The Role of the IS Audit in Statutory Audits in Finland

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Helsinki
2012
Title of thesis: The Role of the IS Audit in Statutory Audits in Finland

Abstract:

In the complex information technology (IT) environment of businesses today, the evaluation of information systems has to be a part of the financial audit in order to ensure that all relevant risks and controls are being taken into account (Hunton et al. 2004a: 5). This has been recognized in the current auditing standards, which suggest that an auditor may need to seek the assistance of information systems (IS) auditors in understanding and evaluating the client’s IT controls (Curtis et al. 2009). The objective of this study is to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process.

This study addresses the role of IS auditors in the financial audit process from a processual point of view. Thus, it takes a holistic approach when analyzing the links between the context, processes and outcomes of the audit process. The empirical research in this study is conducted by interviewing experienced IS and financial audit professionals in the Big 4 accounting firms.

The findings of this study indicate that IS audit as a part of the financial audit process is of growing importance and is perceived to have added value for the financial audit process. However, audit budgets are found to significantly impact the use of IS auditors in financial audit engagements. The duties of IS auditors in the audit engagements are quite similar among the Big 4 companies in Finland, but the level of usage of the IS audit differs. One major finding of this study relates to the timing of the IS audit; it is not always neither practically nor methodologically correct.

Reservations about the IT skills of financial auditors as well as the business process skills of IS auditors are evident. Hence, it is essential that the duties they perform in the audit process match their skills. The importance of communication in the IS auditor–financial auditor relationship for the successful and effective conducting of the financial audit is one of the main findings of this study. In addition, the organizational position of the IS audit function rises as one of the most interesting findings of this thesis. It is seen to have a significant impact on the communication and co-operation between the IS and financial auditors.

The findings of this study imply that the role of the traditional financial audit is changing; more information systems type of auditing will be done. It is unclear, however, who will perform the work in the future, an IS auditor or an IT educated financial auditor. Either way, the results of this study have implications for the education of financial and IS audit professionals. In addition, this thesis contributes to the literature on the field of IS auditing and financial auditing, and provides the audit profession with valuable information on the current issues regarding the roles and co-operation of IS and financial auditors.

Keywords: IS audit, IS auditor, IT audit, systems audit, audit, IT controls, audit engagement team
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Abbreviations

AAR  Acceptable audit risk
AICPA  American Institute of Certified Public Accountants
APA  Authorized Public Accountant
CAAT  Computer assisted audit tool
CAS  Computer Assurance Specialist
CR  Control risk
ERP  Enterprise Resource Planning
IESBA  The International Ethics Standards Board for Accountants
IFAC  International Federation of Accountants
IAASB  International Auditing and Assurance Standards Board
IR  Inherent risk
IS  Information system
ISACA  Information Systems Audit and Control Association
IT  Information technology
ITGC  IT general controls
PCAOB  Public Company Accounting Oversight Board
PDR  Planned detection risk
POB  Public Oversight Board
SAS  Statement on Auditing Standards
SOX  Sarbanes-Oxley Act
1 Introduction

The use of information technology (IT) is and has been rapidly increasing in business, which makes it necessary for the audit profession to keep up with the advances. If auditors do not have extensive knowledge of information systems, they may not understand the complex technology behind their clients’ business processes and will thus not be able to perform effective and efficient audits. (Curtis, Jenkins, Bedard & Deis 2009; Public Oversight Board [POB] 2000) For example, the increasing implementation and use of enterprise resource planning (ERP) systems can increase audit-related risks such as business interruption, database security, process interdependency, and overall control risk (Hunton, Wright & Wright 2004b). At the worst, auditor’s lack of technical proficiency could lead to audit failure (Shaw & Pant 2006). This has been recognized in the current auditing standards, which suggest that auditors may need to seek the assistance of information systems (IS) auditors in understanding and evaluating the client’s IT controls (Curtis et al. 2009). The growing importance of IT has implications for the accounting curricula as well; there is an increasing need to provide accounting majors with an education that better arms them with the skill set needed in the profession (Brazel 2008).

In this chapter, the research problem is presented and the objectives and scope of the study discussed. Subsequently, some basic terms are defined. Thereafter the approach and research framework for this study are presented, which the structure of this thesis is based on. Also the contributions that this thesis aims to make to the literature are discussed. Finally, the structure of the thesis is presented.

1.1 Research Problem

IS audit has grown from a marginal role to an essential part of the audit process; some believe that IS audit will eventually take over the audit (Bagranoff & Vendrzyk 2000). Both financial auditors and IS auditors agree on that IS audit is growing in importance. However, financial auditors and IS auditors view the present and future role of their practices very differently. IS auditors feel that their role is becoming dominant in the financial audit, whereas the financial auditors are likely to believe that financial audit will continue to dominate over IS audit. (Vendrzyk & Bagranoff 2003)
The evolving role of IS audit may also have implications on the fluency of the audit process. Public Oversight Board’s (POB) Panel of Audit Effectiveness (POB 2000) noted that IS specialists were often used by audit engagement teams in more complex information systems settings. They assisted mainly in understanding general computer controls or specific application controls, and were in some cases also used in the design and execution of related audit testing. However, the Panel observed that the level and effectiveness of the coordination between IS specialists and financial auditors varied, and could have been improved in almost 20% of the engagements. Furthermore, financial auditors tend to have reservations about the skills and the value-added of IS auditors (Bagranoff & Vendrzyk 2000; Hunton et al. 2004b), and they seem to perceive that the IS auditor competence varies in practice (Brazel & Agoglia 2007).

Although many researchers have suggested that IS auditors and financial auditors perceive the role of IS audit differently, few have directly addressed the issue (Vendrzyk & Bagranoff 2003). In Finland, there has been virtually no research specifically on this matter. As the role of IS audit is unarguably evolving and becoming more important, and especially when noting the different perceptions of the competence and value-added of IS auditors, it is of great interest to study the matter more closely.

### 1.2 Research Objectives and Scope of the Study

Drawing from the research problem, the objective of this study is to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process. The *role of IS audit function* refers to the role that IS audit plays in statutory audits in Finland; the why, what, when, and how question of the IS audit, including the perceived value-added of it. With *work distribution* is meant how the IT-related activities in the financial audit process are divided between the IS and financial auditors. The *co-operation* refers to the perceived level of co-operation between IS and financial auditors in the audit process, and the factors that affect the co-operation. To address these issues, the main objective of the study is divided into three specific research questions of which one focuses on the audit process, one on the IS auditor–financial auditor relationship and the one on the perceived value-added of IS audit:
1. What is the role of the IS auditor in the financial audit process?

2. How is the co-operation of IS and financial auditors perceived by them?

3. What is the perceived value-added of IS auditing in the financial audit process?

The empirical research in this study is conducted by interviewing experienced IS and financial audit professionals in the Big 4 accounting firms in Finland. Thus the role of the IS audit function in other Finnish audit firms are outside the scope of this study. A total of 15 professionals (8 in the field of financial auditing and 7 in IS auditing) will be interviewed. The research method is discussed in more detail in Chapter 3.

This study focuses on the role of IS auditing in statutory audits in Finland. The additional services provided by IS auditors are outside the scope of this thesis. Furthermore, the relationship between IS and financial auditors is studied on the levels of organizational functions and audit engagement teams; the characteristics of the individuals as organizational actors are not discussed in this study to the extent they do not affect the functions or the teams. This is illustrated in Figure 1 below.

Figure 1. The Focus of the Study.

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1 Big 4 is the name for four largest accounting/professional services firms in the world. These include KPMG, PricewaterhouseCoopers, Ernst & Young and Deloitte Touche Tohmatsu. Originally there were eight big accounting firms, but since 1989, mergers and the Enron scandal involving Arthur Andersen have reduced the number of the firms to four (Big 6 1989-1998, Big 5 1998-2001, Big 4 2002-).

2 An audit engagement team is formed for a separate engagement from inside the IS and financial audit functions.
1.3 Definitions

In this study, the term IS auditor is chosen to describe a professional that has specialized in auditing accounting information systems. The other designations used in previous research, such as IT auditor, systems auditor or computer assurance specialist (CAS), imply the same work. The term auditor in this study refers to the so-called normal financial statement auditors, or generalist auditors, as opposed to auditors specialized in information systems auditing. The terms IS audit function and financial audit function are in this study used to describe the IS audit and financial audit practices (profit centers) in the Big 4 accounting firms.

