

MASTER'S THESIS

Course code: BE304E

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Toward a Digitalized Internal Audit: Case Study of Helse Nord

Date: 23/05/2023

Total number of pages: 65

Acknowledgements

I want to express my heartfelt gratitude to all those who have contributed to the successful completion of my master's thesis. This journey has been challenging yet fulfilling, and I am grateful for the support and guidance I have received.

First and foremost, I would like to extend my most profound appreciation to Professor Anatoli Bourmistrov and my supervisor Oliver Henk for their invaluable guidance and mentorship throughout this research endeavour. Their expertise, patience, and encouragement have been instrumental in shaping the direction of my work and pushing me to strive for excellence. I would also like to thank the faculty and staff of Nord Universitet and the Business School for providing me with a conducive academic environment and access to resources that were crucial for accomplishing my research. Their commitment to education and research has been a constant source of inspiration.

I am grateful to my family and friends for their unwavering support and understanding during this demanding phase of my academic journey. Their love, encouragement, and belief in my abilities motivated me to persevere and overcome challenges. I am indebted to the participants of my study, whose willingness to share their experiences and insights has enriched my research. Their contributions have been invaluable in shaping the outcomes of this study.

Lastly, I would like to express my gratitude to all the authors and researchers whose work has formed the foundation of my study. Their contributions have been vital in shaping my research's theoretical framework and methodology.

In conclusion, I am immensely grateful to everyone who has played a role, big or small, in completing my master's thesis. Your support, guidance, and encouragement have made this endeavour a reality. Thank you all for participating in this significant milestone in my academic journey.

Adebiyi Adedayo Ademola

Abstract

Purpose

For this thesis, I wanted to study how digitalization and information technology have evolved the practices in internal auditing by focusing on the level of digital transformation in the IAF and the needed skills of the internal audit department to meet organizational expectations. I find this particularly interesting because the digital transformation of business processes has profoundly impacted internal auditing, necessitating a shift towards digitalization within the internal audit function, especially regarding the required skills.

Methodology

With the research topics in mind, this study's methodology is a qualitative case study that focuses on Helse Nord RHF. Given the exploratory and descriptive nature of the research, the study employed semi-structured interviews conducted with the internal auditors at Helse Nord RHF. The interview guide includes descriptive questions linked to the theory to get the desired results with detailed explanations. To examine how the work processes of the internal audit have evolved in the digitalized era, I have adopted the theoretical lens of “institutional work”, focusing on the different dimensions of agency and how they lead to institutional work.

Findings

The findings from my thesis reveal the various digital tools and technologies that the IAF is leveraging to enhance audit processes. Furthermore, the implications of digitalization for the IAF reveal that actors possess a level of self-consciousness in their actions which is seen through the different dimensions of agency. The research also reveals that predominantly the IAF engage and the institutional work of “maintaining institutions”, and finally, the study reveals that the skills required by internal auditors are shifting from accounting and auditing to more IT savvy.

Limitations

This research is conducted on a single internal audit department - Helse Nord RHF and gathers the opinions of stakeholders of the internal audit team. Instead, future research can focus on other organizations in a different legal context or even a comparative study of several internal audit departments.

Keywords: Digitalization, Information Technology, Data analytics, Internal audit, Institutional work.

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Chapter 1

1.1 Background and Motivation

Digital technology is becoming increasingly essential for business operations, and has transformed the dynamics of business interactions. (Tarek et al., 2017). As a result, organisations continuously have to evolve with the widespread and fast-paced developments in IT through the automation of their accounting information systems (AIS) to maintain a competitive advantage in their respective industry (Tarek et al., 2017).

According to Moorthy et al. (2011), internal audits are intended to assess how well internal controls are functioning by first gathering information about how a unit runs, identifying potential spots for errors or inefficiencies, and identifying system controls intended to stop or detect such occurrences. Tarek et al. (2017) further noted that most accounting procedures are performed using a computer and accounting software. As a result, accounting software and technology have become increasingly sophisticated and technological advancements significantly impact the accounting and auditing profession, and this has, in turn, made a significant impact on how businesses operate all around the world (Tarek et al., 2017).

Therefore, in the age of technology, accountants and auditors cannot rely solely on data obtained from traditional papers to provide them with the proof they need to help them make the right decision on financial accounts (Enofe et al., 2012; Tarek et al., 2017). To be effective, auditors must understand the business objectives of the organization, use computers, automated systems, and data as auditing tools, and know the environment in which the systems function (Moorthy et al., 2011).

Betti and Sarens (2021) also noted that internal audit departments are gradually implementing new technology like data analytics tools, and digital skills are seen as a crucial advantage. There are more novel and emerging risks for organizations to handle because of the technological shift in the business environment, which also changes the landscape of organisational risk (Beasley et al., 2006).

According to Cangemi (2015), the CBOK 2015 Global Internal Audit Practitioner Survey sheds new light on the technological capabilities that internal auditors have attained and how internal audit uses technology. The results indicate that although the internal audit function is increasingly using technology in the audit process, there is still space for improvement. For instance, survey participants' use of software tools for data mining increased by 14% between

2006 and 2015 and 4 out of 10 chief audit executives (CAEs) globally believe that their departments' use of technology is adequate, and this signals an opportunity for growth (Cangemi, 2015).

One of my motivations to study the impact of digitalization on the Internal Audit function stems from the fact that, with the rapid advancement in digital technology, the IAF now have a wide range of tools and resources like data analytics tools, continuous audit and CAATS – Computer Assisted Audit Tools and Techniques that aids the effective performance of their function, but previous studies have mainly focused on investigating the effects of digitalization and IT in the field of external audit and how external auditors use information technology and data analytics (Appelbaum et al., 2017; Betti & Sarens, 2021; Canning et al., 2018; Dowling & Leech, 2014; Perols et al., 2017). The research by Betti and Sarens (2021) further notes that an area that needs more research is how digitalization affects internal audit functions and procedures and why digitalization has not gotten to the required level of adoption in the internal audit process of organizations. The role of external auditors is mainly as consultants, and they are not directly part of the organisation, but internal auditors, on the other hand, represent a very important function within the organisation and according to Betti and Sarens (2021), there are concerns regarding the IAF's function in this evolving environment given the increasing expansion of information technology.

In my thesis, I will use the words “IT”- Information Technology and Digitalisation interchangeably. According to the research by Betti and Sarens (2021), some themes were identified regarding how information technology has impacted the internal audit function. First, they identified how the environment's digitalization had affected the IAF and explained how the IAF's working methods have changed in the context of the environment's digitalization.

The organizations' environment is more dynamic and changing quickly because of digitalization. (Betti & Sarens, 2021; Schoemaker et al., 2018). According to PWC (2018), Organizations from various industries are embracing innovation made possible by new technology, and when new technologies emerge, the organizations' risk profiles changes. According to Betti and Sarens (2021), internal audit planning and risk priorities are impacted by the new risks presented by the developments in digitalization and information technology. The findings from the research by Betti and Sarens (2021) help us understand particularly how these changes affect the IAF and highlight the rising impact of the digitization of the business environment. Betti and Sarens (2021) iterate that the IAF must alter the way they work when new technologies are employed and when business processes are becoming increasingly digital

in order to audit these new risks. A company's exposure to IT risks increases because of its increased reliance on IT systems (Betti & Sarens, 2021). These risks might emerge from inside the organization in the form of mechanical IT system breakdowns and outside the organization in the form of cyber-attacks, which have become a severe problem. (Betti & Sarens, 2021).

In the research by Betti and Sarens (2021), it is highlighted that the digital technologies used in internal audit departments and the knowledge and skills of internal auditors make up the two primary categories of working methods. Their findings reveal that data analytics is the primary technology used by the IAF to digitalize its working procedures because it is a tool that has several benefits; analytical accuracy is improved using data analytics. Reports become reliable and more substantive when tests can be performed on entire data sets rather than just samples (Betti & Sarens, 2021).

Digital technologies give internal auditors the opportunity to add more value to their organization because they allow for a wider and more accurate scope of analysis during internal audit activities and, as a result, can present the precise situation and increases the value of the audit report to the organization (Betti & Sarens, 2021).

My thesis aims to shed more light on how digitalization and information technology have evolved the practices in the field of internal auditing by focusing on the level of digital transformation in the IAF and the needed skills of the members of the internal audit department to meet organizational expectations and to add to the body of academic knowledge of understanding the benefits of the adoption of digitalization on the internal audit function. Therefore, my research question is:

“How have the work processes of internal auditor(s) at Helse Nord changed in the era of digitalization?”

To be able to answer this research question, I will answer these sub-questions:

- i. Who is the main actor(s) responsible for the change(s)?
- ii. What specific digital tools and technologies have been adopted by Internal Audit Functions, and how have they impacted their work processes?
- iii. How has digitalization impacted the skills and competencies required of internal auditors?

My thesis is therefore organised as follows. The following chapter includes the literature review, which examines papers on digital technology and internal audit and the importance of

digital technology in internal audit. This is followed by a theoretical review and framework chapter, which explains the foundation from which the result of this study is drawn. The next chapter is the methodology, which explains the philosophy behind my research and explains the research design I have adopted, and the procedures in which I have used in carrying out the research. This is followed by an empirical findings chapter that reveals all the results from the research process. This is also followed by the discussion chapter, where I have matched my findings and the results from the research process and discussed them in relation to the theoretical framework. The conclusion chapter includes the salient points from the research process and the new knowledge from the research process. Finally, the future research chapter suggests new areas that are interesting for further research.

Chapter 2

2.1 Literature Review

2.2 Digital Technology and Internal Audits

Beasley et al. (2006) affirmed that digitalization has been taking over the business environment as there is a continuous innovation of technologies in the market which is fundamental to the lives of businesses. This was emphasized in the study of Zaghoul (2020), which affirmed that all sectors across the world are experiencing technological and economic reforms, and this has effects on their mode of operation and functions (Akinleye & Olanipekun, 2019). Digital technology brings about changes in the methods of doing business which has initiated adaptation in many organizations (Verhoef et al., 2021). The report by PWC (2018) revealed that many organizations around the world are embracing the integration of digital technologies in their operation, which has a significant effect on the business. The study of McKinsey (2016) and Ardolino et al. (2018) revealed that the integration of information technology in business enhances the standardization process of the business as well as the competitive advantage of the business.

Abdulai et al. (2021) revealed that many businesses are failing due to poor financial reporting, and this can be associated with ineffective digital transformation that could cause poor internal control and delay in producing financial reports. Internal auditing has been found to be optimal in contributing to the improvement of financial reporting quality by reducing errors in reporting and increase of the confidence of the stakeholders (Eulerich & Eulerich, 2020; Owino & Musuva, 2021). Owino and Musuva (2021) further stated that by adopting digital technology, internal auditing has the potential of improved efficiency. Meanwhile, digital technology was defined by Zaghoul (2020) as the several resources and tools that are used in shaping, managing, storing, and distributing information. In internal auditing, Ritter and Pedersen (2020) explained that digital technology includes the use of innovative and intelligent technologies like data analytics, big data, Computer Assisted Audit Tools and Techniques (CAATs), continuous auditing and artificial intelligence for a transformation that engenders collaboration in the organizations for more productivities. Internal auditors are being encouraged to understand the application and use of information technology in auditing techniques for the performance of their roles (IAF, 2021). This is most important because the internal audit has a fundamental role in an organization in terms of providing internal control through its consulting and assurance activities in having the desired values for the improvement of the organization (Prakoso & Khudri, 2022).

There is, therefore, a necessity to have the required competencies in the use of information technology for the performance and planning of internal auditing activities through the application of knowledge of computer techniques and tools to support the analytics process (IAF, 2021). In emphasizing its importance, digital technology was asserted by Zaghoul (2020) to help in minimizing the errors that could arise through human factors in auditing activities. To facilitate the adoption of information technology, the management level of an organization is to provide adequate support to the internal auditing department through training on the use of information technology and other audit software which has a direct impact on the auditing process of the organization (Alkebsi & Aziz, 2017; Muneer et al., 1819). Kotb et al. (2014) also stated that there is a growing demand for auditors to have the necessary knowledge of information technology to increase the level of effectiveness and efficacy of the process of internal auditing.

