OSLOMET

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How the use of audit software affects audit effectiveness

Abstract

This master thesis investigates the impact of audit software on audit effectiveness, and the role of auditors' competence in using the software. The aim of our study is to increase the understanding of how software competence can affect the auditor's ability to achieve its intended objectives, which is to provide reasonable assurance that the financial statements are free from material misstatements.
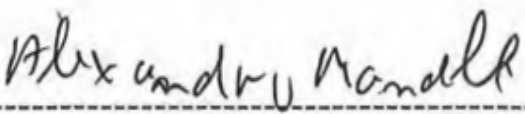
To conduct our research, we used a qualitative approach and in-depth interviews as our research method. We had a total of 10 auditors from both Big5 and non-Big5, all our informants had over 5 years of experience in auditing. Using senior staff informants with higher audit experience who willingly shared their knowledge on audit software gave us valuable insights about the impact of audit software and competence on audit effectiveness. Our results show that the effects of audit software on audit effectiveness are highly dependent on auditors' competence to use the software. In order to make use of all the benefits provided by the software, auditors must have adequate competence to utilize and understand the software functions and correctly interpret the software results.

Preface

We would like to thank our supervisor Limei Che for her constructive guidance during our thesis. Without her guidance, support, and knowledge, we would not have been able to write the master's thesis. We are deeply grateful for her help and her willingness to be our supervisor.

Furthermore, we would like to thank our friends and family who endured late nights and have supported us when we wrote this thesis. We would especially thank our partners Nazanin Maleki Ghozlo and Anne Katrine, as well as Frank's children Leona and Isak for allowing us to spend time on our thesis.

Lastly, we would like to thank each other for our great journey and friendship throughout our master's study. Our friendship and collaboration have played an important role in delivering a master's thesis that we are proud of.

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Innholdsfortegnelse

1 Introduction

As the development of IT systems in auditing firms continues to increase, the audit software becomes an important everyday tool in auditors' work (*Globe Newswire*, 2022). While previous studies have found a positive relationship between the audit software and audit effectiveness (Byrnes et al. 2018, Castka et al. 2020, Mangala and Kumari 2017, and Gupta and Gill 2012). There is very limited research on how auditors' competence in using the software can affect audit effectiveness.

Audit effectiveness refers to the auditors' ability to achieve its intended objectives, which are to provide reasonable assurance that the financial statements are free from material misstatements and are in compliant with the correct laws and regulations (Joe Oringel; 2012 Lovdata - Revisorloven § 9-1).

The purpose of this study is two-fold. We first investigate how the audit software can affect audit effectiveness. For example, audit software could automatize tasks. We then examine whether and how auditors' competence related to the use of audit software affects audit effectiveness. We find the purpose of this study very important, because even though the audit software can enhance audit effectiveness, it is not guaranteed, and multiple factors must be considered. For instance, if auditors do not have sufficient or relevant competence in the use of the audit software, auditors could conduct procedures that negatively affect audit effectiveness. Hence, it is important to examine how auditors' competence plays a role in audit effectiveness.

As our informants are from both Big5 and non-Big5 audit firms we can make a comparison between Big5 and non-Big5 [1]. The comparison provides valuable insight and allows us to draw meaningful information about the differences between Big5 and non-Big5 regarding auditors' competence to use the software and audit effectiveness.

We use a qualitative method when we collect the data. We conduct interviews as it is recommended for in-depth explorations when the researcher studies a certain theme (Tjora,

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[1] We focus on Big 5 instead of Big 4 because BDO is very big in Norway and is comparable to the Big 4 firms.

2021, s. 17). For our interviews we use an interview guide to provide structure and consistency (Tjora, 2021, s. 160). We have a total of 10 informants from both Big5 and non-Big5 firms. Most of our informants are senior staff with at least 5 years of experience in auditing. Their extended audit experience can give us valuable insight and real words examples which can enhance the validity of our data. In addition, to increase the validity and reliability of our research, we are separately conducting an analysis of the data obtained from our informants. Afterwards we discussed the results to make sure we didn't misunderstand or interpreted the data differently. This procedure is one form of triangulation, which is used to increase the validity and reliability of our findings (Bengtsson, 2016).

Our research shows that there is a strong positive correlation between the auditors' competence to use the software and audit effectiveness. Auditors' competence to understand and utilize the software's function properly its crucial to access the benefits provided by the audit software. Some of the benefits include analysing large volumes of data, thereby assisting the auditor to identify data anomalies which can indicate errors or inaccuracies in the clients' financial statements. However, if the auditor lacks competence in audit software it can negatively impact audit effectiveness. For example, if the auditor struggles to understand the data analysis made by the software, it can lead to incorrect interpretations of the results and incorrect procedures which can negatively impact the audit effectiveness.

A lack of software competence has a different impact on audit effectiveness between Big5 and non-Big5 audit firms. This is illustrated by one informant from non-Big5 who did not correctly import the financial data from the clients' systems and misinterpreted the software's result. The misinterpretation of the results ultimately led to issuing an incorrect audit opinion. However, in Big5 firms the consequences were more related to auditor's self-criticism, and the risk of issuing a wrong audit opinion is minimal due to their multiple control processes.

Our thesis is structured as follows: Section 2 presents the literature review, which contains prior studies on the effects of audit software on audit effectiveness, and the importance of auditor's competence in using the software. Section 3 describes the research methods.

Section 4 presents our findings from the survey we conducted, and a thorough analysis of the result. The research is finally concluded in Section 5, where the conclusion will be presented together with suggestions for future research.

For a better guidance of our research, we examine the following two research questions (RQs) in this study.

RQ1:   How does the use of audit software impact audit effectiveness?

RQ2:   To what extent the auditors' competence in using the software affects audit effectiveness.

2   Literature review

We are using a thematic approach to structure the literature review. A thematic approach is used to analyse qualitative data and identify patterns and trends across different studies (Kiger & Varpio, 2020). This section provides an overview of the existing literature on the topic and shows how different pieces of literature fit together.

2.1   Auditing software and audit effectiveness

To determine and fully understand how auditing software impacts auditors' effectiveness, we must first understand what lies in the concept of auditing software and audit effectiveness. According to Byrnes et al. (2018), auditing software is a type of program designed to help and assist the auditor when performing different tasks during an audit. The software can be a local program on the PC or could be integrated with other systems, such as Enterprise resource planning (ERP). Audit effectiveness refers to the auditors' ability to

achieve its intended objectives (Joe Oringel, 2012), which is to provide reasonable assurance that the financial statements are free from material misstatements and are in compliant with the correct laws and regulations (*Lovdata - Revisorloven § 9-1*, 2020)

As the use and development of auditing software is significantly increasing in the audit industry, the auditors become more and more dependent on the software. According to (*Globe Newswire*, 2022) the global audit software market in 2021 was 1162.8 million dollars, however it is predicted to reach 2413.7 million by 2028. This highlights the growth and adoption of audit software by audit firms.

