Navigating the Digital Frontier in Accounting

Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context

Elmegaard, Joachim

Document Version
Final published version

DOI:
10.22439/phd.29.2024

Publication date:
2024

License
Unspecified

Citation for published version (APA):
Elmegaard, J. (2024). *Navigating the Digital Frontier in Accounting: Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context*. Copenhagen Business School [Phd]. PhD Series No. 29.2024 https://doi.org/10.22439/phd.29.2024

COPENHAGEN BUSINESS SCHOOL

Solbjerg Plads 3
DK-2000 Frederiksberg
Danmark

www.cbs.dk

ISSN 0906-6934

Print ISBN: 978-87-7568-289-8
Online ISBN: 978-87-7568-290-4

NAVIGATING THE DIGITAL FRONTIER IN ACCOUNTING

PhD Series 29-2024

CBS

CBS PhD School
Department of Accounting

PhD Series 29.2024

JOACHIM ELMEGAARD

NAVIGATING THE DIGITAL FRONTIER IN ACCOUNTING

Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context

CBS

Navigating the Digital Frontier in Accounting

Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context

Joachim Elmegaard

Department of Accounting

Supervisor(s):

Primary Supervisor
Professor Carsten Rohde
Department of Acccounting, Copenhagen Business School

Secondary Supervisor
Associate Professor Pall Rikhardsson
Department of Acccounting, Copenhagen Business School

CBS PhD School
Copenhagen Business School

Joachim Elmegaard
Navigating the Digital Frontier in Accounting
Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context

First edition 2024
Ph.D. Serie 29.2024

ISSN 0906-6934

Print ISBN: 978-87-7568-289-8
Online ISBN: 978-87-7568-290-4

DOI: https://doi.org/10.22439/phd.29.2024

ACKNOWLEDGEMENT

Completing a PhD dissertation is a journey marked by challenges and triumphs, and I am deeply grateful to the individuals and institutions that have supported me throughout this endeavor.

I want to thank my supervisor, Professor Carsten Rohde, for enriching my theoretical knowledge of accounting and digitalization and for giving me personal guidance on how to succeed in academia as a young scholar. A big thank you to my secondary supervisor, Associate Professor Pall Rikhardsson, for providing guidance, particularly in the writing process, which has been indispensable in the finishing process; I deeply appreciate your "hands-on approach" and your constant good mood. I wish to extend my gratitude to Professor Thomas Plenborg of CBS who helped provide access to one of the companies in this dissertation. Furthermore, my colleagues, Associate Professor Jeanette Willert, for helping me with teaching and coursework, and PhD student Jasmin Dayeh for always being a good colleague and friend. I also thank two anonymous companies for providing empirical evidence.

I would like to thank Dr. Michael Werner from the University of Amsterdam and Professor Henri Dekker from the Vrije University of Amsterdam who were discussants during my pre-defense. Thank you for your advice on improving the previous sections. Your comments were helpful and provided me with perspective on my research. I would like to thank Professor Dr. Francisco Ramirez from Stanford for providing valuable guidance regarding the use of theory and feedback from the attendees of the Scancor seminar series. I thank the participants in the ICIS workshop on Accounting Information Systems for providing additional feedback and the participants in the British Accounting Reviews conference for their valuable advice. Thank you to FSR, Otto Mønsted, Jorcks, Knud Højgård, and Viet-Jacobsen funds and CBS for co-funding my research stay at Stanford, which contributed to my theoretical understanding of my research.

I am grateful to all my personal friends who have shown interest in my project and are still supportive, even though I have been difficult to reach because of my busy schedule. Special thanks go to my good friend and old classmate Thomas Steen Kristensen for inspiring me to pursue academic challenges in the early stages of my career. Finally, I wish to give a big thank-you to my lovely family, my wife Sara Leganger, and our daughter Loona Leganger, along with my beloved parents Jørgen and Anita Elmegaard, who have all patiently followed my journey and supported me wholeheartedly in the PhD process during the last four years. Thank you.

Joachim Elmegaard

"Not pursuing your dream is a violation against those who cannot even dare to dream."

Jonas Thomsen Sekyere

ABSTRACT

Digitalization is considered one of the most significant and lasting changes in society and is therefore a highly relevant field for research. This dissertation addresses the interdisciplinary field of digitalization and management accounting from an institutional theoretical perspective. It unfolds a holistic institutional approach describing digitalization as the combined effect of utilizing (various) digital technologies in "bringing about novel actors (and actor constellations), structures, practices, values, and beliefs that change, threaten, replace, or complement existing rules of the game in organizations, ecosystems, and industries." This dissertation presents three studies, each introducing knowledge in studying digitalization in accounting. Study 1 presents a literature review of artificial intelligence (AI) in accounting, focusing on empirical research. This study updates the current knowledge about research in AI and accounting since Sutton's *et al.* review in 2016. Specifically, this study reviews published research and presents primary empirical data. Furthermore, it uses a broader definition of AI technologies than in previous literature, making this review more applicable to accounting research. Therefore, it contributes to a broader overview of the current state of research on AI and accounting and, based on the results of the review, conceptualizes how AI influences accounting. This study critically reviews the literature and determines the themes addressed, type of research conducted, results generated, and type of technology applied. This study contributes to the literature in three ways. First, the results show the role of AI in accounting and segregate empirical- and non-empirical-based articles. Second, it bridges the focus between early AI and new technologies in accounting research. This provides a more nuanced picture of the current state of the literature published in accounting journals. Finally, it presents an agenda for future research by addressing current themes and describing potential research gaps. Study 2 is a single case study that investigates how management actively works to proliferate digitalization in the accounting function of the case company. This study explores how management accounting routines are influenced by digitalization in an accounting function, assessing the types of digitalization technologies used and the performance outcomes of digitalization. Study 3 is a comparative case study aimed at extending the literature on institutional change in the role of management accountants by exploring the contradictory institutional logics among management accounting professionals in the two investigated case companies. This study explores how digitalization constitutes institutional logic and changes the role of management accountants. It emphasizes the influence of digitalization logic and extends the current knowledge of management accountants' role changes toward a functional consultant role involving more technical elements.

Dansk Resumé

Digitalisering er anset for at være et af samfundets mest signifikante og vedvarende problemstillinger og er derfor et meget relevant forskningsområde. Denne afhandling adresserer forskning i spændingsfeltet imellem digitalisering og økonomistyring, belyst ud fra en institutionel teorivinkel. Denne afhandling udfolder en holistisk tilgang til at beskrive digitalisering som værende de kombinerede effekter af udnyttelsen af forskellige teknologier som "skaber nye sammenspil mellem individer, strukturer, praktiser, værdier og overbevisninger som ændrer, truer og komplementerer eksisterende måder at gøre tingene på i organisationer, økosystemer og industrier. Denne afhandling præsenterer 3 artikler som hver især belyser viden om digitalisering i regnskab. Den første artikel præsenterer et litteraturstudie om kunstig intelligens i regnskab med særlig fokus på empirisk forskning. Artiklen opdaterer nuværende viden om AI i regnskab og gennemgår specifikt den nye viden, der er publiceret på området siden seneste litteraturstudie af Sutton *et al.,* 2016. Artiklen har et særligt fokus på artikler som anvender primære datakilder. Endvidere anvender artiklen en bredere definition af AI end tidligere litteratur-reviews. Derfor bidrager artiklen med en bredere gennemgang af litteraturen end tidligere reviews på området. Baseret på disse resultater forsøger artiklen at forklare forholdet mellem AI og regnskab. Til dette indtager artiklen en kritisk vinkel på de indeholdte artikler og rangerer dem efter temaer, metode, teori, forskningsresultater samt typen af teknologi anvendt for hvert enkelt artikel. Artiklen bidrager til litteraturen på tre måder: Først og fremmest viser resultaterne, hvilken rolle AI spiller i forskningen indenfor regnskab ved at se på opdelingen af empiriske samt ikke-empiriske artikler. Dernæst kobler artiklen tidligere viden om AI-teknologi med nyere forskning på området. Slutteligt præsenterer artiklen en agenda for fremtidig forskning og beskriver områder for potentiel ny forskning. Den anden artikel er et enkeltstående casestudie som undersøger, hvordan ledelsen aktivt har arbejdet på at brede digitalisering ud i organisationen, særligt i virksomhedens Finansfunktion. Samtidig udforsker artiklen, hvordan digitalisering påvirker regnskab i virksomheden ved at vurdere, hvilke typer af digitaliseringsteknologier der er anvendt i casen samt, hvordan performance-outputtet er blevet påvirket ved brug af digitalisering. Artiklen trækker på det institutionelle perspektiv, nærmere bestemt den institutionelle arbejdsteori. Den tredje artikel er et komparativt casestudie, der søger at udvikle teorien omkring institutionelle ændringer i Management Accountants rolle, ved at udforske de modsatrettede institutionelle logikker iblandt Management Accounting professionelle i de to case-virksomheder. Artiklen udforsker, hvordan digitalisering stædfaster sig som en digitaliseringslogik og skaber ændringer i Management Accountants rolle. Artiklen undersøger digitaliseringslogikkens betydning og forlænger den nuværende viden på området. Artiklen bidrager til diskussionen og udlægningen af Management Accountants rolle som Bean-counter og Businesspartner samt hvilke grænseflader og ansvarsområder Management Accoutnant har i en digital tidsalder.

TABLE OF CONTENTS

1.0 Introduction

Digitalization is one of the most significant and lasting changes in society. In the ever-evolving business and accounting landscape, the integration of digital technologies has emerged as a paradigm-shifting force reshaping industries, economies, and societies worldwide. Among the domains profoundly affected by this digital revolution, accounting stands at the forefront, undergoing a transformative journey that transcends traditional methodologies and boundaries. This journey forms the focus of this doctoral dissertation, as we examine the intricate interplay between digitalization and accounting practices.

The 21st century has witnessed the proliferation of digital tools, data analytics, automation, and artificial intelligence (AI), altering the fundamental fabric of how businesses manage their financial affairs. Technological advancements have created new opportunities for automated bookkeeping, instant reporting, and AI-based analysis. These inventions have made the accounting function more far-reaching in terms of what services it can offer, how long it takes to do these things, and how much it costs. From cloud-based accounting software to AI-powered analysis, these technological innovations have not only streamlined accounting processes but have also opened new avenues for enhanced financial decision-making, transparency, and accountability. However, the integration of these technologies has brought forth myriad challenges and complexities, ranging from data security and privacy concerns to the need for a reimagined skill set within the accounting profession.

Currently, this is a promising time to study digital development in accounting, as more companies are initiating digital initiatives. This area is highly relevant for further research to understand how digitalization impacts accounting. There are several reasons for studying digitalization in accounting. Most importantly, digitalization in accounting should be studied because of its widespread impact on society. Digitalization permeates all business and societal domains, and for accounting scholars, it is important to know how it influences the profession of accountants. Digitalization is a novel and influential phenomenon in societal contexts, similar to other groundbreaking technological innovations such as the wheel or the Internet. As accounting researchers, we need to know how this will influence the field of accounting, and much research is required to investigate this transformational phenomenon, whether from a system perspective (e.g., how digitalization impacts accounting tasks), human perspective (e.g., how digitalization impacts the role of accountants), or societal perspective (e.g., how digitalization transforms the accounting industry).

In this dissertation, we focus on a comprehensive exploration of the multifaceted relationship between digitalization and accounting. We dissect the impact of digital technologies on traditional accounting practices by elucidating the opportunities they present and the challenges they pose. Therefore, we intend to contribute valuable insights into the academic discourse and practical realm of accounting and guide researchers, professionals, and educators to navigate this digital frontier. Our research encompasses a broad spectrum of topics, including the

adoption and integration of digital accounting systems in various organizational settings, the role of AI in accounting, and the evolving role of accountants in a digitally driven world. Moreover, we examine the impacts and outcomes of using digital technology and explore the implications of data-driven decision-making and its consequences for management accounting.

This dissertation aims to develop an empirical and theoretical understanding of the relationship between digitalization and accounting by investigating how the advent of digitalization has transformed accounting practices and the roles of accountants. Three agendas were investigated: (i) the role of AI in accounting, (ii) digitalization's influence on management accounting routines and performance, and (iii) digitalization's influence on the role of management accountants. Institutional theory is used as the primary theoretical approach in the studies to design research questions, guide the selection of relevant data, interpret the collected data, and propose explanations for the causes and influences observed in the studied phenomenon. In pursuit of this intellectual journey, we aim to provide a comprehensive and timely understanding of subject studies.

2.0 Digitalization in accounting

Digitalization is a capacious concept, as it involves multiple technologies and influences multiple parts of the accounting domain, whether from an academic or a practitioner's perspective. To make the concept more tangible, we divided accounting literature into three waves to describe the phenomenon. The first wave is referred to as digitization, while the second and third waves are both referred to as digitalization.

The first wave, referred to as digitization, focuses on the evolution of computerized information systems, offering accountants detailed records of postings in the accounting system, an overview of accounts, and the extraction of trial balances (Kanellou & Spathis, 2013; Spraakman *et al.,* 2018). This wave focused on converting a physical or analog format into a digital format. The second wave, referred to as digitalization, refers to Internet-related technologies that allow accountants to share information more efficiently within and between organizations and systems. This wave is concerned with how tools, such as integration, RPA, and Workflow, can be used to improve and automate business processes (Cooper *et al.,* 2019; Fernandez & Aman, 2018; Kohornen, 2020). The third wave, referred to as digitalization, focuses on how emerging digital tools such as blockchain, IoT, AI, and predictive analytics can form strategy- and data-driven decision-making (Bert *et al.,* 2024; Rautiainen *et al.,* 2024; Yigitbasioglu *et al.,* 2022). In this regard, AI has been used to enhance other tools in a digital toolbox. The most recent innovation is generative AI, which enables unstructured data to be presented as structured, meaning that unstructured data are no longer dead ends for automation. Generative AI allows content creation and can potentially be used in accounting to generate financial reports, forecasting, and data analysis.

Outline of the study

This dissertation consists of three studies that extend to each other and address different perspectives on digitalization in accounting. The first is a literature review that establishes the foundation of knowledge within the research area, focusing on AI in accounting. The second study takes a system perspective on digitalization and investigates how digitalization has influenced management accounting routines and performance in the case company. The third study focuses on the human aspect of digital change, particularly how the role of management accountants changed during the increased adoption of digital logic within the accounting function of the two case companies.

Title	Method	Theory	Focus in thesis	Status	Presentations
Study 1: The role of AI in accounting: New perspectives on empirical research	Literature review	N/A	Foundational knowledge of accounting and digitalization	Not published	Scancor Monday seminar, WIP 2 CBS
Study 2: An institutional work perspective on digitalization in the accounting function	Single case study: Interviews	Institutional work	Investigating how management accounting routines and performance have been influenced by digitalization	Second round in British accounting review	British Accounting review - Special Issue conference: "At the Interface of Digital Technologies and Management Accounting"
Study 3: The role and identity of management accountants in digitalization	Comparative case study, interviews	Institutional logics	Investigating the changing role of management accountants caused by digitalization	First round in Journal of Management Control	SIGASYS ICIS: Workshop on Accounting Information Systems

Table 1. Overview of doctoral thesis

Digitalization and accounting can be studied in many contexts. This dissertation consists of those presented in Table 1, as they are critical to understanding how accounting is performed, what happens to people performing accounting tasks, and what this development means for companies. The current literature stream is only a tip of the iceberg and relevant studies on digitalization and accounting will be conducted in the future.

2.1 Study 1: The role of Artificial Intelligence in Accounting

This study aimed to update the current knowledge on AI research and accounting until 2021. Specifically, it aimed to review the research that had been conducted since the latest reviews

were published, which focused on presenting evidence based on primary data. Furthermore, it uses a broader definition of AI technologies than previous reviews (Gray, 2014; Sutton, 2016).

This study critically reviews the literature and determines the themes addressed, types of research conducted, results generated, and types of technology focused on. This classification of the current literature on AI in accounting contributes to the literature in three ways. First, the results reveal the role of AI in accounting research by separating empirical and non-empirical articles. This study empirically contributes to our understanding of AI in accounting. Second, it bridges the focus between early AI and new technologies in accounting research. This provides a more nuanced picture of the current state of literature published in different journals. Third, it presents an agenda for future research by addressing current themes and describing potential research gaps. The explored research gap paves the way for the two upcoming studies in this dissertation, as they aimed to fill this gap by providing empirical research that explored digitalization in accounting. Few empirical studies have investigated AI in accounting and that 114 studies have covered this relation to accounting between 2010 and 2021.

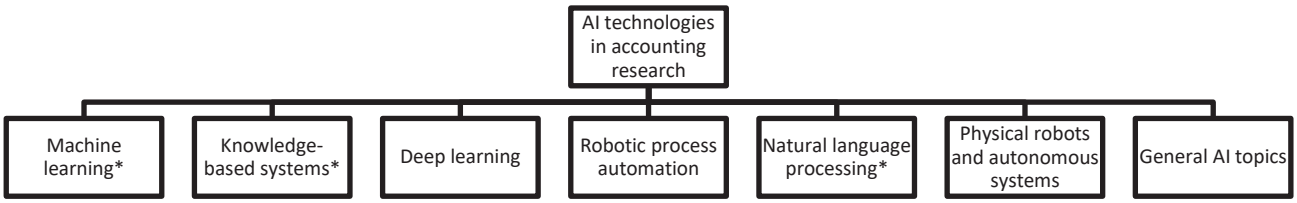


Figure 1. AI technologies in accounting research

Only nine articles used primary empirical observations in their studies. In terms of research in accounting and digitalization, thousands of studies are likely fit into the label. Using AI-based digital technologies is in its infancy; nevertheless, Leitner-Hanetseder *et al.* (2021) find that this development stepwise will proceed toward "A Fully Autonomous Accounting System." Software robots (RPA) have already taken over routine tasks (Cooper *et al.,* 2019) and are gradually providing increasing support for nonroutine tasks (Frey & Osbourne, 2017; Leitner-Hanetseder *et al.,* 2021).

2.2 Study 2: An Institutional Work Perspective on Digitalization in the Accounting Function

This study directly examines the core of digitalization and accounting by investigating how management has worked to integrate digitalization into the accounting function of the case company. Concurrently, this study explores how digitalization influences management accounting routines and impacts the performance of the case company.

This study presents a discussion framework for the institutional process leading to digitalization in the accounting function and examines the relationship between digitalization, institutional work, and accounting. A novel insight originating from this study is the importance of top management actively addressing digitalization to facilitate digitalization in the accounting function. In this case, digitalization is strongly associated with how top management has engaged

in institutional work practices. In addition, the importance of building the data foundation in the organization is emphasized.

In the case company's accounting system, digitalization mechanisms automate repetitive and time-consuming tasks, such as data entry and reconciliation. Additionally, it reduces manual errors and enables faster processing of financial transactions and reporting. Digital accounting systems have built-in checks and validations that reduce the risk of errors in calculations and data entry. Automation minimizes the potential for human mistakes and ensures accurate financial records.

2.3 Study 3: Management Accountants' Role and Identity Under Digitalization

In this study, we explore how management accountants' role and identity have been influenced by the digital logic that exists among them. We conducted a comparative case study of two large organizations with similar traits.

Subsequently, the study contributes to institutional and accounting theory development by showing how management accountants collectively change boundaries and establish a new technically focused role as "functional consultants" by reinterpreting digitalization as an institutional logic. Management accountants' collective professional role identity changes when they reinterpret multiple logics and their relationships. Through inductive analysis, we identified several mechanisms that occurred through interviews and rearranged the constellation of logics that guide management accountants: (1) revealing the influence of digitalization logic on the role of management accountants and (2) reframing the role, boundaries, and responsibilities of the management accountant, in a digital context.

The general consensus in the literature is that accounting systems, tasks, and procedures have become more automated and streamlined, allowing accountants to focus more on value-added activities, such as providing data analysis for management to support strategy and operations. The literature argues that because of this development, accountants have moved from bean counters to business partners (Tillema *et al.,* 2022). From the perspective of business partners, management accounting is more than just delivering aggregated financial information to management. Rather, the business partner is characterized as a management-oriented and value-added internal consultant (Burns & Vaivio, 2001; Goretzki *et al.*, 2013; Järvenpää, 2007). In this capacity, the business partner fulfills a valuable coordinating role between top management and operational actors in the organization (Karlsson *et al.*, 2019).

Digitalization has added an additional layer to accountants' two roles (Andreassen, 2020). The functional consultant's role bridges information technology (IT) and accounting using quantitative methods and tools to perform data analysis and maintain and develop the accounting system landscape. These employees often have accounting backgrounds but, owing to their extensive expertise, become experts in the more technical part of the accounting domain. These employees are often referred to as systems, application, and products (SAP) consultants, enterprise architects,

or process automation consultants. This role has mainly been formed due to increased digitalization in companies and is an example of how digitalization has influenced the roles of accountants.

3.0 Methodological positioning

To thoroughly introduce the scientific methodology and approach used in this dissertation, the following section is structured according to the research framework adopted by Saunders *et al.* (2018), as this framework explains the research approach in a simple, straightforward language and is comprehensive to cover all aspects of conducting qualitative research. We start by examining the framework from the outer layer and to the center. Each section summarizes the most important choices made in each layer.

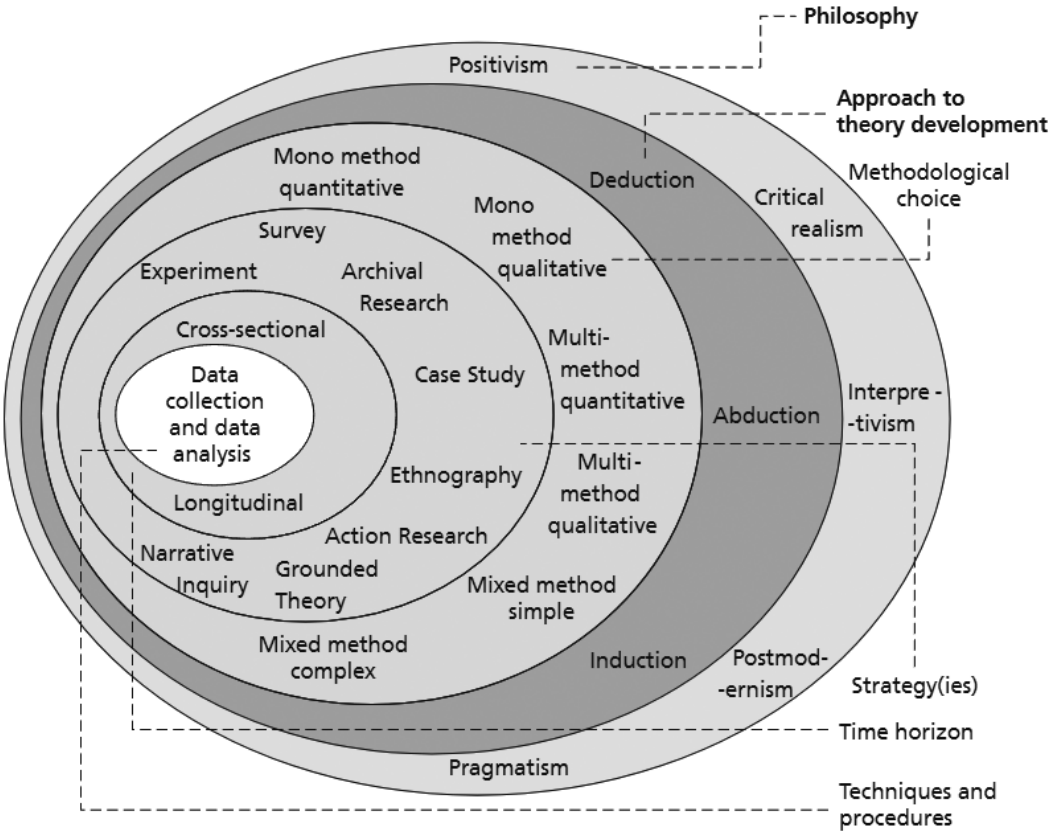


Figure 2. Adapted from Saunders *et al.* (2018, p. 130)

3.1 Research philosophy

The first layer describes the research philosophy of the study. While working on this research project, we identified three major paradigms that were primarily applied to studies on digitalization in accounting. We identified the use of positivism, constructivism, and functionalism in these studies.

In the following section, we present an overview of the most critical concepts in institutional theory for a deeper understanding of the chosen theoretical perspective and how and why it is a

good fit for studying digitalization in accounting. Institutional theory is an approach for understanding organizations and management practices as products of social rather than economic pressure. It has been used to explain why managerial innovations are adopted by organizations or diffused across organizations, despite their inability to improve organizational efficiency and effectiveness (Suddaby, 2013). Institutional theory emerged as a distinct break from functionalist approaches such as contingency theory and the concomitant use of organizational design as a product of rational choice (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Institutional theory is firmly rooted in social constructivism (Berger & Luckmann, 1967) and the conception of institutions as objectified entities that imbue organizations and institutional fields with stability.

Scholars in management refer to three waves of institutional theory and differentiate between "old," "new," and "current" institutionalism. Old institutional theory refers to qualitative case studies of organizations by organizational theorists in the late 1940s, 1950s, and 1960s. Selznick's study of the Tennessee Valley Authority is regarded as the beginning of old institutionalism. New institutionalism is marked by Meyer and Rowan's (1977) study "Institutional Organizations: Formal Structures as Myth and Ceremony" and DiMaggio and Powell's (1983) study "The Iron Cage revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields.

In the new institutionalism, there has been a shift toward the view of institutions as collective cognitions or shared assumptions that, over time, acquire a degree of social concreteness (Suddaby, 2013), meaning that institutions become taken-for-granted, resulting in a constraining degree of organizational behavior. In addition, the analysis level changes from the old institutionalism to a focus on the internal perspective, and the new institutionalism focuses on the interchange between organizations, which is referred to as the organizational field level. By the early 1990s, organizational theorists began to raise concerns about the core premise of the new institutional theory. DiMaggio and Powell asked why organizations are similar. To answer this question, they suggested that organizations adopt similar practices and structures to conform to their institutional environments. Eventually, critics noted that not all companies within an institutional field are similar and that some companies tend to resist institutional pressure. Critics have highlighted that highly institutionalized organizational forms sometimes change. DiMaggio, one of the founders of the new institutional theory, presented the possibility that institutions might change because some actors, called institutional entrepreneurs, were able to resist the influence of collective social beliefs. The idea is that some actors have the agency to change things despite institutional pressure. This perspective created a whole new wave of institutional research with a particular focus on institutional change, often referred to as the "third wave" or "change and complexity." This wave includes several current research perspectives, most notably institutional translation, logic, and work. Scandinavian researchers have challenged the notion that institutional ideas move in an intact form across organizations (Suddaby, 2013). They argued that ideas are often abstracted or manipulated to move from one place to another and then adapted to the local context by the individual organization, the so-

called translation concept. An extension of these ideas has conceptualized the concept of institutional work and processes by which actors engage in creating, changing, and maintaining institutions; it has also given rise to institutional logics, which refers to the underlying systems of values, beliefs, and assumptions that guide behavior in a particular institutional field.

This study uses institutional work and logic. Understanding the relationship between institutional work and logic can be useful. Institutional work involves shaping and challenging dominant institutional logic in a particular field. Actors engaged in institutional work may seek to introduce new logic or alter existing logic to better align with their goals, values, or interests. In our case, we observe that top management (institutional entrepreneurs) work toward (institutional work) promoting digitalization initiatives (institutional logics). Disruptive institutional work often involves challenging or contesting the dominant institutional logic. Actors engaging in disruptive work aim to question or subvert the existing logic, norms, and practices that they perceive as outdated, inefficient, or unjust. This type of institutional work can lead to significant institutional changes and new logic. The relationship between institutional work and logic depends on how the organization is situated. In addition, institutional work can align with existing institutional logic to gain legitimacy and support. Organizations may engage in mimetic behavior by adopting the prevailing logic and practices of their industries or sectors to signal conformity and legitimacy. By aligning with the dominant logic, organizations can enhance their reputations and chances of survival and success. However, institutional work occurs in contexts in which multiple logics coexist. In such cases, actors may engage in boundary work to navigate and bridge different logic, aiming to reconcile or integrate multiple institutional logics within their practices or organizational structures. This is the case in the third study, which examines the different coexisting logic that shape the roles of management accountants.

Ultimately, the choice between paradigms depends on the research question, nature of the phenomenon being studied, and researcher's epistemological and methodological preferences. All paradigms have strengths and limitations, and researchers select the one that aligns with their research objectives and philosophical stances. Research philosophy does not have to be strictly followed, and the approach can incorporate concepts from several perspectives, as long as they are not contradictory.

Ontology is the starting point when discussing the research philosophy. Ontology refers to the nature of being and types of things that have existence" (Merriam-Webster, 2020). Ontology can be understood as a core belief in the nature and reality of a studied phenomenon. Epistemology is dependent on ontology and encapsulates the knowledge or understanding that can be generated about a specific ontological reality (Saunders *et al.,* 2018). Finally, the methodology mediates these two processes and focuses on the steps that must be undertaken to generate a new understanding of the world.

3.2 Approach to theory development and methodological choice

The two distinctive ways of using theory are theory testing (deduction) and building (induction), which are often acknowledged as two constraining approaches to reasoning. In the second study, we used the theory of institutional work and examined specifically the ways in which top management initiated institutional change toward digitalization in the organization. This approach was guided by Lawrence and Suddaby's framework and is a concrete example of how the theory was applied to the data collection process in the case company. We examined places where advocacy, mythologizing, constructing normative associations, and constructing identities were applied in the case company. In these instances, we zoomed in and thoroughly investigated the circumstances leading to these events. This method of reasoning is referred to as theory testing (deduction), meaning that we obtained information from the theory of institutional work and used it for the observations we gathered in the case.

In the third study, inductive approach was used. We gathered observations on how the role of management accountants has changed and used these observations to formulate a general theory or framework. An inductive method is applied when the research process begins by collecting data to explore a phenomenon and afterwards building a theory or framework.

3.3 Methodological choice and Strategies

Literature review

The research strategy applied in the first study involved gathering evidence through a literature review. A literature review is an academic writing that demonstrates knowledge and an understanding of academic literature on a specific topic (Newton & Rudestam, 1992). The literature review also includes a critical evaluation of the materials. Strauss and Corbin (1998) argued that familiarity with the relevant literature could enhance sensitivity to nuances in data, generate concepts for making comparisons with new data, stimulate analytical and critical questions, and suggest areas for conceptual development. In this sense, the literature review on digitalization and accounting played an essential role in this study, as the intent of the following articles was to develop a theory through case studies. Therefore, the literature review adds possible sources of inspiration, ideas, "aha" experiences, creative connections, critical reflections, and multiple lenses to employ during the research process (Charmaz *et al.,* 2018). In other words, the purpose of the literature review was to create the foundation for the knowledge needed to frame the relevant research in Studies 2 and 3.

Case study

Case studies were used in Studies 2 and 3 to investigate a phenomenon in depth in a real-world context. Yin (2012) define *case study* as an empirical inquiry that: (i) investigates a contemporary phenomenon (the "case") in depth and within its real-world context, particularly when (ii) the boundaries between phenomenon and context are not clearly evident. This means that a case study should be conducted because the researcher wants to understand a real-world case and assume that such an understanding will likely involve necessary contextual conditions (Yin, 2012). However, phenomena and contexts are sometimes sharply distinguishable in real-

world situations. Therefore, other methodological characteristics become important when applying a case study: a case study copes with a technically distinctive situation in which there are more variables of interest than data points and, as a result, benefits from the prior development of theoretical propositions to guide design, data collection, and analysis. Furthermore, it relies on multiple sources of evidence, with data requiring to converge in triangulation (Yin, 2012).

According to Stake (2000), case selection is "perhaps the most unique aspect of case studies in social sciences and human services." When conducting a case study, it is important to consider the epistemological orientation of the researcher and the case. In this study, the approach was clearly infused with interpretivism/constructivist paradigms because of the choice of institutional theory. Studies 2 and 3 are characterized as descriptive case studies whose objective is to develop a complete, detailed portrayal of the phenomenon for the benefit of practitioners and scholars (Weeden, 2010). Descriptive case studies often draw on document review methods, participant observations, and in-depth interviews to understand people's experiences, perspectives, and worldviews in particular circumstances or cases. According to Flyvbjerg (2006), case selection can be performed in (1) extreme or deviant to obtain information on unusual cases that can be particularly problematic or good in a more closely defined sense, (2) maximum variation to obtain information on the significance of various circumstances in the case process and outcome, (3) critical cases: if this is (not) valid for this case, and then it applies to all (no) cases or (4) paradigmatic cases to develop a metaphor or establish a school for the domain concerned with the case.

The case selection in Study 2 is characterized by an extreme case, as it investigates a case that undoubtedly has a maturity level in their digital technologies in their finance function because we wanted to investigate a state-of-the-art case to describe an emergent phenomenon. Case selection in Study 3 was conducted by seeking access to critical cases. We conducted interviews with two companies and aimed to show how digital logic influenced the functional consultant role; therefore, we investigated a similar company that was not at the same level in digital maturity to compare how the roles of management accountants were interpreted in a similar yet different case setting.

3.4 Time horizon

Time horizon refers to the period in which the researcher wants to study. Here, time orientation must align with the interview questions and additional data gathered. The researcher should assess whether the subject is underway. Therefore, it is important to carefully consider whether something is happening in the past or future when collecting data. In both case studies (Studies 2 and 3), we carefully considered whether the interviewees were capable of answering the questions. We sought to acquire data relevant to how we framed our research questions and assessed which interviewees were relevant at the time. The time horizon in Study 1 must be considered in light of the fact that the literature review included studies from 2010 to 2021.

3.5 Techniques and procedures

In Study 1, we conducted a meta-analysis by referring to other primary studies. We obtained 114 studies and analyzed how they were classified according to the method, theory, and AI technology used. Additionally, we assessed whether the 114 studies used primary or secondary data. The selection of journals for the review was based on the Academic Journal Guide (AJG) and the Australian Business Deans Council (ABDC) journal ranking lists. All journals ranked 4*, 4, 3, 2, and 1 in the AJG journal list and journals with A, B, C, and D rankings in the ABDC journal list. To identify relevant literature on the topic, we followed Webster and Watson's (2002) recommendations. This includes the following steps: (i) a keyword search using the Business Source Complete database, Scopus, and Web of Science; (ii) review of journal articles; (iii) review the references to publications identified in Steps 1, 2, and 3; and (iv) identification of publications citing the key publications.

Study 2 is a single, qualitative, and in-depth case study. Here, we obtained data from 25 semi-structured qualitative interviews and company documents. The selection of participants was determined in coordination with a contact person at Transcorp. This person had the knowledge of relevant people to talk to. Nevertheless, we were allowed to contact those we found interesting about the project, aside from the C-level executives. We approached top managers below C-level executives and employees working directly with accounting and digitalization. In addition to the primary interview data, we were allowed access to secondary data that supplemented and supported the qualitative findings. Key performance indicator (KPI) data were gathered from three sources involved in accounting digitalization and were analyzed deductively by coding them in NVivo according to the themes that emerged from the research question. We started with a predefined set of codes and assigned them to qualitative datasets. The codes derived from our research questions, theory, previous research, and empirical data and the interplay among these elements (Anderson-Gough *et al.,* 2005; Jørgensen & Messner, 2010) provided a detailed overview of the available data units. During data analysis, we moved back and forth between the empirical data, theory, and previous research in an iterative process to determine our empirical material and understand what had occurred within the case company (Ahrens & Chapman, 2006; Jørgensen & Messner, 2010).

Study 3 is a comparative qualitative case study of the two companies and involves semi-structured interviews. This study collected observations and interviews with two companies in the Danish industrial sector. An inductive method was applied to support the explorative nature of our research (Golubeva, 2022), seeking new themes in the discussion of the roles of management accountants. We follow Gioia *et al.* (2012) on how inductive researchers can apply systematic conceptual and analytical disciplines that lead to rigorous and credible interpretations of data. We obtained data from the case company Transcorp in both study 2 and 3.

4.0 Institutional theory in digitalization and accounting

Accounting research in recent decades has leveraged institutional theory to conduct qualitative research, particularly on management accounting. Some of the largest theoretical perspectives in institutional theory focus on accounting and digitalization. In a study by Modell (2022), the following graph shows the streams of institutional theory applied to management accounting research in recent decades.

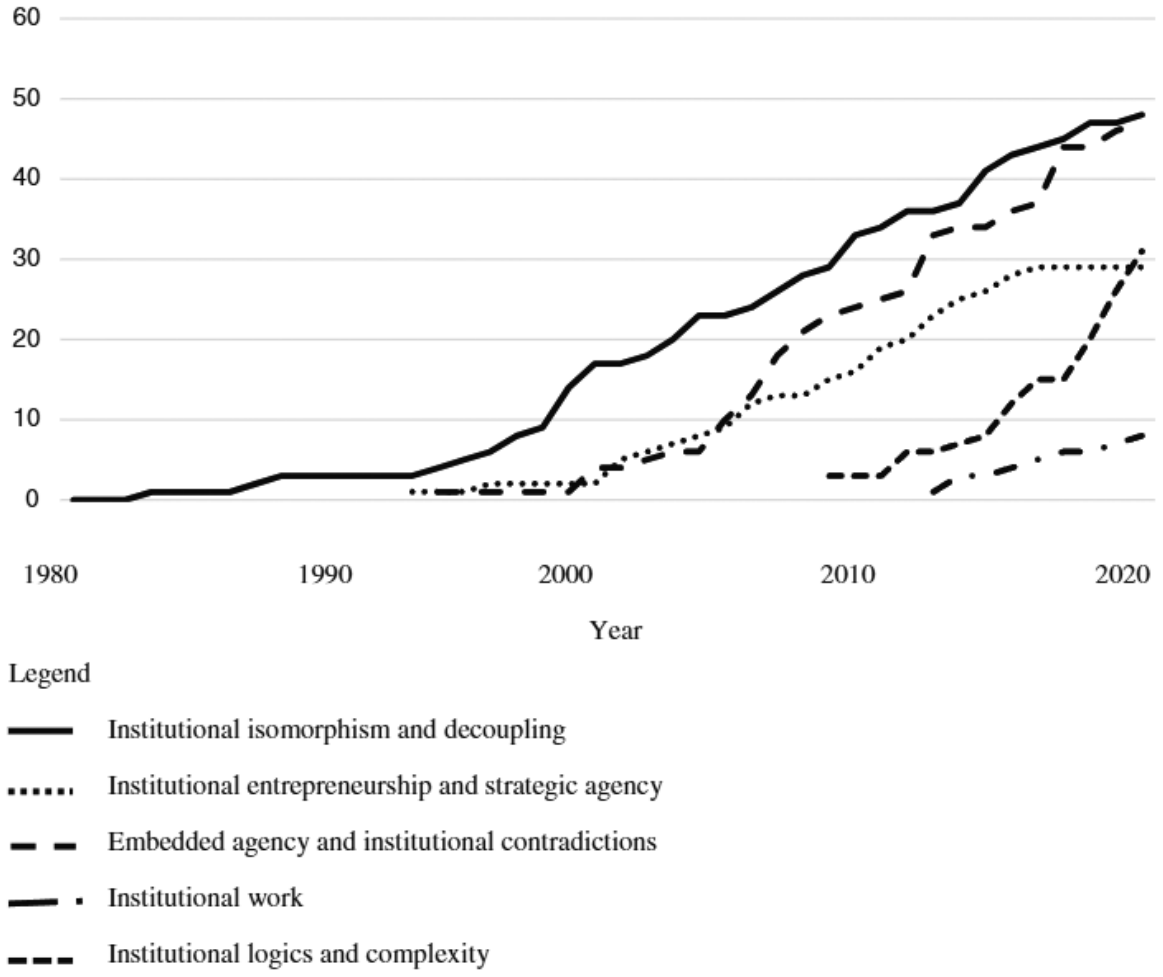


Figure 3. Modell, 2022: Cumulative number of MA studies based on different variants of institutional theory (1980–2021)

This study included papers published in 11 higher-ranked journals that frequently publish MA research based on institutional theory.[1] The graph shows that the most published category is institutional isomorphism, a main topic in neo-institutional theory, or the second institutional

[1] (Journal of Management Accounting Research, Management Accounting Research; Accounting, Auditing, and Accountability Journal; Accounting and Business Research; Accounting, Organizations, and Society; British Accounting Review; Contemporary Accounting Research; Critical Perspectives on Accounting; European Accounting Review; Financial Accountability and Management; and Journal of Accounting Research).

wave. The second most published line of research in MA and institutional theory concerns the embedded agency paradox and institutional contradictions.

The third most published variant in 2021 is institutional logic and complexity. This category has increased its publication rate in management accounting over the years, with more than 30 studies published in 2021. This dissertation also presents the institutional logic used in Study 3. The fourth most published category is institutional entrepreneurship and strategic agency, which is associated with the institutional work category, which is the least published category. Nevertheless, it continues to rise in the last couple of years, with nine studies published in 2021.

Modell (2022) asks whether management accounting research can be described as a degenerative or progressive research program. He concludes that research using institutional theory has evolved into a largely progressive research program by establishing institutional theory as a distinct alternative to functionalist approaches such as contingency theory, which has dominated research on how MA practices are adapted to organizational environments (Modell, 2022). In the same study, Modell calls for "more research into reciprocal, multilevel dynamics that emerge across different levels of analysis to enhance our understanding of how accounting practices, evolving within individual organizations, are influenced not only by extant institutions at the field level but also by how such practices influence field-level dynamics, which can possibly enhance the opportunities for MA scholars to offer progressive extensions to that larger institutional research program in organizational studies" (Greenwood *et al.,* 2014). Accurately, this call is addressed in this dissertation. In Studies 2 and 3, the goal is to deliver contributions not only within the management accounting domain but also to the broader organizational field by leveraging institutional research programs (institutional work and logic) in particular contexts that deliver additional value and novel contributions to institutional theory by investigating the multilevel dynamics that emerge from digitalization. Furthermore, Modell (2022) advises researchers to use comparative methods for theory development that contrast the relationship between specific institutions and accounting across contexts, which is the exact thinking behind why we choose to use comparative methods in Study 3, developing a theory on how the roles of management accountants have progressed into digital stewardship.

4.1 Institutional logics

In defining *institutional logics,* we draw on Thornton and Ocasio's (2017) definition of socially constructed historical patterns of cultural symbols and material practices, including assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activities, organize time and space, and reproduce their lives and experiences. The institutional logic perspective is a meta-theoretical framework for analyzing the interrelationships among institutions, individuals, and organizations in social systems. This raises questions regarding how institutions and individual actors are influenced by institutional change. In our case, we use this framework to describe how digitalization influences the role of management accountants. Certain institutional logics guide behavior; organize principles, practices, and symbols; and motivate actions. In our case, these logics are professional, corporate, and digital. The principles of each logic shape reasoning and how rationality is perceived and experienced. The

institutional logics perspective was first introduced by Friedland and Alford in 1991. More than 20 years after the initial idea, the institutional logic perspective has turned into a vibrant community of scholars and is recognized as a core perspective in sociology and organization theory (Greenwood *et al.,* 2017). Friedland and Alford (1991) criticized conventional institutional theory for not situating actors in a societal context. Their critiques were far-reaching and expanded beyond the institutional field. They criticized network theory for not explaining why people are connected and criticized the rational-choice theory for arguing that the meaning of rationality varies by institutional order (Thornton & Ocasio, 2008). Their view of institutional orders helps us understand the broader array of organizations by actors and institutions. While actors reproduce behaviors consistent with their given institutional orders, they possess the ability to innovate and transform their institutional logics.

A core premise of the institutional logic perspective is that the interests, identities, values, and assumptions of individuals and organizations are embedded within the prevailing institutional logics (Thornton & Ocasio, 2008). This idea distinguishes institutional logics from neo-institutional theory, arguing that macro-structural approaches form actors, proclaiming a structure over agency (DiMaggio & Powell, 1983). This battle took place in the history of the social sciences for a long time. On the one hand, researchers emphasized social structural constraints on action; on the other hand, researchers emphasized how individuals and organizations make a difference in creating, maintaining, and transforming institutions through their actions.

Scott (2008) defined *agency* as an actor's ability to affect the social world by altering the rules, relational ties, or distribution of resources. In developing an institutional logic perspective, several orienting strategies guided the theoretical development and framing of the dilemma between structure and agency. DiMaggio and Powell's (1983) theory of structural isomorphism is an orienting theory that integrates structure and agency dilemmas. Explaining that there exist three forms of isomorphism—mimetic, coercive, and normative—makes actors who are in structurally equivalent positions resemble one another. Why are organizations similar? The three isomorphic pressures comprise a constraining process that forces one unit in a population to resemble other units facing the same set of environmental conditions. Coercive pressures are forced by the state, regulators, and cultural expectations; mimetic pressures are forced upon the organization by responding to uncertainty and imitating successful role models because their actions are believed to be rational. Normative pressures stem from professionalization and education. Another orienting theory is provided by Giddens (1984), who developed his concept of structuration in which he coined the phrase "the duality of social structure and action," arguing that individual actors are simultaneously constrained and enabled by existing social structures (Thornton & Ocasio, 2008). According to Giddens (1984), social structures are formed by rules, resources, and practices, which are products and platforms for the enactment and reproduction of social life. Actors are knowledgeable, reflexive, and voluntary in enhancing and maintaining their power.

The lack of theory of agency in the neo-institutional perspective prompted scholars to developed a third orienting theory associating ideas and interests with the concept of "institutional entrepreneur" (DiMaggio, 1988; Fligstein, 1997; Lawrence *et al.,* 2011). The core idea is that institutional entrepreneurs engage in competition to own and frame an idea in the hope that they can express their self-interest in shaping how the idea is institutionalized (Hardy & Maguire, 2008). While the institutional logic perspective does not discount the structuralist view or concept of the institutional entrepreneur, it is not limited to these perspectives (Thornton & Ocasio, 2008).

4.2 Institutional work

Institutional work is "the purposive action of individuals and organizations aimed at creating, maintaining, and disrupting institutions (Lawrence & Suddaby, 2011). Institutional work connects disparate ideas and, in doing so, points to new research questions. Traditionally, institutional research has focused on the relationship between organizations and the fields in which they operate, providing strong accounts of the processes through which institutions govern actions (Lawrence & Suddaby, 2006). Institutional work reorients and shifts its focus to understanding how actions affect institutions. Institutional work connects, bridges, and extends institutional entrepreneurship, change, and innovation (Lawrence & Suddaby, 2006). Institutional work is concerned with the practical actions through which institutions are created, maintained, and disrupted. It highlights the actions of actors in relation to institutions. These actions are often illustrated visually and are prominent in institutional research. However, many of these actions are nearly invisible and involve minimal day-to-day adjustments. One goal of institutional work as a research program is to establish a broader vision of agency in relation to institutions.

Institutional work has had a significant impact on research but less on the practical world, which is a shame considering institutional works' realistic presentation as more than a production machine or an economic actor (Lawrence & Suddaby, 2006). Institutional work provides critical information to those working in an organization. For practitioners, the institutional work perspective contributes to a "sophisticated understanding of symbols and language, myths and ceremonies, decoupling, the interplay of social and cognitive processes, the impact of organizational fields, the potential for individuals and groups to shape their environments, and the processes through which those environments shape individual and collective behaviors and beliefs" (Lawrence & Suddaby, 2006). It aims to shift the focus from the theoretical concepts in institutional theory to more practical concepts leading to easier adoption of institutional theory in non-academic discourses. One of the motivations for developing institutional work theory is to find a new balance between structure and agency so that we can hold both simultaneously. Institutional work occurs in different forms and is typically performed by certain groups: professionals and other actors associated with the profession, top managers (as we will see in Study 2), and a collection of weak actors. As with every theory, institutional work has also been criticized, mostly for its imprinting effects, meaning that institutional work classifies the type of work rather than examining the processes behind what was done. Additionally, institutional

work is criticized for taking retrospective accounts after the outcomes are known and for tending to bracket the role of either human agency or extant institutions in the process of (de-) institutionalization, thereby underplaying embedded agency (Modell, 2022).

5.0 Contribution to knowledge

Study 1 explores how AI has been rooted in accounting research and presents findings on the types of AI technologies relevant to accounting research, along with a presentation of data- and non-data-driven research in the field. This study extends previous literature reviews on the topic and presents findings on state-of-the-art research in AI and accounting, particularly highlighting nine studies that use data to explain how AI has influenced accounting in practice. This study presents a table highlighting the findings for each of the nine selected studies using primary empirical observations investigating AI in accounting. The findings show how AI has currently influenced accounting, summarizing and classifying them according to the journal, technology, accounting theme research method, and theory.

Additionally, this study presents the findings on digitalization of the nine studies using primary empirical evidence to illustrate the development of digitalization in accounting. Contributions related to the application of AI in accounting have been significant and continue to evolve. This study presents a broad overview of the key contributions and trends in this field. Many interesting contributions have been made in this field despite relatively few studies exploring real-world phenomena. Researchers have developed and refined machine learning algorithms that can automate data entry, reconciliation, and categorization of financial transactions. Another important contribution is anomaly detection, which means that AI-based systems can identify unusual patterns or anomalies in financial data, helping detect potential fraud or errors. Studies in the literature review show that researchers have explored predictive models that use historical data to forecast financial risks and assist auditors and accountants in making informed decisions. Furthermore, AI-powered models can analyze historical financial data to make accurate forecasts for budgeting and financial planning. This is particularly useful for businesses for predicting cash flows and future financial performance. Researchers have worked on developing AI systems that can seamlessly integrate accounting software and systems, improve data flow, and reduce the need for manual data entry. These contributions demonstrate the transformative potential of AI in accounting, with ongoing research efforts aimed at further refining AI techniques, expanding their applications, and addressing the associated challenges. AI in accounting is dynamic, and scientific contributions continue to play a crucial role in shaping its future.

Study 2 shows how digitalization unfolds in an accounting function. It focuses on how management has applied four different forms of institutional work to promote digitalization in the accounting function and what performance impact this transformation has had on accounting processes. All 25 respondents acknowledged the transformative nature of digitalization in the accounting function and its profound impact on organizations. To illustrate the case narrative, a figure is presented that guides the discussion and explains how each section has contributed to the study's conclusions. Furthermore, this study presents a table showing how different types of

digital technology have influenced accounting tasks in the company. Finally, the study reveals the impact of digitalization on the accounting function, showing that 35,696 working hours were saved per month or 428.352 hours per year, equaling to 15.9% of the workforce or 219 full-time equivalents (FTEs). Furthermore, digitalization has influenced speed, transparency, costs, quality, and homogeneity in accounting processes. This study shows that digitalization has influenced management accounting routines, automated various accounting tasks, and reduced the need for manual data entry and reconciliation. Software applications and cloud-based platforms have made it possible to process transactions, generate financial statements, and perform audits with unprecedented speed and precision. This efficiency gain is a significant contribution of digitalization, enabling accountants to allocate more time to strategic analysis and value-added activities. Digitalization minimizes the risks associated with human error. Advanced algorithms and data validation checks embedded in the accounting software help maintain data accuracy and consistency. This contribution is paramount for ensuring financial data integrity, enhancing the reliability of financial statements, and bolstering stakeholder confidence in the accounting profession. One of the pivotal contributions of digitalization in the observed case is the ability to generate real-time financial reports. Businesses can now make informed decisions based on up-to-the-minute financial data, enabling agility in responding to market dynamics and opportunities. This capability empowers the case organizations to optimize resource allocation, risk management, and strategic planning. Theoretically, accountants can extract valuable insights from large datasets by leveraging big data analytics and machine learning algorithms, facilitating trend analysis, forecasting, and anomaly identification. However, this is not always the case in real-life situations, as we will discuss later.

Study 3 explores the profound impact of digitalization on the role of management accountants in organizations. The digital revolution ushered in a new era of data-driven decision-making and automation, challenging traditional management accounting practices. This study examines the evolving areas of responsibility that management accountants must adopt to effectively navigate this digital landscape. By synthesizing the current research and case study insights, we provide a comprehensive overview of the transformative effects of digitalization on the role of management accountants by investigating how digital logic drives the institutionalization of a functional consultant role in one of the companies.

The study's empirical data consist of 31 interviews derived from two case companies and merged into 26 first-order concepts, then into seven second-order theoretical structures, and finally into three aggregated dimensions. The cases show how the roles of management accountants have changed because of the digitalization logic in the two companies. The role of management accountants is influenced by several coexisting logics (professional, corporate, and digitalization), and this study argues that the role of management accountants has shifted from the traditional bean counter/business partner perspective to a more functional consultant role. Functional consultants are responsible for tasks that require comprehensive IT and data knowledge regarding data modelling, configuring enterprise resource planning (ERP) systems, and process mapping.

6.0 Limitations and future research

This dissertation has certain limitations. In general, qualitative research has several limitations that researchers should be aware of. Qualitative research often involves a relatively small sample size compared with quantitative research. This limits the generalizability of our findings to larger populations. Qualitative research aims for in-depth exploration rather than statistical representation and relies heavily on the interpretation and judgment of researchers. Researchers' perspectives, biases, and experiences may influence data collection, analysis, and interpretation. We attempted to take the necessary steps to mitigate bias and ensure transparency in our methods.

Owing to the depth and complexity of qualitative research, exploring a wide range of topics within a single study is challenging. This can result in a narrow focus and limited coverage of various aspects of the research. Qualitative research focuses on contextual understanding and unique perspectives, making it difficult to replicate the exact findings in different settings. The contextual nature of qualitative research limits its ability to produce consistent and reproducible results.

The researcher's involvement in data collection and analysis introduced subjectivity and potential bias. Qualitative research often involves human participants who provide socially desirable or acceptable responses. This can lead to data bias, as participants may not have fully expressed their true thoughts, opinions, or experiences. Although qualitative research provides detailed insights into specific contexts, it may struggle to achieve generalizability. These findings are context dependent and may not apply to other settings or populations. Transferability and theoretical generalization are the most appropriate goals for qualitative research. It is crucial to be transparent about the limitations and acknowledge these factors when interpreting and presenting the findings. Applying institutional theory to both studies is associated with specific choices throughout the studies and to certain focus areas.