A group is any number of people who interact, are psychologically aware of each other, perceive themselves to be a group, and work towards the achievement of particular goals (Schein 1980). The terms team and group are often used interchangeably although they should not. Not all groups are teams; a team is a specific type of group. (Katzenbach & Smith 1993; Thompson & Pozner 2007) A group’s purpose is often the same as the mission of the organization as a whole; the purpose of a team is specific for the team. Effectiveness of a group is measured by the performance of the individual members whereas effectiveness of a team is measured by the collective results of the team. Accountability in a group is strictly individual; in teams both individual and collective. (Katzenbach & Smith 1993) Audit engagement teams can be seen as teams formed to do specific short term tasks, so-called task groups, which are dispersed after the task is performed (Rollinson 2008: 318).

Further, the more recent audit group decision-making literature makes a distinction between audit teams and audit groups. With audit team is meant sequentially acting individuals, where one individual reviews the work of another individual without interacting with him/her. With audit group is meant co-acting individuals. (Kleinman & Palmon 2009) In the articles presented among the theoretical framework in Chapter 2, the two terms are used interchangeably, based on the choice of terminology of the author(s). For the purposes of this study, the term audit engagement team is used to describe the entire set of people working for the completion of an audit engagement (including also IS auditors), irrespective of the status or level of interaction between the individuals.

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3 Definition for an engagement team by the International Ethics Standards Board for Accountants (IESBA) (IFAC 2012): “All partners and staff performing the engagement, and any individuals engaged by the firm or a network firm who perform assurance procedures on the engagement.”
1.4 Processual Research Approach

The objective of this study is to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process. The setting of this study is thus the audit process. Figure 2 depicts the research framework of process by Pettigrew (1987). The structure of this thesis is based on this framework.

According to Pettigrew (1997), the purpose of processual research is to “account for and explain the what, why and how of the links between context, processes and outcomes”. The context has two aspects: the outer context consists of social, economic, political and competitive environment of the firm; the inner context encompasses the structure, corporate culture, and political context within the firm (Pettigrew 1987). In the case of this study, the context encompasses the emergence of IT in businesses, the relevant laws and standards that impact the audit process as well as the organizational structure and culture of
co-operation in the accounting firms under scrutiny. The content refers to the particular areas under examination (Pettigrew 1987), in this case the role of IS auditors in a financial audit process, their co-operation and the value added of auditing. The process refers to the actions, reactions and interactions of the various parties when they seek to accomplish a certain task (Pettigrew 1987). This study is concerned with aspects of actions, reactions and interactions of IS and financial auditors when co-operating towards the successful conducting of an audit process.

Pettigrew (1997) underlines a holistic approach; the process has to be linked to the outcome. He argues that recognizing patterns in the process and explaining the interactions and relationships do not alone fulfill the holistic ambition, but the linking of these to the outcome of the process is needed. Thus, when studying the role of the IS audit function in statutory audits, the tasks and communication in the audit process have to be clearly linked to the outcome. In this thesis, the optimal outcome of the audit process is considered to be an effective (the objectives of the audit are accomplished) and efficient (with minimum amount of unnecessary effort and expense) audit.

1.5 Contributions

This study aims to make three contributions to the literature and the audit practice. First, this study strives to provide researchers with information on the impact of IS auditing on the traditional financial audit practice in Finland. Second, documenting the perceptions of IS auditors and financial auditors on their roles and co-operation in audit engagements will give the profession valuable information on the current issues. When the issues are identified, it can help practitioners to improve the quality and the efficiency of the audit process. Third, this study aims to provide educators with information for curriculum development. In addition, this study is to the knowledge of the author the first study to address the function of IS auditors from a processual point of view, i.e. analyzing the links between the context, processes and outcomes of the audit process. This enables a holistic view of the role of the IS audit function in the statutory financial audit processes in Finland.
1.6 Structure of the Thesis

The remaining of this thesis is organized as follows: In Chapter 2 the theoretical basis of the study and relevant prior research are presented. Chapter 3 presents and discusses the methodology and deliberates the quality and limitations of the study. The results from the interviews will be presented in Chapter 4, after which the synthesis of the theory and the empiricism will follow in Chapter 5, where the most relevant findings of this study are presented. In Chapter 6, the study is summarized and possibilities for further research suggested.
2 IS Auditing and the Financial Audit Process

In a financial audit, an auditor forms his/her opinion on whether the financial statements are prepared in accordance with the relevant standards and regulation as well as free of material misstatements, and hence, give a true and fair view of the financial position of the company being audited. The opinion is based on the auditor’s professional judgment and should be drawn from appropriate audit evidence. (International Federation of Accountants [IFAC] 2009c) If an auditor considers his/her competence in some matter insufficient in order to form the audit opinion, the auditor can rely on an expert’s advice. IS auditors are these kind of experts. (Axelsen et al. 2011)

There is no generic definition for IS auditing (Majdalawieh & Zaghloul 2009). A commonly cited definition by Weber (1999, cited in Valenti 2002: 75) defines IS audit as “the process of collecting and evaluating evidence to determine whether a computer system safeguards assets, maintains data integrity, allows organizational goals to be achieved effectively, and uses resources efficiently”. Wulandari (2003: 2, cited in Majdalawieh & Zaghloul 2009) defines IS audit as “the process of evaluating and reporting the adequacy of system controls, efficiency, economy, effectiveness, and security practices to assure that data integrity is protected, and that the system complies with applicable policies, procedures, standards, rules, laws and regulations”.

Most audits, including IS audits, use a risk-based approach. This means that the scope of the audit depends on the potential risks identified and prioritized, and the strength of the controls in place to mitigate these risks. Possible activities by the IS auditor include reviewing documentation for business processes, evaluating controls in critical systems (e.g. ERP system, supply chain management system), testing the interfaces between these systems, reviewing audit logs of transactions, assessing the access controls to applications, databases and networks, and evaluating the systems development projects. (Merhout & Havelka 2008) In practice, an IS auditor, after having audited the IT environment of the client, submits a report on the findings to the financial auditors. The report presents the weaknesses in internal controls4 of the systems, if any, and their impact on the reliability of the financial statements. If the information system is without material weaknesses, the financial auditors can rely on the output of the system, which in turn can improve the efficiency of the financial statement audit. (Kanello & Spathis 2011)

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4Internal controls comprise of all the procedures and policies that are in place to give reasonable assurance that the organization’s objectives regarding safeguarding of assets, efficiency of operations, reliability of accounting information and compliance with laws and regulations are met (Arens et al. 2006: 270; Hall 2000: 9). More on internal controls and their impact on the audit process in section 2.3.
In this chapter, the role of the IS audit in the financial audit process and the co-operation of the IS and financial auditors are discussed based on the theory and previous research on the subject. The structure of the chapter follows the framework of process research by Pettigrew (see Figure 2), and the context, content and the process of the financial audit process from the IS audit point of view are presented.

2.1 Context

2.1.1 Outer Context

The growing use of information technology in business has brought new challenges for the audit profession. The need for more guidance for audits conducted in IT environments has been recognized by the standard-setting bodies such as the International Federation of Accountants (IFAC; in IFAC more specifically the International Auditing and Assurance Standards Board [IAASB]), the American Institute of Certified Public Accountants (AICPA), the Information Systems Audit and Control Association (ISACA), and the Public Company Accounting Oversight Board (PCAOB). (Yang & Guan 2004; Brazel 2008)

Statement on Auditing Standards (SAS) 3, The effects of IT on the auditor’s study and evaluation of internal control, was issued by AICPA in 1974, and was the first standard to address IT in auditing requiring an auditor to evaluate computers during the audit. SAS No. 3 stated that if IT was used in accounting applications significant to the audit, then the auditor should consider the impact of IT on the accounting controls. As indicated in the title, SAS No. 3 only dealt with the internal control aspects of IT. Since this approach became inadequate quite quickly due to the more complex IT functions that encompassed the company’s accounting process as a whole, AICPA issued SAS No. 48 The effects of computer processing on the examination of financial statements in 1984, which superseded SAS No. 3. This standard, which is still in effect, demands broader consideration of the methods of data processing that could affect the audit, and advises to consider these effects throughout the audit. (Yang & Guan 2004)

