The effects of digitalization on auditors’ tools and working methods

A study of the audit profession

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ABSTRACT

The aim of this qualitative and exploratory study is to increase the understanding of the effects digitalization has on the tools and working methods of the audit profession. This is achieved through 14 semi-structured interviews with practicing auditors, where emphasis is put on interpretation. Conclusions drawn are that the effect on the auditors’ working methods are more prominent than on the tools, due to paperless working methods and increased flexibility. Unlike previous research, this study also discovers an increasing effect – education. Thereby, education is underlined as important among auditors, where institutions also have to develop available education to the new competence needed.

Keywords: Effects, Digitalization, Tools, Working methods, Audit profession.
INTRODUCTION

We live in a time of change where digitalization has increased in relevance, as technological development draws the line between what is possible and only imaginable (FAR, 2016; Zuboff, 1988). Zuboff (1988) insures that technological innovations bring possibilities, which consequently makes the world a new place. Digitalization of society is taking place on a global scale and may currently be the strongest force of change in society (Arsenie-Samoil, 2010; FAR, 2015, 2016; Holley, 2004). This change is forming organizations that will work in the future (FAR, 2016), where practitioners must rely on information and communication even more (Iuliana & Tugui, 2005). Therefore, Arsenie-Samoil (2010) along with Iuliana and Tugui (2005) claim that organizations have to modernize along with the circumstances from digitalization to survive, whether they like it or not. One definition of digitalization is as follows:

“Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business.”

(Gartner, 2016)

To comprehend how the world can change from new technology, it is of importance to notice that technology creates new qualities intrinsically (Zuboff, 1988). Holley (2004), with support by Arsenie-Samoil (2010) and in reports made by FAR (2015, 2016), conclude that digitalization of organizations is an inevitable effect that cannot be avoided for the audit profession. Although, the audit profession is already forced to continuously evolve to generate trust, in the audited reports as well as in the profession itself (Power, 2003; Caster & Verardo, 2007). Regardless, Nearon (2005) and Bierstaker et al. (2001) claim that the audit profession must adjust even more, due to the impacts of information technology (IT). Although auditors will benefit in efficiency by using digital technologies, they must be responsive to changes in the expectation from society (Bierstaker et al., 2001; Caster & Verardo, 2007; Flint, 1988, Wallerstedt et al., 2006). As the audit profession is currently in a paradigm shift towards a more digital organization, changes in the profession are unavoidable (Breman & Felländer, 2014; Byrnes et al., 2015; Caster & Verardo, 2007; FAR, 2016; Forbes Insights, 2015; Lombardi et al., 2015; Spraakman et al., 2015).
Due to the paradigm shift, digitalization should be used effectively as a tool for obtaining and handling information (Holley, 2004). It is clear that digitalization entails both opportunities and challenges for the audit profession and since digitalization is an ongoing change (Arsenie-Samoil, 2010; FAR, 2015, 2016; Holley, 2004), the effects of digitalization are continuous. Holley (2004) continues that by using this tool new technologies and techniques for handling information are created, which are necessary in a global society. When these are used as a tool, digitalization and IT enables an unquestionable power within the audit profession (Alles, 2015; Forbes Insights, 2015; Granlund, 2007). Nearon (2005) argues that the breakthroughs in IT has effects on the expectations and the role of the auditor. He also believes that the auditor will be expected to have greater IT-skills, due to these new tools.

Auditors’ working methods have not changed much, however documentation and communication is believed to be easier due to digitalization (Nearon, 2005; Rezaee et al., 2001). Alles (2015) together with Iuliana and Tugui (2005) ask whether digitalization of the working methods is embraced through previous financial scandals such as Enron-Andersen and Parmalat. They believe that the efficiency and credibility in the auditor’s work is enhanced by using digital information, thereby affecting their working methods. Some also believe that the audit profession will be fully relied on digital information as well as working methods soon (Bierstaker et al., 2001; Granlund, 2007; Spraakman et al., 2015). Holley (2004) quotes Charles Darwin when speaking of implementing digitalization; “it is not the strongest of the species that survives, not the most intelligent, but the ones that are most responsive to change”. Therefore, the aim of this study is to increase the understanding of what effects digitalization has on the tools and working methods of the audit profession.
METHODODOLOGY

As this study in social science aims to increase the understanding of what effects
digitalization has on the tools and working methods of the audit profession, hermeneutics has
a central role to fulfill this aim. Because of the study’s qualitative nature, there is a need for
interpretation of words in their context, with a subjective relation to the object in question
(Agrey, 2014; Gantt et al., 2016). Thus, a flexible, circular and interpreting empirical
examination of the relevant parts is done to create a deeper understanding of the whole field
of research. Scotland (2012) along with Chua (1986) highlight the meaning of ontology and
epistemology, beliefs about reality and knowledge, to enable interpretive research. Since the
respondents’ perception of reality may vary, there needs to be comprehensive interpretation
to enable the understanding aimed for in this study. Hermeneutics as an epistemological
position is central to this study because of this comprehensive interpretation to create
increased knowledge (Gantt et al., 2016; Scotland, 2012).

Knowledge is a social product, created by people for people, based on intentions, interactions
and rationality by humans, whereas this also applies for knowledge within the accounting
field (Bearance & Holmes, 2015; Chua, 1986; Gantt et al., 2016). A thorough understanding
of the auditing phenomenon can never be achieved from a single perspective as reality is too
complex, unstable and because environments can be affected by human behavior (Beattie,
2014; Power & Gendron, 2015). Therefore, an abductive approach is used in the study, to
enable interaction between previous research and empirical results, thereby increasing the
understanding successively. Because of this need for flexibility, the abductive research
approach comes naturally. This is shown by how the interview questions are built upon
previous research and by the way supplementary questions are evolving throughout the study.
As the understanding grows, the interview questions get more detailed and definitive.

When collecting theoretical data for the study, emphasis is laid on the quality of articles
rather than quantity. The concept of quality has become prominent within accounting in the
recent years, which according to Beattie (2013) could be due to various scandals and crisis in
the field of accounting. As the quality of the data is of great importance in qualitative
research (Torraco, 2016), the articles used in this study are thoroughly examined to ensure
quality. Since digitalization is not a new topic but an ongoing process, the information and
data used is collected and processed by the authors with regard to the contemporary
development. This is supported by the study’s abductive approach. The data presented in this study represents the updated current knowledge, as described by Torraco (2016), of digitalization’s effects on the audit profession. As in the selection of articles, respondents are also selected with regard to quality.

Since digitalization of the audit profession is a current change in society, this study is considered to be exploratory. According to the study’s qualitative and exploratory approach, semi-structured interviews are conducted to gather empirical data. Interviews are held with 14 practicing auditors, working in large and medium-sized audit firms located in the middle of Sweden. Of these 14 auditors, seven are authorized auditors or have longer experience in the profession and seven auditors have low to moderate experience of auditing. Interviews are held until saturation. To provide a holistic overview, Appendix 3 shows a table over the interviewed auditors. The openness is supposed to increase the trustworthiness of the study, since the findings are not generalizable to other populations. The interview guide contains open questions to start a discussion within the subject of matter between the respondents and the authors. It is of importance to note that the answers expressed are the auditors’ personal opinions, not the opinion of the audit firms. To receive high authenticity, the interviews are conducted, transcribed and then sent to the respondents for approval. By interviewing auditors with experience in the field, the relevance of knowledge and understanding produced in the study is enhanced (Power & Gendron, 2015).