Future research on digitalization and accounting should focus on key areas that reflect the ongoing evolution of technology and its impact on the accounting profession. There is a need for quantitative research on digitalization and accounting, particularly to investigate how far organizations are with the digitalization agenda.

However, the current literature does not investigate small companies. The main issue with small and medium-sized enterprises (SMEs) is that they do not possess the resources to allocate digital initiatives. However, many new software products are now cheaper and more accessible; therefore, digitalization is also relevant for SMEs. Combining qualitative research with other research methods, such as quantitative approaches, can help overcome some limitations and provide a more comprehensive understanding of the research. Future research should continue to explore how generative AI can be leveraged to enhance accounting processes, reduce fraud, and streamline auditing. Another promising area for future research is the integration of AI and machine learning (ML) into accounting software and systems. Studies should examine how these technologies can automate routine tasks, such as data entry and reconciliation, and enhance forecasting and decision-making processes. With the increasing volume of data

available to businesses, research should examine how advanced data analytics techniques can provide valuable insights into financial reporting, risk assessment, and performance evaluations. This includes the exploration of predictive analytics and data visualization tools. As more financial data are digitized and stored online, the security of such data becomes essential. Research should focus on developing robust cybersecurity measures, understand the vulnerabilities of digital accounting systems, and ensure compliance with data privacy regulations (e.g., GDPR). The digitalization of accounting raises ethical and regulatory challenges. Future research may investigate the ethical implications of AI and automation in decision-making as well as the development of regulatory frameworks to govern emerging technologies in accounting.

From a practitioner's perspective, ensuring that different accounting systems and platforms communicate effectively is a key concern. Research may explore solutions to achieve interoperability and promote standardization in digital accounting. As the accounting profession evolves, research should examine the changing skill sets required of accountants. This includes investigating the most effective methods for educating and training professionals in digital accounting technology. In addition, environmental, social, and governance (ESG) reporting has become increasingly important. Future research should explore how digital tools facilitate collection, analysis, and reporting of sustainability-related data. With this introduction, the reader is now well equipped in terms of the methodological and theoretical approaches and the subject of digitization in accounting. The next section proceeds directly to Study 1 of the dissertation, addressing AI in accounting.

References

Acemoglu, Daron, and Pascual Restrepo. "Automation and new tasks: How technology displaces and reinstates labor." Journal of Economic Perspectives 33.2 (2019): 3-30.

Agrawal, Ajay, Joshua S. Gans, and Avi Goldfarb. "Exploring the impact of artificial intelligence: Prediction versus judgment." Information Economics and Policy 47 (2019): 1-6.

Ahrens, Thomas, and Christopher S. Chapman. "Doing qualitative field research in management accounting: Positioning data to contribute to theory." Handbooks of management accounting research 1 (2006): 299-318.

Anderson-Gough, Fiona, Christopher Grey, and Keith Robson. "'"Helping them to forget..": the organizational embedding of gender relations in public audit firms." Accounting, Organizations and Society 30.5 (2005): 469-490.

Andreassen,R. 2020. Digital technology and changing roles: A management accountants dream or knightmare? Journal of Management Control. 31: 209-238.

Bennett, Andrew. "Case study methods: Design, use, and comparative advantages." Models, numbers, and cases: Methods for studying international relations 2.1 (2004): 19-55.

Berger, P. L., Luckmann 1967. The Social Construction of Reality. A Treatise in the sociology of Knowledge.

Birkel, Hendrik, and Julian M. Müller. "Potentials of industry 4.0 for supply chain management within the triple bottom line of sustainability–A systematic literature review." Journal of Cleaner Production 289 (2021): 125612.

Boxenbaum, Eva, and Julie Battilana. "Importation as innovation: Transposing managerial practices across fields." Strategic organization 3.4 (2005): 355-383.

Burns, John, and Juhani Vaivio. "Management accounting change." Available at SSRN 289124 (2001).

Burns J., Baldvinsdottir, G. 2005. An institutional perspective of accountants new roles – the interplay of contradictions and praxis. European Accounting Review 14(4).

Byrne, S, M. Pierce, B. 2007. Towards a more comprehensive understanding of the roles of Management Accountants. European Accounting Review, Forthcoming.

Caglio, A. 2003. Enterprise Resource Planning Systems and Accountants: Towards Hybridisation? European Accounting Review 12(1).

Chapman, C., Kihn, L. 2009. Information Systems Integration, Enabling Control and Performance. Accounting Organizations and Society 34(2): pp. 151-169

Charmaz, Kathy, Robert Thornberg, and Elaine Keane. "Evolving grounded theory and social justice inquiry." (2018).

Chenhall, R. 2003. Management control systems design within its organizational context: findings from contingency-based research and directions for the future. Accounting, Organizations and Society. Volume 28, Issues 2-3. pp. 127-168

Cooper, Lauren A., et al. "Robotic process automation in public accounting." Accounting Horizons 33.4 (2019): 15-35.

Cordella, Antonio, and Maha Shaikh. "From epistemology to ontology: challenging the constructed'truth'of ANT." (2006).

Davenport, Thomas H., et al. Artificial intelligence: The insights you need from Harvard Business Review. Harvard Business Press, 2019.

Dechow, N., Mouritsen, J. 2005. Enterprise resource planning systems, management control and the quest for integration. Accounting, Organization and Society, Vol.30, issue 7-8. pp.691-733

DiMaggio & W. Powell, "The iron cage revisited" institutional isomorphism and collective rationality in organizational fields", American Sociological Review, 48 (1983), 147-60.

Fligstein, Neil. "Sociale færdigheder og institutionel teori." Amerikansk adfærdsforsker 40.4 (1997): 397-405.

Flyvbjerg, Bent. "Five misunderstandings about case-study research." Qualitative inquiry 12.2 (2006): 219-245.

Frey, C, B., Osborne, M, A. (2017) The future of employment: How susceptible are jobs to computerisation? Technological Forecasting and Social Change. Volume 114. January 2017, Pages 254-280.

Friedland, R., Alford, R, R., 1991. Bringing Society in: Symbols, and Institutional Contradictions.

Fuglsang, Lars, Poul Bitsch Olsen, and Klaus Rasborg. "Videnskabsteori i samfundsvidenskaberne." På tværs af fagkulturer og paradigmer 2 (2004).

Gioia, Dennis A., Kevin G. Corley, and Aimee L. Hamilton. "Seeking qualitative rigor in inductive research: Notes on the Gioia methodology." Organizational research methods 16.1 (2013): 15-31.

Gegenhuber, T., Logue, D., Hinings, C. B., & Barrett, M. 2022. Institutional perspectives on digital transformation. In Digital transformation and institutional theory (Vol. 83, pp. 1-32). Emerald Publishing Limited.

Golubeva, Olga. "Sustainability and technology: the contribution of “managerial talk” to the three pillars framework." Accounting, Auditing & Accountability Journal 35.9 (2022): 412-441.

Goretzki, L., Messner, M. 2019. Backstage and frontstage interactions in management accountants’ identity work. Accounting, Organization and Society.

Goretzki, Lukas, Erik Strauss, and Jürgen Weber. "An institutional perspective on the changes in management accountants’ professional role." Management accounting research 24.1 (2013): 41-63.

Gregor, Shirley. "The nature of theory in information systems." MIS quarterly (2006): 611-642.

Greenwood, Anna, and Andrea Bernardi. "Understanding the rift, the (still) uneasy bedfellows of History and Organization Studies." Organization 21.6 (2014): 907-932.

Greenwood, Royston, et al. "The Sage handbook of organizational institutionalism." The Sage handbook of organizational institutionalism (2017): 1-928.

Hardy, Cynthia, and Steve Maguire. "Institutional entrepreneurship." The Sage handbook of organizational institutionalism 1 (2008): 198-217.

Hyvönen, Timo, et al. "Contracting out municipal accounting: the role of institutional entrepreneurship." Accounting, Auditing & Accountability Journal 25.6 (2012): 944-963.

Järvenpää, Marko. "Making business partners: a case study on how management accounting culture was changed." European accounting review 16.1 (2007): 99-142.

Jørgensen, Brian, and Martin Messner. "Accounting and strategising: A case study from new product development." Accounting, Organizations and Society 35.2 (2010): 184-204.

Kanellou, A., Spathis, C. (2013) Accounting benefits and satisfaction in an ERP environment, International Journal of Accounting Information Systems, Volume 14, Issue 3, Pages 209-234,

Karlsson, Bo, Anders Hersinger, and Monika Kurkkio. "Hybrid accountants in the age of the business partner: exploring institutional drivers in a mining company." Journal of Management Control 30 (2019): 185-211.

Kokina, J., Blanchette, S., 2019., Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. International Journal of Accounting Information Systems 35 (2019) 100431

Korhonen, T., Slos, E., Laine, T., Suomala, P. 2020., Exploring the programmability of management accounting work for increasing automation: an interventionist case study. Accounting, Auditing & Accountability Journal Vol. 34 No. 2, 2021 pp. 253-280 © Emerald Publishing Limited 0951-3574 DOI 10.1108/AAAJ-12-2016-2809

Lawrence, Thomas B., and Roy Suddaby. "1.6 institutions and institutional work." The Sage handbook of organization studies (2006): 215-254.

Lawrence, T., Suddaby, R. Leca, B. 2009. Institutional Work: Actors and Agency in Institutional Studies of Organizations.

Lawrence, Thomas, Roy Suddaby, and Bernard Leca. "Institutional work: Refocusing institutional studies of organization." Journal of management inquiry 20.1 (2011): 52-58.

Lawrence, Thomas, Roy Suddaby, and Bernard Leca. "Institutional work: Refocusing institutional studies of organization." Journal of management inquiry 20.1 (2011): 52-58.

Leitner-Hanetseder, S., Lehner, O. M., Fostenlechner C., Eisl, C.,2021. A profession in transition: actors, tasks and roles in AI-based accounting. Journal of Applied Accounting Research Emerald Publishing Limited 0967-5426 DOI 10.1108/JAAR-10-2020-0201

Maguire, Steve, Cynthia Hardy, and Thomas B. Lawrence. "Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada." Academy of management journal 47.5 (2004): 657-679.

Meyer, J., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. American Journal of Sociology, 83, 340-363.

Modell, Sven. "Is institutional research on management accounting degenerating or progressing? A lakatosian analysis." Contemporary Accounting Research 39.4 (2022): 2560-2595.

Möller, K., Schaffer, U., Verbeeten, F. 2020., Digitalization in management accounting and control: an editorial. Journal of Management Control. 31:1-8

Newton, Rae R., and Kjell Erik Rudestam. Surviving your dissertation: A comprehensive guide to content and process. Sage Publications, 2007.

Okasha, Samir. Philosophy of science: A very short introduction. Vol. 67. Oxford Paperbacks, 2002.

Ragin, Charles C., and Lisa M. Amoroso. Constructing social research: The unity and diversity of method. Pine Forge Press, 2011.

Rautiainen, A., Scapens, R,W., Järvenpää, M., Auvinen, T, Sajasalo, P., (2024) Towards fluid role identity of management accountants: A case study of a Finnish Bank. The British Accounting review.

Saunders, Benjamin, et al. "Saturation in qualitative research: exploring its conceptualization and operationalization." Quality & quantity 52 (2018): 1893-1907.

Scapens, R., 2012 Institutional Theory and Management Accounting Research. Maandblad voor Accountancy en Bedrijfseconomie, 86(10), 401-409.

Schwandt, Thomas A. "Constructivist, interpretivist approaches to human inquiry." Handbook of qualitative research 1.1994 (1994): 118-137.

Seele, Peter, and Irina Lock. "The game-changing potential of digitalization for sustainability: possibilities, perils, and pathways." Sustainability Science 12 (2017): 183-185.

Shumakova, O. V. "Transaction Costs in the New Age of Digital Economy." IOP Conference Series: Materials Science and Engineering. Vol. 873. No. 1. IOP Publishing, 2020.

Siti-Nabiha, A. K., & Scapens, R. W. (2005). Stability and change: an institutionalist study of management accounting change. Accounting, Auditing & Accountability Journal, 18(1), 44-73.

Spraakman, G., O'Grady, W., Askarany, D,. Akroyd, C., (2018) ERP Systems and Management Accounting: New Understandings Through 'Nudging' in Qualitative Research. Journal of Accounting and Organizational Change. 2018. Vol. 14 Issue 2; pp.120-137

Stake, Robert E. "Qualitative case studies." (2000).

Strauss, Anselm, and Juliet Corbin. "Basics of qualitative research techniques." (1998).

Suddaby, Roy, David Seidl, and Jane K. Lê. "Strategy-as-practice meets neo-institutional theory." Strategic organization 11.3 (2013): 329-344.

Sutton, Steve G., Matthew Holt, and Vicky Arnold. "“The reports of my death are greatly exaggerated”—Artificial intelligence research in accounting." International Journal of Accounting Information Systems 22 (2016): 60-73.

Taulli, T., 2019. Artificial Intelligence Basics – A Non Technical introduction – Apress

Tillema, Sandra, Rouven Trapp, and Paula van Veen-Dirks. "Business Partnering in Risk Management: A Resilience Perspective on Management Accountants' Responses to a Role Change." Contemporary Accounting Research 39.3 (2022): 2058-2089.

Thacher, David. "The normative case study." American journal of sociology 111.6 (2006): 1631-1676.

Thornton, Patricia, and William Ocasio. 1999.‘Institutional Logics and the Historical Contingency of Power in Organizations: Executive Succession in the Higher Education Publishing Industry, 1958–1990.’American Journal of Sociology 105 (3):801–843.

Yin, Robert K. "Case study methods." (2012).

Yin, Robert K, “Case Study Research and Applications: Design and Methods” (6th ed.). Thousand Oaks, CA: Sage.

Yigitbasioglu, O., Green, P., Cheung, M, Y. 2022. Digital transformation and accountants as advisors. Accounting, auditing & accountability Jorunal.

Weeden, Marc, Chris Corwin, and Alan Poling. "Strategies and Tactics of Behavioral Research." The Psychological Record 60.3 (2010): 543-548.

Paper 1 - The Role of Artificial Intelligence in Accounting: New Perspectives on empirical research

Joachim Elmegaard

Carsten Rohde, Professor

Pall Rikhardsson, Associate Professor

Department of Accounting, Copenhagen Business School Denmark

Abstract

In this literature review, we explore how Artificial Intelligence changes accounting. The literature increases our understanding of specific aspects of AI. However, we lack a comprehensive overview of its nature and implications. Through a review of 114 papers, we address 7 sub-technology themes particularly relevant for accounting, along with insights into the current state of research from 2010 to 2021. We present evidence regarding use of research methods, theoretical stance, and research themes addressed. In particular we focus on research papers presenting primary empirical evidence to assess the state of current empirically based knowledge in the field.

Purpose

The purpose of this paper is to update current knowledge about research in AI and accounting in general and specifically on research presenting primary empirical data.

Design/methodology/approach

A literature review based on AJG and ABDC journals with extended keyword search to broaden the scope from previous literature reviews on AI in accounting.

Findings

We show a lack of primary empirical research in AI and accounting. Most of current empirically based papers focus on robotic process automation and there is a lack of papers addressing other important areas of AI. Overall, there is an overweight of conceptual papers and limited empirical research informing us about what is happening in practice.

Originality/value

Several papers have investigated AI and accounting literature. Given the speed of development in AI technologies and its relevance for accounting, there is a need to frequently review current research into the applications of AI., Our paper establishes a bridge from these reviews to the current state of AI in accounting by including literature published after 2016.

1. Introduction

Artificial Intelligence (AI) has come a long way since its beginning in the 1950s and is undeniably an impactful technology due to its generic application potential (Rose, 2021). AI is defined as technologies that simulate human intelligence in applications that are programmed to mimic human thinking and actions (Brynjolfsson & Mcafee, 2019). Discussions about AI are complicated by the fact that AI is an umbrella term that covers a variety of technologies including machine learning, deep learning, robotic process automation, natural language processing and autonomous systems (Taulli, 2019). Today, organizations use AI for a wide range of purposes, including task automation, data analyzis, risk mitigation, and communication (Schwab, et al. 2018).

It is predicted that AI will radically change how accounting is performed (Agrawal, et al., 2019). This will impact finance functions and potentially lead to more efficient and effective use of accounting data in organizations for decision-making and control (Cooper et al. 2019; Acemoglu & Restrepo, 2019). Today, there are various examples of AI use in accounting including in fraud detection, data analysis, and control (Faggella, 2020).

Academics have paid increasing attention to this subject as previous literature reviews indicate. An extensive literature review by Sutton et al. (2016) draws on Gray's (2014) work on expert systems and adds "AI" as a separate keyword in their search. Their review reports that AI research in accounting has grown over the years and calls for more research on the usability, and use, of artificial intelligence techniques in accounting. Moll & Yigitbasioglu (2019) conducted a more recent review and has focused on how four Internet-related technologies: cloud, big data, Blockchain, and AI impact accountants' work and accounting research. This paper has a vast scope focusing on all four technologies and their impact on management accounting, financial accounting, and auditing. There is therefore no detailed descriptions of the relations between accounting and AI, especially not the underpinning technologies. Their study emphasizes that scholars have not given sufficient attention to internet-related technologies and how they affect the accounting profession. A literature review by Knudsen (2020) gives an overview of digitalization research and how digitalization affects accounting using a modified version of an analytical framework initially proposed by Rom and Rohde (2007). Knudsen limits his search for digitalization articles by searching for automatization and artificial intelligence. Knudsen's article focuses on management accounting and claims that digitalization influences accounting practices in many new ways. Knudsen calls for more qualitative research studies on AI's effect on the accounting domain's managerial issues and highlights different digitalization implications for accounting. Two other literature reviews have focused on a specific subset of AI in accounting. In a paper by (Fisher et al., 2010), text analytics in accounting is examined. They found that the literature within this field is mainly focused on describing how to use text elements to draw inferences (e.g., regarding future performance, stock price) and the extraction of text elements embedded in accounting documents. Another paper by Fisher (et al., 2016) examines Natural

Language Processing (NLP) research in accounting, auditing, and finance journals. They found that more and more papers are using NLP and Machine learning as a tool for doing research.
Other literature reviews have focused on broader aspects of how AI impacts data and information, decision-making, and the challenges AI brings to the debate (Dwivedi et al., 2021). One single literature review has explicitly focused on papers published in the Journal of Emerging Technologies in Accounting, which also includes a lot of papers involved with AI in accounting (Muehlmann et al., 2015).

Although, these literature studies reveal that AI continues to gain traction in both accounting research and accounting practice they have some limitations. They have focused on narrow definitions of AI in terms of machine learning, NLP or knowledge-based systems (Sutton, 2016, and Gray, 2014) or included AI as one technology of many thus leaving little space for detailed analysis. Furthermore, AI technologies are constantly evolving. For example, technologies such Robotic Process Automation (RPA), autonomous systems, computer visualization and natural language processing have developed extensively and entered the general AI application domain (Abonamah et al., 2021; Berente et al., 2021). Given these limitations and the speed of development in AI technologies there is a need to frequently review current research into the applications of AI in fields such as accounting.

Literature reviews in general are important for researchers to understand the state of theoretical and empirical research. This enables researchers to better formulate their research questions, critically evaluate their research approaches, and focus their attention on topics that are relevant to practice as well as academia.

The objective of this paper is to update current knowledge about research in AI and accounting. Specifically, it aims to review the research that has been conducted since the last reviews were published with a specific focus on research presenting evidence based on primary data. Furthermore, it uses a broader definition of AI technologies than were used in previous reviews. It therefore contributes with a broader overview of the current state of research in AI and accounting and - based on the results of the review - conceptualizes how AI impacts accounting.

Our focus is on papers presenting evidence based on primary data, where the researchers has collected the qualitative and/or quantitative data directly form the field. One reason is the calls for such research in accounting (Granlund & Lukka, 2016) and in AI and accounting (Sutton et al., 2016). A second reason is the fast-evolving nature of AI as a technology and its potential to impact accounting as a practice. As these applications of AI spread and evolve, it becomes important to base our knowledge on actual real-life applications rather than secondary or anecdotal evidence.

To achieve this objective, this review uses several of the same search terms as used in Sutton et al. (2016) to search for literature published since the previous reviews. However, search terms including newer AI technology developments were also added and searched for in the same period

covered by previous reviews. This was done to find any literature that could have been overlooked in previous reviews.

This paper then critically reviews the literature and determines the themes addressed, the type of research conducted, the results generated and the type of technology focused on. This contributes to the literature in three ways. First, the results show what role AI plays in accounting research by segregating empirically and non-empirically based articles. This identifies the research that contributes empirically to our understanding of AI in accounting. Second, it bridges the focus on early AI technologies and newer technologies in accounting research. This gives a more nuanced picture of the current state of literature published in different journals. Third, it presents an agenda for future research in the field by addressing current themes and describing potential research gaps.

The remainder of this paper includes three sections. The next section introduces the method used for the literature review. The third section discusses the findings in-depth, and section four discusses the current state of AI in accounting research as well as concluding the paper.

2. The literature review method

The selection of journals for the review is based on the AJG (Academic Journal Guide) and the ABDC (Australian Business Deans Council) journal ranking lists. That is to say all journals ranked 4*,4,3,2,1 in the AJG journal list and journals with A,B,C,D ranking in the ABDC journal list.

To identify relevant literature on the topic, the paper follows Webster and Watson's (2002) recommendations. This includes the following steps:

1. A keyword search using Business Source Complete database, Scopus, and the Web of Science.
2. Review of journal articles.
3. Review of the references to the publications identified in steps 1, 2, and 3.
4. Identification of publications citing the key publications.

The keywords used to search these journals were: “Accounting” combined with “Artificial Intelligence”, “Machine Learning”, “Neural Networks”, “Knowledge systems”, “Robotic Process Automation”, “Natural Language Processing”, “Computer visualization”, “Deep Learning”, “Robots”, “Automation”, “Expert Systems”. We also included different abbreviations of these terms such as “NLP” and “RPA”.

The period reviewed is 2010 to 2021. Earlier reviews that have focused solely on AI (Sutton, 2016, Gray 2014; Fisher et al., 2010). Fisher et al., 2016 focused on narrower definitions of AI leading us to broaden the search to other AI technologies overlapping the period covered by

these reviews. This establishes a bridge from these reviews to the current state of AI in accounting.

Our review also makes use of backward- and forward reference search to identify additional relevant publications that appeared in the reference lists of the papers found in the keyword search. It should be noted that although the main focus is on AI in accounting, the journals included were not only accounting journals but also included journals in fields such as operational finance, operational management, and computer science. Thus this literature review is concept-centric rather than author-centric or journal category centric (Webster and Watson, 2002).

The initial search yielded 221 papers. Cockcroft and Russel (2018) recommend a comprehensive screen of results to ensure selecting only those papers with relevant research domains, through which papers covering unrelated topics are filtered out. Adopting this approach, all papers were reviewed by article abstracts, introductory sections, and conclusions. Following this approach, 107 were excluded, which resulted in a total of 114 academic publications explicitly addressing AI that were included in our review.

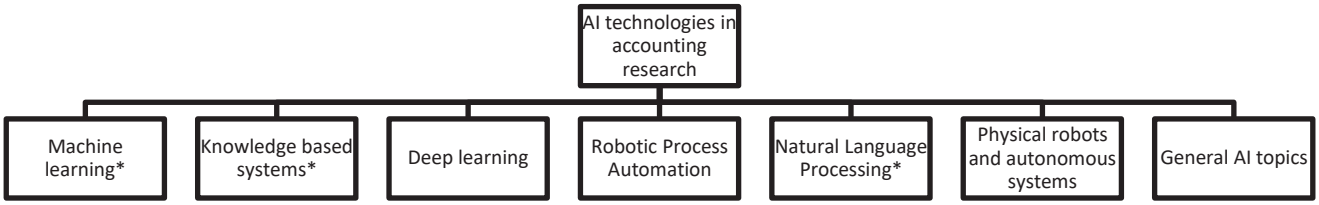
The theoretical perspectives in the 114 analysed papers are classified into theories from one of the three major social sciences – economics, psychology, sociology, and others are classified according to theories derived from them in compliance with the Shields (1997). Some articles rely on parings of these theories, and many papers did not use an explicit theory.

3. Artificial Intelligence in Accounting research

3.1. AI technologies addressed

Reading through the literature it becomes apparent that the conceptualization of AI in accounting has evolved over time. Figure 1 gives an overview of the AI technologies addressed in the papers reviewed. Using a narrow definition of AI, Sutton (2016) identified literature that addressed machine learning and knowledge-based systems. In contrast, this study identifies in total seven technologies that accounting research has examined (see Figure 1). Five out of seven are new technologies and confirm the need for frequent updates of literature reviews in a rapidly evolving technology field of research. We have chosen to leave out knowledge-based systems in the review, since most published papers in this category are already being investigated in previous literature reviews, and few new papers are published in the time frame of this review. Physical robots and autonomous systems are merged into general AI topics in the following since only one paper that dealt with accounting in the context of physical robots and autonomous systems.

Figure 1
AI technologies addressed in accounting research



* Included in previous literature reviews (Fisher et al., 2016; Sutton, 2016; Gray, 2014; Fisher et al., 2010),

3.2 Overview of studies

The 114 articles identified were published in 51 different journals. The distribution of papers according to technology in Figure 1 showed that the largest number of papers focus on machine learning (41), the second largest number focus on General AI topics (34), and the third largest is Robotic Process Automation (27). These three streams of papers cover in total (89%) of the published papers included in this review. In all 9 papers then focused on Natural Language Processing and 3 papers on Deep Learning. Compared to earlier reviews (Fisher et al., 2016; Sutton, 2016; Gray, 2014; Fisher et al., 2010), research has increased in machine learning and RPA compared to the interest in different types of expert systems and knowledge-based systems in earlier years.

A pattern exists when it comes to how the articles are distributed in journals of different ratings. On one hand, there is a tendency that papers centred around technical subjects are generally published in higher-ranked journals (AJG 3 and above). On the other hand, articles focusing on how RPA or NLP could help simple accounting processes are mostly published in lower-ranked journals (AJG 2 and below). A notable observation – and perhaps an explanation for this - is that only three articles out of the 36 articles addressing RPA and Natural Language processing were based on empirical observations. Note that in tables 1-4, the journals in which the 116 papers are published are primarely ranked according to the AJG list. If the journal in which the paper was published in was not ranked on the AJG list, the ABDC ranking is used.

Table 1
Ranking of journals and AI technologies addressed

Technology	Number of papers	Rating AJG					Rating ABDC				% of total papers
		4*	4	3	2	1	A	B	C	D	
Machine Learning	41	6	4	14	8	9					35%
Robotic Process Automation	27	0	2	6	6	10			3		24%
Natural Language Processing	9	1	0	1	2	5					8%
Deep Learning	3	0	1	1	1	0					3%
General AI topics	34	0	1	6	12	12		1	2		30%
Total	114										100%

Figure 2 shows the number of publications per year in the period reviewed. Papers addressing machine learning and RPA have an increased publishing rate over the years from 2010 to 2021, the same is the case for papers focusing on General AI topics. This category also contains papers on more general aspects of AI such as how AI will affect the workforce or papers discussing ethical dilemmas of using AI in an accounting context.

Figure 2
Publications addressing different AI technologies per year

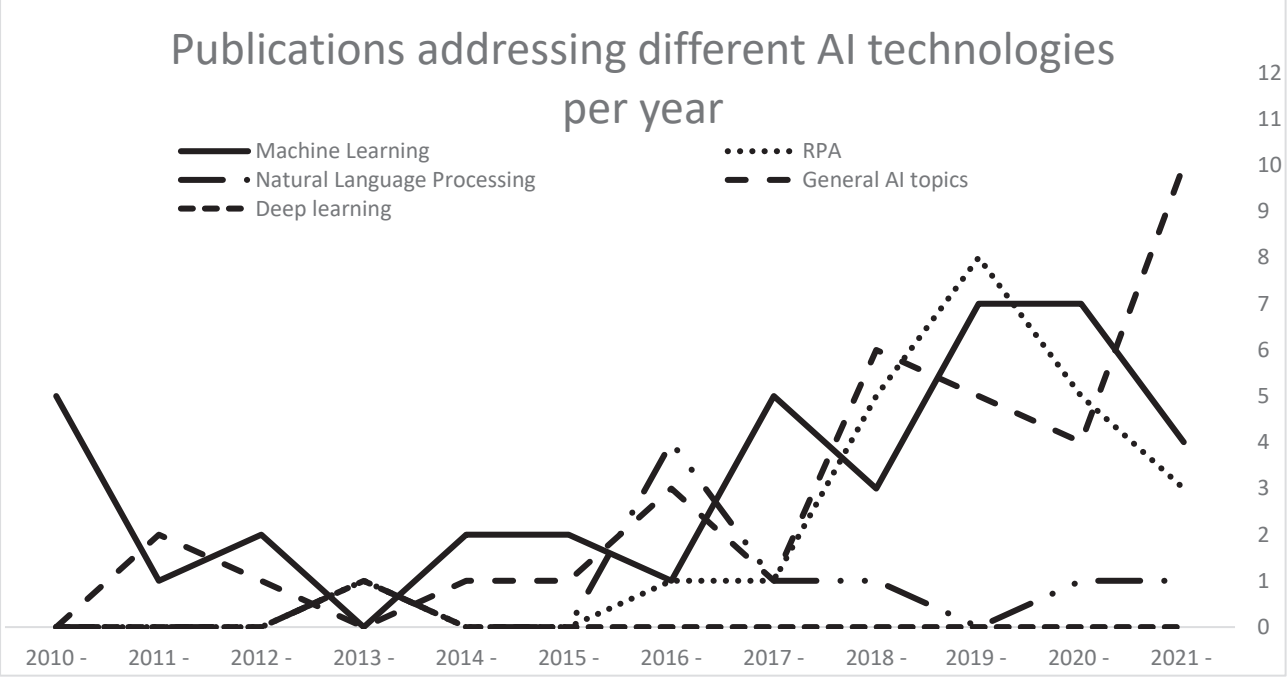


Table 2 shows the accounting fields to which the papers belonged. It shows that most papers (31) relates to multiple accounting disciplines, addressing how a particular AI technology influences accounting in a general way. An example is how RPA will change the role of accountants in general. A large part of these papers uses conceptual frameworks or theory to describe how different scenarios will unfold, for example, how RPA is changing the accounting industry. The second largest fields are auditing (26) and accounting education (25).

Many accounting papers address how to use specific AI technologies to conduct accounting research such as using machine learning to identify fraud. Most of the accounting educational papers address which AI technologies that accounting syllabuses need to include to close the gap between education and practice (Keys & Zhang, 2020). It is interesting that auditing and financial accounting, articles focusing on AI are published in higher ranking journals. Notably, all 4* articles (6) included in this review either address auditing, financial accounting, or research/educational as its main subject. Comparatively, fewer papers focus on management accounting, and these are published in lower ranking journals.

Table 2
Accounting field and AI research

Accounting field	Number of papers	Rating AJG					ABDC				% of total
		4*	4	3	2	1	A	B	C	D	
Accounting (multiple disciplines)	31		5	7	6	9		1	3		28%
Research/educational	25	1		5	8	11					22%
Auditing	26	4		6	5	11					22%
Financial accounting	20	2	3	7	3	3			2		17%
Management Accounting	12			3	7	2					11%
Total	114										100%

Table 3 shows the type of research published. The high number of conceptual papers (49) could indicate the emergent nature of AI in accounting. Here we defined conceptual papers as those theorizing about the potential impact of AI as well as development of research framework. Research applying quantitative research methods have the second-highest number of published articles (29) and are for example used in papers that address the use of AI in fraud detection and analysis of bankruptcy trends. Third is literature reviews (8) which contains papers reviewing research in the area. Relatively few papers use case studies, where qualitative research are applied (5) or mixed methods (2).

Table. 3
Type of research paper

Type of research	Number of papers	Rating AJG					ABDC				% of total
		4*	4	3	2	1	A	B	C	D	
Conceptual	54		3	10	14	24			3		47%
Quantitative methods	34	7	4	14	5	3			1		30%
Literature review	8			2	4	4					8%
Case study	7			2	2	2			1		6%
Mixed methods	2					2		1			1%
Other research methods	9		1	2	5	1					8%
Total	114										100%

Table 4 shows the classification of papers according to the themes identified. The themes on how AI can improve financial accounting, management accounting and auditing, cover articles addressing how specific AI technologies can improve, facilitate or innovate current accounting practices. In total, these themes contain 38 papers. Papers addressing AI for accounting research (19) focus on how different branches of AI can be used to conduct accounting research for example how textual analysis can be used to analyse annual reports or how data mining can be applied in accounting.

The papers on AI impact on the organization refer to papers focusing on how AI impacts the accounting industry, influences accounting discussions or broader aspects of accounting. Despite a relatively large number of papers, only a limited number of these studies present empirical evidence.

Table. 4
Research themes addressed

Research themes	Number of papers	Rating AJG					ABDC				% of total
		4*	4	3	2	1	A	B	C	D	
Fraud & bankruptcy detection/ prediction	16		3	3	5	4	1				14%
AI for accounting research	20		1		5	9	5				18%
AI to improve financial accounting	12		1	2	2		6			1	11%
AI to improve management accounting	19			1	6	8	3			1	17%
AI to improve auditing	16		2		3	3	8				14%
AI impact on the organization	18			1	4	3	7		1	2	15%
Others	13			1	3	2	6		1		11%
Total	114										100%

This trend becomes even clearer when looking at how many papers present original empirical research. Out of the 114 articles reviewed in this paper, 45 present empirical data, while 69 did not. Of those, only 9 papers presented primary empirical data about the application of AI in the

field. The other papers use secondary empirical evidence from older data sets or use empirical data in developing AI applications in e.g. fraud detection or bankruptcy predictions. These do not however investigate current developments in organizations applying AI in accounting.

Table 5 shows how the papers in the review are distributed due to the theory used. Most quantitative papers use economic theory (24), while some (14) use different sociological theory forms (e.g., institutional, constructivist, task technology-fit, technology dominance, contingency, and grounded theory). Interestingly, 76 does not use explicit theory.

Table. 5
Theory used

Theory used	**Number of papers**	**% of total**
Economics	24	21%
Sociology	14	12%
N/A	76	67%
Total	114	100%

Finally, of the 51 different journals in which they are published, most articles are published in the Journal of Emerging Technologies in Accounting (26), second-most in International Journal of Accounting Information Systems (9), and thirdly in Expert Systems with Application (6). A more detailed overview is given in Appendix 1.

4. Overview of research themes

The following section will present and discuss the literature obtained in the literature review, emphasizing findings from the individual articles. This section is divided according to the themes in table 4. The thematization includes seven themes: (i) Fraud and bankruptcy detection or prediction; (ii) AI for accounting research; (iii) AI to improve financial accounting; (iv) AI to improve management accounting; (v) AI to improve auditing; (vi) AI influence on the organization; and (vii) Others.

4.1 Fraud and bankruptcy detection or prediction

With a total of sixteen studies this theme had a relatively high number of papers. Thirteen papers were based on quantitative empirical approaches, whereas the remaining were based on literature reviews, a single case study, and a couple of framework articles.

Overall, the (13) quantitative studies aimed to apply different machine learning methods to detect or predict financial distress or bankruptcy. Multiple quantitative methods were applied under the domain of machine learning, namely (e.g., Bayesian models, algorithms, logistic regression,

neural networks) along with data mining techniques. All papers were based on secondary empirical datasets, mainly from annual reports and audit engagements.

In general, the purpose of these papers is to make more accurate models for detecting or predicting accounting fraud or bankruptcy. Therefore, the articles do not describe how AI is currently impacting organizations as such. These papers draw exclusively on the foundations of empirical economic theory. However, none of the papers explicitly describe their theoretical stance. Wang, Ma, and Yang (2014) suggest that there is no mature or definite theory for corporate failure literature and therefore argues for the use of exploratory efforts within this kind of research. Eleven of the sixteen papers addressed in this theme are published in highly rated journals according to AJG 3 and above and are without question the highest-rated streams of literature in this review. The last five papers came from journals that ranked two and below.

Of the papers focusing on fraud, the aim is to develop models that predict or detect financial statement fraud. This involves several challenges concerning: (i) The rarity of fraud observed, (ii) the abundance of explanatory variables identified in current literature, and (iii) the consensus regarding the definition of fraud (Perols, 2017). In this type of research, researchers strive to develop more refined models that surpass earlier versions to be the most accurate and credible.

Brown et al. (2019) for example use machine learning techniques to assess whether the thematic content of financial statement disclosures is incrementally informative in predicting intentional misreporting, compared to standard financial and textual style measures by quantifying the thematic content of annual report filings and the attention devoted to each topic. The study finds that the constructed measure provides significant incremental predictive power over commonly used financial statement and textual style measures. In some cases, the measure used can improve prediction accuracy by up to 59% in detecting above normal and high-risk misreporting events. This contribution could stage machine learning as a powerful tool for auditors to detect misreporting in financial statements.

Other authors build models to predict fraud using ensemble learning, which is a sub-branch of machine learning (Bao et al., 2019). By assessing the performance of other fraud prediction models, they introduce a performance evaluation metric that outperform earlier models based on logistic regression and support-vector. Instead of using financial ratios, this model uses raw financial data that are more applicable and easier to gather.

Overall, this work contributes to an important area of accounting research by developing effective models for detecting and predicting corporate fraud. This stream has gained popularity in highly ranked accounting journals. Even though these models are designed to predict fraud and bankruptcy, some AI features may introduce bias and lead to suboptimal outcomes because of the abundance of explanatory variables. The models seem to be more accurate, but there seems to be little or no use of these models outside of academia. Thus, their relevance might be questioned, at

least from a practitioner's viewpoint. The data used for the papers in this theme is, in all cases, secondary datasets like financial reports or audit documentation.

4.1.2 AI for accounting research

Twenty papers focused on general research within AI in accounting. Four papers were based on empirical observations, while the rest were not using any form of empirical evidence. Many different research methods were used, such as quantitative methods, literature reviews, conceptual- and qualitative methods, but relatively few papers used theory (3).

More specifically, several studies focused on different branches of AI (data mining, natural language processing, RPA) and show how these technologies could be used to solve different accounting related challenges. A study by Loughran & Mcdonald (2015), published in Journal of Accounting Research, investigates textual analysis in accounting and finance and attributes textual analysis increased importance in analysing annual reports. The authors argue that information plays a central role in how accountants document a firm's operations and how financial markets assess value. The purpose of the paper is to highlight tripwires associated with these methods and examine how different methods can be used to absorb deeper insights into annual reports.

A couple of articles conducted literature reviews and emphasized AIs importance for accounting (Grey, 2014; Sutton, 2016; Knudsen, 2020). Other articles focused on how AI technology could be used to conduct accounting research and overcome research related challenges. These include: Natural language processing in accounting research (Fisher et al. 2016), textual analysis in accounting research (Fisher, 2018), data mining in accounting research (Amani & Fadlalla, 2017), and machine learning in accounting research (Boegaerd & Aerts, 2011).

Interestingly, one paper by Kokina & Blanchetta (2019) present original empirical evidence collected through interviews about how RPA is implemented in companies. It finds that securing technical capability is only a part of the RPA implementation process. Additionally, this study reveals that organizations only benefit from the automation of specific processes, those that are structured, repeated, rules-based, and with digital inputs. Organizations applying RPA have experienced positive effects such as improved process documentation, lower error rates, more accurate measurement of process performance, and better report quality. Kokina & Blanchetta (2019) draw on the theory of Task-Technology Fit and reveal several notable insights into the use of RPA in organizations. They show that organizations are challenged by RPA complexity associated with understanding processes at a key-stroke level and outline several possible failures that could occur during the process. These observations bring another level to the RPA debate, which is often proclaimed to be easy to handle and astoundingly effective. Kokina & Blanchette conclude that RPA implementations seem to require much greater IT involvement than organizations initially anticipate, which seems in line with the perception that process owners, including accountants, have not necessarily acquired the coding skills for handling tasks like these.

4.1.3 AI to improve financial accounting

In all, twelve studies address how AI improves financial accounting. Six articles in this theme focus on how AI technologies (e.g., Bayesian models, machine learning, text mining, and language processing) can improve accounting related tasks (e.g., generating accounting estimates, creating forward-looking statements, disclosing financial information). Accounting research has historically been concerned with accounting issues that increase validity in financial information, and these articles use the advent of AI technologies to enhance current procedures and tasks in the accounting field. These papers apply economic theory, however without mentioning it specifically.

The last six papers in this theme address AI potential for accounting. These are neither based on empirical findings nor specific theory and are thus classified as conceptual. These papers assess automation potentials for several accounting practices (e.g., management reporting, assurance procedures) and use language processing to evaluate IASB standards. None of these papers really manage to describe how AI impacts accounting empirically.

In an article by Li (2010) published in Journal of Accounting Research, they examine the information content of the forward-looking statements (FLS) in the management discussion and analysis section (MD&A) of 10-K fillings. The article argues that the average tone of the FLS is positively associated with future earnings, and finds that with better current performance, lower accruals, smaller size, lower market-to-book ratio, less return volatility, lower MD&A (Fog index), and long history, the more positive FLSs the companies seem to have. This article seems to have the similar agenda and uses the same methodology as articles from the first theme although a different purpose. In an essay by Bertomeu (2020) there is a conceptual discussion of how machine learning improves accounting. A framework is developed with several implementation considerations, including various financial accounting topics such as earnings management, reporting, and valuation.

Despite some new contributions with this theme, no papers present any primary empirical evidence on how AI can or is improving financial accounting.

4.1.4 AI to improve management accounting

Nineteen papers – from various journals - address questions related to how AI improves management accounting. This theme differs from the previous themes in that the majority of papers uses qualitative research approaches including case studies. Another difference is that only four papers are based on using AI technology to analyse datasets, perhaps making room for more explorative research on how AI is applied in management accounting. Ten of the nineteen papers describe how different types of AI are applied in real-world management accounting settings. Only three of these ten papers present empirical evidence based on primary data. All of these papers also use specific theoretical frameworks to build their arguments, thus making them both empirically and theoretically interesting.

One paper is written by Korhonen et al. (2020). The purpose of this paper is to better understand management accounting automation potential by carrying out an interventionist case study in a machinery manufacturer "TechCo." Several interesting findings are presented. First, it seems that practitioners often interpret expert's nonprogrammable work as programmable and seek to automate it; this does not lead to the desired outcomes of improved efficiency. Second, the findings imply that automation does not necessarily lead to cost efficiency, at least not when it comes to automating nonprogrammed decision-making and professional expertise. Automation might provide new possibilities for redefining business processes, but everything cannot be digitalized. This paper contradicts to the common perception of automation's rewarding nature in accounting (Sutton et al., 2018; Kokina & Blanchette, 2019) and provides a solid groundwork for further studies in the field. Furthermore, the article calls for more research on how organizations construct factual possibilities regarding digitalization and automation and thus how actors together enact digitalization and automation. Moreover, the study suggests that practitioners need to analyse the entity they wish to automate very carefully before commencing with an automation project.

Brown et al. (2019) conduct an explorative case study to empirically explore how management controls are designed and used to manage energy efficiency in service settings. The goal of the authors is to provide a better understanding of the relationship between automation and organizational efficiency. They examine how automation and related management control are used in a dynamic service-based organization, where organizational goal attainment and energy efficiency enhancement are critical. The findings reveal that system designers can manipulate the automation architecture by manual adjustments to suit their own preferences and could be biased. Despite unique findings, the article is rather context-specific and probably not easily translated into other settings other than service environments. Management control systems, therefore, still seem to be under investigated in other contexts.

Andreassen (2020) conduct an exploratory case study of an insurance company to investigate the role of the management accountant during times of technological influence. The study identifies and describes competition between management accountants and other groups of employees, and a shift from divisional management accountants to narrower roles in their tasks.

On one hand, some papers in this theme are focused on how AI can be used to solve technical tasks, such as cost estimation (Yeh & Deng, 2012), production optimization (Min et al. 2019), and prediction of cost development in manufacturing (Chou et al. 2010). On the other hand, papers also focus on how AI impacts organizational areas such as the access to labor (Acemoglu & Restrepo, 2019) and the role of the management accountant (Moll & Yigitbasioglu, 2019; Quattrone, 2016). This makes this theme the most diverse in terms of research approaches and topics.

4.1.5 AI to improve auditing

Sixteen papers address how AI can improve auditing. Most papers were based on conceptual methods and presented ideas for how auditing can learn and adapt AI to improve current practice.

Three papers apply quantitative methods. One of these is a paper by Pourheydari et al. (2012), where data mining methods are used to identify and predict auditor's opinions on the annual report to assist auditors in their work. Their neural network model was able to predict the correct audit opinion in 87,7% of the cases. The other is a field study by Alles & Vasarhelyi (2014) that proposes a new analytical procedures methodology for auditors by using a process mining approach. They identify numerous instances of significant errors that standard audit procedures have overlooked by applying their process mining protocol. The third is a paper by Commerford et al., (2021) investigates algorithm aversion – the tendency to discount computer-based advice more heavily than human advice among big auditing firms and how it manifests in auditor jugdements.

Another set of papers are more conceptual showing how different AI technologies could be used to improve audit engagements (Raschke et al., 2018), use AI to enhance audit inquiry (Moffitt et al., 2018), how Robotic Process Automation can be used in auditing (Li & Liu, 2020), how Natural Language Processing can be used in auditing (Burns & Igou, 2019) and how virtual assistants could support auditors in carrying out their tasks.

Research like this could be particularly interesting to audit companies and there is some evidence that the Big 4s are heavily involved in enhancing audit practices and automating manual tasks using AI (Faggella, 2020).

Two papers presents empirical evidence based on primary data that explains how AI is used in real life cases. One paper by Coopet et al. (2019) investigates the implementation of Robotic Process Automation (RPA) software in public accounting by interviewing RPA leaders at Big 4 firms. This paper provides some interesting findings. For instance, tax services are furthest along in RPA adoption, followed by advisory and assurance services. Furthermore, fees have not been impacted by RPA, but there is concern that clients may desire fee reductions due to decreased employee hours. Finally, unlike other technology implementations, RPA adoption is driven primarily by lower-level employees. These findings describe experiences with RPA in larger accounting firms, but tell relatively about experiences with and impact of RPA in a broader context. In an paper by Bakarich & O'Brien (2021) they show that responses from 90 participants indicate that both RPA and machine learning are currently not being used extensively by public accountants.

4.1.6 AI's impact on the organization

Eighteen papers were identified in this theme. This theme has the highest number of papers and, more importantly, the highest number of papers presenting primary empirical evidence. Only two

papers explicitly mention theory, while others are not using any theory at all. This theme covers a broad range of accounting categories as well as general AI topics and automation.

Many of the papers focus on how AI impacts different organizational elements. Barro and Davenport (2019) explain how people and machines collaborates in innovation. Bughin (2018) explains why AI is not the death of jobs as feared by many – including accountants. Davenport and Kirby (2016) discuss what tasks AI could help humans within organizations. These papers contribute with overarching directions for the evolution of AI, which can be traced back to organizational and economic initiatives with relevance to the accounting domain.

An in-depth case study by Fernandez & Aman (2018) showed that RPA technology has a significant impact on individuals and organizations. It resulted in the reduction of number of manual tasks, thus reducing the number of employees. Furthermore, it shows that unnecessary competition between humans and robots might occur when introducing new technology in an organization. Although RPA can solve some issues, robots cannot (yet) fully replace high-level workers.

Brougham & Haar (2018) focusses on Smart technology, Artificial intelligence, Robotics, and Algorithms as "STRATA" and examine how employees perceive technological advancements regarding their jobs and careers. They create a measure called STRATA awareness to capture the extent to which employees perceive these types of technology could replace their job. Using mixed methods (online and paper-based surveys) they show that greater STRATA awareness is negatively related to organizational commitment and career satisfaction and positively related to turnover intentions, cynicism, and depression. Although, the generalisability of this study could be questioned due to its small sample size, the results are in line with other findings in this area of research (Leitner-Hanetseder et al., 2021).

A Delphi study by Leitner-Hanetseder et al. (2021) found that accounting tasks and skills will be subject to significant changes in the next 10 years due to different AI technologies. Core accounting roles and tasks will continue to exist in the future, but some will not be performed by humans but by different AI technology. The article used expert workshops of 138 interviewees across six continents and contributes to the debate on the digital transformation of society and the accounting profession.

4.1.7 Others

There are few articles with this theme, and these present no empirical evidence of how AI is applied in accounting. Most were conceptual, except for a couple of papers on how AI, especially machine learning, could enhance trading strategies, estimate firm value, or detect relationships between banking operations.

Pettersen's (2019) article discusses different aspects of knowledge work that tend to be ignored in the debate about whether artificial intelligence systems threaten jobs. Pettersen claims that a

great deal of knowledge work concerns highly complex problem solving and must be understood in contextual, social, and relational terms and argues that these aspects have no generic nor universal rules and solutions and cannot be replaced by artificial intelligence. No papers in this theme explicitly mention the use of theory.

5. Discussion

The 114 articles included in this literature review focused on various themes including fraud and bankruptcy detection and prediction, AI use in accounting research, use of AI to improve financial and management accounting, use of AI to improve auditing and overall, and how AI impacts the organization. Including broader search terms than used by Sutton (2016) shows a greater variety in the development of AI technology in the forms of e.g. Robotic Process Automation and NLP, which also are versions of AI technologies. These technologies have application potential in accounting and in accounting research and offer potential for valuable future research. In particular, research within RPA is rather limited given its potential to reduce workload and capacity needs. There seems to be a number of unanswered questions regarding e.g. variations in applicability, long term potential, scalability and technological platforms.

Despite the broad search terms and the inclusion of all journals on the AJG and ADBC list there were only 38 papers that focused on how AI can improve financial accounting, management accounting and auditing. Additionally of the 114 papers reviewed, only 9 were based on primary empirical observations where the researchers had collected quantitative or qualitative data, which seems to be very little given its potential.
Table 6 presents an overview of the 9 papers included in this literature review that presented evidence based on primary data discussing AI in accounting.

Table. 6
Papers presenting evidence based on primary data

Articles	**Year**	**Theme**	**Key findings**	**Method**	**Theory**
Bakarich & OBrien	2021	Auditing / Automation (RPA)	· RPA and Machine learning are currently not being used extensively by public accountants nor by clients of public accounting firms. · Firms are conducting some, but not extensive training on these technologies for employees. · Respondents strongly indicate that AI will significantly impact their daily responsibilities in five years and that employees in the profession are very receptive to these changes.	Survey	N/A

			· Firm size appears to be the most significant factor impacting differences in responses. Big 4 employees report higher expertise and greater current utilization of RPA technology than their non-Big 4 counterparts.		
Andreassen	2020	Management Accounting / Automation (RPA)	· The findings reveal that digital technology contributes to changes in the roles and identities of management accountants · Organizations that implement digital technologies, might benefit from analysing how digital technology can influence expected behaviour patterns in organizations and potentially contribute to triggering competition between professions.	Case study	Sociology
Fernandez & Aman	2018	Accounting/ Automation (RPA)	· RPA reduce workload · RPA reduce the number of employees · Unnecessary competition between humans and robots might occur · RPA cannot fully replace high-level works such as analytical aspects	Case study	Sociology
Brougham & Haar	2018	Accounting/ AI	· STRATA-awareness is negatively related to organizational commitment · STRATA-awareness is negatively related to career satisfaction · STRATA-awareness is positively related to turnover intentions · STRATA-awareness is positively related to turnover intentions · STRATA-awareness is positively related to Cynicism · STRATA-awareness is positively related to depression	Mixed methods	N/A
Brown et al.	2020	Management accounting/ Automation (RPA)	· System designs in service-based organizations can manipulate RPA settings to their benefit · This could lead to errors and biases	Case study	Sociology
Korhonen	2020	Management accounting/ Automation (RPA)	· Practitioners often interpret nonprogrammable work as programmable and seek to automate it · This does not lead to the desired outcome of improved efficiency · RPA does not necessarily lead to costs efficiency · RPA may have many possibilities, but everything can not be automated	Case study	Sociology
Cooper et al.	2019	Auditing/ Automation (RPA)	· Tax services in the big 4 are furthest along in RPA adoption	Interviews	N/A

			· Fees in companies have not been affected by the increased use of RPA yet · RPA adoption is driven primarily by lower-level employees		
Leitner-Hanetseder et al.	2021	Accounting/ AI	· Tasks and skills for accounts will be subject to significant changes in the next 10 years · Core roles will continue to exist, while robots might perform some tasks	Delphi study	N/A
Kokina & Blanchetta	2019	Accounting/ Automation (RPA)	· Organizations benefit from RPA in specific processes that are: "structured," "repeated," "Rules-based," and with digital inputs · Organizations that applied RPA have experienced positive outcomes: improved documentation, lower error rates, more accurate measurement, better report quality · Organizations are challenged by RPA complexity	Interviews	Sociology

There were no empirical papers examining the use of AI in financial accounting. These findings are a cause for concern as AI is arguable is one of the most important technological developments with a significant rise in applications, research funding, and impact on individuals, organizations, and societies. First, it is a surprise that accounting researchers do not focus more on its applications and impact on accounting. Second, there is an overweight of conceptual articles and papers developing framework and too few articles that report on the impact and applications of AI in accounting. This needs obviously to change if accounting academics are to be taken seriously in debates on applications and implications of AI in accounting. Examining actual implementations and applications of AI has to be a priority given the rapid development of this technology and its potential impact on accounting and accountants.

The methodologies applied in the 9 papers include case studies, mixed methods, delphi study approach and interviews. There seems to be room for much more focus on contextual studies and case studies examining specific applications and impacts. This is in line with the conclusions of Granlund and Lukka (2016), where they call for more contextual research drawing on contingency theory. There also seems to be room for large scale cross-sectional surveys examining accounting applications of AI across industries, organizational size, strategies, organizational structures, accounting practices to name a few. It is quite remarkable - that we still do not know much about cross-sectional applications of AI in accounting based on empirical studies.

