omständigheter. Mer specifikt måste organisationer snabbt kunna hantera de arbetspraktiker som är kritiska för organisationsutveckling. Hanteringen av dessa praktiker är fokus för denna avhandling.

Kritiska arbetspraktiker (förkortat CWP i avhandlingen) definieras här som operativa metoder eller arbetsprocesser som snabbt initieras eller justeras – antingen skalas upp eller ner – som svar på nya utvecklingsbehov eller framväxande akuta situationer. Vanligtvis finns det begränsningar för kritiska arbetspraktiker som är inbäddade i tidigare strukturer, metoder eller kunskap. Avhandlingens syfte är att utforska hanteringen av kritiska arbetspraktiker i snabbt föränderliga kontexter och hur denna hantering möjliggörs eller begränsas av de påverkande organisatoriska faktorerna aktivt ägandeskap, samarbete med intressenter och utvecklingsinriktat lärande.

Avhandlingens empiriska grund bygger på en interaktiv forskningsansats och baseras på data från fallstudier i två snabba förändringskontexter: en industriell startup i den gröna omställningen och organisationers respons under COVID-19 pandemens tidiga faser. Resultat från studierna visar att organisationer mobiliserade och samarbetade över traditionella gränser med gemensamma övergripande mål bortom lokala intressen. De kritiska arbetspraktikerna kännetecknades av olika nyhetsgrad och tidsaspekter som krävde nya tillvägagångssätt samt möjliggjorde såväl adaptivt som utvecklingsinriktat lärande.

Tre slutsatser kan dras från analysen i avhandlingen: För det första triggar disruptiva förändringar entreprenörskap och innovationer genom ökat handlingsutrymme och sömlösa samarbeten. För det andra främjar samspelet mellan intermediärer, chefer och anställda en holistisk förståelse och proaktivitet. För det tredje ‘stresstestar’ snabba förändringar organisationer, där styrkor, begränsningar och nya möjligheter visualiseras.
Avhandlingens teoretiska bidrag är en konceptuell modell som lyfter fram centrala faktorer inom organisatoriska förhållanden och deras samband. Ett ytterligare bidrag är begreppet kritiska arbetspraktiker samt identifieringen av förutsättningar för hantering av dessa, med fokus på möjheterna att förlita sig på tidigare erfarenheter och metoder.

Praktiska implikationer innefattar att olika typer av kritiska arbetspraktiker är en källa som kan utnyttjas för ständiga förbättringar och som stödjer organisationers förmåga att hantera ökande osäkerheter. Dessutom ger den konceptuella modellen analytiskt stöd för arbetspraktiker som avser att bidra till omställningar relaterat till utvecklingsområden såsom cirkulär ekonomi, elektrifiering, digitalisering och resiliens.
Preface

A driver for me as an industrial researcher is to contribute to knowledge that supports development towards an attractive and competitive manufacturing industry. During work at the research institutes IVF, Swerea IVF, and RISE, there have been unique opportunities to explore ongoing development processes and significant shifts in the Swedish manufacturing industry in close collaboration with practitioners, researchers, and social partners. My research projects have mainly been funded by Vinnova, Sweden’s innovation agency, and AFA Insurance, an organisation owned by Sweden’s labour market parties. In particular, the HELIX Competence Centre at Linköping University (2017-2023) has been my primary academic community. Here, I have had roles as researcher, scientific leader, coordinator of the national network AFoU (Workplace-related R&D for sustainable working life), and initiator of the research network ‘Green transformation and sustainable working life, GOA’, funded by Forte.

My additional roles have been running the Production Management cluster within The Swedish R&D manufacturing cluster and being part of Horizon Europe’s reference group in the European Commission, including a focus on creative industry. In these roles, I frequently collaborate with national employer and employee associations and the Office of Sustainable Working Life, part of the Government Offices of Sweden, where this research area pays high attention to strategic agendas. It has initiated new research collaborations and enabled efficient dissemination of R&D results.

The journey towards writing a doctoral thesis was case research conducted during a paradigm shift within the automotive industry, which resulted in the thesis of Licentiate Engineering at Chalmers University of Technology in January 2000 titled ‘Towards strategic disturbance management in advanced manufacturing systems’. Specifically, the realisation of the new concepts of manufacturing customer-adapted products in the production system was studied, focusing on the transformation from producing individual products in a production plant to producing multiple product variants simultaneously in the same plant. These new concepts challenged the global organisation, requiring organisational development and changes. The
research focused on daily operations, moving attention upstream towards product and production development projects. Findings from the licentiate thesis addressed proactive considerations of organisational and human aspects in design phases, production systems’ change processes, and requirements of a systematic approach to disturbance management.

Examples of research collaboration with social partners have been studies on industrial work of the future exploring selected flagship industries, contributing to industrial research agendas and roadmaps addressing technology, materials, social aspects, and organisational capabilities needed for industrial competitiveness. Other case research has explored companies taking steps to integrate green dimensions in lean production system concepts. Both resilience and sustainability have risen, and latter research projects focus on significant change initiatives in companies striving to develop and design resilient and sustainable production systems. For example, the project Resilient and Sustainable Production (RASP), within the Production2030 strategic innovation programme supported by Vinnova, the Swedish Energy Agency, and Formas, addresses perspectives on proactive greenfield and brownfield production development projects (i.e., the development of entirely new production plants and the development and refinement of existing production plants).

My research interest has constantly enhanced my understanding of proactively addressing organisational and human perspectives related to significant industrial changes, production system development, and transitions. Moreover, continuously publish and disseminate results striving to contribute to improved prerequisites for competitiveness, workplace innovation, and attractive work. This thesis process has developed me as an industrial researcher and person. Hopefully, my new insights will contribute to new perspectives and learnings that benefit practice systems, research institutes, and the academy.

Linköping, July 2024
Ulrika Harlin
Appended papers


Paper IV  Berglund, M., Harlin, U., Elg, M., & Wallo, A. (2024). Scaling up and scaling down: Improvisational handling of critical work practices during the COVID-19 pandemic. Management Learning, 55(2), 305–328. Published under the CC BY 4.0 DEED license. https://creativecommons.org/licenses/by/4.0/

Contributions

The author’s contributions to the listed appended papers above.

Paper I.
Ulrika Harlin and Martina Berglund
UH: Initiation, coordination, literature overview, design, data collection, corresponding author, research project initiation; UH&MB: Analysis and finalising of the paper.

Paper II.
Ulrika Harlin, Martina Berglund, Katrin Skagert and Mattias Elg
UH: Initiation, coordination, literature overview, design, data collection, corresponding author, research project initiation; all authors: Analysis and finalising the paper.

Paper III.
Ulrika Harlin, Martina Berglund, Katrin Skagert, Andreas Wallo and Mattias Elg
UH: Initiation, coordination, design, data collection, corresponding author, research project initiation; ME: Theory on organisational resilience; AW: Theory on supply of competence; UH&KS: Theory on sustainable work; all authors: Analysis and finalising the paper.

Paper IV.
Martina Berglund, Ulrika Harlin, Mattias Elg and Andreas Wallo
All authors: Paper initiation; MB: Literature overview; UH&MB: Research project initiation; all authors: Data collection; UH: Coordination of empirical data analysis, corresponding author; all authors: Analysis, design of the conceptual framework, and finalising the paper.

Paper V.
Magdalena Smeds, Ulrika Harlin, Andreas Wallo and Mattias Elg
All authors: Paper initiation; UH: Literature overview; UH, AW, & ME: Data collection; MS: Coordination of empirical data analysis, corresponding author; all authors: Analysis and finalising the paper.
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Chapter 1

1 Introduction

This chapter introduces the current challenges in organisations in the era of the accelerating pace of change, the research problem, followed by the aim, research questions, delimitations, and outline of the thesis.

1.1 Background

This thesis focuses on how organisations handle critical work practices (CWPs) in rapidly changing contexts and how their handling is enabled or constrained by organisational conditions. CWPs are defined as operational management practices that are quickly initiated or adjusted – either scaled up or down – in response to new developmental needs or emerging acute situations. This definition draws inspiration from prior research on work practices designed to enhance both the flexibility and robustness of socio-technical systems. Through these practices, management strives to foster adaptability and evolutionary capability in response to change (Nathanael & Marmaras, 2016). Thus, such work practices are considered ‘critical’ from a strategic perspective because of the necessity to be conveyed and implemented in an organisation (based on intentions and decisions at higher levels). ‘Handling’ refers to the utilisation of specific tasks and methods to deal with the CWPs.

In the thesis, CWPs are studied in two rapid change contexts representing the reality of current industry and other sectors: the high-growth startup of an industrial company in the green transformation, and organisations responding to the COVID-19 pandemic. The organisations studied in these contexts are characterised by accelerating development or fast change, high levels of activity, uncertainties, and, often, a sense of urgency. In both rapid change contexts, CWPs of different forms are identified. For example, in the startup context, the CWPs are mainly related to change initiatives in response to new developmental needs within a new industrial domain. In the pandemic contexts, the CWPs are associated with change initiatives in response to unexpected acute situations.
1.1.1 Research problem

The thesis’ focus is framed by the significant challenges arising in situations that are rapidly changing, such as those faced by contemporary organisations striving to enhance their competitiveness. The ability to handle CWPs is vital because manufacturing industries – considered to be the backbone of society (Bosma et al., 2020) – are undergoing significant transformations to meet environmental and climate goals encompassing entire value chains and shifts towards digitalisation (Karnik et al., 2022), electrification and circular economy (Johansson et al., 2019; Kurdve, Zackrisson, Johansson, et al., 2019).

Furthermore, initiation and handling of CWPs is required as organisations must adapt to changes to meet evolving demands and criteria. For example, economic and socio-environmental threats, which impacts the manufacturing industry (Narkhede et al., 2023), such as the COVID-19 pandemic, geo-political tensions, and new demographics. Consequently, modern organisations encounter the grand challenges of managing different circumstances, realising changes to achieve economic, ecological, and social sustainability objectives, and establishing conditions for enduring desirable impacts (ibid). Thus, research-based knowledge on the handling of CWPs is vital to support implementation of CWPs towards positive outcomes in the long term.

The relevance of such research is echoed in the following quotes from industrial representatives contributing to a research agenda for the development of a socially sustainable, competitive, and green industry in the age of rapid change (Wallo et al., 2024):

So, in an organization, what does electrification mean then? .... It is something we are building as we go along. It is like building a bridge while we at the same time are walking... no... speedily running on it. It is also not always that simple. And I know what it is like when you attend a course/.../It is often a proven, known competence that you do a course on. However, this new domain requires new knowledge. (p.5)

Many leaders in our organization do not feel confident engaging with uncertainty – things unknown to them. Because they are used to know and have the answers. (p.12)
The quotes pinpoint three research problems pertinent to this thesis.

Firstly, organisations are faced with the requirements to simultaneously handle day-to-day operations while implementing multiple change initiatives (i.e., CWPs) to achieve their goals or respond to extensive challenges. Organisations undergoing such changes are characterised as ‘disruptive’ due to the high complexity, uncertainties, and limited possibilities of control (Manisaligil et al., 2023). These new situations require knowledge about the ability of operationalisation, for example transforming sustainability visions and strategies into practice (Säfsten et al., 2024), and reconsideration of approaches related to competence issues as a high extent of novel situations occurs (Wallo et al., 2024).

Secondly, interdependencies increase in the handling of CWPs, necessitating an understanding of the implications of changes and new demands (Smith & Lewis, 2011). Thus, balancing the interests of various stakeholders and a systems perspective is essential, considering individual, organisational, and societal perspectives (Docherty et al., 2008). One study of digital and green transitions within the industry (Lundmark, 2024) highlight that technology plays an essential role and is often in focus, however organisational and human factors are not sufficiently considered or integrated in such transitions (Bolis et al., 2023; Johansson & Abrahamsson, 2021; Neumann et al., 2021). Bartunek and Woodman (2015) argue that positive outcomes of change and development processes can be created by approaches in which entire systems work together with a positive, future-oriented focus.

Thirdly, the evolving and dynamic environments will also present a challenge, as goals and resources may shift over time. Yet traditional project management methods, which apply a linear approach to change implementation, remain prevalent (Elg et al., 2015). Critics argue that these methods presuppose a static environment, ignoring the dynamic and unpredictable reality (Boonstra, 2023; Brulin & Svensson, 2012). Brulin and Svensson (2012) suggest adopting learning-oriented approaches that prioritise long-term impacts, highlighting the limitations of fixed activities, structures, and objectives. Research comparing ‘result-oriented’ and ‘effect-oriented’ programmes shows that the latter are more likely to achieve lasting changes due to their long-
term perspective and adaptability to dynamic environments (Svensson et al., 2008).

The literature reporting on a vision for the future development of industry, often referred to as Industry 4.0 and Industry 5.0, focuses mainly on enabling technologies and societal and individual work task levels (Akundi et al., 2022; Ciccarelli et al., 2023; European Commission, 2021; Zhang et al., 2023). However, there are knowledge gaps concerning organisational level and managerial issues. Moreover, previous research predominantly emphasises the preparation for change, with less empirical attention dedicated to understanding how to maintain motivation and persistence (Stouten et al., 2018). This highlights a broader problem: the existing body of research has not sufficiently explored the overarching organisational conditions that play a crucial role in facilitating or hindering requirements of operationalisation of corporate goals and rapid implementation of change within the day-to-day operations of an organisation. Therefore, there is an interest in deepening our understanding of how initiating and handling CWPs enable organisations to swiftly develop and adapt to new situations while maintaining a focus on long-term perspectives and sustainable development.

1.1.2 Knowledge interest

There is much to learn from different types of crises, which provide the opportunity to enhance entrepreneurship and organisational development. However, there are still a limited number of studies focusing on the interplay between various types of crises and entrepreneurship (Lee et al., 2023). Lately, the focus on innovation during a crisis has increased in scholarly enquiry within diverse disciplines. Yet there is a lack of connecting research on crisis innovation in the divergent streams of research (Brem et al., 2023). Moreover, there is a high potential for learning by exploring entrepreneurial organisations, such as, startups due to their processes of initiating new domains, focusing on innovation and economic growth (Máté et al., 2024).

A recent overview of reviews provides an update regarding research addressing the current aspects of management scenarios and organisational change (Da Ros et al., 2023). It suggests further research within three main areas. The first area addressed concerns about how to
create proactive conditions for change to overcome a current situation; the second area stresses ways to mediate change, for example communication strategies; the third area concerns the ability to systematically handle anticipated and unanticipated effects of changes at various organisational levels (ibid.). Consequently, there is a clear and pressing need for more empirical research to enhance organisations’ capacities to navigate and lead organisational development and changes under fast-paced and diverse conditions. Hence, studies delineating the specific characteristics of these organisational conditions, exploring how they influence the practical implementation process, are needed.

Additionally, research should investigate how insights gleaned from studying these conditions can be applied across different contexts of change and organisational development. By gaining a deeper understanding of these conditions, researchers and practitioners can develop more nuanced and effective strategies for handling change tailored to their corporate environments’ unique needs and challenges. This call for further research underscores the complexity of change and the critical need to bridge these knowledge gaps through empirical enquiry.

As a theoretical point of departure, the thesis will use a framework developed to support the ongoing evaluation of development programmes (Brulin & Svensson, 2012). This framework includes three interrelated vital factors influencing the implementation and outcomes of development and changes: active ownership, stakeholder collaboration, and developmental learning. The framework was previously applied to empirical research to evaluate extensive European research and development (R&D) programmes and projects (ibid.). Drawing on Brulin and Svensson’s research, sustainable change is described as a development and change process within an organisation with the potential of achieving multiple long-term, lasting beneficial effects (not only reaching short-term goals), thus contributing to the sustainable development of organisations, that is, economic, ecological, and social sustainability. In this thesis the framework will be used to examine the organisational conditions that impact ongoing CWPs in rapid change contexts. Thus, it requires further understanding of these factors in other types of development and changes than previously studied.
1.2 Aim and research questions

Building on the background, research problem, and knowledge interests highlighted in the previous sections, this thesis aims to explore the handling of CWPs in rapidly changing contexts and how this handling is enabled or constrained by active ownership, stakeholder collaboration, and developmental learning. The following research questions have guided the thesis:

- **RQ1.** How do organisations handle critical work practices by adapting their tasks and methods to meet new development needs or respond to acute critical situations?

Research question 2 delves into organisational conditions by exploring interconnections of essential factors influencing the handling of CWPs in rapid change contexts.

- **RQ2.** How do the organisational conditions of active ownership, stakeholder collaboration, and developmental learning serve as enablers or constraints in the handling of CWPs?

Drawing on the analysis of research questions 1 and 2, research question 3 elaborates on future development to support the handling of CWPs associated with the organisational conditions active ownership, stakeholder collaboration, and developmental learning:

- **RQ3.** What adjustments to organisational conditions are needed to improve the handling of CWPs in rapid change contexts?

The empirical data for this thesis was gathered from case studies conducted in two rapid change contexts: the startup of a new company handling new development needs (further called the ‘Startup context’) and organisations handling the crisis during the COVID-19 pandemic (further called the ‘Pandemic context’). The empirical data has been presented in the five appended papers constituting the core of the thesis (Table 4.2 – Table 4.5).

The contribution of the appended papers to the research questions is overviewed in Table 1.1.
Table 1.1. Overview: linkage between the research questions and the appended papers

<table>
<thead>
<tr>
<th>RQ1</th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
<th>Paper IV</th>
<th>Paper V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Startup context</td>
<td>Pandemic context</td>
<td>Handling of CWPs</td>
<td>Handling of CWPs</td>
<td>CWP character</td>
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<td></td>
<td>Handling of CWPs</td>
<td></td>
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<td></td>
<td>Tasks, methods</td>
</tr>
<tr>
<td>RQ2</td>
<td>Interconnections between influencing factors AO, SC, DL while handling CWPs</td>
<td>Organisational conditions concerning enablers and constraints</td>
<td></td>
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</tr>
<tr>
<td>RQ3</td>
<td>Necessary adjustments to organisational conditions to improve the handling of CWPs in rapid change contexts</td>
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</tr>
</tbody>
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*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning

1.3 Positioning the research

This research requires an interdisciplinary approach, which is applied in this thesis, and is intended to contribute to several scholarly fields. The first field is operations management (OM), where the thesis contributes to an enhanced understanding of rapid changes in organisations and to considerations of organisational and social dimensions of sustainability related to work.

Research within OM is a dynamic field in which new practices continually emerge. Many aspects must be understood, such as product design, production system development, production and supply chain management, recycling, performance measurement, risk management, health and safety, cooperative social responsibility (CSR), and ethical behaviour. This requires contributions from several scholarly fields where OM practices must respond to demands of environmental performance together with social and human issues in operations (Walker et al., 2014).