Audit firms tend to perceive research as “too removed from the realities of practice”, Power and Gendron (2015) state, which is sought to be removed in this study through the interviews. All interviews besides one are held at the auditors’ offices, to enable the interpretation of body language. The deviant interview is held through video call, in accordance with the auditor’s request. Although it is desirable to meet in real life, video call makes the interview flexible and yet enable interpretation of body language to some extent. Assumptions are based on knowledge from theory and the real world of constant experiences (Agrey, 2014; Bearance & Holmes, 2015; Chua, 1986). Therefore, the authors try as much as practically possible to remove personal experiences, beliefs and eventual biases in the study while creating increased knowledge (Berger, 2015; Noble & Smith, 2015), even though Power and Gendron (2015) point out that we all naturally have our own biases. The personal experiences of the auditors regarding digitalization is therefore the main focus. By this, the accuracy and
credibility of the findings are enhanced whilst the study gains plausibility and trustworthiness (Berger, 2015; Noble & Smith, 2015).

Seeing that digitalization of the audit profession is currently in a paradigm shift, this study will not be able to draw any conclusions on the final effects of it. However, it will reflect the accuracy and usefulness of the findings (Noble & Smith, 2015), both theoretical as well as practical. Because of its qualitative nature, the study cannot be generalized (Cohanier, 2014), nevertheless the aim is not to generalize and trustworthiness is still sought. The study contributes with a depth within the field rather than width. Thus, the aim is to increase the understanding by comparing the findings with previous research within the field.
LITERATURE REVIEW

Digitalization of the audit profession

Auditing is about reliability, security and confidence regarding the accounts or the report subject to audit (Flint, 1988; Kishore & Peshori, 2014; Power, 2003; Wallerstedt et al., 2006). According to Flint (1988) the original purpose of auditing was to find out if certain duties were met honestly, with properness and in accordance with regulations and specific instructions. Wallerstedt et al. (2006) represents the opinion that audits are a necessary function in society, thereby the audit profession have to deal with constantly being criticized and be a subject of debate. Auditing can be seen as a special kind of examination that is a part of securing accountability, performed by a person other than the parties involved - an objective person that compares performance with expectations and reports the result (Flint, 1988).

As long as mankind has existed there has been technical development (FAR, 2016). In recent decades, the development of IT has led to the globalization of societies and markets (Granlund, 2007). Breman and Felländer (2014) outline that changes in the economy are continuous and that digitalization is one of these structural transformations. In today's society the usage of IT, as well as digitalization, is a fact. IT affects a wide variety of areas (Ghasemi et al., 2011), resulting in being a part of our everyday life in many ways. Unlike in today’s society, the effects of IT were initially underestimated (Spraakman et al., 2015). Due to the paradigm shift towards a digital society where the usage of IT is continuously increasing, it is important to realize how the audit profession is affected by digitalization (Breman & Felländer, 2014; Byrnes et al., 2015; FAR, 2015, 2016; Forbes Insights, 2015; Han et al., 2016; Hunton, 2002; Lombardi et al., 2015; Spraakman et al., 2015, Yoo et al., 2010).

Computers and machines have gotten more powerful and are today associated with trust and accuracy (Hunton, 2002). However, FAR (2016) describes that this technical development is also connected to higher demands on transparency by the consumers. Since digitalization has changed the business landscape forevermore (Hunton, 2002), it is understandable that consumers demand transparency within auditing. Trust in new technology involves certain risk, although Spraakman et al. (2015) and Granlund (2007) claim that the accounting and auditing professions are no longer able to survive without it.
What effects digitalization eventually will have on the audit profession is yet unknown, since it is a still unfolding event (van Schoten, 2015; Hunton, 2002). Although, in the report made by FAR (2016), they speculate that automatization and digitalization of the accounting field will bring structural changes that will have profound effects on the whole audit profession. FAR (2016) also insists that more development is needed, although states that “One thing we know for sure, our time is not near what the future will be” (FAR, 2016). Regardless of this, Brynjolfsson and McAfee (2015) stresses that we must not confuse that technology is the future, but that technology gives us an enormous force to change the world through IT and that this force of change comes with greater responsibilities. As a result of digitalization, we have more opportunities to change the world than ever before, which Brynjolfsson and McAfee (2015) conclude not as a destiny, but a conscious decision we make ourselves. Digitalization is therefore seen as one of the most important phenomenon in the recent years that will have a great impact on the audit profession, leading to changes (Brynjolfsson & McAfee, 2015; Forbes Insights, 2015; Janvrin et al., 2008; Lombardi et al., 2014).

**Responses towards organizational changes**

Responses towards change are essential to human survival (Taylor et al., 2000). Mor Barak and Travis (2010) argue that responses towards perceived changes in the workplace can be found on a daily basis. When change affects others it is often viewed as interesting, while when it concerns oneself it is commonly harder to accept (FAR, 2016). A challenge noticed by Yoo et al. (2010) is the way organizations respond to environmental changes. They describe that how organizations adapt to change is a central topic in organization theory. Despite this, they continue to state that focus should be moved to the processes that generate and drive digitalization. The worth of new technologies has been questioned many times by human (Yoo et al., 2010). How we perceive these changes are personal and may change the responses and behavior of people working in affected organizations (Janvrin et al., 2008; Taylor et al., 2000). Contemporary changes, like the phenomena of digitalization, can be viewed in two ways according to Hunton (2002). Either with fear and resistance of the unknown, or by its possible opportunities and rewards that may come with it.

Due to digitalization, the accounting and audit professions have been forced to adapt their tools and working methods in the long run (Byrnes et al., 2015; Hunton, 2002). How and with which perspective practitioners’ face these changes are entirely up to them. Accordingly,
Hunton (2002) describes that humans’ responses to change often can be divided into three different groups. The first group is the one that sees the opportunities, the ones that “embrace change without a grudge” (Hunton, 2002). The second group is opportunistic and adjustable, but nonetheless still in need of a push to get started. This group can be seen as an intermediate alternative to the two other groups Hunton (2002). The third and last group is the resistant one that can be connected with fear of change. Byrnes et al. (2015) describes resistance to change as a universal phenomenon and the most successful approach of change as gradual and careful advancements. To accept behavioral changes takes time, even though it is easier to accept digital development today than as little as ten years ago (FAR, 2016). The characteristics of success are according to Brynjolfsson and McAfee (2014) the willingness to learn and adapt.

Other approaches towards change are described by Askarany et al. (2012). They describe that changes are either planned or processual, where digitalization would be classified as a processual change since it is not entirely developed and understood yet. The ground concept is that our reality is not a steady state and that we catch reality in flight (Askarany et al., 2012; Taylor et al., 2000). Askarany et al. (2012) concludes that change is perpetually continuous and unpredictable and that change is successful if it is viewed with an open mind while identifying an available range of options. By facing change with an open mind, they mean that humans would be able to manage change in a complex environment.