In all 20 papers report on how AI can be used in accounting research by accounting researchers. Some of this research points to new ways of developing AI applications that can support accountants and auditors. Some of this research is unrelated to accounting development as such as it merely uses accounting data and focuses mostly on developing innovative machine learning

algorithms or neural networks. Related to the above, a cause for concern here is that most of this research seems to be carried out in isolation from practice – i.e. the organizations that actually apply AI technologies in their work. There are no reports of implementations in practice, or how practice was involved in developing the AI applications used. Although applying AI in accounting research can generate novel insights per se, it is another cause for concern if this is not related to practice in any way. Accounting scholars seem not to engage in collaboration with practice in using AI for research nor do they focus on developing applications with practical application value. This is puzzling given the focus in many universities on interdisciplinary research. It would seem logical – given the potential importance of AI applications in accounting - that accounting scholars and AI scholars join forces either to develop new applications, test existing ones in the accounting domain or to examine the impact of AI in organizations.
Yet another cause for concern is the low number of papers (38) that use any form of theoretical basis. Given the high number of conceptual papers and frameworks this is maybe not surprising as such. However, given the ability of theories to provide structure to interpretations, enable testability of conclusions and explain results one would expect future empirical studies to pay more attention to this. There are various theories in accounting that can be applied to the diffusion and application of AI technologies including information processing theory, technology fit theory, technological dominance theory, contingency theory and different versions of institutional theory to name a few. Advancing these theories and applying them to AI could provide valuable directions for future research and advance our knowledge about the application and impact of this technology in accounting. A good example of this is a study by Fernandez & Aman (2018) that uses institutional theory to describe shifts in global accounting services impacted by RPA.

As for the research themes, the theme of education and research stands out as relatively overlooked. This is surprising given the potential impact of AI on accounting practice and thus on accounting education (Mckinsey, 2017). One important question is if there already exists a gap between what is taught in accounting classes and the potential of AI applications as well as the changes AI is creating. For example, if the applications of AI and drones is enabling instant valuation of the financial value of stocks at any given time as well as real time movement of stock in and out of warehouses, is it still relevant to teach the LIFO and FIFO evaluation in their current form? Or if AI enables total population testing of financial transactions, is it still relevant to teach auditing sampling strategies? Finally, if AI is enabling virtual reality teaching classrooms and exercises, how will that change accounting student interactions and engagement? Questions such as these have not been examined to any extent in the accounting education literature.

Another overlooked theme is AI´s impact on decision-making and control. There are no papers addressing this empirically by collecting data in practice. This is surprising given the potential of AI to automate decision-making and control. In this context, there is a need to examine for example if accounting only improved with the application of AI or if are there unintended negative consequences in the application of this technology when decision-making is automated. Another question is if using AI to automate accounting decision making introduces any biases in the decision making process and outcomes.

Similarly, only one article encompassed empirical evidence on RPA in auditing despite considerable anecdotal evidence of the Big 4 developing and applying this technology to make auditing work more effective and efficient. EY for example use RPA in timesheet administration, system maintenance, data analytics, procurement, payment, account opening and closure... Likewise, PwC reports that they use AI to detect fraudulent manual journal entries. Leading companies report of AI use to book and process invoices along with multiple uses of RPA. The use cases almost seem infinite, and many scenarios are already implemented by now, but academics have not yet have shown interest in investigating how these trends impact accounting. There is also scarce focus on how machine learning can be used for other purposes than prediction. Deloitte reports that they use ML in several client engagements to augment employee performance, automate increasingly complex workloads, and develop cognitive agents that simulate human thinking and engagement (Deloitte 16). None of these subjects is so far covered empirically in the current literature.

Finally, one research theme is glaringly absent which is the often-toted impact of AI is on accounting jobs in general. Numerous sources predict that the jobs of accountants and auditors will be taken over by AI in the near future. However, no research has examined these questions. Questions such as what skills are needed to apply AI in accounting and what changes should be made to accounting syllabus and course structures remain unanswered. Until now, these questions have been left to technology researchers who might not have insights into what accounting and auditing jobs entail. If the jobs of accountants and auditors are on the verge of disappearing or changing substantially then this should be a critical research issue for accounting scholars.

6. Conclusion

The objective of this paper is to update current knowledge about research in AI and accounting. Specifically, it reviews the research that has been carried out since the last reviews were published. It extends the search terms based on developments in AI technology, and assesses the extent research presenting evidence based on primary data.

The main conclusion of this paper is that despite some research on applications of AI in accounting has been published, we know relatively little about the impact of AI on accounting. There is a considerable number of conceptual papers speculating about AI impacts and developing frameworks, but there very little empirical research informing us about what is happening in practice. Although this might be acceptable in a new field, AI applications are not new and are currently having an impact on accounting and auditing. This has been relatively ignored by accounting researchers and needs to change.

One reasons for this limited focus could be lack of knowledge of AI by accounting researchers. Attracting new talent to accounting research has always been a challenge. Limited number of

younger researchers might in this case pursue the traits of older researchers focusing on research themes that they are more classic research themes with and ignoring themes that are complicated and require substantial investment in knowledge. AI could fall into that category. If this is the case, universities and business schools would need to focus on hiring PhD students and assistant professors into accounting departments with technology related backgrounds to spur development and bridge the "generation research theme divide".
A second explanation for this lack of focus could be the silos in which academic research often takes place in universities. Accounting departments and computer science departments do not have much tradition for working together and often belongs to different faculties. This can hinder interdisciplinary research. If this is, the case universities and business schools need to motivate and enable accounting and computer science researchers to work together across departmental silos and organizational boundaries.

A third explanation could be that research within the field is not so prestigious and therefor more difficult to publish in top journals.- If that's the case it is a hindrance for carrying out research that has a huge relevance for public and private companies right now where digitalization is very high on the agenda.

The method used for the review in this study has some limitations. The papers from different journals ranked from 4* to 1 and have been processed in the same way throughout the study. This means that findings from lower-ranked journals carry the same weight as papers from higher-ranked journals in the findings sections. Another limitation relates to keywords used in the search, which were not exhaustive, although significant consideration was taken to include the most relevant keywords. Furthermore, the search was limited from 2010 to 2021. Nevertheless, with over 114 papers in AI and accounting domains, it is believed that the most influential literature is covered in the review.

Although the above is rather critical of the current state of research in this area, we are also optimistic as there are considerable opportunities for researcher. We are hopeful that with more interdisciplinary research, more research grants becoming available, more younger researchers entering the field and more popular press focus on AI in accounting, the future will see increasing research and more knowledge generation in this field.

Tables and Appendixes

APPENDIX 1. LIST OF JOURNALS PUBLISHING RESEARCH ON AI AND ACCOUNTING

1	Journal of Accounting Research
2	The Accounting Review
3	Corporate accounting & Finance
4	Asian Journal of Accounting and Governance
5	Journal of Management and Organization
6	International Journal of Information Management
7	Journal of Accounting and Finance
8	Journal of Economics and Business
9	The International journal of Digital Accounting Research
10	Review of Accounting Studies
11	The Journal of Economic Perspectives
12	European Journal of Operational Research
13	Work, Employment and Society
14	Abacus
15	The British Accounting Review
16	Accounting, Auditing & Accountability Journal
17	Journal of Business Ethics
18	Expert systems with applications
19	MIT Sloan Management review
20	Accounting Horizons
21	Annals of Operations Research
22	Management Accounting Research
23	Decision Support System
24	Auditing: A Journal of Practice & Theory
25	European Accounting Review
26	International Journal of Production Economics
27	Journal of Applied Accounting Research
28	Journal of Management Control
29	Journal of Accounting Information Systems
30	Journal of Accounting & Organizational Change
31	International Journal of Accounting Information
32	Information Science
33	Business Horizons
34	Review of International Economics
35	Accounting and Finance
36	Accounting and finance
37	International Journal of Accounting and Information Management
38	Accounting Education
39	International Journal of Computer Integrated Manufacturing

40 Journal of Emerging Technologies in Accounting
41 Meditari Accountancy Research
42 Journal of Cleaner Production
43 Industry and Higher Education
44 Accounting and Management Information Systems
45 Intelligent Systems in Accounting, Finance and Management
46 Journal of Information Systems
47 African Journal of Business Management
48 Qualitative Research in Accounting & Management
49 Managerial Auditing Journal
50 Journal of Sustainable Finance and investment
51 African Journal of Business

APPENDIX 2. LIST OF THE 114 PAPERS

Num	Year	Author	Article	Journal	Method	Theory	Theme
1	2019	Brown et al.,	What Are You Saying Using Topic To Detect Financial Misreporting	Journal of Accounting Research	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
2	2019	Bao et al.,	Detecting Accounting Fraud In Publicly Traded U.S. Firms using a Machine Learning Approach	Journal of Accounting Research	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
3	2016	Perols et al.,	Finding Needles In a Haystack - Using Data Analytics To Improve Fraud Prediction	The Accounting Review	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
4	2016	Loughran & Mcdonald	Textual Analysis in Accounting and Finance: A Survey	Journal of Accounting Research	Quantitative	N/A	AI for Accounting Research
5	2014	Alles & Vasarhelyi	A Field Study on The Use Of Process Mining Of Event Logs As An Analytical Procedure In Auditing	The Accounting Review	Quantitative	Economics	AI to Improve Auditing
6	2010	Li	The Information Content Of Forward-Looking Statements In Corporate Fillings - A Naive Bayesian Machine Learning Approach	Journal of Accounting Research	Quantitative	Economics	AI to Improve Financial Accounting
7	2020	Harrast	Robotic Process Automation In Accounting Systems	Corporate Accounting & Finance	Conceptual	N/A	AI to Improve Management Accounting
8	2018	Fernandez & Aman	Impacts of Robotic Process Automation on Global Accounting Services	Asian Journal of Accounting and Governance	Case study	Sociology	AIs impact on the organization
9	2018	Brougham & Haar	Smart Technology, Artificial Intelligence, Robotics, And Algorithms (STARA): Employees' Perceptions Of Our Future Workplace	Journal of management and organization	Mixed Methods	N/A	AIs impact on the organization
10	2021	Dwivedi et al.,	Artificial Intelligence AI - Multidisciplinary Perspectives On	International Journal of Information Management	Literature review	N/A	AI for Accounting Research

			Emerging Challenges, Opportunities, and Agenda for Research, Practice				
11	2019	Thiel & Raaji	Artificial Intelligent Credit Risk Prediction an Empirical Study of Analytical Artificial Intelligence Tools for Credit Risk Prediction	Journal of Accounting and Finance	Quantitative	N/A	AI in the financial sector
12	2018	Wall	Some Financial Regulatory Implications of Artificial Intelligence	Journal of Economics and Business	Conceptual	N/A	AIs impact on the organization
13	2020	Matthies	Assesing the Automation Potentials of Management Reporting Processes	The International Journal of Digital Accounting	Conceptual	N/A	AI to Improve Financial Accounting
14	2020	Bertomeu	Machine Learning Improves Accounting Discussion,	Review of Accounting Studies	Conceptual (Essay)	Economics	AI to Improve Financial Accounting
15	2020	Ding et al.,	Machine Learning Improves Accounting Estimates	Review of Accounting Studies	Quantitative	Economics	AI to Improve Financial Accounting
16	2020	Bertomeu et al.,	Using Machine Learning to Detect Misstatements	Review of accounting studies	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
17	2019	Acemoglu & Restrepo	Automation and New tasks: How Technology Displaces and Reinstates Labor	The Journal of Economic Perspectives	Conceptual (Framework)	N/A	AI to Improve Management Accounting
18	2019	Agrawal et al.,	Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction	The Journal of Economic Perspectives	Conceptual	N/A	AI impact on the organization
19	2019	Mai et al.,	Deep Learning Models for Bankruptcy Prediction Using Textual Disclosures	European journal of operational research	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
20	2018	Petttersen	Why Artificial Intelligence Will Not Outsmart Complex Knowledge Work	Work, Employment and Society	Conceptual	N/A	Others

21	2015	Geng et al.,	Prediction of Financial Distress An Empirical Study Of Listed Chinese Companies Using Data Mining	European Journal of operational research	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
22	2021	Zengul et al.,	Revealing Research Themes and Trends in 30 Top-ranking Accounting Journals A Text-mining Approach	Abacus	Quantitative	N/A	AI for Accounting Research
23	2020	Brown et al.,	Automation And Management Control in Dynamic Environments: Managing Organizational Flexibility and Energy Efficiency In Service Sectors	The British Accounting Review	Case study	Sociology	AI to Improve Management Accounting
24	2020	Korhonen	Exploring The Programmability of Management Accounting Work For Increasing Automation - An Interventionist Case Study	Accounting, Auditing & Accountability journal	Case study	Sociology	AI to Improve Management Accounting
25	2020	Munoko et al.,	The Ethical Implications For Using Artificial Intelligence in Auditing	Journal of Business Ethics	Conceptual (Framework)	N/A	AIs impact on the organization
26	2020	Sarmento & Horta	Enhancing a Pairs Trading Strategy With The Application of Machine Learning	Expert Systems with Applications	Quantitative	N/A	Others
27	2019	Barro & Davenport	People and Machines: Partners in Innovation	MITSloan Management Review	Conceptual	N/A	AIs impact on the Organization
28	2019	Cooper et al.,	Robotic Process Automation in Public Accounting	Accounting Horizon	Other research Methods (Interviews)	N/A	AI to Improve Auditing
29	2019	Moll & Yigitbasioglu	The role of internet-related Technologies In Shaping The Work of Accountants - New Directions for Accounting Research	The British Accounting Review	Literature review	N/A	AI to Improve Management Accounting
30	2019	Sun	Applying Deep Learning to Audit Procedures - An	Accounting Horizons	Conceptual	N/A	AI to Improve Auditing

			illustrative Framework				
31	2019	Ding et al.,	A Machine Learning-Based Peer Selection Method	Accounting Horizons	Quantitative	N/A	AI for Accounting Research
32	2019	Cai et al.,	Machine Learning and Expert Judgement - Analyzing Emerging Topics in Accounting and Finance Research in the Asia Pacific	Abacus	Conceptual	N/A	AI for Accounting Research
33	2018	Bughin	Why AI isn't the Death of Jobs	MITSloan Management Review	Conceptual	N/A	AIs impact on the Organization
34	2017	Barboza et al.,	Machine Learning Models and Bankruptcy Prediction	Expert Systems with Application	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
35	2017	Dutta et al.,	Detecting Financial Restatements Using Data Mining Techniques	Expert Systems with Application	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
36	2017	Sariannidis et al.,	Default Avoidance on Credit Card Portfolios Using Accounting	Annals of Operations Research	Quantitative	N/A	AI in the Financial Sector
37	2016	Davenport & Kirby	Just How Smart Are Smart Machines?	MITSloan Management Review	Conceptual	N/A	AIs impact on the Organization
38	2016	Quattrone	Management accounting Goes Digital - Will The Move Make It Wiser	Management Accounting Research	Conceptual (Essay)	N/A	AI to Improve Management Accounting
39	2015	Schneider et al.,	Infer, Predict, and Assure Accounting Opportunities In Data Analytics	Accounting Horizons	Conceptual	N/A	AI for Accounting Research
40	2014	Kuzey et al.,	The Impact of Multinationality on Firm Value a Comparative Analysis of Machine Learning Techniques",	Decision Support Systems	Conceptual	N/A	Others
41	2012	Omoteso	The Application of Artificial Intelligence In Auditing: Looking Back To The Future	Expert Systems with Applications	Conceptual	N/A	AI to Improve Auditing
42	2011	Perols	Financial Statement Fraud Detection - An Analysis of Statistical And	Auditing: A Jorunal of Practice & Theory	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction

			Machine Learning Algorithms				
43	2011	Ravisankar et al.,	Detection Of Financial Statement Fraud And Feature Selection Using Data Mining Techniques	Decision Support Systems	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
44	2011	Boegaerd & Aerts	Applying Machine Learning In Accounting Research	Expert Systems with Applications	Quantitative	N/A	AI for Accounting Research
45	2011	Grüning	Artificial Intelligence Measurement of Disclosure AIMD	European Accounting Review	Quantitative	Economics	AI to Improve Financial Accounting
46	2010	Kim & Kang	Ensemble With Neural Networks For Bankruptcy Prediction	Expert Systems with Applications	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
47	2010	Chou et al.,	Predicting the Development Cost of TFT-LCD Manufacturing Equipment with Artificial Intelligence Models	Int. J. Production Economics	Quantitative	N/A	AI to Improve Management Accounting
48	2021	Leitner-Hanetseder et al.,	A profession in Transition - Actors, Tasks and Roles in AI-based accounting	Journal of Applied Accounting Research	Other Research Methods (Delphi Study)	N/A	AIs Impact on the Organization
49	2020	Möller et al.,	Digitalization in Management Accounting and Control	Journal of Management Control	Conceptual	Sociology	AI to Improve Management Accounting
50	2020	Knudsen	Elusive Boundaries, Power Relations, and Knowledge Production - A Systematic Review Of The Literature On Digitalization In Accounting	International Journal of Accounting Information Systems	Literature review	N/A	AI for Accounting Research
51	2020	Roszkowska	Fintech In Financial Reporting And Audit For Fraud Prevention And Safeguarding Equity Investments	Journal of Accounting & Organizational change	Case Study	Sociology	Fraud & Bankruptcy detection/ prediction
52	2020	Losbicher & Lehner	Limits Of Artificial Intelligence In Controlling And The Ways Forward - A Call For Future Accounting Research	Journal of Applied Accounting Research	Conceptual	Sociology	AI to Improve Management Accounting

53	2019	Oesterreich et al.,	The Controlling Profession In The Digital Age Understanding The Impact of Digitization On The Controller's Job Roles, Skills and Competences	International Journal of Accounting Information	Other Research Methods (Bibliometric)	Sociology	AI to Improve Management Accounting
54	2019	Huang & Vasarhelyi	Applying Robotic Process Automation (RPA) In Auditing - A Framework	International Journal of Accounting Information Systems	Conceptual (Framework)	N/A	AI to Improve Auditing
55	2019	Kokina & Blanchetta	Early Evidence Of Digital Labor In Accounting - Innovation With Robotics Automation	International Journal of Accounting Information Systems	Other Research Methods (Interviews)	Sociology	AI for Accounting Research
56	2019	Carrasco et al.,	Automatic Detection Of Relationships Between Banking Operations Using Machine Learning	Information Science	Conceptual (Framework)	N/A	Others
57	2019	Min et al.,	Machine Learning based Digital Twin Framework for Production Optimization in Petrochemical Industry	International Journal of Information Management	Conceptual (Framework)	N/A	AI to Improve Management Accounting
58	2018	Wright & Schultz	The rising tide Of Artificial Intelligence and Business Automation: Developing An Ethical Framework	Business Horizons	Conceptual (Framework)	N/A	AI to Improve Management Accounting
59	2018	Fujita	AI and The Future Of The Brain Power Society When The Descendants Of Athena And Prometheus Work Together	Review of International Economics	Conceptual (Framework)	N/A	AIs Impact on the Organization
60	2018	Jarrahi	Artificial Intelligence and The Future Of Work: Human-AI Symbiosis In Organizational Decision Making	Business Horizons	Conceptual	N/A	AIs Impact on the Organization
61	2018	Arnold	The Chancing Technological Environment And	Accounting and Finance	Other Research Methods	Sociology	AI for Accounting Research

			The Future of Behavioural Research In Accounting		(Behaviroul Research)		
62	2018	Jiang & Jones	Corporate Distress Prediction In China A Machine Learning Approach	Accounting and Finance	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
63	2017	Amani & Fadlalla	Data mining Applications In Accounting - A Review Of The Literature And Organizing Framework	International Journal of Accounting Information Systems	Conceptual	N/A	AI for Accounting Research
64	2017	Kuzey et al.,	An Investigation Of The Factors Influencing Cost System Functionality Using Decision Trees, Support Vector Machines And Logistic Regression	International Journal of Accounting Information Systems	Quantitative	Sociology	AI to Improve Management Accounting
65	2017	Chen et al.,	Enhancement Of Fraud Detection For Narratives In Annual Reports	International Journal of Accounting Information Systems	Conceptual (Framework)	Economics	Fraud & Bankruptcy detection/ prediction
66	2016	Sutton et al.,	The Reports Of My Death Are Greatly Exaggerated - Artificial Intelligence Research In Accounting	International Journal of Accounting Information Systems	Literature review	N/A	AI for Accounting Research
67	2014	Gray et al.,	The Expert Systems Life Cycle In AIS Research - What Does It Mean For Future AIS Research	International Journal of Accounting Information Systems	Literature review	N/A	AI for Accounting Research
68	2013	Turner & Baskerville	The Experience Of Deep Learning By Accounting Students	Accouting Education	Other Research Methods (Phenomenographic approach)	N/A	Others
69	2013	Guan et al.,	How AIS Can Progress Along With Ontology Research In IS	International Journal of Accounting Information Systems	Conceptual	N/A	AI for Accounting Research
70	2012	Yeh & Deng	Application Of Machine Learning Methods To Cost Estimation of Product Life Cycle	International Journal of Computer Integrated Manufactoring	Quantitative	N/A	AI to Improve Management Accounting

71	2010	Debreceny & Gray	Data mining Journal Entries For Fraud Detection - An Exploratory Study	International Journal of Accounting Information	Quantitative	Economics	Fraud & Bankruptcy detection/ prediction
72	2020	Petkov	Artificial Intelligence AI And The Accounting Function - A Revisit And A New Perspective For Developing Framework	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI impact on the Organization
73	2020	Elliot et al.,	Artificial Intelligence For Decisions-Makers	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Management Accounting
74	2020	Cho et al.,	Learning From Machine Learning In Accounting And Assurance	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Financial Accounting
75	2020	Villiers	Seven Principles To Ensure Future-Ready Accounting Graduates - A Model For Future Research And Practice	Meditari Accountancy Research	Mixed Methods	N/A	Others
76	2020	Tiwari & Khan	Sustainability Accounting And Reporting In The Industry 4.0	Journal of Cleaner Production	Mixed Methods	Sociology	AI to Improve Financial Accounting
77	2020	Aldredge et al.,	The strategic Transformation Of Accounting Into a Learned Profession	Industry of Higher Education	Conceptual	N/A	Others
78	2020	Li & Liu	Development of An Intelligent NLP-Based Audit Plan	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Auditing
79	2020	Keys & Zhang	Introducing RPA in an Undergraduate AIS Course - Three RPA Exercises On Process Automations In Accounting	Journal of Emerging Technologies in Accounting	Conceptual	N/A	Others
80	2020	Vincen et al.,	Preparing For The Robots - A Proposed Course In Robotic Process Automation	Journal of Emerging Technologies in Accounting	Conceptual (Framework)	N/A	Others
81	2019	Burns & Igou	Alexa, Write An Audit Opinion - Adopting Intelligent Virtual Assistants In Accounting Workplaces	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Auditing

82	2019	McGuigan & Ghio	Art, Accounting and Technology - Unravelling The Paradoxical In Between	Meditari Accountancy Research	Conceptual	N/A	AIs Impact on the Organization
83	2019	Cong et al.,	Technological Disruption In Accounting and Auditing	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AIs Impact on the Organization
84	2019	Zhang et al.,	Text Data Sources in Archival Accounting Research: Insights and Strategies for Accounting Systems' Scholars	Journal of Emerging Technologies in Accounting	Other Research Mehtods (Archival research)	N/A	Others
85	2019	Zhang	Intelligent Process Automation In Audit	Journal of Emerging Technologies in Accounting	Conceptual (Framework)	N/A	AI to Improve Auditing
86	2018	Fisher	A Perspective on Textual Analysis In Accounting	Journal of Emerging Technologies in Accounting	Literature review	N/A	AI for Accounting Research
87	2018	Raschke et al.,	Ai-Enhanced Audit inquiry - A Research Note	Journal of Emerging Technologies in Accounting	None	N/A	AI to Improve Auditing
88	2018	Marshall & Lambert	Cloud-Based Intelligent Accounting Applications - Accounting Task Automation Using IBM Watson Cognitive Computing	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Management Accounting
89	2018	Sutton et al.,	How Much Automation Is Too Much - Keeping the Human Relevant in Knowledge Work	Journal of Emerging Technologies in Accounting	Conceptual	Sociology	AIs Impact on the Organization
90	2018	Moffitt et al.,	Robotic Process Automation for Auditing	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI to Improve Auditing
91	2017	Rindasu	Emerging Information Technologies In Accounting and Related Security Risks - What Is The Impact On The Romanian Accounting Profession	Accounting and Management Information	Case study	N/A	AIs Impact on the Organization

92	2017	Kokina & Davenport	The Emergence Of Artificial Intelligence - How Automation Is Changing Auditing	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AIs Impact on the Organization
93	2016	Fisher et al.,	Natural Language Processing In Accounting, Auditing And Finance - A Synthesis Of The Literature With A Roadmap For Future Research	Intelligent Systems in Accounting, Finance and Management	Literature review	N/A	Fraud & Bankruptcy detection/ prediction
94	2016	Issa et al.,	Research Ideas Of Artificial Intelligence In Auditing - The Formalization Of Audit And Workforce Supplementation	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AI for Accounting Research
95	2016	Liu & Moffitt	Text Mining To Uncover The Intensity of SEC Comment Letters and Its Association With The Probability of 10-K Restatement	Journal of Emerging Technologies in Accounting	Quantitative	Economics	AI to Improve Financial Accounting
96	2016	Fisher & Nehmer	Using Language processing To Evaluate The Equivalency Of The FASB and IASB Standards	Journal of Emerging Technologies in Accounting	Conceptual	Economics	AI to Improve Financial Accounting
97	2013	Vasarhelyi	Formalization Of Standards, Automation, Robots And IT Governance	Journal of Information Systems	Conceptual	N/A	AI to Improve Auditing
98	2012	Pourheydari et al.,	Identifying Qualified Audit Opinions By Artificial Neural Networks	African Journal of Business Management	Quantitative	N/A	AI to Improve Auditing
99	2011	Sutton et al.,	On The Use Of Grounded Theory As A Basis For Research On Strategic And Emerging Technologies In Accounting	Journal of Emerging Technologies in Accounting	Conceptual	Sociology	AI for Accounting Research
100	2010	Fisher et al.,	The Role Of Text Analytics And Information	Journal of Emerging Technologies in Accounting	Literature review	N/A	AI to Improve Financial Accounting

			Retrieval In The Accounting Domain				
101	2015	Muehlmann et al.	Emerging Technologies Research In Accounting. JETAS First Decade	Journal of Emerging Technologies in Accounting	Literature review	N/A	AI for Accounting Research
102	2021	Kokina et al	Accountant As Digital Innovator: Roles and Competencies in the Age of Automation	Journal of Emerging Technologies in Accounting	Conceptual	N/A	AIs impact on the Organization
103	2021	Losbicher & Lehner	Limits of Artificial Intelligence in Controlling and the Ways Forward - A Call for Future Accounting Research	Journal of applied accounting research	Conceptual	Sociology	AI to improve Management Accounting
104	2021	Penno M.	Concepts-based Accounting Standards	Abacus	Quantitative	Economics	AI to Improve Financial Accounting
105	2021	Dube et al.	Application of Artificial Neural Networks in Predicting Financial Distress in the JSE Financial Services and Manufacturing Companies	Journal of Sustainable Finance & Investment	Quantitative	N/A	AI to Improve Financial Accounting
106	2021	Petkov & Rossen	Artificial Intelligence (AI) and the Accounting Function - A Revisit and a New Perspective for Delveloping Framework	Journal of Emerging technologies in accounting	Conceptual	N/A	AI to improve Management Accounting
107	2021	Qasam & Kharbat	Blockchain Technology, Business Data Analytics and Artificial Intelligence - Use in the Accounting Profession and Ideas for Inclusion into the Accounting Curriculum	Journal of Emerging technologies in accounting	Conceptual	N/A	AI for Accounting Research
108	2021	Commerford et al.	Man versus Machine - Complex Estimates and Auditor Reliance on Artificial Intelligence	Journal of Accounting Research	Quantitative	Economics	AI to Improve Auditing

109	2021	Damerji & Salimi	Mediating Effect of use Perceptions on Technology Readiness and Adoption of Artificial Intelligence in Acccounting	Accounting Education	Conceptual	N/A	AI for Accounting Research
110	2021	Barkarich & O'Brien	The Robots are Coming.. But Arent here yet: The Use of Aritificial Intelligence Technologies in the Public Accounting Profession	Journal of Emerging technologies in accounting	Case study	N/A	AI to Improve Auditing
111	2021	Siano, Wysocki	Transfer Learning and Textual Analysis of Accounting Disclosures - Applying Big Data Methods to Smaller Datasets	Accounting Horizons	Quantitative	Economics	AI to improve Management Accounting
112	2021	Khan, Adi & Hussain	AI-based audit of fuzzy front end innovations using ISO56002	Managerial Auditing Journal	Conceptual	N/A	AI to Improve Auditing
113	2021	Tudor, Deliu	Relections on the human-algorithm complex duality perspectives in the auditing process	Qualitative Research in Accounting & Management	Conceptual	Sociology	AI to Improve Auditing
114	2021	Duan, Hu	Continous Intelligent pandemic monitoring	Journal of Emerging technologies in accounting	Conceptual	N/A	Others

REFERENCES

Abonamah, A. A., Tariq, M. U., & Shilbayeh, S. (2021). On the Commoditization of Artificial Intelligence. Frontiers in Psychology, 12, 3934. https://doi.org/10.3389/fpsyg.2021.696346

Acemoglu D., Restrepo, P., 2019. Automation and New Tasks: How Technology Displaces and Reinstates Labor. Journal of Economic Perspectives. Volume 33, Number 2. Spring 2019. Pages 3–30

AICPA https://www.aicpa.org/about.html

Amani, F, A., & Fadlalla, A.,M., 2017. Data mining applications in accounting: A review of the literature and organizing framework. International Journal of Accounting Information 24 (2017) 32–58

Bao, Y., Ke, B., Li, B., Yu, J., Zhang, J., 2019. Detecting Accounting Fraud in Publicly Traded U.S. Firms Using a Machine Learning Approach. Journal of Accounting Research, Volume 58, Issue 1, pp. 199-235

Barboza, F., Kimura H., Altman E., 2017 Machine Learning models and Bankruptcy prediction. Expert Systems with Applications 83 pp. 405-417

Barro, S., Davenport T, H., 2019. People and Machines: Partners in Innovation. MITSloan Management Review. Sumer 2019 Issue. June

Berente, N., Gu, B., Recker, J., & Santhanam, R. (2021). Managing Artificial Intelligence. MIS Quarterly, 45(3), 1433-1450.

Bertomeu, J., 2020., Machine learning improves accounting: discussion, implementation and research opportunities. Review of Accounting Studies (2020) 25:1135–1155

Burns, M, B., Igou A., 2019. Alexa, Write an Audit Opinion: Adopting Intelligent Virtual Assistants in Accounting Workplaces Journal of Emerging Technologies in Accounting. American Accounting Association Vol. 16, No. 1 DOI: 10.2308/jeta-52424 Spring 2019 pp. 81–92

Brougham, D., Haar, J., 2018. Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA): Employees' perceptions of our future workplace" Journal of Management & Organization, 24:2 (2018), pp. 239–257

Brown C, N., Crowley, M, R., Elliott, B., 2020. What are you Saying? Using topic to Detect Financial Misreporting. Journal of Accounting Research. Vol 58. No.1

Brown P., Ly, T., Pham, H., Sivabalan, P., 2020. Automation and management control in dynamic environments: Managing organizational flexibility and energy efficiency in service sectors. The British Accounting review.52. 100840.

Boegaerd, M, V, D,. Aerts, W., 2011. Applying machine learning in accounting research. Expert Systems with Applications 38 (2011) 13414–13424

Brynjolfsson, E., Mcafee, A., 2019. The Business of Artificial Intelligence, Harvard Business School publishing corporation. Insights you need from Harvard Business review – Artificial Intelligence

Bughin, J., 2018. Why AI Isn't the Death of Jobs. Magazine Fall 2018 Issue Frontiers Research Highlight

Burns J., Scapens RW., 2000. Conceptualizing management accounting change: an institutional framework. Manage Account Res;11(1):3-25

CIMA. 2019. Agile Finance Unleashed – The key Traits of Digital Finance Leaders. Oracle Cloud, AICPA & CIMA.

Chou, J,S., Tai, Y., Chang, K., 2010. Predicting the development cost of TFT-LCD manufacturing equipment with artificial intelligence models" Int. J. Production Economics 128 (2010) 339–350

Cong, Du and Vasarhelyi., 2019. Technological disruption in accounting and auditing. Journal of Emerging Technologies in Accounting. Vol. 15. No. 2. Fall 2018. pp. 1-10.

Creswell, J. W. 2017., Research design - qualitative, quantitative and mixed method approaches. London: SAGE. (in particular chapter 1 and chapter 11 (CH10 in 2017 5th edition)). See https://www.vitalsource.com/en-uk/referral?term=9781506386690

Cockcroft, S. Russel, M., 2018., Big Data Opportunities for Accounting and Finance Practice and Research. Australian Accounting Review. No. 86. Vol. 28 Issue 3.

Cooper, L., Holderness, K., Sørensen, T, Wood, D. 2019., Robotic Process Automation in Public Accounting. American Accounting Association. Accounting Horizons. Vol. 33, No. 4. December 2019 pp. 15-35

Davenport, T, H., Kirkby, J. 2016., Just How Smart Are Smart Machines? Magazine Spring 2016 Issue Research Highlight

Deloitte Uniersity Press – Machine Intelligence – Technology mimics human cognition to create value - https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology/deloitte-uk-tech-trends-2017-machine-Int.pdf

Deloitte 16 – 16 Artificial Intelligence projects from Deloitte. Practical cases of applied AI. Unleash the power of AI for your organization. https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/innovatie/deloitte-nl-innovatie-artificial-intelligence-16-practical-cases.pdf

Messier, W., Glover, S., Prawitt, D. 2019., Auditing and Assurance Services book. A Systematic Approach. Mcgraw Hill, Eleventh Edition.

Faggella, D. (2020). AI in the Accounting Big Four – Comparing Deloitte, PwC, KPMG, and EY. Emerj. https://emerj.com/ai-sector-overviews/ai-in-the-accounting-big-four-comparing-deloitte-pwc-kpmg-and-ey/

Fernandez, D., Aman, A. 2018., Impacts of Robotic Process Automation on Global Accounting Services. Asian Journal of Accounting and Governance 9: 123–131 (2018)

Fisher, I. E. 2018., A Perspective on Textual Analysis in Accounting. Journal of Emerging Technologies in Accounting American Accounting Association Vol.16, No. 2DOI: 10.2308/jeta-10639 Fall 2018 pp. 11–13

Fisher, I. E., Garnsey, M. R., Hughes, M. E. 2016., Natural Language Processing in Accounting, Auditing and Finance: A Synthesis of The Literature with a Roadmap For future Research. Intelligence Systems in Accounting, Finance and Management. Intell. SSys. Acc. Fin. Mgmt. 23, 157-214. 2016.

Granlund, M., & Lukka, K. (2017). Investigating highly established research paradigms: Reviving contextuality in contingency theory based management accounting research. Critical Perspectives on Accounting, 45, 63–80. https://doi.org/10.1016/j.cpa.2016.11.003

Gray G. L., Chiu, V., Liu, Q., Li, P. 2014., The expert systems life cycle in AIS research: What does it mean for future AIS research? International Journal of Accounting Information Systems. 15 pp. 423-451

Huang, F. Vasarhelyi, M. 2019., Applying robotic process automation (RPA) in auditing: A framework. International Journal of Accounting Information Systems 35 (2019) 100433

Jans, M., Alles, M., Vasarhelyi, M., 2014., A Field Study on the Use of Process Mining of Event Logs as an Analytical Procedure in Auditing. September 2014 The Accounting Review 89(5):1751-1773

Keys B., Zhang, Y., 2020., Introducing RPA in an Undergraduate AIS Course: Three RPA Exercises on process Automation in Accounting. Journal of Emerging Technologies in accounting Vol. 17. No. 2 pp.8-45

Knudsen. R. D., 2020., Elusive boundaries, power relations, and knowledge production: A systematic review of the literature on digitalization in accounting. International Journal of Accounting Information Systems – Volume 36, March 2020, 100441

Kokina, J., Blanchette, S., 2019., Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. International Journal of Accounting Information Systems 35 (2019) 100431

Kokina, J., Davenport, T., 2017., The Emergence of Artificial Intelligence: How Automation is Changing Auditing. The Journal of Emerging Technologies in Accounting. Vol. 14 No. 1 Spring 2017

Korhonen, T., Slos, E., Laine, T., Suomala, P. 2020., Exploring the programmability of management accounting work for increasing automation: an interventionist case study. Accounting, Auditing & Accountability Journal Vol. 34 No. 2, 2021 pp. 253-280 © Emerald Publishing Limited 0951-3574 DOI 10.1108/AAAJ-12-2016-2809

Leitner-Hanetseder, S., Lehner, O. M., Fostenlechner C., Eisl, C.,2021. A profession in transition: actors, tasks and roles in AI-based accounting. Journal of Applied Accounting Research Emerald Publishing Limited 0967-5426 DOI 10.1108/JAAR-10-2020-0201

Li, Q., Liu, J., 2020. Development of an Intelligent NLP-Based Audit Plan Knowledge Discovery System. Journal of Emerging Technologies in Accounting. American Accounting Association Vol. 17, No. 1 DOI: 10.2308/jeta-52665 Spring 2020 pp. 89–97

Li. F., 2010. The Information Content of Forward-Looking Statements in Corporate Filings—A Na¨ıve Bayesian Machine Learning Approach. Journal of Accounting Research Vol. 48 No. 5 December 2010 Printed in U.S.A

Loughran, T., Mcdonald, B., 2015. Textual Analysis in Accounting and Finance: A Survey. Journal of Accounting Research.DOI: 10.1111/1475-679.12123

Marshall T. E., Lambert. S. L., 2018. Cloud-based Intelligent Accounting Applications: Accounting Task Automation Using IBM Watson Cognitive Computing. Journal of Emerging Technologies in Accounting, Vol.15, No. 1, pp. 199-215

Mckinsey. 2017. Mckinsey Global Institute. Artificial intelligence – The next Digital frontier? https://www.mckinsey.com/~/media/mckinsey/industries/advanced%20electronics/our%20insights/how%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/mgi-artificial-intelligence-discussion-paper.ashx

Min, Q., Lu, Y., Liu, Z., Su, C., Wang, B., 2019. Machine Learning based Digital Twin Framework for Production Optimization in Petrochemical Industry. International Journal of Information Management 49 (2019) 502–519

Moffitt, Rozario and Vasarhelyi. 2018., Robotic Process Automation for Auditing. Journal of Emerging Technologies in Accounting. Vol. 15. No. 1. Spring 2018. pp. 1-10

Moll, J., Yigitbasioglu, O., 2019., The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. The british accounting review 51 (2019) 100833.

Möller, K., Schaffer, U., Verbeeten, F. 2020., Digitalization in management accounting and control: an editorial. Journal of Management Control. 31:1-8

Pettersen, L. 2019., Why Artificial Intelligence Will Not Outsmart Complex Knowledge Work. Work, Employment and Society 2019, Vol. 33(6) 1058–1067

Pourheydari, O., Nezamabadi, H., 2012., Identifying qualified audit opinions by artificial neural networks. Article in African Journal of Business Management · November 2012

Quattrone, P. 2016., Management Accounting goes digital: Will the move make it wiser? Management Accounting Research 31 (2016) 118-122.

Raschke. L. R., Saiewitz A., Kachroo, P., Lennard. J.B., 2018. AI-Enhanced Audit Inquiry: A Research Note. Journal of Emerging Technologies in Accounting,Vol 15. No.2 pp.111-116

Richardson, P., Yigitbasioglu, O., 2018. Business intelligence & analytics in management accounting research: status and future focus. International Journal of Accounting information systems. 29 (2018) 37-58

Rom, A., Rohde, C., 2007. Management accounting and integrated information systems: a literature review. Int. J. Account. Inf. Syst. 8 (1), 40–68.

Rosario, A., Liburd-Brown, H., Kogan, A., Appelbaum, D., 2016. Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation. Volume 13, Issue 2

Schwab, K., Davis, N., & Nadella, S. (2018). Shaping The Fourth Industrial Revolution. World Economic Forum.

Shields, D. Michael., 1997. Research in Management Accounting by North Americans in the 1990s. Journal of Management Accounting Research, January 1997

Susskind D. 2020., A world without work. Technology, automation and how we should respond. Metropolitan Books.

Sutton, S. G., Holt, M., & Arnold, V., 2016. The reports of my death are greatly exaggerated. Artificial intelligence research in accounting. International journal of Accounting Information Systems, 22, 60-73

Taulli, T., 2019. Artificial Intelligence Basics – A Non Technical introduction - Apress

Wang, Ma, and Yang., 2014. China Accounting and Finance Review (CAFR)

Webster, J. Watson, T.R., 2002. Analyzing the Part to prepare for the futre: Writing a literature review. MIS quarterly 2002.

Yeh, T. H., Deng, S., 2012. Application of machine learning methods to cost estimation of product life cycle. International Journal of Computer Integrated Manufacturing Vol. 25, No. 4–5, April–May 2012, 340–352

Zhang, C., 2019., Intelligent Process Automation in Audit" Journal of Emerging Technologies in accounting. Vol.16 No.2 pp.69-88

Zhou, S., Guo, B., 2017. The order effect on online review helpfulness: A social influence perspective. September 2016 Decision Support Systems 93

Zimmerman. J., 2019. Accounting for decision making and control. Mc Graw Hill, Tenth Edition.

https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/innovatie/deloitte-nl-innovatie-artificial-intelligence-16-practical-cases.pdf

Paper 2 - An Institutional Work Perspective on Digitalization in the Accounting Function

Joachim Elmegaard

Department of Accounting, Copenhagen Business School Denmark

Abstract:
This paper explores how digitalization has been integrated into the case company Transcorp, how new management accounting routines have been institutionalized, and how performance in the International Shared service center has been impacted by digitalization. The paper uses an institutional work lens to investigate the single case study. It covers how four types of institutional work are applied to enforce digitalization in the organization and explain why data prerequisites are crucial when utilizing digital technologies in the accounting function. Digitalization changes management accounting routines and offers opportunities to enhance management accounting procedures. The paper covers how four digital technologies, Big data & Data Analytics, Artificial Intelligence, Machine learning, and Robotic Process Automation, have become institutionalized in the management accounting routines and changed how management accountants are working, as digital technologies enable faster data preparation, operational accounting tasks, and assistance in analytical procedures. The findings suggest that while digital technologies may improve efficiency through decreased full-time equivalents and increased transparency, quality, and consistency, these technologies are also associated with significant investments and concerns about trust. In the discussion of the paper, the importance of research investigating digitalization and conducting primary empirical observations in the field is emphasized to understand the influence of digitalization in accounting.

1. Introduction: Understanding the rise of digitalization in accounting functions

Researchers, governments, and organizations consider digitalization a significant societal change (Elding & Morris, 2018; OECD Publishing, 2021). Digitalization has changed organizations and industries, bringing societal and economic transformation (Berente & Seidel, 2022). By Digitalization we mean "the combined effects of several digital innovations bringing about novel actors (and actor constellations), structures, practices, values and beliefs that change, threaten, replace, or complement existing rules of the game within organizations, ecosystems, industries or fields" (Gegenhuber et al., 2022). This important topic in accounting may affect the digital landscape surrounding organizational and business models, and accounting practices (Möller et al., 2020). Interest in digitalization and accounting comes both from academia and practice, focusing on multiple technologies (i.e., robotic process automation (RPA), cloud-based solutions, blockchain technology, artificial intelligence (AI), big data, the Internet of Things (IoT) and business intelligence and analytics (BI&A).[2]

Studying digitalization is critical in the accounting field. First, as a novel and influential phenomenon in the societal context, digitalization permeates business and societal domains, from financial policy to employment and competition. Therefore, its impact on society and particular fields in society, such as accounting, must be investigated. In the accounting field, researchers predict that in the near future, digital technology could replace accounting professionals' occupations (Frey & Osborne, 2017). Financial transaction costs and the trustworthiness of financial transactions are also expected to be influenced (Kfoury, 2021). Furthermore, product quality may improve, and organizational competitiveness may increase (Meraghin et al., 2021). Second, digitalization is important to accounting from an academic and a practitioner's perspective, because it affects "the way things are done" (Burns & Scapens, 2000). Researchers highlight that digital technologies are rendering accounting routines increasingly accurate with fewer errors (Kokina & Blanchette, 2019); reducing the number of accounting employees and workload (Fernandez & Aman, 2018); and changing the nature of accountants' work (Kruskopf et al., 2020), the roles and tasks of management accountants (Andreasen, 2020), and accounting skills (Leitner-Hanetseder, 2021). Companies will improve transactional accounting processes, while accountants' roles will evolve toward more technical and analytical aspects. Despite these critical development tendencies in the field, limited empirical studies have examined these from an academic perspective. Third, several studies have called for research examining the relationship between digitalization and accounting (Arnaboldi et al., 2017; Knudsen, 2019; Korhonen, 2020; Modell, 2022; Payne, 2014; Rikhardsson & Yigitbasioglu, 2018; Sutton et al., 2018). These researchers highlight directions for future research including the motives and driving forces underlying digitalization in

[2] Abbreviations: robotic process automation (RPA), cloud-based solutions, blockchain technology, artificial intelligence (AI), big data, the Internet of Things (IoT) and business intelligence and analytics (BI&A), International Shared Service Centers (ISSC), key performance indicators (KPIs), full-time equivalents (FTEs)

accounting, the impact of digitalization on management accountants' routines, and the outcomes of digitalization in the accounting function. This paper addresses these research calls. Adopting an exploratory approach, this study investigates how agents in the case company integrated digitalization into the organization—specifically into the accounting function—and the impact thereof on management accounting routines. As such, it examines the impact of this digital wave on the performance output of the accounting function through an institutional theory framework, which can explain and theorize complex, large-scale change processes such as those brought by digitalization (Schildt, 2022). This study clarifies how socially constructed rules and norms, underpinned by cognitive understanding, can be taken for granted yet shape organizational and individual action and how organizational and individual action become institutionalized (Greenwood et al., 2008). Specifically, we elucidate the institutionalization of digitalization in the accounting function and of new management accounting routines. While the traditional institutional emphasis recognized digitalization as a historical and ongoing exogenous force of rationalization (Nassehi, 2021), in this study, institutional work focuses on "the purposive action of individuals and organizations aimed at creating, maintaining, and disrupting institutions" (Lawrence & Suddaby, 2006). Focusing on actions, institutional theory is suitable for our purposes because digitalization is connected to the actions of actors.

Changes in accounting caused by digitalization could lead to fewer manual tasks for management accountants, narrowing the role of core accounting but broadening the overall role based on more involvement in business support and closer engagement with operations. More decision-making data will be provided, changing the task focus from data generation to data analysis. Management accountants will need to handle these large amounts of data and balance the accuracy and timeliness of information. This development is expected to incur job loss for some management accountants and auditors; however, the extent thereof remains uncertain, as predictions often overestimate the impact of digitalization on accounting (Gurses et al., 2022). Although digitalization in accounting has obtained considerable interest in practitioner journals (E&Y, 2021; IMA, 2020), empirical research is limited on how and why companies adopt digitalization, and how digitalization impacts accounting practices, especially management accounting routines. To fill this void, this study addresses the following research questions: "How has Transcorp initiated the integration of digitalization in the organization, and how has this shaped management accounting routines and impacted the performance outcomes of the ISSC accounting function?" The study makes the following three contributions to the literature. It (i) describes how the case company has implemented digitalization in their organization, (ii) clarifies how digitalization has shaped management accounting routines, (iii) and highlights the performance outcomes of digitalization in the accounting function. These contributions improve accounting researchers' understanding of the influence of digitalization on accounting, an important objective in today's research agenda (Korhonen et al., 2020; Möller et al., 2020; Quattrone, 2016). The remainder of this paper is structured as follows. Section 2 provides an overview of digitalization in accounting research and management accounting routines, outlining the conceptualization of the domain and its relation to institutional theory. Section 3

describes the case study methodology and context, the results of which are analyzed in section 4, Finally, the results are discussed in section 5, and the conclusions are drawn in section 6.

2. Conceptualization of digitalization in accounting and management accounting routines

The relationship between management accounting and digitalization has been studied (Rom & Rohde, 2007) in three distinguishable research phases (Daniele et al., 2022). The first focuses on the evolution of computerized information systems, offering accountants detailed records of postings in the accounting system, an overview of accounts, and extraction of trial balances. Second, the emergence of internet-related technologies allowed accountants to share information more efficiently within and between organizations. Third, the focus was on the current wave of technological advancements (digitalization), namely the combined effects of using digital technologies in bringing about structures, practices, values, and beliefs that change, threaten, replace, or complement existing rules of the game. This wave centers on how to automate and analyze practices through technologies such as AI, blockchain, and IoT. In the rest of the paper, digitalization refers to the third wave of digital technologies.

Two conceptual meanings of digitalization are linked and used interchangeably in the literature (Gorensek & Kohont, 2019). Herein lies a conscious choice to refer to digitization or digitalization. The meaning of digitization is narrower and indicates the process of digitizing via the conversion of analog data into digital formats (Gartner, 2020; Oxford Dictionary, 2019). Therefore, it refers to the first and second waves of digital development in accounting. The term digitalization is broader, referring to how the combined effects of digital technologies are changing organizations, ecosystems, industries, and fields. In management accounting practices, digitalization enables automating tasks and analytical procedures. For example, it addresses how to set up accounting practices so that no human involvement is required or how new analytical tools such as AI can help accountants become more efficient or better equipped in their current procedures. Another distinction is the difference between automation and augmentation: automation replaces human decision-making and actions with technology, while augmentation supports and improves human decision-making with technology.

In addition, in management accounting, digitalization is often referred to as Internet-based Technologies (Sinha., 2024), digital transformation (Leitner-Hanetseder et al., 2021), technological disruption (Cong et al., 2018), and internet-related technologies (Moll & Yigitbasioglu, 2019). Note though that technological advancement is just one element of digitalization according to the definition used. Digitalization also entails changes in structures related to the design and use of these digital technologies (Daniele, 2022; Thorseng & Grisot, 2017; Yoo et al., 2010). Furthermore, digitalization can lead to the introduction of novel decision-making practices (Quattrone, 2016), changes in management accountants' role (Andreassen, 2020), and reconfiguration of power relations (Scott & Orilokiwski, 2012). Two research approaches have primarily been employed, namely structure- and actor-focused

methods. The structure-focused stream investigated how particular technologies impact accounting procedures (Kokina et al., 2019; Leiner-Hanetseder, 2021; Vial, 2019), and the actor-focused stream management accountants' changing role owing to digitalization (Andreassen, 2020; Heinzelmann, 2018; Kokina et al., 2021).

Academic interest in digitalization in a management accounting context is growing (Moll et al., 2019), focusing on RPA (Leitner-Hanetseder et al., 2021), cloud-based solutions (Cooper et al., 2019), blockchain technology (Ranta et al., 2019), AI (Agrawal et al., 2019), big data (Cockcroft & Russel, 2018), BI&A (Rikhardsson et al., 2018), and IoT (Karmanska, 2021). Research has investigated the impact of various information technologies on management accounting procedures, tasks, and techniques. Elmegaard et al.'s (2022) literature review highlighted technologies in AI and accounting (e.g., machine learning, AI, RPA, natural language processing, and knowledge-based systems). In another literature review, Moll et al. (2019) synthesized technologies relevant to accounting (e.g., cloud-based solutions, big data, blockchain, AI, and IoT). However, few empirical studies investigate the impact of digitalization on accounting. All we know is that digitalization changes the roles and identities of management accountants and might contribute to competition between professions (Andreassen, 2020). Furthermore, RPA reduces workload and the number of employees, but cannot fully replace analytical tasks (Fernandez et al., 2018). The RPA research notes that system designers can manipulate RPA to their own advantage, causing errors and biases (Brown et al., 2020). RPA practitioners often interpret non-programmable work as programmable and seek to automate it, which does not always lead to the desired outcome (Korhonen, 2020). Essentially, management accountants' tasks and skills are subject to significant changes in the next 10 years. Core roles will be retained, and robots may perform some tasks (Leitner-Hanetseder et al., 2021). Burns et al. (2000) first used institutional theory to investigate changes in management accounting. With Scapens (1994), they argued that management accounting systems and practices constitute a set of *rules*, which can be interpreted as a formalized statement of procedures (the formal management accounting system), and *routines*, namely how the procedures are used (management accounting practices). Empirical evidence and qualitative research are lacking on aspects of digitalization other than RPA. As such, this qualitative study extends the research to address these limitations.

2.3 Theoretical background and approach

2.3.1 Institutional theory

Institutional theory is based on Berger and Luckmann's (1967) social constructionism. To conceptualize institutional research, the institution investigated must be defined. Here, we examine accounting as an institution to delineate changing accounting practices owing to digitalization. The institutional approach is helpful because it focuses on changes in practice (Hinings et al., 2018). Institutional theory helps explain the antecedents of digitalization (Schildt, 2022), enabling a deeper exploration beyond mere description. Digitalization, per Gegenhuber's (2022) definition, is a complex concept because of its broad impact on society,

professions, organizations, and individuals. Thus, institutional theory provides a rich body of literature that clarifies the phenomenon. The process of institutionalization is central to understanding institutional theory. In our study, we understand digitalization as something that becomes institutionalized in the accounting function when digital technologies are implemented and used by accountants. Likewise, we understand new management accounting routines as becoming institutionalized when digitalization shapes old routines and accountants get used to the new ways of using procedures.