Meanwhile, another digital technology that is finding relevance in internal auditing is continuous auditing, and Kahyaoğlu et al. (2020) ascertained that organizations now make use of new skills and techniques in facilitating technology-based audits where the use of continuous auditing is an example that is applicable in audit automation. Continuous auditing was defined by Kahyaoğlu et al. (2020) as a situation where there is an application of high-frequency data continuously through an automated procedure rather than a once-in-a-year audit activity. In this, there is a collection and evaluation of evidence in detecting the effectiveness and output of an accounting system that is done in real-time for the protection of the assets of the organization, the production of reliable financial information, and ensuring the integrity of the data (Prakoso & Khudri, 2022). Vasarhelyi et al. (2015) expressed that continuous auditing can be applied to audit fieldwork, audit planning, audit reporting and the process of follow-up. This would give the internal auditors the opportunity of carrying out a risk assessment and control in a relatively short period after the occurrence of an event (Prakoso & Khudri, 2022). Vasarhelyi et al. (2015) asserted that continuous auditing can be implemented with the use of Embedded Audit Module (EAM) and within the theoretical framework of Technology Organization-Environment (TOE).

2.3 Importance of Digital Technology in Internal Auditing

There have been some studies conducted on the importance of adopting digital technology in internal auditing procedures. Rosli et al. (2012) asserted that with the use of the CAATs, there is a positive contribution to the auditing procedure of an organization in the context of their

technology, organization, individual and environment. Ahmi et al. (2014) affirmed that the CAATs assist the auditors in engaging various auditing tasks through digital technology resources in detecting misstatements and irregularities that are in the financial report of an organization. The study by Moorthy et al. (2011) also discovered that the use of CAATs enhances the effectiveness of internal auditing of an organization. Al-Mansi and Amany (2015) in their study also revealed that the use of information communication tools and resources like expert systems, databases, and software in internal auditing enhances the employee's performance in the organization. The authors further expressed that some other information technology tools and resources that can be used for internal auditing include spreadsheets, text processing and graphics (Al-Mansi & Amany, 2015). The study by Kacanski (2016) found that the application of technology in auditing procedures enhances the design and sequencing of the objectives of the process. To corroborate these findings by Kacanski (2016), Thottoli et al. (2022) discovered that the application of information technology in the auditing process facilitates the capacity of the auditing tools to expedite the activities of the auditors. In line with these studies on the importance of digital technology in internal auditing, Eulerich et al. (2022) further stated that with technologies like computer-aided information systems, lead auditors would have the chance to focus on a more special tasks while the junior auditors can use the detailed information provided by the digital technology tools in taking up basic activities of the internal auditing procedure. However, in these previous studies, there was no consideration for how the procedures and processes have evolved as a result of the adoption of information technology. Not only is this study considering the gaps left by the previous studies, but it also engages the approach of a case study company (Helse Nord) for the research.

Ahmi et al. (2014) conducted a conceptual study of the adoption of digital technology by internal auditors in the public sector. The study discovered that the factors affecting the adoption of information technology by internal auditors are technological, organizational, and environmental factors.

Also, Shamsuddin et al. (2015), in examining the factors that influence the utilization of CAATs by internal auditors, adopted the survey research approach and applied descriptive analysis to the primary data obtained from internal auditors of 108 organizations in Malaysia. The result revealed that effort expectancy is the most important factor influencing the adoption of CAATs in the internal audit process.

To build on the study of Ahmi et al. (2014), Mansour (2016) examined the factors that affect the adoption of CAATs in the audit process. The study was based on the Unified Theory of Acceptance and Use of Technology (UTAUT). It revealed that the performance expectancy and

the enabling condition of the organization are the major factors influencing the adoption. Contrary to the qualitative approach of Ahmi et al. (2014), the study of Mansour (2016) was based on the same theoretical framework of Shamsuddin et al. (2015), but the result as regards the most important factor influencing the adoption of information technology in internal auditing was different. This study, however, builds on the findings of both studies and aims to determine how the work processes of the IAF have evolved in the digital era and the factors that influence the adoption of digital technology for the internal audit of Helse Nord using the institutional theory.

Pedrosa et al. (2020) conducted a study on the assessment of the determinants of CAATs adoption using a quantitative approach, and the findings of the study revealed that the importance of the CAATs, effort expectancy, enabling conditions, and the total number of the auditors are the major determinants in the adoption of CAATs. Another study on the determinants of the adoption of CAATs was conducted by Abdul Ghani et al. (2023). The study also adopted the use of quantitative techniques where data was elicited from internal auditors who adopt CAATs in carrying out their tasks. The result of the study showed that expectancy of performance and individual characteristics are the major influencing factors for adoption. The findings of the studies by Pedrosa et al. (2020) and Abdul Ghani et al. (2023) comprise the constructs of the UTAUT - The Unified Theory of Acceptance and Use of Technology.

Pagalung and Habbe (2017) conducted a study on the effect of information technology on the probability of detecting fraud by internal auditors in Indonesia. The study made use of the primary data obtained from the internal auditors of selected banks in the study area through the application of proportional sampling criteria, and structural equation modelling was used in the analysis of the data. The result of the study showed that digital technology does not have any significant impact on the capability of internal auditors to detect fraud.

Alkebsi and Aziz (2017) assessed the relationship between information technology and internal audit effectiveness using a survey research approach where questionnaires were used to obtain data from the internal auditors, and correlation analysis was carried out on the data. The result of the analysis revealed that there is a statistically significant positive relationship between the use of digital technology and internal audit effectiveness, contrary to the findings of Pagalung and Habbe (2017).

Karlsen and Wallberg (2017) examined the effects of digitalization on auditors' tools and procedures. Semi-structured interviews were used to obtain data from 14 auditors, and the interviews were analysed. The result of the analysis revealed that the internal auditors are more efficient with digitalization because of fewer paper works and the flexibility of the procedure.

It also discovered the importance of education in the digitalization procedure of internal auditing. The methodology of Karlsen and Wallberg (2017) was different from many other studies in that it was qualitative in nature, but the results were not too different from others apart from the emphasis it placed on the importance of educating the auditors on the use of information technology in their activities.

Wardani and Nugroho (2018) conducted a study on the impact of information technology on the quality of financial statement quality using moderated regression analysis on the data obtained from a questionnaire survey. As a corroboration of the study of Karlsen and Wallberg (2017), the result of the study revealed that it has a significant impact on the quality of the financial statements of community-owned organizations, which is a different research setting.

Muneer et al. (1819) assessed the relationship between digital technology and expediting the internal system decision-making system in Pakistan. It made use of cross-sectional data using the quantitative approach, where data was elicited from internal auditors. The analysis of the data elicited showed that information technology expedites the internal audit system and provides internal auditors with support.

Bshayreh et al. (2019) examined the application of electronic management to improve the performance quality of internal audits. A sample of 106 internal auditors was administered questionnaires on how information technology contributes to the quality of internal audit reports. The result of the analysis of the study showed that information technology and electronic management have a significant relationship with the performance of the auditors which improves the quality of internal audits. The result of Bshayreh et al. (2019) is a corroboration of the finding of Muneer et al. (1819) on how digital technology expedites the activities of internal auditors.

Betti et al. (2021) examined the impact of digital transformation on internal audit procedures. The study adopted the survey research approach using data obtained from internal auditors of 82 organizations in the USA. The findings from the study show that there is a positive association between the level of the organization's digitalization and the use of digital technology by internal auditors when carrying out their roles.

Thottoli et al. (2022) examined the future direction of the relationship between information technology and auditing practice. In the study, a questionnaire was used in collecting primary data and the analysis was done with the use of partial least square structural equation modelling. The findings from the analysis show that there is a significant relationship between the use of digital technology and auditing practices in India.

(Thottoli et al., 2022) in an assessment of the utilization and adoption of technology in the auditing process and the use of computer-aided auditing techniques (CAATs), discovered that the use of digital technology resources has a significant impact on the productivity and efficiency of the performance of the junior auditors. This has also been found in some research works to facilitate the decision-making process and professional judgment of internal auditors (Pedrosa et al., 2020; Thottoli et al., 2022).

Eulerich et al. (2022) examined the impact of audit technology on the outcome of audit tasks using a case study interview of the perspective of the auditors on the use of audit technology. The study showed that audit technology is expensive and that the size of the organization is positively related to the use of audit technology. The study further revealed that audit technology is not often used by many auditors because of the difficulties associated with the quantification of the benefits. While the size of an organization can influence the use of audit technology, as found in Eulerich et al. (2022), this study explicitly considers the size of the IAF of Helse Nord in the examination of how the work processes have evolved as a result of the impact of digital technology.

Owino and Musuva (2021) conducted an empirical assessment of the use of CAATs in improving audit quality. Structural equation modelling was used in analysing data obtained in the study using the Unified Theory of Acceptance and Use of Technology. The result of the study revealed that some organizations have not been using the CAATs for real-time audits of their businesses and that some make use of the CAATs along with the traditional audit methods. As observed from the previous research, there is a dearth of research work in line with audit technology in the health sector, and to improve on the findings in the existing body of literature, this study focuses on how the work processes have evolved using a case study company which is scanty in the existing literature on the subject.

According to the research by Pizzi et al. (2021), the researchers identified four main research clusters when answering the research question, “What are the main research clusters about digital transformation in internal auditing?” Their research revealed research areas that include fraud detection, continuous audits, *data analytics* and technological innovation (Pizzi et al., 2021). However, in the paper by Betti and Sarens (2021), their results revealed that the digitalization of an organisation’s environment changes the scope, the role and the working practices of the internal audit function. What is interesting is that researchers noted the importance of data analytics in internal audit when analysing the impact of digital technology and digitalization on Internal audit.

Betti and Sarens (2021) divided how the working practices of internal auditors are affected by digitalization, referring to the use of data analytics. According to them, digitalization influences the digital tools that are used in internal audit departments and the skills required of audit practitioners. According to the results gathered, most of the informants referenced data analytics software while discussing the potential of new technology that internal audit departments may use (Betti & Sarens, 2021). According to Pizzi et al. (2021), data mining is a prerequisite for data analysis, and because internal auditors may be resistant to technological innovation, this task can be very difficult. Internal audit departments realize the importance of having digital skills (Betti & Sarens, 2021). This includes abilities in the broader sense of having an interest in new technologies rather than precise IT skills for the auditing of IT systems and IT structures (Betti & Sarens, 2021). It, therefore, follows that each internal auditor must have a certain level of digital awareness to grasp, on the one hand, how new technologies operate and affect progressively digitalized business practices and, on the other hand, to have an aptitude for new technologies (Betti & Sarens, 2021). Therefore, the authors note that the internal auditors' core abilities should include a level of technical knowledge that goes much beyond comprehending basic IT general controls (Betti & Sarens, 2021). According to PWC (2018), about 80% of Chief Audit Executives (CAEs) agree that Internal Audit needs to increase or develop its technological capabilities to meet future demands.

Auditors are looking into ways to become more efficient because of the exponential rise of technology, including expanding the use of technology-driven analytics to conduct more accurate and efficient audits (PWC, 2015). With new technologies for data extraction and visualization, auditors can explore larger, non-traditional data sets and carry out more sophisticated research (PWC, 2015).

Chapter 3

3.1 *Theoretical Framework / Review*

3.1.1 *Institutional Work*

Institutional work provides an exciting proposition for institutional research of organisations. This is because it connects a number of previously unrelated ideas and it, raises new questions and creates new opportunities for discussion rather than representing a "new" idea (Lawrence et al., 2009). Early research on neo-institutional studies focused on how institutions restricted organizational structure and operation and provided an explanation for how organizational practices converged in institutional settings (Battilana & D'Aunno, 2009). They suggested that actors' behaviour was influenced by their desire to be accepted as legitimate in their institutional setting and concluded that the degree of agency possessed by actors is limited because individuals and organizations tend to comply outwardly, only as a result of institutional pressures (Battilana & D'Aunno, 2009).

Institutional theory is concerned with the process of ensuring the institutionalization of practice in a particular institution of an organization through a structured and systematic change in the institutional behaviour of the organization (Clemens & Cook, 1999). This, therefore, leads to uniformity in the expected practice within the organization or institution, which also influences their practice (Fernando & Lawrence, 2014).

Institutional theorists have begun discussing the problem of institutional transformation since the late 1980s, emphasizing the role that individuals or organizations play in institutional change (Battilana & D'Aunno, 2009). However, these studies face a conundrum, and according to Battilana and D'Aunno (2009, p. 31), the assumption that institutional environments influence actors who have a limited degree of agency begs the question,

“How can actors change institutions if their actions, intentions, and rationality are all conditioned by the very institution they wish to change?”