As emphasized by Byrnes et al. (2018) and Castka et al. (2020), the audit software has a significant impact on audit effectiveness since it can offer multiple benefits, such as increased accuracy and completeness of financial data, this can be done through automated reconciliation of the bank statements against accounting records to identify duplicate payments. Another benefit of the audit software can be automating repetitive tasks, this can free up time for auditors so they can perform more complicated tasks and additional testing. Furthermore, if the software has datamining capabilities it can assist the auditor to identify anomalies and inconsistencies in the financial data that could be related to material misstatements or fraud Castka et al. (2020). While Byrnes et al. (2018) is highlighting how the automated reconciliation increases the audit effectiveness by identifying duplicated payments, Castka et al. (2020) focus on the importance of data mining to identify patterns and anomalies in the financial data. These studies illustrate how the audit software can enhance the audit effectiveness throughout different pathways.

Mangala and Kumari (2017) conducted a study on 336 auditors to examine auditor's perception on anti-fraud methods, the findings of the study reveal that the audit software can help the auditor to discover fraud, particularly through data mining. Furthermore, Gupta and Gill (2012) claim that by using a software with data mining capabilities, auditors can detect data anomalies and fraud if the client's intern control system fail to prevent it, or even if the fraud was committed by the management.

Christian Peo, who has the role of National Managing Partner, Audit quality and Professional Practice, at KPMG LLP, underlines how information technology today gives auditors *"more insight than they ever thought possible"*. He states that with the help of audit automated

audit software every transaction can be analysed. This helps the auditor to identify data anomalies and variation across the entire population of transactions, not just a representative sample. The software informs the auditor of the discovered high-risk transactions so that the auditor can go in and investigate those transactions more thoroughly (Russ Banham, 2022).

Another advantage provided by the audit software is improved documentation quality by improving the flexibility to access relevant financial data from the client. As audit cloud software allows the auditor to easily access the client's financial data and conduct procedures on a client remotely from any geographic place with access to the internet (Qureshi Muhammad, 2020). This means the auditors can re-evaluate the procedures made and add new findings during the audit engagement without the need to be in the office. On the one hand, this can improve accuracy and completeness. On the other hand, a thorough and better documented audit can provide the client with reliable and more useful information about its business processes (Manita et al., 2020)

Despite many of the benefits that the audit software provides to the auditor, the increased use also poses significant challenges, for example, the need of auditors' adequate competence and knowledge on how to operate the system, as well as being aware of the audit software's limitations to use it effectively (Byrnes et al., 2018)

2.2 How auditors' competence in using the software affects audit effectiveness.

Although there is no explicit definition of the term competence that all researchers agree upon, we use one of the most widely recognized definition by Lee and Stone (1995) who define competence as the expertise that can be used explicitly enough to conduct audits objectively. Similarly, Rosadi & Barus, (2022) describe competence as the auditors' knowledge, skill and experience used to conduct objective, accurate, and thorough audits. Based on the definitions above, it is fair to deduce that sufficient knowledge, skills and experience is required for the auditor to carry out his or her responsibility objectivity and thoroughly.

Mardian and Avianti (2019) highlight that auditors' IT competence can have a major impact on how optimally and widely auditors use the audit software, for example, newer auditors with less the 1-year audit experience with no IT background are more likely to operate the audit software inadequately due to the lack of competence. This was partially done by replacing the audit software's function with different programs that the auditor is more comfortable with, such as Microsoft Excel.

Knechel (2016) further argues that technological competence increases the auditors' ability to use the software more effectively, by enabling the auditor to use all the available functions of the software. This is also agreed by Huh et al. (2021), who highlights that auditors with high level of competence in IT systems can more effectively use the audit software's functions.

Adequate IT competence is also required by the international audit standards (ISA). ISA 315 requires that auditors have the necessary competence to understand the client's IT systems, including its internal control and environment. ISA 220 addresses that the auditor has overall responsibility for achieving quality on the audit engagement, and requires that the auditor has adequate competence, knowledge, and skill when conducting an audit. Even though the ISA standards does not specifically mention auditors' competence regarding using their own audit system, we can deduce that ISA requirements are also applicable to the IT systems used by the auditor. In addition, Norwegian data protection authority requires audit firms to be able to explain the mechanisms of how automated analyse processes by IT systems are effectuated (Datatilsynet, 2018).

The challenges raised by the need of competence in using audit software have not been overlooked by audit firms. The Big5 firms are already investing in employee's competence to stay up to date. KPMG are planning to invest 5 billion dollars in the span of 5 years from 2019, in new audit software, and in training the employees in the use of the new audit software (*KPMG Global*, 2019). According to Tiberius and Hirth (2019), the high cost of implantation and adequate audit competence required to use advanced digital tools can often be a challenge for small and medium sized companies. However, this does not always mean that the audit quality is reduced, because small and medium sized audit firms have more knowledge about their local markets and clients, which increases their chances to detect irregularities (Lawrence et al., 2011).

2.3 Summary of literature review

The literature review explores the impact of the audit software on audit effectiveness and auditors' competence in using the software affects audit effectiveness. The previous studies indicate that the audit software can provide multiple advantages, such as, increased accuracy, completeness of financial data, automating repetitive tasks, and improved documentation quality. Audit software with data mining function can assist the auditor to detect data anomalies which can indicate errors or fraud.

Mardian and Avianti (2019) highlights that competence plays an important role to utilize the audit softwares functions. Auditors who don't have adequate competence are found to replace parts of softwares functions with other programs they feel more comfortable to use, such as Microsoft Excel. Similarly, Knechel (2016) support Mardian and Avianti (2019) findings and further argues that IT competence increases auditors' effectiveness in utilizing the software functions.

The audit software market is continuously expanding, emphasizing the increased use and reliance on the audit software among audit firms (*Globe Newswire*, 2022). However, this continuously development of advanced audit software on the market presents several challenges should be taken into account, including higher competence to operate the software optimally, over relying on the audit software, and high cost of implantation. The ISA standards require the auditors to have the necessary competence, and knowledge to understand the client's IT systems when conducting an audit. Big5 are already investing heavily in the developing of their own audit software and competence development.

Regardless of the benefits and challenges identified in the literature review related to the impact of audit software on audit effectiveness, there is room for further research gaps that are important to be covered. Even though the audit software itself can improve audit effectiveness, there is still very limited research on how auditors' competence in using the software can affect audit effectiveness.

3   Methodology.

When it comes to methodology, there are mainly two methods, quantitative or qualitative method. As the first method uses larger datasets (Johannessen et al., 2006), it can be considered more empirical in nature. Although qualitative method may use less data, it is more in depth, and therefore can force the researchers to modify their research questions depending on the outcome of the research (Tjora, 2021, s. 17).

There are several methods of gathering qualitative data, such as observations, in depth interviews and analysis of documents (Tjora, 2021, s. 61, 127, 195). The similarity of these types of collecting data is that they are more time demanding for the researcher who must document all the observations as they happen.

When we are conducting an observation study, it is often done in the field where the subject is conducting their work, or the activity you are researching, and this also brings forth inter-subject situations (Tjora, 2021, s. 62). As our research focuses on the impact the audit software has on audit effectiveness, and the role of competence in using the software, this kind of method would not yield the desired result.