2.3.2 Institutional work

Institutional work refers to "the purposive action of individuals and organizations aimed at creating, maintaining, and disrupting institutions" (Lawrence et al., 2006). Essentially, institutions profoundly affect individual and collective actors' thoughts, feelings, and behavior (Lawrence et al., 2006). Institutional work does not focus on accomplishments, but on the activities that lead to success, failure, or resistance (Lawrence et al., 2009). It encompasses different forms of purposive work or actions that address an institution's normative, cultural, or regulatory pillars (Järvenpää, 2009; Scott, 2008). Furthermore, the institutional entrepreneurs conducting institutional work are considered equipped with particular social skills (Fligstein, 1997), which they employ to motivate cooperation from others and use to "intentionally and purposefully work towards changing existing or creating novel institutions" (Perkmann & Spicer, 2008).

Lawrence et al. (2006) developed a taxonomy of forms of institutional work classified under three categories: (i) creating, (ii) maintaining, and (iii) disrupting institutions. Creation work involves establishing rules, rewards, and sanctions, and enforcing these rules. This refers to political work in which actors reconstruct rules, property rights, and boundaries that define access to material resources (Lawrence et al., 2006). Maintenance work entails supporting, repairing, and recreating social mechanisms that ensure compliance with institutional norms. This often involves following rules and ensures the reproduction of norms and belief systems (Canning & O'Dwyer, 2016). Disruption work involves undermining the mechanisms that lead actors to comply with institutions. This work strives to disassociate practices, rules, or technologies from their assumed moral foundations and undermines the key assumptions and beliefs that stabilize institutions (Lawrence et al., 2006). Table 1 illustrates the three types of institutional work.

Table 1. Typology of forms of institutional work

Typology of forms of institutional work	
Creating institutions	
Advocacy	Mobilization of political and regulatory support through direct and deliberate techniques of social suasion
Defining	Construction of rule systems that confer status or identity, define boundaries of membership, or create status hierarchies within a field
Vesting	Creation of rule structures that confer property rights
Constructing identities	Defining the relationship between an actor and the field in which that actor operates
Changing normative associations	Re-making the connections between sets of practices and the moral and cultural foundations of those practices
Constructing normative associations	Construction of inter-organizational connections through which practices become normatively sanctioned and which form the relevant peer group for compliance, monitoring, and evaluation
Mimicry	Associating new practices with existing sets of taken-for-granted practice technologies and rules to ease adoption
Theorizing	Developing and specifying abstract categories and elaborating chains of cause and effect
Educating	Educating actors in the skills and knowledge necessary to support the new institution
Maintaining institutions	
Enabling work	Creation of rules that facilitate, supplement, and support institutions, such as the creation of authorizing agents or diverting resources
Policing	Ensuring compliance through enforcement, auditing, and monitoring
Deterring	Establishing coercive barriers to institutional change
Valorizing and demonizing	Providing for public consumption positive and negative examples that illustrate an institution's normative foundations
Mythologizing	Preserving the normative underpinnings of an institution by creating and sustaining myths regarding its history
Embedding and routinizing	Building habitual behaviors to actively infuse the normative foundations of an institution into the participants' daily routines and organizational practices
Disrupting institutions	
Disconnecting sanctions	Working through state apparatus to disconnect rewards and sanctions from some set of practices, technologies, or rules
Disassociating moral foundations	Disassociating the practice, rule, or technology from its moral foundation as appropriate in a specific cultural context
Undermining assumptions and beliefs	Decreasing the perceived risks of innovation and differentiation by undermining core assumptions and beliefs

Source: Lawrence and Suddaby (2006)

This three-stage categorization and its assumptions lack nuances to illustrate the inherent complexity embedded in individual actors' efforts to instigate institutional change (Canning et

al., 2016). Several have criticized the model for being overly simplistic. For Empson et al. (2013), it fails to reflect the "far more complex and messy reality" of institutional change. Hayne and Free (2014) found that institutional work is conducted in a non-linear process in which "certain types of institutional work persisted, others disappeared, while others in turn re-emerged." They also observed that actors combine different forms of institutional work. In addition, we acknowledge recent criticism by Alvesson and Spicer (2018) that the numerous different notions of institutions pack so much into the term that it is too broad to use. We respond to this criticism by clarifying our meaning when saying that something becomes institutionalized, as explained. Alvesson and Spicer (2018) suggested that institutional theorists limit the range of concepts and sharpen their lens, which we regard as a valid argument considering the multiple purposes and research agendas of institutional theory. Thus, in this study, we specify the single branch of institutional theory we use—institutional work—to clarify how institutional theory adds to our structure, findings, and conclusions.

3. Research method and case background

We consider a single case study a valid methodological choice because to understand changes in accounting practices, an in-depth observational and participatory examination is needed (Yin, 2014). This means that the researchers must actively engage in the case. The research approach enables understanding what was said, done, and understood in a particular circumstance. In this single case study, the researchers collaborated with a single company to gather empirical evidence. Our observations have strong interpretive validity (Maxwell, 1992) stemming from deep access to informants' real-life experiences and triangulating the findings based on different forms of data (interviews, observation, data, models, and software). In section 4.1, the level of the phenomenon is the organization, while in sections 4.2 and 4.3, it is the group (International Shared Service Centers [ISSC]; Meyer & Zilber, 2022).

3.1 The case setting: Transcorp

To identify the case to investigate, our primary target was large companies with high data maturity. Therefore, we contacted the 20 companies with the highest market value in the OMXC25 (the 25 largest companies in Denmark). By doing so, we knew that a potential case would likely present a high maturity level in the digitalization of accounting processes and provide richer data than smaller companies with fewer resources. We gained access to two cases, but with knowledge acquired from an introductory interview, we choose Transcorp, which we considered a rich case to study the impact of digitalization on accounting. We were informed several times that the company had implemented digital technology in the accounting function. Furthermore, digitalization had long been attached to how the company operates, its key performance indicators (KPIs) to measure digital performance were already in place, and Transcorp seemed open to using new technologies. Furthermore, multiple roles in the company were devoted to employees with a focus on technologies such as AI, and a digitalization agenda was an integral aspect of the company's strategy. Transcorp is a Danish transport and logistics company providing large-scale logistics services subject to global competition. Despite its

Scandinavian origin, Transcorp has expanded to markets worldwide and has more than 70,000 employees. Within its global transportation and logistics industry niche, the company is a technology leader with an initiative to compete by offering customized, high-tech logistics services to customers. The ability to customize and extract data from operations combined with an aggressive acquisition strategy are the two primary differentiators and profitability drivers for Transcorp. Customized services are often preferred because end-users are businesses that integrate these services into unique value-creation processes. Transcorp has achieved rapid expansion through strategic competitor acquisitions.

3.2 Data selection

To investigate the institutionalization of digitalization in the accounting function, we conducted 25 semi-structured interviews in 2 rounds of interviews. Interviews were conducted with top managers and management accountants from Transcorp's headquarters in Denmark and its subsidiaries in Spain and Poland between June 2022 and February 2024. All except three interviews were held online. Furthermore, 21 interviews were recorded and 4 were not, because they were characterized as opening or follow-up interviews to introduce the organization. They did, however, provide empirical data; therefore, we took extensive notes in these four cases during and immediately following the interviews. Participants were selected in coordination with our contact person at Transcorp who had a clear perception of the relevant informants; however, we were allowed to contact those we found interesting for the project beyond C-level executives. We approached top managers below the C-level and employees working directly in accounting and digitalization. Accordingly, we interviewed 9 leaders and 12 functional accounting practitioners. This distribution afforded a rigorous representation of interviewees who imparted their knowledge of how top management initiated digitalization, the implementation of digital technology, and associated outcomes for the accounting function. Case access was extensive and generously provided. We obtained access to several digitalization cases within the company, particularly in the ISSC. The data were collected from interviews and actual digitalization cases. Interviewees' details are presented in Appendix A. To participate, participants had to be directly involved with digitalization and accounting, which was determined independently of the case company. In collaboration with the Vice President Head of Finance Transformation, who knew employees' current roles and responsibilities, we contacted employees and scheduled meetings. Prior to their participation, all interviewees were informed that information obtained from the interviews would only be used anonymously to safeguard their privacy.

3.3 Developing the interview guide

The interview questions were exploratory and open-ended, with keywords used when asking probing and follow-up questions (Brinkman & Kvale, 2014). The keywords were loosely organized around research themes (i.e., how has digitalization been integrated, how has it impacted management accounting routines, and what outcomes have resulted from this transformation). However, questions were used to guide the interviews, and respondents could

discuss other topics as long as the issues in the interview guide were addressed. Each interview lasted from 22 to 117 minutes. Our open-ended interview questions sought to retrospectively explore the institutionalization of digitalization at Transcorp.

The contact person was offered the opportunity to read and discuss our preliminary findings and verify the correctness of the information at a follow-up meeting in January 2023. A small group of researchers developed the questionnaire for the semi-structured interviews, with consensus regarding the topic, method, and theories used. Multiple follow-up meetings were held with several interviewees to confirm observations and clarify our observed interpretations, and dozens of emails, meetings, and telephone calls took place during the communication period with Transcorp. After receiving feedback on the paper from reviewers, we adjusted the questionnaire to ask more direct questions on the impact of digitalization on management accounting routines.

3.4 Secondary data

In addition to the primary interview data, we were allowed access to secondary data, which supplements and supports the qualitative findings. We gathered data from three KPIs regarding digitalization in accounting: hours saved per month with automations implemented (Appendix B, Table 1) the number of operational optimizations implemented (Appendix B, Table 2), the percentage of standardization within main processes (Appendix B, Table 3),. All these data came from the ISSCs. The number of operational optimizations quantifies every time Transcorp implemented some kind of process optimization, ranging from small data inquiries to larger automation projects. Most optimizations are implemented in the ISSC, revealing the importance of optimization in this function. The percentage of the digital standardization of main processes indicates the proportion of the core accounting processes that run entirely the same way at each execution. Importantly, data were obtained from the ISSC, where mostly transactional accounting takes place. This KPI indicates how long Transcorp was engaged in the foundational work of aligning various data sources. Finally, hours saved provides an overview of the projects that used digital technology to automate accounting processes, and the number of hours thereby saved. The ISSC team presented KPI data in an online meeting. Another online meeting dealt with the functionalities of SAP during which our questions on accounting system practices were answered. We recorded our observational data by taking notes and observing accountants using the SAP accounting system. One accountant conducted a walk-through and explained how data came into the system, were processed, and reported.

3.5 Data analysis

All interviews were deductively coded in NVivo 14 (Corbin & Strauss, 2019). The institutional perspective adopted in this study gradually emerged as the data coding and analysis evolved based on the interview data. Interview data were interpreted from an institutional perspective. To ensure data validity and reliability we followed clearly defined set of methodological steps. The coding strategy deductively addressed the three research questions based on the interview data and excluded all material comments. We began with a predefined set of codes (e.g.,

digitalization's impact on management accounting tasks and procedures, digitalization's impact on management accountants role, institutionalization of accounting routines, digitalization unfolding in the organization, digitalization's outcomes) to code our qualitative data sets. The codes were derived from our research questions, theory, previous research and empirical data, and interplay among these elements (Anderson-Gough et al., 2005; Jørgensen & Messner, 2010), resulting in a detailed overview of the units of data available. During the analysis, we moved between the empirical data, theory, and previous research in an iterative process to make sense of our empirical material and understand the case company (Ahrens & Chapman, 2006; Jørgensen et al., 2010).

With Transcorp, we created a map to illustrate the finance tasks impacted by digitalization. The map was reviewed by the Vice President Head of Finance Transformation who provided comments, which helped exemplify specific tasks and describe the accounting ecosystem. We had several meetings with the interviewees between interviews to verify observations. We spent time inspecting several software programs with them to better understand the observed phenomena. The data on the digitalization projects were analyzed, and if something did not make sense, explanatory questions were asked via email to the person delivering the data. Next, we present our findings.

4. Findings

At Transcorp, digitalization shaped the taken-for-granted beliefs about company practices on a strategic level, as it is considered a prerequisite for success in the current business model. The creation of institutions is a lengthy process rooted in the cultural and historical context in which diverse actors and mechanisms play a role (Berger et al., 1966). Actors can influence this process through their actions (Battilana et al., 2009). Digitalization has been evident at Transcorp for decades in multiple forms. It emerged in the 90s as a wave of computerized information systems, offering accountants detailed records of postings in the accounting system and enabling the easy extraction of accounting data. In its second wave beginning in the early 2000s, the emergence of internet-related technologies allowed accountants to share information between corporate entities and between the company and public authorities. This led to the development of Transcorp's current accounting, where data have been centralized and streamlined throughout the organization. Concerning the earlier definition, today's third wave of digitalization manifests in the use of digital technologies to change existing structures, practices, and values.

4.1 How has Transcorp integrated digitalization into the organization?

From an institutional work theory perspective, four kinds of institutional work have been employed to institutionalize digitalization in Transcorp's accounting function: advocacy, mytholigizing, constructing normative associations, and constructing identities. Next, we delve into the process through which this development unfolded.

4.1.1. Advocacy

The first type of work involved in organizational digitalization is advocacy, meaning "the mobilization of political and regulatory support through direct and deliberate techniques of social persuasion" (Lawrence and Suddaby, 2006). At Transcorp, the legitimacy of digitalization stemmed from management, among others. However, management was not the only source of the legitimacy of digital development. Transcorp employees with technical interests also contributed to establishing legitimacy. Similarly, the development of digitalization in society has also played a role, such as more user-friendly software like ChatGTP and ongoing development of enterprise resource planning (ERP) systems implementing digital solutions. Thus, advocacy emerged not from marginalized actors, but from the deliberate efforts of a small group of actors (top management) that introduced and legitimized digitalization through their organizational status:

"It is crucial for the success of the company to have digitalized processes in place throughout the company's value chain … Top management have focused on digitalization throughout the organization, from the bottom of the infrastructure to top-level management reporting." **Vice President Finance**

We understand advocacy as a form of institutional work associated with creating institutions because, through this process, actors acquire legitimacy to affect creation or changes through direct and deliberate social suasion techniques. Here, top management functioned as institutional entrepreneurs and initiated divergent changes toward a more digital organization (breaking with the dominant "market" logic) as they actively implemented these changes (Battilana, Leca, & Boxenbaum, 2009). Transcorp created an organizational entity responsible for change within the organization called Enterprise Development. This group is led by the company's COO and is responsible for digital development in the accounting function. This is an example of mobilizing a group responsible for exercising regulatory support to achieve the goal of more digital processes.

"We have a strong top-driven organization with a focus on digital development throughout the company… To survive, you must have automatic digitalized processes and use the initial resources in the best possible way." **Vice President – Head of Finance Transformation**

Transcorp mobilized political and regulatory power through several influential institutional entrepreneurs to emphasize the importance of integrating digitalization into their business model. These include the companies' C-level executives (CEO, COO), the CFO, and leaders from departments including Finance, Finance Transformation, and Shared Services.

There are close ties between overall corporate strategy and digital development within the organization. Digitalization is an integral aspect of what the company is doing and how it creates value in the market. Interviewees considered it a taken-for-granted assumption in the

organization that digitalization is decisive for Transcorp's market position. Furthermore, they noted that digitalization is present throughout the company's value chain.

In the process of making Transcorp's business model more digital, the accounting department underwent radical changes. In 2006, top management first tried to establish the foundation of digitalization in the company. To do so, it constructed a strategy of how different software packages should work together to meet a digitalized business model capable of smoothly merging new companies into the existing organization. This strategy included a system integration platform to distribute work among connected components, an overall SAP platform to handle master data and accounting, and a sales force to handle customer relationship management. While the model has evolved and been adjusted several times since, the ideas behind the current digitalization infrastructure originate therefrom.

"We drew a Lego block at the bottom, dealt with Microsoft, and bought an Entreprise Service Bus [ESB] from them... We made it so that all these systems talk to each other, and we created master data. We spent four years cleaning up our data." **Vice President, Head of Group Digital and Technology**

4.1.2. Mythologizing

Mythologizing means preserving the normative underpinnings of an institution by creating and sustaining myths regarding its history. The importance of digitalization is mythologized in Transcorp. It is said that Digitalization is necessary because of the increasing customer demands Transcorp faces in the market, as several interviewees stated. Nevertheless, it is also essential for advancing current organizational practices.

"I think we are talking Shared Service Center in particular. Right. We are of course very curious to understand how the competitors are doing it, and again we cannot centralize Shared Service Centers without digitalization." **Manager Continuous Improvement**

Regarding Transcorp's accounting function, interviewees noted that the ISSC cannot be steered without digitalization. Mythologizing regarding the importance of digitalization for business survival and success seems strong, especially from management.

"Digitalization is central and we find colossal value in process automation" **Vice President, Head of Group Digital and Technology**

There exists several myths in this narrative, as interviewees express that digitalization provides "colossal" value for the organization without even knowing the true value of digital initiatives. It seems like attendants are focused on cost savings without taking the investment associated with digitalization into consideration.

4.1.3. Constructing normative associations

Constructing normative associations refers to constructing inter-organizational connections through which practices become normatively sanctioned and form the relevant peer group concerning compliance, monitoring, and evaluation.

Transcorp started by establishing the foundation of a digital organization by aligning data across organizational entities. The data alignment task was considered a prerequisite for the development of digitalization at Transcorp. This meant aligning the accounts chart, ERP structures, and master data inter-organizationally to meet the standards set by headquarters. Each country had to comply with the new format or they were sanctioned and would "have to leave." Each country was evaluated on success criteria regarding compliance with the new set of rules and expected behavior to become more digital.

"We called it the 'not invented here syndrome,' because all people want to have their way of doing things. You simply have to take that responsibility in terms of management and say that now we establish good processes and get the business involved to a high degree. We then say that this is how we do it. We now run a model I can mention here in this closed forum. We called it the 'FIFO model.' When we roll out in some countries and it works, we run a model called 'Fit in or F--- off." **Executive Vice President**

Normative associations were created in these inter-organizational connections when Transcorp set the agenda for how they wanted to develop the organization to be more aligned and formulated expectations and sanctions for each country.

"The centralization exercise is behavior driven, and the more we centralized, the more we can automate… Things come in. They're very standardized ways, which is the key to success." **Head of Process Automation and Business Intelligence**

Actors representing headquarters became aware that one criterion of successfully adopting digitalization is to strictly align the master data. Thus, standardizing all kinds of data across entities became a key focus. Several interviewees emphasized:

"It is impossible to automate without standardized processes and alignment of financial data across entities and countries." **Head of Process Automation and Business Intelligence**

Despite massive efforts to align and standardize data across entities, it took four years to achieve the level sought.

"This automation has only been achieved because, going back to the standard 10 years ago, we first understood and consolidated the process, and centralized understanding of governance and behavior. Automation cannot happen without this preparation" **Managing Director, Transcorp International Shared Service Centers**

Before standardization, organizational entities used different ERP systems leading to different charts of accounts that could not be compared or consolidated. This was considered a critical issue that required clean up. To orchestrate this change process, every country was forced into SAP and standardizing all charts of accounts. Today, more than 98% of Transcorp's transactions are contained in SAP. This change enhanced reporting but also raised issues around the people responsible for performing accounting in the entities at a local level. As several interviewees expressed, it was a people exercise to standardize accounting data in the company.

"Today, there is a human aspect of all things. Change management is getting people to buy into and see the value of the new ways of working… The technical solution is always the easiest and it is there that you use a lot of time. We will have to teach 75,000 people to do new things… Yeah, I think it all starts with the basics. First, you have the master data, which are the crown jewels. You need your master data, which is centralized, controlled, and kept at a central level." **Managing Director, Transcorp International Shared Service Centers**

However, some argued that automation was a necessity. As the standardization process began, it became clear to the organization that considerable work had to be accomplished before they could automate.

"This means that the more you automate or more of this standardized task you can automate, you are left with the exceptions or difficult cases where you need a specialist who can understand or decode something out of the ordinary…We thought we were standardized, and we were, but we were not standardized enough to automate." **Vice President**

Noteworthy is how important every interviewee claims this data alignment exercise has been in digitalization. This aspect is missing in most accounting literature regarding digitalization so far.

4.1.4. Constructing identities

Constructing identities is an aspect of institutional work related to defining the relationship between an actor and the field in which that actor operates. This means that new identities are constructed to fit the new purposes in the organization when new digital initiatives are implemented. These new identities can be seen as employees or organizational entities functioning as gatekeepers that provide stability and enforce the initial agenda of the organization. In Transcorp's case, this is the digital agenda.

When the foundation of data was in place and aligned, Transcorp started leveraging digitalization to enhance accounting routines and processes. New roles became necessary to carry out digitalization initiatives. In the accounting function, these were divided into roles responsible for digitalization inside and outside the ERP system. Tasks inside the ERP system required skills to reconfigure SAP to serve the desired functionality that accountants needed to accomplish their tasks and enhance accounting routines. Outside the ERP system, different

digital tools helped accountants in two ways: First, by analyzing and reporting business intelligence through analytical tools, and second, by automating manual accounting processes. For the roles inside the ERP, employees with extensive system knowledge, several years of expertise in accounting, and an interest in the more technical aspects of the ERP system were sometimes promoted to functional consultants.

"If we have some who are skilled technically, we typically promote them and move them to the technical department in a functional consultant role." **Senior Director Head of Controlling Transcorp**

This is an example of how Transcorp defined new employee roles to support the digital agenda. These "promotions" support the organization's digital initiatives and label the shift through positive storytelling, which signals that if you are good "digitally" you will be promoted. These roles are referred to as functional consultants working in the field of tension between accounting and digitalization. The SAP Hana 4.0 package was purchased with modules fitted to support the initial organizational type. These modules are typically implemented and set up by external consultants and SAP experts. However, each element, for example, the inventory or accounts receivable modules, can be configured differently by functional consultants to support the individual challenges experienced by a given accountant.

"We have SAP, ERP, and BPC experts, who every time I cannot figure out something personal, are the ones I throw the ball to… It can be hands-on small things like how to do an extraction, or bigger things. It is an advantage to have good technical knowledge, but you do not have to sit with large technical tasks as a controller." **Financial Controller**

Regarding the digital roles concerned with digitalization outside the ERP system, most employees are either grouped as BI&A or Devop engineers and both are referred to as functional consultants. BI&A specialists are concerned with extracting and presenting data from ERP using on-top software such as PowerBi. Devop engineers are concerned with automating accounting routines and processes using RPA or scripts to build software robots that perform manual tasks accountants once performed. New technical roles are not set in stone as with more traditional accounting roles. The categorization process of newer technical roles in the accounting function has some fluidity, and employees can simultaneously belong to various groups, which are often organized in terms of projects, not staff functions.

4.2 How have new management accounting routines been institutionalized owing to the implementation of digitalization in the accounting function?

Next, the analysis narrows from the organizational level to the group level. This section focuses on the ISSC. The ISSC is considered a rich case for analyzing how management accounting practices have changed owing to digitalization because several routines occur in this department. Here, management accounting systems and practices constitute a formalized statement of procedures (the formal management accounting system) and *routines*, which are how the procedures are used (management accounting practices). We now explore how these routines

have changed because of digitalization. After interviews at the ISSC, we received an Excel data model covering all processes automated by digital technology in 2021 and 2022. We conducted a follow-up interview with the head of process automation and business intelligence to probe the impacts of the most influential projects on management accounting routines. Table 2 summarizes the impact of digitalization on accounting routines.

Table 2. Impact of digitalization on management accounting routines

Changing management accounting routines	Description of digital impact	Accounting procedure	Technology
Data Preparation	Financial data can be extracted through reports in PowerBi that are customized to serve management accountants' needs and delivered in Excel. With the help of functional consultants, management accountants can reconfigure reports to meet their requirements for data overview.	Data gathering and cleansing	PowerBi
Operational Accounting Tasks	Software algorithm that learns by analyzing previous invoices on how to post future entries in SAP.	Procure-to-Payment (P2P)	ERP automation in SAP based on RPA and machine learning
	Received payments are matched without human involvement in more than 90% of cases.	Order to Cash (O2C)	ERP automation in SAP based on RPA
	PowerBi is used for management reporting of accounting data to different management teams in the organization.	Record to report (R2R)	PowerBi
Analytical Procedures	Customers' behavior is analyzed to allocate time for employees.	Analysis	Machine learning
	Embedded analysis in CargoWRITE – Automatically validates serial and batch numbers and reports when any goods are out of stock, affecting ongoing inventory accounts. CargoWRITE can predict future inventory flows.	Inventory system	Artificial intelligence, machine learning, big data
	Red flagging when suspicious amounts occur in accounts that are controlled.	Control and analysis	Artificial Intelligence, Machine learning

4.2.1. Data preparation

To make decisions, management accountants must analyze data. This has become easier, as the data analytics tool PowerBi is applied to extract data from SAP to Excel. Previously when management accountants needed to extract data for analysis, the extraction came in bulks of data. With thousands of accounting lines, it could be difficult to find the data needed. Management accountants needed to manually edit the data to use it for the desired purposes. A key attribute of PowerBi is the connectivity to different data sources including ERP,

spreadsheets, cloud services, and big data. Another important functionality is visualization, which Transcorp uses in its management reporting.

At Transcorp, management accountants use PowerBi to extract data and Excel pivots to create data tables including and excluding dimensions registered in journal entries. The data is sourced directly from SAP through PowerBi and into Excel. The accounting data can include various dimensions depending on the nature of the accounting system and company's preferences. We noted the following dimensions at Transcorp: Geographic location, type, plant, banner, profit center, and cost center. In an observed example, a controller showed how we could extract data from revenue accountants for all profit centers. They then limited the geographic dimensions to only include profit centers from Europe. Easier ways of extracting and managing data benefit management accountants, as they decrease the error margin and provide a faster and more complete view of data:

"With direct access to the BPC data warehouse, it has become much easier and more intuitive to work directly with data from the source." **Financial Controller Transcorp ISSC**

The user-friendly interface with drag-and-drop functionality allows users to connect to data sources and analyze data without extensive technical knowledge. Thus, management accountants can focus on the analytical aspects of the task. PowerBi allows real-time reporting so that management accountants can work with updated data.

4.2.2. Operational accounting tasks

Operational management accounting tasks are considered an extensive part of management accountants' routines. The consensus in the interviews was that several routines had been automated, allowing more time to now be spent on analytical tasks.

"We had many tasks that were not automated or done automatically. This was a heavy burden some years ago. Now, we can focus more on analytical aspects, which is good." **Financial Controller Transcorp ISSC**

The *procure-to-payment* process was digitalized through an RPA. Transcorp receives 500,000 invoices per month. These are sent to the ISSC. Large portions of the journal entries are automated through RPA and APIs that retrieve information directly from the invoices received in PDF or XML formats and send them to SAP through a solution called Kofax Readsoft. This procedure has decreased the manual work of management accountants. This digitalization initiative has decreased the time spent on accounts payable and improved the error margin according to several interviewees.

"The burden of the P2P process has been extensively decreased by the implementation of an automated process, giving us time for other tasks." **Financial Controller ISSC**

An example of a routine replaced by digitalization is the *order to cash* process. When a payment is received, accounts payable is credited and the bank is debited. However, payments must be settled manually in the account payable register. This task has historically involved considerable hours of manual work and caused confusion, as manual payment settlements can be mixed up if the same amount occurs in multiple instances. After implementing the digital RPA, Transcorp now has a hit rate above 90% in matching payments with invoices without human involvement. The remainder of the invoices is matched manually.

"Management reporting has become easier and more reliable." **Financial Controller Transcorp ISSC**

Management reporting has become an easier routine. In the *record to report process,* Powerbi is used for data analysis and data reporting internally between departments. PowerBI has rendered data reporting easier and with less manual errors owing to human involvement. At Transcorp, local controllers prepare a reporting package each month summarizing the financial performance of their entity and send this to ISSC reporting. ISSC-reporting then sends a PowerBi visual report to management summarizing the financial performance of all geographic regions.

"We had to do it all manually before, from ERP to Excel to PowerPoint. If something was missing, we had to correct it all again." **Financial Controller Transcorp ISSC**

This innovation has changed management accounting routines by automating several steps in the reporting process, thereby saving time.

4.2.3. Analytical procedures

The analytical routines of management accountants were also in some instances replaced or augmented by digitalization. CargoWRITE (warehouses, resources, information, technology, execution) is a warehouse management system for managing the supply chain using digital technologies (machine learning, BI&A, and big data). When new goods are received in storage, a data validation process ensures that serial and batch numbers are matched with the inventory system in SAP. Moreover, the system reports when items in stock are limited.

An example of using machine learning is when an adjacent algorithm to SAP learns from customers' behaviors and ranks individual risk profiles. This helps Transcorp's accountants determine potential losses by identifying customers with the highest risk profiles. This is useful when accruing for loss on accounts receivable.

Furthermore, management accountants' controlling routines are augmented by red flagging, namely when SAP highlights potentially suspicious accountants who management accountants must better control. These "red flags" are based on previous data for each account in the chart of accounts. For example, if an unusually large amount or an unusual text separate from what was previously entered into the account is now registered, a red flag pops up. This indicates that

something conspicuous has occurred and needs to be checked. This has made management accountants' analytical work more efficient, provided that the "red flagged" accountants can be trusted.

"The controlling tasks have improved. Now, most accountants search for particular items to check, which works as long we can trust the numbers." **Financial Controller**

This statement raises an interesting point, because while efficiency might have increased for analytical innovations, trust is important to achieve efficiency. Otherwise, management accountants could be distracted, with potentially devastating consequences.

4.3 What are the performance outcomes of the integration of digitalization in the ISSC accounting function?

Here, the analysis remains at the group level, focusing on what has been gained from the digitalization of the ISSC. We include all digital projects undertaken by the accounting function, not only those directly impacting management accounting routines. Note that some tasks belonging to the accounting function, but that do not directly impact management accountants' routines, are included in this section, for example, master data.

Table 3. Performance measures of digitalization initiatives in Transcorp's accounting function (ISSC)

Type	Output	Source
Quantitative impact	**35,696 working hours saved per month in 18 months (2021 + half of 2022)**	**Archival data from various sources including data models and KPIs**
Qualitative impact	**Transparency** **Quality** **Consistency**	**Interviews**

Table 3 summarizes the performance impact of digitalization in the accounting function based on Appendix B, Tables 1–3. The ISSC has 1400 employees working in accounting for around 2.693.600 working hours per year. In 2021 and the first half of 2022, 35,696 working hours were saved per month or 428.352 per year: 15,9% of the workforce or 219 full-time equivalents (FTEs). However, as the budgeting process considers the saved hours, while the FTEs will not immediately be fired, they will eventually be harder to justify. The calculation of saved hours is based on time registrations each employee is required to do every 15 minutes.

4.3.1. Quantitative impacts of digitalization in the accounting function

Table 1 in Appendix B provides an overview of the metrics extracted from the three KPIs. This section evaluates the impact of digitalization projects conducted during 2021 and the first half of 2022. In 2021, four projects were undertaken: Mass Imports, AP Coding, Cost Match, and the Quality Management Tool. These initiatives collectively saved 23,157 working hours per

month, as indicated by the KPI measurements. During the first half of 2022, five projects were executed: Automated Volume Allocator, Follow-up Tracker, Invoice Coding, Error Tracker, and Error Reporting. Collectively, these initiatives resulted in time-savings of 7,331 hours per month in 2022. Appendix B describes how each digital project contributed to the time-savings.

Optimizations and automatization

Table 2 in Appendix B shows that the number of optimizations increased every year in the three years. The number of optimizations refers to the proportion of standardization in main processes to make these processes as effective and functional as possible. For example, optimizing an accounting process might involve reducing process time while maintaining or improving accounting quality. For accounting, the number of optimizations rose from 128 in 2020 to 338 in 2021 to 372 (for the first six months) in 2022, totaling 838. Table 3 in Appendix B shows automatization in core processes, meaning the alignment of a process measured in percentages. If a process is 100% automated, it is automatically performed with no need for human involvement. The automatization rate in accounting services increased from 83% to 95% and in business support from 85% to 90% from 2021 to 2022. These relatively high percentages represent the automatization of a limited scope of accounting and business support tasks by Transcorp, labeled by interviewers as "low-hanging fruits." Therefore, it is not representative of the total number of standardized processes within Transcorp's overall accounting processes, but rather a selection of transactional tasks with potential for automation.

Despite relatively high automatization rates among the selected tasks based on the KPI measurements, most accounting processes that have been automated are transactional accounting tasks. Accounting processes at an analytical level (e.g., analysis of discrepancies) are predominantly being augmented to assist management accountants rather than replace them as discussed previously.

4.3.2 Qualitative impacts of digitalization on the ISSC

Transparency, consistency, and quality were improving owing to digital initiatives. More interviewees emphasized that quality had increased:

"With enhancements in accounting data, primarily through digital initiatives, we are now talking about one version of the truth." **Financial Controller**

Transparency has increased in the last decade, with several projects organized around data cleansing and data standardization between entities.

"Now, it is more reliable to look at data, we do not even have to reconcile data extractions to ERP, because we are so sure we have the right data in place every time that we use different data sources." **Financial Controller**

Interviewees highlighted that accounting processes were now performed more consistently. This is because machines accomplish some tasks that were previously executed by humans. One interviewee noted that when there were 10 bookkeepers with unique ways of doing things, one could not rely on invoice journal entries being done consistently, and quality in such matters is mainly related to consistency. Finally, some interviewees emphasized that quality had increased, because fewer systems were used to perform accounting tasks.

"Fewer systems mean that the quality of the output has increased because the root of errors has been limited." **Financial Controller**

Interviewees also agreed that the speed of accounting processes has increased owing to digital initiatives, corresponding with previous findings.

"Looking at the monthly closing process, we have cut five days, and it is not possible to cut anymore without redefining the whole system and process." **Vice President Head of Finance Transformation**

Several interviewees noted that efficiency gains owing to the increased speed of data processing and reporting are the most significant output from digitalization. One respondent indicated that it had become so much easier and faster to pull data on which management could base their decisions. Fifteen years ago, management expected finance to deliver such insights in three months. However:

"Now, finance can deliver them in one day. As the finance process has become faster, it is possible to close periods faster to conduct financial reporting." **Financial Controller**

This observation is perhaps not a direct consequence of new digital innovations, but more a result of enhanced processing in newer ERP systems.

4.3.3 Organizational impact of digitalization in the ISSC

Interestingly, a financial controller noted that despite the ISSC having fewer accountants than before, headquarters continuously hire more management accountants for analytical tasks.

"We noticed that ISSC employed double the number of people 10 years ago, while headquarters seems to progressively hire more people for accounting roles." **Financial Controller**

Thus, despite fewer manual tasks in the transactional accounting division (ISSC), more accountants were hired to do analytical tasks at headquarters. This indicates that accountants' roles are changing to more analytical tasks, corresponding with the findings in section 4.2 regarding the changing routines of management accountants.

Despite a general excitement about digital initiatives in the accounting function, some interviewees added their critical comments to the debate. One noticed that large investments associated with ERP often have few real benefits for local controllers.

"What we have gained from real digitalization is limited. The real advantage is SAP's processing power." **Financial Controller - Local**

The debate regarding digitalization in accounting is multi-faceted. On one hand, it contains small gains from optimizations in simple accounting routines, as discussed in the previous section, and on the other, large investments in ERP of hundreds of millions can potentially drive larger advancements.

5. Discussion

5.1 Discussion

Our findings demonstrated how digitalization unfolded and new management accounting practices were institutionalized and impacted the performance outcomes of the finance function at Transcorp. Figure 1 guides the discussion on the case narrative.

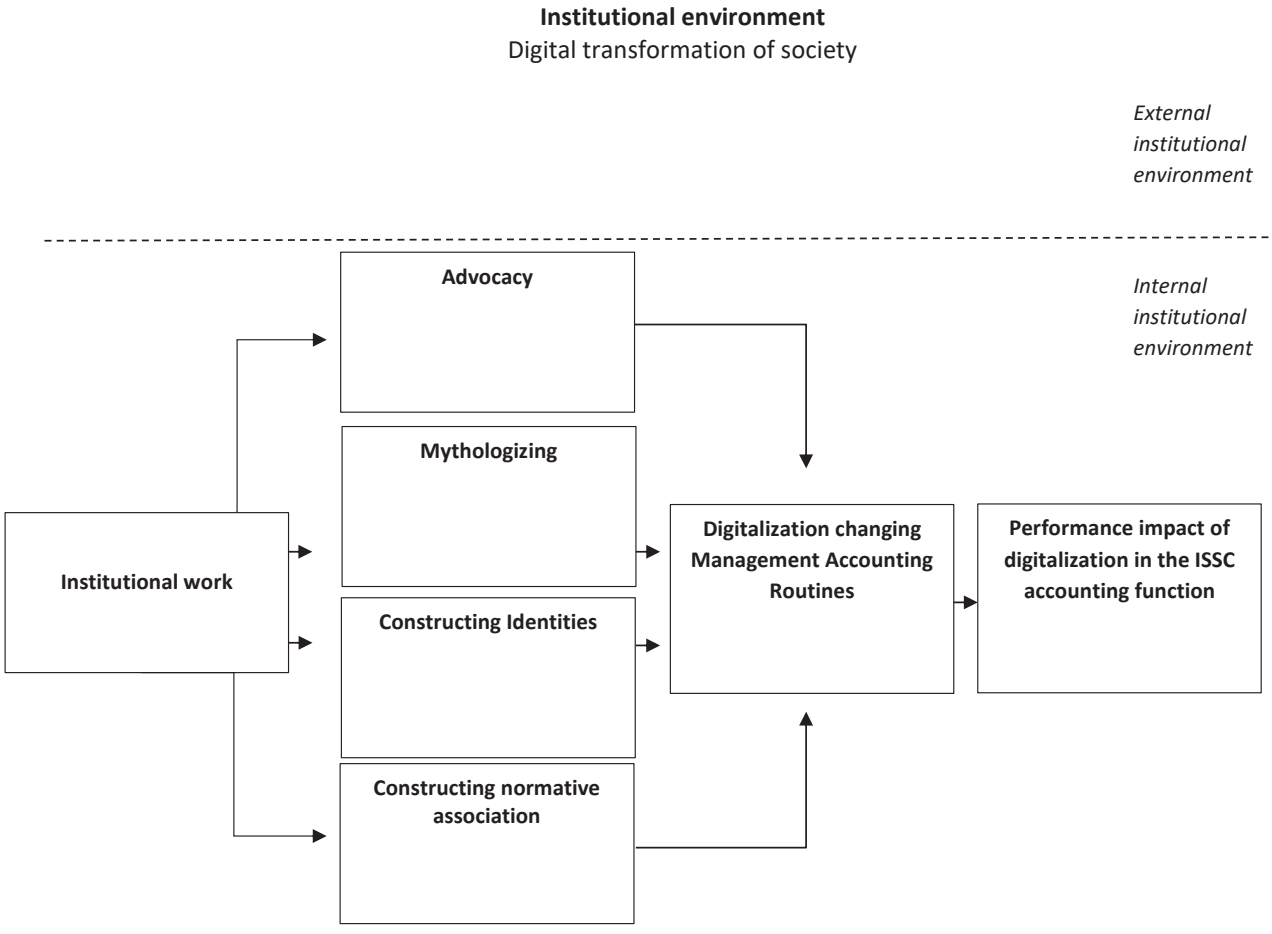


Figure 1. Institutionalization of digitalization through institutional work

5.1.1 Institutional work

Digitalization is disseminated across organizations through the institutional work. An example of advocacy was when management legitimated digitalization in the organization. Management mobilized political and regulatory power through their positions and previous experiences to legitimize the narrative that digitalization will benefit the company if integrated into its core strategy. In close connection mythologizing is building up as interviewees proclaim their excitement about digital initiatives without considering the costs related to them. These efforts were mobilized through a small group of actors, not marginalized actors, exemplifying the importance of top management's position in establishing this legitimacy. If work toward digitalization came from a marginalized group of actors without power in the organization, the type of work and results might have differed.

Transcorp constructed normative associations by establishing the foundation of a digital organization through aligning data across organizational entities. Changing normative associations involves work that manipulates the relationships between norms and the institutional field in which they are produced (Lawrence et al., 2006). Top management forced specific procedures upon each country, thereby changing the norms and institutionalized routines in each and making the country's management either leave or adapt to new procedures. At Transcorp, several new roles were created, such as technical specialist roles in the accounting function. Some tasks were automated (e.g., journal entries), resulting in less human involvement in repetitive and rule-based tasks, and others were augmented in human–robot collaboration (e.g., accounting analysis). Some tasks can still only be performed by humans. This form of institutional work is not unproblematic. According to Oakes et al. (1998), "Some people try to remake themselves, while others may stop contributing." Different goals, motives, expectations, and emphases in groups can cause identity confusion in the accountant's role at Transcorp. The role is divided into technical and non-technical accounting aspects. The technical role focuses on innovation and system development, and the non-technical role on core accounting tasks.

5.1.3 Digitalization changing management accountants' routines

At Transcorp, we observed the extensive use of RPA, macros, and scripts in automating manual rule-based accounting tasks. We found RPA beneficial in several instances but under particular circumstances. The more rule-based and repetitive a task is, the more suitable it is for RPA, which is also why it is primarily used to automate simple accounting tasks at ISSC. We found that RPA cannot fully replace high-level tasks such as analytical aspects of controllers' work, as per the findings of Fernandez et al. (2018). However, more advanced forms of digital technology based on machine learning helped management accountants in their analytical routines by flagging suspicious accountants for further control.

Owing to the large workload, Transcorp has standardized its master and financial data across entities; for example, by gathering all data in SAP and ensuring all entities use the same charts for accounts. Transcorp has advanced transparency by initiating what employees perceive as "one version of the truth." This transformation is not direct digitalization, but represents an important prerequisite for leveraging it; hence, it is not possible to implement digital technology before data is under control. This data maturity prerequisite is sometimes disregarded by practitioners selling the idea that new digital technologies can overcome every obstacle. These findings complement Korhonen et al.'s (2020) findings noting the need to understand digitalization as a context-dependent phenomenon. Management accountants' routines have become more analytical, and their role has become more tech-driven. However, thanks to easy-to-use tools like PowerBi, they do not need specialized technology skills. This supports Andreassen's (2020) work, which revealed that digital technology changes the roles and identities of management accountants and opens opportunities for further research on how their role is affected when digital technology replaces numerous traditional tasks in the domain.

5.1.4 Performance impact of digitalization

The findings imply that automation decreased the time Transcorp employees spent on work, which is measured in hours saved. This is similar to Kokina et al.'s (2019) findings on RPA decreasing time and processing costs in accounting tasks. We also found that digitalization increased the perception of accounting quality based on consistency and transparency in the performed accounting tasks. Consistency can be attributed to implementing systems that can more accurately post journal entries than humans. More efficient accounting processes (decreased working hours and higher quality) have decreased the costs of accounting at the group level. We were not able to compare investments in digitalization and assess ROI. However, in the ISSC, cost savings amounted to 15,9% or 219 FTEs in one and a half years.

The reliability of the results must be considered from the perspective that the way digitalization was framed in this article is relatively new in accounting and will differ for every use case. Regarding the validity of the results, because of its exploratory nature, the study has a broad scope, as the purpose was to examine how actors initiated institutional work to enforce digitalization in the organization and assess which management accounting routines were impacted and the associated performance outcome. When obtaining evidence, we were aware of the risk associated with our contact person introducing us to the organization. This risk of bias was purposefully limited, as we selected interviewees with no influence of the contact person but based on the inclusion criteria described in section 3.

6. Conclusion

We analyzed how actors initiated the institutionalization of digitalization in the organization. To answer the research questions, we drew on an institutional work perspective (Lawrence et al., 2006) and conducted a single case study of a Danish logistics company that underwent a change

process in which the accounting function became more digital. Complementing previous studies on digitalization in accounting (Brougham & Haar, 2018; Brown et al., 2020; Cooper et al., 2019; Fernandez et al., 2018; Kokina et al., 2019; Korhornen, 2020; Leitner-Hanetseder et al., 2021), and deploying an actor-focused institutional approach, we showed that the institutionalization of digitalization can be understood as a product of institutional work that is deliberately exercised by management in creating institutions.

This study makes several contributions to the literature regarding digitalization in accounting. We found that management purposefully disseminates digitalization across the organization by applying four types of institutional work. We also emphasized the importance of institutional work in aligning and organizing data infrastructure before implementing digital solutions.

We clarified how digitalization was institutionalized in management accounting routines and changed routines from transactional accounting to more analytical tasks because transactional accounting were automated. We presented several examples of how routines have changed, including data preparation, operational accounting tasks, and analytical procedures, which have not been covered in previous literature. We found that while manual tasks were in most cases replaced or fully automated by RPA or simpler forms of digital technology, analytical tasks were augmented by more advanced forms of digital technology such as machine learning. Accountants did have to adjust their current role to a more data-driven reality, where technology skills are becoming increasingly valuable. However, management accountants could still navigate systems owing to user-friendly interfaces, such as that in PowerBi.

In alignment with other accounting scholars (Korhornen, 2020; Leitner-Hanetseder et al., 2021), we note the positive contribution of digitalization to performance outcomes in the finance function based on individual perceptions and quantitative KPI measurements. The data from KPI measurements showed the multiple ways in which digitalization influenced accounting processes. Moreover, an increased degree of operational optimization led to the digital automation of more accounting and business tasks, meaning that more processes could be handled without human involvement. Furthermore, digitalization increased the speed of accounting tasks and enhanced transparency and consistency. Finally, it decreased costs, which is also an outcome of the hourly savings recorded. We also found that digitalization increased quality and homogeneity in accounting tasks and processes. Despite several benefits from digitalization in accounting, we also learned that digitalization comes with large investments that has to be taken into accounting, when assessing the return on investment, in addition some questioned trust issues related to digital initiatives in accounting.

Finally, this study contributes to the evolving literature regarding institutional work practices in accounting research. Modell (2022) called for “more research into reciprocal, multilevel dynamics that emerge across different levels of analysis to enhance our understanding of how accounting practices, evolving within individual organizations, are influenced not only by extant institutions at the field level but also how such practices influence field-level dynamics.” This

study answers this call by showing that digitalization emerges as a multilevel dynamic influencing multiple parts of the organization and how this development impacts accounting practices. The literature on institutional work and accounting has increased in recent years, primarily because it highlights important issues and constructs narratives around how events unfold in organizations. We hope our research will inspire more future research on digitalization and accounting. Finally, we would like to thank the participating case company.

Tables and Appendixes

Appendix A

Interview No	Interviewee	Min.	Date
1	CFO	00.24.10	25 March 2022
2	Vice President Head of Finance Transformation	01.57.14	28 March 2022
3	Executive Vice President	01.04.41	11 May 2022
4	Managing Director at Transcorp International Shared Service Centers	01.04.23	12 May 2022
5	Head of Process Automation and Business Intelligence	00.59.07	20 June 2022
6	Executive Vice President Group Finance	01.00.37	23 June 2022
7	Vice President, Head of Group Digital and Technology	00.31.05	16 August 2022
8	Follow-up Interview Vice President Head of Finance Transformation	00:25:02:	18 August 2022
9	Financial Controller - ISSC	00:35:37	19 August 2022
10	Manager, Continuous Improvement	01.06.56	11 October 2022
11	Senior Financial Controller – ISSC	01.11.23	17 October 2022
12	Controller - ISSC	00:50:41	3 January 2023
13	Senior Director, Head of Controlling	01:01:47	5 January 2023
14	Follow-up interview - Head of Process Automation and Business Intelligence	00:29:02	6 January 2023
15	Group Chief Data and Analytics Officer	00:59:23	12 January 2023
16	Financial controller - HQ	01:07:58	02 February 2023
17	Senior Controller - ISSC	01:01:52	13 March 2023
18	Follow-up interview Group Chief Data and Analytics Officer	00:25:39	14 March 2023
19	Senior Manager – SAP Functional Architect	00:57:58	17 March 2023
20	Vice President, Finance	01:07:42	21 March 2023
21	Follow up Vice President, Finance	00:39:35	06 June 2023
22	Financial Controlling Senior Manager	00:57:02	18 January 2024

23	Financial Controller	01:03:33	23 January 2024
24	SAP Functional Consultant	00:57:32	09. February 2024
25	Financial Controller - Local	00:22:35	12 February 2024

Appendix B – Quantitative measures of key performance indicators: Hourly savings, number of operational optimizations implemented, and percentage of digital standardization in main processes

Table 1. Quantitative results of digitalization projects: Hours saved

Project	Description	Actual Savings (Hours)	Automation	Year
Mass Import	Mass Import –	11,532	RPA/ PowerShell Script	2021
Accounts Payable	AP Coding –	5,760	RPA	2021
Cost Match	Quality management tool for multi-shipment invoices	1,149	RPA	2021
	Cost Match Tool – 3.276 hours	3,276		2021
	Dispute/Follow-up Tracker – 1.601 hours	1,601		2022
Vendor Portal	Vendor Portal for customers –	6,773	Macro	2022
Inter-company	Macro for F9K3 Statement	1,440	Macro	2021
General ledger	Automating journal entries IFRS 16 journal	1,392+540	RPA	2022
Verification	Error Tracker Improvement Standard Error Reporting	1,360 + 873	SQL + VBA	2022

Table 2. Quantitative results of digitalization projects: Number of operational optimizations implemented

Type	Year/division	Number of implementations
Number of optimizations implemented per year	2020	175
	2021	799
	2022	905
	Total	1,897
Number of optimizations implemented per division	Accounting	838
	Business Support	751
	Others	290

	Total	1,897

Table 3. Quantitative results of digitalization projects: Percentage of digital standardization in core processes

Divisions	Year	Digital standardization in core processes
Accounting Services	2021	83%
	2022	95%
Business Support	2021	85%
	2022	90%

Digitalization projects in 2021

The Mass Import project used PowerShell scripts for the mass creation/modification of Active Directory accounts, which store information about users on the company network. Given the frequent need to alter user parameters, the team opted for PowerShell scripts over manual labor. This approach resulted in saving 1,149 working hours. *The AP Coding project* employed RPA to automate accounts payable journal transactions. Instead of manually entering journal entries related to various costs, automatic entries are now inputted into SAP via a scanner. This project, discussed in the procure-to-payment section, saved accountants 3,276 working hours. *The Quality Management Tool* for the multi-shipment invoices project originated from the necessity to meticulously check and compare detailed invoices manually. This project automates the extraction of information from PDF files and uploads it into the Webcost software for comparison with SAP records. This has rendered the manual process of cross-referencing different data sources by accountants obsolete, saving 1,601 working hours. *The Cost Match Tool* project introduced a web application to convert PDFs from email attachments into electronic files for integration with CargoWise 1 logistics software. The Cost Match team populates data in the Transport Management System (TMS) based on information extracted from PDF files, replacing the time-consuming manual copying and pasting process, saving accountants 3,276 working hours.

Digitalization projects in the first half of 2022

The Dispute/Follow-up Tracker project identifies discrepancies between invoice records and financial system entries, prompting communication with the relevant parties for clarification. By automating this process and centralizing responses, the need for manual follow-up calls has been eliminated, saving 1,601 working hours. *The Vendor Portal project*, focusing on master data management, automates the creation and modification of customer and vendor accounts. This initiative saved 6,773 working hours. *The Macro for F9K3 Statement project* addresses the challenge of extracting bank statement data from SAP in a user-friendly format. By creating a macro to sanitize .txt files and generate Excel spreadsheets, this project saved 1,440 working hours. *The Automating Journal Entries project* transitioned a significant portion of manual

invoices into automatic journal entries, saving 1,392 working hours. *The IFRS 16 Journal project* streamlined the process of uploading journals into SAP by consolidating multiple journals into two files, reducing local team workload and saving 540 working hours. *The Error Tracker Improvement project* enhanced efficiency by creating a macro with SQL to establish a repository of error trackers used by the verification team, eliminating the need to open a large Excel file and saving 1,360 working hours. Finally, the *Standard Error Reporting project* introduced an Excel macro for error reporting by the verification team, which validates duplicates and generates email drafts, saving 873 working hours.

References

Agrawal, A., Gans, J. S., Goldfarb, A., 2019. Artificial Intelligence: The Ambiguous Labor Market Impact of Automating Prediction. Journal of Economic Perspectives Vol. 33, No. 2, Spring 2019 (pp. 31-50).

Ahrens, T., & Chapman, C. S. 2006. Doing qualitative field research in management accounting: Positioning data to contribute to theory. Handbooks of management accounting research, 1, 299-318.

Alles, M., Jans, M., Vasarhelyi, M. 2014. A Field Study on the use of process mining of event logs as an analytical procedure in accounting. Accounting review. September 2014.

Alvesson, M., Hallett, T., & Spicer, A. (2019). Uninhibited Institutionalisms. Journal of Management Inquiry, 28(2), 119-127. https://doi.org/10.1177/1056492618822777

Alvesson M., Spicer A. (2018). Neo-institutional theory and organization studies: A mid-life crisis? *Organization Studies*, 40, 199-218.

Anderson-Gough, F., Grey, C., & Robson, K. 2005. "Helping them to forget..": the organizational embedding of gender relations in public audit firms. Accounting, Organizations and Society, 30(5), 469-490.

Andreassen, R, I., 2020. Digital technology and changing roles: a management accountant's dream or nightmare?. Journal of Management Control. 31. pp. 209-238

Arnaboldi, M., Busco, C., Cuganesan, S. 2017 Accounting, Accountability, Social media and big data: Revolution or Hype? Accounting Auditing & Accountability Journal 30(4).

Bao, Y., Ke, B., Li, B., Yu, J., Zhang, J., 2019. Detecting Accounting Fraud in Publicly Traded U.S. Firms Using a Machine Learning Approach. Journal of Accounting Research, Volume 58, Issue 1, pp. 199-235

Bakarich, M, K., O'Brien, P, E. 2021. The Robots are Coming…But Aren't Here Yet: The Use of Artificial Intelligence Technologies in the Public Accounting Profession. Journal of Emerging Technologies in Accounting. Vol 18. No. 1. Spring 2021, pp. 27-43. American Accounting Association.

Barboza, F., Kimura H., Altman E., 2017 Machine Learning models and Bankruptcy prediction. Expert Systems with Applications 83 pp. 405-417

Barro, S., Davenport T, H., 2019. People and Machines: Partners in Innovation. MITSloan Management Review. Sumer 2019 Issue. June

Battilana, J., 2006. Agency and Institutions: The Enabling Role of Individuals Social Position.