In effect, SAS No. 48 laid the foundation for the IS audit profession. It requires namely the auditor to consider if the help of a specialist is needed in order to determine the impact of the data processing methods used on the financial statements. This decision depends on the auditor’s perception of his/her and his/her team’s skills on the matter. If a computer specialist is used (whether from inside or outside the audit firm), he/she will be a part of the
audit engagement team. SAS No. 48 has also implications for the IT skills required from the financial auditor: as the specialist is a part of the audit team, the auditor is responsible for the supervision and revision of the specialist’s work. The auditor thus needs to possess enough IT skills to communicate objectives to the specialist IS auditor and to determine that these objectives have been met. (Yang & Guan 2004)

Statement on Auditing Standards No. 94 (AICPA 2001), The Effect of Information Technology on the Auditor’s Consideration of Internal Control in a Financial Statement Audit, gives auditors guidance on how IT impacts on the internal control, auditor’s assessment of internal control and control risk. It requires the auditor to consider what impact IT will have on his/her audit strategy (Tucker 2001). This statement began the era of auditing standards that place increasingly more emphasis on internal controls of the client. Prior to this, it was possible for auditors to avoid evaluating and testing controls by choosing not to rely on the internal controls, thus conducting the audit on purely substantive basis (i.e. by testing account balances and transactions). Historical evidence from the USA shows that if testing of internal controls is not mandated in the standards, an auditor is more likely to use the substantive approach. SAS No. 94 warns, however, that because of the intensive use of IT in organizations it may no longer be possible to conduct an audit by only doing substantive testing. (Curtis et al. 2009) In other words, the use of IT might be so significant that the quality of the audit evidence may directly be linked to IT controls (Hunton et al. 2004a: 6).

SAS No. 94 also gives further guidance on the matter of determining whether to acquire someone with specialized skills to the engagement as well as what such a person could perform in the audit. In determining whether a person with specialized skills is needed in the audit team, SAS No. 94 suggests that the auditor considers the following factors (AICPA 2001):

- the complexity of the entity's systems and IT controls and the manner in which they are used in conducting the entity's business;
- the significance of changes made to existing systems, or the implementation of new systems;
- the extent to which data is shared among systems;
- the extent of the entity's participation in electronic commerce;
- the entity's use of emerging technologies;
- the significance of audit evidence that is available only in electronic form.
Procedures that a specialist such as IS auditor could perform in the audit include inquiries for the entity’s IT environment as well as tasks related to the IT controls of the company (e.g. observing the operation of IT controls and/or planning and performing tests of IT controls). (AICPA 2001)

SAS No. 109, *Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement* (AICPA 2006), further emphasizes the need for auditors to acquire in-depth understanding of the internal controls as well as the effects of IT on the internal controls in the client company. This standard also recommends considering the inclusion of a computer specialist into the engagement. (Curtis et al. 2009)

The Sarbanes-Oxley Act (SOX) of 2002 (US Congress) has significantly influenced the IS audit profession (Vilsanoiu & Serban 2010). SOX Section 404 requires management to evaluate the design and operating effectiveness of internal controls in the annual report, and the external auditor to attest that assessment (Vilsanoiu et al. 2010). This further emphasizes the role of internal controls in the audit (Bedard, Graham & Jackson 2005). Along with SOX, Public Company Accounting Oversight Board (PCAOB) was founded as an agency to oversee the financial reporting processes of publicly traded companies (Singleton 2007). The PCAOB’s auditing standard No. 5, *An Audit of Internal Control over Financial Reporting That Is Integrated with an Audit of Financial Statements*, requires auditors to acquire insight and test the IT system controls in order to give an opinion on the effectiveness of internal controls (Brazel 2008).

SOX experts have pointed out that IT controls are a significant area within internal controls and likely to contain deficiencies in many companies (Dietrich 2005). As companies adopt even more extensive information systems, the majority of internal controls will be embedded in the automated systems. This along with the auditing standards presented in this section have ensured that the IS auditors have an essential role in financial audit engagements. (Vilsanoiu et al. 2010; Brazel 2008)

The standards presented above (the SASs and SOX legislation) do not directly apply to Finnish companies (apart from the few listed on the US stock exchanges), but their immense influence on the audit profession also impacts Finnish auditors. For example, the standards issued by the International Federation of Accountants (IFAC) that are mainly corresponding to the US’ Statement on Auditing Standards, bind the Finnish Authorized Public Accountants (APAs) as being a part of the due audit care in the Finnish Auditing Act (Ministry of Trade and Industry, Finland 2007). International Standard on Auditing (ISA) No. 315, *Identifying and Assessing the Risks of Material Misstatement through*
Understanding the Entity and Its Environment (IFAC 2009a), includes requirements similar to those of SAS No. 109, thus noting the importance of IT in assessing an entity's control risk (Rittenberg et al. 2011: 155) and recommends considering the inclusion of a computer specialist into the engagement (Curtis et al. 2009).

In addition to stating whether the financial statements are free of material misstatement and give a true and fair view of the company’s position, the Finnish Auditing Act (Ministry of Trade and Industry, Finland 2007) requires an auditor to express an opinion about the company's governance. Corporate governance includes the company’s internal controls (Arvopaperimarkkinayhdistys Ry 2008), which comprise of all the procedures and policies that are in place to give reasonable assurance that the organization’s objectives regarding safeguarding of assets, efficiency of operations, reliability of accounting information and compliance with laws and regulations are met (Arens et al. 2006: 270; Hall 2000: 9). As IT controls are a part of the company’s internal controls, the auditor has to express an opinion about them as a component of the governance system. Thus, in addition to having an impact on the accuracy of the financial statements, IT controls also play a role in the company governance.

2.1.2 Inner Context

The structure of an organization, i.e. established groups with different functional, professional and economic interests, is apt to engender intergroup conflicts (Rollinson 2008: 339; Fincham & Rhodes 2003: 202). The reason for this is that, growing from the differences between the groups, the members tend to differentiate them into ingroups (the perfect own group) and outgroups (those groups that are not as perfect). The attributes that distinguish the ingroup from the outgroups get a positive value, thus enabling the ingroup to feel superior of the outgroup. This in turn fosters ingroup favouritism, i.e. the ingroup members favoring each other over outgroup members. (Rollinson 2008: 339) Brewer (2007: 711) states that in the context of groups interacting interdependently, for example two functions in an organization, “the goals of contact and cooperation compete with natural tendencies toward ingroup-outgroup differentiation, separation and exclusion”.

Several conditions for optimal intergroup contact have been suggested (see for example Allport 1954; Pettigrew 1998; Brewer 2007). The factors enhancing intergroup relationships specifically at work settings are summarized by Fincham and Rhodes (2003: 204-205). They state that emphasizing the common goals of the organization as a whole increases the
groups’ awareness of the goals that they share. In addition, increased social contact and communication between groups reduce the possible intergroup conflict. This can be achieved by, for example, cross-functional groups that draw people from different functions of the firm together to accomplish a task. Fincham and Rhodes further suggest that reducing the significance of group membership by, for example, rotating employees between groups enhances intergroup relationships in organizations. Finally, ensuring that organizational groups do not have to compete for resources in order to achieve their objectives mitigates the intergroup conflicts.

In auditing, Pentland (1993) argues that, who does the work in the audit engagement, and the distinction between insiders and outsiders is important. If an outsider performs the work, nothing is really “produced” until the auditor has witnessed it. Herrbach (2001) studied if there were tensions between partners and employee auditors due to the asymmetry of information and status differences (a potential ingroup – outgroup situation), and does the tension impact audit quality via possible non-professional behaviors. The results of the study show, however, that whatever the employee auditors might feel about their firms and managers, they maintain adequate performance in general; low levels of audit quality reduction behaviors was evidenced. The setting in Herrbach’s article could just as well be IS auditors – financial auditors, as they also differ in terms of knowledge and status. They can also be members of different functions of an organization, which further suggest an ingroup – outgroup setting.

Vendrzyk and Bagranoff (2000) reported that, in the beginning of 1990’s, the IS audit function was often a part of the financial audit function, and as such seen as a cost center that did not add value to neither the financial audit function nor customers. In some companies, however, the IS audit function was separate from the financial audit function. Usually, an IS audit function existed as a separate organizational entity in the largest offices or in the offices with technologically most sophisticated clients.