(Holm, 1995; Seo & Creed, 2002), labelled this as the conundrum of “*embedded agency*”. Addressing the dilemma of embedded agency, or the conflict between actors' agency and institutional determinism, is important for the idea of institutional work to hold (Battilana & D'Aunno, 2009). According to Reay et al. (2006), modern institutional theory research has ignored the level of the individual level of analysis, and several studies have outlined how organisational-level and field-level factors foster agency even with the existence of organizational pressures (Battilana & D'Aunno, 2009). According to Hampel et al. (2017), levels are a contentious subject in organizational institutionalism, and some academics propose

an explicitly institutional level, frequently concentrating on the laws, customs, and ideas institutionalized throughout sectors or fields.

3.1.2 Field-level Institutions

In the study by Hampel et al. (2017, p. 8), fields were the subject of study that investigated the institutional work related to initiatives to create, maintain, and disrupt them. The authors also draw on Scott (1995) definition of a field as a group of organizations that share an identical value system and whose members engage more regularly and consequentially with one another than with outside actors (Hampel et al., 2017, pp. 7-8).

The difficulties that field actors encounter in reaching a consensus about the internal workings of the field is as a result of deciding which roles to accept, which practices to embrace, and which logic to adhere to for the field's internal arrangements (Jones & Massa, 2013; Wright & Zammuto, 2013; Zietsma & McKnight, 2009) as cited by (Hampel et al., 2017, p. 8). Institutional work research has consistently concentrated on examinations of how actors alter the status of field-level practices throughout the previous ten years, and Hampel et al. (2017, p. 8), in their research reveal that previous researchers have remained more interested in the creation and maintenance of practice rather than it's disruption (Hampel et al., 2017, p. 8). The focus on professional roles as the object of institutional work has led to the knowledge of institutional work dynamics in these domains has been significantly enhanced, elucidating how and why professionals strive to either influence or oppose change (Hampel et al., 2017).

3.1.3 Organization-Level Institutions

Hampel et al. (2017, p. 11) in their research noted that organization-level institutions' practical and political ideologies frequently result in continuing talks that alternate between peaceful coexistence and conflict-ridden disputes. Hampel et al. (2017, p. 11) also iterate that rules and logics are two types of institutions that have been particularly significant in the study of institutional work. Rules serve as both an incentive and a tool for institutional action targeted at its upkeep or change since they distribute resources and offer or restrict possibilities for organizational members (Hampel et al., 2017, p. 11).

The goals of institutional work at the organizational level can be represented by logics (Hampel et al., 2017, p. 12). Accordingly, it means that they must be made interpretable and usable in the context of organizational routines, structures, values, beliefs, and connections and even

though logics may have its roots in structures and cultures outside of organizations, they must be localized in order to be relevant and effective within (Hampel et al., 2017, p. 12).

According to research by Hampel et al. (2017), understanding how, why, and when actors work to shape sets of institutions, the variables that determine their capacity to do so, and the experiences of people involved in these efforts are at the core of the institutional work viewpoint. Hampel et al. (2017) also noted that the term "institutional work" has changed from describing a set of activities detailed in institutional research to describing a perspective on the interaction between institutions and actors that is accompanied by a unique set of assumptions, questions, findings, and theoretical claims.

In the research by Lawrence and Suddaby (2006), they noted that institutional approaches to the study of organizations place a strong emphasis on the interactions between companies and the industries in which they operate, with a particular focus on the function of rational formal structures in facilitating and restraining organizational behaviour. "Institutional work" is, therefore, the intentional behaviour of people and organizations that aims to establish, preserve, or undermine institutions.

Lawrence and Suddaby (2006) posit that the importance of actors in the transformation of existing institutions has "risen within institutional research." The authors then proposed the idea of "institutional work" to integrate recent institutional studies focusing on the part actors play in institutional transformation under a single heading. But for the concept of institutional work to hold up, the embedded agency conundrum must be addressed.

3.1.4 Enabling Conditions for Agency/Institutional Work

Institutional theory, and indeed any theory that derives from the social sciences, is inextricably bound up in the conflict between agency and structure (institutions) (Berger & Luckmann, 1967; DiMaggio & Powell, 1991), as cited in (Battilana & D'Aunno, 2009).

Battilana and D'Aunno (2009) also noted that the result from previous research suggests that actors are not necessarily confined to the "iron cage" of established institutions and, alternatively, claim that the conundrum of embedded agency had been resolved, making it an unsubstantiated argument. However, Battilana and D'Aunno (2009) point to field-level conditions and organization-level conditions in solving this conundrum.

3.1.5 Field-level enabling conditions.

Leca et al. (2008) note that certain field-level conditions and institutional work are frequently interconnected, and the findings from a variety of studies indicate that field-level conditions are linked with agency, as cited by (Battilana & D'Aunno, 2009, p. 38). In other words, it reveals that certain factors contribute to agency and has the potential to alter socially formed field-level consensus (Battilana & D'Aunno, 2009, p. 38). Scholars identified heterogeneity and incomplete institutionalization of practice as conditions that have the likelihood to influence institutional work in actors (Clemens & Cook, 1999; D'aunno et al., 2000; Lounsbury, 2007; Schneiberg & Soule, 2005; Seo & Creed, 2002; Sewell Jr, 1992; Whittington, 1992). According to Oliver (1991) and Greenwood et al. (2002), jolts in the form of shock or crisis prompt action that departs the field's established institutions (Battilana & D'Aunno, 2009, p. 39). The authors described that it could take different forms, including technological advances, industry competition, and even changes in regulatory frameworks, all of which have a direct impact on socially created field-level practices and can therefore lead to agency in the form of the creation of novel practices as a response (Battilana & D'Aunno, 2009, p. 39)

3.1.6 Organization-level enabling conditions.

According to Battilana and D'Aunno (2009, p. 40), actors who experience the same field conditions are not equally inclined to work in institutions, which may be explained by organizational-level characteristics. The authors, drawing from the research by other researchers in the field, conclude that the most important attribute is the standing of the organization in its corporate industry (Battilana & D'Aunno, 2009, p. 40). The authors, drawing from the research by Leblebici et al. (1991), reveal that fringe organizations have a higher propensity to depart from established institutions and that the majority of novel approaches were presented by small and unestablished companies; in contrast, organizations with greater influence deploy resources to preserve the current practices (Battilana & D'Aunno, 2009, p. 41). According to Battilana and D'Aunno (2009, p. 41), this demonstrates the connection between the attributes of the institutions that actors find themselves in and their agency and ability to carry out different forms of Institutional work.

3.1.7 Individual-level enabling conditions.

Despite the fact that the majority of studies of institutional work have neglected the individual level of analysis in favour of the field and organizational levels of analysis (Reay et al., 2006),

the research by (Fligstein, 1997; Maguire et al., 2004) reflects that individuals also participate in institutional work and show that organisations are not the only parties involved in institutional work (Battilana & D'Aunno, 2009). The investigation of individual-level factors that enable participation in institutional work, which includes disrupting established institutional norms as well as strategically upholding the norm, has been mainly neglected by scholars, and this begs the question of “*How do individual actors engage in institutional work?*” (Battilana & D'Aunno, 2009, p. 42).

To resolve the conundrum of embedded agency which has been mentioned earlier in this chapter, Battilana and D'Aunno (2009) proposed that it is important to take into consideration the level of analysis at the individual level and to address the problem of human agency. They argued that the dynamics at the individual, group, and organizational levels are all interconnected and seek to investigate the mechanisms that promote individual participation in institutional work, hence the role of individuals in institutional change (Battilana & D'Aunno, 2009). Without taking into account the notion that actors are embedded in organizations, which are themselves embedded in organizational fields, a focus on the enabling role of individual characteristics would be similar to overlooking the power of institutions and would ultimately, therefore, sparsely contribute to resolving the conundrum of embedded human agency (Battilana & D'Aunno, 2009).

3.1.8 A relational perspective and a multidimensional perspective

Battilana and D'Aunno (2009) explain that it is vital to consider the interactions between people and their institutional contexts in order to overcome the conundrum of embedded agency. In attempts to do this, Battilana and D'Aunno (2009) relied on the research by (Giddens, 1976; Giddens, 1984; Giddens & Giddens, 1979) on “Structuration theory”, which simply involves understanding the interactions between actors and their institutional settings. The theory is process oriented and believes that the principle of “duality of structure” is applicable to institutions (Battilana & D'Aunno, 2009). People's behaviours are shaped by institutions, but people's behaviours also create (and perpetuate) institutions; therefore, structures must be seen as allowing rather than just imposing limitations on human action (Battilana & D'Aunno, 2009). Battilana and D'Aunno (2009) also relied on Bourdieu (1987) “Theory of practice” to explain how actors relate to their institutional environment. The theory attempts to explain this using two related notions “field” and “habitus”. Fields are described as structured systems of social positions where individuals contend with one another for control of resources, stakes, and access (Battilana & D'Aunno, 2009), while “habitus” connects large-scale events that take place

at the field level with small-scale processes that happen at the individual level (Battilana & D'Aunno, 2009).

Giddens' structuration theory has faced criticisms for its subjectivist nature and failure to go beyond the agency vs structure dilemma, and the ambiguity of Bourdieu's theory of practice has also drawn criticism (Battilana & D'Aunno, 2009). Therefore, Battilana and D'Aunno (2009) recommend that agency should be examined as a multidimensional concept. Drawing from the research by Emirbayer and Mische (1998), agency is defined as the interaction between an actor and a social setting that, through the interaction of habit, imagination, and judgment, can maintain and modify the structures of an environment (Battilana & D'Aunno, 2009).

According to Emirbayer and Mische (1998), agency is made up of three distinct components: iteration, projectivity, and practical evaluation. "Iteration" describes how actors "selectively reactivate past patterns of thought and action" and is *focused on the past* (Battilana & D'Aunno, 2009). "Projectivity" involves the conceptualizing of *potential future action* paths, in which established structures of action may be imaginatively rearranged in response to the actors' hopes, fears, and future aspirations (Battilana & D'Aunno, 2009). "Practical evaluation" is mandated by the challenges of shifting circumstances, and it responds to the demands and exigencies of the present (Emirbayer & Mische, 1998). Therefore, Iteration involves how actors choose which paradigms to use in their continuous and situated interactions, which explains the presence of agency, and that even while this may happen with little or no conscious thought, it still necessitates attention and involvement from actors (Battilana & D'Aunno, 2009; Emirbayer & Mische, 1998).

Also, in projectivity, actors assume a reflexive attitude and project themselves into the future when faced with issues that routine habits are unable to resolve (Battilana & D'Aunno, 2009; Emirbayer & Mische, 1998). Practical evaluation pertains to actors' ability to make sensible and normative decisions among different viable paths of action in response to newly developing needs, problems, and ambiguities of currently unfolding situations (Battilana & D'Aunno, 2009; Emirbayer & Mische, 1998).

Battilana and D'Aunno (2009), drawing from the research by Emirbayer and Mische (1998), conclude that actors frequently behave with consciousness and intent rather than merely functioning as institutional puppets when they engage in the routines and behaviours that replicate institutions and that while actors are being influenced by institutions, they develop a "practical consciousness". Lawrence et al. (2009) also suggest that actors are intentional in their

actions and that a deeper understanding of intentionality will lead to a better understanding of different forms of institutional work.

The three different forms of institutional work – creating, maintaining and disrupting institutions are made possible by the three dimensions of agency – iteration (habit), projection(imagination) and practical evaluation (judgement) (Battilana & D'Aunno, 2009). Considering this theoretical analysis, I believe this framework is relevant, and hence, it will be the frame of reference from which I will be drawing the conclusions of my thesis.

