



# Navigating Digital Transformation: Empowering Accounting Professionals through Strategic Upskilling and Reskilling

*How Business Leaders Can Strengthen their Accounting Teams  
through Technical Competence*

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# Abstract

The accounting profession is experiencing a transformative shift due to the rapid advancement of digital technologies. This thesis explores how business leaders can effectively upskill and reskill their accounting teams to ensure successful digital transformation of the accounting function. Through a qualitative research approach involving semi-structured interviews with accounting professionals in Norway, the study examines the impacts of digitalization on the accounting role, identifies key opportunities and challenges, and proposes strategies for enhancing the competencies of accounting professionals.

Findings reveal that digital tools have significantly automated routine tasks, allowing accountants to focus more on analytical and consultative roles. However, the transition also necessitates substantial upskilling in digital literacy, data analytics, and emerging technologies like AI and blockchain. The study highlights the importance of strategic leadership in fostering a culture of continuous learning and aligning professional development initiatives with organizational goals.

The thesis concludes that while digital transformation presents challenges, it also offers significant opportunities for value creation within the accounting profession. Business leaders must invest in targeted training programs and support structures to enable their accounting teams to adapt and thrive in a digital era. This research contributes to existing knowledge by providing actionable insights for managing the digital evolution of accounting practices.

# Table of Contents

<b>1 Introduction</b> .....	1
<b>2 Theory</b> .....	4
2.1 Literature Review .....	4
2.2 Digitalization in Theory .....	6
2.3 Types of Accounting .....	10
2.4 Experimental Pedagogy in Business .....	12
2.5 The Accountant’s Role in Transformation.....	15
<b>3 Research Methods</b> .....	17
3.1 Research Design.....	17
3.2 Data Collection.....	18
3.2.1 Qualitative Interviews.....	18
3.2.2 Sampling.....	19
3.3 Data Analysis .....	20
3.4 Research Quality .....	23
3.4.1 Reliability .....	23
3.4.2 Generalisability.....	24
3.4.3 Limitations and Challenges .....	24
3.5 Ethics Considerations - Confidentiality and Privacy Concerns .....	24
<b>4 Findings</b> .....	26
4.1 Experience of Digitalization – How Has it Changed the Profession?.....	26
4.2 Opportunities.....	28
4.3 Barriers .....	29
4.4 Future of accounting.....	31
4.5 Perspectives on Upskilling .....	33
4.6 Skills and upskilling initiatives .....	35
<b>5 Discussion</b> .....	39
5.1 Experiences on Changes from Digitalization.....	39
5.2 Areas of Potential and Barriers .....	40
5.3 The Future of the Accountant.....	41
<b>6 Conclusion</b> .....	46
<b>7 Literature</b> .....	48

<b>8 Appendix 1: Declaration on the Use of AI Tools.....</b>	<b>53</b>
<b>9 Appendix 2: Interview Guide.....</b>	<b>54</b>

# 1 Introduction

The accounting profession, traditionally characterized by meticulous record-keeping, calculation, and financial reporting, has undergone profound transformations over centuries, evolving from manual bookkeeping to sophisticated digital systems (Adrianto et al., 2023). Historically, the role of the accountant was deeply rooted in the manual, labor-intensive process of ledger maintenance, requiring a high degree of accuracy, integrity, and confidentiality. The introduction of electronic data processing systems in the mid-20th century marked a pivotal shift, automating routine tasks and significantly enhancing efficiency and accuracy in financial reporting. This evolution continued with the adoption of enterprise resource planning (ERP) systems, further integrating and streamlining accounting functions with broader business operations, signaling a shift towards a more interconnected and systemic approach to financial management (Adrianto et al., 2023).

In the contemporary digital age, the proliferation of advanced technologies such as cloud computing, artificial intelligence (AI), and machine learning (ML) has set the stage for another seismic shift in the accounting profession. These innovations offer transformative potential, automating repetitive tasks, enhancing analytical capabilities, and fostering more strategic decision-making processes (Drury, 2021, p. 13). Accountants are increasingly required to pivot from their traditional roles, embracing a multifaceted skill set that includes data analytics, cybersecurity, and a profound understanding of digital technologies. The International Federation of Accountants (IFAC) underscores the necessity for accountants to adapt, highlighting the growing importance of technological fluency alongside foundational accounting skills to navigate the complexities of the digital landscape effectively (Rughani, 2023).

The digital transformation within the accounting sector is not solely technology-driven but is also influenced by significant business and policy trends, such as the European Union's GDPR and the IFRS Foundation's Digital Reporting Initiative. These developments emphasize the need for robust cybersecurity measures and data privacy as they require a cautious approach (Knudsen, 2020; Payne, 2014). Moreover, transparent digital reporting is further complicating the accounting landscape. As a result, there is a pressing demand for accounting professionals to continually upskill and reskill, aligning with these evolving requirements. Business leaders play a crucial role in facilitating this transition, investing in education and training programs

that equip accountants with the necessary competencies to leverage emerging technologies and adhere to new regulatory standards. This proactive approach to professional development is essential for ensuring that the accounting profession remains resilient, relevant, and capable of driving innovation in the face of rapid digital change (Obaid, 2023).

Also in Norway, the landscape of accounting is undergoing a significant transformation, driven by rapid technological advancements and changing regulatory environments. As businesses move towards digital operations, the role of accounting professionals is not just about traditional bookkeeping and financial reporting; it involves a broader scope that includes data analytics, strategic financial planning, and managing digital assets. This evolution necessitates a fundamental shift in the skill set required for accounting professionals to remain relevant and contribute effectively to their organizations.

To address this shift, there is a growing need for business leaders to invest in the continuous professional development of their accounting teams. Upskilling and reskilling emerge as critical strategies in this context. In this thesis, we apply the term “upskilling” to the process of individuals learning new skills to enhance their current job performance, and “reskilling” as the training individuals to take on different roles within an organization. These approaches are essential not only for personal career growth but also for ensuring that businesses can successfully navigate the complexities of digital transformation successfully.

However, the journey towards effective upskilling and reskilling of accounting professionals presents several challenges. These include identifying the most relevant skills for the future, creating a culture of continuous learning within organizations, and leveraging technology to facilitate effective learning experiences. Furthermore, there is a need to align these learning initiatives with the strategic objectives of the organization to ensure that the investment in professional development translates into tangible business outcomes.

In light of these considerations, this thesis explores the research question: "How can business leaders effectively upskill and reskill their accounting professionals to ensure successful digital transformation of the accounting function?" This question underscores the importance of strategic leadership in guiding the professional development of accounting teams towards meeting the demands of a digital economy. By examining various upskilling and reskilling initiatives, their implementation challenges, and the outcomes they yield, this research aims to provide insights into best practices and strategies that can be adopted by business leaders. The

goal is not only to enhance the competencies of accounting professionals but also to drive the successful digital transformation of the accounting function, ensuring that it remains a strategic asset in the digital era.

For the purpose of our research, the term “accountant” refers specifically to professionals working in the core functions of financial and managerial accounting in officially registered organizations. While the accounting field consists of various specialized roles such as tax accountants and auditors, this study will focus primarily on the evolving changes observed in the relevant activities of financial reporting such as financial reporting, compliance and strategy advisory, along with managerial accountants preparing budgets, cost analyses, performance evaluation and involvement in decision-making processes. This narrowed scope aims to encompass sufficient research objective of examining how technological advancements have transformed the role of the accountant and the skill sets required.



## 2 Theory

### 2.1 Literature Review

The literature review focuses on identifying existing knowledge gaps and synthesizing relevant findings from previous research on digitalization and accounting. The search strategy targets peer-reviewed articles published in reputable journals, books, conference proceedings, and gray literature. The platforms mainly consist of Google Scholar, Scencedirect and Researchgate. Keywords and phrases include digitalization, accounting, automation, robotics, blockchain, big data analytics, and machine learning. The literature review is based on Saunders et al.'s (2009) framework for conducting systematic reviews, which ensures rigorous and transparent research practices. The review process involves screening abstracts, extracting relevant data, evaluating the quality of the studies, and synthesizing the findings.

A central academic paper on the topic of digitalization of management accounting is Knudsen (2020). This meta study illuminates the current accounting trends in the context of digitalization as a historical third wave of technological advancement. The paper not only explores the literature of the new technologies that have relevance for the field, but also the impact it has on transforming the tasks and roles associated with accounting. Some major findings in the paper include new opportunities in KPI production with real-time data and shifting from forecasting to nowcasting for assessing the performance of the business.

A major problem with the transformation of accounting is the inadequacy of applied digital training for the job profile. Limin Zhu (2022) observed in her doctoral study on “Exploring the significance of digital skills training for accountants” that most accounting graduates were not accurately prepared for business in terms of digital skills requirements while many companies who would like to upskill and reskill their accountants are limited by cost- and time constraints. Furthermore, employees who possessed the skills needed for the job experienced improved performance, job satisfaction, confidence and better service for the clients. She concluded and suggested for further implementations that *the survival and growth of accounting firms depend mainly on the people employed who are able to utilize modern technology proficiently to add more value* (Zhu, 2022). In addition, implementing a conducive strategy for upskilling accountants for value creation and improving productivity is heavily emphasized by the

International Federation of Accountants, explicitly stating the need for competence in order to perform the role as a professional accountant in their standards (IFAC, 2021).

The research by Duong and Fledsberg (2019) delves deeper into the nuances of digitalization's impact on the accounting industry. It reveals that while digital tools have streamlined traditional accounting processes, there are challenges in integrating these technologies effectively. The Norwegian firms interviewed all acknowledged the fact that the competency among them was scarce, but they were starting to take advantage of some of the technology. In addition, they claim that the accountants of the future will experience a smaller gap between the ideal profession and how they act. This occurs as firms may also hire workers with background from IT where both parties of accountants and IT-skilled workers can benefit from a joint work environment. Furthermore, their respondents claimed that there was no reason to be worried about layoffs of accountants in Norway. They highlight that the role will simply be converged, but it requires willingness to adapt and reshape the business practices and the way of thinking (Duong & Fledsberg, 2019, p. 81). At last, they point out another consequence for the accounting profession regarding higher levels of critical thinking and cooperation, which is more related to soft skills.

Azizova and Guliyev's (2023) research on the required skills for accounting professionals in the age of automation emphasizes the evolving competencies needed in the accounting field. Although they focus on automation, the study highlights the importance of technical skills such as proficiency in artificial intelligence, blockchain and cloud computing. Additionally, it underscores the significance of developing expertise in data analytics and robotic process automation to navigate the changing landscape of accounting practices. They conclude that accountants are expected to play crucial roles in automation initiatives within organizations, requiring them to possess the necessary skills to fulfill various functions like identifying, explaining, visualizing, and analyzing in the context of RPA implementations and how it may alter the way the work is done. By being adaptable and embracing technical skills, accountants can position themselves ahead of the competition and capitalize on the opportunities presented by the evolving business environment. Their research suggests that accountants need to adapt to the digital era by honing their critical thinking, problem-solving, teamwork, effective communication and ethical reasoning skills to thrive.