**Tools**

Researchers believe that the auditors will increasingly base their assessments upon information that is future oriented, since manual audits takes time when there are new digital tools that makes the process faster (Ghasemi et al., 2011; Iuliana & Tugui, 2005; Wallerstedt et al., 2006). These tools are based on the newest information and communication technologies available. Information could be more accurate if the focus of audits would lie upon reliability of the systems that generate the information under audit, instead of just the outdated digits (Nearon, 2005; Sutton, 2000). To highlight the current state of mind within FAR, the Secretary General states:

“**During the year, the realization of digitalization’s effects on our profession has become stronger. It is fun to see how the profession is now changing towards a more digital business landscape. Some may worry for all the changes, but I think that digitization will bring many**
new opportunities for all professionals. When tools and analytical methods we have so far only dreamed of becomes reality, we can help entrepreneurs, businesses and organizations even better to navigate into the future.” (Brännström, 2016)

Consequently, digital tools are required within the audit profession (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011), resulting in a new need of IT-skills and thereby increased competence (Ghasemi et al., 2011).

**Competence**

Competence is said to be one of the three foundations of auditing, as well as influencing factor for the quality and value of an audit (Nearon, 2005). Wallerstedt et al. (2006) and Nearon (2005) mean that there is a big need for auditors that are competent and independent in the audit profession, to create audit quality. Nearon (2005) exemplifies that no matter how competent the auditor, a user of an audit opinion will never expect the auditor to report a breach if he or she is not believed to be independent. Likewise, if the auditor is perceived as incompetent, the user will not expect the auditor to find obvious material misstatement. Auditors are now responding to the profound change that digitalization brings, in order to be able to keep on being relevant in the profession and to bring holistic and high-quality audits (Forbes Insights, 2015; Lombardi et al., 2014). Nearon (2005) highlights that an interaction of independence and competence is needed to create audit quality.

While many discuss the advantages of digitalization, Yoo et al. (2010) bring up another challenge. They claim that since organizations are moving towards using more digital tools, a social dimension to the material world in organizations is added, which in extent creates a new challenge in our digital society – digital materiality. Han et al. (2016) agree with this being a challenge and develop that auditors with unsatisfying IT-skills could bring a certain audit risk. However, they also note that to take on these new challenges, auditors should promote their IT-skills and therefore their competence. Auditors are now encouraged by standards to adopt available IT and use specialists when necessary (Janvrin et al., 2008). The expectation gap is a driver of change and it occurs when audit services fail to meet the expectations of society (Ruhnke & Schmidt, 2014). If the auditor fail to enhance their competence, there could be serious problems for the audit profession due to the risk that effects on the expectation gap could impair legitimacy (Power, 2003; Ruhnke & Schmidt, 2014; Sutton, 2000). Nearon (2005) agrees that there will be greater expectations upon the
auditor to have skills and competence within IT. This since competence is one of the foundations of auditing, that directly affect audit quality (Nearon, 2005), and since digitalization is said to be unavoidable (Breman & Felländer, 2014; Byrnes et al., 2015; Caster & Verardo, 2007; FAR, 2016; Forbes Insights, 2015; Lombardi et al., 2015; Spraakman et al., 2015).

In a report by Forbes Insights (2015) they imply that the auditor’s ultimate skill is adaptability. Although this skill is needed throughout the career, especially now when digitalization is reshaping our society and the auditors’ tools (Forbes Insights, 2015; Yoo et al., 2010), it does not change the need for quality and accuracy in audits (Forbes Insights, 2015). The technological advances, including complex IT-systems and 90% of the business records in digital formats, have drastically changed form of audit evidence (Caster & Verardo, 2007; Nearon, 2005). Examples of two drastical changes are the change of internal control components and the emergence of digital evidence. Caster and Verardo (2007) also highlight the risk of fraud due to the increased use of scanners and refers to the use of fake evidence in the Parmalat scandal. To meet these risks, auditors’ need to have increased competence within systems, be even more skeptical when handling information and not accept information that is not confirmed (Arthur, 2001; Flint, 1988; Nearon, 2005; Wallerstedt et al., 2006).

Handling of information
Since auditors should gather sufficient and appropriate audit evidence to draw reasonable conclusions to the audit (Arthur, 2001; Caster & Verardo, 2007; Flint, 1988; Forbes Insights, 2015), auditing can be perceived as a continuous interaction of handling information through tools. Iuliana and Tugui (2005) discuss that regardless of which developmental stage of our information-based society, information is always relied upon. Brynjolfsson and McAfee, 2012, Granlund, 2007 and Zuboff (1988) develops their reasoning by stating that the technical development of tools increase the ways of handling information and enhances flexibility, efficiency and accuracy as a result. Because the audit opinion is based on the informational evidence, Flint (1988), Fukukawa and Mock (2012) together with Zuca (2015) state that this is a key procedure in an audit. Nearon (2005) highlights that a challenge regarding digital information entails that the auditor needs to understand and test the IT-controls around the evidence to ascertain their authenticity and reliability.
Knowledge along with information can be seen as keywords in the society nowadays, where digitalization is a tool to provide new information regardless of volume (Granlund, 2007; Holley, 2004; Iuliana & Tugui, 2005; Spraakman et al., 2015). According to Shapiro and Varian (1999), IT can be defined as digitalized information, where the focus lies within the value of information. Furthermore, digital technology can be valued as the primary source of innovations today (Yoo et al., 2010). Zuboff (1988) means that the organizations in society that depend on information and communication through IT generally adapt their tools to the IT needed, hence to the value of the information (Shapiro & Varian, 1999). Thereof Ghasemi et al. (2011) highlight that the audit profession benefits from the advancements in IT. These advancements allow organizations to digitalize their information by creating new digital information or convert the existing to a digital form (Ghasemi et al., 2011; Holley, 2004). Nevertheless, digitalization as well as IT needs to be learned by humans with a critical view to be able to get the best results for society (FAR, 2016). However, advancements in IT does not only affects business processes, but also the way auditors handle information through the use of new tools (Han et al., 2016).

**Working methods**

Zuboff (1988) implies that there is an opportunity to use the full potential of digitalization and IT, if captured by organizations. She underlines that it is wasteful not to allow humans to use their full competence and skill, whereof it only allows humans to be at their full potential by using digital working methods. Nonetheless, Bierstaker et al. (2001), Granlund (2007) and Spraakman et al. (2015) believe that the future of the audit profession will continue to move towards being fully reliant on digital information and working methods. However, society is not quite there yet. Furthermore, Nearing (2005) is concerned about the audit profession's ability to adapt to the rapid changes that digitalization brings. This because he believes that the working methods have changed too little until now.

Several other researchers also admit that the audit profession must continuously adapt their working methods to IT advances (Bierstaker et al., 2001; Caster & Verardo, 2007; Forbes Insights, 2015; Sutton, 2000). Sutton (2000) however, believes that the audit profession is prepared to meet these challenges. He states that this is shown through the way audit procedures increasingly are concentrated on business processes and related information systems, which produce the digital information under audit. Consequently, there is a common belief that the working methods of the audit profession is becoming paperless (Bierstaker et
al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Lombardi et al., 2015; Power, 2003; Rezaee et al., 2001).

**Paperless**

Auditors used to produce a lot of paper, which now has decreased because of IT advances and digital working methods (Power, 2003). By automating processes and traditional papers into digital format, auditors can keep themselves updated of the technical developments available and therefore be on the same technical level as their clients (Alles, 2015; Ghasemi et al., 2011). Thus, timeliness of information becomes an advantage organizations gain from digitalization (Alles, 2015; Ghasemi et al., 2011). By using IT, processes can also be automated according to Banker et al. (2014). To automate a single activity is fairly easy, Brynjolfsson and McAfee (2015) note. However, keeping the automated activity in an unchangeable environment for it to work is not as easy. Whereas traditional papers are moving towards full automation in accounting and auditing, the digital business should be realized (Ghasemi et al., 2011; Hunton, 2002). According to Granlund (2007) digitalization can be used as a method to automate information, by using IT.