Furthermore, according to the IS auditors in three Big Five firms (Hunton et al. 2004b), the services performed by IS auditors are charged internally from the financial audit function. Financial audits have low profit rates due to the intensive competition, which negatively impacts the willingness of financial auditors to engage IS auditors in the audit engagements. Furthermore, Hunton et al. (2004b) point out that specialist (such as IS auditor) billing rates may be higher than a nonspecialist’s rates. If the financial auditors feel that they are competent to perform the work themselves, by doing so, they can minimize the audit costs.
Why is the matter of optimizing intergroup contact and minimizing conflict of interest, then? Thompson and Pozner (2007: 928) point out that organizational groups, for example business units, which have strong ties are more capable of transferring knowledge from one to another. Hence, the ability of an organization to capitalize on its internal knowledge depends on strong relationships between organizational functions. This has direct implications for the organization’s ability to innovate and compete. In addition, the trust, information, communication and coordination ability present in the close intergroup relationships lower the cost of transaction between such organizational actors.

2.2 Content

2.2.1 The Role of the IS Audit in the Financial Audit Process

Janvrin, Bierstaker and Lowe (2008) found that in the USA, among clients with highly sophisticated information systems, 42 percent of the audit engagement teams relied on controls. Of those teams, 61 percent used an IS auditor in the engagement, meaning that in nearly three of four engagements, IS auditors were not used in the audits of highly computerized clients. It has to be noted, however, that the study took place in 2002-2003, when Sarbanes-Oxley Act was in effect, but Section 404 that requires auditors to attest to the effectiveness of internal controls as a part of the audit, was not. Curtis et al. (2009) interviewed engagement partners in two Big 4 firms mapping the situation post-SOX Section 404. The practice of these firms for public company engagements was that IS auditors were required to be assigned. For non-public companies, the interviewees reported that IS auditors were consulted in new client engagements to help understand the client’s IT environment and assess the risks that IT poses. However, the interviewed partners mentioned two trends that affect the IS audit profession. First, there were fewer hours needed of IS auditor participation in engagements because of the improvements in the documentation of controls. Second, firms were relying more on control testing performed by the client or an independent third party, which meant that the teams were doing less testing of their own.

Bagranoff and Vendrzyk (2000) studied the role of IS auditors in large financial audit firms (Big 5 at that time). The authors conducted interviews with twenty senior level auditors, of which ten were financial auditors and ten IS auditors. The interviewed auditors were asked about the changes in the IS audit function and the relationship between the IS and financial
audit functions. The auditors were also asked to predict the future role of the IS audit practice in five years. The interviews were conducted in 1999 and 2000.

Bagranoff and Vendrzyk (2000) found out that in the beginning of 1990’s, most IS auditors were actually financial auditors that only had some interest in information systems. Many acted in both roles. The IS auditors of that time focused often on general IT control evaluations, rather than on the risk aspects of the audit. Bagranoff and Vendrzyk point out that this might be because IS auditors did not always understand the implications of control weaknesses on the financial statements. Likewise, financial auditors did not thoroughly comprehend the work that IS auditors were doing, and were not confident enough about the quality of the IS auditor’s work to take it as a part of their audit planning. IS auditors did not often affect the audit scope, but they were the only ones with the IT skills needed to use audit software at that time, being helpful to financial auditors in that way.

Bagranoff and Vendrzyk (2000) report that, in the mid-1990’s, the role of the IS audit was ambiguous, depending much of the accounting firm in question. In some firms, IS auditors were already an integral part of the audit process, whereas in others they were misunderstood and even resented. There was a shift in the IS auditor’s work from focusing on general IT controls\(^5\) to testing also application controls\(^6\). In some firms, however, the IS auditors still concentrated on the general controls while financial auditors tested the application controls. There were still some problems with the understanding of each other’s work: Financial auditors did not see how a weakness in general controls would affect the accuracy of financial statements, and IS auditors were not able to communicate the impact effectively. The authors point out that as the audit moved more towards a risk-based approach, this gap in understanding narrowed.

In 2000, IS auditors were still doing control evaluation work to support the financial auditors. Because of the shift towards risk-based audit strategies, this work was undertaken only after an evaluation that possible control weaknesses would have an impact on the financial statements of the client. (Bagranoff & Vendrzyk 2000)

When the interviewees were asked what the role of IS auditor would be in the financial audit in 2005, there was no clear consensus. Most interviewees felt that IS and financial auditors will merge into one professional, and as financial auditors do IS auditors’ work, the FIS auditors will become solely consultants. Many felt that the financial statement audit will

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\(^5\) IT general controls ensure a reliable operating environment and are a condition for an effective operation of application controls (IT Governance Institute 2006: 13).

\(^6\) Application controls are built in the system and mostly connected with a specific business process (IT Governance Institute 2006: 83).
become almost totally an assessment of the company's information systems, and that the IS audit will take over the audit. (Bagranoff & Vendrzyk 2000)

Vendrzyk and Bagranoff (2003) continued to analyze the dataset from Bagranoff and Vendrzyk study of 2000 by developing key-word interpretations of the responses of the interviewees. The purpose of this was to determine patterns within the interviewee’s responses. The authors formulated their research problem into specific research questions. Given the scope of this thesis, three of them are of interest here:

- Are there differences between financial and IS auditors’ descriptions of the current and predicted relationships between the IS and financial audit functions?
- Are there differences between financial and IS auditors in their perceptions of IS audit’s current and predicted focus on control evaluation?
- Are there differences between financial and IS auditors in their perceptions of the impact of IS audit findings on the financial audit scope?

The analysis of the responses showed that both financial auditors and IS auditors agree that the IS audit is growing in importance. However, financial auditors and IS auditors view the present and future role of their practices very differently. IS auditors feel that their role is becoming dominant in the financial audit, whereas the financial auditors are likely to believe that financial audit will also in the future dominate over IS audit. Financial and IS auditors have similar perceptions about the job description of the IS auditors; both believe that the focus of the IS audit will continue to be on control evaluation with a mix of general and application controls. However, IS auditors perceive the audit of general controls to be less important than do financial auditors. The authors found that the responses regarding the impact of IS audit findings on the scope of the audit were difficult to assess. On the one hand, both groups agreed that the findings of control weaknesses affect the audit scope. The problem seemed to be, on the other hand, that if the finding of a control weakness came as a result of the IS audit, some of the auditors were reluctant to rely on it. This implies that, in addition to possible competence issues, financial auditors may be unwilling to give up control of the financial audit. Overall, IS auditors perceive themselves to be more than just a financial audit support function, whereas financial auditors feel that the growth in IS audit practice will come from the need for services in connection with the financial audit. (Vendrzyk & Bagranoff 2003)

Axelsen et al. (2011) studied the role of IS auditors in the public sector in Australia. They found that IS and financial auditors agreed that IS audit will grow in importance for the planning phase of the financial audit. They found, however, that IS auditors were engaged
only when financial auditors did not feel they had the capacity to assess computer controls. IS auditors were more likely to be involved when there was a new implementation of information systems or significant changes to the existing ones. Furthermore, the evidence supports the expectation that IS auditors will increasingly utilize Computer-Assisted Audit Tools (CAATs)\(^7\). In contrast, financial auditors in smaller audit firms were much less likely to consider the use of an IS auditor than their colleagues in the larger companies, and consequently more likely to adopt the strategy of only substantive testing. IS audit function’s involvement in implementing continuous auditing\(^8\) techniques at clients was not supported by the evidence of the study. In fact, continuous auditing received little mention in the interviews.

Axelsen et al. (2011) did not find that IS auditors would be making more application control testing for financial auditors. However, the evidence indicates that this might change in the future. Contrary to these results, Majdalawieh & Zaghloul (2009) found that auditing application controls was considered to become less of a responsibility of IS auditors. The results of the survey indicated that IS auditors were not considered the best ones to conduct these controls tests because they might have less knowledge of the business processes. However, in the opinion of the majority of the survey objects, all auditors should be able to audit application controls because of the pervasiveness of information systems.

Hence, there are still several unresolved issues facing the IS and financial audit professions. The key problem seems to be how to tackle the problems that complex information systems pose in the most effective and efficient way. Will financial auditors need more training in information technology; or will IS auditors become an integral, permanent part of the audit engagement team? (Hunton et al. 2004b) What are the implications for audit efficiency if financial auditors allocate even more internal controls testing to IS auditors compared to if more training is provided to financial auditors in how to assess IT risks and test IT controls (Brazel 2008)?