The situation may also be analyzed through a quantitative study. The dissertation written by Ghorbani (2019), titled “Determinants of digitalization in the accounting function”, focuses on small and medium enterprises. The results illustrate that digitalization in accounting functions is still perceived as highly relevant. She highlights that there was no relationship between digitalization of accounting functions and their industries, meaning the market they operate in did not alter the possibility to implement new technologies. Most of her participants stated the importance of having adaptable accountants that can use new techniques and technologies, as it will lead to increased level of digitalization in the accounting function. If they experienced reluctance to change, the implementation of new technology was said to be pointless as it is imperative to create extra value when investing in expensive technological solutions. Secondly, her results furnishes the statement where the participants claim that there is a distinct gap between university curriculum and the ability to take advantage of new technology. This led to many of the participating firms having activities to fulfill the gap, as newcomers in the workforce mainly rely on a theoretical background.

Stoica and Ionescu-Feleagă (2021) further explore how researchers within accounting digitalization have directed attention towards observing the subject from different points of view. They find that there is an increased interest in accounting education, and how new requirements may be integrated in education. Furthermore, many of the papers in their literature review focused on accounting information systems. This includes topics such as how robotic process automation could be built to replace people, disclosure trends, cloud computing and eventually if and how it may affect the accounting outsourcing decision. They were unable to acquire research papers on how the digitalization has affected accountants, and what their future will look like. Although this is related to our problem, their following statement aligns with ours, none was discussing the impact of digitalization on the accounting profession and what the future will bring.

## 2.2 Digitalization in Theory

The accounting industry is undergoing a profound transformation driven by rapid advancement and integration of digital technologies. To stay competitive, businesses need to emphasize the importance of the digital transformation which is posing comprehensive changes not only in accounting divisions but also in a greater organizational level (Knudsen, 2021; Kraus et al., 2021). Moreover, the term *digitalization* can be understood as “the manifold sociotechnical

phenomena and process of adopting and using these technologies in broad individual, organizational, and societal contexts” (Legner et al., 2017, p. 301).

Not only can a business transform by exploiting tools to enhance organizational agility, but the tools such as those within digitalization can also improve productivity, cut costs and lead to innovation within the digital transformation (Hess et al., 2016). This can be seen as a more complex term than *digitization*, which accounts for the analog data being converted digitally (Legner et al., 2017). The key driver of digitalization is said to be technology (Krauss et al., 2021). Digitalization, as a proceeding step in the digital transformation, bypasses the digitization where the technical skills and technology now can be exploited and used to gain competitive advantages for accounting firms (Knudsen, 2021). However, digitalization shall not be seen as a technological issue, but an opportunity for transformation (Kraus et al., 2021).

The pool of accountants being affected by digitalization is not limited to accountants in the traditional role. It is also causing unprecedented changes for accountants in governmental organizations, policy makers, decision-makers, and citizens (Agostino et al., 2022). Although the circumstances may cause widespread changes not just accounting, the theory will be reflected towards the accounting industry. Digitalization in accounting emphasizes the need for accountants to adapt to modern digital solutions to meet deadlines, provide relevant information and enhance the quality of accounting information (Brennen & Kreiss, 2014). By automating routine tasks may include a high degree of repetitiveness, digitalization allows accountants to focus on more creative, non-routine tasks that require additional skills and critical thinking. In other words, it will affect the way accountants work and think (Gulin et al., 2019). This shift towards digitalization not only streamlines accounting processes but also enhances the advisory services accountants can offer to clients, allowing a more connected relationship between accountants and their other part, such as clients or managers.

Related to accounting, digitalization can be considered a broad and complex theme touching on various topics with a vague definition. In the short term, digitalization involves the integration of digital technologies to enhance accounting practices, which can bring benefits and efficiency both for the accountant and the decision maker (Gartner, 2024). Knudsen (2021) asserted that the topic of digitalization in accounting is often used under the assumption that “the reader has an intuitive assumption of the term”, whereas the term may also be seen as a broader organizational and social processes that are enabled by or built on digital technology.

Furthermore, Knudsen (2021) addresses the importance of understanding the difference between *digitalization* and *digital transformation*, where the latter consists of comprehensive organizational changes that ultimately changes the organizational strategy. To elucidate, digitalization can be seen as an ongoing process where new technology and procedures are implemented which causes alterations and new possibilities for cooperation and connection between departments, firms and other agents affected by the business world (Bhimani & Willcocks, 2014).

When predicting the consequences of digitalization based on the current trends, there seems to be a change in accounting in a form of more elusive boundaries (Knudsen, 2021, p. 17). Parviainen et al. (2017) states that the impacts of change affect at several levels surrounding organizations and their environment. These include levels such as process, organization, business domain and society level. The first level of process includes adopting advanced technology and reducing the manual processes an accountant did before. For an organization one may now be able to offer the existing services done in a simpler manner, allowing new services to come to light. Regarding business domain level, there seem to be changing roles and value chains, which Knudsen (2019) also confirms. At last, the society level impacts our structures in the sense that job profiles and decision-making processes may be influenced in a new manner.

The future of accounting may be unknown, but Mujiono (2021) wrote an article *The Shifting Role of Accountants in the Era of Digital Disruption* where she specifies data analytics, cybersecurity, artificial intelligence, robot process automation, cloud computing and machine to machine communication as important factors in the digitalization era facing the accountant. Showcasing reconciliation between academics and practitioners, Mujiono (2021) concluded in agreement with Lazanis (2020) on 8 things that follow the future of accounting: automation, upskilling, emerging business models, client accounting services, future accounting services are found on google, changing client experience, decreased stress in the accounting job and compliance with regulations.

With changes altering the accounting landscape, opportunities and challenges arise. On one side, digitalization brings opportunities in various ways. By correctly taking advantage of the new innovative ideas of digitalization, the accounting information will overall be improved (Al-Htaybat et al., 2017). Furthermore, this includes better quality and relevance of information

(Gulin et al., 2019). Langmann and Turi (2021, p. 121) states that the efforts of reporting mainly consist of non-value-adding activities, whereas activities such as analyses would improve quality and generate value. Regarding automation, it can simplify the accounting processes of repetitive character while providing more accuracy in the field (Gulin et al., 2019). This allows the accountant to focus more on value creation in the form of bringing creativity and non-structured tasks. The alteration of the job profile brings a higher need for other skills in the accounting profession. The ability to adapt and gain advantages includes continuously learning as other skills become more dominant. This refers to the ability to upskilling factors such as human skills, problem solving, critical thinking and data analysis through usage of new concepts that stems from digitalization (Gulin et al., 2017; David, 2015; Marcello et al., 2017).

Implementing new technology does not come without a trade-off. As listed above, the upskilling of accountants, both in terms of learning new technology as well as reshaping the role calls for learning. Reluctance to change poses a threat for non-adapting firms, as even entry positions in accounting are said to require a higher degree of data skills (Lawson & Smith, 2018). Duong and Fledsberg (2019) find evidence of smaller firms being more reluctant to change as they can be expensive, and they do not possess the resources needed. In addition, Knudsen (2021) presents the resistance from the older generation, being comfortable and less adaptable. This can be seen as a challenge for firms with aging employees, especially if they are in a decision-making role. Even though upskilling may occur, the core fundamental theory from business education must be retained and enhanced into a more profound and holistic role in financial reporting systems and data analytics which creates a greater functional role of the accountant (Mujiono, 2021). By utilizing new and more technical tools, risks of financial and confidential information increases. This gives rise to another challenge of digitalization, where obstructing security breaches must be prioritized (Mujiono, 2021).

Clients are subject to the same digital culture trends as accountants. Where clients previously received accounting services, they may now be expecting accountants to keep the pace as digital applications and its use is constantly improving (Obaid, 2023). When the role of the accountant is evolving, the true reporting opens up for deeper connections to assist and interact with clients, (Løvaas et al., 2018). Overall, the biggest barrier to implementation of digitalization is cost (Opudu & Tonye, 2022).

Knudsen (2021) highlights the limited research on actual influence of digitalization in accounting. On the other hand, the process of digitalization in accounting is said to potentially change accounting and accounting information fundamentally (Knudsen, 2021). This implies that digitalization consists of a transformation in what data is being used, the implementation of new technologies and change in accounting practices is altering the role of the accountant (Knudsen, 2021, p. 16). Moreover, he argues that the digitalization of the industry may call on a shift in power as well (Knudsen, 2021, p. 17). This may occur both vertically in a manner where a decentralization caused by digitalization no longer limits access to data at levels of higher seniority, as well as horizontally in the sense that the digitalization effects accrue to those who utilize technology in a new way (Knudsen, 2021, p. 17).

## 2.3 Types of Accounting

In modern business, the role of accountants transcends mere number-crunching; it embodies a central function in shaping informed decisions and strategic directions. The term “accounting” is defined by the American Accounting Association as “the process of identifying, measuring, and communicating economic information to permit informed judgments and decisions by users of the information” (Drury, 2021, p. 4). The Association of Chartered Certified Accountants claims the accountant’s role is vital to create, protect and communicate value for both organizations and society (Machado, 2023). The types of accounting can mainly be divided into two groups. These are referred to as *financial accounting* and *managerial accounting* (Horngren et al., 2012; Drury, 2021). Financial reporting refers to providing information to external decision makers such as investors and creditors, whereas managerial accounting is used internally by managers and decision makers (Horngren et al., 2012).

The distinction between these two types can be described through their purpose, users and standardisation. Drury (2021) highlights five major differences between the groups. These are related to legal requirements, focus on individual parts or segments of the business, generally accepted accounting principles, time dimension and report frequency and less emphasis on precision. Financial reporting revolves around informing external parties, stakeholders such as the public, governmental agencies, investors, and creditors, with information that reflects the financial health and performance of the organization. This field of accounting is subject to more regulations, to be delivered at specific times formatted in a given design by regulatory frameworks and standards (Drury, 2021). It is seen as a key control mechanism, providing

faithful representation in the business and its reporting, providing trust in relationships with third parties, and often independently assessed by auditors (Jones, 2013).