Additionally, the thesis contributes to the literature on ergonomics and human factors. More precisely, it does this from the perspectives within production system development and integration of organisational and work considerations in transition processes – for example, shifts towards electrification and circularity solutions. It is acknowledged that sustainable work encompasses good conditions for work, workplace innovation, and competitiveness (Abrahamsson, 2021; Dhondt, McMurray, & Oeij, 2023). However, there are still relatively few empirical studies focusing on the human factors perspective on sustainability challenges (Bolis et al., 2023; Radjiyev et al., 2015).
Furthermore, the thesis contributes to the quality management (QM) field by providing an enhanced understanding of conditions for change. This is a research interest within QM, as sustainability practices are increasingly incorporated into quality management processes (Martin et al., 2020). The literature stresses the necessity of knowledge regarding the evolving, shifting needs of organisations, as the future trend holds an increasing degree of complexity and uncertainty for QM to operate (Fundin et al., 2020). A research agenda named ‘Quality 2030’ is suggested, addressing five research themes: (a) applied systems perspective in cross-collaborations, (b) stability in change (where a significant challenge is to achieve stable transformations in fast-changing environments), (c) leadership and self-organising, (d) integrating sustainable development in QM, and (e) bridging higher purposes and values (ibid.). Furthermore, the research agenda addresses the need for cross-scholar perspectives and proposes research close to practice that interactively supports knowledge creation in fast-changing environments.

Moreover, this thesis contributes to the field of change management from sustainable work perspectives in development and change processes. Knowledge of interest within this area is expressed in a recent research agenda conducted by Da Ros et al. (2023), as change models increasingly need to adapt to increased complexity and uncertainties. Thus, it requires enhanced considerations and knowledge of social and human aspects (e.g., willingness to adapt, educational and ethical considerations, employees’ contribution, roles of change facilitators, non-tangible results, drivers, and constraints) (ibid.).

1.4 Delimitations

The scope of this thesis has intentionally excluded several areas for the following reason: business and investment processes are not addressed due to confidentiality issues. Additionally, discussions on specific technologies and material development are omitted, as the thesis focuses on organisational analysis. While recognising their importance, aspects of resilience and environmental, economic, and social sustainability are not explored in depth, given the thesis’ emphasis on the factors driving changes towards such outcomes.
The thesis also steers clear of delving into human work science, ergonomics and human factors, especially social sustainability, from societal and individual cognitive perspectives. This significant area necessitates a distinct analytical approach and theoretical foundation, which are beyond the purview of this thesis’ primary aims and methodologies. Similarly, change management topics are bypassed to concentrate on the conditions facilitating the handling of CWPs rather than the management processes themselves. Finally, performance in terms of organisational or individual output is not examined, as the thesis is centred on the dynamics and conditions during ongoing CWPs rather than the outcomes themselves.

1.5 Disposition

This compilation thesis includes an introductory ‘kappa’ (chapters 1–8) and five appended papers (Appendix). Chapter 1 introduces the current challenges in organisations in the era of the accelerating pace of change, the research problem, followed by the aim, research questions, and delimitations. Chapter 2 addresses organisational development and changes and exemplifies the types of rapid change contexts focused on in this thesis. Chapter 3 outlines the basic concepts and theoretical framework utilised as a lens for analysis. Chapter 4 focuses on the methodological aspects. Chapter 5 overviews the appended papers. In Chapter 6, the analysis is presented. Finally, Chapter 7 engages in a discussion, synthesising the insights and findings from the previous chapters to draw conclusions and implications of the research in Chapter 8.
Chapter 2

2 Rapid change contexts

Building on the introduction, this chapter explores organisational development and change, focusing on various change contexts, such as startups and the COVID-19 pandemic. This chapter also introduces challenges associated with development pace and uncertainties, which are increasingly prevalent in organisations undergoing rapid change.

2.1 Development and change in organisations

Van de Ven et al. (1995) argue that an understanding of the nature of different types of change can help managers and leaders anticipate challenges and devise strategies that align with their organisational goals and contexts. Plowman et al. (2007) provide a classification emphasising how organisations experience change as convergent or radical (the scope of change) and if it is episodic or continuous (the pace of change). According to this classification, changes differ regarding, for example, the drivers, forms, and the character of connections. Hence, the character of a change has implications for approaches to handling modifications or renewal of CWPs.

Considering various change contexts (looking at startups, entrepreneurial environments, and crises like the COVID-19 pandemic) is valuable, as they show how change models work in practice. Startups, for example, constantly undergo rapid changes from their beginning stages to becoming established businesses. These real-world examples help illustrate how theoretical change processes apply to entrepreneurial settings, which will be discussed in more detail in the following sections.

2.2 Startups and other entrepreneurial contexts

One type of rapid change context, a startup, can be described as a developing organisation (a business entity) that exhibits considerable growth potential but has only been operational for a limited period. It is characterised by the absence of product, entrepreneurship, informality,
hard work, and a shortage of resources and personnel (Cockayne, 2019; Hingal, 2024).

There are extensive challenges related to a post-startup phase: for example, obtaining strategic resources, developing team composition, and speed, specifically in ‘high-tech start-ups’, sometimes referred to as ‘new technology-based firms’ (Clarysse & Moray, 2004). Challenges in rapid startups are, for example, abilities to grow quickly in early phases and maintain this growth over time (Coad et al., 2013; Haltiwanger et al., 2013). Furthermore, startups require the ability to simultaneously comply with regulations, develop internal routines and relationships among employees, and establish new relationships with external actors (McKelvie et al., 2018). Creating the collective ability to identify and respond to opportunities and innovation capabilities is essential (Akehurst et al., 2009). Moreover, developing organisational approaches, training, and competence development is necessary to keep up with fast changes (Wallo et al., 2024).

However, understanding the important factors required to support startups from the initial to the post-startup phases can potentially affect the prospects of other development and change processes that require developmental approaches (Hingal, 2024). As observed by Clarysse & Moray (2004), during the early phases of a venture, entrepreneurial teams constantly take the initiative to find new ways to operate effectively, which has essential opportunities for learning.

Previous studies of entrepreneurship report on several conditions that impact the sustainable development of new firms and their potential to succeed. Enablers include both tangible measures such as turnover, liquidity, and solidity, and intangible values like the founders’ backgrounds, market understanding, stakeholder collaborations, talents, and the ability to innovate and retain human capital (Cadorin et al., 2019; Henrekson & Johansson, 2010; Klofsten & Norrman, 2013; Qin et al., 2017). Moreover, startups involve essential entrepreneurial activities with interactions between a new company and multiple external actors (Audretsch & Belitski, 2017), cooperating for a startup company’s development and successful growth. Active participation of a wide range of stakeholders is regarded as an enabler that supports a startup’s complex challenges and contributes to achieving overarching sustainability or societal goals (Máté et al., 2024). However, there is a
need for additional research focusing on approaches to address challenges and promote sustainability, inclusion, fairness, and diversity within incubator environments such as startups (ibid.).

Studies of change commonly address mature organisations, with less research addressing young companies (such as startups) (Beer & Nohria, 2000). Previous research suggests that a successful strategy for managing rapid growth in entrepreneurial organisations is a blend of focus on economic value and market presence, emphasising organisational culture and values (ibid.). Thus, it is argued that combining such strategies can provide a balanced and efficient approach to scaling up and building a solid culture.

2.3 Pandemic and other crisis contexts

If we shift the view to other types of rapid change contexts, the societal crisis will thoroughly impact organisations that require action. In the case of emergent situations such as a pandemic, organisations navigate shifts speedily, embodying the dynamics of change as they evolve and require immediacy (in contrast to the startup context focusing on a long-term perspective, but requiring rapid acceleration of development pace). This transition illustrates how theoretical change processes are manifested in real-world crisis contexts.

A crisis can be described as a ‘sense of urgency’ in situations that interrupt normal operations (Seeger et al., 1998). Hermann (2008) describes crisis as situations that (1) threaten high priority values of the organisation’s goals, (2) places restrictions on the available time for decision-making, and (3) is unexpected or unanticipated.

Essential features of the crisis include high ‘immediacy’, requiring prompt strategic decisions, and challenges of handling uncertainties (Sarkar & Osiyevskyy, 2018). However, even though research widely recognises that uncertainty is an essential factor in crises that practitioners need to address, there is still a lack of research addressing organisational perspectives, that is, the role of crisis communication in handling uncertainties (Liu et al., 2016). The notion of uncertainty is broad, and Milliken (1987) emphasises that it is important to understand what the particular source of uncertainty is in the organisation’s external environment, but also the type as experienced by the decision maker.
Another discussion concerns the character of changes. For example, some argue that a sense of urgency is essential and needs to be created to change organisations (Kotter, 2007), while others stress that it may destroy energy for change: 'Too much urgency can lead to paralysis, and pressure from the outside usually leads to resistance because people do not want to be forced to change' (Boonstra, 2023, p.18). Their perspective is that change is not about organising a crisis but about organising aspirations, and a reason for failures is that leaders have not adapted to future developments.

There are examples in previous research of how a crisis has driven organisational changes and development. One example is the so-called IT crash or dot.com bubble, where external societal crises influenced organisations and caused fundamental changes and restructuring in Swedish industry companies (Bergström, 2006). The situation was characterised by high growth and the immediate crash of companies, which had an enormous impact on the global economy and workplaces, resulting in significant downscaling and workforce reductions (ibid.). For example, an analysis of the information technology industry during a financial crisis demonstrates significant challenges faced by company managers, who are navigating current demands while simultaneously developing their business towards future long-term performance (Walrave et al., 2017).

Research on how companies survive economic crises highlights the importance of a metaphorical ability to ‘accelerate and brake simultaneously’ (Wallo et al., 2012). This metaphor underscores the need for flexibility in strategy—rapidly advancing while also maintaining the capability to slow down when necessary. The study identifies the pivotal role of CEO leadership in supporting decisive and appropriate actions during the crisis, positioning it as a crucial factor in navigating turbulent economic times. Studies exploring the COVID-19 pandemic reveal several insights into the crisis. For example, Leng et al. (2023) address the importance of considering unexpected disruptive occurrences from a manufacturing perspective. Newman et al. (2022) shed light on employee work attitudes, behaviours, and abilities to achieve key work goals, and address the importance of considering unexpected disruptive occurrences from a manufacturing perspective. Zackery et al. (2022) observed that the urgent need to respond to the crisis took priority over
long-term planning or transformation efforts aimed at the eventual recovery beyond the pandemic.

Moreover, health issues have risen to the top of business, social, and political agendas; this has caused a re-evaluation of the nature of work (flexibility and remote work) and new considerations of value chains, emphasising local collaborations (Amis & Janz, 2020). Another study suggests that organisations should learn from their handling of challenges during the COVID-19 pandemic, embrace a more human-centred approach, and not exclusively prioritise self-centred perspectives or rely heavily on technical and managerial solutions (Lozano & Barreiro-Gen, 2021).

Hence, the crisis has exposed abilities in organisations and conditions promoting successful approaches during crisis: change founded on collaborations and trust, taking advantage of the challenges, such as reimagining and shortening supply chains and involving collaborations with external societal actors at different levels (Amis & Janz, 2020).
Chapter 3

3 Theoretical framework

This chapter presents literature on the key concepts regarding the organisational conditions influencing implementation and outcomes while handling CWPs in rapid change contexts. It also outlines a conceptual model for understanding organisational conditions of active ownership, stakeholder collaboration, and developmental learning. The model will serve as a lens for analysis.

3.1 Organisational conditions affecting change

This section overviews essential organisational conditions affecting change focusing on three intertwined factors influencing outcomes of lasting desirable effects: active ownership, stakeholder collaboration, and developmental learning, building on previous research and a proposed framework (Brulin & Svensson, 2012). The framework was initially developed to support the evaluation of extensive European policy programmes from the perspective of long-term effects (Brulin et al., 2012). This was a challenge, as there are difficulties in evaluating outcomes due to multiple influencing factors that are challenging to observe, and the time perspective, where end goals may change over time. Thus, drawing from various research fields, mainly from the theory of project management, sustainable development work, and organisational learning, the framework comprising the three intertwined factors was developed. Brulin and Svensson’s standpoint is that a deeper understanding of organisational conditions during development and change processes can potentially promote successful change with multiple long-lasting effects. Similar conclusions are drawn in previous research where, for example, Alayón et al. (2022) highlight that the main barriers while adopting sustainable manufacturing are related to organisational, managerial, and attitudinal aspects, training and competence development, and informational and financial issues.

The theoretical framework is relevant in this thesis for several reasons. First, there is a need for research-based approaches supporting knowledge of organisational conditions regarding rapid changes and
transitions towards sustainability and resilience goals. Furthermore, the Brulin and Svensson framework responds to the widely acknowledged view of the necessity of an interdisciplinary approach when analysing organisational changes and development. The framework includes perspectives from diverse research fields and is developed by scholars with a combined understanding of different fields and practice systems through interactive research approaches.

Second, the framework holistically addresses conditions fostering sustainable development and, hence, it has the potential to bridge knowledge gaps, as literature identifies such factors as successors, complementary to technological factors, and promotes an interactive approach for joint knowledge creation.

Third, the framework emphasises proactivity, with the upstream focus on conditions fostering sustainable change and potential for knowledge contribution when applied in other types of development projects or change processes within organisations.

### 3.1.1 Active ownership

Active ownership focuses on the organisation of a supportive environment, ensuring the right conditions for a change process regarding resources, governance, attention, and how results can be taken care of (Brulin & Svensson, 2012). Ownership among management of taking an active, supportive leadership role in the direction and decision-making processes of the organisation is essential (ibid.). Specifically, as changes are strongly linked to organisational strategies (By, 2005). Previous studies focusing on work within top management teams identify a collective systems view, emotional commitment, and continuous improvement of teamwork processes, referred to as ‘real teamwork’, as success factors for adapting to changes and achieving goals effectively (Sten et al., 2024). This is of increased importance to the ability to handle new and complex challenges in dynamic environments (ibid.).

In change processes, ownership can be viewed from the perspectives of different stakeholders. For example, participation is an influential factor in gaining lasting effects from developing work practices, priorities, culture, etc. (Andersson et al., 2006), but it does not automatically lead to taking ownership. As Clegg and Walsh (2004) argue, a deeper level of commitment or a sense of responsibility
(ownership) requires not just the inclusion of employees in the process but also empowerment. Thus, creating a personal interest in the process and outcomes is vital, transitioning employees from passive participants to active owners of a change. Furthermore, Bamford-Wade and Moss (2010) propose further research on leaders’ responsibilities and the need to create structures and systematic approaches fostering the transfer of ownership of the work to those who undertake it. This includes coaching capability and creating an environment of engagement and willingness to be responsible for performance.

Changes impact working conditions, thus requiring the consideration of the development of socially sustainable work systems balancing individuals' and corporate goals and interests (Docherty et al., 2008), workplace innovations, and a system perspective (Dhondt, McMurray, & Oeij, 2023; Zink, 2014). For example, digitalisation and transitions related to artificial intelligence, AI, have created new opportunities in the past years but also raised novel issues from different perspectives that need to be understood from the perspective of work (Abrahamsson, 2022; Dhondt, Oeij, & Hulsegge, 2023).

Another study by Broman and Robèrt (2017) emphasises social sustainability related to work as key in change initiatives towards sustainable development (in addition to the economic and environmental dimensions). Their findings identify the following areas influencing outcomes: health, influence, competence, impartiality, and meaning-making. Furthermore, previous research on quality implementation within healthcare argues that contextual settings must be considered (e.g., own culture, objectives, goals and strategy) together with attention to human resource issues to achieve successful implementation (Downey-Ennis et al., 2004). Specifically, findings reveal that employee involvement and empowerment become more critical in change processes (ibid.).

In entrepreneurial organisations, ‘active engagement’ is regarded as an essential soft value for success and is also strongly associated with well-being due to a higher degree of autonomy and individual self-organisation in entrepreneurial work compared with ‘non-entrepreneurial’ work (Shir et al., 2019). In these organisations, challenges on an individual level are associated with well-being (Wiklund et al., 2019); for example, due to intense working conditions,
periods of stress, long work hours, and trade-offs between job performance and physical health (Cardon & Patel, 2015). On the other hand, work in entrepreneurial organisations involving challenging tasks within new domains is perceived as attractive due to a competitive mindset (Foo et al., 2009; Wiklund et al., 2019).

The second key factor that impacts change outcomes is broad stakeholder collaboration, jointly striving towards mutual goals, which is focused on in the following section.

### 3.1.2 Stakeholder collaboration

Stakeholder collaboration entails relationships between businesses, among groups, and between individuals who can affect or are affected by approaches aiming to create value (Parmar et al., 2010). Further clarification is that a stakeholder can represent a group that a company needs in a specific situation, for example employees, suppliers, customers, financiers, and communities. Attention to stakeholder collaboration has increased among scholars and practitioners to enhance the understanding of problems arising in environments of high uncertainty and change (ibid.).

Stakeholder collaboration has different purposes, forms, scales, and complexity. Thus, it requires an understanding of interdependencies in complex change processes and new governing methods without hierarchies and broad representation (Wistus, 2010). Development, innovation, and problem-solving cannot always be handled solely by individuals, teams, or companies. Instead, stakeholder collaboration is a crucial strategy for achieving common goals (Arina & Rustiadi, 2018; Boonstra, 2023). This approach necessitates a deep understanding of different stakeholders’ needs, interdependencies, prerequisites, and strategies. It also requires knowledge of how and when to collaborate effectively to forge productive partnerships.

The vital role of intermediaries is discussed in the literature, where intermediary actors may be functions or organisations operating as a bilateral link within different levels or regions, or for different purposes (Smedlund, 2006; Wallo & Kock, 2014). Kivimaa et al. (2019) describe intermediaries as positively influencing actors or platforms that link actors and activities towards visions and demands. Hence, intermediaries come in various forms and roles such as systemic intermediaries, who operate at the system level (e.g., transition
intermediaries), intermediaries who focus on specific projects or niches (e.g., niche intermediaries), and user intermediaries who connect user perspectives with technology development (ibid.).

In long-term and complex changes, or ‘transitions’ to sustainable development, previous research stresses the importance of ‘systemic intermediaries’ and their role in coordinating efforts of industry, policymakers, research institutes, and others (Van Lente et al., 2003).