Study of documents as a method has similarities to our literature review. This method lowers the load on the informants, compared to interview and observation studies (Tjora, 2021, s. 195). We use a similar approach in our literature review, where we are using public research papers and publicly available information as a basis for our research (Tjora, 2021, s. 196).

Considering the strength, weaknesses, and the desired result of the research methods, we have chosen in depth interviews as our research method, this is also the most widespread research method when it comes to qualitative research (Tjora, 2021, s. 127)

3.1   In-depth interview

In-depth interviews are usually used when the researcher has chosen a theme beforehand (Tjora, 2021, s. 127). It differs from a survey as it has more open questions, which are not

closed as those in a survey. This makes it possible for the informant to digress and come with deeper, more broad answers than in a closed question survey (Tjora, 2021, s. 128).

This is ideal for our research, as our goal is to acquire more knowledge on how the use of audit software and the auditors' competence when using the software affects audit effectiveness. It is important to keep the conversation informal so that our informants might digress when answering questions, this allows the auditors to share valuable information on our overall topic (Tjora, 2021, s. 128).

When we conduct our interviews, we are using an interview guide, with a set of questions we ask all our informants. This guide is divided into three parts: ice breaking, reflection and closing (Tjora, 2021, s. 160). This is to have some structure on the interview, and to have a kind of flow with the informant. The focus of the interview will be the reflection-part whereas the ice-breaking and closing part are the most informal. Our interview guide is in appendix 01. In the guide we include our arguments for why the questions are relevant to our research.

Our target length for the interviews is that they should be about 45minutes to an hour long, but if the informant is very talkative and we find the information relevant we will keep the interview going. If the informant during the interview strays too far away from the question, we will close the topic and move on to the next question in our interview guide.

We are informing all our informants of the goal of the research, and that we will be recording the interview so that we can transcribe it post-interview.

3.2   Selection

One of this thesis's focus is to examine how the use of audit software affects audit effectiveness. Our prime informants are senior staff with a minimum of 5 years audit experience. As more experienced auditors are expected to have more knowledge about the functions provided in audit software and have witnessed the development of the software over the years, we can obtain valuable insight with real world examples of how the use of audit software affects audit effectiveness.

Using senior staff informants with a higher working experience also enhances the validation and reliability of our research article because of their deeper understanding of the audit software and audit profession. Additionally, to increase the validity and reliability of our research, we are separately conducting an analysis of the data obtained from our informants. Afterward we discuss the results to make sure we don't misunderstand or misinterpret the data. This procedure is one form of triangulation, which is used to increase the validity and reliability of our findings (Bengtsson, 2016).

We reached out to potential informants through LinkedIn and by using the request form we found on auditors' firm homepage.

This is an overview over our informants.

	Auditor 1	Auditor 2	Auditor 3	Auditor 4	Auditor 5
Education	Bachelor	Bachelor	Bachelor	Master	Master
Seniority	5 years	5 years	6 years	14 years	9 years
Title	Associate	Senior Associate	Senior Associate	Manager	Manager
Big5(Y/N)	No	No	No	Yes	No
	Auditor 6	Auditor 7	Auditor 8	Auditor 9	Auditor 10
Education	Bachelor	Dual Masters	Bachelor	Master	Bachelor
Seniority	5 years	8 years	5,5 years	10 years	6 years
Title	Associate	Manager	Manager	Manager	Associate
Big5(Y/N)	No	Yes	No	No	Yes

Table 1

3.3   Interview

 We allowed all our informants to choose the place of interview. To lessen the burden on our informants, we mainly tried to do the interview at their place of work. However, when that was not possible or desirable, we conducted the interview at school or digitally using Teams, Zoom or Google Meet. As we were interviewing Norwegian auditors, we conducted the interviews in Norwegian.

Ten interviews were completed between 14.04.2023 and 02.05.2023. All the interviews were recorded with a sound recorder to make sure we did not miss important details, this allowed us to fully focus on the interview, rather than taking notes while we were conducting the interview. (Tjora, 2021, s. 180).

4 Result and discussion

4.1 Presentation of result and discussion

This section will provide an overview of the findings gathered from our interviews. This section is structured in three parts, each part contains one theme: In part one we present the audit software's impact on effectiveness, part two focuses on how auditors' competence in using the audit software affects effectiveness, and part three contains the responses from the open questions.

4.2 Theme 1 – How does the use of audit software impact audit effectiveness?

In this findings section, firstly, we present the interview questions then we follow up with the answers provided by our informants.

Our first interview question is as follow:

1) *Does the use of audit software increase the audit effectiveness?*

All auditors agreed that audit software increases the overall audit effectiveness. One auditor from non-Big5 underlines that the audit software increases the effectiveness significantly more when conducting an audit on medium and large businesses. As medium and large clients have a higher number of transactions the audit software provides greater benefits by analysing large volumes of data.

Liberating time by automating repetitive tasks

Many of our informants highlighted the software's function to automate repetitive tasks, allowing the auditors to focus on more complex tasks. One auditor from Big5 stated: *"the software gives us more time to focus on more complex tasks that require human judgement"*. This highlights one of the many benefits the audit software has on effectiveness. The auditor can now use more time to do additional testing and other procedures that require human judgement.

2) Can you describe some specific areas, where you or your colleagues have noticed increased effectiveness due to the audit software?

Increased audit effectiveness in key areas and improved structure and guidance

Big5 informants describe how the use of audit software increases audit effectiveness in several key areas, such as: Employers' taxes, wages, public taxes. One of the Big5 auditors pointed out that the effectiveness in these areas has improved due to the seamless integration between the audit software and Altinn, stating that: "*The audit software is extracting the data from the client's systems and ensures accuracy with the data reported to Altinn"*.

Both non-Big5 and Big5 auditors share a similar experience on how the software is very helpful in multiple reconciliation areas: such as bank reconciliation which is done by comparing the financial statements against bank records. In addition, they emphasize the software's function to analyse data.
However, one challenge related to reconciliation was mentioned by non-Big5 auditors. Certain software functions such as reconciliation is only possible when the auditor has adequate competence to use the software correctly. One non-Big5 informant states *"One should be careful and make sure the input data is correctly imported in the audit software systems for an effective reconciliation process."*

Another benefit mentioned by one Big5 informant is that *"the structure of data is improved from a - z, a template pops on the right corner of the software that guides you through your*

procedures". The software assists the auditor and suggests which tests and procedures are advised to conduct, based on the specific client undergoing the audit. Additionally, in Big5 audit firms, after the audit work is conducted there is an additional quality control process made by senior personnel to ensure the quality of the audit.

3) *Are there any areas that you detect more material mistakes or possible attempts of fraud compared to the past when the software you used was less advanced?*

Better insight in the clients' activity

All the auditors responded that the software did not necessarily detect material misstatements or fraud, but rather it provided better insight in the financial statements, which could help the auditor to detect material misstatements that otherwise might not be detected.
One auditor at Big5 states: "*It is important that the auditor can correctly interpret the results from the software analysis".* This statement highlights the importance of understanding the results of the analysis. It also indicates that incorrectly interpretation of the results can lead to the auditor conducting incorrect procedures which can negatively impact effectiveness.