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\(^7\) CAATs, i.e. Computer-Assisted Audit Tools, include for example general-use software such as spreadsheets software and database management systems and/or generalized audit software which is more specifically designed for audit purposes (Hunton et al. 2004a: 5; Bagranoff, Simkin & Strand 2008: 349).

\(^8\) Continuous auditing is the name for continuous monitoring required by the dynamic, electronical audit trails that may exist only for a short period. Because of the dynamic IT environment of companies today, it is argued that (IS) audits have to be performed more frequently (monthly or quarterly instead of yearly). (Pathak & Lind 2007)
2.2.2 The Value-added of IS Auditing in the Financial Audit Process

The strength of the internal control structure of the client company is of interest for the financial auditor because reliable internal controls can reduce the amount of the substantive testing auditors need to perform, thus enabling a shorter, less labor-intensive, less expensive audit. (Hall 2000: 22) Consequently, as IS auditors help financial auditors mainly in this phase of the audit process (Vendrzyk & Bagranoff 2003: POB 2000), IS auditors help make the audit more efficient (Kanello et al. 2011). Furthermore, competent IS auditors appear to let financial auditors perform less system testing and focus on their area of specialty (Brazel & Agoglia 2007).

A study conducted by Stoel et al. (2012) suggests 13 factors associated with IS audit quality and competent IS auditors. Overall, “Independence” and “Business Process Knowledge” were among the highest rated factors that affect IS audit quality. However, there are differences in the perceived importance of the factors among IS and financial auditors. Factors impacting the IS audit quality that financial auditors rate higher are “Accounting Knowledge and Audit Skills” and “Business Process Knowledge and Experience”. This, according to the authors, suggests that financial auditors have a greater appreciation for understanding the underlying business processes of the client than just embracing a technological approach. Therefore, it might be purposeful to ensure that IS audit professionals also understand the meaning of the business processes being audited.

The factors that IS auditors see as more relevant to the IS audit quality are “Auditor Experience with the Auditee”, “IT and Controls Knowledge” and “Planning and Methodology”. This implicates that IS auditors place a greater importance on general IT knowledge and understanding the unique IT systems of the client for performing the audit. Also, they highlight the importance of planning the audit. The authors suggest that this may be because of the lack of standardized approach for IS audits compared with financial audits. The variability in the IT environments of clients makes the auditing methods used and planning performed considerably less structured, which makes ”Planning and Methodology” an important component for IS auditors. Furthermore, ”Planning and Methodology” was also considered an important measure of IS audit quality by financial auditors, which suggests that it is among the most important factors to consider when aiming for a high quality IS audit. Stoel et al. (2012) conclude that the differences in perceptions between financial and IS auditors of what constitutes a high quality IS audit may need to be addressed to avoid friction or conflicts during the IS audit engagement.
2.3 Process

2.3.1 The Typical Financial Audit Process from the Perspective of IS Auditing

Figure 3 shows the financial audit process and the IS auditor’s possible activities along the process. As depicted, the IS auditor may assist in all phases of the financial statement audit process. The amount of work the IS auditor actually performs is affected by the IT dependence of the client’s business processes. It is possible, for example, that the financial auditor performs all the substantive testing herself. (Hunton et al. 2004a: 5) Previous studies (Vendrzyk & Bagranoff 2003; POB 2000) state that IS audit has traditionally been mostly involved in the evaluation of general and application controls, i.e. in the internal control evaluation and testing phase. Below, the audit process is discussed in more detail.
First, the audit team must obtain an understanding of the client’s business in order to decide upon the nature and extent of tests to be conducted, i.e. establish the audit plan. This planning phase of the audit is closely related to analyzing and determining the acceptable amount of audit risk. (Hall 2000: 7) Acceptable audit risk (AAR) is defined in the professional standards (Statement on Auditing Standards [SAS] 39 and SAS 47) as the measure of how willing an auditor is to accept that material misstatements may not be

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9 Also the International Standard on Auditing (ISA) 200 Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing includes the similar audit risk model (IFAC 2009c).
detected by the audit. AAR consists of three components: AAR = IR \times CR \times PDR. Inherent risk (IR) represents the auditor’s assessment whether there are material misstatements present in the financial statements before considering the company’s internal controls. Control risk (CR) is the auditor’s judgment whether the company’s internal controls will prevent or detect the possible misstatements. Planned detection risk (PDR) is the measure of the risk that the auditor, when auditing the financial statements of the company, will not detect a material misstatement in the information, should there exist one. (Arens, Elder & Beasley 2006: 241-242)

In the complex IT environment of businesses today, the evaluation of the information system has to be a part of the financial audit in order to ensure that all relevant risks and controls are being taken into account (Hunton et al. 2004a: 5). One important component of the risk analysis is the evaluation of an organization’s internal controls. An IS auditor helps the financial auditor to evaluate and test the IT-related internal controls of the company. IT internal controls can be divided into general controls and application controls. General controls are controls that respond to risks that threaten the integrity of the IT environment as a whole, whereas application controls apply to risks specific for a certain system, for example payment system or accounts receivable system. (Hall 2000: 24) IT general controls ensure a reliable operating environment and are a condition for an effective operation of application controls (IT Governance Institute 2006: 13). According to IT Governance Institute (2006: 13), IT general controls can be divided in four groups, which include (1) program development, (2) program changes, (3) access to programs and data, and (4) computer operations. These controls ensure for example that new programs or changes in existing ones are authorized and tested properly before implementation; no unauthorized persons have access to computers, systems or data; and that disaster recovery plans are at place. Application controls are built in the system and mostly connected with a specific business process. Examples include for example automatic reconciliations or predetermined data listings of acceptable data for different-level users. (IT Governance Institute 2006: 83)

The strength of the internal control structure in the client company is of interest for the auditors also because it can reduce the amount of substantive testing auditors need to perform, thus enabling a shorter, less labor-intensive, less expensive audit. Thus, if an auditor relies on the internal controls, he/she can limit the amount of substantive testing. (Hall 2000: 22) Consequently, as IS auditors help financial auditors mainly in this phase of the audit process (Vendrzyk & Bagranoff 2003; POB 2000), the IS audit can at its best help make the audit more efficient (Kanellou et al. 2011). At the same time, it entails that if
deficiencies are found in the internal controls, the audit plan has to be updated and the amount of substantive procedures increased (Viljanen 2010).

IS auditors may also assist the financial auditors in the substantive testing phase of the audit. This help may for example include the use of Computer-Assisted Audit Tools (CAATs) such as data mining and knowledge discovery in supporting the financial auditors (Hunton et al. 2004a: 5; Bagranoff, Simkin & Strand 2008: 349). The audit process is finished with the issuing of an audit report based on the combined findings of the IS and financial auditors (Hunton et al. 2004a: 6).

2.3.2 The Characteristics of IS and Financial Auditors

Douglas Carmichael, a former Chief Auditor of the PCAOB, expressed his concerns about the cooperation of IS and financial auditors and IT knowledge of financial auditors: “The reality is that there is often insufficient discussion between the computer auditors and general auditors for the general auditors to know what assurance is provided by the work being done by the computer specialists.” (Carmichael 2004: 132) Indeed, Brazel and Agoglia (2007) found that financial auditors with more information systems knowledge have more appropriate reactions to IS auditor findings. In particular, this means that they can better assess the level of expertise of the IS auditor and adjust their reliance on his/her work accordingly.

Panel on Audit Effectiveness (POE) (POB 2000: 171) states: ”Technology specialists will need to work with auditors as a team. However, auditors cannot cede addressing all technology matters to technology specialists, and in turn technology specialists will require a better understanding of auditing.” Thus, investigating the financial auditor’s relationship with the IS auditor requires taking into account both the competence of the IS auditor and the information technology expertise possessed by the financial auditor (Brazel 2008).