Tensions and contradictory demands occur during changes, requiring transparency in change processes and an ability to balance different interests, weighing the pros and cons of solutions against each other (Svensson & Brulin, 2014) to combine a focus on short-term results with a pursuit of long-term effects. In studies during the pandemic, research emphasises the ability to constantly consider paradoxes that may occur in new situations when improvisation is needed (Vera & Crossan, 2023). Moreover, influencing aspects of desired change outcomes are ‘cognitive and social dynamics’ that can arise between individual and collective actions (Hadjimichael & Tsoukas, 2023).

A dynamic collaboration between interdependent stakeholders in entrepreneurial ecosystems such as startups, is vital for success (Audretsch & Belitski, 2017; Bank et al., 2017; Volkmann et al., 2019). For example, building relationships and social networks is essential for fruitful stakeholder synergies (Audretsch et al., 2011). Moreover, it is increasingly vital to research new, small, and evolving firms to understand the drivers of entrepreneurialism and how these relate to health and working conditions among leaders, workers, and other actors involved (Klofsten et al., 2020).

As the pace of change accelerates, there is also a growing need for innovative collaborations among stakeholders that promote flexibility and efficiency while fostering the development of socially sustainable work (Hasle, 2014). Thus, it is essential to consider various factors related to social sustainability, which also entails using resources responsibly and considering the needs of stakeholders (Docherty et al., 2008). Hence, a systemic approach is needed, recognising perspectives and interdependencies between various aspects through continuous involvement among people with different roles and functions (Clegg & Walsh, 2004) and creating prerequisites for work communities that can address shared challenges (Nathanael & Marmaras, 2008). For example,
it requires a deep understanding of needs related to resource allocation, governance, and the impact on stakeholders within and beyond the organisation. On a societal level, studies reveal the benefits of a three-party collaboration between the government, companies, and unions (Brulin & Svensson, 2012).

In a Swedish industrial setting, the Nordic model of work is another example of stakeholder collaboration (Garmann-Johsen et al., 2018; Gustavsen, 2011). It comprises cooperation between employee and employer organisations and emphasises creating solutions and value for both parties (Nielsen et al., 2012). The role of trade unions is vital in this model, as they facilitate a counterbalance to management control, fostering a climate of action space for individual employees (Finnestrand, 2023) and balancing different interests and requirements (Brulin & Svensson, 2012; Smith & Lewis, 2011; Van de Ven et al., 1995). One approach that has been used integrates stakeholders’ planning and design processes, focusing on users’ and human factors perspectives (Neumann & Village, 2012).

Previous research stresses the need for a holistic understanding, viewing new types of problems that may emerge at workplaces from different stakeholder perspectives and exploring how work can be sustained (Docherty et al., 2008). A suggested research approach is to view stakeholder collaboration as the ‘unit of analysis’ to understand possible problems and the impact of changes and approaches (Parmar et al., 2010).

As argued, active ownership and broad stakeholder collaboration are means to developmental learning, which is the third intertwined key factor influencing lasting desirable outcomes of change initiatives. This factor is further addressed in the next section.

3.1.3 Developmental learning

This section draws on research on learning in organisations, which is essential for organisations to increase their capacity to handle different situations, problems, and challenges (Ellström, 2001). Organisational learning is defined as ‘changes in organizational practices (including routines and procedures, structures, technologies, systems, and so on) that are mediated through individual learning or problem-solving processes’ (Ellström, 2001, p.422).
Ellström (2001; 2006) distinguishes between two main modes of learning: adaptive learning and developmental learning. The distinction is associated with the work situation and character of associated work tasks, methods, and procedures, and the results to be achieved. Learning that is adaptive is about handling familiar and reoccurring situations and comprises forms of reproductive and rule-oriented learning. Learning that is developmental is characterised by critical questioning that challenges previous assumptions – thus promoting new creative and innovative solutions for problems or new assignments (Wallo & Lundqvist, 2022).

‘Developmental learning’ occurs when individuals or groups begin to question and critically reflect on different situations – experimenting and testing alternative ways of acting – thus rethinking and developing new approaches (Ellström, 2010). For example, studies on managerial work show that developmental learning arises during unstructured, unplanned, and informal work processes (Sollander & Engström, 2022). Creative learning is the highest type of developmental learning that exists in complex work situations, requiring essential developmental processes. As argued by Ellström (2010), there is a necessity for both adaptive- and developmental learning depending on the work situation and tasks at hand. Thus, the character of work situations impacts the type of learning that occurs, and individual learning is necessary but not sufficient for organisational learning to occur (ibid.). For example, studies in organisations subjected to crisis reveal that the CEO’s leadership and individual managers have essential roles in organisational learning (Wallo et al., 2012).

Research emphasises the crucial leadership role in creating conditions for learning and the need to balance focus on performance with learning (Lundqvist et al., 2023; Sollander & Engström, 2022; Wallo et al., 2013; Wallo et al., 2022). Leadership focusing on performance addresses predefined goals and results and is common in predictable situations. Svensson et al. (2002) pinpoint the need for combined responsibilities for learning, for example in terms of organisational support and prerequisites promoting individual, group, and organisational learning, and individuals taking responsibility for reflection and learning.
In a recent study referring to current transformation towards sustainability and impacts of the COVID-19 pandemic, McKim and Goodwin (2021) emphasise that a new understanding of leadership is required as systems, such as organisations, shift to being more chaotic. In their study, McKim and Goodwin (2021) argue that in nonlinear and dynamic systems, it is essential to empower individuals with the ability to disrupt systems, collaborate across differences, learn continuously, and build relationships towards a more sustainable future. The importance of considering power relations in crisis change contexts – e.g., relations between individuals and groups, is also pinpointed by Meisiek and Stanway (2022).

Factors that have an impact on the outcomes of change are intertwined. Previous research exemplifies interconnections between performance, learning, and perceived well-being. For example, studies indicate that a work environment that permits and stimulates learning and competence development may also contribute to effective performance and be essential to the employees’ health, well-being, and personal development (Watson et al., 2018). Another interconnection is that developmental learning relies on employee engagement and competence (Martin et al., 2018). In contrast to traditional Tayloristic work models, ‘new work systems’ also positively impact performance due to a more humanistic, flexible culture emphasising employee commitment (Ellström & Kock, 2008).

Moreover, Weick and Sutcliffe (2001) address the potential of learning from organisations having to cope with extraordinary situations regularly, for example hospital emergency departments or nuclear power plants, so-called ‘high-reliability organisations’, and their approaches related to uncertainties and crises. Previous research addresses the role of communication during a crisis (Seeger et al., 1998; Weick & Sutcliffe, 2001) regarding, e.g., speed, ability to adapt to changing circumstances, encouraging people to share what they learn through crisis, and its impact on building trust. Furthermore, poor communication among different functional units and work processes inhibits performance, while studies by Birkie et al. (2017) pinpoint the value of the people-focused (or ‘soft’) lean practices, including ‘learning by doing’ and improvement commitment among stakeholders across the value chain processes. As highlighted by Boonstra (2023), ongoing collaborative
efforts and dialogue among individuals from diverse backgrounds who engage in mutual challenges within an environment of uncertainty significantly contribute to the enhancement of adaptability and innovation towards a preferred future. Hence, stakeholder collaboration requires trustful relationships (Levinson, 2008; McKelvie et al., 2018; McMullen et al., 2013). However, trust is vulnerable, particularly in times of change, necessitating understanding of how strong relationships can be created in evolving organisations and amid fast changes.

The following theoretical framework, as presented in the sections 3.1.1 – 3.1.3, is visualised in a conceptual model in the upcoming section. This model is designed to serve as a valuable tool for analysis of CWPs. It is not a mere theoretical construct, but a lens that can be applied to real-world scenarios. The model is grounded in its applications in case studies within the startup context (Paper II and III), and in the pandemic context (Paper IV and V).

3.2 Conceptual model – a lens for analysis

Research aiming to understand development and change in organisations is fundamental to the field of modern organisational sciences. It highlights the necessity of adopting multiple perspectives (Jacobs et al., 2013); consequently, management scholars have borrowed many concepts, metaphors, and theories from different disciplines (Van de Ven et al., 1995).

Before analysing CWPs, change contexts can be positioned in Plowman’s classification model (2007). Through that, the character of the change context can be understood and insights on overarching conditions and prerequisites enhanced in organisations where CWPs need to be implemented.

To better understand organisational conditions for the handling of CWPs, the theoretical framework presented in this chapter has addressed the necessity of understanding the character of development and change. Furthermore, to support the analysis of how organisational conditions enable or constrain CWPs, this section outlines a conceptual model (Figure 3.1) based on the three factors – active ownership, stakeholder collaboration, and developmental learning – identified by Brulin and Svensson (2012).
In general, a conceptual model is useful as a basis for analysis and structuring the findings within qualitative research (Säfsten & Gustavsson, 2020). It can be used to describe an entity and include relevant issues to be considered in its study, such as an event, an object, or a process, and explain how it works (Jaakkola, 2020).

The purpose of the model presented here is to provide an analysis approach to enhance the knowledge base necessary for effective handling of CWPs in contexts characterised by rapid change.

The model will be used for analysis of the empirical data in the two studied rapid change contexts. These contexts are characterised by high levels of activity, and, often, a sense of urgency. The empirical phenomenon studied in the thesis is development and change in organisations and the unit of analysis is CWPs in relation to the three factors of active ownership, stakeholder collaboration, and developmental learning. In the model, the arrows represent interconnections between the factors.

The model relates to the research questions as follows. The starting point is the identified CWPs in the studied change contexts and how organisations handle these CWPs by adapting their tasks and methods to meet new developmental needs or emerging acute situations, addressed in RQ1. Subsequently, the focus shifts to organisational conditions,
exemplified in different CWPs, examining the three factors of active ownership, stakeholder collaboration, and developmental learning and their interconnections. This examination explores enablers and constraints affecting the handling of CWPs and responds to RQ2. Finally, the insights gained from RQ1 and RQ2 inform the development of future organisational conditions by exploring necessary adjustments to answer RQ3.
Chapter 4

4 Methods

Chapter 4 presents the research methodology, the research process, the selection criteria, the two studies in two different rapid change contexts – startup and pandemic – and a discussion concerning research quality.

4.1 Research methodology

Given the complexity of studying rapid change contexts, the methodology adopted in this thesis is built on case studies featuring qualitative data, and an interactive research approach (Ellström et al., 2020). This combination is particularly advantageous for delving into emerging areas within OM, which is inherently dynamic and continually shaped by evolving practices (Voss et al., 2002). These situations necessitate a research approach that is adaptable and exploratory, thereby capable of uncovering novel insights into how organisations develop and change.

By prioritising the investigation of new trends over the analysis of established situations, scholarly understanding of management can be increased in meaningful and forward-looking ways (Barratt et al., 2011).

The following sections briefly introduce the case study methodology and the interactive research approach. The sections are followed by an overview of the case studies in this thesis’ papers that constitute the empirical data from the startup and pandemic contexts.

4.1.1 Case studies and qualitative data

A prerequisite to gain an enhanced understanding of changes is to conduct studies close to the study object, where case studies offer the possibility of empirical studies in organisations in their natural setting (Meredith, 1998). Therefore, a case study, described as a research strategy that focuses on understanding the dynamics present in a single setting, is an appropriate methodology for this research (Eisenhardt, 1989). The validity of a case study as a methodological approach is well-established in social science (Flyvbjerg, 2006). This approach not only facilitates an in-depth exploration of the phenomena at hand (Yin, 2018)
but also allows for capturing human aspects critical to OM (Voss et al., 2002). Another advantage of case studies is that they offer a central focus point and multiple avenues for analysis where studies are conducted over an extended period (Pettigrew, 2012). This multiple analysis is beneficial because the research process may change over time, and a group of researchers often carries out research with complementing interests. Hence, case studies are appropriate for capturing rich data, as this research requires. According to Miles et al.’s (2019) recommendation of using theoretical frameworks and conceptual models, an adapted functional analysis approach has been used, contributing to understanding and explaining constructs and their relationships.

The pace of change has accelerated over the past decades, and there are challenges to how organisations can learn fast enough to keep up with the changing times (Van de Ven & Johnson, 2006). Interactive research, part of the broad family of collaborative research approaches, is a way to contribute to both innovation and change processes in organisations and theory development (Ellström et al., 2020). This approach is applied in the studies of this thesis, and it will be briefly introduced in the next section.

### 4.1.2 Interactive research

Interactive research is defined by Ellström et al. (2020) as ‘a collaborative research approach characterised by recurrent interactions and joint learning activities between researchers and practitioners in commonly agreed-upon efforts to study change and innovation in organizations’ (p.1520). The interactive research approach thus emphasises continuous interaction and cooperation between researchers and practitioners throughout the research process.

The interactive research model (Figure 4.1) used in this research is based on many years of experiences of collaborative research in different forms and applied in various forms at the HELIX Competence Centre (Ellström et al., 1999; Svensson et al., 2007; 2015).
The core of the interactive research is the jointly conceptualised and prioritised research object (illustrated in the centre in Figure 4.1 as the dark ellipse). Problems and issues related to this common area that need enhanced understanding are iteratively studied and interpreted, with joint knowledge creation over time in cycles through research and practitioner activities (Ellström et al., 2020).

There are similarities between interactive research and action research, such as activities involving researchers and practitioners; however, the role of the researcher differs (ibid.). In action research, the practitioners drive the changes and take responsibility for actively influencing the outcome. In interactive research, the researcher’s role belongs to the research system. The researcher participates in different interaction arenas during the research process without taking ownership of driving the practice system’s change processes. The use of interactive research has been previously used in production startups in industrial manufacturing companies, i.e., other types of rapid change contexts (Berglund et al., 2020), and has been an essential platform for the studies in the startup context of this thesis.
The advantages of interactive research are the potential to contribute to practice-relevant research and bridge gaps between practice systems and research systems (Ellström et al., 2020; Van de Ven & Johnson, 2006). Moreover, the interactive research approach draws attention to the importance of activities involving researchers and practitioners, leading to a mutually beneficial learning experience (Nielsen & Svensson, 2006).

Given the background of the applied research methodology based on case studies and interactive research, the following section overviews the case studies in the appended papers.

4.2 Overview and selection of case studies in the contexts

The selection of the case studies demonstrating the contexts of a startup (Paper I–III) and the pandemic (Paper IV–V) adopts four recommendations proposed by Pettigrew (1990) for studying organisational change.

The first recommendation, ‘Go for extreme situations, critical incidents, and social dramas’, suggests selecting extraordinary studies like major events, crises, or significant organisational changes. Within such extreme situations, dramatic events may occur and act as mini case studies, with opportunities to contribute to a deeper understanding of the organisation’s dynamics.

Second, selecting contrasting studies is recommended, expressed by Pettigrew as ‘Go for polar types’. Thus, researchers can better understand the factors influencing organisational success or failure and illustrate similarities and differences.

Third, the recommendation ‘Go for high experience levels of the phenomena under study’ proposes a focus on recent company changes, ensuring opportunities to gain rich, relevant data for the phenomena under study.

Finally, the fourth recommendation, ‘Go for a more informed choice of sites and increase the probabilities of negotiating access’, concerns a proactive approach and the preparations to gain an appropriate understanding to design the study.

By understanding the industry and essential players beforehand, researchers can make better choices of research approach, improve their chances of gaining access to detailed studies, and conduct a more
effective and efficient research process. Table 4.1 summarises the characteristics of the studies related to these recommendations.

Table 4.1. Selection of studies demonstrating rapid change contexts (based on Pettigrew, 1990)

<table>
<thead>
<tr>
<th>Selection criteria</th>
<th>Startup context (Case studies in Paper I–III)</th>
<th>Pandemic context (Case studies in Paper IV–V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Go for extreme situations, critical incidents, and social dramas management priority</td>
<td>Organisation strategy to contribute to acceleration towards electrification and climate goals. Provides significant industry and societal impact. Offers opportunities for insights within the organisation. High and rapid scaling-up demands.</td>
<td>Organisations are responding to revolutionary crises due to the COVID-19 pandemic that necessitated new CWPs to ensure safety and competitiveness. High and rapid scaling-up and scaling-down demands.</td>
</tr>
<tr>
<td>ii) Go for polar types</td>
<td>Startup-related development and change.</td>
<td>Pandemic-related development and change.</td>
</tr>
<tr>
<td>iii) Go for high experience levels of the phenomena under study</td>
<td>Involves an ongoing startup in an escalating organisation with new product and production development within a novel industrial domain with high uncertainty. High complexity and novelty. This context requires significant efforts to generate rich experiences among the participants.</td>
<td>Involves organisations and workplaces responding to a global crisis subjected to high complexity and novelty. This context requires significant efforts to generate rich experiences among the participants.</td>
</tr>
<tr>
<td>iv) Go for a more informed choice of sites and increase the probability of negotiating access</td>
<td>Pre-phase of study: An organisation with high confidentiality issues still took the initiative of being a study object. The fast development pace in the company required an open research approach. Steps were decided iteratively in a reference group, ensuring possibilities for research relevant to the company and appropriate research purposes.</td>
<td>Pre-phase of study: The organisations could be selected through previously established channels, anchoring the study at a company level. Selecting respondents within these organisations was a strategic choice; respondents are likely to be open to research that could help them understand and improve their new practices and provide access for researchers.</td>
</tr>
</tbody>
</table>

In summary, the case studies in the papers represent two rapid change contexts and demonstrate extreme and contrasting ongoing rapid development and changes in organisations. This provides opportunities for gaining rich insights close to the phenomena under focus, further presented in the following sections. The following section presents the case studies conducted in the two contexts, starting with the startup context (papers I–III).
4.2.1 Presentation of case studies: the startup context

The studies in the startup context were carried out in a new high-growth entrepreneurial company considered one of Sweden’s most prominent industrial startups in modern times. The study focuses on rapid development processes and changes within the new startup company’s greenfield industrial development project. The company’s strategy was to support European industry in the transformation towards electrification through green batteries and energy storage solutions in green production processes, thus aiming to contribute to climate goals and a fossil-free society. Its mission was to establish a new industrial domain in Europe, starting in Sweden, including the development of a large-scale production facility for battery cells and solutions for energy storage. The case studies in the startup context are presented in the papers I, II, and III: see Table 4.2.