The non-Big5 auditors mentioned that the audit software can automate repetitive tasks which frees up time so that they can focus on more advanced analysis that may lead to the detection of fraud. He then continued: *"I have detected fraud attempts, not mainly because of the program, but by the help of audit procedures and professional scepticism."*

All our informants agreed that professional scepticism and work experience were crucial when detecting material misstatements or fraud, especially when the client intentionally altered the financial records. This indicate that our informants have less risk of over reliance on the Audit software. As over reliance on the software can lead to a low level of scepticism, it can negatively impact audit effectiveness, however our informants do not seem to have this issue.

4) Is the auditing software you use integrated with your clients' accounting systems?

Seamless data exchange between the audit software and the client's financial systems.

Only one informant from Big5 had integrated audit software with the clients' systems. The informant added that the integration allowed continuous data exchange between the clients accounting systems and the audit software. The software was designed and developed in Norway for the Norwegian branch. One challenge mentioned by the informant regarding the system integration was that *"Sometimes due to an error in database, the imported data can have errors"*. This indicates that one of the risks related to integrated software with the client's systems is the failure to accurate import the data. Additionally, it highlights that the auditor is controlling the imported data and does not blindly trust the system.

5) Do you have access to your clients' accounts in real time, and do you have the ability to use this information during your audit?

Real time data and audit effectiveness

All auditors answered yes, but it depended on the clients' preferences. As one informant from Big5 stated *"Not all the clients wanted us to have real time access to their financial systems".* Also, some of the auditors from the smaller firms commented that there were clients who were still using accounting systems with very limited functionality and deliver a stack of receipts.

Some clients endorse the opportunity to give the auditors full access to their accounting software, as it was time saving both for the client and auditor. Real time access to the client's financial system can increase the audit effectiveness in multiple ways. Firstly, it increased the accuracy of data by allowing the auditor to obtain the latest financial information. Secondly it allows the auditor to do checks and tasks directly without the need to wait for a response from the manager or accountant.

6) Do you think the audit software is widening the gap between the auditor and the client which can result in reduced need of meeting and communicating with the client?

Some auditors commented that one negative side of the audit software is that it could increase the distance from their client. However, all our informants emphasized that they prioritize to know their client and their business in order to conduct an effective audit. As one Big5 auditor said, *"if you want to be a sloppy auditor, you can just press buttons and do 20 audits in a week instead of 3, without any client contact, but that would not be an effective audit complying with the ISA-standards."*

A very interesting finding was that all the Big5 informants said that the audit software bridged the gap between the auditor and the client. More mundane tasks are automated by the software, this allows the auditor to spend more time with the client. By spending more time, auditor could ask more complex questions regarding the business and the financial data. This additional information gathering can provide valuable information to the client, for example guidance in how the client can enhance the business' internal controls. However, one auditor said that it is important that auditors do not cause a conflict of interest as the auditor has to be independent. There was a risk that too much consulting can blur the line between being an auditor and a consultant.

4.3 Audit software's impact on effectiveness

4.3.1 Analysis

Our collected data from the interview is highly aligning with the findings presented in the literature review. As emphasized by Byrnes et al. (2018) and Castka et al. (2020), the audit software has a significant positive impact on audit effectiveness. The most noticeable areas where the benefits of audit software were identified are improved accuracy, completeness, and automation of repetitive tasks. These findings correspond with our previous conclusions we drew in the literature review (Manita et al., 2020; Castka et al., 2020; Byrnes et al. 2018).

Fraud detection

An interesting finding, which contrasts the findings of Gupta & Gill, (2012), is that none of the auditors discovered more fraud attempts or material mistakes directly linked to the audit software. All the auditors responded that the software did not necessarily detect material misstatements or fraud, but rather it provides better insight in the clients' financial statements. This enhances their understanding of the daily activity in the client's business which in turn allows them to use their previous experience and professional scepticism to detect material misstatements or potential fraud attempts.

As previously highlighted in our findings, the auditor today can use advanced audit software to conduct an audit without the need to communicate directly with the client. In an Italian study conducted by Lugli & Bertacchini, (2022) on Big4 vs non-Big4, the Big4 audit firms had a weaker direct relationship and less communication with the client due to their advanced systems than non-Big4. Yet, our study challenges this notion. In contrast to the Italians, our Big5 informants in Norway tend to prioritize meeting their client as much as non-Big5. Furthermore, Big5 informants underline that even if they could potentially conduct an audit without knowing their client, unfamiliarity with the client's business is poor audit conduct, and it does not comply with the ISA standards.

Confidence to use the audit software

A major difference between the non-Big5 and Big5 audit firms that we identified, was that auditor in Big5 had higher confidence levels when using the audit software compared with the auditors in non-Big5. The Big5 firms have specialized teams that keep the audit software updated with the latest ISA standards and regulations, and they also make sure that the software does not have any malfunctions. Additionally, the Big5 audit firms have quality control processes to ensure that the auditor did not make any mistakes during the audit. These factors contributed to increased confidence in using the software for Big5 auditors and could enhance the audit effectiveness.

Integration with Altinn

One of the major benefits among all our informants was the software's seamless integration with Altinn. Altinn is an internet portal for digital dialog between business, citizens, and public agencies (Altinn, 2017). The integration of the audit software with Altinn increases audit effectiveness particularly to the area related to the client's taxes and public fees. The audit software can perform automated processes to control the accuracy of these data. This is possible through the software's capabilities to import the data from the client's systems and reconciliate it with the data reported to Altinn.

4.3 Theme 2 – Auditors' competence in using the software and audit effectiveness.

4.3.1 Findings

7) *Have you experienced that new knowledge of the audit software you are using has made you reconsider the quality of previous audit assignments you have completed?*

One informant from Big5 shared his experience over the years of receiving assignments without proper training in the use of the audit software, he states: "*Even though there are routines and systems in place when onboarding in the audit firm to ensure that there is similarity in competence levels across the different branches of the Big5, in the end it is up to the branches managers and leaders to actually prioritize it. The training provided sometimes fell short, it was not sufficient, as a result some people were assigned to take clients too early. During the first years there were quite a few moments where I realized what I could have done different to achieve a higher audit effectiveness in my previous engagement, however with time I had less of these moments*". At the end of the conversation, the Big5 informant underlined that his work was quality controlled by at least one more pair of eyes.

Another informant from non-Big5 shared with us that he had indeed experienced issuing a wrong audit opinion, it did not lead to issuing a new opinion since the mistake was discovered only by him after a certain time passed. However, the non-Big5 informant made sure to be more careful in future and learned from previous mistakes and newfound knowledge. The informant then says, *"I managed to import the client's financial data*

incorrectly and couldn't really understand the softwares analyse results, if I had the competence and knowledge I now have when using the audit software, it would have not happened".