Hunton et al. (2004b) found that financial auditors were overconfident about their ability to assess risks in spite of the complexity level of the IT environment, and were therefore unlikely to seek the help of an IS auditor. Hunton et al. also suggest that financial auditors might not see the link between information systems risk and the likelihood of material misstatement, and be less likely to understand the control risks present in ERP settings, thus being hesitant to consult IS auditors. This implicates that there is a need for financial auditors to understand more about the information systems and the controls inherent in them, or else potential risks significant to the financial statements or the audit itself may go
unidentified, the authors point out. IS auditors in turn were more apt to consider the heightened risks that the ERP system poses to the financial audit, and were not confident about the ability of financial auditors to recognize these risks. (Hunton et al. 2004b) Hence, the results suggest an increased need to involve an IS auditor in the audit engagement in complex ERP settings.

Even if financial auditors would not be overconfident in their ability to assess risks in ERP settings, and would seek the services of an IS auditor, the IT skills of a financial auditor may still play a major role as the financial auditor has to supervise the work of the IS auditor (Tucker 2001). The supervising includes directing the efforts of the IS auditor towards the objectives of the audit, and determining whether these objectives were met by reviewing the work that was performed (Curtis et al. 2009). If the IS auditor would have competence deficiencies, the financial auditor could in worst case overrely on weak IS auditor tests. Hence, even if including specialized skills in the audit engagement, the quality of the audit may be dependent on the skill set of the financial auditor. (Brazel 2008)

Concerns have also been raised about the competence of IS auditors, and what implications this has for the interaction of IS and financial auditors as well as the quality of IS audit (Brazel & Agoglia 2007; Brazel 2008). There are a substantial amount of subjects an IS auditor should have knowledge of. Strous (1998) listed them as follows:

- Internal control theories and concepts;
- Security principles and measures;
- Information technology (hardware, software, infrastructure);
- Financial/economical aspects of the control processes within an organization (especially planning, budgeting, decision taking, etc.);
- Management and organisation theories;
- Administrative organisation and its models and systems;
- Methods and techniques that are available for performing effective it-audits;
- Generally accepted auditing standards and control methods and techniques;
- Knowledge of business processes.

Strous argues that the development is so rapid in all these areas that IS auditors have difficulties keeping up with the advances on their area of expertise, let alone all these subjects. Brazel (2008) found in his study that financial auditors have experienced variation in IS auditor competence. He does not conclude that there is a problem with competence, but points out that the IS auditor’s competency in fact varies in practice. Dunmore argued as early as in 1989 that the high turnover of IS auditors would limit the information systems
audit knowledge. He stated that becoming a fully trained IS auditor required approximately four years of training, but pointed out that professionals having over five years of experience were a rarity in the field of IS auditing. A problem that both Dunmore (1989) and Brazel (2008) noted was that, due to the high demand for the services of IS auditors, their resources were stretched over more engagements. This put the quality of the audit in jeopardy. Brazel (2008) stated that, because of the boom in information technology and an increased attention to internal controls, firms lose competent IS auditors to firms seeking to improve their own internal controls.

2.3.3 Teamwork and Communication in the Financial Audit Process

The major changes in the audit environment in the past decades, resulting in the increased use of supporting audit team activities for example in the planning and reporting phases of the audit process have made the interaction of groups an increasingly important topic in auditing (Hardies et al. 2010). Little research, however, has been dedicated to the organizational aspects of the audit performance (Power 1995). Research in the field has focused more on the decision-making of individual auditors, ignoring the multi-person context in which auditing is conducted (Hardies et al. 2010; Kleinman & Palmon 2009).

Although most auditing research has found group processing to be beneficial, the possibility for process losses due to group interaction must be taken into account as well (Bedard et al. 1998). For example, Bedard et al. (1998) found that groups in an auditing context got process gains from knowledge sharing, but also exhibited process losses due to the group dynamics that discouraged full expression of group members’ information. A number of factors affecting the group interaction and processes have been introduced in the field of social psychology, and also studied to some extent in auditing settings. These factors include synergy, cohesiveness, reflexivity, common information effect, groupthink and conflict (Fincham & Rhodes 2003; Thompson & Pozner 2007), and are discussed in more detail below.

**Synergy** in groups refers to the phenomenon that, in most conditions, the group outperforms its best members. The reason for the synergy effect is the discussion in the group that generates more alternatives, often eliminates inferior contributions, evens out errors and induces innovation. (Fincham & Rhodes 2003: 196) The experiment of Hardies et al. (2010) confirms this synergy effect also in the context of auditing; audit groups perform better compared to individual auditor performances.
Cohesiveness of a group refers to the group identity perceived by its members. Cohesiveness of a group is important from an organization perspective, because it determines the extent to which norms determine behavior within a group. Also, cohesiveness of a group has implications for a group member’s self-esteem and self-concept. Cohesiveness is a combination of many factors, such as successfully dealing with process issues, for example getting to know each other and resolving interpersonal difficulties; stability of the group membership; attractiveness of the group membership; and the group’s relationship with other groups. (Fincham & Rhodes 2003: 194-196) In an audit setting, a cohesive team is able to produce a coherent set of working papers and thus perform a successful audit engagement (Pentland 1993). Asare and McDaniel (1996) argue that when working together on multiple engagements, an audit team develops into a cohesive group, which in turn reduces the uncertainty inherent in working with less familiar team members, and can lead to better audit efficiency.

A cohesive group does not necessarily implicate an effective group. Reflexivity is argued to be the key ingredient in making a cohesive group effective. Reflexivity is the extent to which the group reflects about factors affecting it, for example objectives, strategies, processes and social dimensions of the group work. A non-reflexive group fails to articulate important issues, which affects its performance. In contrast, a reflexive group is more likely to be critical of group and organizational activities, and apt to attempt to change possible shortcomings. (Fincham & Rhodes 2003: 197) Bedard et al. (1998) argue that also for an audit group, a critical success factor is the quality of the group interaction process.

Two related factors that are seen to have a negative impact on the group interaction and processes, are the common information effect and the groupthink effect. The common information effect refers to the tendency of groups to ignore the information unique to individuals in the team and focus on the information that is commonly known to everyone. Research has been conducted on how the composition of the group impacts the effect of common information; groups that are more familiar with each other tend to be less affected by it. In addition, when the person holding the unique information is an unfamiliar team member, and previously acquainted members share information, teams are more likely to discuss the unique information and perform better. Vice versa, if the member possessing unique information is a familiar team member belonging to the majority, groups perform worse. (Thompson & Pozner 2007: 921)

10 Norms = “the expectations within the group for appropriate behaviour of group members” (Fincham & Rhodes 2003: 193)
O’Donnell, Arnold & Sutton (2000) examined group decision making in the setting of internal control risk assessment in a computerized environment. Their results suggest that group decision making does improve the quality of the decisions, for example when financial and IS auditors work together. However, one bias is common in the decision making; the group seems to focus on the information known by many of the group members and tend to give less attention to specific knowledge possessed by only one group member (the common information effect). This indicates that, even though an IS auditor would be included in an audit engagement, the unique knowledge he/she possesses might be excluded from the decision-making by the group as he/she is the only one who possesses this information. Hunton (2001) investigated the possibility to mitigate the common information effect in a setting of an accountant evaluating an information system. The results suggest that by intervening in the group (i.e. directly informing the group participants about the common information effect and directing them to remain aware of it) the common information effect could be mitigated.

Groupthink refers to the reduction of reflexivity, and deteriorating judgment and ability to reach correct decisions resulting from in-group pressures for conformity. (Fincham & Rhodes 2003: 200) The groupthink effect is present in audit settings, too. When audit groups work together on a continuing basis, skepticism towards group members’ performance reduces, resulting in rationalizing members’ decisions rather than looking for alternative courses of actions. Asare and McDaniel (1996) point out that this can generate false confidence and lead to too little skepticism when reviewing the workpapers of a familiar preparer, suggesting possible implications for the audit quality. On the other hand, the lack of familiarity among group members seemed to cause additional skepticism (even when keeping the competence of the preparer constant). According to the Asare and McDaniel (1996), this could lead to efficiency losses. In an IS audit setting, as financial auditors review the papers of the IS auditors, the familiarity or lack of familiarity between these actors could have implications for the audit quality and efficiency.

The types of conflicts that appear in groups can be divided into three: relationship conflict, task conflict (differences in viewpoints and opinions about the task at hand), and process conflict (conflict about how the work in a project will proceed, for example in terms of who should do what). Several studies have suggested that relationship conflict is negatively related to task performance, and moderate levels of task conflicts are positively related to task performance. (Thompson & Pozner 2007: 922; Jehn & Mannix 2001) Research regarding process conflicts has associated groups with those types of conflicts with lower
productivity and even inability to effectively perform their work (Jehn & Mannix 2001), thus implying a negative relation to task performance.