Battilana, J., Leca, B., Boxenbaum, E 2009. How actors Change Institutions: Towards a Theory of Institutional Entrepreneurship. The Academy of Management Annals 3(1).

Berger, P. L., Luckmann 1967. The Social Construction of Reality. A Treatise in the sociology of Knowledge.

Berente, N., & Seidel, S. 2022. Digital technologies: Carrier or trigger for institutional change in digital transformation?. In Digital Transformation and Institutional Theory (pp. 197-209). Emerald Publishing Limited.

Berente, N., Gu, B., Recker, J., & Santhanam, R. 2021. Managing Artificial Intelligence. MIS Quarterly, 45(3), 1433-1450.

Berente, N., Yoo, Y 2012. Institutional Contradictions and Loose Coupling: Postimplementation of NASA's Enterprise Information Systems. Information Systems Research. 23(2) 376.

Bertomeu, J., 2020., Machine learning improves accounting: discussion, implementation and research opportunities. Review of Accounting Studies (2020) 25:1135–1155

Bourdieu, P. & Johnson, R., (1993). The field of cultural production: Essays on art and literature. Cambridge: Polity.

Boxenbaum, E. (2006). *Legitimation strategies in professional service organizations*. Paper presented at The 22nd EGOS Colloquium 2006, Bergen, Norway.

Boxenbaum, E., & Battilana, J. (2005). Importation as innovation: Transposing managerial practices across fields. *Strategic Organization*, *3*(4), 355-383. https://doi.org/10.1177/1476127005058996

Brougham, D., Haar, J., 2018. Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA): Employees' perceptions of our future workplace Journal of Management & Organization, 24:2 (2018), pp. 239–257

Brown C, N., Crowley, M, R., Elliott, B., 2019. What are you Saying? Using topic to Detect Financial Misreporting. Journal of Accounting Research. Vol 58. No.1

Brown P., Ly, T., Pham, H., Sivabalan, P., 2020. Automation and management control in dynamic environments: Managing organizational flexibility and energy efficiency in service sectors. The British Accounting review.52. 100840.

Brinkmann, Svend ; Kvale, Steinar. / InterViews : Learning the Craft of Qualitative Research Interviewing. 3. ed. Thousand Oaks, CA : SAGE Publications, 2015.

Burns, M, B., Igou A., 2019. Alexa, Write an Audit Opinion: Adopting Intelligent Virtual Assistants in Accounting Workplaces Journal of Emerging Technologies in Accounting. American Accounting Association Vol. 16, No. 1 DOI: 10.2308/jeta-52424 Spring 2019 pp. 81–92

Burns, J., & Baldvinsdottir, G. 2005. An institutional perspective of accountants' new roles–the interplay of contradictions and praxis. European accounting review, 14(4), 725-757.

Burns J., Scapens RW., 2000. Conceptualizing management accounting change: an institutional framework. Manage Account Res;11(1):3-25

Canning, M., & O'Dwyer, B. 2016. Institutional work and regulatory change in the accounting profession. Accounting, Organizations and Society, 54, 1-21.

Chandi, N. 2017. The Internet of things for accountants. Forbes Technology Council.

Chou, J,S., Tai, Y., Chang, K., 2010. Predicting the development cost of TFT-LCD manufacturing equipment with artificial intelligence models" Int. J. Production Economics 128 (2010) 339–350

Chreim, S., Williams, B. E., & Hinings, C. R. (2007). Interlevel influences on the reconstruction of professional role identity. Academy of management Journal, 50(6), 1515-1539.

Cong, Du and Vasarhelyi., 2019. Technological disruption in accounting and auditing. Journal of Emerging Technologies in Accounting. Vol. 15. No. 2. Fall 2018. pp. 1-10.

Corbin, J.,& Strauss, A. (2008). Basics of qualitative research (3rd ed.): Techniques and procedures for developing grounded theory.

Cockcroft, S. Russel, M., 2018., Big Data Opportunities for Accounting and Finance Practice and Research. Australian Accounting Review. No. 86. Vol. 28 Issue 3.

Commerford, P, B, Dennis, S, A., Joe, J, R., Ulla, J, W. 2022. Man Versus Machine: Complex Estimates and Auditor Reliance On Artificial Intelligence. Journal of Accounting Research. Vol. 60. No.1 March 2022.

Cooper, L., Holderness, K., Sørensen, T, Wood, D. 2019., Robotic Process Automation in Public Accounting. American Accounting Association. Accounting Horizons. Vol. 33, No. 4. December 2019 pp. 15-35

Creswell, J. W. 2013., Research design - qualitative, quantitative and mixed method approaches. London: SAGE. (in particular chapter 1 and chapter 11 (CH10 in 2017 5th edition)). See https://www.vitalsource.com/en-uk/referral?term=9781506386690

Currie, G., Lockett, A., Finn, R., Martin, G., & Waring, J. (2012). Institutional work to maintain professional power: Recreating the model of medical professionalism. Organization studies, 33(7), 937-962.

Daniele, R., Antonio, L., Carmela, R. (2022) Digitalisation and accounting language games in organisational contexts. Journal of Management and Governance (2023).

Davenport, T, H., Kirkby, J. 2016., Just How Smart Are Smart Machines? Magazine Spring 2016 Issue Research Highlight

DiMaggio & W. Powell, "The iron cage revisited" institutional isomorphism and collective rationality in organizational fields", American Sociological Review, 48 (1983), 147-60.

Dwivedi, L., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Glanos, V., Llarvarasan, V., Janssen, M., Jones, P., Kar, A., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., Medaglia, R., Meunier-FitzHugh, K., Meunir-FitzHugh, L., Misra, S., Mogaji, E., Sharma, S., Singh, J., Raghavan, V., Raman, R., Rana, N., Samothrakis, S., Spencer, J., Tamilmani, K., Tubadji, A., Walton, P., Williams, M, D., 2021. International Journal of Information Systems 57. 101994.

Elding, C., Morris, R. 2018. Digitalisation and its impact on the Economy: insights from a survey of large companies. European Central Bank. https://www.ecb.europa.eu/pub/economic-bulletin/focus/2018/html/ecb.ebbox201807_04.en.html

Elmegaard, J. Rikhardsson, P. Rohde, C. 2022. The Role of Artificial Intelligence in Accounting. New Perspectives on Empirical Research.

Empson, L. & Langley, A., 2013. Leadership and Professionals: Multiple Manifestations of Influence in Professional Service Firms.

E&Y, 2021. Digital Disruption in Finance – Survey insights - https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/topics/financial-accounting-advisory-services/2021/digital-transformation-in-finance/ey-digital-disruption-in-finance-survey-insights.pdf

Majchrzak, A. Markus, L, M. 2012. Technology Affordances and Constraints in Management Information System (MIS). Encyclopedia of Management Theory. Sage Publications.

Messier, W., Glover, S., Prawitt, D. 2019., Auditing and Assurance Services book. A Systematic Approach. Mcgraw Hill, Eleventh Edition.

Faik, I., Barrett, M., Oborn, E. 2020. How Information Technology Matters in Societal Change: An Affordance-Based Institutional Perspective. MIS Quarterly 44(3) 1359-1390.

Fernandez, D., Aman, A. 2018., Impacts of Robotic Process Automation on Global Accounting Services. Asian Journal of Accounting and Governance 9: 123–131 (2018)

Fisher, I. E. 2018., A Perspective on Textual Analysis in Accounting. Journal of Emerging Technologies in Accounting American Accounting Association Vol.16, No. 2DOI: 10.2308/jeta-10639 Fall 2018 pp. 11–13

Fisher, I. E., Garnsey, M. R., Hughes, M. E. 2016., Natural Language Processing in Accounting, Auditing and Finance: A Synthesis of the Literature with a Roadmap For future Research. Intelligence Systems in Accounting, Finance and Management. Intell. SSys. Acc. Fin. Mgmt. 23, 157-214. 2016.

Fisher, I. E., Garnsey, M. R., Tam, K. 2010., The Role of Text Analytics and Information Retrieval in the Accounting Domain. Journal of Emerging Technologies in Accounting. Vol. 7 pp. 1-24. American Accounting Association.

Fligstein, N. 1997. Social skill and institutional theory. American behavioral scientist, 40(4), 397-405.

Frey, C, B., Osborne, M, A. 2017 The future of employment: How susceptible are jobs to computerisation? Technological Forecasting and Social Change. Volume 114. January 2017, Pages 254-280.

Friedland, R., Alford, R, R., 1991. Bringing Society in: Symbols, and Institutional Contradictions.

Gartner, 2020. https://www.gartner.com/en/information-technology/glossary/digitalization. Accessed 26 Mar 2020.

Gawer, A., & Phillips, N. 2013. Institutional work as logics shift: The case of Intel's transformation to platform leader. Organization studies, 34(8), 1035-1071.

Gegenhuber, T., Logue, D., Hinings, C. B., & Barrett, M. 2022. Institutional perspectives on digital transformation. In Digital transformation and institutional theory (Vol. 83, pp. 1-32). Emerald Publishing Limited.

Gentsch, P. AI in Marketing, Sales and Service. 2018

Granlund, M., & Lukka, K. 2017. Investigating highly established research paradigms: Reviving contextuality in contingency theory based management accounting research. Critical Perspectives on Accounting, 45, 63–80. https://doi.org/10.1016/j.cpa.2016.11.003

Gray G. L., Chiu, V., Liu, Q., Li, P. 2014., The expert systems life cycle in AIS research: What does it mean for future AIS research? International Journal of Accounting Information Systems. 15 pp. 423-451

Greenwood, R., Raynard, M., Kodeih, F., Lounsbur, M. 2011. Institutional Complexity and Orgnanizational Responses. The Academy of Management Annals. 5.(1). 317-371.

Greenwood, R., Hinnings, C. R. 1996. Understanding radical Organizational Change: Bringing together the old and new institutionalism. The Academy of Management review, 21(4), 1022-1054.

Guerreiro, M. S., Rodrigues, L. L., & Craig, R. 2012. Voluntary adoption of International Financial Reporting Standards by large unlisted companies in Portugal–Institutional logics and strategic responses. Accounting, Organizations and Society, 37(7), 482-499.

Gurses, K., Yakis-Douglas, B., & Ozcan, P. 2022. Digitalization Versus Regulation: How Disruptive Digital Communication Technologies Alter Institutional Contexts Through Public Interest Framing. In Digital Transformation and Institutional Theory (Vol. 83, pp. 133-166). Emerald Publishing Limited.

Han, Hongdan, Radha K. Shiwakoti, Robin Jarvis, Chima Mordi, David Botchie, 2023.Accounting and auditing with blockchain technology and artificial Intelligence: A literature review, International Journal of Accounting Information Systems, Volume 48, 2023.

Hayne, C., & Free, C. 2014. Hybridized professional groups and institutional work: COSO and the rise of enterprise risk management. Accounting, Organizations and Society, 39(5), 309-330.

Heinzelmann, R. 2018. Occupational identities of management accountants: the role of the IT system. Journal of Applied Accounting Research, 19(4), 465-482.

Hinnings, B., Gegenhuber, T., Greenwood, R. 2018 Digital Innovation and Transformation: An Institutional Perspective. Information and Organization 28 (2018) 52-61.

Hoffman, A, J 1999. Institutional Evolution and Change: Environmentalism and the U.S. Chemical Industry. The Academy of management journal. Vol. 42. No, 4. pp. 351-371.

Huang, F. Vasarhelyi, M. 2019., Applying robotic process automation (RPA) in auditing: A framework. International Journal of Accounting Information Systems 35 (2019) 100433

Hwang, H., Colyvas, J. A., 2011. Problematizing Actors and Institutions in Institutional Work. Journal of Management Inquiry. 20(1). 62-66.

IMA, 2020. The Association of Accountants and Financial Professionals in Business. Deloitte. From Mirage to Reality: Bringing Finance into Focus in a digital World.

https://www2.deloitte.com/content/dam/Deloitte/us/Documents/finance/us-from-mirage-to-reality-bringing-finance-into-focus-in-a-digital-world.pdf

Jans, M., Alles, M., Vasarhelyi, M., 2014., A Field Study on the Use of Process Mining of Event Logs as an Analytical Procedure in Auditing. September 2014 The Accounting Review 89(5):1751-1773

Johansen, C, B,. Waldorff, S, B. 2017. What are Institutional Logics – and Where is the Perspective Taking us? Academy of Management Annual Meeting Proceedings. 2015.

Jørgensen, B., & Messner, M. 2010. Accounting and strategising: A case study from new product development. Accounting, Organizations and Society, 35(2), 184-204.

Järvenpää, M. 2009. The institutional pillars of management accounting function. Journal of Accounting & Organizational Change, 5(4), 444-471.

Karmanska, A. 2021 Internet of things in the accounting field. Benefits and challenges. Operations research and decision making, no 3.

Keys B., Zhang, Y., 2020., Introducing RPA in an Undergraduate AIS Course: Three RPA Exercises on process Automation in Accounting. Journal of Emerging Technologies in accounting Vol. 17. No. 2 pp.8-45

Kfoury, B. 2021. The role of blockchain in reducing the cost of financial transactions in the retail industry. In CEUR Workshop Proceedings (Vol. 2889, pp. 10-22).

Kinderlin, S. 2023. Nearly 25% of jobs are to be disrupted in the next five years – and A.I. could play a key role: World Economic Forum.

Knudsen. R. D., 2020., Elusive boundaries, power relations, and knowledge production: A systematic review of the literature on digitalization in accounting. International Journal of Accounting Information Systems – Volume 36, March 2020, 100441

Kokina, J., Blanchette, S., 2019., Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. International Journal of Accounting Information Systems 35 (2019) 100431

Kokina, J., Davenport, T., 2017., The Emergence of Artificial Intelligence: How Automation is Changing Auditing. The Journal of Emerging Technologies in Accounting. Vol. 14 No. 1 Spring 2017

Korhonen, T., Slos, E., Laine, T., Suomala, P. 2020., Exploring the programmability of management accounting work for increasing automation: an interventionist case study. Accounting, Auditing & Accountability Journal Vol. 34 No. 2, 2021 pp. 253-280 © Emerald Publishing Limited 0951-3574 DOI 10.1108/AAAJ-12-2016-2809

Kruskopf, S., Lobbas, C., Meinander, H., Söderling, K., Martikainen, M., & Lehner, O. (2020). Digital accounting and the human factor: theory and practice. ACRN Journal of Finance and Risk Perspectives.

Lawrence, Thomas B., and Roy Suddaby (2006) "1.6 institutions and institutional work." The Sage handbook of organization studies: 215-254.

Lawrence, T. B. 2008. Power, institutions and organizations. In R. Greenwood, C. Oliver, K. Sahlin, & R. Suddaby (Eds.), Sage handbook of organizational institutionalism: 170–197. London: Sage

Lawrence, T., Suddaby, R. Leca, B. 2009. Institutional Work: Actors and Agency in Institutional Studies of Organizations.

Leitner-Hanetseder, S., Lehner, O. M., Fostenlechner C., Eisl, C.,2021. A profession in transition: actors, tasks and roles in AI-based accounting. Journal of Applied Accounting Research Emerald Publishing Limited 0967-5426 DOI 10.1108/JAAR-10-2020-0201

Leonardi, P, M., Vaast, E. 2017. Social Media and Their Affordance for Organizing: A Review and Agenda for Research. Academy of Management Annals, Vol. 11, No.1, pp. 150-188.

Li, Q., Liu, J., 2020. Development of an Intelligent NLP-Based Audit Plan Knowledge Discovery System. Journal of Emerging Technologies in Accounting. American Accounting Association Vol. 17, No. 1 DOI: 10.2308/jeta-52665 Spring 2020 pp. 89–97

Li. F., 2010. The Information Content of Forward-Looking Statements in Corporate Filings—A Naïve Bayesian Machine Learning Approach. Journal of Accounting Research Vol. 48 No. 5 December 2010 Printed in U.S.A

Loughran, T., McDonald, B., 2016. Textual Analysis in Accounting and Finance: A Survey. Journal of Accounting Research. DOI: 10.1111/1475-679.12123

Lounsbury, M. 2007. A tale of two cities: Competing logics and practice variation in the professionalizing of mutual funds. Academy of management journal, 50(2), 289-307.

Loscher, G., Bader, V. 2022 Augmenting A Profession: How Data Analytics Is Transforming Human Resource Management. Research in the Sociology of Organizations, Volume 83, 87-110.

Lukka, K., Vinnari, E., 2014. Domain theory and method theory in management accounting research. Accounting, Auditing & Accountability Journal. Volume 27, issue 28.

Maguire, S., Hardy, C., & Lawrence, T. B. (2004). Institutional entrepreneurship in emerging fields: HIV/AIDS treatment advocacy in Canada. Academy of management journal, 47(5), 657-679.

Marshall T. E., Lambert. S. L., 2018. Cloud-based Intelligent Accounting Applications: Accounting Task Automation Using IBM Watson Cognitive Computing. Journal of Emerging Technologies in Accounting, Vol.15, No. 1, pp. 199-215

Maxwell, J. A. (1992). Understanding and validity in qualitative research. Harvard Educational Review, 62(3), 279–300. https://.

Meraghin, O., Bekkeouche, L., Demdoum, Z (2021) Impact of digital transformation on accounting information systems – Evidence from Algerian firms. Economics and Business, Sciendo, 2021.

Meyer, J., & Rowan, B. 1977. Institutionalized Organizations: Formal Structure as Myth and Ceremony. American Journal of Sociology, 83, 340-363.

Min, Q., Lu, Y., Liu, Z., Su, C., Wang, B., 2019. Machine Learning based Digital Twin Framework for Production Optimization in Petrochemical Industry. International Journal of Information Management 49 (2019) 502–519

Moffitt, Rozario and Vasarhelyi. 2018., Robotic Process Automation for Auditing. Journal of Emerging Technologies in Accounting. Vol. 15. No. 1. Spring 2018. pp. 1-10

Moll, J., Yigitbasioglu, O., 2019., The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. The British Accounting Review 51 (2019) 100833.

Munir, K., Phillips, N. 2005. The Birth of the "Kodak moment": Institutional Entrepreneurship and the Adoption of New Technologies. Volume 26, issue 11. European Group for Organizational Studies.

Möller, K., Schaffer, U., Verbeeten, F. 2020., Digitalization in management accounting and control: an editorial. Journal of Management Control. 31:1-8

Oakes, J., Welner, K., Yonezawa, S., & Allen, R. L. 1998. Norms and politics of equity-minded change: Researching the "zone of mediation". International handbook of educational change: Part one, 952-975.

Oborn, E., Pilosof, P, N., Hinnings, C. R., Zimlichman, E 2021. Institutional Logics and Innovation in times of crisis: Telemedicine as digital PPE. Information and Organization 31(1):100340.

OECD publishing, (2021) The impact of digitalisation on productivity: Firm-level evidence from the Netherlands. OECD Economics department Working papers. https://www.oecd.org/publications/the-impact-of-digitalisation-on-productivity-firm-level-evidence-from-the-netherlands-e800ee1d-en.htm

Payne, M., 2014 Modern Social Work Theory. Fifth edition. https://www.perlego.com/book/2995746/modern-social-work-theory-pdf?utm_source=google&utm_medium=cpc&campaignid=17487959703&adgroupid=138169072256&gclid=CjwKCAjwt52mBhB5EiwA05YKo2IdCXRLSTgiiJYhGTchZzNCIak6ZtiBbz5JXXd6ufpl1o_S0Lks3BoCD-4QAvD_BwE

Pettersen, L. 2019., Why Artificial Intelligence Will Not Outsmart Complex Knowledge Work. Work, Employment and Society 2019, Vol. 33(6) 1058–1067

Perkmann, M., & Spicer, A. 2008. How are management fashions institutionalized? The role of institutional work. Human relations, 61(6), 811-844.

Quattrone, P. 2016., Management Accounting goes digital: Will the move make it wiser? Management Accounting Research 31, 2016 118-122.

Ranta, M, Garanina, T., Dumay, J., 2021. Blockchain in Accounting research: Current Trends and Emerging Topics. Accounting, Auditing and Accountability Journal. Emeral Publishing.

Raschke. L. R., Saiewitz A., Kachroo, P., Lennard. J.B., 2018. AI-Enhanced Audit Inquiry: A Research Note. Journal of Emerging Technologies in Accounting, Vol 15. No.2 pp.111-116

Rikhardson, P., Yigitbasioglu, O., 2018. Business intelligence & analytics in management accounting research: status and future focus. International Journal of Accounting information systems. 29 (2018) 37-58

Rojas, H. 2010. "Corrective" actions in the public sphere: How perceptions of media and media effects shape political behaviors. International journal of public opinion research, 22(3), 343-363.

Rom, A., Rohde, C., 2007. Management accounting and integrated information systems: a literature review. Int. J. Account. Inf. Syst. 8 (1), 40–68.

Rosario, A., Liburd-Brown, H., Kogan, A., Appelbaum, D., 2016. Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation. Volume 13, Issue 2

Rose, D., 2021. Artificial Intelligence for Business – What you need to know about Machine learning and neural networks. Pearson Business Analytics series. 2 edition.

Scapens, R., 2012 Institutional Theory and Management Accounting Research. Maandblad voor Accountancy en Bedrijfseconomie, 86(10), 401-409.

Schildt, H. 2022 The Institutional Logic Of Digitalization. Research in the Sociology of Organizations, Volume 83, 235-251

Schwab, K., Davis, N., & Nadella, S. 2018. Shaping The Fourth Industrial Revolution. World Economic Forum.

Shields, D. Michael., 1997. Research in Management Accounting by North Americans in the 1990s. Journal of Management Accounting Research, January 1997

Susskind D. 2020., A world without work. Technology, automation and how we should respond. Metropolitan Books.

Sutton, S. G., Holt, M., & Arnold, V., 2016. The reports of my death are greatly exaggerated. Artificial intelligence research in accounting. International journal of Accounting Information Systems, 22, 60-73

Sutton, S, G., Arnold, V., Holt, M. 2018 How Much Automation Is Too Much? Keeping the Human Relevant In Knowledge Work. Journal of Emerging Technologies in Accounting.

Taulli, T., 2019. Artificial Intelligence Basics – A Non Technical introduction – Apress

Thorseng, A. A., & Grisot, M. (2017). Digitalization as institutional work: a case of designing a tool for changing diabetes care. Information Technology People, 30(1), 227–243

Thornton, Patricia, and William Ocasio. 1999.'Institutional Logics and the Historical Contingency of Power in Organizations: Executive Succession in the Higher Education Publishing Industry, 1958–1990.'American Journal of Sociology 105 (3):801–843.

Thornton, Patricia, and William Ocasio. 2008. Institutional Logics. Chapter 3 Institutional Logics - Sage Knowledge

Thorton, P., Ocasio, O., Lounsbury, M., 2012. The Institutional Logics Perspective: A New Approach to Culture, Structure and Process. Oxford University press.

Thorton, P., Ocasio, I., Lounsbury, M., 2015. The Institutional Logics Perspective. Emerging Trends in the Social and Behavioural Sciences.

Vial, G. 2019 Understanding digital transformation: A review and a research agenda. Journal of strategic Information systems 28 (2019) 118-144

Vincent, N, E, Igou, A, Burns, M. 2020 Preparing for the Robots: A Proposed Course in Robotic Process Automation. Journal of Emerging Technologies in Accounting. Vol. 17, No, 2.. Fall. 2020. Pp.75-91

Wacquant, L. J., & Bourdieu, P. 1992. An invitation to reflexive sociology (pp. 1-59). Cambridge: Polity.

Wang, Ma, and Yang., 2014. China Accounting and Finance Review (CAFR)

Webster, J. Watson, T.R., 2002. Analyzing the Part to prepare for the future: Writing a literature review. MIS quarterly 2002.

WEF – World Economic Forum 2023. Future of jobs Report, insight report. May 2023. chrome-extension://bdfcnmeidppjeaggnmidamkiddifkdib/viewer.html?file=https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf

Yeh, T. H., Deng, S., 2012. Application of machine learning methods to cost estimation of product life cycle. International Journal of Computer Integrated Manufacturing Vol. 25, No. 4–5, April–May 2012, 340–352

Yin, R. 2014. Case Study Research: Design and Methods (5th ed.). Thousand Oaks, CA: Sage Publications, Inc.

Yoo, Y., Lyytinen, K., Boland, R., Berente, N., Gaskin, J., Schutz, D., & Srinivasan, N. (2010). The next wave of digital innovation: opportunities and challenges. Report on the Research Workshop: "Digital Challenges in Innovation Research", 1–37

Zhang, C., 2019., Intelligent Process Automation in Audit" Journal of Emerging Technologies in accounting. Vol.16 No.2 pp.69-88

Zhou, S., Guo, B., 2017. The order effect on online review helpfulness: A social influence perspective. September 2016 Decision Support Systems 93

Zimmerman. J., 2019. Accounting for decision making and control. Mc Graw Hill, Tenth Edition.

Zinkula, J & Mok, A. 2023 ChatGPT may be coming for our jobs. Here are the 10 roles that AI is most likely to replace. https://www.businessinsider.com/chatgpt-jobs-at-risk-replacement-artificial-intelligence-ai-labor-trends-2023-02?r=US&IR=T#accountants-9

Zilber, T. B. 2002. Institutionalization as an interplay between actions, meanings, and actors: The case of a rape crisis center in Israel. Academy of management journal, 45(1), 234-254.

Zuboff, 2019. Surveillance capitalism and the challenge of Collective Action. Volume 28, issue 1. https://journals.sagepub.com/doi/full/10.1177/1095796018819461

Zucker, L. G. 1977. The role of institutionalization in cultural persistence. American Sociological Review, 42(5), 726–743. https://

Paper 3 - Management Accountants' Role and Identity Under Digitalization:
An Institutional Logics Perspective of Changes in Two Industry Companies

Joachim Elmegaard

Department of Accounting, Copenhagen Business School Denmark

Abstract

Purpose: This study explores the contradictory institutional logics under which management accountants (MAs) operate and how digitalization constitutes an institutional logic fostering changes in MAs' roles.

Design: We conducted a comparative case study of two industry companies. We collected data from semi-structured interviews and supplementary sources pertaining to MAs' experiences with digitalization and how it has affected their roles.

Findings: A firm's digital logic is a critical trigger of institutional change. MAs do not replace each other but coexist in a digital world where data and automation are the new aims of accounting functions. Functional consultants provide support and guidance on technical aspects. Meanwhile, despite engaging in fewer transactional accounting tasks, MAs must consider the non-financial aspects of their roles.

Originality: This study builds on recent theoretical insights and contributes to research on MAs' role change by answering the following question: "How does the emergence of a digital logic influence MAs' professional role identity?" We draw on the concept of institutional logic to understand how professional roles and identities change within the highly institutional context of management accounting practices.

1. Introduction

Digital technology is changing accountants' roles (Kruskopf *et al.*, 2020). Accordingly, research on changes in management accountants' (MAs) roles has increased over the past two decades (Burns and Baldvinsdottir, 2005; Byrne and Pierce, 2007; Granlund and Lukka, 1998; Rieg, 2018). Numerous studies have argued that technology contributes to the increasing business orientation and broadening of accountants' roles (Caglio, 2003; Chapman and Kihn, 2009; Dechow and Mouritsen, 2005). Changes in MAs' roles have been attributed to globalization, technological shifts, accounting scandals, corporate trends (Burns and Baldvinsdottir, 2007), and digitalization (Bert *et al.*, 2024).

Currently, accounting processes are undergoing transformation through digitalization (Waden *et al.,* 2019). Technical developments in artificial intelligence (AI), robotics process automation (RPA), analytics, process mining, and machine learning have changed the occupational landscape. It is expected that the accounting profession will be automated by up to 80% through RPA (Mckinsey, 2018) or 94% through digital technologies (Frey and Osborne, 2017). Recent developments in digital technology have revitalized interest in the relationship between technology and the role of MAs (Andreassen, 2020; Kokina *et al.,* 2019; Rautiainen *et al.*, 2024; Saiful and Hossain, 2021; Yigitbasioglu, 2022).

Therefore, this study explores how digitalization affects MAs' roles. Studying this topic is important for several reasons. First, digitalization has a widespread impact on society. Itpermeates all business and societal domains, while it is important for accounting scholars to know how it influences MAs' profession. Second, given digitalization's effects on MAs' roles, the literature has highlighted many internal factors (e.g., identity work, job crafting, business involvement, and job discretion); however, exogenous factors (e.g., institutional logic) have been overlooked. Third, digitalization reorients the organizational boundaries between information technologies (IT) and accounting. Practitioners must understand the challenges involved in financial functions during the initial wave of digitalization. Changes in MAs' roles—which have received considerable scholarly attention (Chapman and Kihn, 2009; Dechow and Mouritsen, 2005; Goretzki and Messner, 2019) in the literature—could threaten this profession as we know it.

Although a few studies have investigated digitalization's impact on MAs' roles (Bert *et al.*, 2024; Henizelmann, 2018; Kokina *et al.*, 2019; Korhonen *et al.*, 2020; Möller *et al.,* 2019; Rautiainen *et al.*, 2024; Saiful and Hussain, 2021; Yigitbasioglu *et al.*, 2022), their scope has been limited. The impact of several technologies (e.g., AI, blockchain, the Internet of Things, and business intelligence and analytics) on MAs' work (Leiner-Hanetseder, 2021; Moll and Yigitbasioglu, 2019) has been neglected in favor of a focus on agentic factors, thereby excluding exogenous factors and organizational placement. Only two studies (Andreassen, 2020; Rautiainen *et al.*, 2024) have investigated how digitalization impacts MAs' roles. Andreasen (2020) finds that digital technologies (i.e., integrated information systems, big data, and machine

learning) contribute to changes in MAs' roles (which have broadened), identities, and jurisdiction. Rautiainen (2024) coincidingly finds that MAs' roles become fluid due to constantly changing role expectations. These findings imply that digitalization has a significant impact on MAs' roles. However, these studies are context-specific and fail to explain the attributes of MAs' digital identity (Korhonen *et al.*, 2020). Arguably, the labeling of management accountants as either controllers or business partners should be questioned, as these roles have changed significantly because of digitalization. These tendencies must be clarified and seen in a new context, emphasizing the current use of digital technologies within the management accounting field. Traces of a new IT-related specialist role have already begun to emerge in the literature (Rautiainen *et al.*, 2024); however, further explanation on how this new role fits the controller and business partner archetypes is needed.

The literature has made significant strides in explaining technology's impact on accountants' roles. However, more research is needed to conceptualize and empirically investigate how MAs' role is changing due to digitalization. This is important because misunderstandings regarding this development can cause identity conflicts, as the boundaries between IT and accounting are changing. Employees must acquire new technical skills to navigate their roles, while business schools must reconsider how to educate future managers. Andreassen (2020) posits that digitalization is most influential in large companies because they have the resources to enforce this process throughout the organization. Meanwhile, MAs are primarily employed in larger organizations and are therefore directly targeted by the changes initiated by digitalization. We argue that there is a need for an inductive analysis of when, why, and how accountants' roles are changing within organizations, which we intend to conduct in this study. We explore how digitalization has impacted MAs' tasks, roles, and identities, conducting a comparative case study of two large organizations.

This study contributes to institutional logic theory by showing how MAs traverse boundaries and establish a new digitally focused role by reinterpreting digitalization as an institutional logic. We show that MAs' professional role identity changes when they reinterpret multiple logics and their relationships. Through interviews and inductive analysis, we identify several mechanisms and the rationale guiding MAs. Specifically, we (1) reveal institutional logics' influence on MAs' roles and (2) explain how a dominant digital logic in one of the studied companies is changing the perception of MAs' roles, thereby reframing the context of the controller/business partner archetype. This way, we answer our research question: "How does the emergence of a digital logic influence MAs' professional role identity?" The remainder of this paper is structured as follows. Section 2 conceptualizes MAs' role changes and digitalization, while outlining this paper's theoretical framework. Section 3 describes our research methodology. Section 4 presents the findings. Section 5 presents a discussion of the findings and concludes this paper.

2. Conceptualization of MAs' role

2.1 MAs' role

MAs' roles have traditionally been categorized into two archetypes, namely, controllers and business partners (Byrne and Pierce, 2007; Friedman and Lyne, 2001; Järvenpää, 2007). While controllers, also referred to as "bean counters," focus on practical tasks related to financial reporting and internal control activities and require objectivity and independence in working with management (Steens *et al.*, 2024), business partners are intrinsically more involved in supporting business decision-making, recommending courses of action, and challenging executives' strategies and actions (Steens *et al.*, 2024).

Multiple factors influence changes in MAs' roles (Heikkilä and Jarvenpää, 2022). At the individual level, managers' expectations (Byrne and Pierce, 2018; Goretzki and Messner, 2019), company type (Yazdifar and Tsamenyi, 2005), organizational setup (Burns and Baldvinsdottir, 2005), and elements of enterprise resource planning (ERP) configuration (Caglio, 2003; Goretzki *et al.,* 2013) influence said changes. At the structural level, there has been an extensive debate on how cultural changes (Byrne and Pierce, 2007) and economic crises (Becker and Mahlendorf, 2018) influence the role of business partners (Heikkilä and Jarvenpää, 2022). Researchers have argued that technology contributes to an increasing business orientation and a broadening of accountants' roles (Caglio, 2003; Chapman and Kihn, 2009; Dechow and Mouritsen, 2005; Korhonen *et al.,* 2020). Changes in accountants' roles have also been attributed to globalization, technological shifts, accounting scandals, and corporate trends (Burns and Baldvinsdottir, 2007). Recently, the emergence of big data has been cited as one of the main drivers of role changes (Bhimani and Willcocks, 2014; Payne, 2014), along with digitalization (Bert *et al.*, 2024; Rautiainen *et al.*, 2024; Yigitbasioglu *et al.*, 2022).

Several studies on changes in MAs' roles have conceptualized accounting as a social practice that provides legitimacy and supports rational claims. Research on MAs' roles has focused on their tasks. For example, Goretzki *et al.* (2013), Burns and Baldvinsdottir (2005), and Rieg (2018) illustrate the close connection between tasks and the theorization of MAs' roles. In management and organizational studies on technology, research has adopted a positivistic slant, focusing on conceptualizing technology as having generalizable and unidirectional effects at the macro level and as an "external force with (relatively) deterministic impacts on organizational properties and structures" (Orikowski, 1992). Similarly, studies on management accounting have adopted positivistic approaches to technology (Rikhardsson and Yigitbasioglu, 2018; Rom and Rohde, 2007). Consequently, several studies have sought to establish the causal impact of introducing technology into management accounting (Kallunki *et al.,* 2011). Despite the dominance of this view, other theoretical perspectives have been adopted to analyze the role of technology and MAs. Such alternative perspectives have included contingency approaches (Byrne and Pierce, 2007; Chapman and Kihn, 2009; Chenhall, 2003), structuration theory (Caglio, 2003), actor-network theory (Dechow and Mouritsen, 2005; Goretzki and Messner, 2019), a resource-based view (Yigitbasioglu *et al.,* 2022), role theory (Andreassen, 2020;

Rautiainen *et al.*, 2024), task-technology fit (Kokina and Blanchetta, 2019), a constructivist approach (Korhonen *et al.,* 2020), and institutional theory (Bevört and Suddaby, 2015; Burns and Baldvinsdottir, 2005; Goretzki *et al.,* 2013; Siti-Nabiha and Scapens, 2005; Suddaby *et al.,* 2015).

2.2 MA's role and digitalization

The introduction of digitalization has produced exciting shifts in the literature on MAs' role changes. Consequently, researchers must understand its role in organizational life and management accounting (Quattrone, 2016). Recently, studies have examined how digitalization contributes to changes in MAs' roles. For instance, Heinzelmann (2018) finds that the IT system presents the central means of establishing appropriate behavior and simultaneously acts as a sense-making device. Therefore, ITs are described as key reference points for MAs to make sense of their work. Further, Heinzelmann finds that IT systems comprise an important driver of MAs' work, shaping the latter's occupational identity and producing dissonance between the business partner role and the organizational reality. Moreover, Andreasen (2020) finds that digital technology contributes to specialized and narrower roles for MAs who oversee system integration and information flows between systems, which spawns new specialist roles within customer relationship management and analytics. These findings contradict earlier work predicting that technology would broaden and expand MAs' roles (Caglio, 2003; Järvenpää, 2007; Suddaby *et al.,* 2015). The aforementioned studies distinguish between the roles of divisional and group-level MAs, indicating that both roles have narrowed. While some group-level MAs have become more specialized in information systems, the role of divisional MAs has also become stricter by adhering to analyses from higher organizational levels. Andreasen (2020) finds that digital technology impacts not only tasks but also broader social contexts in which MAs either evolve into a freer role, pursuing their own topic of interest, or, conversely, disconnecting themselves from their identity as accountants. According to Kokina *et al.* (2021), the gap in current MAs' competencies makes it difficult to exploit current technological innovations, including RPA. Thus, accountants must acquire new technical skills to prepare for new roles in financial organizations. Kokina *et al.* suggest that accountants must better understand data structure, programming, and security practices to capitalize on automation opportunities. Rautiainen *et al.* (2024) find that management accountants' role identity has become fluid by constantly adjusting to accommodate shifting role expectations and changing context-specific demands, and that digitalization is a key driver of this phenomenon. Moreover, Steens *et al.* (2024) found that senior controllers perceived their current knowledge and competency levels regarding digital technologies to be lower than required.

Thus, although MAs are increasingly focusing on technology, they are still perceived as either controllers or business partners. We argue that the literature requires a more profound description of how a novel technology-focused MA role is perceived and how it differs from the traditional controller and business partner archetypes. As we will show in this paper, a clear distinction lies between the traditional roles of the controller and business partner, while what

we see in today's companies is the *functional consultant* role. Each of these three MA roles is guided by its own values, beliefs, and logic.

2.3 MAs' role and institutional theory

Various researchers have leveraged institutional theory in various contexts to develop concepts to understand MAs' roles. These studies aim to address the embedded agency paradox by examining MAs' agentic change behaviors. Several studies have used different aspects of institutional theory to explain changes in MAs' roles (Goretzki *et al.,* 2013), institutional work (Burns and Baldvinsdottir 2005), institutional embeddedness (Siti-Nabiha and Scapens 2005), and decoupling. Goretzki *et al.* (2013) theorize how a new actor in a firm can drive the institutionalization of a new MA role, focusing on the micro processes and institutional work that the CFO carried out to promote the business partner's role. Burns and Baldvinsdottir (2007) describe the emergence of new team/process-oriented roles for "hybrid" accountants in a multinational manufacturing company and highlight the institutional contradictions that create potential openings for change by drawing on Seo and Creeds' (2002) framework. Further, Siti-Nabiha and Scapens (2005) explore the relationship between stability and change within the accounting change process, focusing on the ceremonial way in which a value-based management system is implemented and how key performance indicators become decoupled from a firm's day-to-day activities. Furthermore, they suggest that stability and change are not necessarily contradictory forces, but rather intertwined. Despite great contributions in explaining the role of different institutional approaches, none of the abovementioned studies explain the influence of digitalization.

2.4 Institutional theory

Institutional theory is necessary to move beyond the descriptions of phenomena—i.e., to explain why MAs' roles have changed due to digitalization. Complex phenomena such as digitalization cannot always be explained in simple terms; by using an institutional logic lens, researchers can increase their understanding of the phenomenon. Thus, institutional theory can provide a more fundamental explanation for the antecedents of digitalization (Schildt, 2022) by analyzing the logic underpinning MAs' identity.

2.4.1 Institutional logic

The study of institutional logic has become crucial in organizational institutionalism (Thorton *et al.,* 2012). The institutional logic perspective has advanced considerably since its inception. Institutional logic retains a cultural emphasis on neo-institutionalism (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Zucker, 1977). Today, one of the most cited definitions of institutional logic is provided by Thorton and Ocasio (1999): "the socially constructed, historical patterns of cultural symbols and material practices, assumptions, values and beliefs by which individuals produce and reproduce their material subsistence, organize time and space and provide meaning to their daily activity." This definition provides a theoretical understanding of the relationships among institutions, individuals, and organizations in social systems (Thorton *et al.,* 2012). To further explain the concept of institutional logic, we draw on Ocasio *et al.'s*

research (2019). Institutional logic is both symbolic and material (Friedland and Alford, 1991); thus, it is embodied through symbolic representations, material practices, and artifacts. Institutional logic can be observed through communication, language, and other semiotic signs, which indicates that institutional logic is more than just a theory and is made durable through practice (Thorton *et al.,* 2012). The organizational principles of institutional logic are multidimensional but related. Institutional logic comprises a specific set of beliefs, values, role identities, and sources of legitimacy that guide individual and organizational actions in institutions (Friedland and Alford, 1991). Multiple logics may operate in various settings; consequently, these logical constellations create complex and pluralistic environments (Greenwood *et al.*, 2011). Thorton *et al.* (2012) provide a framework for the seven ideal institutional logics (Appendix 1).

To understand how digitalization changes accounting, we must first understand its components. One way to achieve this is by examining digitalization as an institutional logic. This allows us to understand key principles within digitalization, its organizing principles, root metaphors, sources of authority and legitimacy, evaluations of criteria, iconic practices, employee roles, and uncertainty (Schildt, 2022). Applying institutional logics to digitalization offers two areas of conceptual purchase: (i) understanding the complexities of the environment in which digital technologies are embedded and (ii) understanding how institutional logics shape technological affordance (Gegenhuber, 2022). We emphasize the ontological claim that institutional logic is a real phenomenon, in the same way as bureaucracy, social networks, and culture. We assume that institutional logic exists independently of researchers' analyses and has casual power over individuals, groups, and organizations (Radoynovska *et al.,* 2020). Ideal types (family, religion, etc.) are only intended to provide examples and are not the only possible models. Other forms of representing and measuring logic, besides the ideal, are both possible and desirable (Thorton *et al.,* 2012).

This allows the reinterpretation of digitalization as an individual institutional logic, similar to the remaining ideal types. Schildt (2022) proposed digitalization as an individual logic, and our study contributes to this conception by providing empirical evidence from two specific cases, showing how digitalization logic exists in cohesion with other logics (i.e., corporation and professional logic). While defining institutional logic, it is useful to understand what it is not. Theories, frames, narratives, practices, and categories are all building blocks of institutional logic, but are not themselves institutional logics (Thorton *et al.,* 2012). In our study cases, we find that individuals collectively identify with digitalization logic—some more than others, depending on their organizational placement. Institutional logics define the "rules of the game" and direct the attention of the individual, group, and organization to specific concerns, problems, and solutions. While earlier studies on institutional logics focused on understanding one dominant logic that guides actors in a certain field (Goodrick and Reay, 2011; Lounsbury, 2002), the present study recognizes that multiple logics can coexist (Greenwood *et al.,* 2010; Reay and Hinnings, 2009). Notably, Goodrick and Reay (2011) developed the term "constellations of logics" to refer to the arrangement where multiple logics coexist. We

observed this arrangement unfold throughout the two case studies investigated. Thus, different logics shape the identity of MAs.

2.5 Digitalization as an independent institutional logic

Institutional theory can explain complex, large-scale changes such as those caused by digitalization (Schildt, 2022). However, institutional theory has only recently addressed the business impacts of digitalization, algorithms, and digital platforms (Faik *et al.,* 2020; Hennings *et al.,* 2018). In early studies, digitalization was perceived as an exogenous shock to institutionalized structures, caused by novel digital products and services (Berente and Seidel, 2022; Hennings *et al.,* 2018). This depicts digitalization as an outcome rather than a process. However, framing digitalization as an exogenous shock fails to explain how managerial thinking changes due to technologies' development and application (Schildt, 2022; Zuboff, 2019). In our study, we acknowledge Schildt's (2022) attempt to conceptualize digitalization as a broader change in an organization, involving interconnected changes in technologies, cognition, and structures, which explain the emergence and triumph of a new institutional logic.

Researchers have leveraged institutional theory in various digital contexts to understand how institutions embedded in digital technologies constrain and enable human behavior (e.g., Faik *et al.,* 2020; Leonardi and Vaast, 2016) and recognize the relationship between digital technologies and institutional change (Mignerat and Rivard, 2009). Digitalization involves not only new technologies but also new organizational practices, institutional infrastructures, and managerial norms and beliefs (Schildt, 2022). When we acknowledge digitalization as an institutional logic (Hinnings *et al.,* 2018), it becomes clear that it is not just a trigger for institutional changes but a complex change process in diverse institutional structures (Schildt, 2022). These developments enable institutional theorists to understand how digitalization shapes institutional processes. Schildt (2022) created a table for comparing institutional logics. This table contains categories to highlight the digital logic and will be used in the findings section to illustrate how digitalization has constituted a strong/weak institutional logic in the two studied firms, Transcorp and FacilityCorp.

Institutional theory has been criticized for being too broad and having less explanatory power. Alvesson and Spicer (2018) argued that conceptions of institutions are often too broad. They suggest that institutional theorists should narrow their conceptual scope. More particularly, the institutional logic approach has been criticized as a dominant theoretical perspective that crowds out alternative explanations while simultaneously not offering insights into key concepts (Alvesson *et al.*, 2019; Alvesson and Spicer, 2018). Despite digitalization being interpreted as an institutional logic in the present study, there is an ongoing discussion about whether digitalization can be interpreted as independent institutional logic (Gegenhuber, 2022). Some argue that digitalization lacks the coherence at the societal level; thus, we should view it as a method to automate existing processes. This narrower definition poses digitalization as the use of technology to change current business models (Gartner, 2019); however, it does not acknowledge its broader transformational capabilities. We try to overcome these challenges by

applying the theory objectively throughout this paper, explaining why we are using the concept of institutional logic, how we understand its application in our research setting, showing its relevance to our research questions and findings, and discussing its limitations.

3. Research method and case setting

3.1 Approach

We conducted a comparative case study to understand how digitalization is changing MAs' identity and role by examining the constellation of institutional logics, focusing on digitalization. As case studies, we selected a company with high maturity in its digital processes in its accounting function (TransCorp) and a company similar in size and industry but with lower maturity in its digital processes (FacilityCorp). This strategy was applied to compare how variations in digital maturity, reflected by strong/weak digital logics, impact MAs' role in each company. We obtain data from more than one case, following novel management accounting studies (Kokina and Blanchetta, 2019; Kokina *et al.,* 2021; Morales, 2019). Moreover, we conduct a comparative case study, following prominent publications in the institutional logic field (Järvinen, 2016; Waldorff *et al.,* 2013), which strengthens the validity of our approach.

3.2 Case selection

We conducted interviews and collected data from two companies in the Danish industrial sector. These international companies are among the 25 largest companies in Denmark. To enable comparison, some efforts have been made to secure a meaningful case selection. These two companies were selected for two reasons: First, a preliminary study showed that Transcorp exhibited high maturity in its digitalization journey. We also learned from interviews with FacilityCorp that they were in an earlier stage of digitalization. This enabled us to analyze how variations (e.g., digital maturity) influence MAs' roles. Second, management accounting has a long tradition in Denmark's industry sector (Israelsen *et al.,* 1996). This is important, as we wanted to investigate MAs' roles, preferably in a highly institutionalized environment. We sought to study two cases with similarities, as comparing two contextually different companies would give rise to too many variables to explain why MAs' roles differed. The names of the organizations were changed to ensure confidentiality.

3.3 Case setting

3.3.1 FacilityCorp

FacilityCorp is a large international facility management provider founded in Denmark with over 400,000 employees worldwide, many of whom are low-skilled workers. FacilityCorp rolled out a new corporate strategy in connection with the appointment of its new CEO in 2020. This was FacilityCorp's first attempt to make digitalization an integral part of the company's DNA, according to spokespersons. This strategy's main objective was to strengthen the company's position in the market through three objectives: (i) focusing on key segments, (ii) accelerating technology investments, and (iii) introducing a new operating model. One key element was the alignment and standardization of data across all entities; this aimed to solve an ongoing issue, as

unorganized data hinder the organization's development of digital initiatives. Before the strategy was implemented, its international subsidiaries had their own tools, structures, and business principles, along with different ERP systems. Currently, 50% of them use Navision, 25% use SAP, 12% use JD Edwards, and the remaining 13% use other ERPs. All entities report to the Denmark headquarters (HQ) and all accountants are consolidated via OneStream software. Moreover, Tableau is used as a data cube on top of one stream to extract relevant financial information for decision-making. The accounting function is organized into three hierarchical units: First, local accounting is located in each country of operation; its main tasks are to send invoices to the international shared services center (ISSC), maintain simple bookkeeping, and payments. Second, the ISSC is located in Poland, where all transactional accounting is carried out. Finally, HQ is responsible for analysis, control, consolidation, and financial reporting. During the interviews, several interviewees pointed out that FacilityCorp has a scattered application landscape, with several applications overlapping, not only in accounting but also throughout the organization, thus creating confusion. FacilityCorp faces challenges in streamlining its data models across countries.

3.3.2 TransCorp

TransCorp is a Danish transportation and logistics company that provides large-scale logistics services subject to global competition. Despite its Scandinavian origin, TransCorp has expanded worldwide, with more than 70,000 employees. TransCorp is a forefront and competitive technology company offering high-technology logistical services tailored to its customers. Digitalization has been an integral part of TransCorp's strategy for several years. TransCorp sees itself as digitally driven, which is reflected throughout the organization. TransCorp uses SAP ERP Hanna 4.0 software as its main ERP system, covering more than 98% of the total company transactions. Additionally, SAP BPC software serves as a data warehouse in which controllers conduct financial reporting and control. Bookkeeping is mostly restricted to the ISSC and its divisions. The accounting function consists of smaller accounting teams in each country, each with a head of control who reports to Denmark. TransCorp has two large ISSCs, one in the Philippines and one in Poland. Only a few controllers have been employed in ISSC. However, several bookkeepers and technical staff members work for the ISSC. There are various accounting positions at the group level. Group accounting is responsible for reporting, financial analysis, recommendations to support countries, and governance, along with the consolidation and assembly of annual reports. TransCorp has been embracing digitalization for a long time and has already implemented numerous digital initiatives within the organization.

3.4 Data collection

Data collection consisted mainly of gathering archival data (company reports, presentations, internal documents, and observations) and conducting semi-structured interviews with employees from the accounting department. We focus on the companies' accounting function and digital logic, as we aim to investigate how such digital logic affects MAs' role. A case study was conducted from December 2021 to March 2024. All except three interviews were held online and lasted between 22 minutes and two hours. The interviews were semi-structured and

the main topics were set prior to the interviews. However, there were some differences in the questions, depending on the role and position of the respondent. An example of the interview structure is provided in Appendix 2. Furthermore, 27 interviews were recorded, and four were not. However, the latter provided empirical data; therefore, we took extensive notes on these four cases during and immediately after the interviews. The interviewees were free to withdraw from the interviews or retract any statement. None of the respondents declined to participate in the interviews or withdrew from the study.

Participants were selected in coordination with each company. In TransCorp, we were allowed to contact employees we found suited for the project, besides C-level executives. In FacilityCorp, we conducted an opening interview with the director/digital enterprise architect who referred other relevant interviewees. In both cases, we decided to approach employees working in three groups: (i) accounting (controllers, finance transformation, and business partners); (ii) employees working in IT and finance (SAP consultants, enterprise architects, and process automation experts); and (iii) developers (software developers, data officers, and heads of digital innovation). This sample was determined because we wanted to investigate how MAs' roles were becoming more digitally enabled; therefore, we considered these three groups, containing people who possessed knowledge of this development.

We interviewed 16 and 15 employees from TransCorp and Facility Corp, respectively. At Transcorp, we interviewed eight employees from HQ, four from the ISSC, and four from its subsidiaries. In FacilityCorp, we interviewed nine from HQ, three from the ISSC, and three from its subsidiaries. This distribution enabled a rigorous representation of interviewees capable of collaborating and imparting knowledge to the project. Appendix 3 lists the interviewees. The questions were open-ended and exploratory. They were loosely organized around our research question. The questions guided the interviews, but interviewees were allowed to discuss other topics. The questionnaire was developed by a small group of researchers with knowledge in the field. We obtained access to supplementary data from both companies, which supported some of the points discussed in the interviews.

3.5 Data analysis

An inductive method was applied to support the explorative nature of our study (Golubeva, 2021), seeking new themes within the discussion on MAs' role. We follow Gioia *et al.* (2012) on how inductive researchers can apply systematic conceptual and analytical disciplines that lead to rigorous and credible interpretations of data. We inductively coded the interviews using Nvivo 14 software. We analyzed the interview data in parallel with the archival data. First, we compiled raw data (interview transcripts) and entered them into Nvivo. We conducted open coding, which drew our attention to changes in MAs' roles. Particularly, we noted how digitalization was involved in these changes and how different institutional logics emerged, and refined the coding schemes as we identified patterns. In developing categories, we read and re-read the transcripts vis-à-vis the extant literature, engaging in constant comparison (Glaser and Strauss, 1967). In Appendix 4, we present the coding tree with 1st, 2nd, and 3rd-order codes. We

conducted a 1st-order analysis to identify the major themes in the data and expressions describing the roles of digitalization and MAs. In the initial stage of data analysis, we adhered closely to the informants' language. In the first step, the initial coding of the transcript files was developed into 26 1st-order concepts. Next, we developed the 2nd-order themes via constant comparison techniques, ensuring that what we were told by informants aligned with the literature on MAs' roles. Subsequently, a search was conducted utilizing a cross-case pattern comparison to identify similar codes per theme and reduce instances of double coding. This study aimed to capture all meaningful expressions without further repetition. As an example, numerous quotes regarding how digitalization impacted accounting tasks (changes in ERP, changing procedures, Business Intelligence's influence) were assembled into the broader category of "digitalization impacting accounting tasks" whenever the above-mentioned terms emerged and pointed to the same pattern. Finally, we combined order themes into overarching concepts relevant to how digitalization impacted MAs' roles.