None of the informants from non-Big5 felt that they had proper onboarding training when they started in the audit firm. Many informants from non-Big5 have addressed the audit software competence issue by registering themself to different online courses on how to use the audit software. One of them stated that *"Understanding all the steps and functions of the audit software is essential to achieve high effectiveness".*

None of the auditors from non-Big5 expressed that they had controls in place to ensure that they were adept at using the audit software. One of them even said that his conscious would not let him relax and sleep at night, in fear of making mistakes at work when using the audit software.

8) How do you verify that the input and output of the software are correct and reliable?

There was a significant difference between the answers from informants in Big5 and non-Big5. The auditors from the Big5 highlight that they have procedures when it comes to IPE (information produced by entity), to ensure completeness. Additionally, the Big5 have various quality controls to ensure accuracy of the data. However, they sometimes perform certain sampling procedures to validate the input and output of the data processed by the software. This implies that the auditor is selecting a sample of transactions that was processed by the software and makes sure that the input and output of the data is as expected.

The non-Big5 auditors also perform samplings procedures to ensure the accuracy and reliability of the input and output data, however some of non-Big5 auditors experience challenges on how to correctly import data into the software. One non-Big5 auditor shared with us:*" In my first years as an auditor, I did not know what functions in the software I must hook on and off, this sometimes led to the software did not import parts of financial data from the client's financial systems".*

Another auditor from non-Big5 states *"I have often discovered that, due to lack of competence on how to import all the financial data, some auditors would manually override the systems and correct certain posts by themselves to maintain the balance of the financial statement."*

9) How does your firm increase the competence of their employees when using audit software?

In the Big5 firms there is a universal onboarding process to ensure that all employees have a minimum understanding of the systems that are being used in the audit firm. While there are differences among the Big5, new employees generally start with a study camp where employees from across the country gather to make personal connection across the different branches in the audit firm, and ensures that alle new employees receive a basic understanding of the available software and tools.

Before Big5 firms implement a new system, they always have prior courses and training. One Big5 auditor states *"Before a new system is implemented in the audit firm, we have training and courses of how the system works"*. Furthermore, the Big5 have multiple specialized teams that auditors can ask for help when they come across unforeseen events in the software, this is in addition to the local "super users" they have inhouse in their branch. A super user is described by our informants, as a person who is specialized in one certain area, this can be a system, procedure, professional field and so on.

Our Big5 informants were also encouraged by management to develop their own competence when they felt it was needed, and none of them ever experienced that the management reacted negatively when they registered these additional training hours in the payroll system.

In the non-Big5 there were more diversified answers. Some informants shared how they were given assignments before they could understand the functions of the audit software. Furthermore, when encountered unknown errors in the audit software, they experienced it

was challenging to find someone in the audit firm that was available or had the competence to answer them. For that reason, many of them were using the Auditors' association online courses as a self-learning tool. One non-Big5 informant stated, "*We had no joint training and competence development, it has not been followed by the management for many years*". Some of our informant from non-Big5 felt lucky if they had a manager or senior associate who could be their mentor and help them understand the systems and make sure they could do a good job.

A very interesting finding that surprised us was that one informant from non-Big5 stated*, "I mastered how to use the audit software immediately without the need of training, we have one day a year where we can increase our competence. However, sometimes I use excel instead of the audit software, I feel more comfortable using excel"*.
This finding aligns with the study conducted by Mardian and Avianti (2019). Mardian and Avianti (2019) highlighted that the auditors' who lack competence in using the software would be more likely to use the audit software inadequately by replacing certain audit software's function with different programs that the auditor is more comfortable with, such as Microsoft Excel.

10) Do you see any limitations of the software, or remember certain instances you over relied on the audit software?

All our informants agree that the software they had available today, covers the current need for auditors. One informant from Big5 underlined that a potential limitation of the software is that it requires high IT competence to understand all its function. This was also agreed by most of non-Big5 auditors. Another potential limitation was that there could be issues with servers hosting the audit software, when the servers were down was down none of the auditors could perform the daily tasks. As one informant stated, *"When the server hosting the audit software is down, we all gather and drink coffee until the server is up and running again"*.

11) Have you ever experienced system failure, which led to the software functions not operating as expected? If yes, how did you detect it?

One of the biggest advantages of having the software hosted on the cloud is that the information is available and accessible no matter where the auditor is located geographically. For our informants, inaccessibility to the cloud had only happened one time in their careers, so the risk is miniscule, but it can happen.

Being unable to access the audit software was not an issue for our non-Big5 informants. However due to lack of competence in using the audit software some informants experienced errors sometimes, the informants were not sure if it was human error or the system failing. There was one exception where one auditor commented that something was strange during an audit when he was importing financial data from the client's systems, but he did not discover what was wrong until later, when the software provider sent an email about a forced update which affected the function to import data from the client's system.

4.3.2 Analysis

Our collected data from the interview aligns with the findings of Lee and stone (1995) and Rosadi & Barus, (2022) in order to conduct an audit effectively the auditor must have adequate competence and skill.

Different levels of competence among Big5 and Non-Big audit firms

We identified big differences between the Big5 and Non-Big5 audit firms when it comes to onboarding new employees and the way the management values and encourages competence development for its employees. Big5 audit firms have training procedures to ensure a minimum standard level of competence across the departments. Additionally, Big5 management is encouraging the auditors to develop competence, this shows that competence is highly valued by Big5 audit firms.

Wrong audit opinion due to lack of competence to use the software

In non-Big5 the auditors' competence was not valued as high as in Big5. This led to low level of competence among the auditors, and the lack of competence resulted in ineffective use and misinterpretation of the software's results, which ultimately caused one non-Big5 auditor to issue an incorrect audit opinion. This emphasizes the extent to which competence level in using the software can affect audit effectiveness.

Risks and limitations of the software

The Big5 auditors were aware of the potential negative sides of the audit software, which is the dependence on the software and potential cyberattacks. One of the biggest audit firms Deloitte was the victim of a cybersecurity attack in March 2017 where hackers may have accessed usernames, passwords, and personal details of top accountants of the firm's clients (The Guardian, 2017). Deloitte believes that the hackers had access to the systems since October or November 2016. However, out of all the informants we interviewed none of the auditors had experienced a cyber-attack related to the audit software or other IT systems, and only one informant had experienced the inability to connect to the software which led to a full stop as he could not continue his tasks without the use of the audit software.

Our findings show that there is a clear positive correlation between the auditors' competence in using the software and audit effectiveness. Both Big5 and non-Big5 auditors have expressed how challenging it was in the beginning to conduct audits without sufficient training, and how during the years by increasing their competence and understanding of the audit software they would have less mistakes.

Approach and attitude towards training and development in Big5 and non-Big5

When it comes to training and competence development related to the use of audit software, there is a significant difference between the Big5 and non-Big5. Big5 informants have programs in place to make sure all their auditors are proficient in the systems they use when conducting an audit. There are also the requirements of 120 hours of continuing

education over a three-year period for all state-authorised auditors. According to PWC Annual report (2022), all PWC auditors had an average of 89 hours after-education per year, while Deloitte reported an average of 60 hours per employee (Deloitte Annual Report, 2022).