The central role of an audit, to secure quality, could be affected by the increased usage of digitalization to access only digital information, leading to a need for adjustment of the working methods (Byrnes et al., 2015; Rezaee et al., 2001; Wallerstedt et al., 2006). As the audit profession is moving away from traditional paper audits, thereby becoming paperless, new digital working methods are required within the audit profession (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011). This is also resulting in a need of new IT-skills (Ghasemi et al., 2011), as mentioned above. Due to digitalization and the automation of information, Bierstaker et al. (2001) predicts that paperless audits will be most common in the future as many audit clients follow the digitalization and already use, or move towards using, paperless systems. Due to this, they believe that IT will have large effects on the audit process, as it already is having impacts on the audit planning. Nevertheless, Bierstaker et al. (2001) underline the importance of keeping pace with clients digitally. Accessible, digital information will move organizations towards being paperless (Ghasemi et al., 2011; Rezaee et al., 2001), which can also be concluded to be more sustainable for the environment.

Forbes Insights (2015) believe auditors should use professional judgement from enhanced information, which is available through the use of IT. Lombardi et al. (2014), with support...
from Alles (2015), point out that the auditor cannot be replaced by using paperless systems. Combining IT and digital working methods with auditors’ professional judgement will be the most successful characteristics in the future (Forbes Insights, 2015). In fact, auditing is increasingly becoming synonymous with IT-auditing, where there might be an upcoming need for specific IT-auditors (Alles, 2015; Janvrin et al., 2008). By being paperless and doing audits digitally, auditors are empowered by these digital methods, resulting in more flexible and efficient audits (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Janvrin et al., 2008).

**Flexibility and efficiency**

Revolutionary technologies always bring advantages and disadvantages (FAR, 2016), although the fact that digitalization will bring profound benefits on auditors’ working methods is a conclusion already drawn by Brynjolfsson and McAfee (2014). Rezaee et al. (2001) explain that the benefits of using digital information rather than traditional paper information is that it is easier summarized and organized, thus allowing the communication of information to be more flexible. Information should be correct, objective, timely, in digital form and cost efficient, which Granlund (2007) states IT realizes. Furthermore Ghasemi et al. (2011) agree with Granlund (2007) that by digitalizing information, especially in the accounting field, saves both time and cost as well as makes the communication of information more efficient, which also improves the accuracy of the information. Brynjolfsson and McAfee (2012) point out that organizations that are “born digital” already have the competitive advantage of digitalization.

To succeed in the modernizing process towards a global and digital organization, audit firms need to be open-minded and flexible to achieve success (Arsenie-Samoil, 2010; Han et al., 2016; Hunton, 2002; Nearon, 2005). All organizations will in some way be affected by digitalization eventually, hence it is better to strategically plan the changes needed in the organization for digitalization to be implemented in an efficient way (Holley, 2004). Holley (2004) believes that by using digitalization it can be used most efficiently and enable auditors to obtain information in a way that is needed in a global digital society. However, by moving towards more efficient working methods, Bierstaker et al. (2001) together with Breman and Felländer (2014) claim that job opportunities might be lost.


Lost job opportunities

As stated above, a drawback mentioned in connection with digitalization of working methods is that it might replace job opportunities within the audit profession (Breman & Felländer, 2014; FAR, 2016; Forbes Insights, 2015; Zuboff, 1988). Breman and Felländer (2014) consider that new technologies could replace the human mind, or at least complements highly educated manpower. Some disagree with this to a large extent and claim that the auditor cannot be replaced by digital working methods (Alles, 2015; Brynjolfsson & McAfee, 2012; Lombardi et al., 2014). They along with Zuboff (1988) argue that decisions based on digital data are better, nevertheless the need for human insight and knowledge still persists. IT is good at following set rules, although the human mind is better at recognizing patterns (Brynjolfsson & McAfee, 2015). If job opportunities will be lost we do not know yet. Despite of this unawareness, Breman and Felländer (2014) argue that if job opportunities were to be lost, a dynamic labor market is central in which knowledge is of great significance.

Summary of Literature Review

Digitalization affects the society and is a part of the auditors’ everyday life (Ghasemi et al., 2001), as some claim that they cannot survive without IT (Granlund, 2007; Spraakman et al., 2015). However, the final effects of digitalization are still unknown (van Schoten, 2015; Hunton, 2002). Digital tools are said to be required within the audit profession, which requires changes in the competence of auditors (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011). Competence is an important factor for audit quality, since it is one foundation of auditing (Nearon, 2005). Some also state that auditors with lacking IT-skills could compose a risk to the audit and impair legitimacy (Han et al., 2016; Power, 2003; Ruhnke & Schmidt, 2014; Sutton, 2000; Yoo et al., 2010). As demands for competence within IT is said to increase for auditors (Nearon, 2005), competence is an effect that digitalization might have on the audit profession, due to an increase in digital tools.

Auditing could be perceived as a continuous interaction of handling information (Arthur, 2001; Caster & Verardo, 2007; Flint, 1988). The technical developments of IT make the handling of information more flexible and efficient (Brynjolfsson & McAfee, 2012; Granlund, 2007; Zuboff, 1988). The auditors are expected to adapt to the IT needed (Shapiro & Varian, 1999) because the handling of information is a key procedure in an audit (Flint, 1988).
1988; Fukukawa & Mock, 2012; Zuca, 2015), this could be perceived as an effect that the changed tools of the audit profession could bring.

By using digital working methods, humans are allowed to use their full potential (Zuboff, 1988). Some also believe that the audit profession cannot operate without digital working methods in the future (Bierstaker et al., 2001; Granlund, 2007, Spraakman et al., 2015), as auditors constantly have to adapt their working methods to IT advances (Byrnes et al., 2015; Caster & Verardo, 2007; Rezaee et al., 2001; Sutton, 2000; Wallerstedt et al., 2006). Some see that there is an increased focus on system reliability and that the working methods of the audit profession is becoming paperless (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Lombardi et al., 2015; Power, 2003; Rezaee et al., 2001; Sutton, 2000;). Auditors do not produce as much paper as they used to, due to IT advances and digital working methods (Power, 2003). The prediction that audits will become paperless is therefore an effect that digitalization might have on the audit profession.

By doing audits digitally, thereby paperless, the auditors’ working methods are becoming more flexible and efficient, since the information is easier to summarize and organize (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Granlund, 2007; Janvrin et al., 2008; Rezaee et al., 2001). However, by making the working methods more efficient, some claim that job opportunities might be lost due to digitalization, although the need for human competence is persistent (Alles, 2015; Bierstaker et al., 2001; Breman & Felländer, 2014; Zuboff, 1988). Competence becomes significant if job opportunities were to be lost through the change of working methods within the profession (Breman & Felländer, 2014). Finally, flexibility and efficiency, as well as lost job opportunities might be effects of digitalization of the auditors working methods.
FINDINGS

The interview questions which the semi-structured interviews are based on, are developed from the effects. Each effect is related to a question area in the interview guide (Appendix 2). As mentioned before, all answers expressed are the auditors’ personal opinions and not to be related with the audit firm’s overall attitude towards digitalization. While all auditors are anonymous throughout the study, individual quotes are lifted. Quotes will only be referred to the auditors’ designation (Appendix 3), to keep their anonymity but still enable the possibility to highlight important facts communicated. When the word auditors are mentioned in the following sections it is referred to the interviewed auditors, which can be found in Appendix 3.