Elfrink (2011) claims himself to be the first to address team conflict with regard to audit teams. The purpose of his research was to study the possible effects team conflict has on team effectiveness. The empirical part of the research was conducted with a survey distributed to auditors in large accounting services firms in Holland and in the USA. Elfrink divided team conflict into relationship conflict and task conflict, and assessed team effectiveness based on task criteria (team performance) and member satisfaction criteria. He hypothesized that relationship conflict would be detrimental to member satisfaction and that relationship conflict also would negatively impact performance. Further, he expected a negative relationship between task conflict and satisfaction as well as between task conflict and performance. All Elfrink’s (2011) predictions were supported by the results of his study, thus indicating that there is a negative relation between team conflict and team effectiveness. More specifically, high levels of conflict increase the tension between team members, interfere with the decision-making processes, and make distractions from team goals more likely, hence decreasing the level of perceived performance.

Also the level of communication is seen to have implications for the effectiveness of the audit process. The Panel on Audit Effectiveness (POB 2000) observed that the level and effectiveness of the coordination between IS specialists and financial auditors varied, and in almost 20 % of the engagements could have been improved. Viljanen (2010) found that especially the effective communication and utilization of the results of general IT controls testing was considered problematic: the assessment of the impacts of the findings was found difficult due to for example the differences in the educational backgrounds and communication practices of IS and financial auditors. Firms could therefore explore ways to improve the IS auditor–financial auditor relationship. This could be achieved for example by combined training and increased communication throughout the audit. (Brazel 2008) Indeed, the role of the IS audit as a part of the financial audit is still evolving, as financial and IS auditors continue to develop their understanding of each other’s domain and the possibilities present in increased co-operation (Axelsen et al. 2011).

2.4 Summary

There are many factors that impact the links between the context, content and process in a financial audit engagement and the relationship and co-operation of IS and financial
auditors. These factors presented in the previous research are summarized below in Figure 4 and briefly summed up next.

![The Research Framework (Modified from The Research Triangle by Pettigrew 1987: 657)](image)

The growing use of information technology in companies has brought new challenges for the audit profession, something that has been recognized also by the standard setting bodies (Yang & Guan 2004; Brazel 2008). A financial auditor is required to seek the help of a specialist, if he/she considers his/her competence insufficient with regard to some matter. IS auditors are the specialists that are utilized in case of complex IT. (Axelsen et al. 2011)

The IS auditor may assist financial auditors in many phases of the audit process. The amount of work the IS auditor actually performs is affected by the IT dependence of the client’s business processes. (Hunton et al. 2004a: 5) Traditionally, the IS audit has been mostly involved in the evaluation of general and application controls, i.e. in the internal...
control evaluation and testing phase (Vendrzyk & Bagranoff 2003; POB 2000). The strength of the internal control structure of the client company is of interest for the auditors because, if an auditor relies on the internal controls, he/she can limit the amount of substantive testing (Hall 2000: 22). Consequently, as IS auditors help financial auditors mainly in this phase of the audit process, IS audit can at its best help make the audit more efficient (Kanello et al. 2011).

One important element in the IS audit process is the relationship and co-operation of IS and financial auditors. This relationship is present both at the level of the functions in the organizations as well as inside the individual audit engagement teams (see Figure 1). This section has discussed intrateam relationships or group dynamics, i.e. the relations inside the team, as well as the nature of interorganizational relationships or social networks, i.e. the relationships between groups in organization. (Thompson & Pozner 2007: 920) When performing their tasks, the various personal attributes of the auditor (e.g. skills and personality) as well as interaction with other auditors influence the outcome (Nelson & Tan 2005). Little research, however, has been dedicated to the organizational aspects of the audit performance (Power 1995).

Financial audits have low profit rates due to the intensive competition, which negatively impacts the willingness of financial auditors to engage IS auditors in the audit work. Furthermore, Hunton et al. (2004b) points out that specialist (such as IS auditor) billing rates may be higher than a nonspecialist’s rates. If the auditors feel that they are competent to perform the work themselves, by doing so, they can minimize the audit costs. Thus, investigating the financial auditor’s interaction with the IS auditor requires taking into account both the information technology expertise possessed by the financial auditor and the competence of the IS auditor (Brazel 2008). There were some signs of financial auditors’ overreliance on their skills; financial auditors are confident about their ability to assess risks in spite of the complexity level of the IT environment, and are therefore unlikely to seek the help of an IS auditor (Hunton et al. 2004b). However, if a computer specialist is used, he/she will be a part of the audit engagement team, which also has implications for the IT skills required from the financial auditor: the auditor is responsible for the supervision and revision of the specialist’s work. (Yang & Guan 2004) Brazel and Agoglia (2007) found that financial auditors with more information systems knowledge show more appropriate reactions to IS auditor findings. Concerns have also been raised about the competence of IS auditors, and what implications this has for the interaction of IS and financial auditors and the quality of IS audit (Brazel & Agoglia 2007; Brazel 2008). Brazel (2008) found that the financial auditors have experienced variation in IS auditor competence.
Also the level of communication is seen to have implications for the effectiveness of the audit process. The Panel on Audit Effectiveness (POB 2000) observed that the level and effectiveness of the coordination between IS specialists and financial auditors varied, and in almost 20% of the engagements could have been improved. Viljanen (2010) found that especially the effective communication and utilization of the results of general IT controls testing was considered problematic: the assessment of the impacts of the findings was found difficult due to for example the differences in the educational backgrounds and communication practices of IS and financial auditors.

The types of conflicts that appear in groups can be divided into three: relationship conflict, task conflict (differences in viewpoints and opinions about the task at hand), and process conflict (conflict about how the work in a project will proceed, for example in terms of who should do what). Several studies have suggested that relationship conflict is negatively related to task performance, and moderate levels of task conflicts are positively related to task performance. (Thompson & Pozner 2007: 922; Jehn & Mannix 2001) Research regarding process conflicts has associated groups with those types of conflicts with lower productivity and even inability to effectively perform their work (Jehn & Mannix 2001), thus implying a negative relation to task performance. In summary, although most auditing research has found group processing to be beneficial, the possibility for process losses due to group interaction must be taken into account as well (Bedard et al. 1998).

The key problem seems to be how to tackle the problems that complex information systems pose in the most effective and efficient way. Will financial auditors need more training in information technology; or will IS auditors become an integral, permanent part of the audit engagement team? (Hunton et al. 2004b) What are the implications for audit efficiency if financial auditors allocate even more internal controls testing to IS auditors compared to if more training is provided to financial auditors in how to assess IT risks and test IT controls (Brazel 2008)?
3 Research Method

In this chapter, the choice of research method is discussed. First, the data collection and analysis method is described. Thereafter, the quality and limitations of this study are evaluated.

3.1 Data Collection and Analysis Method

Ghauri and Gronhaug (2005: 202, cited in Eriksson & Kovalainen 2008: 5, emphasis added) state that “Qualitative research is particularly relevant when prior insights about a phenomenon under scrutiny are modest --”. In addition, qualitative research methods, as opposed to quantitative methods, are considered more suitable when research is concerned with understanding reality as socially constructed and aiming at holistic understanding of the issues studied (Eriksson & Kovalainen 2008: 5). The role of IS auditors in the financial audits has not been widely studied in the academic research, as mentioned in the introduction part of this thesis. Hence, this thesis aims to explore, understand, interpret and explain the various aspects that impact the role of IS audit in the statutory financial audits in Finland. For these purposes, a qualitative research approach is found most suitable.

There are different ways of collecting empirical data in a field study setting. These include for example interviews, surveys, protocols and direct observation. (Eriksson & Kovalainen 2008: 126) For the purposes of this study, i.e. when approaching meanings and experiences, conducting in-depth interviews is considered the most suitable research method. More specifically, semi-structured interviews were chosen, because they allow the researcher to change the form and order of the questions during the course of the interview. The researcher has constructed an outline of the themes and questions to be covered, but there are no pre-written questions to be posed as such. (Corbetta 2003: 285) In this study, the audit process is approached in retroperspective, i.e. the interviewees reflect upon the process in retroperspective. Therefore, it significantly differs from a longitudinal perspective to a process (see e.g. Jehn & Mannix 2001) in which the researcher gathers data and/or participates in the studied process in and throughout time.