Table 4.2. Case studies: startup context (Paper I–III)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim</td>
<td>To investigate how sustainable work is considered in an entrepreneurial context.</td>
<td>To explore why and how new firms can create relations and SC with trade unions during industrial startups.</td>
<td>To investigate practical approaches towards the sustainable work industry and green industrial transformation.</td>
</tr>
<tr>
<td>Unit of analysis</td>
<td>The organisation during the early startup of the company.</td>
<td>The startup company’s SC process with trade unions.</td>
<td>Combination: Paper I and II.</td>
</tr>
<tr>
<td>Type of case</td>
<td>A single-case longitudinal study.</td>
<td>A single-case longitudinal study.</td>
<td>Combination: Paper I and II.</td>
</tr>
<tr>
<td>Study period</td>
<td>From 3 months after the company’s launch until the start of production in the R&amp;D production facility (30 months).</td>
<td>From 15 months after the company’s launch to hiring the first operators (26 months).</td>
<td>Combination: Paper I and II.</td>
</tr>
<tr>
<td>Organisation</td>
<td>A startup company in the private sector (industry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interconnections between AO, SC, DL; enablers and constraints (RQ2).</td>
<td></td>
<td>Future development needs (RQ3).</td>
</tr>
</tbody>
</table>

* AO: active ownership; SC: stakeholder collaboration; DL: developmental learning
The first research contact was in connection to the official launch of the new company and the study period was 3.4 years.

A flexible approach was maintained throughout the data collection phase for the study of the startup context, as recommended by Pettigrew (1990) and Van de Ven (2007). The data collection was mainly conducted through workplace observations and interviews, with increasing interactivity over time. Due to confidentiality constraints, recordings were not possible. Therefore, data was continuously documented on a timeline, summarised, and digitally archived. The data was systematically organised in a structured digital folder, allowing for efficient time, place, and respondent category tracking, following Van de Ven’s (2007) methodology. The data was continuously merged in a ‘raw-data report’, including:

- **Workplace observation protocols**: Diary notes were taken during ongoing observations in a ‘Daily observation template’ and merged in the raw-data report afterwards.

- **Open interviews**: Interview notes were collected in a One-note folder in a ‘generic template protocol’ during ongoing interviews, followed by complementary digital documentation in Word, and after that, merged in the raw-data report.

- **Semi-structured interviews**: Interview notes were collected in a One-note folder in an ‘interview-guide template protocol’ during ongoing interviews, followed by complementary digital documentation in Word, and after that merged in the raw-data report.

- **Document studies**: Potentially relevant documentation was merged in the raw-data report.

Table 4.3 presents an overview of the empirical data for case studies in the startup context.
Table 4.3. Empirical data: startup context (Paper I–III)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection: Workplace observations</td>
<td>134 hours on 65 occasions (of which, 32 occasions involved participatory meetings using protocol templates).</td>
<td>21 working council meetings of 2-3 hours.</td>
<td>Combination: Paper I and II.</td>
</tr>
<tr>
<td>Open interviews</td>
<td>43 were selected randomly and with a research project steering group.</td>
<td>In between meetings: regular open interviews with the process leader.</td>
<td></td>
</tr>
<tr>
<td>Semi-structured interviews</td>
<td>46 (interview guides for each focus area).</td>
<td>5 (trade unions).</td>
<td></td>
</tr>
<tr>
<td>Document studies</td>
<td>Internal documentation, e.g., meeting minutes, proposals, reports, requirements, environment permit documentation, municipalities documentation, websites; public documentation, e.g., reports, websites, seminars, public events.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The methods are reported in more detail in papers I and II. Paper III limits the description of the methodology due to its format as a book chapter. The following section presents the case studies conducted in the pandemic context (papers IV and V).

4.2.2 Presentation of case studies: the pandemic context

The case studies in the pandemic context focus on CWPs used to promptly scale-up and scale-down operations in organisations responding to the COVID-19 pandemic. The empirical work was carried out in organisations in the Swedish labour market involving private and public sectors and intermediary organisations working with both sectors. Commonly, employee and employer parties in the organisations collaborate based on agreements and culture, referred to as the Nordic Model (Garmann-Johansen et al., 2018; Wallo & Kock, 2018). The model is characterised by joint participation and responsibility with a shared vision and mission to create solutions and values for people and organisations. The case studies in the pandemic context are presented in papers IV and V, addressing different focus areas: see Table 4.4.
Table 4.4. Case studies: pandemic context (Paper IV–V)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Aim</th>
<th>Paper IV</th>
<th>Paper V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To explore improvisational handling of ‘scaling up’ and ‘scaling down’ CWPs during the COVID-19 pandemic and interpret these practices from a learning perspective.</td>
<td>To explore and analyse how manufacturing companies handle CWPs during the COVID-19 pandemic, specifically examining the organisational conditions (AO, SC and DL) that impact these practices.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit of analysis</td>
<td>The organisations.</td>
<td>The organisations.</td>
</tr>
<tr>
<td></td>
<td>Type of case</td>
<td>Interview study in 2 steps.</td>
<td>Interview study.</td>
</tr>
<tr>
<td></td>
<td>Study period</td>
<td>Spring of 2020 to spring of 2021, during the early phase of the COVID-19 pandemic.</td>
<td>Fall of 2020 to spring of 2021, during the early phase of the COVID-19 pandemic.</td>
</tr>
<tr>
<td></td>
<td>Organisations</td>
<td>6 industrial companies within the private sector. 3 municipalities and 1 health care organisation within the public sector. 9 intermediaries (e.g. social partners).</td>
<td>3 industrial manufacturing companies within the private sector.</td>
</tr>
</tbody>
</table>

Table 4.5 presents an overview of the empirical data for case studies in the pandemic context.

Table 4.5. Empirical data: pandemic context (Paper IV–V)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Data collection</th>
<th>Paper IV</th>
<th>Paper V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29 interviews and 31 respondents (Top management, expertise, human resources (HR) intermediaries, social partners): Public sector: 9 individual interviews. Private sector: 9 individual interviews. Intermediaries: 10 individual interviews and one focus group interview (3 people).</td>
<td>12 interviews and 14 respondents in 3 manufacturing companies: Industry A: 4 individual interviews. Industry B: 5 individual interviews. Industry C: 2 individual interviews and one focus group interview (3 people).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentation</td>
<td>Excel-Logbook: Continuous tracking of data collection in a logbook template. All interviews were recorded and transcribed verbatim.</td>
<td></td>
</tr>
</tbody>
</table>

A research team with complementary expertise conducted the research in the pandemic context. The methods are reported in more detail in Paper IV and Paper V.
The case studies were part of two research projects and the following section provides a description of the research process from a broader perspective, setting the scene for this thesis.

4.3 The research process

As described in the preface, the background of this research has been essential for the development of the research approach used in this thesis, where rich empirical data is provided through case studies in real-time during two extraordinary rapid change contexts. The contexts were selected due to the unique possibility of research focusing on new and emergent development processes in a high-growth startup within a new industrial domain and rapid changes in organisations during the initial phases of the COVID-19 pandemic.

The case studies in the two contexts were parts of two research projects. They were both built on the interactive research approach but had different characters before, during, and after the research project. The primary objective of the interactions before and during the research project was to establish relationships between researchers and stakeholders, co-design the study, organise ways for close collaboration throughout the process, and promote learning from shared insights (Johansson & Wallo, 2020). The studies are described in more detail in the appended papers and in Section 4.2 and illustrate the character of interactive activities. The studies demonstrate interactive collaboration between researchers and stakeholders who are impacted by the research projects, such as primary stakeholders, e.g., informants within the organisations, as well as secondary stakeholders that had an interest in the projects’ results (Ellström et al., 2020; Sandberg & Wallo, 2013).

In the startup context, the research project was planned and designed in close collaboration with the key stakeholders of the startup company’s top management team. Throughout the project, continuous meetings were held with the research project’s reference group, ensuring that progress was made in line with the project objectives. The documentation was also regularly reviewed, with meeting minutes and presentations being discussed during trade union meetings. Furthermore, the process leaders, managers, and employees were consulted in between meetings to validate and refine the documentation. After the project was completed, the findings were presented and
discussed in workshops and seminars, providing an opportunity to share the insights gained from the research project.

In the pandemic context, the research project was initiated, planned, and designed in collaboration with the key stakeholders of the HELIX Competence Centre steering group, several representatives of which had strategic functions in the organisations. Throughout the case studies’ duration, findings were regularly presented and discussed in workshops and seminars, with an opportunity to share the insights gained from the study with respondents and the wider audience.

The data in papers I–III contributes to the analysis of the startup context in this thesis and is part of a research project funded by Vinnova from 2017 to 2021. The data in papers IV–V contributes to the analysis of the pandemic context and is part of a research project funded by AFA Insurance (2021–2024). Both research projects were part of the HELIX Competence Centre, coordinated by Linköping University.

The papers are deliberately selected as they provided opportunities to study exceptional rapid change contexts. Worth noting is that the selected papers are built on my previous research on industrial transitions and production system development (see, for example, Fast-Berglund et al., 2016; Fjällström et al., 2009; Hanse et al., 2014; 2016; Harlin et al., 2007; 2011; Kurdve et al., 2014; Kurdve, Harlin, Hallin, et al., 2019; Kurdve, Zackrisson, Johansson, et al., 2019; Mattsson et al., 2012; Säfsten, Berglund, Gustavsson et al., 2008; Säfsten, Harlin, Fjällström, et al., 2008; Säfsten et al., 2024; Wallo et al., 2024; Wangwacharakul et al., 2014; Wangwacharakul, Berglund, and Harlin, 2020). The experiences from previous studies were instrumental in the design of the empirical work and interactive activities in the studies reported in the appended papers (I–V).

My prior experiences developing approaches for research in change contexts and advancing the use of interactive research have been a basis for designing the studies included in this thesis. Specifically, the following main takeaways from my studies of production startups have guided the research approach in the startup context (Berglund et al., 2020; Shani & Coghlan, 2021). Initially, it is essential to create and clarify an agreed-upon purpose for the study between practitioners and researchers and to invest in knowledge about the context both initially and continuously. Moreover, it is essential to build high-quality
relationships with the research project’s contact-person(s), requiring collaborative skills without risking bias. Trustful relations have impact on a broad engagement among people in the organisations participating in the studies and support the ability to allow for changes in original plans to provide a beneficial foundation for the research. The strength of following a structured research process is that it ensures active engagement in the two circles of interactive research (Figure 4.1), jointly and individually, in the research and practice system. Finally, the outcome is dependent on drivers, where researchers and practitioners must take responsibility for their development, and the results must be driven in the practice systems to achieve desirable effects.

The case studies provide rich data that is further explored to contribute to the aim of this thesis. The following section describes the analytical approach of the ‘re-analysis’ of the empirical data.

### 4.4 Analytical approach

This section describes the analysis for addressing the aim of this thesis, building on the appended papers providing individual analysis described in their methodology chapters. The analytical approach for the thesis kappa was conducted in three steps (Miles et al., 2019):

In the first step, the characters of the two change contexts (startup and pandemic) were analysed in scope and pace, inspired by the classification model provided by Plowman et al., (2007). The purpose was to gain a holistic understanding of the circumstances in which CWPs are handled.

In the second step of the analysis, CWPs were identified and further assessed according to their degree of newness, e.g., possibilities of using known tasks and methods, and the possibility to predict outcomes.

The model developed in Paper IV was modified to support the analysis and enhance the understanding of prerequisites regarding previous knowledge and methods to rely upon (Figure 4.2). These prerequisites may differ in the organisations and are categorised into three distinct forms: minor CWPs, moderate CWPs, and major CWPs.

Another reason for distinguishing three forms of CWP was to enable generalisation of CWPs and enable comparison of the handling of CWPs on a similar basis in the two studied change contexts.
In general, going from minor to major, the possibility of using known tasks and methods decreases, with decreasing opportunities to predict the outcomes of the CWPs, as visualised in the light grey triangle. Concurrently, the degree of newness and uncertainties increases, as visualised in the dark grey triangle. Such situations provide increased potential for learning, characterised by ‘adaptive and developmental learning’ due to the required development or renewal. Thus, the learning potential increases along with expanded discretion of task and methods, (cf. Paper IV).

For CWPs characterised as ‘minor’, the work tasks required are commonly known or established, while the methods are partly provided and may need adaptation. However, the outcome of these tasks is uncertain, and it is difficult to predict. For CWPs characterised as ‘moderate’, the work tasks are partly known, but rarely applied. Further development and application of existing methods are required, particularly those that have not yet been applied or tested. Thus, the uncertainty increases and outcomes of the CWPs are not easily predicted. For ‘major’ CWPs, the solutions require concepts and approaches because neither the work tasks, methods, nor outcomes are ‘given’.

The first two steps outline an approach to address RQ 1. In the third step, which addresses RQ 2 and 3, each context is analysed from the perspective of organisational conditions using the conceptual model as a lens (Figure 3.1). The purpose was to support a theory-based analysis
where multiple frames of reference are used to understand a complex reality, as argued by Van de Ven and Johnson (2006). Papers I–III include the empirical data of the startup context, while papers IV–V consist of the empirical data of the pandemic context.

4.5 Quality of the study

This section reflects upon the quality of the research, starting with an assessment of the role of an interactive researcher conducting case research in change contexts. After that, aspects of credibility, dependability, and confirmability are assessed, followed by a discussion regarding the opportunities for transferability of results, i.e., external validity and generalisation. Finally, ethical considerations are presented.

4.5.1 The role of an interactive researcher

The role of an interactive researcher is multifaceted. My experience is that each case study has unique prerequisites, which have influenced the character of interactivity in the research activities.

Interactive activities can be carried out in several ways (Ellström et al., 2020). The character of interactivity viewed from a ‘research project’ perspective includes activities during a research project’s life cycle phases. These activities may involve both primary stakeholders (project members) and secondary stakeholders, such as researchers and practitioners that were not in the research projects but part of a relevant research community. Such multiple interactive activities have been valuable in the studies conducted in this thesis.

A common strategy and key in longitudinal studies, e.g., studies in the startup context, has been establishing trustful relations with a reference group in the organisation. A prime contact was an essential enabler for the research, one who has the authority and prerequisites to support, identify, and anchor the case study within the organisation – for example, with potential respondents (even called principal informants) (Voss et al., 2002). Another enabler was the shared common interest and vision of the research and to jointly develop a structured work procedure throughout the research process. These activities and settings have supported the interactivity needed to conduct the studies and achieve value for practitioners and academia.
However, there were limitations in the studies of this thesis in conducting interactive feedback activities directly involving the interviewee-respondents, due to the rapid up-scaling and down-scaling in the organisations. I have experienced interactive activities, specifically challenging practice systems during rapid changes or accelerating development. On the other hand, both parties receive potential benefits if opportunities are created for collaborating activities. Under time pressure, participants in the practice system are often occupied with day-to-day assignments. Consequently, they may be lacking time for long-term analysis and reflection, while collaboration with researchers can provide opportunities to bridge that gap.

From a research perspective, being close to practice can create opportunities to build trustful and strong relationships between researchers and practitioners, and knowledge creation within novel areas. Svensson (2007) argues that the interactive research approach, in which closeness is a core feature, builds trust and enables acceptance of critical reflection, thus fostering joint development of knowledge in the research process.

As mentioned, when conducting the studies in this thesis, I encountered difficulties regarding interactive activities comprising joint analysis of sub-results of the case studies with respondents in the practice systems. This challenge was handled differently in the two studied rapid change contexts. In the startup context, the approach was to assign the researcher the role of a secretary in every trade union meeting. The agreed role was to be ‘passive’ in discussions during the meetings. Document meeting minutes were followed by discussion of reflections between meetings with the company’s contact point and process leader. After that, each new meeting started with joint reflections based on the meeting minutes, led by the company’s process leader.

The studies in the pandemic context did not allow interactive activities at the workplaces nor reflective meetings directly with the respondents of the interviews. This challenge was handled by alternative interactive activities, e.g., open workshops, webinars, and frequent dialogues among the stakeholders of the HELIX Competence Centre.

From the view of an industrial researcher, it was valuable to continuously interact with academia and build relationships within the research field across the research project boundaries. Specifically, the
HELIX Competence Centre at Linköping University, networks, and clusters have enabled an interactive research approach. This was especially vital in the data collection and analysis phase in the startup context, where the prerequisites (and limitations) of the case studies were that one researcher could only carry out data collection and research activities with the case organisation. Moreover, research has been conducted to address the R&D needs of practitioners, focusing on topics that are highly relevant from both practical and academic perspectives. Hence, these communities have been valuable and constituted opportunities for continuous reflection of aggregated sub-results, and enabled dissemination, thus widening transparency beyond the case studies in ongoing research.

However, interactive research has additional limitations and challenges from a researcher’s perspective. For example, it is time-consuming and requires fingertip feeling, responsiveness, adaptability, and other skills where support is needed. This is also addressed as crucial by Johansson and Wallo (2020). Thus, it is also essential to be aware of the researcher’s work environment in the problematic role of keeping a balance of personal integrity when interacting as ‘an insider’ and simultaneously outside the social context as an ‘outsider’. In these situations, meeting multiple expectations from different stakeholders is challenging.

Another reflection is that the dual and iterative activities between researchers and stakeholders, within and beyond the ongoing case studies in the research projects, have created valuable access to potential organisations, i.e., practice systems. Furthermore, continuous communication and reflection on sub-results from the case studies in multiple arenas have increased the possibility of joint learning and interpretation of findings during ongoing studies, thus decreasing the vulnerability of the entire research project. These aspects influencing research quality are further discussed in the following section.

4.5.2 Credibility, dependability, and confirmability

In this section, trustworthiness, a vital part of assessing the quality of qualitative research, will be discussed based on the criteria of credibility, dependability, and confirmability (Bryman, 2004).

Credibility concerns the internal validity of the empirical results. For example: if the study is conducted so that the results are believable and
accurate. Indicators of credibility that are particularly relevant to case study research are triangulation (e.g., using multiple empirical data sources and investigators), rich descriptions (e.g., detailed descriptions of the research context), tracking the research process and reflexivity (e.g., self-assessment of objectivity and risks for bias) (Bryman, 2004).

The empirical work in the two studied contexts utilised different approaches to data sources.

In the startup, multiple sources of evidence and different methods for data collection were used, i.e., direct observations at workplaces and events, semi-structured- and open interviews with respondents, documentation studies, protocols for data documentation (Eisenhardt, 1989), and interview guides. In the pandemic studies, the primary sources were semi-structured interviews, document studies, and regular reflections in workshops and seminars open to respondents and other stakeholders beyond the studied organisations. This is a form of methodological triangulation of data that is often used in case studies to enrich contextual understanding, increase the validity of the findings, and enable generalisability (Jick, 1979; Meredith, 1998; Stake, 1995; Voss et al., 2002; Yin, 2018). Moreover, the strategy for data collection in both contexts used sampling principles of organisations and respondents to ensure complementary perspectives (a form of data triangulation).

The case studies in both contexts enabled access to the first source data captured in real-time: that is, respondents’ experiences of the studied phenomena (Meredith, 1998).