In contrast, managerial accounting is primarily concerned with providing internal stakeholders within an organization with information. This field targets the decision-making, planning and control processes, and aims to enhance the processes while optimizing operational efficiency (Drury, 2021). Given the nature of managerial accounting, it may be used to focus on minor parts of the business without adhering to accounting principles. In addition, the reports can be prepared at any given frequency, even daily (Drury, 2021). This dichotomy gives rise to the distinction between internal reporting (managerial accounting) and external reporting (financial accounting), each serving a unique purpose in guiding strategic decisions and fostering transparency (Drury, 2021, p. 5).

The accountant and the titles of accountants come in several forms, as many countries operate with different certifications, standards, and associations (Jones, 2013). As stated, the main divide introduces financial accountants and managerial accountants. But the limits of accounting do not stop here. There are several categories of accounting, each consisting of their own distinct characteristics. Their varying usage stems from their purpose of accounting, where some of them are more similar than others (Jones, 2013). Other forms of accounting and accountancy argued by Jones (2013) consists of auditing, bookkeeping, taxation and management consultancy. In addition, the European Union has introduced the Corporate Sustainability Reporting Directive (CSRD), calling for an additional non-financial reporting role as well (European Commission, n.d.).

According to Drury (2021), the field of managerial accounting is undergoing a transformation in the digital era where managerial accountants must put an emphasis on value creation. Although reducing and maintaining control of costs is necessary to stay competitive, recent developments illustrate how managerial accounting is divided between non-value-added activity and value-added activities, where the latter is emphasized as it adds perceived value in the eyes of the customers (Drury, 2021, p. 629). On the financial reporting side, the emphasis is put on utilizing the digital tools to rotate towards a more proactive role consisting of more non-routine tasks that require human input, such as interpreting and analysing financial data whilst mastering the new skills of digitalization (Gulin et al., 2019).



The thesis and its research will mainly focus on managerial and financial accounting with a focus on a Norwegian accountant's role. These two distinct yet connected forms of accounting serve as vital pillars in the decision-making processes of organizations, but they diverge in their focus, audience, and objectives. Given the rapid transforming era of accounting, this thesis seeks to examine the nuances of managerial and financial accounting, elucidating their differences, applications, and significance in contemporary business environments. Furthermore, Machado (2023) stresses the importance of the accountant in a dynamic world, where sustainable business practices rest on the accountants' abilities to do more than just generate short-term profit. In other words, the various types of accounting accrue to a comprehensive field serving as the bedrock upon which organizations navigate in the business world, while still affecting society (Weygandt et al., 2015, pp. 5-6). As mentioned in the introduction, these two core types of accounting are the focal point of our thesis. The focus is not to differentiate on their distinctions during the digitalization era, but we expect to observe significant results that are relevant for both types.

## 2.4 Experimental Pedagogy in Business

Experimental learning challenges the traditional learning approaches by emphasizing hands-on experience and iterative processes as a tool to continuous learning. The current economic environment is experiencing rapid changes with new trends. Big Data, AI, machine learning and algorithm aversions are said to lead to deeper integration of IT applications (Breuer & Knetsch, 2023). The situation makes it highly competitive and stresses the need for continuous learning (Lomineishvili, 2021). In response to digitalization, strategy adaptation in the event of emerging trends in the accounting profession calls for innovative measures. Lomineishvili (2021) underlines innovation as a keystone to competitive advantage. To sustain the advantage, there is a need for continuous improvements. In the accounting world, the improvements further require highly skilled employees who possess experience and knowledge on the challenges faced by accountants in 2024. Experimental learning can be defined by *the process of learning through practice* (Aithal, 2016, p. 3). This learning method revolves around active involvement, performing actual and practical work and learning through experience. By applying this concept into the business world, one can focus on hands on training of the new concepts digitalization can offer and utilizing them to your advantage. Experimental learning can be seen as a step aimed to accommodate the recent trends while enhancing operations.

Aithal (2016) emphasizes the importance of real-world scenarios along with a theoretical background, which stems from higher education. This is often done through a mentor role who can guide and enhance the individual. For upskilling accountants, one can actively work towards creating a culture of learning where the focus is to fill skill gaps and strengthen skills. This can be beneficial for workers in terms of greater understanding, improved confidence, and higher job satisfaction (Chakma & Chaijinda, 2020). It's crucial for companies to be forward-thinking in terms of learning and development, as they are the ones who benefit the most in terms of improved workers, motivation and employee retention (Chakma & Chaijinda, 2020).

The Norwegian job market for authorized accountants requires a minimum of three years of higher education composed of a regulatory frame built by Universities Norway/Universitets- og høgskolerådet (UHR), followed by a minimum of two years of accounting practice (Løvaas et al., 2018). They follow up with an explanation of how accounting offices are changing in Norway, where the accounting role not only supplies the traditional accounting, but also serves clients on a strategic level, including organizational changes. If the job profile is undergoing changes, qualities in communication, professionalism, confidence, and analytical skills are necessary (Tvedt & Skarmyr, 2015; Grimstad & Thorsteinsen, 2013). Grimstad and Thorsteinsen (2013) stress how the focus on new skills is directly related to transcending into a proactive role where they for instance will take on an advisory role and connect deeper with clients and their individual issues.

The accountant's adoption of digital skills can't be faced by simply involving technology. The many aspects surrounding the usage of technology in accounting requires the ability to employ the newly acquired skills in a manner where the human capabilities are maintained, and where the utilization leads to value creation (Zhu, 2022). When leaders leverage the strengths of both humans and machines, based on "agility, flexibility and continuous learning; supported by strong data and analytics talent", success will follow (Atluri et al., 2024). The combination of talent, data, technology and governance plays a vital part in answering how the continuous learning cycle can be put into practice in real world scenarios.

There are several teaching methods that can be applied when developing new skills. Regarding experimental learning, Hoover and Whitehead (1975, p. 25) states that through a high level of active involvement a participant is cognitively, affectively and behaviorally processing knowledge, skills and/or attitudes in a learning situation. One of the main complications is that

business education has historically evolved slower than the business industry itself (Moratis et al., 2006). Teaching methods related to upskilling for accountants post-graduation may not all fit, but the findings of Farashahi and Tajeddin (2018) combined with their literature review supports the fit and applicability of experimental learning in business. It can be seen as a foundation for developing both hard and soft skills, tightening the gap between their knowledge and the real world.

In business, the dynamic capabilities of employees learned through organizational learning and innovation are positively influencing the firm performance and help firms to sustain a competitive advantage (Giniuniene & Jurksiene, 2015). Methods of potential upskilling through experimental pedagogy includes the use of case studies, simulations and field projects, both in a descriptive/analytical way or in a consultative way (Gentry, 1990, pp. 17-18). This is supported by David A. Kolb's (1984, p. 41) statement on the topic "knowledge is created through the transformation of experience". In other words, by understanding and utilizing the teaching methods of experimental pedagogy in business, one can implement different ways of strategic and innovative teaching methods to establish an environment consisting of dynamic learning that is accurately working towards improving accountants and their capabilities.

Overall, experimental pedagogy in business education strives to create more dynamic, engaging, and transformative learning experiences that prepare students for the complexities of the modern business world. The conditions associated with digitalization pose challenges to the personal growth of an accountant. Given the ongoing transformation, experimental pedagogy aims to fill the gap between theoretical business understanding and its practices to match the accounting industry. The phenomenon calls for upskilling across the age range. Hence, the methods and implementation of coherent measures is meant to be applicable for every accountant, not exclusively to the upcoming generation. From passive learning perspectives, this type of pedagogy applies dynamic, engaging, hands-on experiences sought to transform the learning experiences . Through fostering the development of this pedagogy, it aims to generate a holistic understanding of the industry, its clients, and their processes. By embracing the technological possibilities one can cultivate the skills needed for accommodating the business world of tomorrow.

## 2.5 The Accountant's Role in Transformation

The effects of automating processes are necessary to understand how it may shape the job profile of an accountant. With the ongoing evolution of technology in business, job profiles are both being altered as well as being redefined. Workers will have to be upskilled in new technology to become efficient and gain the advantage it brings (Ernst et al., 2018, p. 9). Furthermore, Ernst et al. argues that implementation of digital services may be costly to introduce, but through the task substitution these fixed costs can serve a growing market at low or zero marginal cost (Ernst et al., 2018, p. 15). Schwartz et al. (2019, pp. 1-6) argues that the forces of change are affecting all three dimensions of work: the work itself, who does the work and where the work is done. With respect to accounting, all dimensions are subject to change. To be in a position of advantage where one offers exceptional services, it is crucial to comprehend the impact of change in what is being automated, who can do the work, what will the team consist of and how they will collaborate. Although there are various new technologies accountants may adapt, the complexity and economic constraints for implementation vary greatly. EY reports that increased knowledge on artificial intelligence combined with risk management can be of greater advantage, but there is a lack of the necessary competence in the Nordic countries. As much as half of the senior managers asked were looking for specialists to investigate the opportunities digitalization brings (Bjørnebye & Ribe, 2023). Although this statement might be true, the implications already occur during the implementation process. Overall, the investment and involvement of skill-based technologies is based on whether they are profitable or not (Acemoglu, 2002).

Through upskilling and reskilling, accountants can develop proficiency in advanced technical skills that are increasing in demand in the digital era. Academic research on the impact of technology on accounting, coupled with insights from industry experts, can inform upskilling initiatives tailored to address the gap between theoretical knowledge acquired through education and practical application in professional settings. To create a holistic skill set that combines new technical skills with traditional professional competencies, a strategic approach is needed to integrate hands-on training, experiential learning opportunities, and continuous professional development programs. By fostering a culture of lifelong learning and innovation within the accounting profession in Norway, organizations can empower accountants to adapt to technological advancements, enhance their technical acumen, and stay ahead of industry trends. This integration of new skills with existing competencies not only prepares accountants

for the digital future but also ensures their relevance and effectiveness in a rapidly evolving accounting landscape. This can be seen as a contribution to the existing knowledge by examining the impact of digitalization on accounting practices through a comprehensive analysis of current trends, best practices and emerging issues in the field. By combining insights from academic literature and qualitative interviews with industry experts, this study aims to provide valuable insights into navigating the digital landscape in accounting.

## 3 Research Methods

### 3.1 Research Design

Our research design is rooted in the interpretivist paradigm, which prioritizes understanding human experiences and the meanings behind phenomena (Saunders et al., 2009, p. 324). This includes probing meanings of simple words and ideas that will highlight and add significance to the data collected. The choice aligns with our exploratory investigation into the perspectives and experiences of professionals in the accounting field. The research design outlines a plan to answer the research question, "How can business leaders effectively upskill and reskill their accounting professionals to enable a successful digital transformation of the accounting function?" This plan includes clear objectives, data collection methods, and the ethical responsibilities of conducting research. All elements should be supported by well-reasoned decisions, and the overall design should align with the research philosophy.