In the non-Big5 there were no systems in place to record how proficient auditors are in different audit fields. However, they did state that they complete the 40 hour yearly mandatory after-education. Many of the auditors in non-Big5 rely on The Association of Auditors online courses and YouTube as their source to increase competence to everyday tasks and how to use the audit software. Because most of their managers do not encourage the employees to undergo training and competence development during their working hours, they do it during their free time.

One auditor from Big5 expressed concern regarding the training of auditors in small audit firms, and states that if the Norwegian audit association do not regulate the demand for IT-competence it will negatively affect the audit quality from the smallest audit firms.

4.4 Open Questions

4.4.1 Findings

12) Do you think new graduates have limited knowledges when using advanced audit software?

According to one informant from Big5, it was not difficult to teach new employees the technical part of the audit software, he states, *"The new generation of auditors are generally digital competent, but they lack the understanding of what an auditor actually does"*. Similarly, another informant from non-Big5 says *"The new generation is lacking the understanding of what they do, and there is a big transition from school to work, so if you don't get adequate training and support at work, you struggle"*.

For the Big5, training new employees on how to use the audit software was not a big concern, as they had a robust onboarding program for new associates that dealt with the lack of experience handling IT systems. However, for non-Big5 the lack of understanding of how the audit software works was an issue.

13) Are there any subjects that you feel are missing in today's MRR? This does not have to be IT-related.

One interesting finding was that all our informants encountered new employees who did not fully understand how debit and credit work. In this regard, OsloMet have done changes, and finance is mandatory for all new students in the MRR to battle this challenge. Both Big5 and non-Big5 believe that should be more practical topics in MRR, their opinion is that the current auditor degree is too theoretical and do not reflect how the auditors conducts an audit. They also wish that the students would learn how to link auditing and accounting better. By having more practical subjects, the informants refer to real world cases where the accounting and auditing subjects intersect.

One of the non-Big5 informants stated, *"A good auditor must understand accounting, how the numbers come out, and what is behind the numbers"*. Additionally, non-Big5 informants wished that students were introduced to audit software while still in school, they claim this would make it easier for newly educated auditors when they eventually get a job as an auditor.

14) How do you see the role of an auditor in 10 years from now?

Most of them believe that most of the mundane tasks are going to be automated. One informant from Big5 pointed out that technology is advancing faster than ever before, and if you are not keeping up, you will fall off the wagon. He then continues stating that *"We have to learn how to co-exist with the advanced software of the future, and not to battle it"*. This is also agreed by non-Big5 auditors, who expect that the audit software will evolve significantly in the next 10 years and auditors need to keep learning, so they won't be left behind.

In the end, all informants believe that in the future they will probably have a closer role as a consultant, as most basic tasks will be automated.

15) Do you think it will be more challenging in the future to be up to date on competence related to audit standards and regulations, and be competent enough to be able to use the newest audit software?

The non-Big5 says most definitely yes, as they state*: "The development ladder rises continuously. Today the management focuses on the costs of auditing, so there is less focus on developing competence in the staff."* The big5 auditors on the other hand are not worried about their competence development, as the audit firms have systems in place to make sure that all employees are continually training their skills both regarding audit competence, and their skills in utilising audit software. This confidence is related to the fact that management in Big5 values and encourage competence development for its employees in contrast to management in non-Big5. Big5 value and invest in human capital because they are investing heavily in developing their proprietary software, and that it would not yield value if the employees cannot use it.

16) How high is your trust in the audit software on a scale from 1-10?

Everyone said 9 and 10. However, an important finding was that even though all auditors trust the software they also sometimes conduct certain procedures to ensure that the software was working as expected.

4.4.2 Analysis

Even though lack of competence in the use of audit software affects audit effectiveness, this is not an issue for new graduates' auditors in Big5. This is due to the Big5 firms robust quality controls and onboarding programs which address this potential problem at an early stage. However, for newly graduated auditors that start working in non-Big5 firm, this is could become a serious issue depending on how the audit firm is managed. We found that most

managers are more cost focused and less focused on training their employees. As one informant from non-Big5 stated: ''*Today the management focuses more on the costs of auditing, so there is less focus on competence development*''.

4.5   Key Findings and analysis

Table 2 provides a summary of the most important findings and analyses we obtained from our conducted interviews. Theme 1 focuses on how the use of audit software affects audit effectiveness, while Theme 2 examines the connection between auditors' competence to use the audit software and its effect on audit effectiveness.

Theme 1 - How the use of audit software affects audit effectiveness?	
Key Findings	**Analysis**
Liberating time for auditors	By using the software's functions, such as automating repetitive tasks, the auditor can focus on more complex tasks and increase sample testing that require human judgement.
Improves effectiveness in key areas such as clients' taxes and public fees. Can enhance accuracy and completeness of financial data	The seamless integration between the audit software and Altinn allows the software to perform automated controls procedures by importing the data from the client's systems and reconciliate it with the data reported to Altinn.
Assists the auditor's tasks with guidance and structure	Big5 informants claim that the software improves the structure and quality of their data. The software assists the auditor and suggests which tests and procedures are advised to conduct, based on the specific client undergoing the audit

Improved insight into the client's business	Even though the software does not directly detect fraud, it can analyze vast amounts of data, and can assist the auditor to identify anomalies in the financial statements that require additional testing and attention.
Theme 2 - Auditors' competence in using the software and audit effectiveness	
Lack of competence in using the software resulted in issuing an incorrect audit opinion for non-Big5 informant during the first year as an auditor.	Adequate competence in using the software is crucial for the auditor. Misinterpreting the data in the software can negatively impact the audit effectiveness
Cost orientated managers in non-Big5 lead to low investments in training and development for employees	Managers that are cost orientated in non-Big5 lead to the auditor's lacking confidence when using the audit software. The auditors need to use their free time to develop competence. This type of leadership can hinder the employee's competence development.
Big5 audit firm prioritize competence and knowledge for their employees	Managers who value competence in their employees increase confidence among auditors to use the software. Additionally, multiple quality controls by senior staff can enhance effectiveness by ensuring nothing was forgotten by the auditor during the audit.

Table 2

5 Conclusion

In this study we examine the effects of audit software on audit effectiveness and how auditors' competence in using the software affects effectiveness. We conduct qualitative

interviews with auditors from both Big5 and non-Big5 audit firms. Our study shows a significant correlation between the use of audit software and audit effectiveness, where the competence of auditor plays a crucial role in this correlation.

Similar to Lee and Stone (1995) and Rosadi & Barus, (2022) our study emphasizes auditors' need of adequate competence in order to conduct an audit effectively. The benefits of the audit software were more prominent for Big5 auditors, as the management valued and established training routines to ensure auditors competence. Some of the advantages we identified are related to the automation of repetitive tasks, improved accuracy and completeness, and improved documentation quality, etc.

However, in non-Big5 companies the managers were more interested in holding costs at a low level, which resulted in a lack of competence among auditors to use the audit software. Inadequate competence to use the audit software had a significantly negative effect on audit effectiveness, as one informant shared his experience on how he issued an incorrect audit opinion during his first year as an auditor because he could not understand how the software worked.