Reflecting on the empirical studies in this thesis, research in rapid change contexts in combination with high growth and confidentiality requirements (startup) and radical organisational shifts (pandemic) caused limitations of access to data from an entire population. However, a strategy to ensure credibility was a combination of gathering rich data during real-time studies, conducting reflective analysis from multiple researchers’ perspectives, tracking the research process, and constantly reflecting on the role of a researcher.

The research quality criteria dependability refers to how consistent and neutral the results are (Bryman, 2004). Repeatability is one evaluation aspect, but it is not possible in the case studies in the two contexts. However, a strategy overcoming this limitation was to use
sampling strategies in selecting case organisations and respondents, documenting interview data, continuously validating findings through meeting minutes, and tracking the research process, which enhanced dependability. Furthermore, in the analysis processes, redundancy was indicated in data analysis of case studies in the pandemic contexts when reaching a phase of saturation – for example, when thematic themes emerge in the findings, and no more themes evolve.

Regarding confirmability, in terms of maintaining objectivity, the research process has involved additional researchers who were not involved in data collection in the analysis phases, to reduce bias. Thus, critical and alternative views were regarded by bringing together the researcher’s insider and outsider perspectives from a studied context, providing opportunities for discussions and interpretation of the findings. This approach was essential, specifically in the startup context, with challenges of how to carry out rigorous and relevant research due to the strict confidentiality agreements. There was a constant dialogue and reflection of the research process with ‘outsider’ researchers on navigating such a specific case research situation. Over time, when empirical data was transformed into aggregated data, an agreement was set with the company, allowing the publication of de-coded research results. During the case, the researcher’s work environment was extraordinary, with expectations to act as an ‘insider’ in a practice systems workplace and their awareness of being ‘an outsider’. Along with the planning of data collection, the researcher also needed flexibility skills and resources to promptly change plans and constantly anchor the study among new employees.

4.5.3 Transferability of results

This section reflects on the quality criteria of transferability and external validity: e.g., to what extent the results can apply to other situations or similar contexts. Individual studies need to reflect on the specific circumstances and opportunities for transferability. Inspired by Larsson (2009), supportive guidelines are used as a structure to address three aspects that enhance transferability of qualitative research: (a) Maximising variation; (b) Context similarity; and (c) Recognition of patterns. Table 4.6 summarises how these aspects are considered in the case studies in papers I–V and in the thesis.
Table 4.6. Aspects enhancing transferability in the startup and pandemic contexts (Larsson, 2009)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Context</th>
<th>Examples in appended papers</th>
<th>Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Maximising variation</td>
<td>Startup</td>
<td>Work process and respondent functions (Paper I).</td>
<td>Studies in two different rapid change contexts.</td>
</tr>
<tr>
<td>Variation view</td>
<td></td>
<td>Startup company and external stakeholders (trade unions) (Paper II).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Startup company, municipalities, social partners (Paper III).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pandemic</td>
<td>Respondents (employees and managers); 10 organisations in 2 sectors: private and industry, and 9 intermediary organisations (Paper IV).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respondents (employees and managers); 3 organisations: industry (private sector) (Paper V).</td>
<td></td>
</tr>
<tr>
<td>(b) Context similarity</td>
<td>Startup</td>
<td>Extensive time for workplace observations and retrospective study (Paper I, II, III).</td>
<td>Extensive observations and previous research collaborations.</td>
</tr>
<tr>
<td>Contextual understanding</td>
<td></td>
<td>Previous research collaborations in several of the organisations (Paper IV, V).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pandemic</td>
<td>Established relationships and frequent collaboration with stakeholders (Paper IV, V).</td>
<td></td>
</tr>
<tr>
<td>Interpretation of data</td>
<td>Pandemic</td>
<td>Access to rich data in real-time (Paper IV, V). Use of conceptual frameworks and models as lenses for analysis (Paper IV, V).</td>
<td></td>
</tr>
</tbody>
</table>

The first of Larsson’s (2009) aspects, (a) **Maximising variation**, enhances generalisation and is useful when empirical data is based on several studies. Variation is ensured in the thesis by the selection of several organisations in two different change contexts. Moreover, the variation in the startup context was made certain by including different focus areas and work processes in the papers, as the case study was conducted in one organisation. In the pandemic context, the papers report a variation of organisations within or towards two sectors (private and public). Data access was limited in both contexts for various reasons (confidentiality, limited access to employees having functions with high workload, and digital interviews due to risks of infection). However, by analysing various contexts, more aspects relevant to various kinds of changes can be captured. Thus, the range of views in this thesis enables
studies of the focused phenomenon from various angles, fostering generalisation.

The second aspect, (b) Context similarity, refers to the benefits of achieving a comprehensive understanding of the research setting, study circumstances, and respondents, and supports the possibility of the findings’ applicability to other contexts (Larsson, 2009). In both contexts, the researchers had opportunities to gain contextual understanding. In the startup context, extensive time was invested on-site during the ongoing research project. At the same time, the selected organisations in the pandemic context were well known before the point of departure of the case studies: the researchers involved in the project had previously conducted case research in these contexts. Both studies had opportunities to collaborate with stakeholders beyond the organisation through different communities. For example, some of the respondents in the organisations had multiple roles in various networks, such as the HELIX Competence Centre steering group. Here, the researchers discussed and reflected on preliminary findings, enhancing contextual understanding.

The third aspect influencing transferability, b) recognition of patterns, refers to the interpretation of data, where by Larsson (2009) pinpoints that context similarity does not automatically mean that results from one similar context are applicable in other contexts. Access to rich data, for example, by collecting information-intensive data, increases the potential for others (beyond the case or research project) to understand and interpret the data. Both studies in this thesis comprised rich data, which was used in the appended papers. A baseline for achieving a mutual understanding is using conceptual frameworks and models as an analytical lens, increasing the potential for interpretation of findings in other contexts.

4.5.4 Ethical considerations

Research ethics that consider societal, organisational, and individual perspectives are increasingly crucial in rapidly changing contexts, since new research ethics issues constantly arise. Research ethics are defined by Säfsten and Gustavsson (2020) as:
...the norms and values researchers are expected to relate and adhere to in their professional activities in order to carry out research that is not only accepted by the scientific community but which also benefits society at large. (p.242)

The ambition of the researcher has been to conduct relevant and qualitative research while constantly protecting individuals participating who may be affected indirectly by the process or the results. Several actions have been taken in the research projects to handle ethical issues while researching ongoing change contexts concerning the research process and responsibility towards the research community. They include researchers addressing aspects of ‘internal’ and ‘external’ research ethics, according to the Swedish Research Council (2017) – for example, aspects regarding the behaviour of researchers, scientific misconduct, fabrication, falsification, plagiarism, protecting personal data, informed consent, and anonymity.

‘Internal’ research ethics refers to the actual craft of research, and mainly addresses the research community. The complementary perspective of ‘external’ research ethics concerns the impact of the research on society (ibid.). In addition to support provided by the Swedish Research Council (2017), ethical responsibility in this research has been supported by the guidelines and principles in The European Code of Conduct for Research Integrity (2012), The Uppsala Code of Ethics for Scientists (1984), and The Swedish Ethical Review Authority (2023).

Regarding ‘internal’ research ethics, aspects of it have been considered at different stages in the two research projects, which have different requirements and prerequisites. Regarding data collection in both contexts, sensitive personal data was not collected. Moreover, confidentiality was upheld to protect the identities of informants and potentially sensitive organisation-specific information, with all data being anonymised and stored according to joint agreements. Before interviews and observations were conducted, the respondents were informed that participation in interviews was voluntary and that they were made aware of their right to withdraw at any point. Transparency during the research projects was achieved through interactive activities, such as frequent meetings involving researchers and practitioners to jointly interpret the data and communicate methodologies for data
collection. The findings communicated beyond the project were at an aggregated level.

Here are examples of actions in the startup context: at the initial research proposal stage and at the start of the research project, ethical aspects were discussed and agreed upon among the researchers and participating parties. The agreements concerned focus areas for the case studies, data collection, and management (e.g., data was stored offline on encrypted USB devices), and processes for disseminating results. During the research project, ethical issues were handled in a reference group, and approaches were regularly reflected upon, and new ones found – for example, regarding information, selection of participants and participation consent, anchoring issues, and timing for possible publication. The studies in the startup context were longitudinal (3 years), where a non-discloser agreement was a basis for the research, with the agreement including data management issues and how to handle confidential data. Throughout the studies in the startup context, there was a flexible approach where ethical issues needed to be re-considered. These issues were frequently discussed in a reference group, including top management in the company studied.

In the pandemic context, the organisation’s ethical aspects were included in the first contacts with the organisations (at the initial research proposal stage). As the case studies were conducted as an interview study, the respondents represented different views and received information regarding ethical issues in a written ‘missive’ beforehand. During the research project, the informants were informed that participation in interviews was voluntary, and they were made aware of their right to withdraw at any point. Confidentiality was upheld, with all data being anonymised.

Regarding ‘external’ research ethics, a starting point was the research relevance and why the research was conducted. In a broad sense, this research strives to support the development of economic, ecological, and socially sustainable organisations and their ability to handle increasing turbulence. Thus, this research area was a common interest among the participating organisations, individuals, academic parties, financing parties, and other societal actors. Regarding ‘publication’, the following aspects have been considered regarding how the research findings have been reported and shared, with an emphasis on transparency. After
the research project focused on the startup context, agreements were followed regarding publication and transparency. The company reviewed the manuscripts and had no objections. Within the research project focusing on the pandemic context, the participating individuals were informed beforehand of the research project and consented to recording the interviews before the data collection.

In summary, the ambition has been to balance various interests, take responsibility for the research process and the results, and strive to contribute to knowledge that supports the sustainable development of organisations in the era of rapid change.
5 Appended papers

This chapter provides a summary of the main results of the appended papers.

5.1 Paper I

Designing for sustainable work during industrial startups – The case of a high-growth entrepreneurial firm

Paper I aimed to contribute to the knowledge of how startups and industrial development projects address dimensions of sustainable work, which is part of social sustainability.

Three main findings emerged: First, challenges during the startup drove entrepreneurship and innovation, which – in addition to economic and ecological sustainability aspects – also focused on sustainable work dimensions and the development of future organisational concepts. This included initiating solution-oriented approaches with the potential for rapid decision-making and flexibility, with the ambition to attract, recruit, retain, and develop talented people. Second, the company’s strategic focus on sustainability and collective contribution among stakeholders (both within and beyond the company) to reach a purpose-driven vision was a crucial enabler for operationalising sustainable work dimensions during the startup. Third, the startup company’s early collaboration with external stakeholders provided insights that enabled the identification of current and potential challenges, initiated actions, and fostered joint learning. The new company and its stakeholders recognised the potential of addressing sustainable work dimensions in the early startup phases, benefiting their organisations and beyond. Thus, providing an opportunity to develop their roles as agents contributing to sustainable work approaches in the early design phases of future factories.

Furthermore, the paper exemplifies how the three pillars of sustainability – economic, ecological, and social – are interrelated rather than isolated and showed how they were approached in the early planning and design phases of production systems.
5.2 Paper II

*Stakeholder collaboration inspired by the Nordic model – Towards sustainable work and competitiveness during an industrial startup*

Paper II aimed to contribute knowledge of the incitement of new companies’ stakeholder collaboration with trade unions and address approaches to building relations and creating structures for collaboration during early industrial development phases.

Findings include identifying how startups, during development processes, can integrate organisational and human aspects of work in a dynamic work environment. Moreover, the findings show how to proactively regard these aspects in developing concepts for future work organisations. Enablers were the startup company’s process of initiating relationships and establishing structured work practices with trade unions, inspired by Nordic approaches (Gustavsen, 2011). The proactive, systematic approach involved anchoring activities within the new company and among external stakeholders, supported by top management and an industrial expert process leader (intermediary). The stakeholder collaboration was built on a shared overarching and purpose-driven vision. Regular formal and informal meetings fostered trustful relationships and a mutual, thorough understanding of the fast-paced development, where new competence, work tasks and roles, and working conditions may change rapidly.

A flexible collective bargaining agreement during the startup resulted from the proactive approach, stepwise building of relationships, and structured collaboration with social partners. Thus, it was considered an innovative process for the startup and all stakeholders.

5.3 Paper III

*Towards competitive, sustainable work and green industrial transformation*

Paper III aimed to illustrate industrial approaches in a startup firm’s major greenfield project of establishing a large-scale production of battery cells and solutions for energy storage in Europe, with Sweden as the starting point. This paper addresses aspects of fostering development towards green transformation, competitiveness, and development of
socially sustainable industry. Areas reflected upon are organisational resilience, supply of competence, sustainable work, and factors influencing organisational development and change processes.

The paper reveals three main findings: Firstly, a shared, overarching mission in strategic network collaborations significantly surpasses individual visions, fostering co-creative teamwork and driving employee passion towards the vision. Cutting-edge technologies and a business approach focused on circularity are crucial enablers. Additionally, aspects regarded as differentiating competitive factors were flexibility, trustful stakeholder collaborations, capability of managing uncertainties, stretching targets, and organisational learning during a high pace of change. The study indicates that embedding an entrepreneurial mindset and a culture of stretching environmental goals can accelerate factory establishment and promote innovative circularity solutions, avoiding sub-optimisations that might appear over time.

Secondly, the study identified the benefits of wide-ranging collaboration and of incorporating sustainability into work processes across various boundaries, within industries, between organisations, and throughout society. Cross-boundary collaborations occur in supply chains, organisational functions, due diligence, procurement, and between individuals and teams within an international company culture. They also involve interactions with external societal actors like authorities, municipalities, social partners, and educational institutions. Characteristics of the culture were the embracing of obstacles and hindrances as potential competitive advantages. Furthermore, joint collaborative efforts were needed to develop innovative solutions that were also arenas fostering developmental learning, with the secondary potential of creating competitive advantages for involved stakeholders.

Thirdly, the study illustrated how the approaches to developing sustainability solutions were intertwined (seamless links between social, ecological, and economic dimensions) and that attention to factors related to the organisation of work and working conditions was essential in the dynamic work environment.
5.4 Paper IV

Scaling up and scaling down: Improvisational handling of critical work practices during the COVID-19 pandemic

Paper IV aimed to explore the improvisational handling of ‘scaling up’ and ‘scaling down’ CWPs during the pandemic and interpret these practices from a learning perspective. In this paper, CWPs are urgent – due to the pandemic. They involve scaling up an existing operational process or developing a new one and, alternatively, scaling down or ceasing an existing process. The CWPs involved experimenting with, testing, and adapting working methods in their quest for solutions.

The study identified three forms of improvisational handling of the CWPs and potential for learning. Several CWPs scaled up and down due to the crisis, creating new challenges and uncertainties. An increasing space of action was observed due to the growing challenges of uncertainty and emergency along with loosened boundaries of established structures. Further, this study indicated that the handling approaches during the pandemic led to temporary solutions, some of which might become lasting. The uncertainty and tasks requiring radical shifts challenged individuals, organisations, and other stakeholders beyond their organisation.

Another observation was the role of trade unions as intermediaries between management and individuals at workplaces, explained by the high degree of trustful relationships. Furthermore, the variety of work situations among employees with different functions was regarded as a challenge, as was managing difficult situations and gaining a mutual understanding of decisions and change processes when there was a lack of opportunity to meet and build relations face-to-face.

5.5 Paper V

Exploring organisational response to COVID-19 in manufacturing: The importance of active ownership, stakeholder collaboration and developmental learning

Paper V aimed to contribute knowledge by exploring and analysing findings from a study on how manufacturing companies handle CWPs amid rapid change. It specifically focused on the organisational
conditions influencing these work practices that were initiated to handle the COVID-19 pandemic. The research explores the characteristics of how three manufacturing organisations adapted their CWPs in response to COVID-19, and organisational conditions that either enabled or constrained these adaptations.

In manufacturing companies, the main CWPs include crisis management, accessible leadership, proactive work environment strategies, communication practices, competence development, and shift to remote/hybrid work. Enablers for effective handling of the CWPs were an organisational culture fostering empowerment, collaboration, and continuous learning. Identified constraints were rigid organisational structures, ineffective communication channels, and misaligned leadership practices that impede rapid adaptation during crises. Among the three organisational conditions examined, active ownership was identified as the most crucial for managing crisis, driving change initiatives, strengthening stakeholder collaboration, and supporting developmental learning. Thus, considerations of broad active ownership are essential to adapting effectively to emergent and unexpected situations.
Chapter 6

6 Analysis

This chapter includes an analysis of the characteristics of change and challenges in the two contexts. Moreover, it comprises an analysis of CWPs as identified and discussed in papers IV and V, and which were further interpreted in the thesis related to the startup context (Paper I–III). Particularly, the analysis focuses on the CWPs manifestation and handling within the startup context and pandemic context. Through detailed examples, this chapter provides a comprehensive illustration of how CWPs are implemented, adapted, and evolved in response to internal and external pressures, thereby offering insights into the effective management of change within diverse organisational landscapes.

6.1 Change and challenges in the two contexts

This section analyses the characteristics of changes within the startup and pandemic contexts. The focus is on the drivers, nature, and associated challenges of change, which are essential to understand as they influence handling of CWPs in organisations. Initially, the analysis outlines how CWPs are characterised in the studied contexts by drawing on findings from papers I–V. This overview sets the stage for a deeper exploration of the interconnections between organisational conditions and the specific nature of CWPs in these distinct settings. First, the focus is on how CWPs are characterised in the startup context (Section 6.1.1; Paper I–III) and in the pandemic context (Section 6.1.2; Paper IV–V). Next, the analysis of the selected CWPs is exemplified (Section 6.2).

The following section describes the first step of analysing the character of the studied contexts, starting with the startup.

6.1.1 The startup context

The startup context can be described as a continuous and radical type of change (Plowman et al., 2007). It is considered ‘continuous’ because the studied company, during several years, underwent multiple ongoing development processes to build a new industrial domain. The process started with establishing a giga-factory and an R&D facility. It is described as ‘radical’ because the change context requires new
development, e.g., CWPs, within a new industrial domain with a high degree of newness and complexity. The pace of change in the organisation is rapid (i.e., high-growth and dynamic).

One driver in the startup context was the fast-growing market demand for battery cells in Europe, which is crucial for acceleration and transitions towards electrification. Moreover, the startup was also driven by the ambition to provide new job opportunities in the labour market and to contribute to a clean, green world for future generations.