	Creating Institutions	Maintaining Institutions	Disrupting Institutions
Iterative	<ul style="list-style-type: none"> • Improvising • Modifying 	<ul style="list-style-type: none"> • Enacting institutionalized practices • Selecting one legitimate, institutionalized practice over another 	<ul style="list-style-type: none"> • Failing to enact an institutionalized practice • Institutional forgetting
Projective	<ul style="list-style-type: none"> • Inventing • Creating proto-institutions • Establishing institutional mechanisms • Advocating diffusion 	<ul style="list-style-type: none"> • Repairing • Defending 	<ul style="list-style-type: none"> • Attacking the legitimacy or taken-forgrantedness of an institution • Undermining institutional mechanisms
Practical-evaluative	<ul style="list-style-type: none"> • Translation • Bricolage thinking • Reacting to shocks 	<ul style="list-style-type: none"> • Adapting institutionalized practices • Bolstering regulative mechanisms 	<ul style="list-style-type: none"> • Avoiding institutional monitoring and sanction • Not selecting institutional practices

Table 3.1: Dimensions of agency and forms of institutional work (Battilana & D'Aunno, 2009)

Adopted from the paper by Battilana and D'Aunno (2009), the table depicts examples of different actions that fall into the different forms of institutional work and also dimensions of agency.

Battilana and D'Aunno (2009) view institutional work as having an intentional nature and emphasize that there are many different levels of self-awareness and reflexivity, as well as many different temporal orientations, but contend that the nature of such "intentions" will vary greatly depending on the type of agency that predominates in the institutional work cases that are under consideration. This notion is also similar to that of Lawrence et al. (2009), where the authors explain the importance of intentionality in institutional work. The authors described it as — schematization, contextualization, and hypothesization and argued that they represent a specific

intentionality in which actors consider the impact of their actions on the contexts in which they find themselves (Lawrence et al., 2009). The extent to which each of the three dimensions of agency may be found in institutional work within every instance of action varies and depending on the circumstance, one dimension may predominate over the others (Battilana & D'Aunno, 2009; Emirbayer & Mische, 1998).

Chapter 4

4.1 Methodology

This chapter is built on the previous chapters where it was established that there is a need to answer the question of how the work processes of internal auditor(s) at Helse Nord have evolved in the era of digitalization. To answer this question, I presented the following three sub-questions to my research question:

- i. Who is the main actor(s)?
- ii. What specific digital tools and technologies have been adopted by the Internal Audit Functions, and how have they impacted their work processes?
- iii. How has digitalization impacted the skills and competencies required of internal auditors?

All three questions would be addressed using primary data that would be collected from the employees of Helse Nord who are responsible for internal auditing (Internal Auditors). The response from the interview is analysed using the appropriate methods, and how it has been carried out is presented in this chapter.

4.2 Research Philosophy

According to Easterby-Smith et al. (2012, p. 70), the research philosophy is very important and makes a critical contribution to the strength, vitality and coherence of a research project. Using the metaphor of “The Tree”, Easterby-Smith et al. (2012, p. 70) explain that the research philosophy includes the ontological assumption, which influences the epistemological assumption and further influences the methodology and the methods and techniques used for the research.

“Without a strong and healthy trunk, a tree can easily be blown over. Similarly, a piece of research that lacks a clear ontology, epistemology or methodology cannot withstand critical review” (Easterby-Smith et al., 2012, p. 70).

4.2.1 Ontology

According to Easterby-Smith et al. (2012, p. 72), the majority of philosophical discussions begin with ontology. The author identified four different ontologies related to the social sciences, including realism, internal realism, relativism, and nominalism. According to Easterby-Smith et al. (2012, p. 75), the realism position believes in the concept of a "single truth" and focuses primarily on aspects and characteristics that can be measured, the internal realism also believes that “the truth exists but is obscure”, the relativism position believes that

there are “many truths”, assuming that different observers may have different points of view and emphasizing that on any issue, there can be many perspectives, the nominalist position assumes that there are “no truths” and what matters is how diverse versions of the truth are established by individuals.

4.2.2 Epistemology

According to Easterby-Smith et al. (2012, p. 77), epistemology has served as the foundation for an ongoing discussion among social scientists on how to conduct social science research. The author identifies two opposing viewpoints: positivism and social constructivism.

4.2.3 Positivism

The core tenet of positivism is that the social environment is external and that its characteristics may be assessed using scientific techniques (Easterby-Smith et al., 2012, p. 77). It is, therefore, more suitable for research conducted in the natural sciences.

4.2.4 Social Constructionism

According to Easterby-Smith et al. (2012, p. 78), the notion of social constructionism is based on the idea that reality is not objective but rather socially produced and is given meaning by individuals through their interactions with others on a daily basis. Consequently, social constructionism proposes that social scientists should not only try to acquire information and assess the frequency of social behaviour patterns but also acknowledge the numerous interpretations which people assign to their experiences (Easterby-Smith et al., 2012, p. 79).

My master thesis focuses on the IAF at Helse Nord, and studying how the processes of the IAF have changed in the era of digitalization can be seen as unique to the legal context of the organisation. Therefore, the ontological point of view I have chosen as appropriate for my thesis is relativism. Easterby-Smith et al. (2012, p. 75) noted that in relativism, individuals may have various points of view and highlighting the possibility of several viewpoints on any given topic. Therefore, the results of the thesis are unique to the legal context in which it has been carried out. Furthermore, since the study focuses on the IAF and tries to understand how the work processes have changed in the digitalized era, the master thesis also follows the epistemological assumption of social constructionism, as Easterby-Smith et al. (2012, p. 79) explain that reality is socially produced and is given meaning by individuals through their interactions with others on a daily basis. The study will employ methods relevant to understand how the IAF’s processes have evolved as a result of digitalization.

4.3 Research Design

According to, Easterby-Smith et al. (2012), the research design includes planning research activities, such as data collection, in a method that is most likely to result in the researcher's objectives being met. As a result, the research components—which were utilized to look up information on the study—form the basis of the research design. I have adopted an explorative in-depth case study. The method of research will be qualitative, and I have adopted the use of semi-structured interviews. The benefit of qualitative methods such as semi-structured interviews is that you can probe deeper and so learn more about the meanings, drives, and comprehensions underlying the interviewee's behaviour. Unlike with quantitative approaches, if something is unclear to your interview subject, you are there to clarify it for them, which may result in more representative answers (Easterby-Smith et al., 2012).

This pertains to the overall strategy of undertaking research in a way to integrate the entire components of the study (Doyle et al., 2020). Research design is to be meticulously selected, such as to follow the research questions from where the research objective is obtained, as well as other factors and resources that make up the research (Žukauskas et al., 2018). This study adopts the qualitative research design. The semi-structured interview method is adopted, where the knowledge and experience of the researcher are used in developing the interview questions, and the responses could go in-depth, which reflects the understanding of the interviewees (Žukauskas et al., 2018). The interview guide contains various questions in line with the adoption of digital technology in the process of internal auditing in Helse Nord. The semi-structured interview ensures that the questions are asked in a set order on the topic while also having the freedom of asking follow-up questions which are repeated for the three interviewees, who are the internal audit unit staff of Helse Nord, and this allows easy comparison of responses in a homogenous context.

The semi-structured questions are constructed based on the understanding of the topic within the resources and time constraints to facilitate easy analysis of the responses. The questions are well explained to the interviewees to facilitate adequate responses that would provide the required data for the research.

In this research, the use of a case study for the interview is to explore the characteristics of a particular organization and the peculiar attributes of the organization in the description of the digitalization of its internal audit process. This allows an in-depth description of the situation based on the use of the scenarios pictured in the interview guide within the context of Helse Nord, thus explaining the real-life situation of the organization. According to Yin (2003), the

case study analysis facilitates questions relating to the ‘how’ and ‘why’ of a particular phenomenon. This is, therefore, to obtain in-depth details on the issues surrounding the adoption of Information and digitalization in the internal audit of Helse Nord.

One of the characteristics of a case study is the understanding of the group or company to concentrate on it for the explanation of its relationship with the subject matter (Njie & Asimiran, 2014). Based on the institutional theory, the actors that are important to the interview are the internal auditors of the organization. In the interview, there is a need to ensure the binding of the case that is related to the subject matter, bearing the actors in mind, so as to focus on the issues at hand and avoid ambiguity in the interview, and this is achievable through the use of an interview guide.

4.4 Interview guide

The designing and development of the questions in the interview guide required the identification of the research question, and this served as a guide for what is expected as the pattern of response from the interviewees and for this research. The underlying basis of designing the interview guide was how the work process of the IAF at Helse Nord has evolved as a result of digitalization. My focus while creating the interview guide was to cover the key topics I wanted to address in the interviews while yet leaving enough room for customization to the various interview subjects. Due to the interviewees' differences in experience, educational background and opinions, some subjects receive more attention than others during the various interviews. This helped in directing the questions through detailed themes that were developed from the research questions and the theoretical framework which are necessary for the analysis (Doody & Noonan, 2013). Insights into the answers to the research question were obtained from the interviewees. The questions are designed as open-ended, which covers the experience of the interviewees and their understanding of the questions that address the objective of this research. For the semi-structured interview method, it is not compulsory that the ordering of the words or questions are to be followed as lined up in the interview guide, but all the questions should be covered considering the level and direction of the discussion during the interview.

In this development of the questions that I used for this study, efforts were made to ensure that the questions were simple for the interviewees to respond to, where more than one question was not asked at a time. Along with this, I ensured that questions were not framed in such a way that one-word responses can be given because long responses guarantee more in-depth data

availability. The questions were also asked in a way that the interviewees would not do the analysis of their responses so that unbiased analysis would be done after the collation of the data.

The interview guide starts with a few general questions. These are pertinent, in my opinion, because the length of time someone has worked in an organization and in a field will affect how much experience they have, and it gives insight into what changes in digitalization they've experienced.

The interview guide's sections on digitalization, information technology and internal audit are the most crucial because they provide a wealth of information for addressing my research topic. I want to know how these have affected the internal audit at Helse Nord, understand how the experiences of each person have brought about any form of change, how the processes are carried out, and the level of IT knowledge required.

As a final section of the interview guide, I included a few questions on the interviewees' perspectives on change and conflict, including questions about their perspectives on the current practice and if they've experienced conflict and how they handled it over time. I decided to include these since each respondent is unique and perceives situations differently which gives a unique view on the topic.

All the interviewees are Norwegian, but the interviews were held in English. The interviews can be found in the appendix, and the same applies to the interview guide.

4.5 The Case company: HELSE NORD RHF

Helse Nord RHF is a body fully owned by the Norwegian state and has its area of responsibility domicile in Northern Norway. Helse Nord is headed by Helse Nord RHF, and it has six other different organisations called "Trusts" under its control (4 hospitals, 1 Pharmacy & Health North ICT). Helse Nord RHF reports to the ministry and is the administrative body that oversees how the hospitals in Northern Norway are to function smoothly.

Just like it says on the organisation's web page, "Helse Nord RHF will ensure that the population in northern Norway and on Svalbard receive the best specialist health services in the part of the country where they live" (HelseNord, n.d)

Organisational Chart

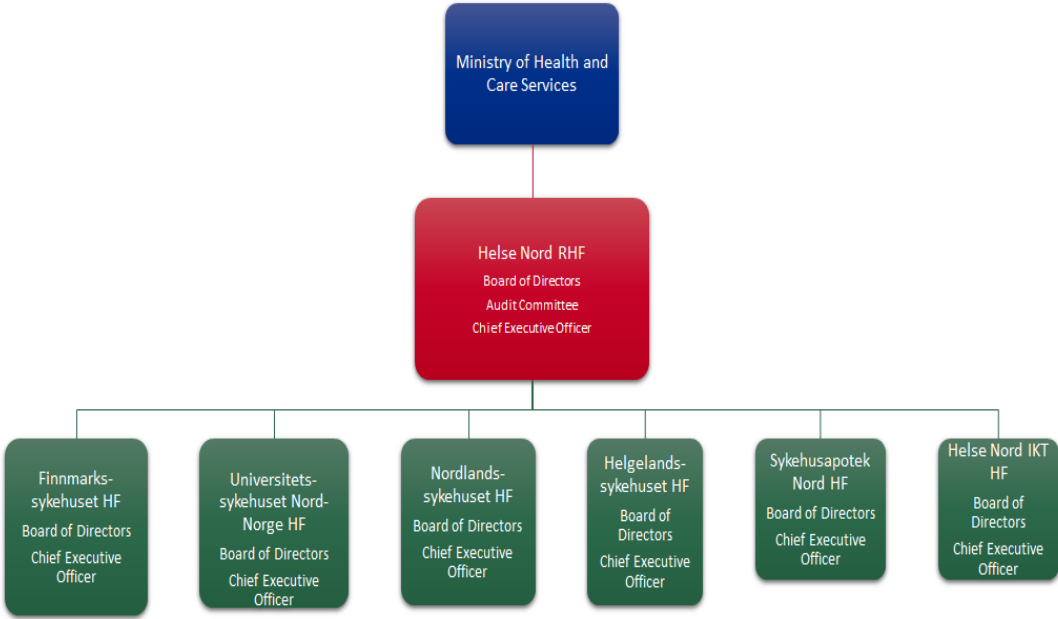


Figure 4.1: Helse Nord’s Organizational Chart.