4. Findings

In the following section, we analyze the empirical data derived from the 31 interviews. The data of the interviews were classified into 26 1st-order concepts, seven 2nd-order themes, and three aggregate dimensions (indicating our interpretation of the essence of the interviews): "Institutional logics shaping MAs role," "Digitalization shaping MAs' role," and "MAs' roles as controller, business partner, and functional consultant." These aggregate dimensions are presented in the following section. Figure 1 explains how the constellation of institutional logic impacts MAs' roles in the two case companies.

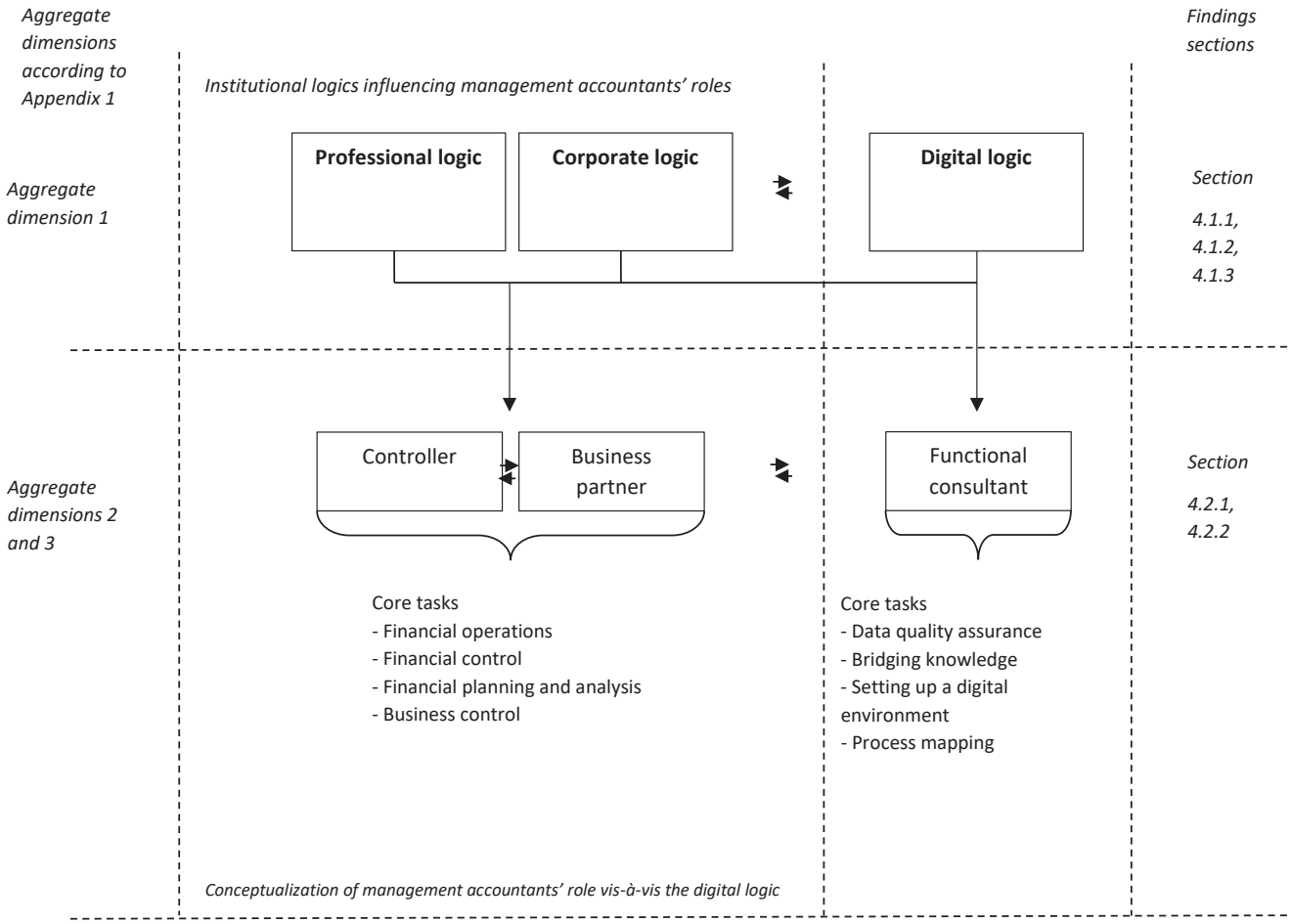


Figure 1. Conceptualization of how a strong digital logic compounds MAs' role as that of a functional consultant

Our findings show that MAs' identity changed through the process of interpreting multiple logics—professional, corporate, and digital—and their relationships.

The study cases illustrate how differences in the constellations of institutional logic shaped the development of MAs' roles in each company differently. While TransCorp's stronger emphasis on digital logic led to a more distinct and fixed role identity for functional consultants, FacilityCorp's weaker emphasis led to a more fluid interpretation of the functional consultant and MA roles. In FacilityCorp, some employees worked in IT-related areas of accounting, such as ERP implementation; however, these were perceived as either accountants or IT personnel. Thus, a strict dichotomy was established, while the intermediate role between accounting and IT was not recognized as a distinct role but under the paradigm of a fluid role, acknowledging that some employees were more tech-savvy than others. Based on our observations, we explain the

core tasks of the new functional consultant role and how it separates and delimits itself from the traditional controller and business partner roles (Van der Stede and Malone, 2010). On the left side, Figure 1 is divided into three aggregate dimensions, using the inductive analyses presented in Appendix 4. On the right side, said dimensions are presented. Section 4.1, presents our findings on how the constellation of institutional logics is changing MAs' role, along with how digitalization constitutes an institutional logic differently in each company. It explains how a stronger digital logic is connected to the more fixed role of the functional consultant, while a weaker digital logic is connected to a more fluid role. Section 4.2 presents the findings on how the controller and business partner roles change due to digitalization. Further, it presents an explanation of how the functional consultant's role differs from that of controllers and business partners, while remaining under management accounting's purview.

4.1 Institutional logics influencing MAs' roles

Our first analytical task was to determine MAs' role identities and whether they changed due to digitalization. We drew on seven societal-level institutional logics (professional, market, corporate, community, state, family, and religion; see Appendix 1). Determining the "ideal type" identity for each institutional logic relies on an abstraction of concepts from the literature to infer the role identity an MA would have if a single logic were guiding how MAs see themselves (Reay *et al.*, 2016). For example, if guided only by a professional logic, MAs would rely solely on their own expert knowledge to conduct their work, thus holding complete professional autonomy and control over the organization of work (Thornthon *et al.*, 2012). In contrast, if guided only by a corporate logic, MAs would see themselves as members of an organization, where their position of authority and ability to make decisions about financial records would be controlled by established organizational rules (Reay *et al.*, 2014). Meanwhile, if they were guided solely by a digital logic, MAs would focus only on how to automate processes and input data into systems, without paying attention to underlying accounting knowledge in the field.

We focused our attention on MAs' explanation of their roles and the traits linked to each of the aforementioned logics. We weighted stories about factors that shaped MAs' role, motivated by an established theory about professional role identity and institutional logic, which pointed to the importance of interactions (Reay *et al.*, 2016). Most importantly, we noticed that the digital logic fostered awareness of the functional consultant's role. Judging from the interviews, it seemed that more attention was paid to MAs' distinct responsibilities, recognizing fixed objectives related to the IT aspect of MAs' tasks, when a stronger digital logic was applied. A stronger sense of a functional consultant role emerged in TransCorp due to its stronger digital logic, while the weaker digital logic of FacilityCorp fostered a more fluid role for MAs. The digital focus in TransCorp established a fine-grained set of responsibilities for functional consultants, thereby conceptualizing them as separate from regular MAs. However, the functional consultant role remains within the purview of MAs' work, coexisting with the controller and business partner roles.

4.1.1 Professional logic

In both companies, MAs focused strongly on their professional logic. Management accounting is a highly institutionalized field that can be traced back to classical accounting. In Denmark, MAs are not regulated by a monitoring body—as is the case in the UK (Chartered Institute of MAs). However, professional expertise in the field comes from best practices, combined with local and international accounting standards. Professional logic reflects an accountant's values and nature. MAs strive to deliver work following accounting standards to ensure validity and *reperformativity* in the tasks they handle. MAs usually possess strong analytical and technical skills, and they see themselves as experts with unique knowledge that enables them to make data-driven decisions. At TransCorp, MAs' professional logic was strong, as one controller recognized:

> We want to keep things as simple as possible and use the right methodologies approaching any accounting obstacles. The tasks and processes we work on follow all relevant laws and regulations. **Controller, FacilityCorp**

MAs used their skillsets from previous jobs during the transition to accountants. This was the case for several current MAs at both companies. They either joined experienced hires from auditing or competing companies in similar positions; otherwise, they joined directly from a business school and entered the graduate program facilitated by both companies. In many cases, MAs came from the same educational background, while they formed relational networks through formal education, as people knew each other from business school or prior jobs. Several MAs in both companies were hired from Big Four auditing firms, which are associated with quality and status.

> My basic skillset came from working as an auditor, for several years, for a Big Four firm. Many accounting employees in the company come from similar backgrounds and have brought in knowledge from other relevant contexts. **Controller, FacilityCorp**

We noticed multiple practices and assumptions embedded in the language used by MAs from both companies when discussing important areas of their work; this underscores that the field is highly institutionalized. For example, they referred to the "yearly wheel"—the accounting procedures that have to be performed throughout the financial year. Another example is "monthly closing," which refers to the accounting procedures that have to be performed before financial reporting can be completed at the end of the month. In the controlling environment we found an object of particular importance, the "controlling checklist," which is a guide to ensure that controlling tasks have been performed properly to avoid pitfalls and ensure consistency across the financial reporting process. We determined MAs' professional logic to be strong because they saw themselves as holding unique knowledge based on prior experience, thereby holding an expert role in their field. Professional logic clearly influenced the roles of MAs in both companies, as objectives and values from their backgrounds were brought into their role as MAs, enabling them to make decisions.

4.1.2 Corporate logic

Through the interviews, we noticed that a corporate logic was strongly rooted in the identity of MAs in both companies. Management accounting largely involves interpreting numbers and understanding what lies behind them, as well as acquiring knowledge about what has happened and could happen to the organization (Rautiainen *et al.*, 2024). In neither company MAs were officially defined by name. However, both companies have multiple roles within management accounting's purview. Both organizations' hierarchy is strict and follows widespread practices. Roles included controller, senior controller, manager, director, vice president, and CFO.

> The rank obtained in the hierarchy defines our responsibilities. The ladder is a proven concept used by many companies. **Controller, FacilityCorp**

Bureaucratic rules are enforced by MAs through governance. A clear hierarchical decision-making structure exists among MAs in organizations; in both firms, subsidiaries report to the group. Each rank is clearly defined in both firms. Further, among MAs, their rank carries prestige and adds meaning to their role; for example, when someone becomes a manager, it is expected that they will assume the supervisor role and manage other employees. Both organizations have a similar role distribution among employees. At TransCorp, one interviewee explained:

> There tends to be a direct hierarchical order that defines the types of tasks that you are working on. Sometimes, it can differ; however, it is unusual that, for example, an analyst makes decisions that impact the system landscape. That is something that a CFO usually does. **Controller, TransCorp**

This sort of corporate logic was echoed by a controller from FacilityCorp who stated the following:

> Your formal role (as manager, director, or whatever) defines where you are in the chain of command. **Controller, FacilityCorp**

Based on the statements obtained, our general impression is that corporate logic is strong among MAs in both companies. Corporate logic defines the role and boundaries of MAs in their day-to-day activities and their self-image and role in the organization.

4.1.3 Digitalization logic

Building on Schildt's (2022) conceptual framework, we acknowledge the existence of digital logic and show how it is decisive in how MAs' roles have evolved in the two case companies. In Appendix 5, we briefly recap our observations regarding digital logic in the two companies, following Schildt's framework.

MAs in both companies adhered to the organizing principles of digital logic and what Schildt (2022) refers to as omnipotence—the effort to bring activities inside and outside the organization under control in information systems—and omniscience—the effort to represent and conceive the world through digital data. Both ideas are, to some extent, central to every large corporation. However, this is only to a certain extent. For TransCorp, bringing its activities under control in information systems has long been a top priority. TransCorp streamlined its master data and ERP system to SAP and demanded that every entity within the organization apply to it. Today, over 98% of TransCorp's transactions occur in the SAP. Conversely, FacilityCorp has a much more scattered system landscape, with multiple ERP systems: 50% of the organization uses Navision, 25% uses SAP, 12% uses JD Edwards, and the remaining 13% uses other ERPs. This reveals that FacilityCorp has a less conformed digital logic. On the operational side, omniscience is crucial for both companies. At FacilityCorp, the new CEO initiated a strategy that integrates digitalization as a core element of the organization's value creation for customers. This strategy should work as a combination of financial and operational data to achieve "open book" reporting for customers, meaning that there is full transparency in FacilityCorp's costs and the price per unit. FacilityCorp is in a low-margin market and is therefore especially attentive to maximizing profit in every client engagement. TransCorp is a data-driven organization that uses multiple instances of digital technology to track its operations. Digitalization has been a top-priority for FacilityCorp for several years.

In Schildt's (2022) framework, the term "simulacrum" refers to the event in which machines replace humans in their work and is a central idea in digital logic. Replacement is a natural outcome of digitalization and is found in multiple instances in both companies. In TransCorp, we gained access to the international shared service center, which is a hub for all transactional accounting tasks. In the ISSC, numerous tasks and processes have been automated, while accountants work daily by automating new tasks that amplify digital logic.

> Digitalization is central, and we find colossal value in process automation. **Vice President, Head of Group Digital and Technology, TransCorp**

In TransCorp, digitalization is present in each controller task: data gathering, operational accounting, and analysis. *Finance operations*: Financial data are extracted through reports in Power BI, customized to serve MAs' needs and be delivered in Excel format. *Financial control*: One example is that the software algorithm learns by analyzing previous invoices on how to post future entries in SAP software. Another example is how payments are received and matched without human involvement in more than 90% of cases. *Financial planning and analysis*: An example is red flagging applied by machine learning when suspicious movements occur in ERP accounts. TransCorp has automated accounting processes, whether we look into group finance, ISSC, or divisional country subsidiaries. More commonly, tasks such as posting journal entries and reconciliations are mostly delegated to robots, while analytical and judgmental tasks such as ensuring that a compliance framework is being handled correctly are carried out by MAs.

Similarly, a digitalization logic is present in FacilityCorp; however, it is not as evident. We were unable to obtain comparable data from FacilityCorp. When looking at the controller tasks, we found that digitalization was used to a lesser extent. In the *finance operations* process, Tableau is used as a data warehouse, in addition to Navision, to extract data reports for management accountants. However, certain limitations exist because not all transactions are registered in Navision and are only compiled in the consolidation software OneStream. Regarding *financial control,* Tableau has taken over much of management reporting, which was one of the MAs' prior tasks. Much of accounting is conducted manually in countries with digitalization processes.

> We are some way, but we were not first movers when it comes to the digital transformation. **Global Head of Digital Innovation, FacilityCorp**

FacilityCorp has not incorporated digitalization into their *financial planning and analysis* because it has focused on standardizing its data model throughout the organization. FacilityCorp is currently working on the fundamentals of digitalization and is not at the same maturity level as TransCorp. However, the company's intentions cannot be mistaken. One key component of its current strategy is leveraging its digital capabilities to enhance its business model.

In FacilityCorp, the work of aligning the data model and securing comparability has not yet been accomplished. Therefore, the legitimacy of its financial data is not at the same level as that of TransCorp. Interviewees from FacilityCorp mentioned that there is not a single version of the truth because the charts of accounts are not comparable in all countries. In TransCorp, the situation is different. Controllers and accounting employees fully trust the data on which they operate and find it useful to know that every country's financial data are homogenous across entities. In both cases, legitimacy comes from the top management and is part of their core strategy. However, the authority of digital initiatives comes from two different locations in the case organization. In TransCorp, there is a strong presence of top management that rolls out digital initiatives across the entire organization. Previously, when a new data model was introduced and rolled out in other countries, top management had the approach of fitting in or leaving the organization, as one interviewee mentioned:

> We now run a model I can mention here in this closed forum. We called it the "FIFO" model—short for *fit in or f--- off*. When we roll out in some countries and it works, we run this model. **Executive Vice President, TransCorp**

> FacilityCorp adopted a different approach. Top management has integrated digitalization into the firm's corporate strategy; however, the power of the organization is not solely in the hands of management. There are "country kings" who do not participate wholeheartedly but are actively engaged in the organization's digital transition. **Finance Director, Head of Operational Services, FacilityCorp**

In larger operational entities, considerable power is held by the aforementioned country kings, who are not always willing to engage in management's plans. Notably, if these country kings' countries contribute a considerably to the overall revenue, it is difficult for management to force them into doing things differently. These circumstances have contributed to the weaker and delayed digital development of FacilityCorp.

Judging from the supplementary documentation we received, a digital logic is clearly visible in the strategic key performance indicators (KPIs) conforming to the functional consultant's role in the ISSC of TransCorp, measuring the "number of operational optimizations implemented," the "percentage of standardization within processes," and "hourly savings." All three KPIs are directly related to how well digitalization is implemented. In FacilityCorp, we found that KPIs mostly measure more traditional accounting tasks, while performance reviews are based on how well MAs deliver analysis and receive proper documentation. Evaluation criteria for tracking digital development have not been established in FacilityCorp, which is important because different measurements and responsibilities are directly linked to how individuals define their roles within the organization. A weaker digital logic with no KPIs related to digital achievements indicates a more flexible role for MAs, allowing them to remain linked to their roles as controllers or business partners. Both companies have an entire system landscape encompassing digitalization in the finance function. The difference lies in how much the two firms matured during early digitalization. The concept of employee roles is especially relevant to our study because we investigate the extent to which digital logic influences MAs' roles. An interesting observation came from MAs discussing their colleagues' roles and how they have developed. Interviewees were compared at the group level for each company. FacilityCorp's MAs were much more reluctant to digitize.

> For us, not much has changed now that we are utilizing new digital technologies. When implementing the new ERP system, we mostly gained processing power, although some parts could not keep up. We are still, in most cases, carrying out reporting, reconciliations, etc., by extracting data from the ERP and adding it into Excel sheets. The entire system landscape outside the ERP is based on Excel. **Controller, FacilityCorp**

TransCorp referred to some MAs as functional consultants with specific responsibilities, skills, and experience.

> There are clear differences between what management would expect from a functional consultant and someone working as a controller... Functional consultants usually bridge IT and accounting so that developers and system designers can get through with their ideas and vice versa. **Controller, Transcorp**

Functional consultants work as a link between accounting and digitalization. Further, they are responsible for tasks that support traditional MAs' work. Emphasizing the connection between digital logic and MAs' roles, one interviewee said:

> Because of the digital focus and its importance, we need people who are responsible for how well we are doing digitally. **Vice President, Head of Finance Transformation, TransCorp**

TransCorp seems to be more aware of MAs' potential to become functional consultants. When talking to interviewees from TransCorp, it became clear that functional consultants' values differed from those of controllers and business partners. Functional consultants embraced digital initiatives much more openly.

> Digitalization opens doors for many opportunities. We have already implemented multiple time-saving enhancements and expect add more in the near future. **Head of Process Automation and Business Intelligence, TransCorp**

Functional consultants were aware of how digitalization impacted their roles. Business partners have also recognized the advantages of digitalization.

> Several aspects of our roles are supported digitally. When working in a business control environment, we use red flagging as a pre-identification method to identify unusual patterns in our analysis **Business Partner, TransCorp**

Business partners benefit from faster data analysis with recommended suggestions for potential threats. Appendix 6 illustrates these three logics and their attributes.

4.2 Conceptualization of MAs' role in the digital era

A stronger digital logic fostered consciousness about the fixed role of a functional accountant in TransCorp. Conversely, a weaker digital logic in FacilityCorp led to the perception of a more fluid role; the digital aspect of the MA's role was embedded in the controller and business partner roles and was not understood as a separate role. All three roles—controller, business partner, and functional consultant—coexisted and supported each other. In the next section, we explain how each of these roles is affected by digital logic.

4.2.1 Controller and business partners roles

The MAs participating in our study perceived their current roles as more analytical because of the reduction of manual tasks caused by digitalization.

> In the role of a controller, there is much less data production and much more data analysis because of the automation of tasks. **Senior Director, Head of Controlling, TransCorp**

MAs saw their roles as having broadened because new tasks involved expertise beyond traditional accounting. Controllers and business partners were faced with the need to scale up their data management competencies to catch up with current developments in the field.

> What I would say is that the controlling role has become like multi-tasking. We are like the policemen and firefighters of the company. Our skill level has broadened not only to accounting but to problem-solving in other domains. **Controller, TransCorp**

Multiple employees emphasize the importance of data understanding in the MAs' area of work, whether we saw it from the perspective of controllers, business partners, or functional consultants.

> We are now involved in several things: volumes, sustainability, ESG, Co2 reporting by our company... In this regard, we work together with experts and engineers daily; where something does not involve finance, we are taken out of our comfort zone. So, what kind of competencies do we need? An end-to-end understanding of data—all data—whether it is financial or otherwise. **Senior Director, Head of Controlling, TransCorp**

However, to succeed in the MA role, certain aspects of business partners are vital. The value-adding elements in this role were frequently highlighted by interviewees. This corresponds with the conceptual understanding of the business partner's role in the literature, which involves supporting business decision-making, recommending actions, and challenging executives' plans (Steens *et al.*, 2024).

> It counts if one can translate numbers into valuable insights. There are fewer financial tasks and more analytical tasks due to digitalization **Finance Business Controller, FacilityCorp**

MAs now have a much broader view of the organization despite having fewer pure accounting tasks. Similarly, the requirements for MAs have also increased. An analysis that previously took weeks now takes minutes to perform. Additionally, the number of reporting tasks has increased in recent years, resulting in MAs becoming occupied with financial, management, non-financial, and ESG reporting activities. According to interviewees, it is because of this additional workload that it is crucial to save time through digitalization.

> Part of the manual work is gone, but we have to conduct deeper financial analyses and reporting tasks that we were not required to perform several years ago. Digitalization helps us do things on time **Controller, TransCorp**

Accounting systems and processes have become more efficient; thus, MAs spend less time on accounting tasks. However, the degree of freedom to operate systems has decreased in both companies because they centralized their accounting structures and aligned their data and systems across countries.

> If we go all the way down to the operational level, the degrees of freedom have been smaller for the people who sit and do accounting. There is less transactional work, and there is less repetitive work, with the degrees of freedom being reduced because it must be introduced in a way so that the robot can run in the same way. **Finance Director, Head of Operational Services, FacilityCorp**

Both companies agree that, from a transactional accounting perspective, there is less repetitive work and less freedom for subsidiaries' MAs. Additionally, accounting processes' speed has increased.

> The speed of accounting processes has increased. Engines have become faster. **Senior Financial Controller, TransCorp**

Increased efficiency implies that fewer accountants are required to handle large amounts of data. This explains why few new controllers have been hired but more functional consultants have been employed. Financial controllers and bookkeepers have been replaced by functional consultants.

> If I think back to when I was here the last time, in 2009, there were many tasks where, for example, you copied things from one system to another and created an Excel formula. However, these tasks are no longer available. What do we do instead? In terms of volume, we have grown 10 times since then; we only have 1.5 times more controllers. **Senior Director, Head of Controlling, TransCorp**

Excess time is spent on getting closer to the business side of the company and delivering business partnerships to support the market strategy.

> Well, we make acquisitions in Germany, so I often find that they are where we were 15 years ago. I do not know if it is because smaller firms do not hurt so much if they are not digitalized. TransCorp could not function today if it was not digitalized. If something does not proceed quickly, we are not interested in it. Finance has come closer to business, and if we look at how much time we spend with our operational management, that time has increased. **Senior Director, Head of Controlling, TransCorp**

Digitalization also affects MAs' responsibilities within the organization and enables centralization.

> Digitization enables a greater degree of centralization[, following the paradigm of] "local accountability, local responsibility." If we come from HQ and say how things should be done, then we remove some of the responsibility. **Functional Consultant, GPO Record to Report and Controlling to Report, TransCorp**

Even if new digital tools are introduced to the organization, MAs must adopt them in their practices; otherwise, digitalization will only be a tool for faster processing. Before the implementation of new digital tools, it is important to plan the new system landscape and know exactly which type of application will be automated. One controller added:

> If you do not know what you are doing, you end up with the same result as before the implementation. **Controller, FacilityCorp**

Next, we summarize how digitalization influences the controller and business partner roles. First, we found that in both companies, the controllers worked less in finance operations (e.g., processing transactions and producing reports) because numerous tasks had been automated. Second, we found that in TransCorp, digitalization made it easier for controllers to conduct financial control (e.g., consolidating, financial accounting and reporting, and safeguarding compliance) because less data needed to be extracted from systems. Third, we found that in TransCorp, AI tools such as red-flagging made it easier to conduct financial planning and analysis (e.g., controlling budgets and plans and analyzing differences between budgets and actuals) because less time was spent on identifying unusual items in the accounts. Fourth, we found that in both companies, business control (e.g., evaluating business performance and serving management in improving business performance and strategies) has become easier because the operational side of their businesses produces much more relevant data to steer companies. Additionally, by using faster and easier digital reporting tools, it has become much easier to gain data insights for decision-making. However, we found that digitalization demanded much higher competencies in IT, while development has caused controllers and business partners to be aware of more than non-financial data due to more comprehensive reporting requirements, and data overload can occur.

4.2.2 The functional consultant

Functional consultants play roles as solution architects and process automation specialists, engaging in data and analytics, SAP, and business intelligence. However, all technical aspects belong to the field of MAs. By interviewing MAs working along the boundary between accounting and digitalization, we found that TransCorp had a clearly defined organizational division between functional MAs, controllers, and business partners, while FacilityCorp had a more fluid perception of the digital aspect of MAs' role.

Both companies had a department for ERP specialists; they fielded questions from MAs and helped set up customized system applications. TransCorp has an entire solution architecture team devoted to this task. Moreover, it has an AI/data science team of 20+ people helping the company implement AI throughout the organization. The team has been responsible for several accounting projects. In one instance, the team trained a learning algorithm to make entries into the correct accounts.

TransCorp is so focused on utilizing digital technology in its industry that it is considering selling some of its solutions in the market, according to one spokesperson, emphasizing the existence of a strong digital logic within the company. FacilityCorp also had resources allocated for exploring how digital technology could benefit them, but not to the same extent.

> If we have someone who is technically skilled, we typically move them over to the technical department in a functional consultant role. **Senior Director, Head of Controlling, TransCorp**

MAs who fail to develop the required digital competencies are expected to lose relevance. The role is completely different from what it was 10 years ago, according to the interviewees:

> "You cannot be just an accountant; you must be system-oriented and experienced and you can no longer separate yourself from digitalization. You must actively decide the extent to which you need to go down the digital pathway. **SAP Functional Architect, TransCorp**

From our observations, functional consultants' role did not replace the existing controller or business partner roles; in fact, it reinforced them, supporting them with technical knowledge, allowing business partners to focus on the key elements of their role, while supporting controllers in their tasks. A functional consultant is distinguished by their greater emphasis on digitalization and automation. While business partners typically use accounting software to support business decision-making, functional consultants are more concerned with how accounting software can be designed to automate accounting processes and support business partners in their work. While controllers are mostly concerned with financial reporting and control frameworks, functional consultants help controllers by securing accurate reporting models.

Some MAs were appointed to functional consultant roles because they possessed technical competencies that allowed them to simultaneously use the system and program it. Functional consultants bridge the gap between IT and accounting. Even though FacilityCorp did not refer to a certain group as functional consultants, they recognized the limits of specific roles when we introduced them in our conversations.

> I think this is a very good example of a controller, business partner, and functional consultant. It is a bit of all three, for sure. **Controller, FacilityCorp**

While speaking to the interviewees, we started developing our understanding and conceptualization of how digitalization has influenced MAs' roles. We then shared our understanding with the interviewees. Subsequently, together with the interviewees, we discussed the new functional consultant role and how it differs from current MA roles.

> Functional consultants separate themselves from regular accountants by being more data-oriented than regular controllers, who are more task-oriented. **Controller, TransCorp**

Although TransCorp controllers clearly separated themselves from functional consultants, this was not as clear in FacilityCorp.

> I recognize both the controller, business partner, and functional consultant aspects of my role, which to me are all necessary. **Controller, FacilityCorp**

Despite agreeing with the fact that MAs' role evolved toward becoming more digital in both cases. MAs from FacilityCorp recognized elements from all roles in their current work:

> The more data we gather, the more reliant we become on the people working with them. Functional consultants often have a data-driven mindset that sets them apart from regular finance people. **Senior Director, Head of Controlling, TransCorp**

As organizations begin to gather increasing amounts of data, the demand for people who know how to work with such data is growing.

> I think that every time there are 10 controllers and bookkeepers, there are five technical people concerned with the digital aspects of accounting. **GPO Record to Report and Controlling to Report, TransCorp**

One controller provides a concrete example of a regular MA supported by functional consultants:

> Yes, we have SAP ERP and BPC experts. Whenever I cannot figure out something technical, they are the ones I go to… It can be hands-on small things, such as how to do this and this extraction, and then there are bigger things. It is certainly an advantage to have extensive technical knowledge, but you do not have to work with large technical tasks here as a controller. **Controller, TransCorp**

An interesting observation is that functional consultants identified themselves as belonging to the accounting department. This was mainly because most of them had backgrounds in finance and accounting. However, functional consultants who came from the IT field identified more as IT employees.

> While most of us working with IT in accounting have accounting backgrounds, I would say that we identify as accountants; however, on the organizational chart, we belong mostly to IT. **SAP Specialist, TransCorp**

The functional consultant role is primarily involved with ERP and data science; thus, it typically requires IT and technical competencies. This digitally oriented MA role contrasts with the controller role but overlaps with the business partner role in certain areas.

> The role differs from regular business partners by being much more hands-on with ERP; I believe that I spend around 80% of my time working toward optimizing accounting flows. **GPO Record to Report and Controlling to Report, TransCorp**

The functional consultants who participated in the interviews appreciated the previous work experience they gained from traditional accounting roles (by working on auditing and financial control) before assuming functional consulting roles. Their prior experience enabled them to think strategically and translate accounting needs and requirements to the developers of software solutions. The competencies developed in other roles served as a preliminary step in their roles as functional consultants.

> In my ideal world, this should be a combination because we are confronted with many technical requirements. I think people who have a combination of skills are worth their weight in gold. Everyone is looking for some combination… Group controllers need system knowledge to be handled to help subsidiaries, how the system forms, why it works the way it does, and where things come from. Thus, for them to be able to analyze data properly and improve the processes or even reconcile different things, they actually need to have this understanding. Whether it is delving into very technical aspects, which I do not think but be more familiar with the system, that is the trend. **SAP Functional Architect, TransCorp**

A functional consultant does not require a strict set of skills. However, some have accounting backgrounds and a genuine interest in IT, supplemented by IT-focused continuing education. An ecosystem of courses, internal roles, certificates, and ranks exists within the SAP environment. Often, functional consultants use certification as proof of their abilities because there is no official way to master the role.

> I assumed an IT-focused accounting role because I have an interest in the application landscape and spend time taking courses and learning what lies behind the interface that we see in SAP. **Director, Digital Enterprise Architect, FacilityCorp**

Developers from the IT department clearly understood the need for functional consultants without referring to them directly as functional consultants.

> The people working in the technical landscape aspect of accounting are categorized as IT employees but mostly work in accounting. They often provide us with process maps, which trace accounting processes. **Head of Group Digital Technology, TransCorp**

Functional consultants use change management skills to encourage accounting employees to use their initial digital solutions. This process can be challenging. According to one interviewee, functional consultants essentially connect accounting personnel to technology.

> The roles are opposite; one of the most challenging parts of our jobs is to convince businesses to change. Accountants, by nature, are conservative people, so usually their approach is like, if it is not broken, do not fix it. Further, they do not always trust that the system is doing the right things, especially if they have been doing certain things manually for many years. However, there are two types of accountant. One is based more on efficiency and focuses on analyzing the data produced by the system rather than producing data themselves. The other prefers to produce data manually, convinced that they are reliable. Indeed, it is one aspect coming from the IT side that drives automation. However, businesses are sometimes reluctant to do this. Changing people's minds is challenging. This is part of the solution architect's work to highlight a change's pros, convince people, and guide them in the right direction. Sometimes the organization is not ready; in that case, we offer something less aggressive, less automated; after they begin to trusting the solution, then we begin talks regarding the next steps. **SAP Functional Architect, TransCorp**

To sum, firstly, functional consultants assess the quality of controllers' data models. For example, if a regular MA has an Excel sheet with an overwhelming number of lookups and macros and needs help to verify that the numbers are correct, they may contact functional consultants who possess superior skills in data modeling to determine the quality of the MA's spreadsheets. This is not limited to Excel; if the MA has problems setting up or verifying Power BI, Tableau, or other digital software, functional consultants can be helpful. Second, functional consultants bridge the gap between regular controllers, business partners, and developers. Developers typically come from an IT background and are responsible for developing customized solutions on top of the system landscape in both companies. For example, SAP is a package that includes standardized modules; if MAs need a customized solution, they contact developers.

> Most of the guys in my team actually have a finance background. Most of us, including myself, actually started in finance departments but transitioned into more digital areas. That is why we understand the requirements so well, and that is why it is not so difficult to speak the lingo of this field. People who come into SAP, if they are pure IT consultants, face many challenges, compared with people who actually started in finance and then moved to IT. When you understand the processes, terminology, and what to expect from the system, and then you learn how to configure the system, you can link these two aspects much easier than if you only know the system… If you go into meetings with firms and use SAP terminology, it may not make sense to them; maybe they have heard of it but it does not mean anything to them. Thus, that is where the knowledge of accounting helps you bridge these gaps and use terminology familiar to them, which allows you to translate

> the SAP language. In this sense, I think this mixed background is much more beneficial. **SAP Functional Architect, TransCorp**

Third, functional consultants are involved in implementing and testing new releases in the ERP system, where they check whether things are working properly before releasing them to the whole organization. Additionally, they work by setting up a digital infrastructure in the accounting function, assisting in the implementation of reporting tools such as Power BI and Tableau. Functional consultants work inside and outside the ERP system and perform ad-hoc tasks, as instructed by the developers. Fourth, functional consultants work mapping the processes of the financial system landscape and develop ideas for automating and optimizing certain areas. Functional consultants assist business partners in providing recommendations and challenging assumptions. While business partners are most concerned with the connection between accounting and the business, functional consultants are mostly concerned with the connection between accounting and IT.

> From a technical standpoint, we have different skillsets. There are people who are more technical; they are developers, they physically code the system, and they do not know accounting jargon. Further, they do not care about the processes. If they need anything to be described to them in SAP terms, referring to specific tables, how the system should do certain things, etc., they need a functional consultant. Therefore, for functional consultants, it is highly beneficial to have a financial background because this allows them to serve as the bridge between the technical and business aspects of the job. A functional consultant can configure the system. SAP has two large tools. Box one we call a standard configuration; there is a place where you can customize the system to your needs, but you still use the main standard product of SAP. If you say that the standard logic is fine, but it does not work for us, then it needs modification. That is where the developers come in, modifying behavior by coding it. Those employees have, of course, a very specific set of skills. **SAP Functional Architect, TransCorp**

Despite having technical skills, it is preferable for functional consultants to come from an accounting background because they need accounting knowledge to make adjustments in the systems. Overall, we suggest that an understanding of MAs' role change will be incomplete unless we consider the institutional context of digital logic. This is particularly true in highly institutionalized environments hosting a constellation of logics. There is clear evidence that MAs' role has become more technical, which must be addressed in the literature. Therefore, the present study offers an important contribution to the accounting literature.

5. Discussion and conclusion

Our first endeavor was to illustrate how the constellation of institutional logics impacted MAs' role. We investigated the relationship between multiple institutional logics in each case, as well

as the perception of MAs' role vis-à-vis digitalization. Whereas the literature has focused on fields with two coexisting logics and assumed that they are inherently incompatible, our study compared two cases characterized by different constellations of logics.

Both firms exhibited similarities; MAs showed a strong focus on a professional logic and saw themselves as experts holding unique knowledge, which enabled them to make decisions. Similarly, MAs from both companies had a strong corporate logic, which was amplified through the hierarchical decision-making structure among MAs within the organizations. However, the digital logic differed between both companies, being much stronger in FacilityCorp, even though both firms had similar approaches to digitalization and faced similar problems. Differences in digital logic imply that MAs' roles were shaped differently in each case. By comparing the constellation of logics in the two firms, we shed light on interesting patterns. When we compared the definitions of institutional logic with these observations, it is evident that digitalization encompasses the qualities of institutional logic, while a stronger logic facilitates changes in MAs' role oriented toward becoming more technology-focused MAs—i.e., functional consultants.

We suggest that digital logic is a critical trigger of institutional change. MAs do not replace each other but coexist in a digital world where data and automation are the new aims of accounting functions. Functional consultants provide support and guidance on technical aspects. Meanwhile, despite engaging in fewer transactional accounting tasks, MAs must consider the non-financial aspects of their roles. The recent climate crisis has led to emergence of regulatory requirements for large companies concerning their disclosure of environmental, social, and corporate governance data to shed light on their environmental impact. MAs primarily manage non-financial concerns related to financial reporting. However, MAs must work with metrics other than numbers to find ways to calculate and report their firms' CO^2 emissions and other non-financial measures. Because of this development, MAs' roles have broadened and are now more closely connected to the rest of the organization. Despite strong market growth and increased market capitalization in both companies, the number of regular controllers and business partners has been steadily increasing due to the increased efficiency of existing accountants; fewer accountants can now process and handle larger quantities of data, which is related to the increased degree of automatization in accounting processes and tasks. Accordingly, the profile that the two companies look for when hiring MAs has changed recently, which relates to one interviewee's statement, positing that old bookkeepers require help understanding contemporary requirements for MAs. During the hiring process, both companies primarily looked for candidates from the Big Four accounting firms, competitors, or business schools. These employees have knowledge of data structures, and both companies have tailored their graduate programs to educate employees as MAs. In both cases, we found additional evidence suggesting that MAs' roles are impacted differently under different circumstances. If MAs are employed in smaller local teams, the requirement for their technical knowledge will be higher because they will not have access to functional consultants.

Additionally, we found a value clash between traditional controllers, business partners, and functional consultants. This is an interesting avenue for future research.

While the greatest emphasis in this study was on how institutional logic shapes MAs' roles, we acknowledge that the MA's role is also influenced by internal factors, such as behavioral and agentic processes, which have been well documented. For instance, Horton and Wanderley (2016) highlighted the underlying mechanisms by which conflicts in multiple identities lead to institutional change through the processes of identity work and job crafting. They found that changes in management accounting practices are likely to affect MAs' identities and create new identity conflicts if they diverge from their institutionalized identities. Meanwhile, Seo and Creed (2002) provided a framework for understanding institutional change that captures totalistic, historical, and dynamic factors through two institutional byproducts: institutional contradictions and human praxis. The framework aims "to identify concrete mechanisms that delineate how institutional arrangements create various inconsistencies and tensions within and between social systems (contradictions) and how those contradictions foster change processes." Burns and Scapens (2000) proposed an institutional framework for the conceptualization of management accounting practices. Their framework explores the complex and ongoing relationship between actions and institutions and demonstrates the importance of organizational routines and institutions in shaping the process of management accounting changes. Despite these studies' notable contributions promoting internal influences, they are embedded in the institutional logic guiding management accounting. Previous studies on management accounting changes (Goretzki and Mesner, 2019; Goretzki, Strauss, and Weber, 2013; Horton and Wanderley, 2016; Morales and Lambert, 2013) conclude that MAs' changing roles are mainly caused by agentic changes. However, our case setting resembles that of Andreasen (2020), in which structural changes due to digital technology contribute to changes in MAs' roles and identities. We argue that various reactions to institutional pressures exist in such environments. Thus, our study contributes to the institutional literature on MAs' changing role (Burns and Baldvinsdottir, 2005; Seo and Creed, 2002; Siti-Nabiha and Scapens, 2005) by demonstrating the importance of institutional logic in this phenomenon. Our findings also correspond with those of Rautiainen *et al.* (2024), who found that MAs' role became fluid due to digitalization under a weaker digital logic.

Further discussion on the institutional logic underpinning MAs' role is necessary because the theory is good at explaining what causes changes in the role and is based on a solid theoretical foundation from similar contexts. Our findings provide an essential contribution by outlining the processes by which MAs' role has changed into a more technical role—i.e., the functional consultant. Prior accounting research has identified the constellation of institutional logics as a potential explanation for differences in the institutionalization process of new accounting practices (Hyvönen *et al.*, 2009; Kantola and Järvinen, 2012; Rautiainen and Järvenpää, 2012). We argue that the constellation of different logics in the two firms studied can be used to explain the differences in MAs' role. Consistent with other research in the field of accounting and digitalization, we found that digitalization has a direct impact on MAs' roles (Heinzelmann,

2018; Korhonen *et al.*, 2020; Rautiainen *et al.*, 2024), and that digitalization's impact differs across organizational entities. Previous research has called for broadening MAs' roles (Järvenpää, 2007; Suddaby *et al.*, 2015). However, our findings suggest that this role has been extended to that of the functional consultant. Consistent with other researchers, we found that exogenous factors—such as the prevailing institutional logic and structures in which organizations operate (Chreim *et al.*, 2007; Lok, 2010)—shape employees' institutional identities. This study underscores the intersection between inter-organizational structures, logics, and micro-identities. MAs might be influenced by multiple identities and logics at both the intra- and inter-organizational levels. Specifically, firms' digital logic is a significant impacting factor, as witnessed in both cases.

Tables and Appendixes

Appendix 1

Revised Interinstitutional System Ideal Types							
Y-Axis:	X-Axis: Institutional Orders						
Categories	**Family 1**	**Community 2**	**Religion 3**	**State 4**	**Market 5**	**Profession 6**	**Corporation 7**
Root Metaphor 1	Family as firm	Common boundary	Temple as bank	State as redistribution mechanism	Transaction	Profession as relation network	Corporation as hierarchy
Sources of Legitimacy 2	Unconditional loyalty	Unity of Will Belief in trust & reciprocity	Importance of faith & sacredness in economy & society	Democratic participation	Share price	Personal expertise	Market position of firm
Sources of Authority 3	Patriarchal domination	Commitment to community values & ideology	Priesthood charisma	Bureaucratic domination	Shareholder activism	Professional association	Board of directors, top management
Sources of Identity 4	Family reputation	Emotional connection Ego-satisfaction & reputation	Association with deleties	Social & Economic class	Faceless	Association with quality of craft personal reputation	Bureaucratic roles
Basis of Norms 5	Membership in household	Group membership	Membership in congregation	Citizenship in nation	Self-interest	Membership in guild & association	Employment in firm
Bases of Attention 6	Status in household	Personal investment in group	Relation to supernatural	Status of interest group	Status in the market	Status in profession	Status in hierarchy
Bases of strategy 7	Increase family honor	Increase status & honor of membership & Practice	Increase religious symbolism of natural events	Increase community good	Increase efficiency profit	Increase personal reputation	Increase size & diversification of firm
Informal Control Mechanisms 8	Family Politics	Visibility of actions	Worship of calling	Backroom politics	Industry analyst	Celebrity professionals	Organization culture
Economic System 9	Family Capitalism	Cooperative capitalism	Occidental capitalism	Welfare capitalism	Market capitalism	Personal capitalism	Managerial capitalism

Appendix 2

Exemplary interview questions

Interviews with management accountants

- Please tell us something about your role at the company.
- What do you do in the organization?
- How do you experience digital development in your area of work?
- Where do you belong in the organizational structure of the company?
- Which persons/departments/units are you usually in contact with? Please describe the interaction.
- Since joining the company, what were the most important changes within the accounting department that you experienced so far? What were the reasons for these changes?
- How many people are working on the technical side of accounting and what do they do?
- Which values defines your identity in your job?
- Is there a conflict between how people from more technical backgrounds work with people from more core-accounting backgrounds?
- How has digitalization influenced the organization?
- What kinds of things have you seen change in accountants' roles: tasks, responsibilities, any particular examples?
- Is there a difference between how Group and subsidiary accountants are exposed?
- What is guiding your work: rules and regulations, procedures, guidelines and templates; or digital development?
- From a broader perspective: how do you see digitalization has impacted accounting?
    - Any specific technologies?
    - Any specific areas of accounting?
    - Any specific tendencies?
- Has your work changed because of digitalization?
- Which actions, tasks, or processes have changed?
- What is the performance impact of using technology in accounting?
- Has the implementation of technology in accounting or other parts of the business resulted in any measurable outcomes?

Presenting our ideas on Controller, Business Partner, and Functional in a slide:

- From your point of view, how have management accountants' roles developed?
- What distinguishes people working as management accountants: controller and business partner vs. functional consultants?
- From your perspective, how do you feel about the role progression from Controller, to business partner, to digital steward?
- How would you define the business partner role?
- How would you define the digital steward role?
- Have you noticed any conflicts between these two roles?

Appendix 3

Interview No	Company	Role	Time	Area	Date
1	Company 1 - Transcorp	Controller	00:50.41	Group	03. January 2023
2	Company 1	Senior Director, Head of Controlling	01.01.47	Group	5 January 2023
3	Company 1	Senior Financial Controller	01.11.23	Divisional	17. October 2022
4	Company 1	Controller	01:07:58	Divisional	3. January 2023
5	Company 1	Group Chief Data and Analytics Officer	00:59:23	ISSC	12. January 2023
6	Company 1	SAP functional architect	01:03:01	Group	28 April 2023
7	Company 1	Head of Process Automation and Business Intelligence	00:59:07	ISSC	20. June 2022
8	Company 1	Functional Consultant - GPO Record to Report (RTR) & Controlling to Report (CTR)	00:52:23	Group	13 March 2023
9	Company 1	Vice President – Head of Finance Transformation	01:57:14	Group	21. June 2022
10	Company 1	Executive Vice President	01:04:41	Group	11. May 2022
11	Company 1	Vice President - Head of Group Digital and Technology	00:31:05	ISSC	6. July 2022
12	Company 1	Business Partner	00:52:23	ISSC	6. February 2023
13	Company 1	Controller	01:03:33	Divisional	23. January 2024
14	Company 1	Controller	00:22:35	Divisional	12 February 2024
15	Company 1	SAP Functional Architect	00:57:32	Group	09. February 2024
16	Company 1	SAP Specialist	00:35:42	Group	04. Martch 2024
17	Company 2 - FacilityCorp	Director Digital Enterprise Architect	01:17:36	Group	24. March 2023
18	Company 2	Finance Director – Head of Operational Services	00:59:54	Group	22. December 2022
19	Company 2	Finance Transformation Director	01:08:22	Group	12. February 2023
20	Company 2	Controller	00:52:43	Divisional	5. May 2022
21	Company 2	Global Head of Digital Innovation	00:58:13	Group	10. June 2022
22	Company 2	Finance Business Controller	00:59:03	Divisional	12. January 2023
23	Company 2	Controller	01:01:23	Group	15. July 2023
24	Company 2	Controller	00:25:30	Group	7. August 2022
25	Company 2	Enterprise architect	01:13:28	Group	3. May 2023
26	Company 2	Enterprise architect	00:56:15	Group	12. May 2023
27	Company 2	Business Partner	00:25:31	Group	01. February 2024
28	Company 2	Financial Controller	00:54:23	ISSC	23. February 2024
29	Company 2	Financial Controller	00:29:30	ISSC	01. March 2024
30	Company 2	SAP specialist	00:42:32	ISSC	03. March 2024
31	Company 2	ERP configuration manager	00:51:26	Divisional	09.March 2024

Appendix 4

1st order concepts	2nd order themes	Aggregate dimensions
Digitalization's impact on accounting		
AI's impact on management decisions	Digitalization's changing role	
Application landscape		
Automation		
Budgetting and forecasting		
Data gathering	Digitalization as an inherent part of the strategy	
Data quality		
Digitalization's impact on accounting		
Diverse local accounting setups	Digitalization prerequisites	1. Institutional logics shaping management accountants' role
Drivers of digitalization		
Educational background		
ERP		
Insourcing	Digitalization and organization (Outsourcing, Insourcing)	2. Digitalization shaping management accountants' role
KPIs and operations		
Machine learning		
Management accountants' role	Digitalization in KPIs and measurement	3. Management accountants' role as: Controller, business partner, and functional consultant
Maturity of digitalization		
Missing labor and skills		
New CEO supports digital strategy		
New strategy includes digitalization	Digitalization inside and outside of ERP	
Operational and business digitalization		
Changes in ERP		
RPA		
Changing procedures	Digitalization impacting accounting tasks	
BI's influence		
Digitalization in the organizaiton		

Appendix 5

Categories	Digitalization logic	Transcorp	FacilityCorp
Central ideals or organizing principles	**Pursuit of digital omniscience and omnipotence**	Omniscience – "Transcorp is an IT company in the logistics industry." And is digitally driven. Omnipotence – "Main achievement in finance is to absorb data from acquired companies into ERP."	Omniscience – "FacilityCorp has digitalization as a part of their core strategy." Omnipotence – "Core strategic goal in the organization is to develop a data model that unifies data in the organization."
Root metaphor for organizations	**Simulacrum**[3]	Automation of human work in multiple instances (i.e. robots making invoices, automatic data processing, automatic transfer of data, automatic match of payments).	Besides usage of standard software to facilitate the accounting system, only a few digital technologies have gained traction. Tableau is used to do "Open Book" reporting to the customers. Automation of human work is mainly restricted to operations in the company and not applicable to the accounting function (i.e. data models predict costs of new work assigments).
Sources of authority and legitimacy	**Analysis of real-time data**	Real-time data is reported from ERP "SAP" to management through "SAP BPC" and to operations through "PowerBI". No time delay on numbers due to SAP Hana 4.0. Variance analysis and internal control environment constitute legitimacy.	Data is reported from ERP: Navision, SAP & JDedwards, and reported in PowerBI. Several hours' time delay, and each country of operations has their own tools, strucutres and business principles. Legitimacy is gained through controlling and inspection of subsiduaries.
Key evaluation criteria	**Real-time metrics**	The accounting function is managed by real-time metrics through reporting tools and KPIs, multiple measurements are setup to achievement digital achviements.	The key evaluation criterias in the accounting function is based on performance reviews and more traiditional measurements related to accounting.
Iconic practices	**Modelling, optimization, software delveopment**	Many instances of modelling, optimization and software development in the accounting function. In the ISSC, many modelling optimization and software development practices take place, likewise in Group.	Financial analysts in Group perform data-heavy assignments, using a combination of accounting data and operational data to make bets on new customers' contracts. Software development and optimatization is mostly restricted to the operational side of the business.
Employee roles	**Supervising and developing automated processes**	Analytical automation team in the ISSC develop automated accounting processes and collect several measures on this matter. Mostly accounting tasks are to some extend digiatlized and automated.	Pilot project of automation of R2R and P2P automazation are rolled out in two countries.
Coping with uncertainty	**Agility in perceiving changes and reacting to them**	The accounting function is working agilely and reacting quickly to changes.	Limited agility in changes. "The Company should have done more to pursue digitalization". Interviewees mention the current ERP as a critical matter along with

[3] an image without the substance or qualities of the original – Oxford English Dictionary

	the missing standardization. Uncertainty is coped with by making the countries take care of business as usual. “It usually works.”

Inspiration by Schildt, 2022

Appendix 6

Coexisting institutional logics	Key aspects of the ideal type	Ideal professional role identity	MAs' roles
Professional	• Expert knowledge • Autonomous decision-making • Recognized status and responsibility • Quality controlled by accounting standards (IFRS, COSO, etc.)	• MAs see themselves as experts who have unique knowledge and make decisions about accounting based on their evaluation of the situation and rules/legislation	• Controller • Business partner
Corporate	• Bureaucratic rules • Hierarchical decision-making • Quality and tasks determined by organizational rules and procedures	• MAs see themselves as holding positions of authority within the company and making decisions based on established organizational rules	• Controller • Business partner
Digitalization	• Pursuit of digital omniscience and omnipotence • Automation is the target of the work • Accounting does not provide value in itself but is a task to be completed	• MAs see themselves as innovators employing digital technology to automate or augment the existing accounting infrastructure and processes	• Functional consultant

References

Abbott, A. 1988. The System of Professions: An Essay on the Division of Expert Labor. Chicago: The University of Chicago Press.

Accenture (2018). CFO reimagned - From bottom line to front line. https ://www.accen ture.com/t2018

0910T 08381 5Z__w__/us-en/_acnme dia/PDF-85/Accen ture-CFO-Resea rch-Globa l.pdf.

Alvesson, M. Sandberg, J. (2011). Generating Research Questions Through Problematization.

Alvesson, M., Hallett, T., & Spicer, A. (2019). Uninhibited Institutionalisms. Journal of Management Inquiry, 28(2), 119-127. https://doi.org/10.1177/1056492618822777

Alvesson M., Spicer A. (2018). Neo-institutional theory and organization studies: A mid-life crisis? *Organization Studies*, 40, 199-218.

Academy of Manamgene Review 36(2).

Andreassen,R. 2020. Digital technology and changing roles: A management accountants dream or knightmare? Journal of Management Control. 31: 209-238.

Appelbaum, D., Kogan, A., Vasarhelyi, M. 2017. Big Data and Analytics in the Modern Audit Engagement: Research Needs. Auditing: A Journal of Practice & Theory, 36, 1-27.

Arnaboldi, M., Busco, C., Cuganesan, S. 2017 Accounting, Accountability, Social media and big data: Revolution or Hype? Accounting Auditing & Accountability Journal 30(4).

Bader, V., Loscher, G. 2022. Pluralism and Digitalization: Reinstalling Employee Voice for Social Sustainability. Research in the Sociology of Organizations, Volume 83.

Battilana, J. (2006). Agency and institutions: The enabling role of individuals' social position. Organization, 13(5), 653-676.

Becker, S., Mahlendorf, M. 2017. The influence of the economic crisis on the tasks and roles of management accountants. In book: The Role of the Management Accountant

Berente, N., & Seidel, S. (2022). Digital technologies: Carrier or trigger for institutional change in digital transformation?. In Digital Transformation and Institutional Theory (pp. 197-209). Emerald Publishing Limited.