Given the exploratory nature of our research, we choose a qualitative approach. This allows a more detailed exploration of individual experiences and perceptions, key to understanding how accounting professionals navigate digital transformation in their field. We conduct semi-structured interviews for our research strategy. This is recommended by Saunders et al. (2009, p. 323) for qualitative research, providing in-depth insights into complex phenomena in their actual context. Semi-structured interviews offer flexibility while ensuring key topics are covered. Saunders et al., (2009) list three principal methods of doing an exploratory study. These are searching in existing literature, interviewing experts in the field and conducting focus group interviews. The research design is constructed through examining existing research combined with up to date interviews where we try to grasp a greater understanding for answering the research question and try to explain how adjustments occur in the given environment.. The nature of our study makes it a cross-sectional study surrounding the digital transformation phenomena, given our time constraint (Saunders et al., 2009, p. 155).

Our research design also allows respondents to touch on subjects that we may not have considered, but which may be relevant for answering the research question. We use purposive sampling, a technique that involves selecting participants based on their expertise and experience in the field. This method aims to include participants who can provide the most

relevant and rich information for our research, making it useful when seeking detailed understanding from specific groups or individuals.

Our research aims to be exploratory, and a combination of literature review and qualitative interviews with subject matter experts will provide a comprehensive view of the situation, addressing the research question. It's important to note that the roles, tasks, and tools of an accountant are continually evolving, and our research method aims to reflect this dynamism.

## 3.2 Data Collection

### 3.2.1 Qualitative Interviews

The qualitative interviews seeks to complement the literature review by capturing the perspectives and experiences of practitioners directly engaged in digitalization efforts within Norway. The interviews were conducted with accounting professionals working in various sectors, including finance, consulting, and academia. The study employs purposive sampling to recruit participants with extensive experience in digitalization and accounting. Participants were selected based on their professional roles, organizational affiliations, and engagement levels in digitalization initiatives.

We conducted individual face-to-face or online semi-structured interviews with participants who are experienced accountants working across various sectors in Norway. These interviews are designed to elicit rich narratives about the interviewees' professional backgrounds, current roles, challenges faced, and perceptions regarding contemporary accounting practices. Each interview lasted between 35 and 85 minutes, allowing sample time for open-ended responses, which allows the respondents to freely address more in-depth on the topic as they pleased, with eventual follow-up questions. If an unforeseen event occurs during the interviews, they were noted and discussed accordingly to clear any disturbance which might alter the results. Saunders et al. (2009, p. 324) emphasize the importance of semi-structured or in-depth interviews in qualitative research, as they enable researchers to explore topics in depth while maintaining a degree of flexibility.

To enhance validity, we use purposive sampling to select participants based on specific criteria such as years of experience, job titles, industry sector, and geographic location. The participant selection aims to capture diverse viewpoints and maximize the transferability of findings to

other contexts. The authors further support this approach by highlighting the significance of purposive sampling in ensuring that the selected participants possess the relevant knowledge and experiences related to the research topic.

The qualitative interviews for the study were gathered as primary data with the aim to complement the literature review. This broadens research by capturing the perspectives and experiences of practitioners that work in various sectors such as finance, consulting and academia. The study employs purposeful sampling based on their professional roles, organizational affiliations and engagement levels in accounting related digitalization.

### 3.2.2 Sampling

To obtain the primary data needed, correctly sampling is crucial to obtain a relevant and trustworthy outcome. Saunders et al. (2009, p. 233) emphasizes the focus on the coherence between sampling and the research question and the objective. Using Saunders et al. (2009, p. 234) figure 7.5 suggests the usage of purposive sampling with an appropriate focus. This method includes working on very small samples obtained through the usage of judgment to find the right candidates that possess relevant knowledge and are deemed particularly informative (Neuman, 2005). This helps to unwrap the situational analysis and create a deeper understanding of the theme.

Simply choosing purposive sampling is not considered to be significant for the overall population (Saunders et al., 2009). The need for a clear path that can help explain the processes, we selected information-rich respondents. By applying the model, the most suitable method is heterogeneous sampling. This will bring a description and explain the key elements of digitalization in the accounting role. A lower number of participants with various backgrounds surrounding the accounting field allow us to gain insight from different points of view. Even though this method consists of a small sample, it is not necessarily negative even if there might be contradictions between the interviewed subjects. In addition, by optioning for this variant allow us to go more in-depth. By identifying diverse characteristics before sampling, it is possible to obtain maximum variation. The strength it brings may open various points of interest and bring uniqueness that may help explain the complexity of the research question (Patton, 2015).



We ended up with 5 recorded interviews from subjects across different professions related to accounting. Two of these were certified public accountants (CPA), one was an auditor, one was a CFO, and one was representing an institutional investor. The length of the interviews varied from 35 to 85 minutes.

### 3.3 Data Analysis

Evaluating qualitative research requires an approach distinct from what is used for quantitative research. The complex nature of qualitative interviews makes it challenging to usefully quantify data (Dey, 1993, p. 28). To collect and analyze data effectively in an explanatory manner, several steps need to be followed when transforming the data and making it applicable towards answering the research question. The data analysis mainly follows a thematic analysis approach.

The transcripts are coded according to relevant themes surrounding the field of accounting. In addition to taking notes during the interviews, we independently analyzed each set of transcripts, ensuring reliability and reducing potential bias. Patterns of data are identified during the initial reading process. By revealing patterns and recognizing relationships the data can be tested to see if an actual relationship exists (Saunders et al., 2009, p. 495). These are tested inductively where we sought various explanations for the topics the interviewees were asked, Nonetheless, we investigate if there were any negative examples that did not support the literature, including contradicting statements. Discrepancies were resolved through discussion until consensus is reached.

Our overall strategy is based on thematic analysis as the analytical procedure. This approach consists of the 6 phases by Braun and Clarke (2012). Thematic analysis can be described as systematically identifying, organizing, and providing information on patterns of meaning in a dataset. Through this method, researchers can connect shared meanings and experiences in particular circumstances. Through exploring commonalities and identifying what is common, one can identify relevant answers from respondents to purposefully answer the research question. Furthermore, thematic analysis consists only of the data analysis, and is therefore very flexible in its nature. This allows us to perform a structured analysis while maintaining flexibility.

Our thematic analysis is based on an inductive approach. The exploratory orientation towards our data permits us to recognize new data and topics that we did not consider prior to data collection. Braun and Clarke's (2012) steps do not make it a pure inductive approach as when coding and analyzing occur, we bring prior information on the topic. We do not let our prior information predominate and let the data collected be viewed in a non-critical way. Lastly, the analysis is outlined in six phases: data familiarization, generating initial codes, searching for themes, reviewing potential themes, defining themes and producing the report.

### **Phase 1: Becoming familiar with the data**

The first phase consists of immersing yourself with the data (Braun & Clarke, 2012). This includes reading and re-reading data and taking notes to become intimately familiar with it. We read through the interview transcripts, relisten to the interviews and took notes to highlight items of potential interest for answering the research question. Although this is time-consuming, we are able to uncover the data in-depth and unravel information below the surface.

### **Phase 2: Generating initial codes**

The initial phase of coding starts the systematic analysis of the data (Braun & Clarke, 2012). Under thematic analysis, these codes can be in large or small parts, where even some parts are not coded at all. By properly assessing the transcripts we were able to generate potential codes and highlighting the text associated with it. Throughout the phase, we read and discover new relevant excerpts. These are either applied with our existing codes or create a need for a new code. When we have thoroughly assessed all transcripts and collate relevant data to codes, we have a groundwork for creating themes.

### **Phase 3: Searching for themes**

“A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set” (Braun & Clarke, 2012; Braun & Clarke, 2006, p.82). After assessing our codes, the codes are used to create themes. When assessing the patterns and overlap among our codes, we observe similarities of our dataset that made our initial themes and subthemes. By clustering different codes on a given theme, we can assess a topic generally.

### **Phase 4: Review potential themes**

This phase consists of assessing the quality of developed themes, the codes and dataset, and to evaluate how the initial themes are constructed by coherent and relevant data (Braun & Clarke, 2012). We analyzed our themes and how they were relevant in answering the research question. Some codes are discarded and subcategorized under other themes. This quality-check ensures the removal of mismatched codes, creating distinctive themes for our thesis.

### **Phase 5: Defining and naming themes**

This process focuses on specifying the themes, and an evaluation on whether they have a specific focus that don't overlap that can help answer the research question (Braun & Clarke, 2012). This includes using subthemes when there are overarching patterns that may diverge in their own direction. Here, we select which data to analyze and what to quote in our thesis. By creating these extracts, we can illustrate how we cover the specific theme. This is done to establish a relationship between the interviewees' responses and the existing literature, to facilitate well-grounded conclusions and make supportive explanations towards answering the research question.

### **Phase 6: Producing the report**

The final step is the production of the report (Braun & Clarke, 2012). According to Braun and Clarke, when doing thematic analysis of qualitative data we don't analyze then write. This is a interwoven process where we go back and forth between the writing process and reviewed the analysis to create a compelling story.

The crude nature of nuances in the analysis raises a question of validity. To supplement the thematic analysis, the process is executed through Miles and Huberman's (1994) model called "data display and analysis approach". This consists of the three processes which should build the analysis (Saunders et al., 2009). The first one, data reduction, consists of summarizing and simplifying the findings, where the overall aim is to condense it. Subsequently, the second process of data display includes organizing the data, displaying it in matrices or networks. At last, the condensing further lets us initiate the final process of displaying the data. This is aimed to guide us in the pattern matching and relationship building processes that arose throughout the research period.

Lastly, the analysis of data is tested through testable propositions. By revealing patterns and recognizing relationships the data can be tested to see if an actual relationship exists (Saunders

et al., 2009, p. 495). These are tested inductively where we seek various explanations for the topics the interviewees were asked. Nonetheless, we investigated if there were any negative examples that did not support the literature, including contradicting statements.

### 3.4 Research Quality

Building upon the theoretical foundation laid forth by Saunders et al. (2009, pp. 326-336), this chapter aims to illuminate the critical components of research quality when doing qualitative interviews. The main data quality issues that arise when executing semi-structured interviews are mainly related to reliability, forms of bias, validity and generalisability. By examining these issues, we seek to empower researchers with the requisite skills and insights required to navigate the complex terrain of qualitative research, ultimately contributing to the advancement of accounting theory and practice.