Digitalization of the audit profession

Digitalization is defined with different words, but has the same meaning among the auditors. The general definition of digitalization among the auditors is to only use the computer along with digital information. This implies the removal of paper acts and to transform all paper information into having all documentation digital, which in turn leads to limited usage of binders. This is considered to be a positive effect of digitalization on the profession by all auditors. Digitalization is pointed out as the usage of digital information instead of other information. However, one auditor believes this is only an effect of digitalization. What digitalization actually brings might be accordingly:

“Changes of both our clients working methods as well as our working methods and the communication between us”. (Auditor 6)

When working in a new way and in a new environment that is digital, more focus is laid upon the surrounding environment. All auditors are positive towards digitalization of the audit profession and mostly see the opportunities that it brings. Some of them state that they were not as positive a few years ago, but have changed their mind as they realized that it actually is the future and cannot be avoided. “It was contradictory in the beginning, because the colleagues were secure in doing as they always had done.” (Auditor 4). Many auditors are convinced that the auditor will still be needed and have the same role.
Many auditors mean that their firm centrally influences their employees by stating that everyone is working on the digitalization process together. No one is left behind or can do it their own way. Almost all documentation needs to be digital. The older colleagues are less positive, they like working on paper and prefers to show the client likewise. Many auditors think that it is a habit to work with a physical paper act and that the older colleagues have a harder time to adapt. Most auditors perceive that their firm is positive towards digitalization and work a lot with development.

Tools
The usage of digital tools for conducting the audit have simplified the everyday work, one auditor considers. It enables the auditor to receive information from clients faster through the possibilities which the new tools bring. Collection of information can be done in many different ways, for example even through clients’ websites, one auditor suggests. Now it is possible to analyze large amounts of information in a way that was not possible before the digitalization of the profession. Through digitalization of the audit profession, it is possible to collect samples with the tools who highlight transactions that might be wrongful. The majority of auditors find this to be a benefit for the profession since it provides better security compared to manual sampling. When using digital tools, one auditor highlights that it ought to be more correct and harder to cheat rather than when paper documents are used. Especially two auditors also make it known that their audit programs are continuously improved to be able to work with digital methods during audits.

Competence
Many auditors point out that there is an increased focus upon internal controls, the client’s IT and other related systems. The auditor needs to understand this to identify risks, which relates mostly to larger clients in general. To be able to enable this, competence within IT is needed. More specialists within IT are required in the audit firms. “Thus, auditors are not auditors as they were fifteen years ago. Back then you made an audit.” (Auditor 4). By this the auditor means that auditor’s major task was to make an audit, mostly due to the change of audit duty, although it is a big difference now. This auditor has support from several other auditors, who state that the clients want more input and advice now. They further claim that the auditor should know more and deliver more services. One auditor points out that there might be expectations upon the audit to be a more affordable and priceworthy service. To fulfill this,
the auditor argues that International Standards on Auditing needs to be less complex, regarding the many different demands of today.

Some of the auditors believe that the demands upon auditors are increasing in nature. Many of the auditors highlight that IT-skills are necessary and will be so increasingly, to keep up with the development. However, some auditors think that this is solved with IT-specialists within the audit firm, from which the auditors can require help. One auditor point out that a broader competence and basic understanding will be required, due to the increased demand for IT-skills and focus upon internal controls. To meet this demand, further education should be needed.

Most auditors believe that the role of the auditor will not change, not in the near future at least. One auditor clarifies that an audit will probably always include the same phases: information gathering, risk analysis, audit planning, audit, final report and review together with the client. Possible differences due to tools could be efficiency, approach and maybe demand. Some believe advisory will play a larger part and that the auditor will need to have a deeper understanding of the economy and how things affect each other. More analytics, IT-audit and focus on internal controls, where the IT-systems are a part of the client’s internal controls are brought up. A few of the auditors’ even point out that they believe that auditors are moving towards becoming IT-auditors, which also would increase the need and demand for education.

**Handling of information**

Handling of information is a crucial part for auditors since they gather, process, use and generate a lot of information. All of the auditors mention that they have gone from using paper acts, to digital acts. They also state that they work more digitally and that using digital working methods are considered to be cheaper than using paper files. However, a few of the auditors hesitate towards that price difference. Not only the economic advantage is lifted, but also that digital storage is more sustainable for the environment in the long run. Many of the auditors believe that a big difference digitalization entails is that information is converted to digital format. The majority of the auditors also point out that their systems are getting adjusted to more digital working methods and that new tools are developed continuously to handle information even better. By using the tool of digital storage, the majority of the auditors mention that it makes organization of documents and to choose samples easier.
**Working methods**

Some auditors state that audits of financial statements has been affected the most within their working methods, due to the decreased existence of binders. The auditor can make notes on a PDF instead of on paper if he or she wants to work entirely digital. All information is gathered digital, thereby better for the environment as well. Now almost all of the auditor’s documentation is of digital nature. However, many auditors believe that the analytical audit has been affected the most, because the possibility to read a SIE-file into the audit program to analyze. This has made it a lot easier to analyze a large amount of data. Also, the meeting with the client has been affected, which now risks to be less personal. One auditor highlights the risk that the opportunity to get a holistic view of the organization might decrease, due to digital working methods and a decreased presence at the client’s organization. Another auditor points out the risk of decreased interaction between colleagues, due to the increase in e-learning programs. This auditor believes that there needs to be interaction among colleagues, to increase knowledge and competence through education.

The importance of keeping up with the development in the society is given, according to multiple auditors. They argue that digitalization is a process without an end, whereas they have to continue to improve their working methods along the way. To document the right things is also stated to be of great importance. They also explain the importance of the transition from using paper acts to digital working methods to be easy and user-friendly.

Many also point out that the audit department have come further in adapting digital working methods than the accounting department. Reasons why this is differing between the audit firms. No matter of which department, the general opinion seems to be that while many of the audit firms are on their way to digitalize their methods and tools, there is some work yet to be done. However, the important thing is to ensure uniform working methods within the audit firm.

**Paperless**

Most auditors believe that the audit profession will be fully paperless soon. Likewise, the majority of auditors also see the reduced use of paper and binders as the biggest advantage of digitalization. The general opinion is positive towards the audit profession becoming paperless, whereas a few auditors even underline that their client might even expect it. Mostly because the clients are environmentally friendly and therefore like the fact that the profession
is reducing the overall use of paper. This is also found as a competitive factor according to one auditor, as well as a proof that they stay current with the development of society. However, another auditor highlights the risk that a digital act enhances, that it could be easier to manipulate digital documents than paper acts.

In spite of the fact that all auditors imply that they save all documentation digitally, it is commented that they still need to check in binders to see what was done in the audits the years before digitalization. Nevertheless, auditors receive more information digitally nowadays, through PDF’s for instance, which facilitates their working methods. Many of the auditors find that by using digital working methods and not paper files, they gain advantages such as flexibility and efficiency. It is pointed out several times, by different auditors that many of them still prefer to use paper during different stages of the audit. Only one auditor clearly states to prefer information digitally, even though many argue that it might be an age related, hence generation-related, question. The possibilities to get a better overview, which according to several auditors is easier to get with paper files, are because the auditor can spread the papers out next to each other. Nevertheless, digital working methods bring out errors in a way paper files cannot. How far different audit firms are towards becoming paperless varies widely in the middle of Sweden. However, all auditors agree on the direction towards paperless and thereby digital working methods.