Berger, P. L., Luckmann 1967. The Social Construction of Reality. A Treatise in the sociology of Knowledge.

Bévort, F., & Poulfelt, F. (2015). Is the Partner the Don Quixote of the 21st Century Corporate World?: The Dilemma of Professional Partnerships. Danish Journal of Management & Business, 79(4), 7-22.

Bhimani, A., Willcocks, L. 2014. Digitsation, "big data" and the transformation of information. Accounting and Business Research 44(4) pp.469-490.

Brown, P., Ly, T., Pham, H., Sivabalan, P. 2020. Automation and management control in dynamic environments: Managing organisational flexibility and energy efficiency in service sectors. The British Accounting Review 52. 100840.

Burns J., Scapens RW., 2000. Conceptualizing management accounting change: an institutional framework. Manage Account Res;11(1):3-25

Burns, J., Ezzamel, M., Scapens, R., & Scapens, R. W. (2003). Challenge of Management Accounting Change. Elsevier.

Burns J., Baldvinsdottir, G. 2005. An institutional perspective of accountants new roles – the interplay of contradictions and praxis. European Accounting Review 14(4).

Burns, J., & Baldvinsdottir, G. 2007. The changing role of management accountants. In T. Hopper, D. Northcott, & R.W. Scapens (Eds.), Issues in management accounting (pp. 117–132).

Byrne, S, M. Pierce, B. 2007. Towards a more comprehensive understanding of the roles of Management Accountants. European Accounting Review, Forthcoming.

Caglio, A. 2003. Enterprise Resource Planning Systems and Accountants: Towards Hybridisation? European Accounting Review 12(1).

Chapman, C., Kihn, L. 2009. Information Systems Integration, Enabling Control and Performance. Accounting Organizations and Society 34(2): pp. 151-169

Chenhall, R. 2003. Management control systems design within its organizational context: findings from contingency-based research and directions for the future. Accounting, Organizations and Society. Volume 28, Issues 2-3. pp. 127-168

Chreim, S., Williams, B. E., & Hinings, C. R. (2007). Interlevel influences on the reconstruction of professional role identity. Academy of management Journal, 50(6), 1515-1539.

Dechow, N., Mouritsen, J. 2005. Enterprise resource planning systems, management control and the quest for integration. Accounting, Organization and Society, Vol.30, issue 7-8. pp.691-733

Deloitte, 2016. Four faces of the CFO.https://www2.deloitte.com/us/en/pages/finance/articles/gx-cfo-role-responsibilities-organization-steward-operator-catalyst-strategist.html

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American sociological review, 147-160.

Faik, I., Barrett, M., & Oborn, E. (2020). How information technology matters in societal change: An affordance-based institutional logics perspective. MIS quarterly, 44(3).

Fernandez, D., Aman, A. 2018., Impacts of Robotic Process Automation on Global Accounting Services. Asian Journal of Accounting and Governance 9: 123–131 (2018)

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. Qualitative inquiry, 12(2), 219-245.

Friedman, A., Lyne, S. 2001. The beancounter stereotype: towards a general model of sterotype generation. Critical perspectives on Accounting. Volume 12, Issue 4. pp. 423-451.

Freidson, E. 2001. Professionalism: The Third Logic. London: Polity Press.

Frey, C, B., Osborne, M, A. (2017) The future of employment: How susceptible are jobs to computerisation? Technological Forecasting and Social Change. Volume 114. January 2017, Pages 254-280.

Friedland, R., Alford, R, R., 1991. Bringing Society in: Symbols, and Institutional Contradictions.

Gartner, 2019. https://www.gartner.com/en/information-technology/glossary/digitalization

Gätner, B., Hiebl, M. 2018. Issues with Big data. Book: The Routledge Companion to Accounting Information Systems.

Gegenhuber, T., Logue, D., Hinnings, C.R., Barrett, M., (2022) Institutinal Perspectives on Digital Transformation. Research in the Sociology of Organizations, Volume 83, 1-32.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. Organizational Research Methods, 16, 15–31.

Glaser, B., & Strauss, A. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. Mill Valley, CA: Sociology Press.

Goodrick, E., & Reay, T. (2011). Constellations of institutional logics: Changes in the professional work of pharmacists. Work and Occupations, 38(3), 372-416.

Goretzki, L., Messner, M. 2019. Backstage and frontstage interactions in management accountants' identity work. Accounting, Organization and Society.

Goretzki, L., Strauss, E., & Weber, J. (2013). An institutional perspective on the changes in management accountants' professional role. Management accounting research, 24(1), 41-63.

Granlund, M., Malmi, T. 2002. Moderate impact of ERPS on management accounting: a log or permanent outcome?. Management Accounting Research.

Granlund, M., Lukka, K. 1998. Towards increasing business orientation: Finnish management accountants in a chancing cultural context. Management Accounting Research. Volume 9, Issue 2. pp. 185-211

Greenwood, R., Hinings, C. R., & Whetten, D. (2014). Rethinking institutions and organizations. Journal of management studies, 51(7), 1206-1220.

Greenwood, R., Raynard, M., Kodeih, F., Micelotta, E. R., & Lounsbury, M. (2011). Institutional complexity and organizational responses. Academy of Management annals, 5(1), 317-371.

Greenwood, R., & Hinings, C. R. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism. Academy of management review, 21(4), 1022-1054.

Heikkilä, V., Järvenpää. 2022. The role and identity of management accountant – Examining change through an institutional work perspective.

Heinzelmann, R. (2018). Occupational identities of management accountants: the role of the IT system. Journal of Applied Accounting Research, 19(4), 465-482.

Hinnings, B., Gegenhuber, T., Greenwood, R. 2018 Digital Innovation and Transformation: An Institutional Perspective. Information and Organization 28 (2018) 52-61.

Horton, K. E., & de Araujo Wanderley, C. (2018). Identity conflict and the paradox of embedded agency in the management accounting profession: Adding a new piece to the theoretical jigsaw. Management Accounting Research, 38, 39-50.

Hyvönen, T., Järvinen, J., Pellinen, J. and Rahko, T. (2009), "Institutional logics, ICT and the stability of management accounting", European Accounting Review, Vol. 18 No. 2, pp. 241-275.

Hwang, H., & Colyvas, J. A. (2011). Problematizing actors and institutions in institutional work. Journal of Management Inquiry, 20(1), 62-66.

Israelsen, P., Andersen, M., Rohde, C., Sørensen, P. Management Accounting in Denmark; Theory and Practice. Book chapter in Management Accounting: European Perspectives. Oxford University Press. 1996.

Johansen, C. B., & Waldorff, S. B. (2017). What are institutional logics–and where is the perspective taking us. New themes in institutional analysis, 51-76.

Järvenpää, M. (2007). Making business partners: A case study on how management accounting culture has changed. European Accounting Review, 16, 99–142.

Kallunki, J., Laitinen, E., Silvola, H. 2011. Impact of Enterprise Resource Planning Systems on Management Control Systems and Firm Performance International Journal of Accounting Information Systems 12(1):20-39

Kantola, H. and Järvinen, J. (2012), "Analysing the institutional logics of late DRG adopters", Financial Accountability & Management, Vol. 28 No. 3, pp. 269-285.

Kokina, J., Blanchette, S., 2019., Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. International Journal of Accounting Information Systems 35 (2019) 100431

Kokina, J., Davenport, T., 2017., The Emergence of Artificial Intelligence: How Automation is Changing Auditing. The Journal of Emerging Technologies in Accounting. Vol. 14 No. 1 Spring 2017

Kokina, J., Gilleran, R., Blanchette, S., Stoddard, D. 2021. Accountant as Digital innovator: Roles and Competencies in the Age of Automation. Accounting Horizons 35(1).

Korhonen, T., Slos, E., Laine, T., Suomala, P. 2020., Exploring the programmability of management accounting work for increasing automation: an interventionist case study.

Accounting, Auditing & Accountability Journal Vol. 34 No. 2, 2021 pp. 253-280 © Emerald Publishing Limited 0951-3574 DOI 10.1108/AAAJ-12-2016-2809

Kruskopf, S., Lobbas, C., Meinander, H., Söderling, K., Martikainen, M., & Lehner, O. (2020). Digital accounting and the human factor: theory and practice. ACRN Journal of Finance and Risk Perspectives.

Langley, A., Golden-Biddle, K., Reay, T., Denis, J-L., Hébert, Y., Lamothe, L, Gervais, J. 2013. Identity struggles in merging organizations: Renegotiating the sameness-difference dialectic. Journal of Applied Behavioral Science, 48(2): 135-167.

Lawrence, T., Suddaby, R., & Leca, B. (2011). Institutional work: Refocusing institutional studies of organization. Journal of management inquiry, 20(1), 52-58.

Leonardi, P. M., & Vaast, E. (2017). Social media and their affordances for organizing: A review and agenda for research. Academy of Management Annals, 11(1), 150-188.

Lok, J. (2010). Institutional logics as identity projects. Academy of management Journal, 53(6), 1305-1335.

Lounsbury, M. (2002). Institutional transformation and status mobility: The professionalization of the field of finance. Academy of management journal, 45(1), 255-266.

Lukka, K., & Modell, S. (2010). Validation in interpretive management accounting research. Accounting, Organizations and Society, 35(4), 462e477

Mckinsey, 2018. New technology, new rules: Reimagining the modern finance workforce. https://www.mckinsey.com/capabilities/operations/our-insights/new-technology-new-rules-reimagining-the-modern-finance-workforce

Merchant, K., Van der stede, W. 2011. Book. Management Control Systems: Performance Measurement Evaluation and Incentives.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. American journal of sociology, 83(2), 340-363.

Mignerat, M., & Rivard, S. (2015). Positioning the institutional perspective in information systems research. Formulating Research Methods for Information Systems: Volume 2, 79-126.

Moll, J., Yigitbasioglu, O., 2019., The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. The british accounting review 51 (2019) 100833.

Morales, J., & Lambert, C. (2013). Dirty work and the construction of identity. An ethnographic study of management accounting practices. Accounting, Organizations and Society, 38(3), 228-244.

Morales, J. (2019). Symbolic categories and the shaping of identity: The categorisation work of management accountants. Qualitative Research in Accounting & Management, 16(2), 252-278.

Möller, K., Schäffer, U., Verbeeten, F. 2020. Digitalization in management accounting and control: an editorial. Journal of management Control. 31:1-8

Mouritsen, J. (1996). Five aspects of accounting departments' work. Management Accounting Research, 7(3), 283e303.

Oesterreich, T, D., Teuteberg, F., Bensberg, F., Buscher, G. 2019. The controlling profession in the digital age: Understanding the impact og digitization on the controllers job roles, skills and competences. International Jorunal of Accounting information systems.

Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. Organization science, 3(3), 398-427.

Payne, M., 2014 Modern Social Work Theory

Perhofer, L., Walchshofer, C., Hofer, P. 2020. Does design matter when visualizing Big Data? An empirical study to investigate the effect of visualization type and interaction use. Journal of Management Control 31(6)

Pouthier, V., Steele, C.W.J. & Ocasio, W. 2013. From agents to principles: The changing relationship between hospitalist identity and logics of health care. In M. Lounsbury & E. Boxenbaum (Eds.) Institutional Logics in Action, Part A (Research in the Sociology of Organizations, Volume 39): 203-241. Emerald Group Publishing Limited.

Powell, W.W. & DiMaggio, P. 1991. Introduction. In W.W. Powell & P. DiMaggio (Eds.), The New Institutionalism in Organizational Analysis: 1-38. Chicago, IL: University of Chicago Press.

Quattrone, P. 2016., Management Accounting goes digital: Will the move make it wiser? Management Accounting Research 31 (2016) 118-122.

Radoynovska, N., Ocasio, W., & Laasch, O. (2020). The emerging logic of responsible management: Institutional pluralism, leadership, and strategizing. Research handbook of responsible management, 420-437.

Rautiainen, A. and Järvenpää, M. (2012), “Institutional logics and responses to performance measurement systems”, Financial Accountability and Management, Vol. 28 No. 2, pp. 164-188.

Reay, T., & Hinings, C. R. (2009). Managing the rivalry of competing institutional logics. Organization studies, 30(6), 629-652.

Reay, T., & Jones, C. (2016). Qualitatively capturing institutional logics. Strategic Organization, 14(4), 441-454.

Rieg, R. 2018. Tasks, interaction and role perception of management accountants: evidence from Germany. Jorunal of Management Control 29(1).

Rikhardsson, P., Yigitbasioglu, O., 2018. Business intelligence & analytics in management accounting research: status and future focus. International Journal of Accounting information systems. 29 (2018) 37-58

Rikhardsson, P., Dull, R. 2016. An Exploratory Study of the Adoption, Application and Impacts of Continuous Auditing Technologies in Small Businesses. International Journal of Accounting Information Systems

Rom, A., Rohde, C., 2007. Management accounting and integrated information systems: a literature review. Int. J. Account. Inf. Syst. 8 (1), 40–68.

Saiful, A., Hossain, M. (2021) Management Accounting in the Era of Digitalization. The journal of industrial Distribution & Business Vol 12, No. 11. 1-8

Scapens, R., 2012 Institutional Theory and Management Accounting Research. Maandblad voor Accountancy en Bedrijfseconomie, 86(10), 401-409.

Scapens, R., Jazayeri. 2003. ERP Systems and Management Accounting Change: Opportunities or Impacts? A Research Note. European Accounting Review 12(1).pp.201-233.

Schildt, H. 2022 The Institutional Logic Of Digitalization. Research in the Sociology of Organizations, Volume 83, 235-251

Scott, W.R., 2008. Institutions and Organizations: Ideas and Interests. Sage Publications Inc., Thousand Oakes, California.

Selznick, P. (1953). TVA and the grass roots: A study in the sociology of formal organization (Vol. 3). Univ of California Press.

Seo, M. G., & Creed, W. D. (2002). Institutional contradictions, praxis, and institutional change: A dialectical perspective. Academy of management review, 27(2), 222-247.

Siegel, D. S., Waldman, D., & Link, A. (2003). Assessing the impact of organizational practices on the relative productivity of university technology transfer offices: an exploratory study. Research policy, 32(1), 27-48.

Siti-Nabiha, A. K., & Scapens, R. W. (2005). Stability and change: an institutionalist study of management accounting change. Accounting, Auditing & Accountability Journal, 18(1), 44-73.

Sluss, D. M., & Ashforth, B. E. 2007. Relational identity and identification: Defining ourselves through work relationships. Academy of Management Review, 32(1), 9-32.

Stake, R. E. (2000). Case Studies. In N. K. Denzin, & Y. S. Lincoln (Eds.), Handbook of Qualitative Research (pp. 435-453). Thousand Oaks, CA: Sage.

Suddaby, R., Saxton, G. D., & Gunz, S. (2015). Twittering change: The institutional work of domain change in accounting expertise. Accounting, Organizations and Society, 45, 52–68. https ://doi.org/10.1016/j.aos.2015.07.002

Sutton, S, G., Arnold, V., Holt, M. 2018 How Much Automation Is Too Much? Keeping the Human Relevant In Knowledge Work. Journal of Emerging Technologies in Accounting.

Thorton, P., Ocasio, O., Lounsbury, M., 2012. The Institutional Logics Perspective: A New Approach to Culture, Structure and Process. Oxford University press.

Thornton, P., Ocasio, W., 2008 Book: Institutional Logics.

Rautiainen, A., Scapens, R,W., Järvenpää, M., Auvinen, T, Sajasalo, P., (2024) Towards fluid role identity of management accountants: A case study of a Finnish Bank. The British Accounting review.

Reay, Trish; Goodrick, Elizabeth; Waldorff, Susanne Boch; Casebeer, Ann. 2014. Getting Leopards to Change Their Spots Co-creating a New Professional Role Identity. Academy of Management journal

Van der Stede, W., and Malone, R. 2010. Accounting Trends in a Borderless World. Chartered Institute of Management Accountants, London. https://www.cimaglobal. com/Documents/Thought_leadership_docs/AccountingTrends.pdf.

Vasarhelyi, M., Kogan, A., Tottle, B. 2015. Big Data in Accoutning: An overview. Accounting Horizons 29 (2)

Vial, G. 2019 Understanding digital transformation: A review and a research agenda. Journal of strategic Information systems 28 (2019) 118-144

Waden, R. Teuteberg, F., Bensberg, F., Buscher, G. 2019. Understanding the Changing Role of the Management Accountant in the Age of Industry 4.0 in Germany. Conference HICSS. Hawaii.

Waldorff, S., Trish, R., Goodrick, E., Ann, C., Getting Leopards to Change Their Spots Co-creating a New Professional Role Identity. Academy of Management Journal.

Yazdifar, H., & Tsamenyi, M. (2005). Management accounting change and the changing roles of management accountants: a comparative analysis between dependent and independent organizations. Journal of Accounting & Organizational Change, 1(2), 180-198.

Yigitbasioglu, O., Green, P., Cheung, M, Y. 2022. Digital transformation and accountants as advisors. Accounting, auditing & accountability Jorunal.

Zuboff, S. (2019, January). Surveillance capitalism and the challenge of collective action. In New labor forum (Vol. 28, No. 1, pp. 10-29). Sage CA: Los Angeles, CA: SAGE Publications.

Zucker, L. G. (1977). The role of institutionalization in cultural persistence. American sociological review, 7

TITLER I PH.D.SERIEN:

2004

1. Martin Grieger
Internet-based Electronic Marketplaces and Supply Chain Management

2. Thomas Basbøll
LIKENESS
A Philosophical Investigation

3. Morten Knudsen
Beslutningens vaklen
En systemteoretisk analyse of moderniseringen af et amtskommunalt sundhedsvæsen 1980-2000

4. Lars Bo Jeppesen
Organizing Consumer Innovation
A product development strategy that is based on online communities and allows some firms to benefit from a distributed process of innovation by consumers

5. Barbara Dragsted
SEGMENTATION IN TRANSLATION AND TRANSLATION MEMORY SYSTEMS
An empirical investigation of cognitive segmentation and effects of integrating a TM system into the translation process

6. Jeanet Hardis
Sociale partnerskaber
Et socialkonstruktivistisk casestudie af partnerskabsaktørers virkelighedsopfattelse mellem identitet og legitimitet

7. Henriette Hallberg Thygesen
System Dynamics in Action

8. Carsten Mejer Plath
Strategisk Økonomistyring

9. Annemette Kjærgaard
Knowledge Management as Internal Corporate Venturing
– a Field Study of the Rise and Fall of a Bottom-Up Process

10. Knut Arne Hovdal
De profesjonelle i endring
Norsk ph.d., ej til salg gennem Samfundslitteratur

11. Søren Jeppesen
Environmental Practices and Greening Strategies in Small Manufacturing Enterprises in South Africa
– A Critical Realist Approach

12. Lars Frode Frederiksen
Industriel forskningsledelse
– på sporet af mønstre og samarbejde i danske forskningsintensive virksomheder

13. Martin Jes Iversen
The Governance of GN Great Nordic
– in an age of strategic and structural transitions 1939-1988

14. Lars Pynt Andersen
The Rhetorical Strategies of Danish TV Advertising
A study of the first fifteen years with special emphasis on genre and irony

15. Jakob Rasmussen
Business Perspectives on E-learning

16. Sof Thrane
The Social and Economic Dynamics of Networks
– a Weberian Analysis of Three Formalised Horizontal Networks

17. Lene Nielsen
Engaging Personas and Narrative Scenarios – a study on how a user-centered approach influenced the perception of the design process in the e-business group at AstraZeneca

18. S.J Valstad
Organisationsidentitet
Norsk ph.d., ej til salg gennem Samfundslitteratur

19. Thomas Lyse Hansen
Six Essays on Pricing and Weather risk in Energy Markets

20. Sabine Madsen
Emerging Methods – An Interpretive Study of ISD Methods in Practice

21. Evis Sinani
The Impact of Foreign Direct Investment on Efficiency, Productivity Growth and Trade: An Empirical Investigation

22. Bent Meier Sørensen
Making Events Work Or, How to Multiply Your Crisis

23. Pernille Schnoor
Brand Ethos
Om troværdige brand- og virksomhedsidentiteter i et retorisk og diskursteoretisk perspektiv

24. Sidsel Fabech
Von welchem Österreich ist hier die Rede?
Diskursive forhandlinger og magtkampe mellem rivaliserende nationale identitetskonstruktioner i østrigske pressediskurser

25. Klavs Odgaard Christensen
Sprogpolitik og identitetsdannelse i flersprogede forbundsstater
Et komparativt studie af Schweiz og Canada

26. Dana B. Minbaeva
Human Resource Practices and Knowledge Transfer in Multinational Corporations

27. Holger Højlund
Markedets politiske fornuft
Et studie af velfærdens organisering i perioden 1990-2003

28. Christine Mølgaard Frandsen
A.s erfaring
Om mellemværendets praktik i en transformation af mennesket og subjektiviteten

29. Sine Nørholm Just
The Constitution of Meaning – A Meaningful Constitution?
Legitimacy, identity, and public opinion in the debate on the future of Europe

2005

1. Claus J. Varnes
Managing product innovation through rules – The role of formal and structured methods in product development

2. Helle Hedegaard Hein
Mellem konflikt og konsensus – Dialogudvikling på hospitalsklinikker

3. Axel Rosenø
Customer Value Driven Product Innovation – A Study of Market Learning in New Product Development

4. Søren Buhl Pedersen
Making space
An outline of place branding

5. Camilla Funck Ellehave
Differences that Matter
An analysis of practices of gender and organizing in contemporary workplaces

6. Rigmor Madeleine Lond
Styring af kommunale forvaltninger

7. Mette Aagaard Andreassen
Supply Chain versus Supply Chain Benchmarking as a Means to Managing Supply Chains

8. Caroline Aggestam-Pontoppidan
From an idea to a standard
The UN and the global governance of accountants' competence

9. Norsk ph.d.

10. Vivienne Heng Ker-ni
An Experimental Field Study on the

Effectiveness of Grocer Media Advertising
Measuring Ad Recall and Recognition, Purchase Intentions and Short-Term Sales

11. Allan Mortensen
Essays on the Pricing of Corporate Bonds and Credit Derivatives

12. Remo Stefano Chiari
Figure che fanno conoscere
Itinerario sull'idea del valore cognitivo e espressivo della metafora e di altri tropi da Aristotele e da Vico fino al cognitivismo contemporaneo

13. Anders McIlquham-Schmidt
Strategic Planning and Corporate Performance
An integrative research review and a meta-analysis of the strategic planning and corporate performance literature from 1956 to 2003

14. Jens Geersbro
The TDF – PMI Case
Making Sense of the Dynamics of Business Relationships and Networks

15 Mette Andersen
Corporate Social Responsibility in Global Supply Chains
Understanding the uniqueness of firm behaviour

16. Eva Boxenbaum
Institutional Genesis: Micro – Dynamic Foundations of Institutional Change

17. Peter Lund-Thomsen
Capacity Development, Environmental Justice NGOs, and Governance: The Case of South Africa

18. Signe Jarlov
Konstruktioner af offentlig ledelse

19. Lars Stæhr Jensen
Vocabulary Knowledge and Listening Comprehension in English as a Foreign Language
An empirical study employing data elicited from Danish EFL learners

20. Christian Nielsen
Essays on Business Reporting
Production and consumption of strategic information in the market for information

21. Marianne Thejls Fischer
Egos and Ethics of Management Consultants

22. Annie Bekke Kjær
Performance management i Proces-innovation
– belyst i et social-konstruktivistisk perspektiv

23. Suzanne Dee Pedersen
GENTAGELSENS METAMORFOSE
Om organisering af den kreative gøren i den kunstneriske arbejdspraksis

24. Benedikte Dorte Rosenbrink
Revenue Management
Økonomiske, konkurrencemæssige & organisatoriske konsekvenser

25. Thomas Riise Johansen
Written Accounts and Verbal Accounts
The Danish Case of Accounting and Accountability to Employees

26. Ann Fogelgren-Pedersen
The Mobile Internet: Pioneering Users' Adoption Decisions

27. Birgitte Rasmussen
Ledelse i fællesskab – de tillidsvalgtes fornyende rolle

28. Gitte Thit Nielsen
Remerger
– skabende ledelseskræfter i fusion og opkøb

29. Carmine Gioia
A MICROECONOMETRIC ANALYSIS OF MERGERS AND ACQUISITIONS

30. Ole Hinz
Den effektive forandringsleder: pilot, pædagog eller politiker?
Et studie i arbejdslederes meningstilskrivninger i forbindelse med vellykket gennemførelse af ledelsesinitierede forandringsprojekter

31. Kjell-Åge Gotvassli
Et praksisbasert perspektiv på dynamiske
læringsnettverk i toppidretten
Norsk ph.d., ej til salg gennem Samfundslitteratur

32. Henriette Langstrup Nielsen
Linking Healthcare
An inquiry into the changing performances of web-based technology for asthma monitoring

33. Karin Tweddell Levinsen
Virtuel Uddannelsespraksis
Master i IKT og Læring – et casestudie i hvordan proaktiv proceshåndtering kan forbedre praksis i virtuelle læringsmiljøer

34. Anika Liversage
Finding a Path
Labour Market Life Stories of Immigrant Professionals

35. Kasper Elmquist Jørgensen
Studier i samspillet mellem stat og erhvervsliv i Danmark under
1. verdenskrig

36. Finn Janning
A DIFFERENT STORY
Seduction, Conquest and Discovery

37. Patricia Ann Plackett
Strategic Management of the Radical Innovation Process
Leveraging Social Capital for Market Uncertainty Management

2006

1. Christian Vintergaard
Early Phases of Corporate Venturing

2. Niels Rom-Poulsen
Essays in Computational Finance

3. Tina Brandt Husman
Organisational Capabilities, Competitive Advantage & Project-Based Organisations
The Case of Advertising and Creative Good Production

4. Mette Rosenkrands Johansen
Practice at the top
– how top managers mobilise and use non-financial performance measures

5. Eva Parum
Corporate governance som strategisk kommunikations- og ledelsesværktøj

6. Susan Aagaard Petersen
Culture's Influence on Performance Management: The Case of a Danish Company in China

7. Thomas Nicolai Pedersen
The Discursive Constitution of Organizational Governance – Between unity and differentiation
The Case of the governance of environmental risks by World Bank environmental staff

8. Cynthia Selin
Volatile Visions: Transactons in Anticipatory Knowledge

9. Jesper Banghøj
Financial Accounting Information and Compensation in Danish Companies

10. Mikkel Lucas Overby
Strategic Alliances in Emerging High-Tech Markets: What's the Difference and does it Matter?

11. Tine Aage
External Information Acquisition of Industrial Districts and the Impact of Different Knowledge Creation Dimensions

A case study of the Fashion and Design Branch of the Industrial District of Montebelluna, NE Italy

12. Mikkel Flyverbom
Making the Global Information Society Governable
On the Governmentality of Multi-Stakeholder Networks

13. Anette Grønning
Personen bag
Tilstedeværer i e-mail som interaktionsform mellem kunde og medarbejder i dansk forsikringskontekst

14. Jørn Helder
One Company – One Language?
The NN-case

15. Lars Bjerregaard Mikkelsen
Differing perceptions of customer value
Development and application of a tool for mapping perceptions of customer value at both ends of customer-supplier dyads in industrial markets

16. Lise Granerud
Exploring Learning
Technological learning within small manufacturers in South Africa

17. Esben Rahbek Pedersen
Between Hopes and Realities: Reflections on the Promises and Practices of Corporate Social Responsibility (CSR)

18. Ramona Samson
The Cultural Integration Model and European Transformation.
The Case of Romania

2007

1. Jakob Vestergaard
Discipline in The Global Economy
Panopticism and the Post-Washington Consensus

2. Heidi Lund Hansen
Spaces for learning and working
A qualitative study of change of work, management, vehicles of power and social practices in open offices

3. Sudhanshu Rai
Exploring the internal dynamics of software development teams during user analysis
A tension enabled Institutionalization Model; "Where process becomes the objective"

4. Norsk ph.d.
Ej til salg gennem Samfundslitteratur

5. Serden Ozcan
EXPLORING HETEROGENEITY IN ORGANIZATIONAL ACTIONS AND OUTCOMES
A Behavioural Perspective

6. Kim Sundtoft Hald
Inter-organizational Performance Measurement and Management in Action
– An Ethnography on the Construction of Management, Identity and Relationships

7. Tobias Lindeberg
Evaluative Technologies
Quality and the Multiplicity of Performance

8. Merete Wedell-Wedellsborg
Den globale soldat
Identitetsdannelse og identitetsledelse i multinationale militære organisationer

9. Lars Frederiksen
Open Innovation Business Models
Innovation in firm-hosted online user communities and inter-firm project ventures in the music industry
– A collection of essays

10. Jonas Gabrielsen
Retorisk toposlære – fra statisk 'sted' til persuasiv aktivitet

11. Christian Moldt-Jørgensen
Fra meningsløs til meningsfuld evaluering.
Anvendelsen af studentertilfredshedsmålinger på de korte og mellemlange videregående uddannelser set fra et psykodynamisk systemperspektiv

12. Ping Gao
Extending the application of actor-network theory
Cases of innovation in the telecommunications industry

13. Peter Mejlby
Frihed og fængsel, en del af den samme drøm?
Et phronetisk baseret casestudie af frigørelsens og kontrollens sameksistens i værdibaseret ledelse!

14. Kristina Birch
Statistical Modelling in Marketing

15. Signe Poulsen
Sense and sensibility:
The language of emotional appeals in insurance marketing

16. Anders Bjerre Trolle
Essays on derivatives pricing and dynamic asset allocation

17. Peter Feldhütter
Empirical Studies of Bond and Credit Markets

18. Jens Henrik Eggert Christensen
Default and Recovery Risk Modeling and Estimation

19. Maria Theresa Larsen
Academic Enterprise: A New Mission for Universities or a Contradiction in Terms?
Four papers on the long-term implications of increasing industry involvement and commercialization in academia

20. Morten Wellendorf
Postimplementering af teknologi i den offentlige forvaltning
Analyser af en organisations kontinuerlige arbejde med informationsteknologi

21. Ekaterina Mhaanna
Concept Relations for Terminological Process Analysis

22. Stefan Ring Thorbjørnsen
Forsvaret i forandring
Et studie i officerers kapabiliteter under påvirkning af omverdenens forandringspres mod øget styring og læring

23. Christa Breum Amhøj
Det selvskabte medlemskab om managementstaten, dens styringsteknologier og indbyggere

24. Karoline Bromose
Between Technological Turbulence and Operational Stability
– An empirical case study of corporate venturing in TDC

25. Susanne Justesen
Navigating the Paradoxes of Diversity in Innovation Practice
– A Longitudinal study of six very different innovation processes – in practice

26. Luise Noring Henler
Conceptualising successful supply chain partnerships
– Viewing supply chain partnerships from an organisational culture perspective

27. Mark Mau
Kampen om telefonen
Det danske telefonvæsen under den tyske besættelse 1940-45

28. Jakob Halskov
The semiautomatic expansion of existing terminological ontologies using knowledge patterns discovered

on the WWW – an implementation and evaluation

29. Gergana Koleva
European Policy Instruments Beyond Networks and Structure: The Innovative Medicines Initiative

30. Christian Geisler Asmussen
Global Strategy and International Diversity: A Double-Edged Sword?

31. Christina Holm-Petersen
Stolthed og fordom
Kultur- og identitetsarbejde ved skabelsen af en ny sengeafdeling gennem fusion

32. Hans Peter Olsen
Hybrid Governance of Standardized States
Causes and Contours of the Global Regulation of Government Auditing

33. Lars Bøge Sørensen
Risk Management in the Supply Chain

34. Peter Aagaard
Det unikkes dynamikker
De institutionelle mulighedsbetingelser bag den individuelle udforskning i professionelt og frivilligt arbejde

35. Yun Mi Antorini
Brand Community Innovation
An Intrinsic Case Study of the Adult Fans of LEGO Community

36. Joachim Lynggaard Boll
Labor Related Corporate Social Performance in Denmark
Organizational and Institutional Perspectives

2008

1. Frederik Christian Vinten
Essays on Private Equity

2. Jesper Clement
Visual Influence of Packaging Design on In-Store Buying Decisions

3. Marius Brostrøm Kousgaard
Tid til kvalitetsmåling?
– Studier af indrulleringsprocesser i forbindelse med introduktionen af kliniske kvalitetsdatabaser i speciallægepraksissektoren

4. Irene Skovgaard Smith
Management Consulting in Action
Value creation and ambiguity in client-consultant relations

5. Anders Rom
Management accounting and integrated information systems
How to exploit the potential for management accounting of information technology

6. Marina Candi
Aesthetic Design as an Element of Service Innovation in New Technology-based Firms

7. Morten Schnack
Teknologi og tværfaglighed
– en analyse af diskussionen omkring indførelse af EPJ på en hospitalsafdeling

8. Helene Balslev Clausen
Juntos pero no revueltos – un estudio sobre emigrantes norteamericanos en un pueblo mexicano

9. Lise Justesen
Kunsten at skrive revisionsrapporter. En beretning om forvaltningsrevisionens beretninger

10. Michael E. Hansen
The politics of corporate responsibility: CSR and the governance of child labor and core labor rights in the 1990s

11. Anne Roepstorff
Holdning for handling – en etnologisk undersøgelse af Virksomheders Sociale Ansvar/CSR

12. Claus Bajlum
Essays on Credit Risk and Credit Derivatives

13. Anders Bojesen
The Performative Power of Competence – an Inquiry into Subjectivity and Social Technologies at Work

14. Satu Reijonen
Green and Fragile
A Study on Markets and the Natural Environment

15. Ilduara Busta
Corporate Governance in Banking
A European Study

16. Kristian Anders Hvass
A Boolean Analysis Predicting Industry Change: Innovation, Imitation & Business Models
The Winning Hybrid: A case study of isomorphism in the airline industry

17. Trine Paludan
De uvidende og de udviklingsparate
Identitet som mulighed og restriktion blandt fabriksarbejdere på det aftayloriserede fabriksgulv

18. Kristian Jakobsen
Foreign market entry in transition economies: Entry timing and mode choice

19. Jakob Elming
Syntactic reordering in statistical machine translation

20. Lars Brømsøe Termansen
Regional Computable General Equilibrium Models for Denmark
Three papers laying the foundation for regional CGE models with agglomeration characteristics

21. Mia Reinholt
The Motivational Foundations of Knowledge Sharing

22. Frederikke Krogh-Meibom
The Co-Evolution of Institutions and Technology
– A Neo-Institutional Understanding of Change Processes within the Business Press – the Case Study of Financial Times

23. Peter D. Ørberg Jensen
OFFSHORING OF ADVANCED AND HIGH-VALUE TECHNICAL SERVICES: ANTECEDENTS, PROCESS DYNAMICS AND FIRMLEVEL IMPACTS

24. Pham Thi Song Hanh
Functional Upgrading, Relational Capability and Export Performance of Vietnamese Wood Furniture Producers

25. Mads Vangkilde
Why wait?
An Exploration of first-mover advantages among Danish e-grocers through a resource perspective

26. Hubert Buch-Hansen
Rethinking the History of European Level Merger Control
A Critical Political Economy Perspective

2009

1. Vivian Lindhardsen
From Independent Ratings to Communal Ratings: A Study of CWA Raters' Decision-Making Behaviours

2. Guðrið Weihe
Public-Private Partnerships: Meaning and Practice

3. Chris Nøkkentved
Enabling Supply Networks with Collaborative Information Infrastructures
An Empirical Investigation of Business Model Innovation in Supplier Relationship Management

4. Sara Louise Muhr
Wound, Interrupted – On the Vulnerability of Diversity Management

5. Christine Sestoft
Forbrugeradfærd i et Stats- og Livsformsteoretisk perspektiv

6. Michael Pedersen
Tune in, Breakdown, and Reboot: On the production of the stress-fit self-managing employee

7. Salla Lutz
Position and Reposition in Networks – Exemplified by the Transformation of the Danish Pine Furniture Manufacturers

8. Jens Forssbæck
Essays on market discipline in commercial and central banking

9. Tine Murphy
Sense from Silence – A Basis for Organised Action
How do Sensemaking Processes with Minimal Sharing Relate to the Reproduction of Organised Action?

10. Sara Malou Strandvad
Inspirations for a new sociology of art: A sociomaterial study of development processes in the Danish film industry

11. Nicolaas Mouton
On the evolution of social scientific metaphors:
A cognitive-historical enquiry into the divergent trajectories of the idea that collective entities – states and societies, cities and corporations – are biological organisms.

12. Lars Andreas Knutsen
Mobile Data Services:
Shaping of user engagements

13. Nikolaos Theodoros Korfiatis
Information Exchange and Behavior
A Multi-method Inquiry on Online Communities

14. Jens Albæk
Forestillinger om kvalitet og tværfaglighed på sygehuse
– skabelse af forestillinger i læge- og plejegrupperne angående relevans af nye idéer om kvalitetsudvikling gennem tolkningsprocesser

15. Maja Lotz
The Business of Co-Creation – and the Co-Creation of Business

16. Gitte P. Jakobsen
Narrative Construction of Leader Identity in a Leader Development Program Context

17. Dorte Hermansen
"Living the brand" som en brandorienteret dialogisk praxis:
Om udvikling af medarbejdernes brandorienterede dømmekraft

18. Aseem Kinra
Supply Chain (logistics) Environmental Complexity

19. Michael Nørager
How to manage SMEs through the transformation from non innovative to innovative?

20. Kristin Wallevik
Corporate Governance in Family Firms
The Norwegian Maritime Sector

21. Bo Hansen Hansen
Beyond the Process
Enriching Software Process Improvement with Knowledge Management

22. Annemette Skot-Hansen
Franske adjektivisk afledte adverbier, der tager præpositionssyntagmer indledt med præpositionen à som argumenter
En valensgrammatisk undersøgelse

23. Line Gry Knudsen
Collaborative R&D Capabilities
In Search of Micro-Foundations

24. Christian Scheuer
Employers meet employees
Essays on sorting and globalization

25. Rasmus Johnsen
The Great Health of Melancholy
A Study of the Pathologies of Performativity

26. Ha Thi Van Pham
Internationalization, Competitiveness Enhancement and Export Performance of Emerging Market Firms:
Evidence from Vietnam

27. Henriette Balieu
Kontrolbegrebets betydning for kausativalternationen i spansk
En kognitiv-typologisk analyse

2010

1. Yen Tran
Organizing Innovationin Turbulent Fashion Market
Four papers on how fashion firms create and appropriate innovation value

2. Anders Raastrup Kristensen
Metaphysical Labour
Flexibility, Performance and Commitment in Work-Life Management

3. Margrét Sigrún Sigurdardottir
Dependently independent
Co-existence of institutional logics in the recorded music industry

4. Ásta Dis Óladóttir
Internationalization from a small domestic base:
An empirical analysis of Economics and Management

5. Christine Secher
E-deltagelse i praksis – politikernes og forvaltningens medkonstruktion og konsekvenserne heraf

6. Marianne Stang Våland
What we talk about when we talk about space:
End User Participation between Processes of Organizational and Architectural Design

7. Rex Degnegaard
Strategic Change Management
Change Management Challenges in the Danish Police Reform

8. Ulrik Schultz Brix
Værdi i rekruttering – den sikre beslutning
En pragmatisk analyse af perception og synliggørelse af værdi i rekrutterings- og udvælgelsesarbejdet

9. Jan Ole Similä
Kontraktsledelse
Relasjonen mellom virksomhetsledelse og kontraktshåndtering, belyst via fire norske virksomheter

10. Susanne Boch Waldorff
Emerging Organizations: In between local translation, institutional logics and discourse

11. Brian Kane
Performance Talk
Next Generation Management of Organizational Performance

12. Lars Ohnemus
Brand Thrust: Strategic Branding and Shareholder Value
An Empirical Reconciliation of two Critical Concepts

13. Jesper Schlamovitz
Håndtering af usikkerhed i film- og byggeprojekter

14. Tommy Moesby-Jensen
Det faktiske livs forbindtlighed
Førsokratisk informeret, ny-aristotelisk ἦθος*-tænkning hos Martin Heidegger*

15. Christian Fich
Two Nations Divided by Common Values
French National Habitus and the Rejection of American Power

16. Peter Beyer
Processer, sammenhængskraft og fleksibilitet
Et empirisk casestudie af omstillingsforløb i fire virksomheder

17. Adam Buchhorn
Markets of Good Intentions
Constructing and Organizing Biogas Markets Amid Fragility and Controversy

18. Cecilie K. Moesby-Jensen
Social læring og fælles praksis
Et mixed method studie, der belyser læringskonsekvenser af et lederkursus for et praksisfællesskab af offentlige mellemledere

19. Heidi Boye
Fødevarer og sundhed i senmodernismen
– En indsigt i hyggefænomenet og de relaterede fødevarepraksisser

20. Kristine Munkgård Pedersen
Flygtige forbindelser og midlertidige mobiliseringer
Om kulturel produktion på Roskilde Festival

21. Oliver Jacob Weber
Causes of Intercompany Harmony in Business Markets – An Empirical Investigation from a Dyad Perspective

22. Susanne Ekman
Authority and Autonomy
Paradoxes of Modern Knowledge Work

23. Anette Frey Larsen
Kvalitetsledelse på danske hospitaler
– Ledelsernes indflydelse på introduktion og vedligeholdelse af kvalitetsstrategier i det danske sundhedsvæsen

24. Toyoko Sato
Performativity and Discourse: Japanese Advertisements on the Aesthetic Education of Desire

25. Kenneth Brinch Jensen
Identifying the Last Planner System
Lean management in the construction industry

26. Javier Busquets
Orchestrating Network Behavior for Innovation

27. Luke Patey
The Power of Resistance: India's National Oil Company and International Activism in Sudan

28. Mette Vedel
Value Creation in Triadic Business Relationships. Interaction, Interconnection and Position

29. Kristian Tørning
Knowledge Management Systems in Practice – A Work Place Study

30. Qingxin Shi
An Empirical Study of Thinking Aloud Usability Testing from a Cultural Perspective

31. Tanja Juul Christiansen
Corporate blogging: Medarbejderes kommunikative handlekraft

32. Malgorzata Ciesielska
Hybrid Organisations.
A study of the Open Source – business setting

33. Jens Dick-Nielsen
Three Essays on Corporate Bond Market Liquidity

34. Sabrina Speiermann
Modstandens Politik
Kampagnestyring i Velfærdsstaten.
En diskussion af trafikkampagners styringspotentiale

35. Julie Uldam
Fickle Commitment. Fostering political engagement in 'the flighty world of online activism'

36. Annegrete Juul Nielsen
Traveling technologies and transformations in health care

37. Athur Mühlen-Schulte
Organising Development
Power and Organisational Reform in the United Nations Development Programme

38. Louise Rygaard Jonas
Branding på butiksgulvet
Et case-studie af kultur- og identitetsarbejdet i Kvickly

2011

1. Stefan Fraenkel
Key Success Factors for Sales Force Readiness during New Product Launch
A Study of Product Launches in the Swedish Pharmaceutical Industry

2. Christian Plesner Rossing
International Transfer Pricing in Theory and Practice

3. Tobias Dam Hede
Samtalekunst og ledelsesdisciplin
– en analyse af coachingsdiskursens genealogi og governmentality

4. Kim Pettersson
Essays on Audit Quality, Auditor Choice, and Equity Valuation

5. Henrik Merkelsen
The expert-lay controversy in risk research and management. Effects of institutional distances. Studies of risk definitions, perceptions, management and communication

6. Simon S. Torp
Employee Stock Ownership:
Effect on Strategic Management and Performance

7. Mie Harder
Internal Antecedents of Management Innovation

8. Ole Helby Petersen
Public-Private Partnerships: Policy and Regulation – With Comparative and Multi-level Case Studies from Denmark and Ireland

9. Morten Krogh Petersen
'Good' Outcomes. Handling Multiplicity in Government Communication

10. Kristian Tangsgaard Hvelplund
Allocation of cognitive resources in translation - an eye-tracking and key-logging study

11. Moshe Yonatany
The Internationalization Process of Digital Service Providers

12. Anne Vestergaard
Distance and Suffering
Humanitarian Discourse in the age of Mediatization

13. Thorsten Mikkelsen
Personligsheds indflydelse på forretningsrelationer

14. Jane Thostrup Jagd
Hvorfor fortsætter fusionsbølgen udover "the tipping point"?
– en empirisk analyse af information og kognitioner om fusioner

15. Gregory Gimpel
Value-driven Adoption and Consumption of Technology: Understanding Technology Decision Making

16. Thomas Stengade Sønderskov
Den nye mulighed
Social innovation i en forretningsmæssig kontekst

17. Jeppe Christoffersen
Donor supported strategic alliances in developing countries

18. Vibeke Vad Baunsgaard
Dominant Ideological Modes of Rationality: Cross functional

integration in the process of product innovation

19. Throstur Olaf Sigurjonsson
Governance Failure and Icelands's Financial Collapse

20. Allan Sall Tang Andersen
Essays on the modeling of risks in interest-rate and inflation markets

21. Heidi Tscherning
Mobile Devices in Social Contexts

22. Birgitte Gorm Hansen
Adapting in the Knowledge Economy Lateral Strategies for Scientists and Those Who Study Them

23. Kristina Vaarst Andersen
Optimal Levels of Embeddedness The Contingent Value of Networked Collaboration

24. Justine Grønbæk Pors
Noisy Management A History of Danish School Governing from 1970-2010

25. Stefan Linder
Micro-foundations of Strategic Entrepreneurship Essays on Autonomous Strategic Action

26. Xin Li
Toward an Integrative Framework of National Competitiveness An application to China

27. Rune Thorbjørn Clausen
Værdifuld arkitektur Et eksplorativt studie af bygningers rolle i virksomheders værdiskabelse

28. Monica Viken
Markedsundersøkelser som bevis i varemerke- og markedsføringsrett

29. Christian Wymann
Tattooing The Economic and Artistic Constitution of a Social Phenomenon

30. Sanne Frandsen
Productive Incoherence A Case Study of Branding and Identity Struggles in a Low-Prestige Organization

31. Mads Stenbo Nielsen
Essays on Correlation Modelling

32. Ivan Häuser
Følelse og sprog Etablering af en ekspressiv kategori, eksemplificeret på russisk

33. Sebastian Schwenen
Security of Supply in Electricity Markets

2012

1. Peter Holm Andreasen
The Dynamics of Procurement Management - A Complexity Approach

2. Martin Haulrich
Data-Driven Bitext Dependency Parsing and Alignment

3. Line Kirkegaard
Konsulenten i den anden nat En undersøgelse af det intense arbejdsliv

4. Tonny Stenheim
Decision usefulness of goodwill under IFRS

5. Morten Lind Larsen
Produktivitet, vækst og velfærd Industrirådet og efterkrigstidens Danmark 1945 - 1958

6. Petter Berg
Cartel Damages and Cost Asymmetries

7. Lynn Kahle
Experiential Discourse in Marketing A methodical inquiry into practice and theory

8. Anne Roelsgaard Obling
Management of Emotions in Accelerated Medical Relationships

9. Thomas Frandsen
Managing Modularity of Service Processes Architecture

10. Carina Christine Skovmøller
CSR som noget særligt
Et casestudie om styring og meningsskabelse i relation til CSR ud fra en intern optik

11. Michael Tell
Fradragsbeskæring af selskabers finansieringsudgifter
En skatteretlig analyse af SEL §§ 11, 11B og 11C

12. Morten Holm
Customer Profitability Measurement Models
Their Merits and Sophistication across Contexts

13. Katja Joo Dyppel
Beskatning af derivater
En analyse af dansk skatteret

14. Esben Anton Schultz
Essays in Labor Economics
Evidence from Danish Micro Data

15. Carina Risvig Hansen
"Contracts not covered, or not fully covered, by the Public Sector Directive"

16. Anja Svejgaard Pors
Iværksættelse af kommunikation
- patientfigurer i hospitalets strategiske kommunikation

17. Frans Bévort
Making sense of management with logics
An ethnographic study of accountants who become managers

18. René Kallestrup
The Dynamics of Bank and Sovereign Credit Risk

19. Brett Crawford
Revisiting the Phenomenon of Interests in Organizational Institutionalism
The Case of U.S. Chambers of Commerce

20. Mario Daniele Amore
Essays on Empirical Corporate Finance

21. Arne Stjernholm Madsen
The evolution of innovation strategy
Studied in the context of medical device activities at the pharmaceutical company Novo Nordisk A/S in the period 1980-2008

22. Jacob Holm Hansen
Is Social Integration Necessary for Corporate Branding?
A study of corporate branding strategies at Novo Nordisk

23. Stuart Webber
Corporate Profit Shifting and the Multinational Enterprise

24. Helene Ratner
Promises of Reflexivity
Managing and Researching Inclusive Schools

25. Therese Strand
The Owners and the Power: Insights from Annual General Meetings

26. Robert Gavin Strand
In Praise of Corporate Social Responsibility Bureaucracy

27. Nina Sormunen
Auditor's going-concern reporting
Reporting decision and content of the report

28. John Bang Mathiasen
Learning within a product development working practice:
- an understanding anchored in pragmatism

29. Philip Holst Riis
Understanding Role-Oriented Enterprise Systems: From Vendors to Customers

30. Marie Lisa Dacanay
Social Enterprises and the Poor
Enhancing Social Entrepreneurship and Stakeholder Theory

31. Fumiko Kano Glückstad
Bridging Remote Cultures: Cross-lingual concept mapping based on the information receiver's prior-knowledge

32. Henrik Barslund Fosse
Empirical Essays in International Trade

33. Peter Alexander Albrecht
Foundational hybridity and its reproduction
Security sector reform in Sierra Leone

34. Maja Rosenstock
CSR - hvor svært kan det være? Kulturanalytisk casestudie om udfordringer og dilemmaer med at forankre Coops CSR-strategi

35. Jeanette Rasmussen
Tweens, medier og forbrug
Et studie af 10-12 årige danske børns brug af internettet, opfattelse og forståelse af markedsføring og forbrug

36. Ib Tunby Gulbrandsen
'This page is not intended for a US Audience'
A five-act spectacle on online communication, collaboration & organization.

37. Kasper Aalling Teilmann
Interactive Approaches to Rural Development

38. Mette Mogensen
The Organization(s) of Well-being and Productivity
(Re)assembling work in the Danish Post

39. Søren Friis Møller
From Disinterestedness to Engagement
Towards Relational Leadership In the Cultural Sector

40. Nico Peter Berhausen
Management Control, Innovation and Strategic Objectives – Interactions and Convergence in Product Development Networks

41. Balder Onarheim
Creativity under Constraints
Creativity as Balancing 'Constrainedness'

42. Haoyong Zhou
Essays on Family Firms

43. Elisabeth Naima Mikkelsen
Making sense of organisational conflict
An empirical study of enacted sense-making in everyday conflict at work

2013

1. Jacob Lyngsie
Entrepreneurship in an Organizational Context

2. Signe Groth-Brodersen
Fra ledelse til selvet
En socialpsykologisk analyse af forholdet imellem selvledelse, ledelse og stress i det moderne arbejdsliv

3. Nis Høyrup Christensen
Shaping Markets: A Neoinstitutional Analysis of the Emerging Organizational Field of Renewable Energy in China

4. Christian Edelvold Berg
As a matter of size
THE IMPORTANCE OF CRITICAL MASS AND THE CONSEQUENCES OF SCARCITY FOR TELEVISION MARKETS

5. Christine D. Isakson
Coworker Influence and Labor Mobility
Essays on Turnover, Entrepreneurship and Location Choice in the Danish Maritime Industry

6. Niels Joseph Jerne Lennon
Accounting Qualities in Practice
Rhizomatic stories of representational faithfulness, decision making and control

7. Shannon O'Donnell
Making Ensemble Possible
How special groups organize for collaborative creativity in conditions of spatial variability and distance

8. Robert W. D. Veitch
Access Decisions in a Partly-Digital World
Comparing Digital Piracy and Legal Modes for Film and Music

9. Marie Mathiesen
Making Strategy Work
An Organizational Ethnography

10. Arisa Shollo
The role of business intelligence in organizational decision-making

11. Mia Kaspersen
The construction of social and environmental reporting

12. Marcus Møller Larsen
The organizational design of offshoring

13. Mette Ohm Rørdam
EU Law on Food Naming
The prohibition against misleading names in an internal market context

14. Hans Peter Rasmussen
GIV EN GED!
Kan giver-idealtyper forklare støtte til velgørenhed og understøtte relationsopbygning?