Our study also identified certain risks associated with the use of advanced audit software. As a result of most of the audit software being cloud based, there have been incidents where the auditors could not do their job as the software was inaccessible due to problems with the server hosting the software, everything stopped. Luckily only one of our informants had experienced this, this highlights how dependent the auditors are on the software. Another risk was when the software malfunctioned, and one auditor from non-Biig5 did not realize it. This illustrates another negative side of low competence, the auditor was not aware of the errors in the audit system until later on, when the auditor received an e-mail from the software provider that there was an error in the system.

5.1   Our contribution

An important contribution of our research is the gap it fills in the existing literature by providing a detailed description of the correlation between auditor's competence in using the audit software and its impact on audit effectiveness. By conducting interviews with

auditors from both Big5 and non-Big5 we obtained valuable insights and perspectives which allowed us to share our findings with the academic community.

Secondly, while the present literature focuses mostly on the benefits provided by the audit software, we also focused on the underlying factor that that enables the audit software to increase audit effectiveness, that is the auditor's competence.

In summary we believe that our research not only adds to the academic community, but it also provides valuable practical information to audit firms that aim to enhance their audit effectiveness.

5.2   Limitations and suggestions for further Research

When interpreting the results our study provides, it is important to consider the following limitations. Our sample of informants was limited to 10 auditors, of which 3 of them worked in Big5 audit firms and the rest worked in non-Big5 firms. Due to a small sample of informants this can potentially limit the possibility to generalize our results for all auditors. Secondly, we only interviewed auditors from Norway, their experience, and perceptions might be different from auditors working in other countries.

Our research found a difference in how Italian and Norwegian auditors prioritize client interactions. This indicates that there can be differences in how well the auditors know their clients across the EU countries. For that reason, we recommend further research into the cultural factors that influence the level of interaction between auditor and clients across different EU countries.

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7 Appendix

7.1 Appendix 1 - Interview guide

	Intervjuguide
Introduction and background	We present ourselves with our names, education and thank them for giving us their time and help with our thesis. 1. Hvilken udannelse har du? 2. Hvor mange års ansinnitet har du? 3. Hvilken stillingstittel har du?

The impact of the auditing software on key areas	4. Føler du at bruken av nyere og mer avanserte revisjonsprogrammer har økt kvaliteten på revisjonen du og dine kollegaer gjennomfører?
	    a. This is to confirm our believes and hypothesis that newer and more advanced audit software increases the overall audit quality.
	
	5. Kan du beskrive noen nøkkelområder under revisjonen som du nå takket være nyere programvare vet at du reviderer med økt kvalitet?
	    a. Med områder hvor programvaren har økt kvaliteten tenker vi, for eksempel:
	        i. Muligheten til å innhente relevant dokumentasjonsbevis
	        ii. Programmet identifiserer og analyserer visse data/transaksjoner – endret samplingstørrelse
	        iii. Nøyaktigheten av data har økt
	This is to investigate if all the auditors use the different programs in the same way. IE if they all use it to do a full analysis of the financial transactions instead of only sampling.
	ISA 530 says an auditor only have to take samples.

Also, if they all use similar software, but only use it to increase the quality on a narrow part of the audit.

This may also shed light on the limitations of the current generation of audit software.

6. Er det noen områder dere nå avdekker flere materielle feil, eller mulige forsøk på svindel nå enn før, takket være ny programvare?

    a. This is to explore where the newest generation of audit software exposes material mistakes and the possibility of fraud. This will also highlight the strongest suits of the current software, and it would be interesting to compare the different auditors and check if they all have the same experience.

7. Har dere egne programvarer integrert i klientenes systemer?

    a. Oppfølgingsspørsmål: Opplever du at dette har bidratt til bedre pålitelighet av data ved å ha innsikt i klientens systemer?

        i. Increased amount of data, and unaltered data gives added value and increased audit quality.

        ii. It will also unveil potential challenges when it comes to the different audit software and their ability or inability to integrate direct into the clients systems. As every extra step data travels until it reach the auditor heightens the risk of wrong data and material misstatements.

8. Har du tilgang til klienters regnskap i sanntid, og har du mulighet til å bruke denne muligheten under en revisjon?

    a. Hvorfor bruker dere det ikke?

    b. Hvis den brukes:

Hvordan påvirker det kvaliteten på revisjonen, øker den eller gir det bare merarbeid og usikkerhet?

Gjør det at interimrevisjonen blir mer nøyaktig og at dere da får jobbet mer effektivt og dermed kan levere høyere kvalitet på oppdraget?

      c. Er sanntidsinformasjon relevant for hvordan dere gjennomfører revisjonen i henhold til rammeverket i ISA-standardene?

           i. This is to explore if it is possible to access client data in real time, if they use it and how they use it. Also, if they have access, why they choose not to use it.

9. Fører økt bruk av avanserte programmer til at dere kan bli mer distansert i forhold til klienten, og at revisjonen blir mindre personlig? Eller blir det mer omvendt at dere kan bruke mer tid på klienten?

      a. This is to understand if this have changed the dynamic of how the auditor and client work together. Several studies says that smaller firms that does not use advanced software get a more personal and indepth knowledge of their client and how the business works.

While bigger firms with more advanced software can deliver superior analysis without to much communication with the client.

Many auditors highlight the importance of knowing your client, but with increased distance between the auditor and the client, can you say you have a good understanding of how the business works, and deliver a high quality audit by only looking at the numbers?

Key challenges and the importance of competence when using audit software.	10. Har du opplevd at ny kunnskap om programmene har fått deg til å revurdere kvaliteten på revisjonsoppdrag du har fullført?
	
	    a. This is to explore how advanced the software are, more advanced software demands higher competence when using them.
	    b. This can also be explained by lack of training(competence).

As bigger firms have bigger budget, our belief is that bigger firms invest in their employees to futureproof them, but smaller firms do it when the need arises as it is a question of cost and they do not have access to global systems regarding training and centralised software.

11. Hvordan sikrer du at programmets input, data og output er korrekte og pålitelige?
    a. This is to challenge the auditor on how competent they are in using their own software. It is imperative to have a good understanding on how the control mechanism in the software operates to avoid misstatements in the audit. This will also give more understanding in how good the auditor knows their software.

12. Hvordan angriper dere kompetanseheving knyttet til bruken av it-systemer som brukes under revisjonen? Dette er et tillegg til kompetansekravet i ISA 315 og ISA 220.
    a. This is to explore the importance of competence related to audit software across different firms. We consider that this is not relatet to Revisorloven §5-1 «skal en statsautorisert revisor ha gjennomført minst 120 timer relevant etterutdanning i løpet av hver treårsperiode innenfor fagkretsen for en mastergrad i regnskap og revisjon.»
    b. It is also related to the cost of increasing competence in the staff.

13. Ser du noen begrensinger eller mulige hvileputer når du bruker dagens revisjonsprogrammer?
    a. Competence related to the limitations in the software and the risk of overreliance on the audit software. (tillit)

Lack of knowledge of the systems may lead to think the AS does everything for you, and you do not have to control the input and output data.