According to HelseNordRHF (2018), a document titled “Instructions for the internal audit at Helse Nord, “The internal audit is an independent, objective confirmation and advisory function which has with the intention of adding added value and improving the organisation's operations. The internal audit will be on behalf of the board of Helse Nord RHF to evaluate and contribute to improvements in the regional area of the health company's and company group's business management, risk management and internal control.” “The internal audit is professionally organised under the board of Helse Nord RHF and deals with himself in the ongoing work of the board’s audit committee, and the internal audit is administratively organised under the CEO.”

My case organization Helse Nord is working in the health sector and therefore represents a critical and important risk-related industry that is continuously advancing due to digitalization. And KPMG (2017) highlights that digitalization cannot be viewed as an optional decision for auditors because of its disruptive effects on organizations. I find it intriguing to study how the work processes of internal auditors have evolved due to digitalization and Information technology in such a unique industry. My motivation for choosing Helse Nord is that technology is being used more and more in the health sector to manage patient data and boost productivity. It is, therefore, necessary to evaluate how internal auditors adapt to improve the effectiveness and efficiency of their audits. Even though Helse Nord operates independently in Northern Norway as one of the four regional health authorities (RHF) in the country, the

findings of this thesis can be interesting for the other three remaining regional health authorities (RHF). My intention is to find out what forms of digital tools are currently being used in the internal audit department, how much it improves the functioning of the entire internal audit department and the organisation as a whole and the level of digital / IT expertise required by the members of the internal audit team. I'm hoping to learn more about this through interviews with key members of the internal audit department.

I introduced myself and the study I intended to conduct to a senior advisor in Helse Nord to acquire access to key relevant personnel, and in doing so, I was able to get in touch with the Head of the internal audit department. I emailed her and introduced the research; she showed an interest and then informed her team about the interview, serving as the coordinator for the interviews. All the interviewees were members of the internal audit department at various hierarchical levels and various levels of competence. The office of Helse Nord is located here in Bodo, so I didn't have to travel to have the interviews. I was originally supposed to have all three interviews on my visit, but one of the team members wasn't confident about being interviewed in English. Therefore, I was only able to interview two respondents in person and had the last interview via Teams at a later date.

Table 4.5 below is a summary of interviewees, their position, the highest level of education and how many years they've worked in Internal Audit and how long they've worked at Helse Nord.

	Position/Role	Hightst level of Education	Years of Experience in Internal Audit	Years of Experience in Helse Nord Internal Audit
IA1	Chief Audit Executive	State Authorized Auditor, IIA certified, Accounting and Auditing	Have worked in both internal and external audit, a total of over 30 years	Four and a half years
IA2	Internal Audit Executive	Master of Science in Business/Siviløkonom	Not mentioned but had some internal audit functions in previous job	One year & five months
IA3	Second Leader / Internal Audit Executive	Master Accounting & Auditing	Worked as a quality officer in the trusts then as an Internal audit Over 13 years	Over 13 years

Table 4.5: Summary of interviewees

4.6 *Conducting the Interviews*

I visited the office of Helse Nord here in Bodø, to be able to conduct the interviews face-to-face. The interviews were held in a private meeting room so that there was no chance of outside influence. Face-to-face interviews provided me with several advantages since I could observe their facial expressions and more easily determine which subjects they knew most about and were more interested in discussing. Due to this interaction, I did not always follow the interview guide exactly; instead, I went with the conversation's natural flow. The third and final interview was, however, conducted via Microsoft Teams; I found this a bit challenging as it had to be conducted virtually and getting the mannerism and facial expressions of the respondent was not easy. It was slightly harder to freely follow up on certain responses. Therefore, it was the shortest interview of the three interviews. Even though every interview was recorded (with consent), I took notes to help me keep track of the topics we had discussed, be prepared for follow-up questions, and to help me see the connections when I was transcribing the interviews. These notes have also been useful during my analysis of the interviews.

The interviewees are simply referred to as Internal Auditor1, Internal Auditor2 and Internal Auditor3, which have been abbreviated to IA1, IA2, and IA3. I also use this name throughout the chapter on empirical findings and analysis to maintain their anonymity. The transcribed interviews show M, which represents "me," when I am speaking in the interviews.

Appendix 2 contains the transcribed interview with IA1.

4.7 *Processing the Data*

I began processing the interviews after they were all concluded. I transcribed the interviews by listening to each of the recordings and wrote down every word that was said. This was somewhat of a long and painstaking process because some of the meanings were hard for me to put together at first, but after listening to the audio files repeatedly, I was able to make relevant meaning from the data. The result is what is included in the appendix 2.

Chapter 5

5.1 *Empirical Data*

In this chapter, I will present my empirical findings on how the work processes of internal auditor(s) at Helse Nord have evolved in the era of digitalization. I will do this using different themes that were discussed during the interview with the internal Auditors.

5.2 *IT and Digital Technological Tools used by the Internal Audit Function*

From previous research, Betti and Sarens (2021) noted that Internal auditors view digital technology as a method to significantly enhance their daily operations. When asked if they used any form of IT tools in the Internal Audit function, IA1 responded that

“...we don't have a form of IT system that we use, but we use information”. “...we only use the Microsoft Office package for the work we do”.

The Microsoft Office package is a digital tool that has several functions, which include word processing(Word), data analytics(Excel), presentation(PowerPoint), and even video conferencing (Teams), all of which are useful for processing information. Betti and Sarens (2021) also noted that data analytics is viewed as the primary technology employed by the IAF to digitalize its working procedures.

IA2, when asked the same question, responded that,

“...we don't have any particular audit products. We have the Microsoft package. We use these, depending on what we are doing”.

In describing the ways in which the Microsoft Office package is being used, IA2 explained that Microsoft Teams serves as a very important tool which is used in the internal audit function,

“...we use Teams as a tool within the internal audit, and we conduct interviews using teams, in particular during the pandemic. And we have continued to use Teams afterwards because it saves us from travelling both time and costs.”

IA1 also pointed out the importance of Teams,

“...we use teams a lot because when we perform our interviews, almost every interview, we do it by using teams. So that is an important tool for us, and we also use teams when we prepare

our audit reports because then we can use teams as the file, so everybody can work on the same document, so we use that a lot. We could file everything in teams as well.”

The question of is the internal Audit is exposed to other forms of Information Technological/digitalization other than Microsoft Office revealed that since the Internal Audit is privy to certain confidential patient information, they need to be accessed in a secure way. It revealed that the IAF used other forms of digitalization and Information technological tools IA1 pointed out,

“We need to extract information in a secure way, so there we have different kinds of ways to extract that kind of information and send it to us if we don't gather it ourselves. So, we can use a secure way when we look into these types of information in the DIPS, the journal INFORMATION system.”

“...then we don't use teams. We can't use that using teams because it's not secure enough. So, then we use a very secure way when we go into “Secure online solution”.”

“...that's another tool. It's not our tool because it's the Trusts tool, but we have prepared procedures for doing this, and we also go to the Data protection officer, and we do this Data protection consequence Assessment we have prepared procedures on how to do this. So, then we use this tool and go in and look at Information about patients by using the secure tool, and we can sit here, and the person that is putting up this journal and this information could sit everywhere else in the trust....”

IA2 also revealed that,

“...but all the official communications like the announcement now we are starting, and all that goes through the ELEMENTS, which is the official archive system. So, when we announce the audit, we will send the message through the elements system.

For example, we ask, could you please send us these documents? They would send it through elements to us, and we will archive it internally.”

To the direct question of whether ELEMENTS is secure, IA2 said

“ELEMENTS is secure. Yes, it's secure.”

“...allows sending sensitive information securely. I mean, if something is to be or it's sensitive, and it should not be opened for the public, we can mark it as a sensitive document with reference to the correct law.”

IA1 further iterates that they (Internal Audit) use the information they gather from the Organizations Dashboard.

“Helse Nord has a dashboard where there is a lot of information where you gather quality assessments, quantity assessments. Everything is in our dashboard prepared by management here in Helse Nord, and that's very important....”

To the direct question if Helse Nord has any form of ERP- Enterprise Resource Planning, which is a software platform used by organizations to coordinate and manage the key elements of their operations and is essential to organizations because they enable resource planning by combining all the operations required to manage their operations into a single system (TEAM, 2023).

IA1 expressed that

“...we have all this system for diagnostics; there are lots of different kinds of systems, and they are gathered in Helse Nord LIS (HN LIS). Information in the dashboard, so gather information from lots of things; even the accounting information is gathering to that. There, we have the waiting times, the capacity of the utilisation, and activity. Lots of information in the dashboard. Even though it's not on an ERP system, it puts together information from different systems....”

But in conducting analysis from the information on this dashboard, the internal audit used Microsoft Excel. IA2 pointed out that,

“Helse Nord also have their own data warehouse for various type of information around the financial situation or more patient quality measurements and all that stuff, so we use that as a source as well, but to do the analysis, in my experiences, at least, Excel is sort of the main tool.”

5.3 Benefits of Information Technology and Digitalization

IA2 believes that IT and Digitalization simplifies their work and explains how Microsoft Excel simplifies and is used to create a link during audit tasks. IA2 said that.

“...well IT generally does simplify work...” “...we are using Excel and various Excel sheets. For example, the interview guide is in one document, and then we have another document where we take notes and write the answers to our questions, and then there is a 3rd document where we do the analysis of how the criteria are met through this interview.”

Excel is also vital in the audit planning process as highlighted by IA1 who said that

“...we can gather a lot of information from Helse directorate because that's open. And you can gather it by extracting in Excel using Excel. So, in the planning phase we use that so it's not difficult to extract information in Excel and we can use that and perform the audits.”

IA1 also highlighted that

“...when we prepare our process flow charts, we use PowerPoint because that's much easier. PowerPoints it's much easier to do and so and we don't have these complex processes either.”

5.4 Challenges from using Information Technology and digitalization.

In the integration of digitalization and information technology in the audit practice, there can be a lot of challenges. IA1 revealed that data extraction is a challenge,

“Of course, there are some challenges I can start with the challenge when we need to extract a lot of data with this NPR ID. Because the files are big it could be quite challenges to get it in a secure way because we use the ELEMENTS and that's the secure way of sending data”.

ELEMENTS is the archive system, where everything is sent securely, but IA1 revealed that it's quite difficult to send it through elements because there is a challenge regarding the size of the files.

“...if you're going to send it to there(ELEMENTS), we need to split the file, so that could be a challenge and it has been a challenge that even though the Trust is sending out Excel files through the secure line, when we get them, we get them in PDF and that's not how we need them, we need to have them in Excel.”

IA2 believes the challenge lies in the types and frequency of audits and believes that not using these digital and IT tools often can affect how effectively they are mastered. IA2 said that

“I guess the challenge is if you're doing really detailed analysis, I guess in order to be good at it, you need to do it often. And that's maybe a challenge when you're doing 3 audits a year and they are very different topics.”

“...one is maybe more in the direction of studying procedures and understanding the content while the other are more data analytical driven, you need to have some sort of numbers involved and the analyse... And of course, if you're doing that once per year, it's difficult to be really good and maybe you need to sort of go back and try to remember... or start fresh probably.”

Another challenge is the correctness and completeness of information or data, IA1 pointed that, *“...when we extract data, have we got the correct data? Is it complete? That's of course a challenge. And then afterwards when we use of course data in Excel and put them together to make different kinds of information, graphical information that we need. Do we do it the correct way? That's of course a challenge as well..., we need to do quality checks, quite a lot to see if it's correct.”*

IA2 also pointed out that.

“...we need to understand what kind of data we should ask for to be able to order the correct information and evaluate what is it that I receive. You need to know what you can order and how it could be arranged or organised.”

The other challenge which is noteworthy is the “technical challenges” with these IT tools when it comes to reporting and these might result in loss of information and sometimes conflict in the department.