The startup differed from a mature company. One reason was that the startup company had not yet established norms, was operating in a new domain, and was aware of the potential for setting new standards and creating new markets. The nature of the change in terms of the development processes in the startup was deliberate, as the organisation promptly needed to respond to the accelerating market demands and windows of opportunity presented by the green societal transformation. The operational practices needed to be handled while the circumstances constantly and quickly shifted, exhibiting an emergent nature. Initially, the company had loose connections in its organisational structure to allow flexibility. However, as the organisation grew, certain aspects became more complex, with increased interdependencies.

In the startup context, the organisation evolved radically and was subjected to increasing complexity, high growth, and uncertainties due to the new industrial domain. For example, the company shifted from a project organisation at the company’s launch to approximately 500 employees representing over 50 nationalities after one year. About four years after launch, the company had expanded to over 2000 employees of approximately 100 nationalities.

Additionally, new work practices and tasks were developed and scaled up throughout the company expansion. The company faced many uncertainties, causing challenges where decisions had to be made swiftly, often with incomplete information or without previous experiences. Some examples were quick adaptation to cultural and regulatory environments, long lead times for environmental permits, and managing recruitment issues such as employee residence permits.

There were also challenges in meeting the company’s energy volume requirements for renewable solutions and in ensuring the availability of materials and equipment. Issues were related to sourcing materials,
quality, and managing the supply chain of required resources without compromising the company’s sustainability commitments. Findings in the papers showed initiatives for building relationships and strategic collaborations with external stakeholders. Over time, the interdependencies expanded, both internally and externally, and became more complex as the company grew. Another challenge was the need to recruit many employees in a short period. The strategic planning involved immediate recruitment to develop concepts for forthcoming production, and long-term strategies to build a company culture that attracts people.

The following section proceeds with an analysis of the pandemic context in relation to the overarching scope and pace of change, and the circumstances in which the CWPs occur.

6.1.2 The pandemic context

The empirical work within the pandemic context was conducted in established organisations representing rapid change contexts within both private and public sectors and intermediary organisations, i.e., actors working in both sectors and operating as a link within different areas (Smedlund, 2006; Wallo & Kock, 2014). The intermediaries in the pandemic context focused their business on the labour market and educational issues.

The pandemic context can be described as a radical, episodic, and continuous change. It is considered ‘radical’ because the identified driver for change was a significant and unexpected external societal event, threatening businesses, health, job opportunities, and more. It is considered ‘episodic’ as the organisations were in a new situation with an urgent need for changes due to the pandemic; however, they assumed that, over time, it would end. However, it is also considered ‘continuous’ because organisations must constantly cope with the pandemic’s impact on business operations, while some of the decided CWPs might result in newly developed norms.

For many organisations, the changes were adaptations that could be considered ‘frame-bending’ of traditional structures, as they had to be handled in ways that were often entirely new compared to their previous methods. The nature of change was initially unintended; however, it became intended, as organisations promptly needed to respond with operational practices to address the new realities. Regarding connections
among organisational structures, they varied among the workplaces. Some organisations required the development of tighter connections to ensure the continuity of critical operations, while others loosened previous structures to allow for adaptation to the fast-changing situations. Organisational challenges brought by the COVID-19 pandemic were related to performance possibilities, business survival, supply chain instabilities, adapting to new work conditions, modification or development of new products and services, customer perception and new market demands, health risks and regulation interpretation, novel conditions for short-term furloughs, and competence. The uncertain environment created difficulties in balancing stakeholders’ needs, setting priorities, and dealing with swift changes and a high workload. For example, organisations needed to mobilise and shift areas to support their clients and customers. Other challenges were related to adapting to new work conditions and transitioning to remote work, which brought uncertainties regarding the impact on individuals and organisational performance. Development of digital communication platforms, information security, and competence development activities ensured health and safety, efficient collaboration, and productivity. Different exposures of employees to health risks and varied interpretations of official regulations at workplaces caused challenges in ensuring safety and consistent working conditions. Short-term furloughs caused new difficulties regarding adaptation to new working situations and possibilities for performance with the available staff. Furthermore, the organisations were strained by the difficulty of predicting how the pandemic would evolve and impact business survival and performance. The fast transition to new services and customer groups brought uncertainties about customer perception and swift changes in market demands. For example, the pandemic brought changes in products and services, such as in industrial companies’ transition to producing hand sanitisers and protective equipment. It raised challenges in organisations having to establish new partnerships with stakeholders, where organisations depended on authorities’ decisions and needed preparedness to deal with shifting restrictions. The global impact of the pandemic created uncertainties in the supply chain,
where new strategies and cross-collaborations were required to handle fluctuations in material supply.

Based on an enhanced analysis of the character of rapid change contexts, the following section proceeds in the second step of the analysis, focusing on the form of CWPs. This contributes to a comprehensive contextual understanding of both the overarching setting of the rapid change context and the prerequisites for the successful implementation of different forms of CWPs towards sustained positive effects.

6.2 The identified critical work practices

The appended papers highlighted various CWPs occurring in the studied startup and pandemic contexts, albeit with different characters. To enhance the understanding of the preconditions required for handling CWPs, this section categorises each identified CWP based on three forms: minor CWPs, moderate CWPs, or major CWPs, according to the prerequisites in the organisations to handle the CWPs. The assessment analyses the degree of newness, the possibility of utilising previous methods, and the predictability of outcomes (see Section 4.4 for details).

It is beneficial to distinguish these three forms, as they can serve as a basis for developing improvements and future methods for handling CWPs in an accelerating pace of development and amid organisational changes. Examples of the character of CWPs in the studied rapid change contexts are visualised and positioned in Figure 6.1.
Figure 6.1. Assessment of the character of identified CWPs in the startup and pandemic context.

Several CWPs were identified and serve as examples demonstrated in both contexts. Paper IV presents examples of CWPs in the pandemic context. These categories were used as a starting point to identify CWPs in the startup context. In addition, the startup context included CWPs specifically related to new development needs. This included, for example, new development associated with site selection, circularity approaches, factory establishment, and future work.

Analysis of the character of the identified CWPs, minor CWPs in the startup and pandemic contexts were related to ‘communication and information strategies’ and ‘work environment approaches (risk analysis)’.

Moderate CWPs in both contexts addressed ‘staffing, competence development/training’, and ‘securing the supply chain’. Additionally, in
the startup context, those forms of CWPs were associated with ‘site selection’, ‘circularity, closing inner loops’, and ‘factory establishment and future work’. In the pandemic context, ‘remote work’ and ‘transformation of products/services’ were also assessed as moderate.

In both studied contexts, major CWPs were associated with developing concepts for future new domains. In the startup context, an example was ‘Circularity’: Closing ‘mixed’ and ‘big’ loops, while in the pandemic context, some organisations started to explore new business areas as they assumed changed behaviours and customer values after the pandemic.

To advance to the third step of analysis, approaching organisational conditions, i.e., essential factors influencing the handling of CWPs, six CWPs were chosen to provide examples of a deepened analysis:

- Site selection (Paper I, III)
- Circularity: Closing ‘inner’ loops (Paper I, III)
- Factory establishment and future work (Paper I, II, III)
- Crisis management (Paper IV, V)
- Remote work (Paper IV, V)
- Transformation of products/services (Paper IV)

These CWPs were selected for two reasons. Firstly, they represent the most common form in the studies (moderate CWPs), and secondly, they exemplify different types of CWPs in the two change contexts where the case studies offered access to rich empirical data.

In the third, and final, analysis (in sections 6.2.1–6.2.6), the conceptual model is used as a lens to illustrate interconnections among the organisational conditions presented in the theoretical framework (i.e., active ownership, stakeholder collaboration, and developmental learning).

6.2.1 Site selection

The CWP called ‘site selection’ included the task of deciding the location of the startup company’s establishment of the first large-scale factory for battery production and R&D facilities. The methods applied included developing specifications and criteria for the initially planned large-scale factory and R&D facility. Moreover, it was a transparent public process
with support from external experts. The expected outcome was a site
decision for establishing the new giga-factory and R&D facility.

The interconnections between the organisational conditions are
exemplified in Table 6.1.

Table 6.1. CWP analysis: site selection

<table>
<thead>
<tr>
<th>Interconnection</th>
<th>Examples from the CWP (Paper I, III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO→SC</td>
<td><strong>Startup company</strong>: Strategy to utilise regional advantages for factory establishment with access to climate-smart and cost-efficient energy systems with advanced electricity generation and distribution systems. <strong>External stakeholders</strong>: A municipality’s future- and customer mindset, and a potential for added societal value, strengthening growth in the region; a municipality’s site readiness process for industrial investments for establishment in the region.</td>
</tr>
<tr>
<td>AO→DL</td>
<td><strong>Startup company</strong>: Transparent, estimated requirements. <strong>External stakeholders</strong>: New ways of working with neighbouring municipalities.</td>
</tr>
<tr>
<td>SC→DL</td>
<td>Problem-solving with organisations in the regions, with complementary roles and competence. Learning opportunities for all parties involved, including those municipalities not selected.</td>
</tr>
</tbody>
</table>

*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning

The startup company communicated the overarching goals. Some issues were estimated due to limitations to the new industrial domain and limited, but it was not possible to specify them. An example of an enabler associated with the interconnection between ‘active ownership’ and ‘stakeholder collaboration’ and between the startup company and a municipality was the municipality’s future and customer mindset in the site-selection process for factory establishment. A quote from Paper III exemplifies this:

What is the start-up firm thinking about right now? What are their questions? We’re going to understand their questions... their problems. That’s what we think about all the time... how can we contribute to their knowledge of our region... We’re going to try to help them, we want to skill them in their mission. (Paper III, stakeholder municipality)

The quote illustrates the drivers among stakeholders involved in the CWP and the potential for added value for municipalities striving to strengthen regional growth. An enabler was a municipality’s site readiness processes for industrial investments and a dynamic solution-oriented mindset. They applied a concept characterised by ‘reversed crisis management’. It was referred to as a scenario-based approach – a
positive rapid decision-making spiral – beneficial to the startup company and other actors and stakeholders in and beyond the region.

The site selection decisions followed processes for achieving environmental permits. The startup company strived to go beyond the required targets in combination with a parallel process. This was regarded as a new approach that differed from traditional linear work procedures that significantly shortened the lead time for achieving environmental permits:

Our iterative cross-functional collaboration enabled us to go far beyond the legal environmental requirement targets, which must have made it easier for authorities to rapidly decide on environmental permits. (Paper I, startup company)

The site selection process provided several learning situations for the involved parties. This quote from Paper III illustrates the potential for learning among municipalities other than the final selected region:

Thank you for letting us participate! We’ve learned a lot! We will be much better in the future when it comes to working on such issues. We have learned to work with the neighbouring municipality differently. (Paper III, stakeholder municipality)

Moreover, the startup company expressed the potential for increased competitiveness through the creation of a collaboration with actors centred around each factory, referred to as a ‘competence ecosystem’ beneficial for the company, region, and country.

6.2.2 **Circularity: Closing ‘inner’ loops**

The CWP called ‘circularity: closing “inner” loops’ included the task of designing solutions for circularity in production steps. The methods used involved cross-collaboration with external machine suppliers. The expected outcome was closed inner loops in production steps with substance reuse.

The interconnections between the organisational conditions are exemplified in Table 6.2.
The startup company has put sustainability on the strategic agenda, using several methods to reach the desired targets. Commonly, there was an entrepreneurial mindset of considering challenges as sources for innovations, and creating work practices addressing these areas exemplifies the interconnection between active ownership and stakeholder collaboration:

Waste is ‘by default’ a competitive opportunity and a potential added value. (Paper I, startup company)

This task required solution-oriented collaboration between internal stakeholders with different functions, such as sustainability, production process, and procurement expertise, and external stakeholders, such as machine suppliers. The collaboration was characterised by teamwork, where roles were changed to support innovative iterative testing and evaluating of solutions in seamless collaboration:

Switching tables and roles is our strength. (Paper I, startup company)

During the development process, ‘active ownership’ was enhanced among all stakeholders.

The startup company elevated sustainability on the strategic agenda and included the sustainability manager in the top management team. Thus, the CWP was the top organisational priority. The company depended on external suppliers to develop required solutions and actively searched for external partners, ‘top-notch’ partners who supported them in developing new-generation solutions:

To partner up with people taking you to the next level. (Paper I, startup company)
New technical solutions were developed through cross-collaboration across functions and by combining diverse competence. The operative work tasks required constant dialogue with different functions daily due to the interdependencies of decisions and solutions:

You have to trust that all people also are involving you in decision-making! (Paper III, startup company)

Thus, opportunities arose for both adaptive and developmental learning. The solution-oriented work resulted in new replicable concepts that were beneficial for performance and created conditions for desirable long-term effects of the CWP.

There was an entrepreneurial mindset among the participants, utilising experiences of best practices and the possibilities, as a startup, to ‘build right from scratch’. The outcomes were value-adding for the startup company in terms of technical solutions enabling substance reuse within process steps in production. Moreover, an unplanned but secondary impact was an improved working environment due to minimised emission exposure at workplaces. From a supplier’s perspective, new technical concepts brought possibilities of new markets.

6.2.3 Factory establishment and future work

The CWP called ‘Factory establishment and future work’ included designing for sustainable work during the initial factory development. The method applied was stakeholder collaboration with social partners such as relevant trade unions. Moreover, the startup company and three main trade union stakeholders initially and jointly developed a ‘purpose of declaration’ inspired by the Nordic Model. In the short term, the expected outcomes were flexible collective bargaining agreements suitable for a fast-changing work environment in the startup phase. The desired long-term outcomes were establishing good working conditions, an agile work organisation, and an innovative work environment with rapid decision-making and performance excellence in an inclusive, supportive environment featuring creative teamwork.

The interconnections between the organisational conditions are exemplified in Table 6.3.
The startup strived to create a positive work environment, foster teamwork and creativity, provide constructive feedback, and prioritise the commitment to push targets:

We have a larger scope in this company for the environment and for the work environment. In a few years it would be great to show that this is the coolest company, with women both in management positions and on the board, with diversity from around the world, and an inclusive work environment where everybody can be their best. (Paper I, startup company)

Early collaboration among social parties was considered beneficial from societal, company, and individual perspectives. Trustful relationships had an impact on the potential for dealing effectively with forthcoming unpredictable challenges, which is exemplified in this quote:

If you build good relationships with trade unions, it will be easier when complexity increases. (Paper II, stakeholder trade union)

The upper management set examples of a solid commitment to visions and goals, working to provide necessary resources for communication, training, and competence development. They had an ambition of transparent decision-making and clear communication to build trust between employees, management, and stakeholders, thus increasing the potential for organisational learning. This quote from Paper I

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**Table 6.3. CWP analysis: factory establishment and future work**

<table>
<thead>
<tr>
<th>Interconnection</th>
<th>Examples from the CWP (Paper I–III)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AO↔SC</strong></td>
<td>Startup company: Strategic decision early during the startup to establish relationships and structured collaboration with main trade union parties. Startup company and trade unions: Early participation considered beneficial from societal, company, and individual perspectives.</td>
</tr>
<tr>
<td><strong>AO↔DL</strong></td>
<td>Startup company: Strengthening dimensions of social sustainability within the organisation; upper management sets examples of a solid commitment to visions and goals, striving to provide necessary resources for communication, training, and competence development. Startup company and trade unions: Find the best solutions together for flexibility, work environment, and organisational issues. Involve everyone locally in the workplace and start local communities.</td>
</tr>
<tr>
<td><strong>SC↔DL</strong></td>
<td>Startup company and trade unions: Constant dialogue and problem-solving among startup companies and trade unions was regarded as an enabler for forthcoming unpredictable challenges. Many actors involved expressed the potential of use beyond the actual collaboration and became agents/carriers of new knowledge.</td>
</tr>
</tbody>
</table>

*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning*
demonstrates the constant need for problem-solving and active engagement to succeed:

It is important to involve everyone locally in the workplace and start local communities so that they become carriers. Then we can find the best solutions for flexibility, work environment and work organisation issues. (Paper I, startup company)

We take care of employees and their families from different countries, manage language challenges, support permit procedures, develop onboarding procedures in the company and many team-building activities, etc. (Paper I, startup company)

Examples of stakeholder collaboration in early development phases with potential for proactivity and developmental learning are further described in the startup company’s ambition to use best practices as the point of departure:

[We have the opportunity] to “strategically build right from scratch” by co-operating with complementary competences enabling utilisation of learnings of success factors from other industrial development processes and start-ups. (Paper II, startup company)

Taking the view of external stakeholders, trade unions express the potential of early participation in transitions:

This firm is unique because it’s a huge business ambition that doesn’t really exist yet. It is particularly interesting because you have to grow big and need capability to handle many things quickly. It’s not every day that we are involved in creating a new industrial domain with new factories in Sweden. (Paper II, stakeholder trade union)

6.2.4 Crisis management

The CWP called ‘crisis management’ included tasks that contributed to developing a crisis management process related to the COVID-19 pandemic, and developing regulations and policies based on national restrictions. The methods used involved further development of new crisis management organisation, mobilisation, development of
leadership support, regular meetings with authorities, and continuously adapting internal methods to constant changes of external restrictions. The expected outcomes were implemented strategic supportive approaches throughout the organisation, including proactive and reactive countermeasures.

The interconnections between the organisational conditions are exemplified in Table 6.4.

Table 6.4. CWP analysis: crisis management

<table>
<thead>
<tr>
<th>Interconnection</th>
<th>Examples from the CWP (Paper IV, V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO $\rightarrow$ SC</td>
<td>Collective engagement acting towards a common ‘enemy’ (the COVID-19 pandemic); regular meetings between organisations and with authorities; continuous organisational adaptation to constant changes in national restrictions.</td>
</tr>
<tr>
<td>AO $\rightarrow$ DL</td>
<td>Joint interpretation and problem-solving between organisations and intermediary labour market party actors.</td>
</tr>
<tr>
<td>SC $\rightarrow$ DL</td>
<td>Constant problem-solving and experience sharing among stakeholders that is useful for other situations and to other actors.</td>
</tr>
</tbody>
</table>

*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning

The organisations mobilised collectively to act towards a common ‘enemy’, the COVID-19 pandemic. Several organisations expressed the collective engagement towards an overarching vision, illustrated in the following quote:

... sometimes you expect a mass protest. But we are actually very loyal; we are prone to change, so it is rather that I am surprised how well we accept the circumstances. (Paper V, industry)

The character of leadership constituted agility and responsiveness, improvisations, problem-solving, cross-collaborations across organisations (valuing cooperation over competition in crises) and increased focus on safety, health, and adaptability issues. New areas challenged the leadership of organisations, which needed to make decisions despite a lack of previous experiences or established methods.