15. Ruben Schachtenhaufen
Fonetisk reduktion i dansk

16. Peter Koerver Schmidt
Dansk CFC-beskatning
I et internationalt og komparativt perspektiv

17. Morten Froholdt
Strategi i den offentlige sektor
En kortlægning af styringsmæssig kontekst, strategisk tilgang, samt anvendte redskaber og teknologier for udvalgte danske statslige styrelser

18. Annette Camilla Sjørup
Cognitive effort in metaphor translation
An eye-tracking and key-logging study

19. Tamara Stucchi
The Internationalization of Emerging Market Firms:
A Context-Specific Study

20. Thomas Lopdrup-Hjorth
"Let's Go Outside":
The Value of Co-Creation

21. Ana Alačovska
Genre and Autonomy in Cultural Production
The case of travel guidebook production

22. Marius Gudmand-Høyer
Stemningssindssygdommenes historie i det 19. århundrede
Omtydningen af melankolien og manien som bipolære stemningslidelser i dansk sammenhæng under hensyn til dannelsen af det moderne følelseslivs relative autonomi.
En problematiserings- og erfarings-analytisk undersøgelse

23. Lichen Alex Yu
Fabricating an S&OP Process
Circulating References and Matters of Concern

24. Esben Alfort
The Expression of a Need
Understanding search

25. Trine Pallesen
Assembling Markets for Wind Power
An Inquiry into the Making of Market Devices

26. Anders Koed Madsen
Web-Visions
Repurposing digital traces to organize social attention

27. Lærke Højgaard Christiansen
BREWING ORGANIZATIONAL RESPONSES TO INSTITUTIONAL LOGICS

28. Tommy Kjær Lassen
EGENTLIG SELVLEDELSE
En ledelsesfilosofisk afhandling om selvledelsens paradoksale dynamik og eksistentielle engagement

29. Morten Rossing
Local Adaption and Meaning Creation in Performance Appraisal

30. Søren Obed Madsen
Lederen som oversætter
Et oversættelsesteoretisk perspektiv på strategisk arbejde

31. Thomas Høgenhaven
Open Government Communities
Does Design Affect Participation?

32. Kirstine Zinck Pedersen
Failsafe Organizing?
A Pragmatic Stance on Patient Safety

33. Anne Petersen
Hverdagslogikker i psykiatrisk arbejde
En institutionsetnografisk undersøgelse af hverdagen i psykiatriske organisationer

34. Didde Maria Humle
Fortællinger om arbejde

35. Mark Holst-Mikkelsen
Strategieksekvering i praksis
– barrierer og muligheder!

36. Malek Maalouf
Sustaining lean
Strategies for dealing with organizational paradoxes

37. Nicolaj Tofte Brenneche
Systemic Innovation In The Making
The Social Productivity of Cartographic Crisis and Transitions in the Case of SEEIT

38. Morten Gylling
The Structure of Discourse
A Corpus-Based Cross-Linguistic Study

39. Binzhang YANG
Urban Green Spaces for Quality Life
- Case Study: the landscape architecture for people in Copenhagen

40. Michael Friis Pedersen
Finance and Organization:
The Implications for Whole Farm Risk Management

41. Even Fallan
Issues on supply and demand for environmental accounting information

42. Ather Nawaz
Website user experience
A cross-cultural study of the relation between users´ cognitive style, context of use, and information architecture of local websites

43. Karin Beukel
The Determinants for Creating Valuable Inventions

44. Arjan Markus
External Knowledge Sourcing and Firm Innovation
Essays on the Micro-Foundations of Firms' Search for Innovation

2014

1. Solon Moreira
Four Essays on Technology Licensing and Firm Innovation

2. Karin Strzeletz Ivertsen
Partnership Drift in Innovation Processes
A study of the Think City electric car development

3. Kathrine Hoffmann Pii
Responsibility Flows in Patient-centred Prevention

4. Jane Bjørn Vedel
Managing Strategic Research
An empirical analysis of science-industry collaboration in a pharmaceutical company

5. Martin Gylling
Processuel strategi i organisationer
Monografi om dobbeltheden i tænkning af strategi, dels som vidensfelt i organisationsteori, dels som kunstnerisk tilgang til at skabe i erhvervsmæssig innovation

6. Linne Marie Lauesen
Corporate Social Responsibility in the Water Sector: How Material Practices and their Symbolic and Physical Meanings Form a Colonising Logic

7. Maggie Qiuzhu Mei
LEARNING TO INNOVATE: The role of ambidexterity, standard, and decision process

8. Inger Høedt-Rasmussen
Developing Identity for Lawyers Towards Sustainable Lawyering

9. Sebastian Fux
Essays on Return Predictability and Term Structure Modelling

10. Thorbjørn N. M. Lund-Poulsen
Essays on Value Based Management

11. Oana Brindusa Albu
Transparency in Organizing: A Performative Approach

12. Lena Olaison
Entrepreneurship at the limits

13. Hanne Sørum
DRESSED FOR WEB SUCCESS? An Empirical Study of Website Quality in the Public Sector

14. Lasse Folke Henriksen
Knowing networks How experts shape transnational governance

15. Maria Halbinger
Entrepreneurial Individuals Empirical Investigations into Entrepreneurial Activities of Hackers and Makers

16. Robert Spliid
Kapitalfondenes metoder og kompetencer

17. Christiane Stelling
Public-private partnerships & the need, development and management of trusting A processual and embedded exploration

18. Marta Gasparin
Management of design as a translation process

19. Kåre Moberg
Assessing the Impact of Entrepreneurship Education From ABC to PhD

20. Alexander Cole
Distant neighbors Collective learning beyond the cluster

21. Martin Møller Boje Rasmussen
Is Competitiveness a Question of Being Alike? How the United Kingdom, Germany and Denmark Came to Compete through their Knowledge Regimes from 1993 to 2007

22. Anders Ravn Sørensen
Studies in central bank legitimacy, currency and national identity Four cases from Danish monetary history

23. Nina Bellak
Can Language be Managed in International Business? Insights into Language Choice from a Case Study of Danish and Austrian Multinational Corporations (MNCs)

24. Rikke Kristine Nielsen
Global Mindset as Managerial Meta-competence and Organizational Capability: Boundary-crossing Leadership Cooperation in the MNC The Case of 'Group Mindset' in Solar A/S.

25. Rasmus Koss Hartmann
User Innovation inside government Towards a critically performative foundation for inquiry

26. Kristian Gylling Olesen
Flertydig og emergerende ledelse i folkeskolen
Et aktør-netværksteoretisk ledelses-studie af politiske evalueringsreformers betydning for ledelse i den danske folkeskole

27. Troels Riis Larsen
Kampen om Danmarks omdømme 1945-2010
Omdømmearbejde og omdømmepolitik

28. Klaus Majgaard
Jagten på autenticitet i offentlig styring

29. Ming Hua Li
Institutional Transition and Organizational Diversity: Differentiated internationalization strategies of emerging market state-owned enterprises

30. Sofie Blinkenberg Federspiel
IT, organisation og digitalisering: Institutionelt arbejde i den kommunale digitaliseringsproces

31. Elvi Weinreich
Hvilke offentlige ledere er der brug for når velfærdstænkningen flytter sig – er Diplomuddannelsens lederprofil svaret?

32. Ellen Mølgaard Korsager
Self-conception and image of context in the growth of the firm – A Penrosian History of Fiberline Composites

33. Else Skjold
The Daily Selection

34. Marie Louise Conradsen
The Cancer Centre That Never Was The Organisation of Danish Cancer Research 1949-1992

35. Virgilio Failla
Three Essays on the Dynamics of Entrepreneurs in the Labor Market

36. Nicky Nedergaard
Brand-Based Innovation Relational Perspectives on Brand Logics and Design Innovation Strategies and Implementation

37. Mads Gjedsted Nielsen
Essays in Real Estate Finance

38. Kristin Martina Brandl
Process Perspectives on Service Offshoring

39. Mia Rosa Koss Hartmann
In the gray zone With police in making space for creativity

40. Karen Ingerslev
Healthcare Innovation under The Microscope Framing Boundaries of Wicked Problems

41. Tim Neerup Themsen
Risk Management in large Danish public capital investment programmes

2015

1. Jakob Ion Wille
Film som design
Design af levende billeder i film og tv-serier

2. Christiane Mossin
Interzones of Law and Metaphysics Hierarchies, Logics and Foundations of Social Order seen through the Prism of EU Social Rights

3. Thomas Tøth
TRUSTWORTHINESS: ENABLING GLOBAL COLLABORATION
An Ethnographic Study of Trust, Distance, Control, Culture and Boundary Spanning within Offshore Outsourcing of IT Services

4. Steven Højlund
Evaluation Use in Evaluation Systems – The Case of the European Commission

5. Julia Kirch Kirkegaard
AMBIGUOUS WINDS OF CHANGE – OR FIGHTING AGAINST WINDMILLS IN CHINESE WIND POWER
A CONSTRUCTIVIST INQUIRY INTO CHINA'S PRAGMATICS OF GREEN MARKETISATION MAPPING CONTROVERSIES OVER A POTENTIAL TURN TO QUALITY IN CHINESE WIND POWER

6. Michelle Carol Antero
A Multi-case Analysis of the Development of Enterprise Resource Planning Systems (ERP) Business Practices

Morten Friis-Olivarius
The Associative Nature of Creativity

7. Mathew Abraham
New Cooperativism:
A study of emerging producer organisations in India

8. Stine Hedegaard
Sustainability-Focused Identity: Identity work performed to manage, negotiate and resolve barriers and tensions that arise in the process of constructing or ganizational identity in a sustainability context

9. Cecilie Glerup
Organizing Science in Society – the conduct and justification of resposible research

10. Allan Salling Pedersen
Implementering af ITIL® IT-governance - når best practice konflikter med kulturen Løsning af implementerings-problemer gennem anvendelse af kendte CSF i et aktionsforskningsforløb.

11. Nihat Misir
A Real Options Approach to Determining Power Prices

12. Mamdouh Medhat
MEASURING AND PRICING THE RISK OF CORPORATE FAILURES

13. Rina Hansen
Toward a Digital Strategy for Omnichannel Retailing

14. Eva Pallesen
In the rhythm of welfare creation
A relational processual investigation moving beyond the conceptual horizon of welfare management

15. Gouya Harirchi
In Search of Opportunities: Three Essays on Global Linkages for Innovation

16. Lotte Holck
Embedded Diversity: A critical ethnographic study of the structural tensions of organizing diversity

17. Jose Daniel Balarezo
Learning through Scenario Planning

18. Louise Pram Nielsen
Knowledge dissemination based on terminological ontologies. Using eye tracking to further user interface design.

19. Sofie Dam
PUBLIC-PRIVATE PARTNERSHIPS FOR INNOVATION AND SUSTAINABILITY TRANSFORMATION
An embedded, comparative case study of municipal waste management in England and Denmark

20. Ulrik Hartmyer Christiansen
Follwoing the Content of Reported Risk Across the Organization

21. Guro Refsum Sanden
Language strategies in multinational corporations. A cross-sector study of financial service companies and manufacturing companies.

22. Linn Gevoll
Designing performance management for operational level
- A closer look on the role of design choices in framing coordination and motivation

23. Frederik Larsen
Objects and Social Actions – on Second-hand Valuation Practices

24. Thorhildur Hansdottir Jetzek
The Sustainable Value of Open Government Data
Uncovering the Generative Mechanisms of Open Data through a Mixed Methods Approach

25. Gustav Toppenberg
Innovation-based M&A – Technological-Integration Challenges – The Case of Digital-Technology Companies

26. Mie Plotnikof
Challenges of Collaborative Governance
An Organizational Discourse Study of Public Managers' Struggles with Collaboration across the Daycare Area

27. Christian Garmann Johnsen
Who Are the Post-Bureaucrats? A Philosophical Examination of the Creative Manager, the Authentic Leader and the Entrepreneur

28. Jacob Brogaard-Kay
Constituting Performance Management
A field study of a pharmaceutical company

29. Rasmus Ploug Jenle
Engineering Markets for Control: Integrating Wind Power into the Danish Electricity System

30. Morten Lindholst
Complex Business Negotiation: Understanding Preparation and Planning

31. Morten Grynings
TRUST AND TRANSPARENCY FROM AN ALIGNMENT PERSPECTIVE

32. Peter Andreas Norn
Byregimer og styringsevne: Politisk lederskab af store byudviklingsprojekter

33. Milan Miric
Essays on Competition, Innovation and Firm Strategy in Digital Markets

34. Sanne K. Hjordrup
The Value of Talent Management
Rethinking practice, problems and possibilities

35. Johanna Sax
Strategic Risk Management – Analyzing Antecedents and Contingencies for Value Creation

36. Pernille Rydén
Strategic Cognition of Social Media

37. Mimmi Sjöklint
The Measurable Me
- The Influence of Self-tracking on the User Experience

38. Juan Ignacio Staricco
Towards a Fair Global Economic Regime? A critical assessment of Fair Trade through the examination of the Argentinean wine industry

39. Marie Henriette Madsen
Emerging and temporary connections in Quality work

40. Yangfeng CAO
Toward a Process Framework of Business Model Innovation in the Global Context
Entrepreneurship-Enabled Dynamic Capability of Medium-Sized Multinational Enterprises

41. Carsten Scheibye
Enactment of the Organizational Cost Structure in Value Chain Configuration
A Contribution to Strategic Cost Management

2016

1. Signe Sofie Dyrby
Enterprise Social Media at Work

2. Dorte Boesby Dahl
The making of the public parking attendant
Dirt, aesthetics and inclusion in public service work

3. Verena Girschik
Realizing Corporate Responsibility Positioning and Framing in Nascent Institutional Change

4. Anders Ørding Olsen
IN SEARCH OF SOLUTIONS
Inertia, Knowledge Sources and Diversity in Collaborative Problem-solving

5. Pernille Steen Pedersen
Udkast til et nyt copingbegreb
En kvalifikation af ledelsesmuligheder for at forebygge sygefravær ved psykiske problemer.

6. Kerli Kant Hvass
Weaving a Path from Waste to Value: Exploring fashion industry business models and the circular economy

7. Kasper Lindskow
Exploring Digital News Publishing Business Models – a production network approach

8. Mikkel Mouritz Marfelt
The chameleon workforce: Assembling and negotiating the content of a workforce

9. Marianne Bertelsen
Aesthetic encounters
Rethinking autonomy, space & time in today's world of art

10. Louise Hauberg Wilhelmsen
EU PERSPECTIVES ON INTERNATIONAL COMMERCIAL ARBITRATION

11. Abid Hussain
On the Design, Development and Use of the Social Data Analytics Tool (SODATO): Design Propositions, Patterns, and Principles for Big Social Data Analytics

12. Mark Bruun
Essays on Earnings Predictability

13. Tor Bøe-Lillegraven
BUSINESS PARADOXES, BLACK BOXES, AND BIG DATA: BEYOND ORGANIZATIONAL AMBIDEXTERITY

14. Hadis Khonsary-Atighi
ECONOMIC DETERMINANTS OF DOMESTIC INVESTMENT IN AN OIL-BASED ECONOMY: THE CASE OF IRAN (1965-2010)

15. Maj Lervad Grasten
Rule of Law or Rule by Lawyers?
On the Politics of Translation in Global Governance

16. Lene Granzau Juel-Jacobsen
SUPERMARKEDETS MODUS OPERANDI – en hverdagssociologisk undersøgelse af forholdet mellem rum og handlen og understøtte relationsopbygning?

17. Christine Thalsgård Henriques
In search of entrepreneurial learning – Towards a relational perspective on incubating practices?

18. Patrick Bennett
Essays in Education, Crime, and Job Displacement

19. Søren Korsgaard
Payments and Central Bank Policy

20. Marie Kruse Skibsted
Empirical Essays in Economics of Education and Labor

21. Elizabeth Benedict Christensen
The Constantly Contingent Sense of Belonging of the 1.5 Generation Undocumented Youth
An Everyday Perspective

22. Lasse J. Jessen
Essays on Discounting Behavior and Gambling Behavior

23. Kalle Johannes Rose
Når stifterviljen dør…
Et retsøkonomisk bidrag til 200 års juridisk konflikt om ejendomsretten

24. Andreas Søeborg Kirkedal
Danish Stød and Automatic Speech Recognition

25. Ida Lunde Jørgensen
Institutions and Legitimations in Finance for the Arts

26. Olga Rykov Ibsen
An empirical cross-linguistic study of directives: A semiotic approach to the sentence forms chosen by British, Danish and Russian speakers in native and ELF contexts

27. Desi Volker
Understanding Interest Rate Volatility

28. Angeli Elizabeth Weller
Practice at the Boundaries of Business Ethics & Corporate Social Responsibility

29. Ida Danneskiold-Samsøe
Levende læring i kunstneriske organisationer
En undersøgelse af læringsprocesser mellem projekt og organisation på Aarhus Teater

30. Leif Christensen
Quality of information – The role of internal controls and materiality

31. Olga Zarzecka
Tie Content in Professional Networks

32. Henrik Mahncke
De store gaver
- Filantropiens gensidighedsrelationer i teori og praksis

33. Carsten Lund Pedersen
Using the Collective Wisdom of Frontline Employees in Strategic Issue Management

34. Yun Liu
Essays on Market Design

35. Denitsa Hazarbassanova Blagoeva
The Internationalisation of Service Firms

36. Manya Jaura Lind
Capability development in an off-shoring context: How, why and by whom

37. Luis R. Boscán F.
Essays on the Design of Contracts and Markets for Power System Flexibility

38. Andreas Philipp Distel
Capabilities for Strategic Adaptation: Micro-Foundations, Organizational Conditions, and Performance Implications

39. Lavinia Bleoca
The Usefulness of Innovation and Intellectual Capital in Business Performance: The Financial Effects of Knowledge Management vs. Disclosure

40. Henrik Jensen
Economic Organization and Imperfect Managerial Knowledge: A Study of the Role of Managerial Meta-Knowledge in the Management of Distributed Knowledge

41. Stine Mosekjær
The Understanding of English Emotion Words by Chinese and Japanese Speakers of English as a Lingua Franca An Empirical Study

42. Hallur Tor Sigurdarson
The Ministry of Desire - Anxiety and entrepreneurship in a bureaucracy

43. Kätlin Pulk
Making Time While Being in Time
A study of the temporality of organizational processes

44. Valeria Giacomin
Contextualizing the cluster Palm oil in Southeast Asia in global perspective (1880s–1970s)

45. Jeanette Willert
Managers' use of multiple Management Control Systems: The role and interplay of management control systems and company performance

46. Mads Vestergaard Jensen
Financial Frictions: Implications for Early Option Exercise and Realized Volatility

47. Mikael Reimer Jensen
Interbank Markets and Frictions

48. Benjamin Faigen
Essays on Employee Ownership

49. Adela Michea
Enacting Business Models
An Ethnographic Study of an Emerging Business Model Innovation within the Frame of a Manufacturing Company.

50. Iben Sandal Stjerne
Transcending organization in temporary systems
Aesthetics' organizing work and employment in Creative Industries

51. Simon Krogh
Anticipating Organizational Change

52. Sarah Netter
Exploring the Sharing Economy

53. Lene Tolstrup Christensen
State-owned enterprises as institutional market actors in the marketization of public service provision:
A comparative case study of Danish and Swedish passenger rail 1990–2015

54. Kyoung(Kay) Sun Park
Three Essays on Financial Economics

2017

1. Mari Bjerck
Apparel at work. Work uniforms and women in male-dominated manual occupations.

2. Christoph H. Flöthmann
Who Manages Our Supply Chains? Backgrounds, Competencies and Contributions of Human Resources in Supply Chain Management

3. Aleksandra Anna Rzeźnik
Essays in Empirical Asset Pricing

4. Claes Bäckman
Essays on Housing Markets

5. Kirsti Reitan Andersen
Stabilizing Sustainability in the Textile and Fashion Industry

6. Kira Hoffmann
Cost Behavior: An Empirical Analysis of Determinants and Consequences of Asymmetries

7. Tobin Hanspal
Essays in Household Finance

8. Nina Lange
Correlation in Energy Markets

9. Anjum Fayyaz
Donor Interventions and SME Networking in Industrial Clusters in Punjab Province, Pakistan

10. Magnus Paulsen Hansen
Trying the unemployed. Justification and critique, emancipation and coercion towards the 'active society'. A study of contemporary reforms in France and Denmark

11. Sameer Azizi
Corporate Social Responsibility in Afghanistan
– a critical case study of the mobile telecommunications industry

12. Malene Myhre
The internationalization of small and medium-sized enterprises: A qualitative study

13. Thomas Presskorn-Thygesen
The Significance of Normativity – Studies in Post-Kantian Philosophy and Social Theory

14. Federico Clementi
Essays on multinational production and international trade

15. Lara Anne Hale
Experimental Standards in Sustainability Transitions: Insights from the Building Sector

16. Richard Pucci
Accounting for Financial Instruments in an Uncertain World Controversies in IFRS in the Aftermath of the 2008 Financial Crisis

17. Sarah Maria Denta
Kommunale offentlige private partnerskaber Regulering I skyggen af Farumsagen

18. Christian Östlund
Design for e-training

19. Amalie Martinus Hauge
Organizing Valuations – a pragmatic inquiry

20. Tim Holst Celik
Tension-filled Governance? Exploring the Emergence, Consolidation and Reconfiguration of Legitimatory and Fiscal State-crafting

21. Christian Bason
Leading Public Design: How managers engage with design to transform public governance

22. Davide Tomio
Essays on Arbitrage and Market Liquidity

23. Simone Stæhr
Financial Analysts' Forecasts Behavioral Aspects and the Impact of Personal Characteristics

24. Mikkel Godt Gregersen
Management Control, Intrinsic Motivation and Creativity – How Can They Coexist

25. Kristjan Johannes Suse Jespersen
Advancing the Payments for Ecosystem Service Discourse Through Institutional Theory

26. Kristian Bondo Hansen
Crowds and Speculation: A study of crowd phenomena in the U.S. financial markets 1890 to 1940

27. Lars Balslev
Actors and practices – An institutional study on management accounting change in Air Greenland

28. Sven Klingler
Essays on Asset Pricing with Financial Frictions

29. Klement Ahrensbach Rasmussen
Business Model Innovation The Role of Organizational Design

30. Giulio Zichella
Entrepreneurial Cognition. Three essays on entrepreneurial behavior and cognition under risk and uncertainty

31. Richard Ledborg Hansen
En forkærlighed til det eksisterende – mellemlederens oplevelse af forandringsmodstand i organisatoriske forandringer

32. Vilhelm Stefan Holsting
Militært chefvirke: Kritik og retfærdiggørelse mellem politik og profession

33. Thomas Jensen
Shipping Information Pipeline: An information infrastructure to improve international containerized shipping

34. Dzmitry Bartalevich
Do economic theories inform policy? Analysis of the influence of the Chicago School on European Union competition policy

35. Kristian Roed Nielsen
Crowdfunding for Sustainability: A study on the potential of reward-based crowdfunding in supporting sustainable entrepreneurship

36. Emil Husted
There is always an alternative: A study of control and commitment in political organization

37. Anders Ludvig Sevelsted
Interpreting Bonds and Boundaries of Obligation. A genealogy of the emergence and development of Protestant voluntary social work in Denmark as shown through the cases of the Copenhagen Home Mission and the Blue Cross (1850 – 1950)

38. Niklas Kohl
Essays on Stock Issuance

39. Maya Christiane Flensborg Jensen
BOUNDARIES OF PROFESSIONALIZATION AT WORK An ethnography-inspired study of care workers' dilemmas at the margin

40. Andreas Kamstrup
Crowdsourcing and the Architectural Competition as Organisational Technologies

41. Louise Lyngfeldt Gorm Hansen
Triggering Earthquakes in Science, Politics and Chinese Hydropower - A Controversy Study

2018

1. Vishv Priya Kohli
Combatting Falsifi cation and Counterfeiting of Medicinal Products in the E uropean Union – A Legal Analysis

2. Helle Haurum
Customer Engagement Behavior in the context of Continuous Service Relationships

3. Nis Grünberg
The Party -state order: Essays on China's political organization and political economic institutions

4. Jesper Christensen
A Behavioral Theory of Human Capital Integration

5. Poula Marie Helth
Learning in practice

6. Rasmus Vendler Toft-Kehler
Entrepreneurship as a career? An investigation of the relationship between entrepreneurial experience and entrepreneurial outcome

7. Szymon Furtak
Sensing the Future: Designing sensor-based predictive information systems for forecasting spare part demand for diesel engines

8. Mette Brehm Johansen
Organizing patient involvement. An ethnographic study

9. Iwona Sulinska
Complexities of Social Capital in Boards of Directors

10. Cecilie Fanøe Petersen
Award of public contracts as a means to conferring State aid: A legal analysis of the interface between public procurement law and State aid law

11. Ahmad Ahmad Barirani
Three Experimental Studies on Entrepreneurship

12. Carsten Allerslev Olsen
Financial Reporting Enforcement: Impact and Consequences

13. Irene Christensen
New product fumbles – Organizing for the Ramp-up process

14. Jacob Taarup-Esbensen
Managing communities – Mining MNEs' community risk management practices

15. Lester Allan Lasrado
Set-Theoretic approach to maturity models

16. Mia B. Münster
Intention vs. Perception of Designed Atmospheres in Fashion Stores

17. Anne Sluhan
Non-Financial Dimensions of Family Firm Ownership: How Socioemotional Wealth and Familiness Influence Internationalization

18. Henrik Yde Andersen
Essays on Debt and Pensions

19. Fabian Heinrich Müller
Valuation Reversed – When Valuators are Valuated. An Analysis of the Perception of and Reaction to Reviewers in Fine-Dining

20. Martin Jarmatz
Organizing for Pricing

21. Niels Joachim Christfort Gormsen
Essays on Empirical Asset Pricing

22. Diego Zunino
Socio-Cognitive Perspectives in Business Venturing

23. Benjamin Asmussen
Networks and Faces between Copenhagen and Canton, 1730-1840

24. Dalia Bagdziunaite
Brains at Brand Touchpoints A Consumer Neuroscience Study of Information Processing of Brand Advertisements and the Store Environment in Compulsive Buying

25. Erol Kazan
Towards a Disruptive Digital Platform Model

26. Andreas Bang Nielsen
Essays on Foreign Exchange and Credit Risk

27. Anne Krebs
Accountable, Operable Knowledge Toward Value Representations of Individual Knowledge in Accounting

28. Matilde Fogh Kirkegaard
A firm- and demand-side perspective on behavioral strategy for value creation: Insights from the hearing aid industry

29. Agnieszka Nowinska
SHIPS AND RELATION-SHIPS Tie formation in the sector of shipping intermediaries in shipping

30. Stine Evald Bentsen
The Comprehension of English Texts by Native Speakers of English and Japanese, Chinese and Russian Speakers of English as a Lingua Franca. An Empirical Study.

31. Stine Louise Daetz
Essays on Financial Frictions in Lending Markets

32. *Christian Skov Jensen*
Essays on Asset Pricing

33. Anders Kryger
Aligning future employee action and corporate strategy in a resource-scarce environment

34. Maitane Elorriaga-Rubio
The behavioral foundations of strategic decision-making: A contextual perspective

35. Roddy Walker
Leadership Development as Organisational Rehabilitation: Shaping Middle-Managers as Double Agents

36. Jinsun Bae
Producing Garments for Global Markets Corporate social responsibility (CSR) in Myanmar's export garment industry 2011–2015

37. Queralt Prat-i-Pubill
Axiological knowledge in a knowledge driven world. Considerations for organizations.

38. Pia Mølgaard
Essays on Corporate Loans and Credit Risk

39. Marzia Aricò
Service Design as a Transformative Force: Introduction and Adoption in an Organizational Context

40. Christian Dyrlund Wåhlin-Jacobsen
Constructing change initiatives in workplace voice activities Studies from a social interaction perspective

41. Peter Kalum Schou
Institutional Logics in Entrepreneurial Ventures: How Competing Logics arise and shape organizational processes and outcomes during scale-up

42. Per Henriksen
Enterprise Risk Management Rationaler og paradokser i en moderne ledelsesteknologi

43. Maximilian Schellmann
The Politics of Organizing Refugee Camps

44. Jacob Halvas Bjerre
Excluding the Jews: The Aryanization of Danish-German Trade and German Anti-Jewish Policy in Denmark 1937-1943

45. Ida Schrøder
Hybridising accounting and caring: A symmetrical study of how costs and needs are connected in Danish child protection work

46. Katrine Kunst
Electronic Word of Behavior: Transforming digital traces of consumer behaviors into communicative content in product design

47. Viktor Avlonitis
Essays on the role of modularity in management: Towards a unified perspective of modular and integral design

48. Anne Sofie Fischer
Negotiating Spaces of Everyday Politics: -An ethnographic study of organizing for social transformation for women in urban poverty, Delhi, India

2019

1. Shihan Du
   ESSAYS IN EMPIRICAL STUDIES BASED ON ADMINISTRATIVE LABOUR MARKET DATA

2. Mart Laatsit
   Policy learning in innovation policy: A comparative analysis of European Union member states

3. Peter J. Wynne
   Proactively Building Capabilities for the Post-Acquisition Integration of Information Systems

4. Kalina S. Staykova
   Generative Mechanisms for Digital Platform Ecosystem Evolution

5. Ieva Linkeviciute
   Essays on the Demand-Side Management in Electricity Markets

6. Jonatan Echebarria Fernández
   Jurisdiction and Arbitration Agreements in Contracts for the Carriage of Goods by Sea – Limitations on Party Autonomy

7. Louise Thorn Bøttkjær
   Votes for sale. Essays on clientelism in new democracies.

8. Ditte Vilstrup Holm
   The Poetics of Participation: the organizing of participation in contemporary art

9. Philip Rosenbaum
   Essays in Labor Markets – Gender, Fertility and Education

10. Mia Olsen
    Mobile Betalinger - Succesfaktorer og Adfærdsmæssige Konsekvenser

11. Adrián Luis Mérida Gutiérrez
    Entrepreneurial Careers: Determinants, Trajectories, and Outcomes

12. Frederik Regli
    Essays on Crude Oil Tanker Markets

13. Cancan Wang
    Becoming Adaptive through Social Media: Transforming Governance and Organizational Form in Collaborative E-government

14. Lena Lindbjerg Sperling
    Economic and Cultural Development: Empirical Studies of Micro-level Data

15. Xia Zhang
    Obligation, face and facework: An empirical study of the communicative act of cancellation of an obligation by Chinese, Danish and British business professionals in both L1 and ELF contexts

16. Stefan Kirkegaard Sløk-Madsen
    Entrepreneurial Judgment and Commercialization

17. Erin Leitheiser
    The Comparative Dynamics of Private Governance
    The case of the Bangladesh Ready-Made Garment Industry

18. Lone Christensen
    STRATEGIIMPLEMENTERING: STYRINGSBESTRÆBELSER, IDENTITET OG AFFEKT

19. Thomas Kjær Poulsen
    Essays on Asset Pricing with Financial Frictions

20. Maria Lundberg
    Trust and self-trust in leadership identity constructions: A qualitative exploration of narrative ecology in the discursive aftermath of heroic discourse

21. Tina Joanes
Sufficiency for sustainability Determinants and strategies for reducing clothing consumption

22. Benjamin Johannes Flesch
Social Set Visualizer (SoSeVi): Design, Development and Evaluation of a Visual Analytics Tool for Computational Set Analysis of Big Social Data

23. Henriette Sophia Groskopff
Tvede Schleimann
Creating innovation through collaboration – Partnering in the maritime sector

24. Kristian Steensen Nielsen
The Role of Self-Regulation in Environmental Behavior Change

25. Lydia L. Jørgensen
Moving Organizational Atmospheres

26. Theodor Lucian Vladasel
Embracing Heterogeneity: Essays in Entrepreneurship and Human Capital

27. Seidi Suurmets
Contextual Effects in Consumer Research: An Investigation of Consumer Information Processing and Behavior via the Applicati on of Eye-tracking Methodology

28. Marie Sundby Palle Nickelsen
Reformer mellem integritet og innovation: Reform af reformens form i den danske centraladministration fra 1920 til 2019

29. Vibeke Kristine Scheller
The temporal organizing of same-day discharge: A tempography of a Cardiac Day Unit

30. Qian Sun
Adopting Artificial Intelligence in Healthcare in the Digital Age: Perceived Challenges, Frame Incongruence, and Social Power

31. Dorthe Thorning Mejlhede
Artful change agency and organizing for innovation – the case of a Nordic fintech cooperative

32. Benjamin Christoffersen
Corporate Default Models: Empirical Evidence and Methodical Contributions

33. Filipe Antonio Bonito Vieira
Essays on Pensions and Fiscal Sustainability

34. Morten Nicklas Bigler Jensen
Earnings Management in Private Firms: An Empirical Analysis of Determinants and Consequences of Earnings Management in Private Firms

2020

1. Christian Hendriksen
Inside the Blue Box: Explaining industry influence in the International Maritime Organization

2. Vasileios Kosmas
Environmental and social issues in global supply chains: Emission reduction in the maritime transport industry and maritime search and rescue operational response to migration

3. Thorben Peter Simonsen
The spatial organization of psychiatric practice: A situated inquiry into 'healing architecture'

4. Signe Bruskin
The infinite storm: An ethnographic study of organizational change in a bank

5. Rasmus Corlin Christensen
Politics and Professionals: Transnational Struggles to Change International Taxation

6. Robert Lorenz Törmer
The Architectural Enablement of a Digital Platform Strategy

7. Anna Kirkebæk Johansson Gosovic
Ethics as Practice: An ethnographic study of business ethics in a multinational biopharmaceutical company

8. Frank Meier
Making up leaders in leadership development

9. Kai Basner
Servitization at work: On proliferation and containment

10. Anestis Keremis
Anti-corruption in action: How is anti-corruption practiced in multinational companies?

11. Marie Larsen Ryberg
Governing Interdisciolinarity: Stakes and translations of interdisciplinarity in Danish high school education.

12. Jannick Friis Christensen
Queering organisation(s): Norm-critical orientations to organising and researching diversity

13. Thorsteinn Sigurdur Sveinsson
Essays on Macroeconomic Implications of Demographic Change

14. Catherine Casler
Reconstruction in strategy and organization: For a pragmatic stance

15. Luisa Murphy
Revisiting the standard organization of multi-stakeholder initiatives (MSIs): The case of a meta-MSI in Southeast Asia

16. Friedrich Bergmann
Essays on International Trade

17. Nicholas Haagensen
European Legal Networks in Crisis: The Legal Construction of Economic Policy

18. Charlotte Biil
Samskabelse med en sommerfugle-model: Hybrid ret i forbindelse med et partnerskabsprojekt mellem 100 selvejende daginstitutioner, deres paraplyorganisation, tre kommuner og CBS

19. Andreas Dimmelmeier
The Role of Economic Ideas in Sustainable Finance: From Paradigms to Policy

20. Maibrith Kempka Jensen
Ledelse og autoritet i interaktion - En interaktionsbaseret undersøgelse af autoritet i ledelse i praksis

21. Thomas Burø
LAND OF LIGHT: Assembling the Ecology of Culture in Odsherred 2000-2018

22. Prins Marcus Valiant Lantz
Timely Emotion: The Rhetorical Framing of Strategic Decision Making

23. Thorbjørn Vittenhof Fejerskov
Fra værdi til invitationer - offentlig værdiskabelse gennem affekt, potentialitet og begivenhed

24. Lea Acre Foverskov
Demographic Change and Employment: Path dependencies and institutional logics in the European Commission

25. Anirudh Agrawal
A Doctoral Dissertation

26. Julie Marx
Households in the housing market

27. Hadar Gafni
Alternative Digital Methods of Providing Entrepreneurial Finance

28. Mathilde Hjerrild Carlsen
Ledelse af engagementer: En undersøgelse af samarbejde mellem folkeskoler og virksomheder i Danmark

29. Suen Wang
Essays on the Gendered Origins and Implications of Social Policies in the Developing World

30. Stine Hald Larsen
The Story of the Relative: A Systems-Theoretical Analysis of the Role of the Relative in Danish Eldercare Policy from 1930 to 2020

31. Christian Casper Hofma
Immersive technologies and organizational routines: When head-mounted displays meet organizational routines

32. Jonathan Feddersen
The temporal emergence of social relations: An event-based perspective of organising

33. Nageswaran Vaidyanathan
ENRICHING RETAIL CUSTOMER EXPERIENCE USING AUGMENTED REALITY

2021

1. Vanya Rusinova
The Determinants of Firms' Engagement in Corporate Social Responsibility: Evidence from Natural Experiments

2. Lívia Lopes Barakat
Knowledge management mechanisms at MNCs:
The enhancing effect of absorptive capacity and its effects on performance and innovation

3. Søren Bundgaard Brøgger
Essays on Modern Derivatives Markets

4. Martin Friis Nielsen
Consuming Memory: Towards a conceptualization of social media platforms as organizational technologies of consumption

05. Fei Liu
Emergent Technology Use in Consumer Decision Journeys: A Process-as-Propensity Approach

06. Jakob Rømer Barfod
Ledelse i militære højrisikoteams

07. Elham Shafiei Gol
Creative Crowdwork Arrangements

08. Árni Jóhan Petersen
Collective Imaginary as (Residual) Fantasy: A Case Study of the Faroese Oil Bonanza

09. Søren Bering
"Manufacturing, Forward Integration and Governance Strategy"

10. Lars Oehler
Technological Change and the Decomposition of Innovation:
Choices and Consequences for Latecomer Firm Upgrading: The Case of China's Wind Energy Sector

11. Lise Dahl Arvedsen
Leadership in interaction in a virtual context:
A study of the role of leadership processes in a complex context, and how such processes are accomplished in practice

12. Jacob Emil Jeppesen
Essays on Knowledge networks, scientific impact and new knowledge adoption

13. Kasper Ingeman Beck
Essays on Chinese State-Owned Enterprises:
Reform, Corporate Governance and Subnational Diversity

14. Sönnich Dahl Sönnichsen
Exploring the interface between public demand and private supply for implementation of circular economy principles

15. Benjamin Knox
Essays on Financial Markets and Monetary Policy

16. Anita Eskesen
Essays on Utility Regulation: Evaluating Negotiation-Based Approaches inthe Context of Danish Utility Regulation

17. Agnes Guenther
Essays on Firm Strategy and Human Capital

18. Sophie Marie Cappelen
Walking on Eggshells: The balancing act of temporal work in a setting of culinary change

19. Manar Saleh Alnamlah
About Gender Gaps in Entrepreneurial Finance

20. Kirsten Tangaa Nielsen
Essays on the Value of CEOs and Directors

21. Renée Ridgway
Re:search - the Personalised Subject vs. the Anonymous User

22. Codrina Ana Maria Lauth
IMPACT Industrial Hackathons: Findings from a longitudinal case study on short-term vs long-term IMPACT implementations from industrial hackathons within Grundfos

23. Wolf-Hendrik Uhlbach
Scientist Mobility: Essays on knowledge production and innovation

24. Tomaz Sedej
Blockchain technology and inter-organizational relationships

25. Lasse Bundgaard
Public Private Innovation Partnerships: Creating Public Value & Scaling Up Sustainable City Solutions

26. Dimitra Makri Andersen
Walking through Temporal Walls: Rethinking NGO Organizing for Sustainability through a Temporal Lens on NGO-Business Partnerships

27. Louise Fjord Kjærsgaard
Allocation of the Right to Tax Income from Digital Products and Services: A legal analysis of international tax treaty law

28. Sara Dahlman
Marginal alternativity: Organizing for sustainable investing

29. Henrik Gundelach
Performance determinants: An Investigation of the Relationship between Resources, Experience and Performance in Challenging Business Environments

30. Tom Wraight
Confronting the Developmental State: American Trade Policy in the Neoliberal Era

31. Mathias Fjællegaard Jensen
Essays on Gender and Skills in the Labour Market

32. Daniel Lundgaard
Using Social Media to Discuss Global Challenges: Case Studies of the Climate Change Debate on Twitter

33. Jonas Sveistrup Søgaard
Designs for Accounting Information Systems using Distributed Ledger Technology

34. Sarosh Asad
CEO narcissism and board composition: Implications for firm strategy and performance

35. Johann Ole Willers
Experts and Markets in Cybersecurity On Definitional Power and the Organization of Cyber Risks

36. Alexander Kronies
Opportunities and Risks in Alternative Investments

37. Niels Fuglsang
The Politics of Economic Models: An inquiry into the possibilities and limits concerning the rise of macroeconomic forecasting models and what this means for policymaking

38. David Howoldt
Policy Instruments and Policy Mixes for Innovation: Analysing Their Relation to Grand Challenges, Entrepreneurship and Innovation Capability with Natural Language Processing and Latent Variable Methods

2022

01. Ditte Thøgersen
Managing Public Innovation on the Frontline

02. Rasmus Jørgensen
Essays on Empirical Asset Pricing and Private Equity

03. Nicola Giommetti
Essays on Private Equity

04. Laila Starr
When Is Health Innovation Worth It? Essays On New Approaches To Value Creation In Health

05. Maria Krysfeldt Rasmussen
Den transformative ledelsesbyrde – etnografisk studie af en religionsinspireret ledelsesfilosofi i en dansk modevirksomhed

06. Rikke Sejer Nielsen
Mortgage Decisions of Households: Consequences for Consumption and Savings

07. Myriam Noémy Marending
Essays on development challenges of low income countries: Evidence from conflict, pest and credit

08. Selorm Agbleze
A BEHAVIORAL THEORY OF FIRM FORMALIZATION

09. Rasmus Arler Bogetoft
Rettighedshavers faktisk lidte tab i immaterialretssager: Studier af dansk ret med støtte i økonomisk teori og metode

10. Franz Maximilian Buchmann
Driving the Green Transition of the Maritime Industry through Clean Technology Adoption and Environmental Policies

11. Ivan Olav Vulchanov
The role of English as an organisational language in international workplaces

12. Anne Agerbak Bilde
TRANSFORMATIONER AF SKOLELEDELSE - en systemteoretisk analyse af hvordan betingelser for skoleledelse forandres med læring som genstand i perioden 1958-2020

13. JUAN JOSE PRICE ELTON
EFFICIENCY AND PRODUCTIVITY ANALYSIS: TWO EMPIRICAL APPLICATIONS AND A METHODOLOGICAL CONTRIBUTION

14. Catarina Pessanha Gomes
The Art of Occupying: Romanticism as Political Culture in French Prefigurative politics

15. Mark Ørberg
Fondsretten og den levende vedtægt

16. Majbritt Greve
Maersk's Role in Economic Development: A Study of Shipping and Logistics Foreign Direct Investment in Global Trade

17. Sille Julie J. Abildgaard
Doing-Being Creative: Empirical Studies of Interaction in Design Work

18. Jette Sandager
Glitter, Glamour, and the Future of (More) Girls in STEM: Gendered Formations of STEM Aspirations

19. Casper Hein Winther
Inside the innovation lab - How paradoxical tensions persist in ambidextrous organizations over time

20. Nikola Kostić
Collaborative governance of inter-organizational relationships: The effects of management controls, blockchain technology, and industry standards

21. Saila Naomi Stausholm
Maximum capital, minimum tax: Enablers and facilitators of corporate tax minimization

22. Robin Porsfelt
Seeing through Signs: On Economic Imagination and Semiotic Speculation

23. Michael Herburger
Supply chain resilience – a concept for coping with cyber risks

24. Katharina Christiane Nielsen Jeschke
Balancing safety in everyday work - A case study of construction managers' dynamic safety practices

25. Jakob Ahm Sørensen
Financial Markets with Frictions and Belief Distortions

26. Jakob Laage-Thomsen
Nudging Leviathan, Protecting Demos - A Comparative Sociology of Public Administration and Expertise in the Nordics

27. Kathrine Søs Jacobsen Cesko
Collaboration between Economic Operators in the Competition for Public Contracts: A Legal and Economic Analysis of Grey Zones between EU Public Procurement Law and EU Competition Law

28. Mette Nelund
Den nye jord – Et feltstudie af et bæredygtigt virke på Farendløse Mosteri

29. Benjamin Cedric Larsen
Governing Artificial Intelligence – Lessons from the United States and China

30. Anders Brøndum Klein
Kollektiv meningsdannelse iblandt heterogene aktører i eksperimentelle samskabelsesprocesser

31. Stefano Tripodi
Essays on Development Economicis

32. Katrine Maria Lumbye
Internationalization of European Electricity Multinationals in Times of Transition

33. Xiaochun Guo
Dynamic Roles of Digital Currency – An Exploration from Interactive Processes: Difference, Time, and Perspective

34. Louise Lindbjerg
Three Essays on Firm Innovation

35. Marcela Galvis Restrepo
Feature reduction for classification with mixed data: an algorithmic approach

36. Hanna Nyborg Storm
Cultural institutions and attractiveness – How cultural institutions contribute to the development of regions and local communities

37. Anna-Bertha Heeris Christensen
Conflicts and Challenges in Practices of Commercializing Humans – An Ethnographic Study of Influencer Marketing Work

38. Casper Berg Lavmand Larsen
A Worker-Centered Inquiry into the Contingencies and Consequences of Worker Representation

39. Niels le Duc
The Resource Commitment of Multinational Enterprise R&D Activities

40. Esben Langager Olsen
Change management tools and change managers – Examining the simulacra of change

41. Anne Sophie Lassen
Gender in the Labor Market

42. Alison E. Holm
Corrective corporate responses to accusations of misconduct on societal issues

43. Chenyan Lyu
Carbon Pricing, Renewable Energy, and Clean Growth – A Market Perspective

44. Alina Grecu
UNPACKING MULTI-LEVEL OFFSHORING CONSEQUENCES: Hiring Wages, Onshore Performance, and Public Sentiment

45. Alexandra Lüth
Offshore Energy Hubs as an Emerging Concept – Sector Integration at Sea

2023

01. Cheryl Basil Sequeira
Port Business Development – Digitalisation of Port Authroity and Hybrid Governance Model

02. Mette Suder Franck
Empirical Essays on Technology Supported Learning – Studies of Danish Higher Education

03. Søren Lund Frandsen
States and Experts – Assembling Expertise for Climate Change and Pandemics

04. Guowei Dong
Innovation and Internationalization – Evidence from Chinese Manufacturing Enterprises

05. Eileen Murphy
In Service to Security – Constructing the Authority to Manage European Border Data Infrastructures

06. Bontu Lucie Guschke
THE PERSISTENCE OF SEXISM AND RACISM AT UNIVERSITIES – Exploring the imperceptibility and unspeakability of workplace harassment and discrimination in academia

07. Christoph Viebig
Learning Entrepreneurship – How capabilities shape learning from experience, reflection, and action

08. Kasper Regenburg
Financial Risks of Private Firms

09. Kathrine Møller Solgaard
Who to hire? – A situated study of employee selection as routine, practice, and process

10. Jack Kværnø-Jones
Intersections between FinTech Imaginaries and Traditional Banking – A study of disciplinary, implementary, and parasitic work in the Danish financial sector

11. Stine Quorning
Managing Climate Change Like a Central Banker – The Political Economy of Greening the Monetary Technocracy

12. Amanda Bille
No business without politics – Investigating the political nature of supply chain management

13. Theis Ingerslev Jensen
Essays on Empirical Asset Pricing

14. Ann Fugl-Meyer
The Agile Imperative – A Qualitative Study of a Translation Process in the Danish Tax Administration

15. Nicolai Søgaard Laursen
Longevity risk in reinsurance and equity markets

16. Shelter Selorm Kwesi Teyi
STRATEGIC ENTREPRENEURSHIP IN THE INFORMAL ECONOMY

17. Luisa Hedler
Time, Law and Tech – The introduction of algorithms to courts of law

18. Tróndur Møller Sandoy
Essays on the Economics of Education

19. Nathan Rietzler
Crowdsourcing Processes and Performance Outcomes

20. Sigrid Alexandra Koob
Essays on Democracy, Redistribution, and Inequality

21. David Pinkus
Pension Fund Investment: Implications for the Real Economy

22. Sina Smid
Inequality and Redistribution – Essays on Local Elections, Gender and Corruption in Developing Countries

23. Andreas Brøgger
Financial Economics with Preferences and Frictions

24. Timothy Charlton-Czaplicki
Arendt in the platformised world – Labour, work and action on digital platforms

25. Letícia Vedolin Sebastião
Mindfulness and Consumption: Routes Toward Consumer Self-Control

26. Lotte List
Crisis Sovereignty – The Philosophy of History of the Exception

27. Jeanette Walldorf
Essays on the Economics of Education and Labour Market

28. Juan Camilo Giraldo-Mora
It is Along Ways – Global Payment Infrastructure in Movement

29. Niels Buus Lassen
THE PREDICTIVE POWER OF SOCIAL MEDIA DATA

30. Frederik Bjørn Christensen
Essays on the Intergenerational Welfare State

31. Shama Patel
The Summer of 2020: Situating Digital Media in Scaling Affective Contagion: A Case of the George Floyd Video

32. Federico Jensen
Who rules the waves in the 21st Century?
The international political economy of global shipping

33. Tobias Berggren Jensen
Selvledende organisationer i den offentlige sektor – modsætninger og konflikter i radikal decentralisering

34. Jonathan Harmat
The Affects By Which We Are Torn
Four Essays on Government and Affect

35. Jørgen Valther Hansen
The Big 4 Audit Firms and the Public Interest
Public oversight & Audit Firm Governance

36. Stig Strandbæk Nyman
The Birth of Algorithmic Aspirational Control

37. Morten Tinning
Steaming Ahead
Experiences and the Transition from Sail to Steam

38. Oguzhan Cepni
Essays in Applied Financial Economics

39. Tim Dominik Maurer
Essays on Pension Policy

40. Aixa Y. Alemán-Díaz
Exploring Global Ideas in National Policy for Science, Technology and Innovation an Isomorphic Difference Approach

41. Michael Güldenpfennig
Managing the interrelationships between manufacturing system elements for productivity improvement in the factory

42. Jun Yuan (Julian) Seng
Essays on the political economy of innovative startups

43. Jacek Piosik
Essays on Entrepreneurial Finance

44. Elizabeth Cooper
Tourists on the Edge
Understanding and Encouraging Sustainable Tourist Behaviour in Greenland

2024

01. Marija Sarafinovska
Patients as Innovators: An Empirical Study of Patients' Role in Innovation in the Healthcare Industry

02. Niina Hakala
Corporate Reporting in the Governance of Climate Transition – Framing agency in a financialized world

03. Kasper Merling Arendt
Unleashing Entrepreneurial Education
Developing Entrepreneurial Mindsets, Competencies, and Long-Term Behavior

04. Kerstin Martel
Creating and dissolving 'identity' in global mobility studies -
a multi-scalar inquiry of belongingness and becoming on-the-move

05. Sofie Elbæk Henriksen
Big Tech to the Rescue?
An Ethnographic Study of Corporate Humanitarianism in the Refugee Crisis

06. Christina Kjær
Corporate scandals
- in the age of 'responsible business'

07. Anna Stöber
Embedded Self-Managing Modes of Organizing
Empirical Inquiries into Boundaries, Momentum, and Collectivity

08. Lucas Sören Göbeler
Shifting and Shaping
Physicality in Digital Innovation

09. Felix Schilling
Department of International Economics, Government and Business

10. Mathias Lund Larsen
China and the Political Economy of the Green State

11. Michael Bennedsen Hansen
At få sjælen med
En narrativ analyse af danske container-søfolks erindringer, fortidsbrug og identitets-konstruktioner

12. Justyna Agata Bekier
More than a numbers game
Accounting for circular economy performance in collaborative initiatives in cities

13. Frederik Schade
The Question of Digital Responsibility
An Ethnography of Emergent Institutional Formations in the Contemporary Governance of Technology

14. Alexandrina Schmidt
The Mundane in the Digital: A qualitative study of social work and vulnerable clients in Danish job centres

15. Julian Fernandez Mejia
Essays on International Finance

16. Leonie Decrinis
Nudging in the Workplace: Exploring a Micro-level Approach Towards Corporate Sustainability

17. Nina Frausing Pedersen
A Framing Contest between Institutional Actors on Crypto-Asset Policymaking in the EU

18. Amalie Toft Bentsen
The Internal Market & the EU Climate Regime
Interactions and frictions in the legal norm systems

19. Sippo Rossi
Bots on Social Media
The Past, Present and Future

20. Sumair Hussain
Essays on Disclosures

21. Kseniia Kurishchenko
Novel Mathematical Optimization Models for Explainable and Fair Machine Learning

22. Maylis Saigot
At The Heart of Digital Collaboration
Navigating Interpersonal Affective Pathways in Digitalized Work Environments

23. Alessandro Spina
Essays in Financial Markets and Beliefs

24. Charlotte Cator
Transforming the city for sustainable futures?
Contestation and alternatives in Amsterdam

25. Daniela Micu
Essays on Design Science in Management and Marketing

26. Olimpija Hristova Zaevska
INDUSTRY 4.0 ECOSYSTEMS: STRUCTURE, VALUE CREATION AND IMPACT ON REGIONAL INNOVATION

27. Thomas Holde Skinnerup
The Role of Accounting in Governing Public Organizations
The Case of the Danish University Sector

28. Christina Juhlin
Management of the Meantime
- the senses, attachments, and time in the aesthetic city

29. Joachim Elmegaard
Navigating the Digital Frontier in Accounting
Transformative Impacts and Interplay of Digitalization, Accounting Systems, and Management Accountants in an Institutional Context

TITLER I ATV PH.D.-SERIEN

1992

1. Niels Kornum
Servicesamkørsel – organisation, økonomi og planlægningsmetode

1995

2. Verner Worm
Nordiske virksomheder i Kina
Kulturspecifikke interaktionsrelationer ved nordiske virksomhedsetableringer i Kina

1999

3. Mogens Bjerre
Key Account Management of Complex Strategic Relationships
An Empirical Study of the Fast Moving Consumer Goods Industry

2000

4. Lotte Darsø
Innovation in the Making
Interaction Research with heterogeneous Groups of Knowledge Workers creating new Knowledge and new Leads

2001

5. Peter Hobolt Jensen
Managing Strategic Design Identities
The case of the Lego Developer Network

2002

6. Peter Lohmann
The Deleuzian Other of Organizational Change – Moving Perspectives of the Human

7. Anne Marie Jess Hansen
To lead from a distance: The dynamic interplay between strategy and strategizing – A case study of the strategic management process

2003

8. Lotte Henriksen
Videndeling
– om organisatoriske og ledelsesmæssige udfordringer ved videndeling i praksis

9. Niels Christian Nickelsen
Arrangements of Knowing: Coordinating Procedures Tools and Bodies in Industrial Production – a case study of the collective making of new products

2005

10. Carsten Ørts Hansen
Konstruktion af ledelsesteknologier og effektivitet

TITLER I DBA PH.D.-SERIEN

2007

1. Peter Kastrup-Misir
Endeavoring to Understand Market Orientation – and the concomitant co-mutation of the researched, the re searcher, the research itself and the truth

2009

1. Torkild Leo Thellefsen
Fundamental Signs and Significance effects
A Semeiotic outline of Fundamental Signs, Significance-effects, Knowledge Profiling and their use in Knowledge Organization and Branding

2. Daniel Ronzani
When Bits Learn to Walk Don't Make Them Trip. Technological Innovation and the Role of Regulation by Law in Information Systems Research: the Case of Radio Frequency Identification (RFID)

2010

1. Alexander Carnera
Magten over livet og livet som magt
Studier i den biopolitiske ambivalens