IA1 noted that

“We have had some challenges when we have performed reports, Teams had quite a lot of challenges in these first month. So, we have had to work with audit reports - three persons together at the same time and due to the challenges, that teams have had, we have lost information, we have conflicts and a lot of it....

So that's a challenge when we work because some days one of my colleagues has come to work and “You have a conflict”. Do you want to say yes or no? What have you changed? What have the others changed? And all of that? That's a challenge, but that's really that's a system challenge.”

5.5 IT skills required by Internal Auditors

Internal audit departments are realizing the need of having digital capabilities. This refers more generally to abilities such as having an interest in emerging technologies rather than precisely to IT skills for the auditing of IT systems and IT structures, because with new technologies comes new risks. As a result, IA1 suggests that every internal auditor must have some level of digital literacy/competences to grasp how new technologies operate and affect company activities in the digital era, and how they might enhance internal audit working procedures especially in terms of risks related to

“Due to the digitalization, due to the cyber risk... we have the sensitive patient information that needs to be protected in the health sector. And as an internal auditor that you need to know that we have this data secured. We work quite close together with the Information Security Officer and we discussed a lot what kind of audits do we need to do and what kind of security audits they need to do in second line. To be sure that we have the protection of the data in place.”

“...we need understand what’s changing also in the clinical part. Due to advancements in Artificial intelligence. When the artificial intelligence in health sector is changing, we need to understand at least part of it even though we are not clinical comp, we don't have the clinical competences, but we need to how do they use that in the work in the trust, so we need to get on a higher level on that as well. Even though we are not going up there. We are not going to be physicians, but at least move on a higher level.”

And robotics, of course as well. When you use robotics, putting together information in the dashboard for instance, and things like that, we need to get on a level that's high enough to understand whether there is a risk or not. And then I think that what we need to be confident is that the data is reliable, and we need to understand as an internal it whether the data is reliable. So, at that level we need to have sufficient competence.

To extract data to use data to put data together. Of course, in a way that is visible and understandable so that the kind of information IT competence we need, yeah.”

Chapter 6

6.1 *Discussion*

According to Battilana and D'Aunno (2009), agency can be defined as an embedded process of social engagement that is influenced by the past (in its habitual aspect), but also focused on the present (as a capacity to contextualize past habits and future projects within the contingencies of the moment), and the future (as a capacity to imagine alternative possibilities). Hence, the authors hold a multidimensional view of agency. They contend that even when actors are susceptible to institutional forces, they can develop a "practical consciousness (Battilana & D'Aunno, 2009). The focus is that actors who are agents of an organization are capable of having different degrees and forms of awareness, which might inspire them to do institutional work (Battilana & D'Aunno, 2009). In their framework, Battilana and D'Aunno (2009) suggest that the different types of institutional work: creating, maintaining, and disrupting institutions is enabled by practical consciousness and intent on the part of the actors in form of iteration(habit), projection(imagination), and practical evaluation(judgement). Actors frequently behave with consciousness and intent rather than merely functioning as institutional puppets when they engage in the ingrained rituals and behaviours that replicate institutions (Battilana & D'Aunno, 2009).

Looking at how the work processes of internal auditor(s) at Helse Nord has evolved in the era of digitalization, this chapter will focus on the findings of the previous chapters and explain how the actor(s) have consciously reflected and engaged in either one or more dimensions of agency leading to any of the different forms of institutional work. To give a clearer picture, I will discuss using the different dimensions of agency as a theme.

6.2 *Who is the main actor(s)?*

From my findings the main actor(s) responsible for deciding what forms of digital tools is the Chief Audit executive, along with members of the audit team in the organisation. As reflected in the findings, IA1 pointed that the decision on what IT tools to employ lies with the Head of the department and is always discussed with the other members of the team.

6.3 *IT and Digital Technological Tools used by the Internal Audit Function*

6.3.1 *Iterative Agency*

Iteration according to Battilana and D'Aunno (2009) is focused on past experiences, and refers to actors' mindful activation of preexisting cognitive and behavior patterns. From the findings, it revealed that the IAF used a few digital tools in the performance of its functions including ELEMENTS and HN LIS, but mostly employed the Microsoft Office tools for data analytics and its other advantages. When asked for any instance of change in the IT and Digital tools being implemented and used for their functions, IA1 reflected that it had been discussed to employ some other internal audit tools such as “TeamMate” and “Visio”. The motivation to employ these tools stems from IA1’s level of experience in the Internal Audit profession. IA1 has worked in both internal and external audit for over thirty years and had used some of these IT and digital tools in her past experiences and therefore had suggested and discussed it with the team. As Battilana and D'Aunno (2009) suggest that, even if such reactivation is generally overlooked as a type of agency it entails some conscious thought and actors must nonetheless pay attention and participate in it.

6.3.2 *Practical Evaluative agency*

According to Battilana and D'Aunno (2009) practical-evaluative agency relates to actor's ability to choose between many actionable paths in response to demands that emerge and ambiguities in circumstances that are currently developing. IA1 noted that they have considered the other kinds of digital tools not to be cost efficient for use and therefore decided to continue using the current Microsoft office. Betti and Sarens (2021) noted that costs are involved with implementing data analytics, particularly when considering the skills needed to employ this technology. This decision can be related as practical-evaluative and is an example of “adapting institutional practices” whereby the IAF in deciding what type of IT tools to adopt consider the current cost of implementation and decided it was better to continue with the current tools (Battilana & D'Aunno, 2009; Emirbayer & Mische, 1998).

6.3.3 *Projective Agency*

Battilana and D'Aunno (2009) described this dimension of agency as the creative invention by actors of potential future action paths in which established thought and action structures may be imaginatively transformed considering the actors' future aspirations, fears, and hopes. IA1

asserted that weaknesses in the digital tool they're currently employing and a few other functions in Microsoft Excel has prompted for a shift to Microsoft Office 365 and believes it will be implemented very soon. This can be seen as what Emirbayer and Mische (1998) referred to as "projective" dimension of agency which involves "an imaginative engagement of the *future*". The IAF at Helse Nord have seen practical weaknesses in the current digital tools and have envisioned a future where it can be improved. This decision can be seen as "repairing" as shown by Battilana and D'Aunno (2009) in their research.

Therefore, a combination of the different dimensions of agency can be seen as present in the IAF's decision on the digital tools they have chosen to adopt and are currently applying. The combination of the different dimensions of agency shows that the actions of the IAF in this situation correspond to the institutional work of "**Maintaining Institutions**". Iterative agency is present where actors "enact institutionalised practices", IA1 pointed that before the current version of Microsoft office, there had been previous versions of the tool used in the department. Therefore, the choice to continue with the same tool and not select any other ones due to cost reasons represents practical-evaluative agency in the form of "adapting institutionalized practices" and finally, the decision to improve to Microsoft Office 365 represents projective agency in the form of "repairing". (Battilana & D'Aunno, 2009) contend that all three of the essential aspects of agency is present in varying levels within any real-world example of action, and this can be seen in the choice of IT and digital tool used by the IAF at Helse Nord. The IAF at Helse Nord in the choice of the digital tools to use are engaged in an embedded process of social involvement that is influenced by the past but also focused on the present and the future and in doing so, the actors are engaging in institutional work in form of "maintaining Institutions".

6.4 IT skills required by Internal Auditors

6.4.1 Projective Agency

According to Battilana and D'Aunno (2009) the projective dimension of agency involves the creative development of potential future action trajectories by actors, in which pre-existing thinking and action structures may be creatively rebuilt in connection to actors' hopes, anxieties, and future aspirations. Digitalization of the corporate environment has seen a shift in priority between financial skills and IT skills, which is causing changes in the fundamental skills expected within an internal audit department with the latter becoming more and more crucial for the IAF to maintain alignment with the organizational strategy and the business context

(Betti & Sarens, 2021). Digitalization appears to introduce new risks, which has a direct impact on the internal audit (Betti & Sarens, 2021). IA1 believes that the IT competence needed going forward needs to be on a high level and will need to change all the time and IT risks, in particular risks related to cybersecurity, have grown to be a serious problem. Here, the *projective dimension* of agency is present because there is a conscious awareness for the need for IT competences in the IAF. IA1 further noted that there is a need to understand what is changing in the clinical field due to the advancements in Artificial Intelligence and robotics in the health sector, there is a need to understand a part of these changes.

“...even though we are not clinical comp, we don't have the clinical competences, but we need to how do they use that in the work in the trust.”

Therefore, IA1 suggests that there is a need to have a certain level of digital consciousness to understand both how new technologies operate and affect processes in the health sector, as well as how they can enhance internal audit working practices. The projective dimension of agency exhibited in this instance of action is an example of “*Advocating diffusion*”, which is under the form of institutional work of “creating institutions”.

6.4.2 Practical-evaluative Agency

IA1 noted that due to digitalization and cyber risk, the sensitive patient information needs to be protected in the health sector, and it's the job of the IAF to make sure that this information is secure. The IA1 further notes that, they are building up now a second line internal audit in the Helse Nord ICT to get highly experienced IT people to do these kinds of audits with the major constraint being that the current IAF at Helse Nord consists of just 3 executives. This can be seen as *practical evaluative* dimension of agency, which is focused on the demands of the present. As highlighted by Battilana and D'Aunno (2009), this dimension is required as a result of "the exigencies of changing circumstances." In response to newly developing needs, problems, and ambiguities of currently unfolding situations, it relates to actors' capacity to make practical and normative judgements among different viable paths of action.

“...they also go external to get that kind of competence, because if I should build up an internal department with those kinds of competencies that are so high level all the time that we know that we have all the secure routine in place, and everything is safe then I need to have 10 people perhaps.”

Therefore, this practical-evaluative dimension of agency falls under the example of “Adapting institutionalized practices” and is focused on “maintaining institutions”. Due to the exigencies

of the present which includes the absence of the required IT expertise and a constraint in the size of the IAF, the development of a second line internal audit in the Helse Nord ICT to get highly experienced IT personnel to perform the audits. Just as Battilana and D'Aunno (2009) argue that any empirical instance of action can have, to differing degrees, all three dimensions of agency, in this instance of action, we see multiple dimensions of agency where the IAF is advocating diffusion by identifying the need for a certain level of digital consciousness to understand both how new technologies operate and affect processes in the health sector and also enacting institutionalized practices, by creating a second line internal audit with highly experienced IT personnel. It is noteworthy that the actions of the IAF still translated to institutional work of “maintaining institutions”.

Chapter 7

7.1 Conclusion

At the beginning of my thesis, I developed my main research question and developed sub-questions to help answer the main research question. The main research question is:

“How have the work processes of internal auditor(s) at Helse Nord changed in the era of digitalization?”

To be able to answer this research question, I created these sub-questions:

- i. Who is the main actor(s) responsible for the change(s)?
- ii. What specific digital tools and technologies have been adopted by Internal Audit Functions, and how have they impacted their work processes?
- iii. How has digitalization impacted the skills and competencies required of internal auditors?

I will answer these questions using the theoretical framework and my empirical data. In attempts to answer these questions, this master thesis has explored who the main actor(s) responsible for how digitalization is reshaping the work processes of the internal auditing function at Helse Nord. It has examined the types of digital tools employed by the IAF and the potential benefits. It also explored what skills should constitute an Internal Audit function in the digitalized era.

To answer the first sub question of “who is the main actor(s)? The empirical study for this thesis is informed by useful viewpoints from internal auditors that have experience with digitalization. Studying these actors through the different dimensions of agency and how they perform institutional work, the results have highlighted the advantages of internal audit function's use of digitalization and Information technology tools as well as certain constraints.

The study revealed that even though there are many specialized internal audit tools and other data analytics software, the IAF is using the Microsoft Office tool as the primary technology to digitalize its working procedures since it is a tool with many benefits. It encompasses all the needs of the IAF in the form of data analysis, video conferencing- having audit meetings remotely and even visual presentation. The findings reveal that these functions greatly help the IAF perform its processes effectively. The results also highlights that there are some other digital tools leveraged by the IAF, but the primary tool remains Microsoft Office.

The thesis also revealed that internal audit departments are realizing the need of having digital skills and capabilities. Proving that each internal auditor needs to have a certain level of digital awareness to understand how new technologies operate and how they can enhance internal audit working practices. Especially in the health industry, where the internal auditors are not clinical competent, it becomes imperative that the IAF have an affinity towards digitalization because of the constant advancements in the health sector. The study also revealed that the constraint in the size of the IAF led to the creation of a second line IA who are being trained to take on Audits specifically related to Information Technology tasks.