... it could be ergonomic issues or, well, whatever, but there you have had to pause then in favor of the pandemic issues. And it’s like that with everything, that what you don’t work with, you lose, that’s the way it is. (Paper V, industry)

Along with increasing uncertainties, tensions and contradictions arose during the pandemic, requiring additional resources and attention.
Moreover, leadership was challenged regarding crisis management but also regarding the new work situations of remote work, as expressed in this quote:

You step into an operational mode but with very clear assignments . . . we staffed up a specific management support organisation . . . we dealt with it as a state of emergency. (Paper IV, public sector)

The empirical case studies in the pandemic context illustrate how new organisational structures were developed to handle the pandemic crisis. For example, one organisation created an extra organisational level to increase its ability to make fast decisions. Additionally, examples from the case studies indicate the benefits of crisis management teams involving trade union organisation representatives, and its impact on developmental learning situations:

Yes, something that we from the union side usually ‘hammer into’ companies is to include us earlier. So, it took some time from then until there was actually a discussion about the pandemic in mid-February; so it took maybe 1–2 months before we were allowed to participate to a greater extent. (Paper V, industry)

There were constraints in conducting on-site educational activities training resulting in limitations in formal learning situations (that could not be replaced by digital communication solutions):

... everything like that was put on hold until you realised that we at least have to follow the law. After all, we have a number of tasks that require continuous repetition or that you need to attend specific training for to be able to do certain parts such as driving a forklift and things like that…I would say, that skill development stopped (Paper V, industry)

There were respondents expressing a view of the crisis as a source of further development and preparedness towards future uncertainties. This view is exemplified in the following quote:
It is clear that we have had to practise having a clear structure of how do we make decisions/.../We have probably also learned a little during the journey /.../so if a new type of crisis were to happen, we would pick up the same work methodology and apply it, even if it were a different issue. (Paper V, industry)

6.2.5 Remote work

The CWP called ‘remote work’ included the tasks of immediately transitioning personnel to work from home. The applied methods involved distributing work tasks required to be performed ‘on-site’, from a site, or ‘from home’. Moreover, they included the adoption by workplaces of digital tools, and the development of policies and new work procedures. The expected outcomes were to uphold business performance and ensure health and safety during the pandemic.

The interconnections between the organisational conditions are exemplified in Table 6.5.

<table>
<thead>
<tr>
<th>Interconnection</th>
<th>Examples from the CWP (Paper IV, V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO→SC</td>
<td>Collective engagement to find solutions to meet social distancing requirements at work.  Development of new ways of working with external organisations.</td>
</tr>
<tr>
<td>AO→DL</td>
<td>Differences and perceived injustice between employees working remotely or physically on-site.</td>
</tr>
</tbody>
</table>

*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning

The study exemplifies a widespread sense of uncertainty and anxiety among employees as they tried to adapt to these new work arrangements and cope with the challenges of remote work and social distancing. Communication emerged as a critical factor in shaping employees’ and stakeholders’ perceptions of the initiatives to the pandemic response. While some employees perceived increasing transparency, responsiveness, and support, others seemed to perceive the opposite. Reasons for frustration were, for example, lack of clear guidelines, inconsistent messaging from management, and the benefits of new communication strategies, expressed as follows:
That’s [new communication strategies] been really, really great … a lot of people haven’t seen these people or ever come close to these issues, and that’s spread awareness.

(Paper IV, industry)

Moreover, there are examples where trade union representatives have served as ‘a link’ between employees, work teams, and management, explaining the impact of changes and different employee role’s needs. Furthermore, there were examples of difficulties solving problems because many employees had to work remotely:

Generally, production feels that the development hasn’t been there, especially in terms of solving everyday problems, i.e., when you need someone to come and look inside a machine, or when you come and look at a product. This distance has become so much longer because you might not be able to just go and fetch someone from the office...

(Paper V, industry)

The new situation caused differences in the work situations among employees, with indicators of perceived injustice among employees having work tasks bound to a physical workplace, compared to others that worked from a distance, as expressed in the following quote:

... we live in an extreme information society, ‘Do we have the same opportunities as officials and collective workers to receive information?’ ‘No’, is our answer because an official may have a computer, a work phone. My members don’t have that, they have desktop computers out in production that they might share – well – say one desktop computer per eight workers. (Paper V, industry)

Furthermore, the quality of information and access to digital communication and training opportunities varied. Thus, there were tendencies to build tensions in the organisation. Trade union representatives acted as intermediaries between managers and individuals within organisations. Stakeholders quickly shifted to communication through digital tools, thus requiring upskilling. There were also examples of combined efforts towards formal and informal learning situations:
We actually joined one [pandemic related] working group which purpose is to increase the frequency of PCR testing. ... I mostly listen and sort of monitor and of course contribute with what I know. But above all, make sure that it is done correctly and not in violation of privacy. (Paper V, industry)

The combined efforts to learn new digital communication solutions and develop new business opportunities demonstrated informal situations for learning, which had an impact beyond the actual CWP.

6.2.6 Transformation of products/services

The CWP called ‘transformation of products/services’ included the tasks to produce protective equipment, e.g., visors, masks, barriers, and aprons, and to develop new offers to customers, e.g., in education and training. The methods applied were the transition of production processes from core products to new products and the adaptation of facilities and premises. Moreover, new CE certifications (Conformité Européenne) for production lines were needed. The expected outcomes were ensuring the supply of products that contributed to the needs of society due to the pandemic, strengthening the business, and finding new offers.

The interconnections between the organisational conditions are exemplified in Table 6.6.

<table>
<thead>
<tr>
<th>Interconnection</th>
<th>Examples from the CWP (Paper IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO→SC</td>
<td>Collective engagement across sectors is needed to ensure new needs are met within organisations and society. Sharing resources, e.g., equipment and material, between organisations.</td>
</tr>
<tr>
<td>AO→DL</td>
<td>The possibility to contribute to societal needs during the pandemic resulted in perceived meaning-making among individuals and organisations. New work tasks resulted in situations of adaptive and developmental learning.</td>
</tr>
<tr>
<td>SC→DL</td>
<td>Stakeholders developed new businesses and more flexible solutions for customers.</td>
</tr>
</tbody>
</table>

*AO: active ownership; SC: stakeholder collaboration; DL: developmental learning

Organisations in the private and public sectors collaborated actively to meet new needs due to shifting markets and to support the production of protective equipment due to the COVID-19 pandemic. The case study (Paper IV) exemplifies how industrial companies shifted production to hand sanitiser and protective equipment (visors, masks, etc.).
Moreover, new ways of sharing resources (e.g., material, equipment, and personnel) among stakeholders benefited both performance and individuals. This collaborative approach was necessary in addressing emergent needs within organisations and the broader society. Sharing resources, encompassing equipment and materials between entities, emerged as an essential strategy. Such resource allocation both increased utilisation and fostered a spirit of mutual support.

The CWP resulted in active engagement and perceived meaning-making among individuals and organisations. Moreover, the introduction of new work tasks created opportunities for adaptive and developmental learning. These situations necessitated a re-evaluation of existing work tasks and the need for new competence.

Furthermore, the stakeholders were compelled to innovate, leading to new solutions and the development of new business models. For example, digital solutions resulted in more flexible solutions tailored to customer needs.
Chapter 7

7 Discussion

This chapter discusses the analysis of the startup and pandemic contexts previously presented in Chapter 6. The discussion focuses on aspects regarding organisational conditions in the handling of CWPs.

7.1 Analytical support for change contexts – elaborating the conceptual model

The studies constituting the empirical foundation of this thesis have led to the identification of several CWPs, that is operational management practices that were quickly initiated or adjusted in response to new developmental needs or emerging acute situations. Those work practices are considered critical because they directly stem from intentions and decisions made at higher organisational levels to adapt to new situations or developmental needs. For example, the CWPs studied in the startup context were related to site selection, factory establishment, and circularity initiatives. These CWPs are critical since they laid the ground for future concepts, operations, and competitiveness. These work practices are developed and implemented during the organisation’s high development pace and high growth, as well as during accelerating market demands. In contrast, the CWPs identified in the pandemic context related to crisis management, remote work adaptation, and the transformation of products/services. These are critical because they require immediate response and longer-term adaptation to changed market conditions and consumer behaviours.

Understanding CWPs is crucial because it sheds light on how organisational conditions can either enable or constrain the effective handling of these practices, ultimately impacting on organisations’ ability to respond to uncertainties in a way that leads to desirable effects beyond short-term goals. This perspective is essential, as individual CWPs may not be desirable but necessary for business or safety reasons, e.g., short-term furloughs or scaling down on-site improvement work activities.
The thesis explores CWPs initiated and implemented to respond to green transformation change initiatives in terms of a high-growth industrial startup (startup context) and the impact of COVID-19 on organisations (pandemic context). In the startup context, rapid and continuous change challenges organisations to adapt to a dynamically evolving market and internal conditions, emphasising the need for agile and innovative work practices. Conversely, the pandemic context highlights how external shocks such as health crises initiate critical organisational operations and strategy adjustments. These scenarios underscore the importance of understanding the drivers, nature, and complexities of change, as they critically influence the methods organisations adopt to handle CWPs effectively.

The results show that a new understanding of organisational conditions in rapid change contexts is required. One reason is that the demand to handle CWPs will increase and likely become part of normal managerial tasks, even though the type of CWP may differ or remain unknown. However, the time perspective of rapidness is context-specific: in the pandemic context, rapid change refers to immediate response, while rapid in the startup context is related to the fast pace of industrial establishment within a new domain. An identified challenge is the ability to implement CWPs despite a lack of facts, limitations to predict outcomes, new uncertainties unfolding over time, and the need to constantly re-evaluate goals. Hence, this result supports the critics regarding the limitations of traditional linear and result-oriented models (McKim & Goodwin, 2021) and their support of proposed learning-oriented and value-driven approaches to enhance stability while making advancements in dynamic environments (Brulin & Svensson, 2012).

The analysis in the kappa illustrates how CWPs can be examined in different change contexts, providing an enhanced understanding of organisational conditions related to the handling of CWPs in other types of change contexts. The results show that the intertwined factors outlined in the conceptual model (Figure 3.1) are appropriate to consider. However, there is a need for further clarification when utilising the model as an analytical support for different types of change contexts. A reason for this is that the model, which was based on a theoretical framework developed initially by Brulin and Svensson (2012), has previously been used in other types of change contexts. It was developed
through ongoing evaluation of more extensive research programmes (Brulin et al., 2012), and the three influencing factors were used when studying conditions promoting lasting implementation of lean practices within the public sector (Lindskog, 2016). The study in this thesis, using the model as an analytical lens in startup and pandemic contexts, reveals that it is essential to gain a comprehensive understanding of the change context and to clarify the organisational conditions for the handling of CWPs, with an emphasis on:

- Ensuring ‘collective active ownership’
- Building ‘value-adding stakeholder collaboration’
- Opportunities for ‘adaptive and developmental learning’

The factors are embedded in an elaborated conceptual model, Figure 7.1, and discussed in the following sections.

The initial step in advancing development and change in organisations is to comprehend the specific context of the change, elucidated in the following section. This is followed by a discussion of the elaboration of the organisational conditions.
7.2 Understanding the change contexts

The findings from the papers confirm that the character of a change has implications on the handling of CWPs and that a comprehensive contextual understanding is essential, as pinpointed in previous research (Bartunek & Woodman, 2015; Pettigrew, 1990; Van de Ven et al., 1995; Zink, 2014). To enhance the understanding of the two studied change contexts in this kappa, they are related to the Plowman’s classification (2007). Through that, the character of the change context can be described, and this sheds light on organisational conditions where CWPs need to be implemented.

Consistent with the literature, the pandemic context demonstrates examples of CWPs that had the potential to transform from one-time episodic events to post-pandemic radical changes, depending on the developmental and organisational conditions (Plowman et al., 2007). However, some of the episodic CWPs in the pandemic context were not desirable in the long term but necessary in the short term, thus considered episodic one-time events. In contrast, other CWPs, such as ‘remote work’, may have adapted to a new norm of continuous, radical change. This accords with previous research in other types of change contexts (ibid.), showing how a slow change context can shift character over time. For example, Plowman’s study (2007) describes how a CWP can evolve to result in unexpected but desirable and radical effects over time. Hence, it is concluded that organisational conditions matter and significantly impact outcomes (ibid.). An identified enabler was the leadership role, serving ‘as “sense-givers”, giving meaning to the changes that were unfolding rather than creating and directing’ (p.538). Moreover, the same study identified positive feedback loops in small changes comprising different needs and demands among stakeholders.

Iterative communication and transparency identified as essential in previous research (cf. Birkie et al., 2017; Boonstra, 2023; Seeger et al., 1998; Weick & Sutcliffe, 2001), are also reflected in the findings in this thesis, despite being based on other types of change contexts. A common constraint, however, was that the CWPs required resources, that, originally, was not planned for – for example, shortage of personnel, which is a common challenge in startup contexts (Cockayne, 2019; Hingal, 2024).
Despite the differing character of the studied change contexts, it is observed that the studied organisations’ experiences share commonalities with crises described in earlier research. Compared to how crisis have previously been depicted in the literature (e.g., Lee et al., 2023), a surprising result was that even the startup context had similarities to crises. For example, challenges in startup contexts are associated with available resources, team composition, and speed (Clarysse & Moray, 2004), which were also recognised in the pandemic context. A difference observed was that the pandemic context required an ability to quickly scale up and scale down; however, the long-term perspective was not expressed, in contrast to the startup context, that had a requirement to maintain growth over time (cf. Coad et al., 2013; Haltiwanger et al., 2013). A common challenge was, however, to constantly be aware of and adapt to regulations and to develop internal routines and relationships, which is similar to what is found in research in entrepreneurial contexts (cf. McKelvie et al., 2018; Wiklund et al., 2019). The necessity to collectively and seamlessly collaborate towards joint overarching goals was essential in both contexts and is an identified essential enabler in the startup context, consistent with research focusing on entrepreneurship within smaller and medium-sized companies (Akehurst et al., 2009).

Crises are characterised by Hermann (2008) as situations that challenge organisations’ high priority values, impose restrictions on the available time for decision-making, and are unexpected or unanticipated. Moreover, the immediacy is addressed as critical (Sarkar & Osiyevskyy, 2018), in situations where uncertainties need to be managed (Liu et al., 2016), and a similar requirement is found in the startup context, even though the time frame differs due to the character of change. Another similarity is the sense of urgency, as recognised by Kotter (2007), as holding potential for organisational development. An interesting similarity was the focus on health aspects in both contexts, which is also addressed in previous studies of entrepreneurial and COVID-19 contexts, (cf. Klofsten et al., 2020; Leng et al., 2023; Newman et al., 2022; Zackery et al., 2022).

Thus, the studies in this thesis (kappa) reveal that these characteristics not only are found in the pandemic context, but also in the startup context. The observations in these studies underscore the
universal nature of organisational responses to immediate development needs and emergent situations, regardless of the triggers of the CWPs.

Given the importance of a comprehensive understanding of the character of change contexts, this section concludes that organisational conditions play an essential role in the short- and long-term outcomes, specifically as new, unexpected situations occur while organisations handle CWPs.

The following section elucidates the studied organisational conditions associated with active ownership, stakeholder collaboration, and developmental learning, regarded as essential factors that influence the implementation and outcomes of CWPs.

### 7.3 Ensuring collective active ownership

The comparison between the startup and pandemic contexts shows that both require fast decision-making and the ability to immediately handle challenges that threaten corporate goals. The results show that those situations of ‘immediacy’ and ‘urgency’ trigger an entrepreneurial mindset within the organisation and beyond, i.e., among external stakeholders. The analysis (in Chapter 6) shows a collective active interest in ongoing change and development processes and in allocating resources for problem-solving and development work. Such joint interest among stakeholders is an enabler for sustainable development, as reported in previous research studying change contexts when implementing lean in the public sector (Lindskog, 2016). The character of the change context in the study by Lindskog (2016) can be described as convergent and continuous, probably carried out at a slower pace, compared with the rapid change contexts explored in this thesis.

When comparing the ‘slower’ and ‘faster’ change contexts, resources, time, and engagement were shown to be examples of common enablers fostering active ownership. However, findings in the rapid change contexts show that emergent crises or startups with a clear need for rapid development and change quickly foster active collective ownership. A possible explanation for this, based on the empirical results in this study, is the clear overarching shared values and the perceived meaningfulness and opportunities for stakeholders to contribute to a development that benefits individuals, organisations, and societal interests.
The studies in the rapid change contexts also highlight constraints that may become barriers or, even, destroy active ownership among stakeholders. The rapid change contexts indicated risks of hidden problems not readily discovered due to the impact of uncertainties. These findings support previous research that emphasise the necessity to proactively, and over time, integrate considerations of work organisation aspects and human factors into change and development processes (Alayón et al., 2022; Bolis et al., 2023; Johansson & Abrahamsson, 2021; Neumann et al., 2021).

Drawing parallels with the profound societal upheavals due to previous economic crises presented by Bergström (2006), it is apparent that organisations in the startup and pandemic contexts face similar significant challenges in balancing immediate demands and consequences – particularly during the scaling up or down of CWPs. These results underscore the substantial consequences of abrupt shifts, such as those instigated by the COVID-19 pandemic on the work situation, work practices, and the development of competence. Mainly, disparities seemed to occur due to differences, such as for employees able to work remotely or not, indicating tensions. Thus, it is a condition that can weaken active ownership among individuals. Hence, CWPs can lead to new situations where previous ways of working that functioned well are suddenly inappropriate, resulting in different opportunities for access to information, etc. This type of situation was demonstrated in the pandemic context, where tensions seemed to occur between blue- and white-collar workers for various reasons. For example, work on-site was a higher health risk than remote work. Moreover, formal training activities decreased for on-site workers, while remote workers had new opportunities through digital solutions. Lack of access to digital information was another reason for risks of perceived injustice and tensions, with negative impacts on active ownership among individuals with work tasks on-site or who did not have a computer at work. A possible effect could be constraints on power relations, e.g., relations between individuals and groups (Meisiek & Stanway, 2022) and organisational learning (Crossan et al., 1999), due to lack of engagement, trust, and limitations on broad participation.

A surprising finding was the commonality between the startup and the pandemic contexts regarding raising ‘soft values’ in the
organisation’s strategic agendas. For example, new communication strategies supported constant transparency and opportunities for cross-functional and intra- and inter-organisational dialogues. The studies demonstrated methods that enhanced top management’s active ownership regarding social sustainability related to work. The indicators were, for example, prioritisation of information and communication and work environment practices. An interpretation of these results is that soft values still have low priority until the effects are ‘clear’ and visualised, although they are widely acknowledged as essential for successful change and long-term effects. Hence, the soft values impact is revealed in ‘stress-tested’ organisations, similar to findings in previous research into entrepreneurial contexts and young companies (Klofsten et al., 2020).