	14. Har du noen gang opplevd at programvaresvikt i form av at systemets funksjoner ikke fungerte som forventet? -Oppfølging: Hvordan avdekket du dette? Ble du gjort oppmerksom på det, eller fant du ut av det selv? a. This is check if the auditors have enough competence to use their professional sceptics to question the output of the software and be aware of the software limitations.
Open questions - **Closers**	15. Synes du selv at nye revisorer mangler kunnskap rundt grunnleggende bruk av forskjellige avanserte datasystemer? 16. Er det noen emner du selv mener mangler i dagens MRR, dette behøver ikke å være knyttet til IT. 17. Hvordan ser du revisorrollen din om 10 år fra nå? 18. Tror du at det vil være mer utfordrende å holde seg oppdatert på kompetanse og samtidig tilpasse deg nye revisjonssystemer? 19. Hvor høy tillit har du til programvarens funksjoner ved gjennomføring av 1-10?
Closing	Vi takker for oss, og takker revisoren for tiden sin.

7.2 Appendix 2 – Our legal approval to handle personal data

Sikt

Vurdering av behandling av personopplysninger

Referansenummer	**Vurderingstype**	**Dato**
161541	Standard	13.04.2023

Prosjekttittel
The effect of digitalization on auditing in Norway

Behandlingsansvarlig institusjon
OsloMet – storbyuniversitetet / Fakultet for samfunnsvitenskap / Handelshøyskolen

Prosjektansvarlig
Limei Che

Student
Frank Thorn Hansen

Prosjektperiode
01.01.2023 - 15.05.2023

Kategorier personopplysninger
Alminnelige

Lovlig grunnlag
Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 15.05.2023.

Meldeskjema ☑

Kommentar
OM VURDERINGEN
Sikt har en avtale med institusjonen du forsker eller studerer ved. Denne avtalen innebærer at vi skal gi deg råd slik at behandlingen av personopplysninger i prosjektet ditt er lovlig etter personvernregelverket.

FØLG DIN INSTITUSJONS RETNINGSLINJER
Vi har vurdert at du har lovlig grunnlag til å behandle personopplysningene, men husk at det er institusjonen du er ansatt/student ved som avgjør hvilke databehandlere du kan bruke og hvordan du må lagre og sikre data i ditt prosjekt. Husk å bruke leverandører som din institusjon har avtale med (f.eks. ved skylagring, nettspørreskjema, videosamtale el.)

Personverntjenester legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til oss ved å oppdatere meldeskjemaet. Se våre nettsider om hvilke endringer du må melde: https://sikt.no/melde-endringar-i-meldeskjema

OPPFØLGING AV PROSJEKTET
Vi vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Kjære [Revisor],

Vi er to masterstudenter ved Oslomet, og vi skriver en masteroppgave om hvordan revisjonsprogrammer påvirker kvaliteten på revisjon utført av revisorer som deg. Vi skriver om fordelene og utfordring ved bruken av moderne revisjonsprogrammer.

Vi lurer på om du har mulighet til å delta i en kort intervjuøkt på omtrent 30-45 minutter, hvor vi kan stille deg noen spørsmål om emnet? Intervjuet kan enten holdes personlig på deres kontor, i ett grupperom på universitet eller videokonferanse. Du kan selv velge tidspunktet for intervjuet. Vi ønsker å intervjue deg snarest mulig, helst i løpet av april.

Din innsikt og erfaringer vil være svært verdifulle for vår oppgave, og vi vil være veldig takknemlige hvis du kunne avse tid til å hjelpe oss.

Som takk for tiden din vil du få en konfekteske.

Takk for din tid og vurdering av vår forespørsel. Vi ser frem til å høre fra deg.

Med vennlig hilsen,

Frank Thorn Hansen og Alexandru Manole

f_t_hansen@hotmail.com / alexbstk@gmail.com 93442037 / 47261285

Vil du delta i forskningsprosjektet:

"The effect of digitalization on auditing in Norway"

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å analysere hvordan digitaliseringen påvirker revisors metoder. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Formålet med denne Masteroppgaven er å analysere hvordan revisors metoder endrer seg i takt med økende digitalisering. I tillegg vil vi utforske om det er noen forskjeller i arbeidsmetodene innenfor The Big 5 og de som ikke kategoriseres som Big 5. Vi vil også undersøke hvor relevant dagens læreplan for revisorstudiet er i sammenheng med Økt digitalisering på arbeidsplassene,

Hvem er ansvarlig for forskningsprosjektet?
OsloMet er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Vi kontakter deg, siden du innehar den stillingen og rollen som vi ønsker at våre intervjuobjekter har.

Vi har innhentet dine kontaktopplysninger igjennom LinkedIn, firmaets hjemmeside eller bekjentskap.

Hva innebærer det for deg å delta?

Vi kommer til å bruke kvalitativ metode, og intervjuene vil ta ca 35-45 minutter. Det vil bli tatt lydopptak av intervjuene som vi kommer til å transkribere i ettertid, slik at vi kan vie all oppmerksomhet til intervjuet. Det er frivillig å svare på spørsmålene, og du kan selv velge om du vil svare på alle eller ikke. Om ønskelig kan vi sende over intervjuguide slik at du kan forberede deg.

Intervjuene vil skje digitalt, på din arbeidsplass eller i ett grupperom på Oslomet, alt etter hva som er mest praktisk for deg.

I oppgaven vår kommer du til å bli anonymisert, du vil bli beskrevet som « «Stillingstittel X» i «Big5/non-Big5»». Vi kommer til å slette alle lydopptak etter at oppgaven er vurdert i løpet av sommeren/høsten 2023.

Det er frivillig å delta
Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern — hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

- Det er kun studentene Alexandru Manole og Frank Thorn Hansen som jobber med denne oppgaven som kommer til å ha tilgang til lydopptakene i den perioden oppgaven skrives.
- Tiltak for å ivareta ditt personvern innebærer, men er ikke begrenset til anonymisering av navnet på lydfilene og lagring av all sensitiv data på krypterte minnepinner i tråd med Oslomet sine retningslinjer for oppbevaring av sensitivt materiale.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes 15.05.2023. Vi vil da slette alt materiale vi har om deg.

Hva gir oss rett til å behandle personopplysninger om deg?
Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Oslomet har Sikt — Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.
Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Oslomet ved Limej Che. E-post limeiche@oslomet.no. Tlf +4767237019
- Alexandru Manole. E-post s238148@oslomet.no. Tlf +4747261285
- Frank Thorn Hansen. E-post s315395@oslomet.no. Tlf +4793442037 e Vårt personvernombud: Ingrid Jacobsen. E-post personvernombud@oslomet.no.

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 73 98 40 40.

Med vennlig hilsen

Veileder   Student   Student
Limei Che   Alexundru Manole   Frank Thorn Hansen

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet The effect of digitalization on auditing in Norway, og har fått anledning til å stille spørsmål. Jeg samtykker til:

☐ Å delta i ett intervju

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

_____

(Signert av prosjektdeltaker, dato)