#### 3.4.1 Reliability

Reliability in qualitative research pertains to the consistency and replicability of findings. Due to the lack of standardization in interviews as ours, the main concern is whether alternative researchers would reveal similar results. Due to the nature of our research, it may not be possible to repeat as the answers will reflect reality in time they were collected (Saunders et al., 2009, p. 328). To bolster reliability, we implemented rigorous data collection and analysis procedures, employing intercoder reliability checks and maintaining detailed documentation of the research process. By doing so, we can minimize the threat of researcher bias or inconsistent data interpretation, thereby enhancing the reliability of their qualitative data and strengthening the credibility of their research outcomes. Furthermore, various types of bias may threaten the reliability. Interviewer and interviewee bias, where any of the parties in the interview may perceive comments, tone or verbal behavior to interrupt the process and the way the responses are interpreted. Through semi-structured interviews, possible questions from the unstructured exploration may be sensitive to the interviewed subject, and not revealed in detail. We believe a rigid preparation was made to demonstrate credibility where we obtained the interviewees' true answers executed in a professional setting.

### 3.4.2 Generalisability

The research design raises concerns due to the small and unrepresentative number of cases. We therefore enhance the applicability of their findings by employing purposive sampling techniques to capture diverse perspectives and experiences relevant to the research topic. By selecting participants based on specific criteria such as industry sector, job role, or geographic location, we increase the transferability of their findings to similar settings. The concern related to generalisability under qualitative research will be related to the existing theory discussed in the literature review, where a relationship between the research and existing theory can broaden the theoretical significance, as suggested by Saunders et al. (2009, p. 335).

### 3.4.3 Limitations and Challenges

While semi-structured interviews offer numerous advantages, there are certain limitations and challenges to consider. For example, the reliance on human interpretation introduces subjectivity into the data analysis process. Moreover, the time and resources required to conduct interviews can be substantial, especially if the sample size is large.

Despite these obstacles, semi-structured interviews remain a robust methodological option for exploring digitalization in accounting due to their ability to generate rich, nuanced data that can shed light on complex issues. By carefully considering the research design, data collection, and analysis procedures, scholars can leverage this approach to advance our understanding of digital transformation in accounting practice.

In conclusion, our methodological approach adheres to best practice guidelines while remaining flexible enough to accommodate the nuances inherent in qualitative research. By employing these principles outlined in "Research Methods for Business Students," we aim to produce valuable insights into accounting practices from the perspective of those at the forefront of the profession.

## 3.5 Ethics Considerations - Confidentiality and Privacy Concerns

Confidentiality and privacy concerns are paramount in qualitative interviews, particularly when discussing sensitive topics such as accounting practices. Ensuring the protection of participants' identities, responses, and personal information is essential to maintain trust and ethical integrity

throughout our research process. To address these concerns, stringent measures were implemented in our study. Participants are assured of the confidentiality of their responses and were provided with informed consent forms outlining the purpose of the research, data handling procedures, and their rights to anonymity. All data collected during the interviews are stored securely, accessible only to authorized researchers, supervisor and those involved in the study.

By upholding strict confidentiality and privacy protocols aligned with ethical guidelines and best practices, we aim to honor the rights of our participants while conducting a rigorous and respectful qualitative investigation in accordance with General Data Protection Regulation (GDPR) and Norwegian data protection laws. Our research adhered to strict privacy measures to safeguard participants' personal data. Prior to conducting interviews, participants were informed about their rights under GDPR and Norwegian laws regarding data protection, including their right to access, rectify, and erase their personal information. Consent forms explicitly outline how their data would be collected, stored and processed in compliance with these regulations.

## 4 Findings

This chapter summarizes the findings from the data analysis conducted to address the central questions with relevance to the research question. Through data collection and meticulous examination, this chapter presents the key discoveries and patterns. Our use of open-ended questions allowed the respondents to channel the interview in the direction they wanted themselves. Consequently, some participants led the conversation in different directions based on which encounters they hold in high regard surrounding this phenomenon.

The subchapter consists of different themes and findings, providing a comprehensive understanding of the factors that are altering the job profile of the accountant, and how the situation may be addressed. The interpretation of the findings shall not only shed light on the field but is aimed to offer valuable insights that contribute to existing knowledge and be useful for future research.

### 4.1 Experience of Digitalization – How Has it Changed the Profession?

In this subchapter, we will highlight the important findings of what the interviewees have experienced during the digitalization era. This included a discussion of how the job profile and the industry practices have changed. Most respondents opened in a similar manner, addressing the greater shift from manual, constrained procedures of repetitiveness where one organizes paperwork and makes statements out of it. Whereas the digital tools now almost have made these processes automated, altering the work of the accountant from processing to controlling the information.

*“All the tasks an accountant does have been affected. From the bookkeeping to meetings being digital, we don’t receive bags of receipts and invoices through the reception anymore. They [clients] tend to send mails instead.” – Accountant 1.*

The response outlined the major changes he experienced throughout his career. Almost all respondents answered in a similar way, touching on the topic of changing job procedures. This has reduced the need for putting work into registration, to rather connect deeper with the client, opening for more time on consulting the clients. The removal of physical paper has led the

industry to process enormous amounts of data. One of the respondents highlighted how the processes of accounting now are simplified:

*“If a carpenter picks up 2 packs of screws, he’ll get an invoice instantly. Back in the days, he received a monthly consolidated invoice. Whereas these orders come through as an EHF [electronic] invoice they are automatically sent out in the systems and processed automatically where the accountant oversees and controls them. The amount of documentation is much larger, but it follows the same procedure in a more effective way and creates way fewer working hours for the involved parties [...]. We can extract the documentation needed ourselves through auditor access into the accounting systems. We remove the unnecessary noise with the client and only have to disturb him when it’s needed.” - Auditor 1.*

This statement underlined the way documentation and registration have altered the accounting industry. Several of the respondents highlighted how the systems let clients have access to real time data and track his business records. Moreover, these systems have changed the relationship between the parties involved. Not only has the system become more organized for the accountant and the client, the triangular interaction between accountant, auditor and the client has reduced the amount of noise and interference from the client point of view. The positive experiences were mentioned by almost all respondents. However, the opinions of CFO 1 contradicted what we observed. He stated “there are several tools I would like, but you wind up extracting the data to Excel. It is fascinating how the program is still relevant.” Although he did not touch on the greater shift in the digitization, he elaborated on how the digital implementation in recent decades have evolved slowly.

Digitalization has also proven to affect stakeholders. The accessibility to financial statements being widespread, allows governmental agencies, investors, and creditors to make informed decisions. The information online can seem endless, although for the better. “In general, we have better capacity to follow more companies with fewer employees”, states Institutional Investor 1. He elaborated on how he now can assess and go deeper into specific companies after assessing a thousand companies based on parameters used in valuation.



## 4.2 Opportunities

The findings presented in this chapter offer a comprehensive understanding of the key themes that the respondents recognized as opportunities that digitalization can offer. The systematic analysis of the qualitative data, supported by relevant quotes from the interview transcripts, aims to contribute to the upskilling process of accountants. The opportunities that are mentioned here are based on what the interviewees acknowledged as the most important opportunity the accounting industry may benefit from.

Accountant 1 interviewed for this study provided valuable insights into the opportunities presented by what he meant was imperative to take advantage of in the digitalization era:

*“Relinquish time spent on registration over to doing consultative work, meeting the client and illustrate that you have something additional to offer the client in terms of developing the firm, assessing business practices and offering advice. Communication has become very important for accountants, it always has been. The accountant should go deeper into selling and offer advice. See the possibilities for the firms and offer valuable insights.”* – Accountant 1

This statement acknowledges the need for other skills than pure business understanding. This quote is also supported by what the academic 1 we interviewed outlined. In undergoing a transformation into a more proactive role, he further talked about what daily procedures an accountant could gain an advantage from:

*“A lot of time and focus in the past has been spent on value preservation. Which is obviously very important, as you do need to make sure that the value you have is with you also in the future. So that’s an important point. But if you can spend less time on value preservation and more time on value creation. I think that is a big opportunity for accountants and controllers. I think that’s possible due to technology. Because they strike you in a sense as they enable you to save time on those value preservation tasks and give you more time for value creation.”* -Academic 1.

Both statements above correspond to each other. Auditor 1 also confirmed this by addressing how the digital tools can assess the data, leaving time for more contact with the client, and the possibility to offer “what the clients themselves did not know was available for them”.

Non-financial accounting is an emerging part of accounting. In addition to traditional accounting, the emerging theme consists of various reports that companies may need to disclose. Through these reports, stakeholders can understand the processes and assess a company in a more profound way. For instance, this may include reporting based on the Norwegian transparency act of 2022 and sustainability reports on environmental, societal and governance topics. Institutional Investor 1 highlighted the possibilities of AI, where he outlined:

*“A task where it’s well suited is related to ESG-analysis. Opposite of financial statements, these are very verbal. For instance, company x may produce 40 pages where they disclose the sustainability of the company, whereas we prefer smaller forms touching on the specific topic. You would like a summary, to check measures, which measures and gain insights on the topic.”* - Institutional Investor 1.

Such AI-tools can be helpful for more than just investors. For instance, a summary can simplify the key points that an accountant can extract from enormous amounts of data. This can help improve the efficiency of the consultative work and may be used as a reminder when working on several clients, to quickly assess the client’s situation and their needs.

On a higher level, the respondents all mentioned how advisory was becoming more important for an accountant. By applying advanced technology, accountants should spend the existing accounting work on controlling more than creating financial statements. The freed up time that stems from the digitalization will allow accountants to offer valuable knowledge and thereafter offer more to clients.

### 4.3 Barriers

The opportunities from digitalization are significant. The integration of transformative technology also presents several challenges and threats that must be addressed. The respondents all touched on some topics, whereas they diverged in other themes.

First, one of the primary barriers is the resistance from accounting professionals who are wary of the impact on their jobs and roles. Both Academic 1 and Auditor 1 mention how the hesitancy to change tends to be greater among a mature workforce. Academic 1 outlines how there might be several factors for this: *“The lack of knowledge, and the uncertainty of how*

*much investment is needed can help explain the situation*". The overall uncertainty can be seen as an obstacle, mentions Auditor 1, and continues to argue how those close to retirement may sell off to bigger, more forward-minded companies. *"It has become harder to turn old in the accounting world"*, said Auditor 1.