In attempts to answer the main research question of “how have the work processes of the IAF at Helse Nord evolved in the digitalization era?”. Internal auditing has undergone a revolution thanks to advancements in Information technology and digitalization which has compelled organizations to start moving in that direction and it has become clear that internal auditors must embrace information technology and digitalization to keep doing their job effectively. The results from this research reveal that despite the advancements in the field of Internal audit because of digitalization and information technology, the internal audit function at Helse Nord is not developing with the trend in the internal audit world. The reason for this as the study further revealed is that the internal auditors at Helse Nord are consciously engaging in the different dimensions of agency which were theorized by Battilana and D'Aunno (2009), the result of which reveal that the Internal auditors at Helse Nord are engaging in the institutional work of maintaining organizations.

Finally, this study contributes to the literature on digitalization and information technological adoption in the IAF revealing that despite the advancements in digitalization and information technology, the IAF has not moved along with the trend and contributes to the literature on institutional work studies, filling the knowledge gap of how actors engage in institutional work of maintaining institutions.

7.2 Future Research

This research gathers the opinions of internal auditors from one organisation. This research also uses institutional work in theorizing how the work processes of the IAF has evolved in the era of digitalization. Future research should investigate the opinions of more internal auditors, from several organisations in form of a comparative study. Future research can also gather the opinions of Internal auditors from another legal context as my research is limited to internal auditors in the health sector.

Future studies should look at the link between an organization's level of digital transformation and the internal audit department's required profiles in terms of skills. This will assist the training and recruitment criteria for internal audit training in advance to meet organizational expectations. Future research can also focus on why the IAF's work processes have not evolved much despite the advancements in digitalization and information technology in organizations.

Finally future research can also adopt a different theoretical approach in understanding how the work processes of IAF has evolved in the era of digitalization.

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Appendix

Appendix 1: Interview Guide

General Questions

- Q1. Hello, can you kindly introduce yourself?
- Q2. What is your current position in the organisation?
- Q3. Can you describe type of work that you performed?
- Q4. How long have you held this role/position?
- Q5. Can you describe your educational background?
- Q6. What previous jobs have you held and worked in?

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- Q7. Do you use any form of Information Technology in your function that help in Risk Management? (If Yes) Can you kindly give a brief description?
- Q8. How did the integration of IT align with the institutional norms and expectations for internal audit practices?
- Q9. Who is/are responsible for deciding what forms of IT tool (Microsoft Office) you use in the Internal Audit department at Helse Nord to carry out your activities?
- Q10. Has there been any time where you or the other team members has suggested a change in any of the IT tools currently being used?

If (yes), what tools were recommended and why has it not been adopted?
- Q11. Do you think this adoption of Information Technology has made the work of internal audit much easier? Kindly elaborate on your experiences.
- Q12. What challenges have been encountered in the process of integrating IT into internal audit practices?
- Q13. Do you know about the concept of Continuous Auditing? And the different types of CAATS - Computer Assisted Audit Tools that help automate the audit process?

Are these programs user friendly? Would you prefer to use them instead of the traditional audit method for risk management?
- Q14. Have you or any of your colleagues ever thought that something should be changed in your work?

Q15. Do you remember any instance of change in the Internal Audit practice?

If so, who was involved, what was their role, how did they do it?

Q16. Do you personally see any issues with your current practice?

Q17. How has the integration of IT impacted the relationship between internal audit and other stakeholders, such as management and the audit committee?

Q18. Have you experienced conflicts in the course of your work in the past?

If (yes), what caused it and how was this conflict resolved?

Appendix 2: Transcribed Interviews

Interview 1

Me: I have general questions and, questions on IT, questions on internal audit and questions on how you carry out your daily activities. So, I'm just going to dive in if that's OK.

IA1 : That's OK

ME: What is your current position here at Helse Nord?

IA1: The Head of internal audit.

ME: And can you just describe the type of work you perform?

IA1: Yeah, and we follow the IIA standards and that's very important. The professional standards are important. I'm not certified in internal audit; I have just said that the state authorised auditor certification I have that's quite OK. But I've trained for internal audit since I started in Kreditkasse and then. Since I started in the bank, so I'm very I think I'm good trained in internal audit standards. But due to that we must follow the standards. There are quite a lot of things that I as the head of internal audit is responsible for. So, I need to perform the internal audit plan. The board approves the plan and the audit committee, we have an audit committee, and we have the Board, of course, that need to approve the plan. But I need to prepare it. I need to prepare a risk-based audit plan.

We prepare on rotating 2 years audit plan. I need to have close contact with the auditees they are the trusts we have. We have 6 trusts, and we have this regional trust the regional authority "Helse Nord", so I need to have close contact with the authorities and need to prepare the of the planning together with my team, of course, the planning of each audit that we have on our audit plan, we need to, I need to control that the execution part is following what we have planned to do. Also, in regard to the conclusions and the reporting and that's the main things I need to make advice to the auditees and when they ask me for advice, I need to be close to the management here and of course, my personal manager is the CEO, even though I report functionally to the board, I need to have a personal closeness to the CEO. I need to prepare the budget, of course, for the unit, yeah. And I need to decide what kind of methods we need to do when we do? Of course, so all these things I do together with my team.

ME: How long have you been the head of the internal audit here?

IA1: Since April 2019? Yeah. So that's almost four years now, yeah.

ME: Was this the role you started as here?

IA1: I had almost six months there. I worked together with the one that's retired, so I was introduced. Through the work, by being together with the one that was, the former head of internal audit. So, we worked together for half a year, that was very good. And I knew him before because we were colleagues in KPMG as well, so that was good to be introduced because. Even though I had been closed into the financial sector before and I had also when I was an external auditing KPMG, I was an external auditor for Helse Midt Norge, so I had gained some knowledge into the health sector as well, but it was good to have half a year together with the former head of internal audit to get to know the people and get to know how to work here.

ME: Can you describe your educational background and some the previous jobs you've worked in

IA1: Yeah, due to my education being back into the 1980s, early 1990s, being a State authorised auditor was not a master. We didn't have the master; we had the bachelor of course. I went to NTNU Trondheim, 3 years there and got my degree. It wasn't called Bachelor back then, but it was three years, then two years then with Keditkasse, internal auditor. Then I worked 1 1/2 year in Bergen, so to be a state authorized auditor back then was 4 1/2 year, So it's not a fully master. The education of 4 1/2 year, not five years as you have today.

Two ways of being State Authorized auditor, 1st you could have these three years with auditing and accounting and then 1 1/2 year into Bergen. Otherwise, you can have these four years as a they have today, the Master of Economics that was four years then and then you can put on this one and half year and you must have 5 1/2 years. But it was like, the easiest way was these three years and one and half year and then it was then state authorized. And you needed the two years with practise to be state authorised so the two years I had as internal auditor I only took one of those years to get this authorization and then being external auditor one year more year and then I got the authorization, and as I said, I had this my own company for four years, sold it to KPMG and then in 1998, And then nine years with KPMG. In KPMG

I was a senior manager and then two years as a Chief Financial Officer in this hospital pharmacy That was the trust of Helse Midt Norge and then nine years as an head of internal audit in Danske Bank in Norway and now then 4 1/2 year I worked here in Helse Nord and of those 4 1/2 year, four years as head of internal audit.

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ME: Do you use any form of information technology in your function that helps with risk management first before we even go to like the general and then just give me a brief description of what the types you.

IA1: So we don't have a form of IT system that we use, but we use information, Helse Nord has a dashboard where there is a lot of information where you gather quality assessments, quantity assessments. Everything is in our dashboard prepared by management here in Helse Nord and that's very important tool when we look into risk.

But otherwise of course we have the financial data as well and that's prepared by the financial department. So there are a lot of information gathered and everything is on as we only use IT system and IT .Yeah, different kind of things. When we got the information. But we only use the Microsoft Office package for the work we do so. We don't have our own dashboard where we gather information. We don't have that, for the risk.

ME: Who is/are responsible for deciding what forms of IT tool (Microsoft Office) you use in the Internal Audit department at Helse Nord to carry out your activities?

IA1: I'm the responsible for deciding what forms of IT tools to use, but we discuss how to use them in the IA department.

Me: Has there been any time where you or the other team members has suggested a change in any of the IT tools currently being used? If (yes), what tools were recommended and why has it not been adopted?

IA1: I've discussed with the team whether we should use any internal audit tools, as TeamMate (which I used when I was head of internal audit in Danske Bank Norway) or other tools, but so far, we have considered this kind of tool not to be cost efficient for our use. We have also discussed use of Visio, but we have so far decided to continue using power-point. I

see a weakness in the tools we have today because I should really like to have Microsoft 365, due to other functions in excel. But I know 365 is to be implemented soon.

ME: But Helse Nord has a dashboard of its own as an organisation.

IA1: Yeah.

ME: And does Helse Nord have a form of ERP?

IA1: Yeah, it's not. It's not a total ERP system they have because they use an old economic system, they have this accounting system that's called aggressive unit4 very old. So, they don't have an SAP or ERP. We don't have that here in Helse Nord.

They have not bought that, so we don't have really an ERP system, but you put together everything because the patient system that's DIPS where you gather all the information about the patients and that's a very important system, we have also different others, but we haven't, it's not in place yet. It's called electronical curve, that's not in place yet because they have some drawbacks in it. So we haven't implemented that yet, but that would also be very important going forward. We have all this system for diagnostics, there are lots of different kinds of systems and they are gathered in Helse Nord LIS. Information in the dashboard, so gather information from lots of things, even the accounting information is gathering to that. There we have the waiting times, capacity of the utilisation, you have activity. Lots of information in the dashboard. Even though it's not on ERP system it put together information from different systems.

ME: And this dashboard is powered by Helse Nord here or the IT organisation under the trust.

IA1: The private trust. Helse Nord ICT

ME: Is it easy or difficult to extract data from this dashboard?

IA1: it's quite easy. We can extract it into Excel, so it's quite easy. Yeah, but we have the system there and we have also because Helse directorate and that's part of the ministry, they gather a lot of information as well regarding patient information. So, we can gather information from that as well in Excel. So, we use that as well and we are now into our own audit.

We are planning an audit regarding the electronic journal, the DIPS, electronic journals and the registration practise, and then we can gather a lot of information from Helse directorate because that's open. And you can gather it by extracting in Excel using Excel. So, in the planning phase we use that so it's not difficult to extract information in Excel and we can use that and perform the audits.

ME: What was being used in the department before Microsoft Office tools and any current IT tools?

IA1: The department is relatively new (2005), so there have been earlier versions of Microsoft Office tools used.

ME: Are you exposed to other forms of Information Technological / digitalization tools like Microsoft Teams, outlook that we used to send emails, just to mention a few, what other ones can you say you have experience cause apart from Microsoft Office?

Because if we if we leave it at Microsoft Office, I feel like we're just scratching the surface because to be honest, information technology and digitalization is everywhere around us. we're using it in everything. Do you experience here or so not with any form of other data analytics, analytics. IT tools aside the Microsoft Office.

IA1: Now, of course, when you talk about teams, we use teams a lot because when we perform our interviews, almost every interview, we do it by using teams. So that is an important tool for us, and we also use teams when we prepare our audit reports, because then we can use teams as the file, so everybody can work in the same document, so we use that a lot. We could file everything in teams as well, but due to security we don't file it in teams because we're not sure whether it's up in the sky. So, we don't know. So, we put that on the server and of course, all the documents are on a secure file, and it's only the three of us that work in internal audit that have access to all the information we gather because of the confidentiality. We gather a lot of information regarding patients also. It's called NPR ID's and that's the personal ID for a patient.

Even though it said it's 678 numbers, you can't see by looking at those numbers. That's that is you or that person, but if you went into the patient journal system, you will see that that NPRID is that person. So, we gather a lot of that kind of information when we do all this. But due to the security we need to look up information in a secure way. We need to extract

information in a secure way so there we have different kinds of way to extract that kind of information and send it to us. If we don't gather it ourselves. So, we can use a secure way when we look into these types of information, in the DIPS, the journal INFORMATION system.

We can look at a patient being online with mercantile also the personnel can put it up in Finnmark, for instance, they can sit take that up and we can look at it together. Then we don't use teams. We can't use that using teams because it's not secure enough. So, then we use a very secure way when we go into "Secure online solution".