With digital working methods, efficiency and flexibility are brought up as positive effects by the majority of the auditors and as a result of digitalization. All of the auditors strongly agree that they come in contact with digitalization on a daily basis. It is everywhere in the profession and according to the majority of the auditors, digitalization is especially prominent among larger clients where usually no paper exists at all. Letters of engagement, statements from management and commitment notifications from the bank along with original receipts has to be retained as paper documents by Swedish regulations, but otherwise the larger audit firms are becoming paperless. Nowadays, the auditors don’t have to carry multiple binders with them to clients, instead only the computer. Meanwhile digital working methods entails modernization within the audit firms, the majority of auditors find that a consequential effect of removing the usage of paper is in addition becoming more sustainable for the environment. It is mentioned that while they are not completely there yet, digitalization is the future.
**Flexibility and efficiency**

When discussing digitalization of the audit profession all auditors comment that one of the advantages is the increased flexibility of work, due to the reduced use of paper. They mean that it may feel safe to work with paper files, but beyond this the majority are pressing the fact that it entails greater benefits to be paperless and use digital working methods. They no longer have to carry multiple binders with them, only the computer and possibly scanners and extra computer screens. This allows a freedom to be able to work outside of the office without having to make sure they have all of the binders with them, which makes it easier for the auditors. Whilst many modernize along with the society in using digital working methods, one auditor especially highlight that it could force the classical auditor to disappear. This due to digital solutions and hence that the auditors have to use the tools they have in better ways.

“**Digitalization is viewed by us as a way to change and modernize our audits.**” (Auditor 6)

Most auditors find the transition towards digital working methods to be a habit-related question, if the auditor has been in the business a while it takes longer time to adjust. However, many point out that there is a general positivity towards changing working methods. Multiple auditors explain how people adapt to new methods individually, however as the auditors get more used to working digitally, everyone find their own approach and increase efficiency. Change takes effort and is naturally not always an easy process. A few auditors mention that they are in the changing process of becoming digital and that there is still work to do. Whilst they can but do not fully use digital working methods, they still argue that there is a great advantage in becoming paperless, the increased flexibility as well as environmental benefits.

“**It is much easier to have everything at the same place and it is gathered and backed up and you can reach it if you’re on the moon, basically.**” (Auditor 2)

While many auditors highlight the advantages that digitalization brings to their working methods, some of the auditors mention challenges as well. The most emphasized challenge is the relationship to their clients. By using digital information, the flexibility and efficiency is increased, however, the contact with the client is downsized to mostly digital communication such as e-mails. Some of the auditors consider that this makes it harder to build strong and long lasting relationships with their clients. Another challenge that one auditor presents is
during meetings with clients. Since most audit firms are moving towards digital working methods, auditors show clients numbers on their computers, which can be found impersonal. Despite this factor, the same auditor still finds digital working methods to be more efficient than the methods used before.

By having all information digitally, the overall opinion from the auditors is that it allows the auditors to be able to work more efficient. When all documents are stored on servers, it entails an accessibility to documents in an easier way than before. It is brought forward that this makes it easier for auditors to search for specific documents than to have to scroll for them in different binders. Especially one auditor points out that digitalization brings great possibilities and is more relevant, hence making it easier to ask the right questions. The same auditor also emphasize that they keep their clients by working efficient, both for themselves and for the client’s sake.

If the clients also use digital working methods, it facilitates the process and the auditors do not have to scan all the documents. To scan all the documents both takes time, as well as costs more money for the clients. If the audit is on a non-digital client, the auditor can send a list of documents for the client to scan into the computer before the auditors come to visit, to ensure efficiency. Nonetheless, one auditor disagrees that digitalization only brings positive efficiency and develops this further by discussing whether it always becomes more efficient by using digital working methods. When using paper and binders’ auditors covered the whole organization in another way and could get the information themselves. Now the auditor have to ask for the wanted documents, instead of just obtaining them from the binder.

Lost job opportunities
Several auditors believe that the role of the auditor will change, although they believe the role of the accounting consultant will change even more. However, most auditors are convinced that the auditor will still be needed. As an advisor, quality controller, one who ensures the stability between organizations and the trust within the profession, as well as the whole economy. One auditor highlights that the economy is founded upon trust, which will always be needed. Security, knowledge and support will still be vital. The auditors express the general opinion, that the demand for audits is unchanged. How often clients demand audits has not increased nor decreased due to digitalization, however fewer organizations asks for audit because of the removal of the audit requirement for smaller organizations. A couple of
the auditors reach the conclusion that more clients both need and want advisory, rather than audits. However, the advisory part can be achieved from an accounting consultant as well as from an auditor.

“You do not necessarily need the audit to get advice.” (Auditor 5)

While audit is a legal requirement for larger companies, advisory is a natural part of being an auditor, according to one auditor. No disagreements are detected regarding the advisory part for an auditor. All auditors discussed this to different extents, however only one emphasized that they are limited in what areas they are allowed to give advice in. Namely, they are for example not allowed to give advice in the tax field, although they may refer the client to their tax department for further advice. Still, all auditors note how advisory is increasingly a larger part of the auditor’s work.

Especially one auditor points out the fact that digitalization of the profession might lead to job opportunities being lost. However, the auditor views this positively as while job opportunities might be lost, new ones will also be created. Nevertheless, many new opportunities are created because of digitalization. One example that is highlighted by one auditor is the transition from CD’s to using Spotify for listening to music. The auditor means that the same principle can be applied to the audit profession and is therefore not worried about job opportunities. Even though the auditors do not express any worries, they highlight that the importance of education among auditors should increase to keep a dynamic labor market within the profession.
DISCUSSION

Digitalization of the audit profession

The auditors’ definition of digitalization is equal to the definition by Gartner (2016). That the audit profession is moving towards the usage of digital tools and working methods. This leading to an increased focus on the surrounding environment and related systems. As all of the auditors were positive towards digitalization of the profession, but stated that it was contradictory in the beginning, it could be perceived as though some were in need of a push to handle the change. This according to the group opportunistic and adjustable, which describes a response to change as cautious in the beginning, yet opportunistic towards change (Byrnes et al., 2015; Hunton, 2002). The willingness to learn and adapt, that Brynjolfsson and McAfee (2014) describes, is interpreted to exist among the auditors. A tendency that most auditors emphasize is that there could be generational differences in responses towards the changes of digitalization within the audit profession.

Tools

The digital business should not be underestimated and the audit profession is steadily moving towards usage of digital tools (Ghasemi et al., 2011; Hunton, 2002). Most auditors agree about moving towards digital tools and overall audits. Accordingly, the auditors as well as previous research (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011) state that the audit profession has an increasing need for digital tools and IT-skills. This can be interpreted as a need for education. Digital tools, followed by digital audits, are also believed to result in more efficient audits (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Iuliana & Tugui, 2005; Janvrin et al., 2008; Wallerstedt et al., 2006).