The availability of data might affect the ability to find the important information. Accounting firms may experience a sense of being overwhelmed by the amounts of data they have access to. It can be difficult to identify the relevant data. Without a clear strategy, systems and frameworks, accountants may face problems when extracting purposeful data. In addition, it will affect stakeholders and their possibility to investigate firms themselves. Institutional Investor 1 highlighted how the standardization and amount of data causes an obstacle for fund managers:

*"Regarding accounting standards, it's stressful when they change, but it is great that it's being standardized. Due to the number of systems and data, it can be difficult to understand the possibilities. Back in the days, there were fewer options, but more work. Now we experience many opportunities. That's what's needed to investigate possibilities, as it is much more effective when you can use them."* - Institutional Investor 1

Data storage has experienced a trend where it's mostly based on cloud solutions. In the wake of cloud computing, firms are exposed to greater cyberattacks. Like the auditor highlighted as a threat; it can be severe for a firm of any size:

*"Cyberattacks are the ones we have the least control over, and least experience on. But we know it's coming. But it has taken some time to realize just how risky it can be. We have several clients who have experienced a full stop, even on production."* - Auditor 1

Although this is not directly a barrier to proceed with the implementation of digital tools and taking part in the digital transformation, the theme highlights an important aspect to assess when developing the accountant of tomorrow. The list of barriers to be mentioned could extend severely, and respondents touched on other topics such as organizational structure being rigid, lack of time and expertise to assess possibilities from digitalization as well as changing customer needs. In summary, the transformation does not occur without affecting accounting firms. They will have to adjust to accommodate the future.

## 4.4 Future of accounting

The respondents were asked what the future of accounting may hold. Although the truth may be unknown, the main findings seek to unravel which direction the profession is headed in. The interviewees all mentioned the transformed role of the accountant into advisory, and the main findings are outlined below.

The role of the accountant itself is previously stated to be in a changing phase. Moving beyond bookkeeping and making financial statements, accountants are expected to possess strong data analytical skills and draw valuable conclusions from them. As stated previously, the respondents addressed the shift towards more advisory as employing new technology free up time. The shift in the job role can be complex:

*“It will require a change in the way you work. You’ll need to further develop the skills of the employees, and it will affect all the different employees who are working today. Most likely, some will have to turn around and do more advisory, analysis and sales. And this change will have to take place together with the firm. To be a good employee and offer more. This will be important for everyone working in the accounting industry.”* - Accountant 1

The statement above raised an interesting point that is worthy of the overall research question. It points out that employees need more skills development. Without further enhanced workers one may not be able to accommodate clients, as the expected work is apparently raised up a notch. Here’s what the academic further had to say on the future:

*“Studies done indicate the creation of the A team and the B team. The most talented in accounting will be moved to data analysis and data analytics. The second group will be more on the tabloid, the less ambitious, working with the few repetitive tasks remaining. Seen indications on that. Some organizations in the banking and insurance sector: There have been instances where banks and insurance companies have implemented much of the organization in one accounting department, which is becoming boring for accountants who want to develop and do more work. Interesting tendency, implement tech fast and relevant highly skilled workers may look at other possibilities.”* - Academic 1.

Subdividing teams within an organization can have both benefits and drawbacks. On the positive side, it can allow for more specialization and focused work, as smaller teams can be tailored to specific functions or projects. This can improve efficiency and productivity. Subdivided teams may also foster stronger interpersonal bonds and collaboration within each subgroup. Additionally, subdividing teams can make it more challenging to leverage diverse perspectives and skill sets across the organization. Smaller teams may lack the creative spark that can come from cross-functional collaboration. In summary, subdividing teams can be a useful organizational strategy, but managers must thoughtfully design team structures and processes to avoid the potential downsides and ensure strong collaboration across the entire workforce.

The auditor had an interesting perspective on the future. He highlighted how the trend and activities of the accountant can lead to a change in how one sees accounting. Given the more or less required additional skills supplemented by business understanding and industry knowledge, one respondent highlighted how they may primarily become the CFO for the client's firm:

*"I think the future will be exciting for them. Bigger clients, tighter connection with clients and less clients for every accountant as they will do more. In a sense, one becomes the accounting department for a firm. The additional services provided will be of a character that firms eventually will acknowledge they are not able to do themselves as they cannot attain the best workers. In a client's firm, they will have to do various tasks, and the professional environment is limited. [...]. Nor will they get inputs, views, discussion and feedback in the field to the same extent. So accountants will in a greater sense become "the accounting director". The accounting firms will become relatively larger". - Auditor 1.*

The statement outlines how the surroundings are changing as well. The profound change of expanding services and diversifying enables accounting firms to become comprehensive solution providers. Diversifying and expanding through the combination of developing internally while strategically working towards bigger markets can offer bigger opportunities. We might observe an overlap between internal and external accountants on what should be done in house, and what should be outsourced. Here, the statement above aligns with what Accountant 1 had to say on the upscale of accounting firms. He outlined how the change in the

new auditors act in Norway changed the dynamics of accounting by putting emphasis on the prior work done by accountants. He had a take on competency in a firm, illustrating the need for bigger departments as specialization continues to evolve:

*“Some of the development must be at all levels. There must be a cohesion between individuals and firms. I don’t think we’ll find an accountant who’s good in every aspect. Maybe we’ll have to tailor it down and find people who excel in a given field, then we’ll specialize more and find our areas to develop further.”* - Accountant 1.

The vast changes were observed to affect both financial and managerial accounting in a greater scale. Academic 1 elaborated on how he’s observed tendencies in firms with internal accounting departments taking measures to enhance their employees. Furthermore, he highlighted how traditional accounting may be viewed as too boring for the ambitious individuals who are pursuing personal development. He explained how they are subdividing the teams, allowing the more talented and forward leaning ones to move towards data analytics. The outlook indicates that there will be more specialization involved. This can be seen as positive as the overall accounting field is growing. The new learning does not only consist of skills related to technologies, it also calls for broader expertise as well as more in-depth focus.

## 4.5 Perspectives on Upskilling

The accounting profession is undergoing significant change. This is driven by advancements in technology, evolving client demands, and changing regulations. In this context, the importance of upskilling accountants has emerged into a central topic. Upskilling, the process of acquiring new skills and enhancing existing competencies, is crucial for accountants to stay relevant, competitive, and able to provide quality services to their clients and organizations. Perspectives on the value and approaches to upskilling accountants vary, but there was a consensus among the respondents that continuous learning and skill development are essential for accounting professionals to thrive in the future.

The academic outlined the perspective an overlying, exhaustively meaning we observed among the respondents:

*“This need for continuous learning and development. It’s a bit cliché, but I think it’s true that the change and development is much more fast paced today than what was*

*true 30-40 years ago. The need for continuous learning and development is super important for accountants, what is coming from the perspective of all highly educated.”*

- Academic 1.

The need for progress in the field is important. When interviewing the subject above, Accountant 1 further elaborated on how the topic of continuous learning has always been present, but experiencing how it has become more important now than when he entered the field in the 2000s. The link between can be explained where possessing business understanding is meant to be the fundamental base of which the accountant will build upon. Given the rapid changes in the environment, fostering new technologies was said to be a necessity when facing the future. The respondents were further asked on which role the different agents in accounting play during this shift. The dynamic interaction between employees and managers was said to play a vital part in upskilling accountants. Accountant 1 explained his views on the case:

*“I think managers need to take an active role and implement upskilling strategies that ensure flexibility for the employee [...]. The upskilling strategy needs to be rooted on a higher level, making it more complete than just offering courses and quality systems to the accountants. And yes, there are a lot of deadlines in the profession, especially during the first half with annual accounts. But developing skills should not be something that a firm executes during the second half of the year.”* - Accountant 1.

In this statement, the accountant identified that the continuous learning and quality systems that are present today, may not be applied to their fullest level. The balance between offering time and money on non-billable hours can be vague. Furthermore, it comes with uncertainty for the companies. There are several questions addressed that cannot be answered unless one can take a specific firm's situation into account. Will all changes be economically viable? Each firm acts according to their strategy, and they all won't change everything. When the interview with Institutional Investor 1 went in depth on AI and technology, here's what he had to say:

*“What often happens when you're in an early stage of new technologies, they are often stirred up and it's on everyone's tongues. People believe that things change quickly, and they might be disappointed when a lot of it is not applicable for use in business. It's more about slowly hurrying.”* - Institutional Investor 1.

The expression concerning upskilling and implementing new strategies indicated that they can be beneficial for businesses, but at the same time they should not be rushed. Overcoming resistance, testing it thoroughly and creating a way of work will require measures in a gradual approach.

The upskilling process is critical for empowering employees in the accounting industry. The commitment to do so will not prevail without activating both leaders and employees. Furthermore, the process faces many challenges that must be addressed in addition to the tailoring solutions that work for a specific firm.

## 4.6 Skills and upskilling initiatives

The process of upskilling accountants was found to be crucial to thrive in modern business. The perspectives gained in the previous chapter, claimed that upskilling related to digitalization will empower both the firms and the individual accountant. This subchapter is aimed to provide the path forward, converging the previous chapters aimed at answering the research question. Hence, this chapter is the most extensive. We sought to provide answers to and understand how the different upskilling initiatives work. How the different roles play together, and what could be improved. This will provide valuable insights for the way forward.

Employees may experience the transformation to be overwhelming and unclear. Improving transparency on upskilling initiatives in a firm can help alleviate concerns, build trust and empower the employees. By enhancing communication between the leader and the employee while setting goals, the path forward can be smoother for both parties. The compliance to changes and upskilling processes can be embraced more openly. Accountant 1 explained the subject as follows:

*I think it's very important that the management asks "where are you in 3, 5, 15 years? To create a clear plan through a development discussion with their employees. Even though you're striving for billable hours, they should dare to reserve time for conversations and discuss development for the upcoming years together with the employee. It's not enough to buy 30 courses and hand them a username and password. It has to be executed at an elevated level, assess goals and development whilst playing a supportive role. - Accountant 1.*



The statement highlights the need for a deeper interaction between the accountant and the management. To elevate the skillset and exploit the new knowledge one can better prepare the accountants for the future. This includes, but is not limited to practical application, collaborative work and consistent focus on effort. Moving on, the statement above aligns with what the auditor commented:

*They [management] are often focused on revenue, growth, and results. The management must guide the way through showing interest, request and follow up on the professional aspect of the individual. One should work on employee's development and gain knowledge to illustrate that we focus on quality. Then the results will come consequently. - Auditor 1.*

Both quotations placed an emphasis on the relationship between the accountant and the management; How the parties should work together. Auditor 1 further elaborated on how “management must lead by example”, and “set the standards in a firm”. This is connected to the company culture, and fostering a positive and forward-minded culture is important. One respondent (Accountant 1) said this will be important when implementing more quality systems and linking it to upskilling of digital tools, saying “those will be the winners of the future”.

The digital tools were said to be a great asset to complement the business understanding, said Academic 1. Moving beyond the hype of technology that has automated processes as robotic process automation. Dynamic dashboards are already implemented as an example of a digital tool that can improve efficiency for accountants, both internal and external. For instance, working with a large organization, one can quickly get lost in the numbers. “*The ability to know how and where to drill down*” is said to be an important skill of tomorrow, said Academic 1. By understanding the financial model of a firm and using the data and assessing the process can be simplified. This mainly regards managerial accounting when analyzing and creating the outline for the decision-making process through visualization. But in addition, the tools can be beneficial for financial report, by highlighting key points and enhance the advisory role through simplifying data analytical skills.