ME: OK, so is that another tool you use?

IA1: Yeah, that's another tool. It's not our tool because it's the Trusts tool, but we have prepared procedures for doing this and we also go to the data protection officer, we go to the data Protection officer and we do this Data protection consequence Assessment because they can, we do it and we have prepared procedures on how to do this. So, then we use this tool and go in and look at Information about patients by using the secure tool and we can sit here and the person that is putting up this journal and this information could sit everywhere else in the trust. Yeah. So that's the two last one. And do we have other tools? It's Excel and it's PowerPoints and when we prepare our process flow charts, we use PowerPoint because that's much easier. PowerPoints it's much easier to do and so and we don't have these complex processes either.

And we know we could have used this quality system that we have when we prepare our recommendations for the trust just to keep track of all the recommendations we give, we could use the system, but we don't use the system because. We don't have that many recommendations. We don't have that many audit reports every year, so it's quite easy to follow up on the recommendations that we give. When I was in Danske bank, we have so many audit reports. We have so many recommendations that we needed to use a tool and then we use this SERVICE NOW tool to keep track on all the audit recommendations and that the owner of the and responsible of the recommendations can follow up on this, but here we have quite a few recommendations, so it's quite easy to follow up, so we don't need a tool for that.

And all our audit reports they are on Internet, they are public. All our yearly reports are on Internet as well, so it's public as well. Our Mandate is public as well, If I will be honest, I think the Internet is also a form IT and digitalization tool.

ME: Have you encountered any challenges in this integration process with any of the forms of Digitalization and Information Technology? What challenges have you experienced in this regard?

IA1: Of course, there are some challenges I can start with the challenge when we need to extract a lot of data with this NPR ID. Because the files are big it could be quite challenges to get it in a secure way because we use the ELEMENTS and that's the secure way of sending data. ELEMENTS is the archive system, where you get everything sent, but it's quite difficult to send it through elements because there is a challenge regarding the size of the files. So, if you're going to send it to there, we need to split the file, so that could be a challenge and it has been a challenge that even though the Trust is sending out Excel files through the secure line, when we get them, we get them in PDF and that's not how we need them, we need to have them in Excel. It's impossible. Yeah. So that has been a challenge. So, then we need to send it through other secure lines. And even though we send it through ZIP files with password. That's of course we can do that but through outlook, but that's not really secure enough. So, what should we do then? Here in Bodo, it's easy, we can go to Nordlandssykehuset and we can go and get the information.

So that's a bit of a challenge. Now when we are going to extract a lot of data from the trust, when we are going into registration practise in DIPS. That is something we're looking into now. How to get the data in a secure way in, but not too difficult. We can't travel to Hammerfest or Kirkenes to get the data. We need to get it securely. So that's a bit of a challenge. And other things that could be challenging is the completeness. Of course, when we extract data, have we got the correct data? Is it complete? That's of course a challenge. And then afterwards when we use of course data in Excel and we put them together and we make different kinds of information, graphical information that we need. Do we do it the correct way? That's of course a challenge as well do we get the correct information and gather it in a way. And when we put it up on the graphical and we use it in our reports, we need to do quality checks, quite a lot to see if it's correct.

We have had some challenges when we have performed reports, Teams had quite a lot of challenges in these first month. So, we have had to work with audit reports three persons together at the same time and due to the challenges, that teams have had, we have lost information, we have conflicts and a lot of it. So that's a challenge when we work because some days one of my colleagues has come to work and "You have a conflict". Do you want to say yes or no? What have you changed? What have the others changed? And all of that? That's a challenge, but that's really that's a system challenge so.

ME: Have you had any experience with the concept of continuous auditing?

IA1: The continuous auditing, we don't have that in Helse Nord. Not really because yeah, of course we have the dashboard, but we don't have a dashboard on our own. So, we don't follow in the same way. The risks we're exposed to don't change that often. We have a risk, and we have the same risk next year and we have the same the next year after we don't have the situation as we have in finance where thing changes from one week to another week. So even though we gave an Economic crisis, perhaps we won't have the economic crisis next year, but that's a risk that perhaps change. But the other kind of risks they don't change. We have the demographic situation here. We have a big risk that's coming up in 2035 or 2040 or something like that but it takes time, so continuous auditing is not that important.

We could have had it if we were following implementation or development of an IT system or things like that. Then we could have had continuous auditing where we followed a process, a project or something like that. During the whole from the beginning, from the planning, a whole way through.

They do that in the audit Department of HELSE SOR OST. They do that by following the development of the IT systems, you could have a same in HELSE MIDT healthy platform and when they have this healthy platform and they are the moment, but they didn't follow that in the same process as they could have, but so we could have had that here in Helse Nord as well. But we haven't followed the IT development system in that way.

ME: What IT expertise do you as an internal auditor need? So, what level of IT expenses do you as an internal auditor think you need?

IA1: There are a lot of the answers to this question, I think the IT competence we need to have going forward needs to be on the high level and will need to change all the time.

Due to the digitalization, due to the cyber risk, due to everything and of course we have the sensitive patient information that needs to be protected in the health sector. And as an internal auditor that you need to know that we have this data secured. We work quite close together with the Information Security Officer and we discussed a lot what kind of audits do we need to do and what kind of security audits they need to do in second line. To be sure that we have the protection of the data in place. So, they are building up now a second line internal audit you can say so, and they go outside of Helse Nord to get highly experienced IT people to do these kinds of audits.

And they have also Helse Nord ICT. They need to perform a second line audit all the time to know that the protection is in place. So, they also go external to get that kind of that kind of competence, because if I should build up an internal department with those kinds of competencies that are so high level all the time that we know that we have this all the secure routine in place, and everything is safe and all that I need to have 10 people perhaps. Yeah, so we just try to discuss it and we find what kind of competence do we need and what kind of competence is needed in second line. But that was regarding the security and the cyber risk and all of that.

But of course, we need understand what's changing also in the clinical part. Due to advancements in Artificial intelligence. When the artificial intelligence in health sector is changing, we need to understand at least part of it even though we are not clinical comp, we don't have the clinical competences but we need to how do they use that in the work in the trust, so we need to get on a higher level on that as well. Even though we are not going up there. We are not going to be physicians, but at least move on a higher level.

And robotics, of course as well. When you use robotics, putting together information in the dashboard for instance, and things like that, we need to get on a level that's high enough to understand whether there is a risk or not. And then I think that what we need to be confident is that the data is reliable, and we need to understand as an internal it whether the data is reliable. So, at that level we need to have sufficient competence.

To extract data to use data to put data together. Of course, in a way that is visible and understandable so that the kind of information IT competence we need, yeah.

ME: Do you remember any instance of change in your work here in Helse Nord so far, like from the usual practise and can you just give me an example of that? IT related or in general in general.

IA1: So change all the time and that is because we need to do a self assessment every year. So we change our procedures and processes. Yeah. We'll look into it every year. To see how do we are going to do this in a better way. So that is also we challenge our how to do things in a better way. We use the IIA standards to look how we could do things in a better way, but perhaps the most important we have started to look into maturity models. That's a way of reporting in another way to look into organisation in another way. I started with a competence model. To look into what kind of competences are needed going forward so started. Yeah, Last Autumn with this competence model, it's not fully finalised yet, but that will all be a while looking into what we are talking about now, what kind of competences are needed so that is an important part. We use perhaps the Risk assessments more. Even more than we did. We have prepared this risk universe. We did have a risk universe when I started, but we have prepared a risk universe, can also be called an audit universe, saying, what are the areas that we need to audit and we use this audit universe every year to look what kind of audits have we prepared the last five years last 10 years what kind of areas do we need to audit going forward? So that that's a change.

So yeah, we try to change our audit reports, do them simpler.

In some of it, we have a lot of just words, but we try to use pictures more we try to change them in a way, try to make them shorter. Yeah, things like that. So yeah, so many ways we analyse, perhaps in another way, that we did when I started, we analysed by putting up all the methods that we use, we use interviews, we used document information, other gathering we use. Perhaps we could use questioning, we could have tests of different kinds and then put all these kinds of methods together and analyse it for each of the criteria we have. And that's pretty good. And using colours to code different criteria. Is this area red, is it yellow, is it green? We also have this auditee questionnaire, when we find from our audits to ask what was good with the audits and what's not that good that there was a change as well.

ME: All right. Have you ever experienced any conflicts in the course of your work?

IA1: No, not really. any conflicts, because even though they are not perhaps all the time the auditees would agree and that's part of being an internal auditor. Or if we agreed on everything, then we didn't do our work. I think we need to disagree. But even though we can disagree, we try to make sure we base our observations on facts. And as long as you have based your audit observations on facts. It's not that often that we have these conflicts because even though we disagree, we can find solutions on it and we can say that it's fact. It's quite difficult to disagree on facts.

ME: Can you give me a practical example of when you maybe had a conflict after reporting some factual observations and exceptions?

IA1: Not the last audit, but the audit before that. If one of my team members bring up a situation, and advice that we should report it. It could be that as a head of internal audit, I perhaps could make it a bit softer. Even though we report, I think, but we can perhaps soften it a bit because when we put it in writing, it could be quite harsh. It could be quite hard then we need to put things on other words, some other verbs, or things like that, just to soften it a bit so that can happen with my team.

The audit we had on corporate governance. The draft report was based on facts and observations, very fact related and very straight to it that, "this is not in place, you'll need to do something with this". A person being in Helse Nord for quite some years, the whole time since it started in 2002 That was the beginning of this regional authorities. He had been there all the time, said this. "What you have written here is fact, but when somebody outside the organisation read what you have written here? It could be quite harsh and hard" Because it was just straight to it.

I had a talk with him and said that the situation is like this. He was responsible together with the old CEO and they agreed. "This is the fact but perhaps you need to soften it a bit."

So, then I went back, and we softened the report a bit just to make it easy on public it. Yeah, because often it could be a situation like that when it comes out to the public, you could put it in the media side so. When it comes into the media, it's often like they find these hard hash things we write?

ME: Do you personally see any issues with your current practise here. Do you see anything you want to change; you see how things can be done better?

IA1: We can see things that we can do better all the time. That's an important part. Everything is very boring if you don't change. Yeah, we have just had this external evaluation that we need to have every fifth year due to the standards. The report concluded that we perform everything regarding the standards, but they have come up with some reflection points.

One thing is that perhaps the audit report should be a bit less detailed. Yeah, that they could be shortened up a bit. They have also said that we could also perform some audits that are not that time consuming.

Go in and check things out and go back again. Not use five months, for instance. That could be a thing. And perhaps do some more advice as well not so much assurance.

Even though we do quite a lot of advisory, but the advisory part is more like having meetings with and discuss solutions, not with advice reports, we don't do that very often. So that's the most important thing you know just and look on what are we going to be, and for whom?

Are we going to be there for the trusts or are we going to be there just for the board in Helse Nord Health region authority. That's also something we are going to look into, but we are going to look into this together with the audit committee and the Board and also together with the three other regional authorities, yeah, because we work together with this so and we need to be perhaps more harmonised as well, do things the same way. Even though we are 4 regional authority internal audit departments, and we should think that we do everything in the same way, we don't do that, so we want to harmonise the work.

ME: Do you personally agree with this reflection point?

IA1: More or less some of them are not, Yeah, I don't I don't agree on all of them, and the audit committed don't agree on all of them either. So, and the other three Regional trust audit internal audit departments. They don't fully agree either, so we are 4 internal audit departments that don't agree on all of them.

ME: So personally, which ones do you disagree with?

IA1: Mainly the one that is regarding to what should we be to the trust. Today we are kind of internal auditor for the trust as well, and but the external evaluator, he thought that we should not be an internal audit for the trust, but everything happens in the trust. The patients are in the trusts, the systems are in the trust. So, the external evaluators believe, we should be working for the board and the management, but we work for the board and the management, so we don't fully agree.

On that and I have had lots of discussions with external evaluator.

But this is on the reflection point. Yeah, it's not something we need to change.

ME: How has the digitalization and Information Technology affected your relationship between at the internal auditor and the other stakeholders such as management and Audit committee? How has the different forms of digitalization impacted your relationship?

IA1: I can say that using PowerPoint presentation that perhaps the way we communicate with management of here and in the trust that's the most form of IT that we use, our reports are in Word format. The PDF of course, but mostly word format. But when I present, when I communicated it's PowerPoint mainly.