Brännström (2016) point out that the digital tools of today enables the audit profession to help clients in a way they only dreamed of before. Auditors will probably be fully reliant on digital tools in the future (Bierstaker et al., 2001; FAR, 2016; Granlund, 2007; Spraakman et al., 2015). Many auditors are confident that there will be more tools and programs for telephones and other technological devices. Especially one auditor wishes to be able to scan audit evidence with the phone in an efficient way. Another auditor believes that there will be screens with wireless connection to show the clients digits, analysis and ratios at every venue. The working methods will be adjusted and the tools will be adjusted after the methods.
Digital tools are also needed in the audit profession to enable adaptation to the client’s digitalization (Alles, 2015; Bierstaker et al., 2001; Forbes Insights, 2015; Lombardi et al., 2012). Multiple auditors agree that it is important for them to keep up with the development. It is also pointed out by the majority of the auditors also point out that digitalization and development is a process without an end, meaning they have to continuously develop their tools and adapt the auditors’ education thereafter.

The discussion above shows that the auditors as well as previous research state that auditors need digital audit tools and programs. That digital tools makes the audit more efficient is another thing that auditors and previous research do share the same opinion about. The auditors develop this by stating that the digital tools facilitate their work, partly by enabling larger samples and making communication, as well as information sharing, easier. Both previous research and the auditors state that digital tools can improve service to the clients and enable the auditors to keep up with the development. It is perceived that digital audit tools are a positive effect of digitalization upon the audit profession and that this is something that still is and should be further improved. Both previous research and the interviewed auditors highlight the importance of competence within IT. This to enable the use of digital tools, as well as the understanding of information systems, which also requires education to enable the understanding and usage of the tools.

**Competence**

Previous research implies that competence is one of the foundations of auditing and is an important factor that affects the quality and value of an audit (Nearon, 2005; Wallerstedt et al., 2006). This is also something that the majority of the auditors state, that they need to stay current with the development and to appear competent. Ghasemi et al. (2011), Sutton (2000) and Nearon (2005) believe that the expectation upon the auditor to have skills within IT increases, which is a new type of competence needed. Arthur (2001), Flint (1988) and Wallerstedt et al. (2006) also state that increased demand for competence and IT-skills is needed to confirm the reliability of internal systems of the clients. Most of the auditors agree that there is an increased focus upon internal controls, IT and systems, which demands an increased competence within the profession. However, some of them state that this demand might be satisfied through specialists within the audit firm.
Some auditors bring up the fact that auditors need to have competence within more fields today than before; advisory, sales, IT, analytics, relationships and how things in the economy affect each other. The ultimate skill of an auditor is said to be adaptability, increasingly because of the rapid changes of society (Forbes Insights, 2015; Yoo et al., 2010). However, most auditors believe that the role of the auditor will fairly stay the same, at least for the decade to come. Both the auditors and the previous research agree that an increased competence will be demanded due to digitalization, not to affect audit quality. This imply that there is a need for increased education, through FAR or at higher educational institutions.

**Handling of information**

How auditors gather, use and store information changes from digitalization, where new digital tools are required for the audit profession to handle the information (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Granlund, 2007; Han et al., 2016; Holley, 2004; Iuliana & Tugui, 2005; Spraakman et al., 2015). This is confirmed by most of the auditors, who state that their usage and storage of information have changed the most. One of the auditors points out that digital tools have already made their everyday work easier. Most auditors highlight that digital tools and programs make it easier to receive information from and communicate with the client. The possibility to analyze more data and take larger samples is enabled through digitalization, followed by the development of programs and tools. The majority of auditors find this to be a benefit for the profession since it provides better security compared with manual sampling.

Shapiro and Varian (1999) define IT as digital information and state that organizations that depend on communication and information adapt to the IT needed. These advancements in IT lead to more information in digital format (Ghasemi et al., 2011; Holley, 2004) and Han et al. (2016) highlight that the gathering, usage and storage of information changes. All of the auditors confirm that handling of digital information is an effect on their everyday work, due to digitalization. Most auditors also point out that digital information helps them to organize and summarize information easier. Previous research argues that when information is accessible, an increased demand for timeliness occur (Lombardi et al., 2014; Sutton, 2000; Wallerstedt et al., 2006). However, the auditors have not noted any tendencies of change in demand of timeliness among their clients. Brynjolfsson and McAfee (2015) state that the digital format increases the understanding of the information, although most auditors claim the opposite, that it is harder to assimilate digital information.
Working methods

Digitalization is reshaping the working methods of the auditor, however not the quality requirements upon an audit (Forbes Insights, 2015; Yoo et al., 2010). Previous research and the auditors are in agreement regarding digital information. Ghasemi et al. (2011) and Holley (2004) state that by converting existent information into digital information, as the auditor’s do when scanning client’s paper files, the working methods are being changed into a digital method of work. It takes time to learn how to use these new digital working methods (Brynjolfsson & McAfee, 2012; FAR, 2016; Granlund, 2007). The majority of auditors agree that most clients are becoming digitalized to a larger extent and highlight the importance of similar working methods. However, Alles (2015) and Ghasemi et al. (2011) point out when both the auditor and the client are using digital working methods the audit is easier, although a few auditors claim that this results in a decrease in personal contact with the client as a negative side effect. More digital communication on for instance email rather than actual meetings can affect the relationship between the auditor and the client. As a result, it can be perceived that the relationship becomes even more important and relevant to maintain than before, due to the paperless working methods.

Paperless

Previous research states that the audit profession is becoming fully paperless (Bierstaker et al., 2001; Dowling & Leech, 2014; Ghasemi et al., 2011; Lombardi et al., 2015; Power, 2003; Rezaee et al., 2001), which all auditors agree with. The auditors develop this by stating that the same work is expected to be done, but with a set of new uniform working methods within the profession. Alles (2015) and Janvrin et al. (2008) mean that digitalization of working methods is leading the audit profession towards becoming synonymously with IT-auditing, where IT-auditors most likely will be needed. This is something that especially one auditor emphasized, which is partly supported of a few more auditors. The common belief among the auditors is that the larger audit firms will have IT-specialists, whilst auditors at the smaller firms will need an increased competence within IT, tools and systems. To increase the auditors’ competence within this field, further education is needed.

Like stated above, some auditors are afraid that more digital working methods and digital ways to communicate could result in less time with the client. Through this, one auditor highlights the risk that the opportunity to get a holistic view might decrease, due to a
decreased presence at the client’s organization. Hopefully the audit profession will become more and more paperless which would have sustainable effects on the environment, a factor that has been highlighted as important by both auditors and previous research. Regardless of how the future unfolds, the profession will almost certainly become entirely paperless and the auditor will probably still be needed, despite the change in working methods.

**Flexibility and efficiency**

Flexibility is stated to be one positive effect that digitalization entails (Rezaee et al., 2001; Zuboff, 1988), which is something that all of the auditors also highlight. Flexibility and thereby freedom to choose where and when to work, is namely one of the largest positive effects that the majority of the auditors point out. This makes their work easier, as documents on a server entail accessibility and thereby flexibility. Some researchers’ state that the digital information also lead to more efficient audits (Ghasemi et al., 2011; Granlund, 2007). The auditors highlight that the audits are getting more efficient through digitalization of working methods. Namely, most of the auditors argue that efficiency is a gained advantage when moving away from paper audits and having the information digitally. Through the discussion above it seems as though flexibility and efficiency is a positive effect of digitalization upon the audit profession, which makes the auditor's work easier. However, a negative side of the efficiency is that it could lead to lost job opportunities.