Accountant 2 independently elaborated on the same ability. He mentioned how the drill down ability was becoming vital both for both internal and external use. When discussing the dynamics of staying relevant the respondent said “to readjust to drill down modus. To control and dig into the details rather than doing pure traditional accounting”, and further linked this

to the opportunity linked through tools and competence to do reporting. Furthermore, when he responded to examples of leadership and his thoughts on the topic he added:

*“The managers I’ve worked for have always been clear. They’ve stated that if you come across anything with potential, bring it forward. [...]. My leaders have always let me be curious and explore the circumstances and technologies that arise.”* - Accountant 2

Individual freedom for employees to assess the environment and assess new possibilities can be beneficial. We observed that Accountant 2’s firm tended to let the workers explore and experiment on new solutions. When we discussed the upskilling initiatives with CFO 1, he elaborated on how he had experienced a mindset change for the younger generations in accounting. He observed that younger workers were exploring possibilities in a greater sense:

*“We observe that younger resources who start are less interested in reaching 500 punches a minute. They look towards possibilities to automate it. It’s like a change in mindset. It’s not easy to employ the tools, and you will need competency on information technology to implement it. Then you kind of need to wait until the person with the right knowledge comes in the accounting department to implement it. To maximize the possibilities of the system you will need the competency.”* - CFO 1

The statement above signals the need for competency in the accounting business. The respondent further discussed the concerns of the topic. The urge to continue the development had led him to hire a skilled worker on information technology in the previous organization he worked for. According to CFO 1, this was done to enhance the processes of programming, implementing robotic process automation and organize the possibilities. This was targeted to help the upskilling process of the accountants, as “if you’re completely blank on the topic it is hard to understand the opportunities”, said CFO 1.

The timeframe for upskilling should be a flexible approach, according to Accountant 1 and 2. It should consist of processes that could occur at work and at home, with emphasis on the first one. Accountant 2 further expressed his eagerness for digital effectivization, leading him to experiment on what could work and what did not work.

There will be varying interest for new technologies and their implementation, but the methods to upskill accountants relied on possessing a supporting team that can be asked questions.

Accountant 2 further elaborated on this, using the example of automating the invoice processing:

*“You will always meet some hesitancy. It can be new and scary. My experience was that the other employees were interested when we introduced the benefits of the new system and the solutions it could offer.”*

The system itself was embraced by the employees. By illustrating how it worked and showing the benefits of it, the reluctance vanished. The respondent further made an example of how the efficiency improve, saying *“processing time have gone from 3 minutes to 30 seconds”*. This allowed workers in the organization to focus on the core business. Implementing new tools requires competence to make it applicable. The process of switching from one system to another can be an exhausting and prolonged process. The respondent further elaborated on how they managed to implement it and reap the benefits:

*“A readjustment process demands both user training and the individual. We run clear introductory phases and information out in the firm to allow for a smoother integration. We tell them to rather ask 117 questions too many, than one too few. We appreciate those who dig in and questions what we’ve built”* - Accountant 2

The initiatives can take various forms, ranging from training programs, online platforms and quality systems, mentorships, and certifications. The understanding is that the dynamic relationship between a leader and an accountant employee is said to require proactive roles for both parties. Together through communication, they should focus on setting defined measures to ensure that the upskilling process is useful. The skills cannot be developed without correctly communicating, assessing, and setting goals. In addition, the motivation for change can vary. Some upskilling processes were to be required by all, whereas those with inner motivation should be unleashed and create individual plans for the given employee.

## 5 Discussion

This chapter examines the key results from the Findings chapter. We will analyze how the results align or diverge from existing literature presented divided into three parts to answer our research question “How can business leaders effectively upskill and reskill their accounting professionals to ensure successful digital transformation of the accounting function?”

### 5.1 Experiences on Changes from Digitalization

Overall, technology has been claimed to be the main component of digitalization (Krauss et al., 2021). The implementation of technology in accounting has become prevalent in recent decades, and accounting firms will rely on employers to utilize digital tools to add more value to the firm and clients (Zhu, 2022).

Several respondents elaborated on how their professional roles had observed major enhancements. The respondents described the transition from processing physical papers to robot processed automation of invoices reduced the time consumption from many of the routine tasks. This was said to free up time for accountants to focus on other core parts of the work and allow accountants to take on more work.

Financial reporting is said to be of non-value-added activities by nature (Langmann & Turi, 2021). By altering the perspectives of the accounting function towards value generation, the accountant can illustrate that they can offer more through analyses and consulting. Our respondents mentioned how this was made possible through digital technologies. The findings suggest that digitalization this far has improved the overall workday for the accountant. By eliminating repetitive tasks, the accountant shifts the focus towards data visualization, business intelligence and recommendations for process improvements. In other words, the accountant can offer more value. The research aligns with Langmann and Turi (2021) and is relevant both for internal accountants as well as external accountants who are reporting financial statements for other clients.

The experiences reported from our respondents align with Krauss et al. (2021) stating that digitalization is not necessarily a barrier, but can also be deemed as an opportunity. This is an important reason for why digitalization has persisted as a driving force in the evolution of

accounting. The theory of what has worked so far, and what methods should be considered for future upskilling and reskilling, are further addressed in the next subchapters.

## 5.2 Areas of Potential and Barriers

There are many opportunities and advantages to be gained from the adoption of new digital technologies and their associated skillsets. Our research finds that accountants should be familiar and knowledgeable in the application of relevant technologies in order to adapt and become more valuable with the changes associated with digitalization in the field. However, these undefined advantages of digitalization do not come without challenges.

In the digital era, the accountant's focus has changed. To identify how accountants should be upskilled, an assessment is required of the accounting fields of opportunities and threats. Our research states that there is a shift from value preservation to value creation in accounting. The opportunities that value creation bring was said to stem from the relinquished focus on the postings within a general ledger, instead to retain the knowledge and processes and further enhance the capabilities of the accountant. The data we obtained aligns with academic consensus in the field. Given that it can be done in a feasible manner, clients may experience additional value from their accountant (Drury, 2021; Zhu, 2022). Not only will it extend the markets for an accountant, the knowledge and experience of an accountant will be used in a greater way. This may include a shift in workload from other consultants and internal strategic positions. Through digital solutions one must broaden the scope of revenue to cover up expensive fees (Ghorbani, 2019). Here, the marginal costs of creating additional value for the client will be low as they possess the data, relevant KPIs and industry knowledge applicable to the given client (Ernst et al., 2018). Our data aligns with the statement of Ernst et al., but further confirms the connection of how this should be an active goal for accounting firms.

Academic research has found that the access to real time data creates a new way of forecasting. By assessing the financial situation in real time, it's possible to shift from forecasting to nowcasting (Knudsen, 2020). Our research suggests that this was true for the case where one respondent elaborated on how this had been a game changer for the industry as an auditor. The client himself and the accountant had access to data about the financial situation, and the auditor himself could access the information immediately. Moving back to the accountant, the ability for nowcasting could be seen as a great tool for consulting, giving advice and keeping control

over the clients. This will further develop the accountant's role for the future. Moreover, the improvements observed in our data highlights how this has had a remarkable impact on stakeholders. They can now access more information that are more up to date, and the digital technologies opens for more data interpretation on fewer investors.

According to our research, the lack of knowledge in the field, combined with surrounding uncertainty was said to be a major obstacle in the digitalization process. The phenomenon and all the possibilities available might explain the difficulty of assessing what to implement and what should be avoided. Academic papers have previously highlighted how the competency on digitalization for Norwegian accounting firms was rather scarce, and how many firms face issues already in the implementation stage (Duong & Fledsberg, 2019). The problem quickly arises when allocating funding and time management. Moreover, the reluctance to change, especially by elderly accountants, may refrain a firm from exploring and implementing new technologies (Knudsen, 2021).

The research highlighted another central topic surrounding digitalization. In the wake of digital solutions and cloud computing, cyberattacks pose a severe threat to overall operations. This was reported to affect many in the business world, where the attacks could be targeted at a client or directly on an accounting firm. The findings correspond to the existing literature, where Mujiono (2021) highlights cybersecurity, as well as Knudsen (2020) and Payne (2014) stressing the need for robust cybersecurity measures. As more processes are prosecuted with digital tools, it can halt firms in a way where there will be no possibility to proceed working until the attacks are resolved. The example in our findings chapter where a client's production was completely halted illustrates this severity. Nonetheless, for any accounting firm the benefits of these solutions have significantly enhanced daily operations, but simultaneously increasing the risks involved.

### 5.3 The Future of the Accountant

The accounting environment is undergoing significant transformation as a result of digitalization. Our research highlights how this not only has been ongoing, but the pace of changes has accelerated. This statement goes along with the need for deeper integration of digital technologies and more advanced understanding of these (Bruer & Knetsch, 2023). As

we have unraveled the reasoning behind the phenomenon, we seek to understand how the accounting industry will handle this transition.

The advisory role is becoming more relevant for the accountant. It will consist of more controlling and deeper connections to the individual client. Although the research initially did not cover this theme, it arises as a central topic when discussing the future of accounting. Research outlines how this can fill a “critical role” in the future, providing services in a “variety of strategic and technology-related issues” (Yigitbasioglu et al., 2023).

The respondents from our study provided insights into how they envisioned the future of accounting. One participant noted how “It will require a change in the way you work”, and elaborated on how he envisioned that the accounting role will consist of more consulting and analyses while presenting additional sales offers with higher value to the clients. His statement further connect with other respondents who highlighted the potential of this area. Furthermore, two of the respondents independently stated how clients will observe that they cannot execute all the work an accountant may offer, given that accountants leverage the possibilities. This aligns with the literature suggesting that new innovations in digitalization will improve the accounting field, both in reporting relevance and in quality (Al-Htaybat et al., 2017; Gulin et al., 2019).

Another important aspect of the upcoming scenario that arose throughout the analysis outlines how the accountant make take the form of a chief financial officer for their client. From a client’s perspective you will mainly have the same accountant(s) to interact with, depending on size. Our findings suggested that accountants would gain a deeper connection with their clients, have control over their accounts and represent the economic division of the firm.

Embracing the future of accounting requires more skill sets than before. Our respondents highlighted how the development of skills should be an everlasting process. In addition, it suggests how they should be integrated as a part of the job. The need for continuous learning is seen as a key factor in the upskilling process (Lomineishvili, 2021). Several respondents called for introducing development that exceeds the legal requirements on the accounting practices in a manner that secures flexibility and possibilities beyond the reporting is what’s wanted in the future. To be able to maintain proficiency in accounting while acquiring new skills is said to bring success (Atluri et al., 2024).