Another surprising finding in the pandemic context was that, despite market fluctuations and the sporadic lack of personnel, the organisations succeeded in meeting their delivery targets and, at times, even improved expected performance. Initially, some parts of the organisations required downsizing staff; however, in these industrial contexts, those CWPs turned out to be temporary. Several manufacturing organisations in the pandemic context appear to have successfully endured the emerging challenges caused by the COVID-19 pandemic and, despite the disruptions, maintained performance and advancement. Explanations were, for example, that the sense of urgency drove reprioritisation and interrupted normal operations (Seeger et al., 1998).

Thus, these results indicate that the abilities required in the organisations were not only to rapidly implement chosen CWPs, but also to shift directions, i.e., accelerate and brake, which is also a capability recognised as an enabler of organisational learning in another type of emergent societal crisis (Wallo et al., 2012). Wallo et al. (2012) focused on the role of a top management team in fighting to survive in the economic situation during the economic recession of the late 2000s. This previous research indicates that the studied management team could handle work practices that required exploration and exploitation during the crisis (ibid.). This type of capability of making immediate decisions and taking urgent actions is an essential feature during a crisis (Sarkar & Osiyevskyy, 2018).
This section concludes that disruptive change drives collective active ownership, entrepreneurship, and workplace innovations. However, such situations also bring new consequences for internal and external stakeholders that are not readily observable, requiring increased attention to soft values in strategic agendas.

7.4 Building value-adding stakeholder collaboration

The analysis in the kappa shows an extensive participation among internal and external stakeholders in handling CWPs. Jointly, in different cross-collaborations, several activities were conducted to find solutions to new problems or situations in day-to-day operations in parallel to building new concepts for the future. In the pandemic context, the crisis was a significant incitement to collaborate in new ways across traditional borders, with stakeholders sharing an overarching value-oriented mission to overcome societal threats. This entrepreneurial spirit, focusing on targets and outcomes beyond local short-term interests, is recognised in entrepreneurial organisations repurposing their business visions (Bosma et al., 2020). Companies seem increasingly encouraged to foster a collective willingness and engagement, taking steps to go beyond shareholder value by initiating shared-value multi-stakeholder collaborations (ibid.). This resembles findings in previous crisis studies (see, e.g., Amis & Janz, 2020; Lozano & Barreiro-Gen, 2021) addressing the unique opportunities to learn from crises that can support the improvement of organisations’ abilities to develop successful approaches for future emergent situations.

This study confirms the necessity of an in-depth understanding of CWPs, as argued Stouten et al. (2018) and Bartunek and Woodman (2015), involving extensive analysis at different levels and stakeholder perspectives. An attempt to capture different stakeholders’ perspectives is made in the startup and pandemic contexts; however, access to that data in rapid change contexts remains limited.

A surprising finding in both contexts was the initiated seamless collaboration across traditional borders, with the ambition to strengthen relationships across functions and cross traditional boundaries: intra- and inter-organisational. One explanation is that the character of CWPs requires joint solutions and new competence and that new problems cannot be solved within the organisation. Another reason can be the
informal work and ‘non-rigid’ structures common in startup contexts, which are consistent with previous research on new ventures (Cockayne, 2019; McKelvie et al., 2018), and observed in the studies in the pandemic context in the kappa.

Such findings are consistent with studies of extreme external societal events, such as the COVID-19 pandemic (Manisaligil et al., 2023; Narkhede et al., 2023). In those situations, organisations were forced to handle disruptions promptly. This result confirms that handling of CWPs requires stakeholder collaboration in new ways, across functions, departments, organisations, and sectors. The study demonstrates that such new collaborations increased added values beyond the actual task at hand, thus creating a potential competitive advantage in the long term.

The results in the kappa support evidence from studies of organisational development and changes (e.g., Brulin et al., 2012; Smith & Lewis, 2011; Van de Ven et al., 1995) that there are difficulties in keeping up with the constantly shifting requirements. The study shows CWPs’ high impact on stakeholders, interdependencies, and the potential for contradicting demands. This result supports previous research stressing the necessity of balancing various interests and requirements, and handling issues that may arise proactively. Thus, a mixture of proactive and reactive managerial approaches needs to be developed, which can be gained through iterative processes among people with different functions, as suggested by Weick and Quinn (1999) and Boonstra (2023).

An additional surprising similarity in the startup and pandemic contexts is the vital role of intermediaries, which bridge gaps while handling CWPs. One explanation in the pandemic context is that change is so fast that existing structures become insufficient or even barriers and that adaptions and self-organising were initiated where intermediaries acted as a link (Bartunek & Woodman, 2015; Clarysse & Moray, 2004). Examples of essential intermediary roles were observed in the pandemic context between crisis management and local workplaces and the pandemic context between trade unions and management. Another possible reason for the increasing role of intermediaries observed in the rapid change contexts is that the high workload and uncertainty require resources for work tasks that are not planned. Moreover, the problems might be personal, requiring high trust.
Previous research demonstrates how intermediaries (in different forms) can positively influence transition processes (Kivimaa et al., 2019; Smedlund, 2006; Wallo & Kock, 2014), which supports the findings in the startup and pandemic contexts. Identified qualities in the intermediary role were their comprehensive understanding of different stakeholders’ needs and demands, and their ability to communicate across borders. Their common characteristics were trustful relationships, combined strategic and workplace understanding, cultural understanding of all parties involved, and a combined formal and informal collaborative approach between concerned people and stakeholders during the change process. Thus, involving intermediaries seems beneficial, as they play a crucial role as facilitators while handling CWPs, helping bridge gaps between stakeholders. However, results additionally indicate risks of intermediaries acting ‘informally’, not part of an organisation’s strategy. As stressed by Clarysse and Moray (2004), intermediaries may get into the role as a manager which should be avoided. The pandemic context exemplified those risks, while the startup context demonstrated how an intermediary could be used as part of a strategic approach to enhance the handling and implementation of CWPs that contributed to both short-term outcomes and long-term desirable effects.

This section concludes that new situations and urgency are drivers of innovations with the potential to provide added values even beyond the actual CWP. Moreover, interaction between intermediaries, managers, and employees fosters a holistic understanding and proactivity but requires an organised, structured approach.

7.5 Opportunities for adaptive and developmental learning

The conceptual model comprises organisational conditions influencing the handling of CWPs. A difficulty, or even impossibility, as argued by Brulin and Svensson (2012), is to know what will be achieved or remain in the long term. The challenges of unpredictability in the studied rapid change contexts are similar to those found in the previous research (ibid.) and represent situations that are increasingly common in organisations. Consequently, an enhanced understanding is required
of how organisational conditions during changes impact opportunities for intended outcomes and effects. Thus, there is a need to address identified research gaps in research on how to support operationalisation of overarching goals and developmental needs that contribute to sustainable development of organisations (European Commission, 2021; Zhang et al., 2023).

Learning in the studied contexts is associated with the situations that occur while handling the CWPs and illustrates modes of adaptive learning and developmental learning, according to Ellström (2001; 2006). The character of CWPs identified provides opportunities for both adaptive and developmental learning: for example, through different forms of activities of communicating and solving problems during specific issues involving internal and external stakeholders. Moreover, the results indicate the occurrence of developmental learning beyond the collaboration issue, where external stakeholders expressed the benefits of participation during ongoing CWPs. A possible explanation for this is that the new situations and urgency that exists in a rapid change context seems to accelerate the engagement among external actors in disseminating their new generated knowledge to other actors in the region and society.

The results show that providing opportunities for participation across traditional ways of working is beneficial, and such developmental activities can be planned. The example additionally illustrates how the organisational conditions of active ownership and stakeholder collaboration in developmental activities during CWPs can generate effects beyond an actual CWP. The process of learning, going beyond individual learning towards organisational learning, is here an unplanned process driven by active ownership and identified added values. Hence, a question that arises and is significantly essential in rapid change contexts is how opportunities in adaptive and developmental learning can be integrated into managerial approaches. The results from the pandemic context highlight challenges for employees working on-site in new work situations. These challenges include perceived injustice due to work tasks bound to a specific workplace, health risks, high workload, and limited access to information and support. Such constraints may hinder collaboration and learning opportunities within the organisation and impact power relations (Watson et al., 2018). Thus, prerequisites for
collective active ownership among stakeholders are specifically essential during rapid changes.

A question that remains partly unanswered in the studies is how to achieve organisational learning in rapid change contexts, despite the comprehensive insights of the high potential of generated knowledge essential for improvements and innovations. Similar observations highlighting the potential of learning and entrepreneurship when organisations must cope with extraordinary situations are recognised by Weick and Sutcliffe (2001) in studies of high-reliability organisations, in extensive crisis situations by Lee et al. (2023), and startups, e.g., when commencing a new business in uncertain environments (Máté et al., 2024).

The rapid change contexts have similar features to those identified in entrepreneurial environments, e.g., shortage of resources, and speed (Cockayne, 2019; Hingal, 2024). An explanation is that the vision- and crisis-driven organisations need to find solutions and exhibit an entrepreneurial mindset that can lead to innovations.

An observation is that existing literature highlights opportunities within different crisis, startups, or high-reliability organisations; however, the analysis in the kappa additionally underscore the value of studying contrasting change contexts. This study demonstrates that the organisations in rapid change contexts are stress-tested: organisational strengths, constraints, and enablers become visualised. For example, vulnerable interconnections between active ownership and organisational learning can be identified in early phases. These are crucial aspects for developmental learning and consistent with findings in previous research (Ellström & Kock, 2008; Martin et al., 2018). Thus, this research contributes to bridging knowledge gaps regarding the interplay between crisis and entrepreneurship (Lee et al., 2023).

Previous research shows that learning that is developmental is also characterised by critical questioning that challenges previous assumptions (Wallo & Lundqvist, 2022). Despite limited opportunities to relate to previous experiences, the study in this thesis shows that the necessity for the CWP to re-evaluate previous structures and methods has implications for fostering a culture of workplace innovation and new risks. These results are consistent with previous research identifying workplace challenges that are due to transition pressures associated with
digitalisation, green economies, and societal threats (Abrahamsson, 2021; Johansson & Abrahamsson, 2021; Dhondt, McMurray, & Oeij, 2023). Moreover, the results identify that the role of leadership is an increasingly essential support in the process of creating organisational conditions from different stakeholder’s needs and demands, which is also consistent with previous research (Lundqvist et al., 2023; Sollander & Engström, 2022; Wallo et al., 2022). Hence, the handling of CWPs initiated as a response to new development needs or acute unexpected situations appears to act as catalysts that have the potential to lead to learning, renewal, and innovations (cf. McKim & Goodwin, 2021).

This section concludes that the rapid change contexts provide learning situations for both adaptive and developmental learning, depending on the character of the CWP and the change context. In rapid change contexts, there are constraints in transforming individual to organisational learning, where further research is proposed. Moreover, there is a potential to utilise knowledge from other types of change contexts, such as crisis and startups, as a source that can enhance understanding and support the development of future handling of CWPs.

The study has visualised the potential of cross-learning between different change contexts. For example, developmental areas that actors in startup contexts can learn from organisations handling crises are related to agility and flexibility, where organisations studied during the COVID-19 pandemic underscored the importance of pivoting quickly in response to rapidly changing circumstances. Moreover, these areas include their considerations of enablers of digital technologies and their uncertainty preparedness. Conversely, developmental areas that pandemic context organisations during crises, as illustrated in the pandemic context, can learn from startup contexts are the entrepreneurial mindset, with quick experimenting and iterating experiences among stakeholders, and the strength of a joint purpose-driven vision among stakeholders.
Chapter 8

8 Conclusions

This thesis aimed to explore the handling of CWPs in rapidly changing contexts and how this handling is enabled or constrained by active ownership, stakeholder collaboration, and developmental learning. The results contribute an enhanced understanding of how organisations can develop their ability to handle the work practices critical to organisational development, specifically during an accelerating pace of change and increasing uncertainties.

The research approach was to explore organisations in two contexts of rapid change: a high-growth industrial startup striving to contribute to the green transformation, and organisations’ response during the initial stages of the COVID-19 pandemic.

In response to the first research question, the analysis in this thesis shows that the strategies employed to handle CWPs within the examined contexts displayed considerable commonalities. Irrespective of whether the changes were vision- or crisis-driven, the studied organisations demonstrated agility by mobilising resources and fostering collaboration in novel ways, guided by overarching objectives that transcended local concerns. A notable feature of the CWPs in the studied contexts was their innovative nature and the presence of time constraints, which necessitated new approaches and facilitated adaptive and developmental learning opportunities.

Addressing the second research question, constraints were associated with the interconnections between the influencing factors, i.e., active ownership, stakeholder collaboration and developmental learning. The analysis identified significant constraints on the handling of CWPs associated with the constantly changing circumstances over time and the impact on work and workplaces. For example, rigid structures, lack of transparency, limited access to information, competence or support, resource needs, or misaligned leadership practices may impede the required acceleration of development or swift adaptation required during crises. Thus, making decisions based on facts has limitations, requiring opportunities for communication, reflection, and developmental activities across traditional borders. Structures were
continually either further developed or loosened, releasing possibilities for renewal; however, they even uncovered new uncertainties, with the potential for undesired consequences from different stakeholders’ perspectives.

Identified enablers were joint drivers mobilising towards overarching visions beyond local goals and soft values that became part of strategic agendas. For example, the rapid change contexts demonstrated a re-evaluation of work environment practices and integration in developmental activities. Another example was that new communication strategies supported constant transparency and opportunities for cross-functional and intra- and inter-organisational dialogues. Constraints were associated with the interconnections between the influencing factors, i.e., active ownership, stakeholder collaborations, and developmental learning. For example, rigid structures, lack of transparency, limited access to information, competence or support, resource needs, or misaligned leadership practices may impede the acceleration of the development or swift adaptation required during crises. The rapid change contexts demonstrated a re-evaluation of work environment practices and collaboration across traditional borders in developmental activities.

Furthermore, it can be concluded that the role of intermediaries and managerial leadership in building ‘collective active ownership’, trustful relationships and value-adding collaboration among internal and external stakeholders is essential. Both studies demonstrate enablers of the strong relationships between managers and trade unions at different levels, and joint attention to socially sustainable work that includes win wins for individuals and businesses interests.

In response to the third research question, the analysis acknowledges the need for an interdisciplinary and structured organisational approach to gain a holistic understanding. The studied organisational conditions were found to be relevant in the analysis and could also be useful to apply and interpret in relation to other types of CWPs and change contexts. Active ownership, emphasising ‘collectiveness’, must be increasingly considered, involving multiple stakeholders (functions and levels: intra and inter-organisational). The factor called stakeholder collaboration emphasises ‘value-adding’ benefits for all parties through seamless joint solution-oriented development work and problem-solving activities.
Additionally, the rapid change contexts provide learning situations for different types of learning, i.e., adaptive and developmental learning that has high potential for organisational learning. From a systems view, the three influencing factors are intertwined with mutual interconnections, which must thus be handled simultaneously and over time.

Three conclusions can be drawn from the thesis: First, disruptive changes trigger entrepreneurship and innovations in organisations through enhanced space of action and seamless cross-collaborations. However, they also bring new consequences for internal and external stakeholders that are not readily observable, requiring increased attention to soft values in strategic agendas. Second, the interaction between intermediaries, managers, and employees fosters a holistic understanding and proactivity. However, this interaction requires an organised and structured approach. The role of intermediaries and managers’ leadership, backed by top management, is increasingly essential to support in the process of creating organisational conditions from different stakeholder’s needs and demands.

Third, rapid change contexts stress-test organisations: strengths, constraints, and new opportunities become visualised. Thus, studies of CWPs are a valuable source for achieving an enhanced understanding of organisational conditions in frequently occurring rapid change contexts.

8.1 Theoretical contribution

The thesis contributes a theory- and empirically-based conceptual model that highlights essential factors of organisational conditions and their interconnections in facilitating the implementation of CWPs. Central to the model are the intertwined factors, i.e., ‘collective active ownership’, ‘value-adding stakeholder collaboration’, and ‘adaptive and developmental learning’ that are indicators of desirable organisational conditions while handling the decided CWPs. An additional contribution is the concept of critical work practices itself, and the identification of prerequisites for handling different forms of CWPs in rapid change contexts.

However, the proposed model is simplified and has certain limitations. Therefore, a proposed development is to theoretically complement the model with a focus on technological and additional human factors. Moreover, it would be valuable to develop dialogue tools
that can be integrated into operational improvement and development work, thus supporting leadership and fostering collective active ownership in rapid change contexts. The model offers a structured opportunity to identify enablers and constraints, thus suggesting support for the development of proactive approaches and implementation of CWPs that are required due to new developmental needs or emergent acute situations.

8.2 Further research

Several questions remain to be answered. A further study of the participating organisations in the papers could assess outcomes from short-, medium- and long-term perspectives. An in-depth focus on the relationships between intermediaries, managers, and employees could produce interesting findings that account more for rapid change contexts.

A proposed progression of this thesis is to analyse different types of change contexts in organisations representing different sectors and workplaces. Moreover, further research is required to address additional challenges not covered in this thesis, such as the upfront costs of value-driven strategies and their implementation, where benefits are first achieved in the long term.

Finally, further research is needed to explore change contexts associated with the transitions and the requirements of implementing CWPs as part of responding to needs occurring because of the focus on sustainability and resilience goals. For example, there is a necessity for new knowledge regarding circularity-associated change initiatives where the elaborated conceptual model has the potential to enhance the understanding of organisational conditions required for handling CWPs. Such handling requires new strategic collaborations among stakeholders in the entire value chain. Another suggestion is for further research that offers further validation and development of the conceptual model. For example, the model can be applied in case studies focusing on selected CWPs as a lens for analysis in longitudinal studies and, hence, used as analytical support in interactive research activities.
8.3 Practical implications

This thesis has practical implications for organisations that need to implement CWPs in responding to development needs or emergent situations when circumstances dictate high speed, are uncertain, and are challenging to plan for. The thesis shows that different types of CWPs in rapid change contexts are a source that can be utilised for continuous improvements and which support organisations’ ability to handle increasing uncertainties.

The conceptual model provides analytical support for organisations to develop new proactive learning-oriented approaches. For example, it can be used as analytical support for change initiatives – e.g., CWPs that are required for transitions towards a circular economy, electrification, digitalisation, and to build resilience.

Using the model to assess CWPs on an aggregated level is also possible, thus contributing to the understanding that can support proactive strategic approaches that foster achieving outcomes with higher value over time than short-term goals.
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Papers

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