**Lost job opportunities**

Previous research imply that the digitalization can lead to lost job opportunities (Breman & Felländer, 2014; FAR, 2016; Forbes Insights, 2015). However, most of the auditors disagree about the auditor being replaced. There are also statements that the human insight and knowledge cannot be fully replaced by technology (Brynjolfsson & McAfee, 2012; Zuboff, 1988). The auditors generally believe that the role of the auditor will change and that the need for audit will persist, but that the role of the accounting consultant will change even more. Especially one auditor points out that digitalization of the audit profession might lead to job opportunities being lost, although the auditor views this positively and mean that this part of the labor market will only evolve, not disappear. A dynamic labor market and education among labor is important (Breman & Felländer, 2014), something that the auditors also highlight the importance of. Therefore, it can be interpreted as though education and flexibility among auditors might increase in importance, to prevent lost job opportunities.
CONCLUSION

The effects on the auditors’ working methods are more prominent than on the tools. This mostly because the profession is moving towards being fully paperless, which results in more flexible working methods. However, flexibility also leads to a negative side effect. Due to the increased flexibility, the interaction with the audit client decreases. The auditors expressed no concern of lost job opportunities, something that argues against what previous research claim. However, to be able to adapt to the audit professions changed tools and working methods, a dynamic labor market and competence through education is highlighted. Competence has always been fundamental within the audit profession; however, a new type of competence is now demanded. Therefore, an additional effect is the increased demand for a competence, which leads to an increased need for education. This is something that the auditors highlight, but previous research has failed to illuminate. Education could be achieved through universities, FAR or similar institutions. Therefore, it is of great importance that these institutions meet this need for education and develop available educations along with the development of digitalization.

By the discoveries of the study, enhancing competence through education is perceived as important, following both the change in tools and working methods. The discoveries also propose that the auditors themselves, along with the audit firms, need to continuously enhance their competence to develop along with society. This to be able to produce high quality audits. Since digitalization of the audit profession is an ongoing change, enhanced competence and education can be viewed as natural consequences of a major change in a profession’s tools and working methods. Therefore, an advice is to evolve along with society to the greatest extent, although still be aware that until all tools and working methods are unanimously digital, there might be discrepancy of knowledge and the need for further education will persist.

This study can be helpful for upcoming studies, by closing the theoretical gap through the increased understanding it provides. This understanding could be of interest for the audit practitioners, FAR and other researchers. Thus, suggestions for further research are to study the field of auditor-client relationship due to the increased flexibility within the profession and the field of generational differences in attitudes towards changes.
Methodological criticism

While this study is qualitative and therefore interpretive in nature, the findings cannot be and are not sought to be generalized to any other population. Instead, trustworthiness of the study is therefore sought by increasing the knowledge of a phenomenon within a profession that is still under development. Hence, all audit firms are at different stages of implementing digitalization in their firms, which could result in irregularity of the given answers. The fact that the study is interpretative and conduct semi-structured interviews includes the presumption that it allows the respondents to interpret the questions asked. However, the authors are enabled to interpret body language and can therefore ask further questions or develop the question if the auditor does not seem to understand. Depending on various experience in the profession, the questions can be interpreted differently between the auditors, thus creating an unintentional bias. However, this creates an insight of digitalization of the audit profession with regard to various lengths of experience.
REFERENCES


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APPENDIX 2 - INTERVIEW GUIDE

Initial questions

- We will not mention any names, but still wonder if you and/or the company want to be anonymous?
- Is it okay if we record the interview to make it easier to transcribe it afterwards? (The record will be deleted after it is transcribed)
- What position do you have within the profession? (Auditor, Authorized Public Accountant, Auditor, etc.)
- How long experience do you have in the profession? (number of years)

Key questions

Digitalization, basic questions

1. What does digitalization mean to you? How would you define it?
2. How would you say that you come into contact with digitalization?
3. How does it affect your working methods?
4. How many of your clients are using digital working methods today?
5. In what way / to what extent are clients digitalized?
   6. Has it affected you? How?
   7. Have you noticed any differences in the demand for audit?
8. Have you noticed any differences due to digitalization?
   9. Have you personally noticed something that facilitated your work because of digitalization (specific tools)?
  10. Have you personally noticed any difficulties in professional practice due to digitalization?

11. How does your firm work with the introduction / improvement of a digital working methods?
12. What do you think of automation and digitalization, as the profession is increasingly becoming digital, thus paperless?
Digitalization of the audit profession

13. Are there any specific parts of the profession that you think is most affected by digitalization?

14. What is your attitude towards digitalization of the audit profession?

15. Do you think your approach towards digitalization affects how the firm is perceived?

16. Do you think clients expect you to be digital?

17. What is the firm’s attitude towards digitalization?

18. What benefits and disadvantages, alternatively opportunities and risks, would you say that digitalization of the audit profession brings? Develop!

19. What parts of accounting and auditing would you describe today as digital?

20. What keywords would you associate with successful digitalization of the audit profession?

Development/Future prospects

21. How do you think the profession will develop in the future?

22. What changes would you like to see in the future?

23. Do you believe that the same skills/requirements will be demanded by the auditor in the future?

24. Do you think the role of the auditor will change in the future?

25. What changes do you think we can expect to see?

Concluding questions

- Is there something you would like to add? Something we have missed?
- Is it possible for us to contact you later on, if additional information is needed?
APPENDIX 3 – TABLE OF THE RESPONDENTS

When classifying the auditor's level of experience, consideration is taken to which occupational designation the auditor has. If designated as a junior auditor or likewise, the classification is low experience in the table below. Senior auditors are classified as moderate experience, while authorized auditors and auditors with long experience in the profession are classified as high experience.

<table>
<thead>
<tr>
<th>Audit firm</th>
<th>Designation</th>
<th>Authorized Auditor</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDO</td>
<td>Auditor 1</td>
<td>No</td>
<td>Low</td>
</tr>
<tr>
<td>BDO</td>
<td>Auditor 2</td>
<td>Yes (Approved)</td>
<td>High</td>
</tr>
<tr>
<td>BDO</td>
<td>Auditor 3</td>
<td>No</td>
<td>Moderate</td>
</tr>
<tr>
<td>PwC</td>
<td>Auditor 4</td>
<td>Yes</td>
<td>High</td>
</tr>
<tr>
<td>PwC</td>
<td>Auditor 5</td>
<td>No</td>
<td>Low</td>
</tr>
<tr>
<td>PwC</td>
<td>Auditor 6</td>
<td>Yes</td>
<td>High</td>
</tr>
<tr>
<td>KPMG</td>
<td>Auditor 7</td>
<td>No</td>
<td>High</td>
</tr>
<tr>
<td>KPMG</td>
<td>Auditor 8</td>
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<td>High</td>
</tr>
<tr>
<td>EY</td>
<td>Auditor 9</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Grant Thornton</td>
<td>Auditor 11</td>
<td>No</td>
<td>Low</td>
</tr>
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<td>High</td>
</tr>
<tr>
<td>Grant Thornton</td>
<td>Auditor 13</td>
<td>No</td>
<td>Low</td>
</tr>
<tr>
<td>KPMG</td>
<td>Auditor 14</td>
<td>Yes</td>
<td>High</td>
</tr>
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