Several respondents highlighted the need for a more dynamic and interactive relationship between accountants and managers, including both accountants interviewed. They outline the requirement for constructing clear plans of evaluation criteria and competencies that should be upskilled from one period to the next. As previously quoted “*Even when you’re striving for billable hours, they should dare to reserve time for conversations and discuss development for the upcoming years with the employee*”. This aligns with the recommendations actively working on becoming efficient with the digital tools to experience the benefits they bring (Ernst et al., 2018). Hence, one must work in a more comprehensive manner where you broaden the scope and reshape the way of thinking to strive for pre-set goals and determinations beyond what the market expects. In addition, it should be a goal itself to foster and reinforce a corporate culture of feedback and continuous assessments with both short- and long-term goals.

Our findings suggested that the upskilling approach should be a flexible approach. Regarding the process of upskilling and continuous learning, there should be a conceivable way to let the work in form of regular billable hours take place alongside the upskilling process. To allocate time for both measures and reciprocate the processes will steadily escalate the knowledge, know-hows and overall understanding. This corresponds with our preliminary literature review (Zhu, 2022).

We observed a generational change in mindset among accountants. Younger, more aspirational employees were said to seek deeper into learning how processes occur and how they eventually could become more efficient. As explained by CFO 1, they shift the focus from doing the tasks quicker to aim for a simplified way to work. Furthermore, he addressed how the competency is overall lacking with respect to information technology and even more difficult to implement. The findings were not explored directly in our preliminary research, but it highlights another aspect of the changes in the accounting world. However, the statement outlines the urgent need for having at least someone with ability to comprehend the possibilities that are available. Nonetheless, it aligns with the article from Bjørnebye and Ribe (2023) stating that half of the senior managers are planning to hire specialists in the field to evaluate implementation of new technologies.

Introductory we outlined how experimental pedagogy is central to the upskilling process of accountants. As mentioned in chapter 2, there is no formal education that is suitable for covering the aspects needed regarding digitalization; nor can you replace the business



education in accounting education. Acquiring knowledge in digitalization could tighten the gap between business understanding and proficiency of digital technology. Accountant 2 highlighted how he prefers his managers to act on the field; should be allowed to explore and be curious on new systems and technologies that could bring potential to the firm. Furthermore, he could explore alongside of his job and carry information of interest up in the organization. This outlines the complexity of gaining knowledge in the field, where you must actively strive to attain information and take action..

The level of upskilling with respect to digitalization did not need to be equal among all accountants. The personal development process could be further enhanced for those interested in the field. Throughout our interviews we observed how one respondent, Academic 1 observed a trend where you almost divide the workers into two groups. This consisted of letting the eager, more ambitious ones explore and attain more knowledge in the digitalization field and let those who may not be that interested focus on the core business operations. Furthermore, Accountant 1 outlined how he perceived the upskilling processes to be. He stated how some development must be relevant for all, but specialization and individual fields can cause individual employees to diverge in their field and their focused areas of development.

Our data suggests that there should be some leverage for exploration combined with structured development to lead the upskilling process. With respect to experimental pedagogy, our research aligns with prior research that claims that knowledge stems from experiences, either through simulations or real-life scenarios (Kolb, 1984; Gentry, 1990). Accountant 2 emphasized how his interest in digitalization led him to explore the opportunities for his employer. The process was said to consist of many attempts and failures. Hence, there is no pre-existing procedure for implementing relevant systems and technologies. By combining learning and actively searching for new thinking, could result in a new mindset consisting of a dynamic role can help the firm to create a competitive advantage (Giniuniene & Jurksiene, 2015).

One example presented by our respondent, Accountant 2, highlighted how the implementation of new systems were proven to be more accepted if they introduced the changes through an introductory phase whilst illustrating the benefits of the new invoice processing system. He, as a more advanced accountant with an interest in digitalization, elaborated on how they were teaching and illustrating the benefits and eventually reluctance. In one way, this could be

deemed a necessity to overcome hesitancy among accountants in the digitalization processes (Knudsen, 2021).

The evolution of accounting is set to be profoundly influenced by the integration of advanced digital technologies. As firms adopt these technologies, they are not merely expanding their operational capacities but are also poised to take on more strategic roles, encompassing both control functions and advisory services. This shift is likely to open up new revenue streams and potentially attract a broader clientele, despite the higher initial costs associated with implementing cutting-edge digital solutions.

The journey toward full digital integration, however, presents its own set of challenges. The processes for adopting and adapting to new technological paradigms are often not clearly defined, requiring organizations to navigate through uncharted territories. This demands a proactive approach to organizational change management, ensuring that firms are not only prepared to face these uncertainties but are also equipped to leverage new opportunities as they arise.

Furthermore, our research underscores a critical issue: the need for significant upskilling of the accounting workforce. As the field becomes more technologically driven, the skillset required of accountants will evolve. Traditional accounting skills must be complemented with digital literacy, data analytics capabilities, and an understanding of emerging technologies such as blockchain and artificial intelligence. This upskilling is essential not only for individual career advancement but also for the broader competitiveness and effectiveness of the accounting profession in a digital age. This strategic approach to professional development will ensure that accountants remain indispensable in the evolving landscape, capable of steering their firms through the complexities of the digital era.

## 6 Conclusion

The study aimed to explore the impact of digitalization on the accounting sector and how accountants can effectively be upskilled to adapt to these changes. By examining how technological advancements alter the role of the accountant, new insights were obtained to illuminate the outlook for Norwegian accountants.

There have been great changes both during the initial digitization, as well as during the digitalization era. The role of the accountant has shifted from traditional bookkeeping and organizing data to a more profound role consisting of strategic management, consulting and nowcasting. The skillset of an accountant is stated to be growing significantly, adding an emphasis not only on implementation of analytical tools, but also with respect to communication, collaboration, and critical thinking.

Theoretically, these findings are aimed to supplement the existing literature. The research question sought to tighten the gap between accounting and its newer profound role consisting of more duties and tasks than before. By implementing clear goals and plans for the upskilling process of the individual accountant through specialized plans, the accountant is one step closer to tightening the gap. However, the willingness to learn and the inner motivation between accountants may vary. Some upskilling processes must be executed for all, such as learning to use digital tools for analytics purposes, data visualization and consultative work. Regardless, not everyone will be required to be as proficient within information technology and digitalized tools. By letting the curious and aspiring talents roam freely and test new solutions, increased productivity is expected in the long run.

This method will be a result of knowledge gained from experiences, know-how and education. Therefore, implementing courses may not be sufficient. The research suggests that there should be a flexible approach to the upskilling process. To supply formal courses with hands-on experiences and creating teams that have different backgrounds can be proven beneficial for an accounting firm.

Looking at the trends and outlook gained from the research, we claim that there are many ways to acquire the skills needed. However, the results imply the need for thoroughly planning the upskilling processes on a personal level. From there on, it's possible to encourage

specialization among accountants and create teams that explore and exchange information on new possibilities and opportunities.

Although the research is insightful, it is limited by a small sample as well as a geographic constraint. The findings may not be generalizable across countries. Additionally, the cross-sectional study provides data at a snapshot in time. Given the nature of the rapid digitalization, we expect that the changes come quickly and greater research stretching over time could bring a more comprehensive understanding of the changes in the accounting profession.

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## 8 Appendix 1: Declaration on the Use of AI Tools

Name and version of the AI tools:.

- OpenAI. (2023). ChatGPT (Mar 14 version) [Large language model]. <https://chat.openai.com/chat>
- PerplexityAI. (2023). *Perplexity* [Large language model]. <https://www.perplexity.ai>

Purpose of using the tools:

Research suggestions, idea generation, suggestions for sentence formulation, and optimization.

We are aware that we are responsible for all content of this master's thesis, including the parts where AI tools are used. We are responsible for ensuring that the thesis complies with ethical rules for privacy and publication.

## 9 Appendix 2: Interview Guide

### Introduction (2-5 minutes)

#### 1. Welcome and Introduction

- Briefly introduce yourself, the purpose of the study, and how the participant's input will contribute.

#### 2. Informed Consent

- Explain confidentiality, data usage, and obtain verbal/written consent.

#### 3. Background Information

- Can you briefly describe your professional background and current role within your organization?
- How long have you been in the accounting profession, and in what capacities have you worked?

### Digital Transformation in Accounting (10-15 minutes)

#### 1. Experience with Digitalization

- Can you describe how digital transformation has impacted your role and the accounting profession at large?
- What digital tools and technologies are you currently using, and how have they changed your work processes?
- Has any digitalization affected the relationship with the clients, and eventually how? More/ less contact, physical meetings, emails, phones etc.
- Which parts of the job have been the most affected by digitalization?

#### 2. Skills and Upskilling Initiatives

- What new skills have you and your team members had to learn as a result of digitalization in accounting?
- Can you share any experiences with upskilling initiatives within your organization? What was effective or ineffective about these initiatives?

### Challenges and Opportunities (10-15 minutes)

#### 1. Barriers to Digital Transformation

- What are the main challenges you or your organization have faced in adapting to digital changes in accounting?
- How have these challenges been addressed, and what gaps do you still see?

#### 2. Opportunities from Digitalization

- From your perspective, what are the most significant opportunities digitalization offers the accounting profession?
- How can accounting professionals better prepare to leverage these opportunities?

### Perspectives on Upskilling (10-15 minutes)

### 1. Learning and Development

- In your view, what are the essential skills for accounting professionals in the digital age?
- How should accounting professionals approach continuous learning and development to stay relevant?

### 2. Role of Leadership in Upskilling

- What role do you believe business leaders and management should play in the upskilling of accounting professionals?
- Can you provide examples of effective leadership strategies or initiatives aimed at fostering digital skills development?

## Future of Accounting (7-10 minutes)

### 1. Digitalization and the Future

- How do you envision the future of the accounting profession in light of ongoing digital transformations?

## Closing (5 minutes)

### 1. Final Thoughts

- Is there anything else you would like to share about your experiences or insights related to digitalization and upskilling in accounting?

### 2. Thank You and Next Steps

- Thank them for their participation, outline the next steps (e.g., follow-up, when findings might be shared), and provide contact information for any further questions or comments.

## Additional Notes:

- **Flexibility:** While it's important to cover all the areas outlined in the guide, remain flexible to follow interesting leads or topics that the interviewee might introduce.
- **Probing:** Prepare to ask follow-up questions or probe deeper based on the responses received to gain richer insights.
- **Confidentiality:** Reassure participants about the confidentiality of their responses and the anonymization of data in any reports or publications.