The empirical research in this study was conducted by interviewing experienced audit professionals of the Big 4 accounting firms. By concentrating on the largest accounting firms the dominant assurance practices can better be examined (Vendrzyk & Bagranoff 2003). The Big 4 companies’ combined market share in auditing in Finland is approximately 90
percent (Andersson 2010: 59). Furthermore, all the Big 4 firms are international corporations with international methods, which facilitates the comparison of the results of this study and previous research. It is motivated to interview the employees with the longest experience on the field, which invariably are the persons with the highest ranks in the company hierarchy. A total of 15 professionals (8 in the field of financial auditing and 7 in IS auditing) were interviewed. The amount of interviewees is considered suitable because no new views came up in the interviews and the answers were beginning to be repeated. According to Hirsjärvi and Hurme (2008: 60) the interviews are to be continued until saturation is achieved, i.e. new interviewees provide no further essential knowledge.

Initial contact with the Big 4 companies in Finland was made by telephone targeting the persons leading the IS audit function according to the company website. The researcher's background as a trainee in one of the Big 4 companies and future employment after graduation in the same company were mentioned already at this stage as a disclaimer, should someone have a problem with this. All the initial contacts were nevertheless positive about the interview request. Typically, they took the initiative, and arranged the interviews with the other members of their firm, also from the financial auditor side. Thus, the researcher did not choose the interviewees. The original plan was to interview 8 IS auditors and 8 financial auditors, but due to schedule challenges, one IS auditor was forced to cancel the appointment. This is not seen to impact the research results, because the saturation was achieved regardless.

The execution of this study was carefully planned based on an overview of the previous research in the field that is the basis of the literature review in Chapter 2. Themes were identified from the literature, and the interview questions were categorized under the themes. Each of the interviewees were informed about the central themes of the interview beforehand (see Appendix 1), and interview guides (see Appendices 2 and 3) were used to guide the interviews. Two pilot interviews were conducted; one with a manager (IS auditor), and the other with a senior manager (financial auditor) in one of the Big 4 companies in May 2012 after which the interview guides were revised. Also during the interview process, some questions were added and some removed according to the increasing insights into the subject. The topics covered in the interviews were the typical audit process from the perspective of IS auditing; the role of the IS audit in the process; the characteristics of IS and financial auditors; team working and communication during the process; the value-added of IS auditing; and the future of IS auditing. The interviews were conducted in May and June 2012 in person. The interviews lasted from 30 minutes to 80 minutes. The interview schedule is presented in Appendix 4.
Separate interview guides were used for IS and financial auditors because their standpoint for the process is partly different. The majority of the interview guide, however, was identical for IS and financial auditors. In addition, a brief survey was conducted in order to ensure a correct interpretation of the interview answers by the researcher. Several questions were asked about the interviewees’ levels of agreement (using a 5-point Likert scale) on certain assertions adapted from a study of Vendrzyk and Bagranoff (2003). The survey in this study contains three equivalent questions with the survey of Vendrzyk and Bagranoff (2003), numbers 2, 5 and 6. The survey was introduced to the interviewees not until the end of the interviews, when they had no further comments on the subject.

All the interviews were recorded at the consent of the interviewee. The data that was collected in the interviews was then transcribed. After that, the data was classified manually by the researcher according to the interview themes. Each theme was given a different color, and the essential information was marked in the text. No analysis software was used in the process. Then the answers were pooled together according to the interview themes and research framework in Figure 2 and worked into text (for an example of the coding and interpretation process, see Appendix 5). As the interviews were conducted in Finnish, all the citations are translations by the author. The citations have been run by and approved by the interviewee in question.

### 3.2 Evaluating the Quality and Limitations of the Study

The problem with the use of reliability and validity as evaluation criteria in qualitative research has generated alternative ways for evaluating the research (Eriksson & Kovalainen 2008). Lincoln and Guba (1985) substitute reliability and validity with the equivalent concept of trustworthiness that contains four aspects: credibility, transferability, dependability and confirmability. The quality and limitations of this study are evaluated according to these criteria below. In general it can be noted, that as in all research, the general ethical principles of conducting research acted as a guideline throughout this study.

*Credibility* touches upon the familiarity of the author with the topic, whether the data is sufficient to draw conclusions on, and whether there is strong a cause-effect relationship between observations and conclusions. It questions whether any researcher would, with the same material, come close to the same interpretations and whether the results seem accurate to those whose experience is reported. (Lincoln & Guba 1985) As a researcher, I had a strong pre-understanding of the topic, as I have been working in both the IS audit and
financial audit functions in a Big 4 firm. This can be seen both positively and negatively with regard to the evaluation of the study. On the one hand, familiarity with the routines of the professions ensures that aspects being present in the everyday practices are considered. On the other hand, possible prejudices may influence the interpreting and evaluation of the results. A factor enhancing the credibility of this study is that it is based on multiple interviews, and the saturation of the knowledge level was achieved with the amount of auditors interviewed. Furthermore, both IS and financial auditors were interviewed ensuring the representation of both sides.

In order to enhance the credibility of this study, the interviewees were asked to state their level of agreement with certain statements in the end of the interviews. With the help of the survey it was possible to check that the researcher had correctly understood the interview responses. Thus, triangulation of methodologies (Kovalainen & Eriksson 2008) was utilized to refine and clarify the results of the study, which is a technique often mentioned to enhance the quality of a study (see e.g. Kovalainen & Eriksson 2008; Tynjälä 1991).

People are generally reluctant to talk about negative issues, especially with outsiders, something that may have an impact on the credibility of this study. It is possible that not everything was brought up if the interviewee felt uncomfortable talking about it. Furthermore, as the interviewees were aware of the fact that the researcher planned to take a position in one of the Big 4 companies, it might have affected their willingness to reflect on all the aspects of the topic even more.

Reflecting on past events is a critical element when evaluating the quality of the study, because the objective of this study is to obtain realistic information about the object of study. The credibility of this study might have been improved using a longitudinal research approach, in which the data could have been gathered (and the researcher would have participated) in the studied process in and throughout time. Conducting longitudinal research on the topic would be an interesting object of further research.

Transferability refers to the ability of the research results to be utilized in a similar setting as in which the original case was conducted (Lincoln & Guba 1985). By concentrating on the largest accounting firms the dominant assurance practices can better be examined. Furthermore, all the Big 4 firms are international corporations with international methods, which facilitates the comparison of the results of this study and previous research. However, the results of this study cannot be as such transferred to the settings of non-Big 4 companies, because their practices and clientele significantly differs from Big 4 companies’ (see for example Axelsen et al. 2011). Thus, this study presents only a partial picture of the role of IS
auditors in statutory audits in Finland. However, it can be assumed that, as IS audit is utilized mainly in the audits of big companies, and the biggest companies are usually clients of the Big 4, the results of this study nevertheless represent the prevailing practice. In addition, Big 4 from their part fairly strongly define the dominant practices in assurance.

*Thick description*, i.e. explaining behavior in its context (see Geertz 1973: 3-30), is used as a method in this study to increase transferability. The execution of this study was carefully planned based on an overview of the previous research in the field that is the basis of the literature review in Chapter 2. Themes were identified from the literature, and the interview questions were categorized under the themes. The themes were sent to the interviewees prior to the interviews to ensure that the interviewees were oriented to the issues discussed during the interviews. Two pilot interviews were conducted (one with an IS auditor, one with a financial auditor) to ensure that the relevant topics were covered and that the interview questions seemed sensible for the practitioners, i.e. the experts in the field.

The researcher did not choose the interviewees. Typically, after making the initial contact with the Big 4 companies, usually with the head of the IS audit function, they took the initiative, and arranged the interviews with the other members of their firm, also from the financial auditor’s side. However, it can be assumed that the interviewees from the financial auditors’ side had some interest in or experience with IS auditing, because they agreed to be interviewed. Thus, there is a risk that this might not be the most representative sample of the reality.

The *dependability* of the research is concerned with logic, traceability and documentation of the research process (Lincoln & Guba 1985). The empirical research in this study was conducted by interviewing experienced audit professionals of the Big 4 accounting firms. Interview guides were used to ensure consistent interviews throughout the interview process. The interviews were continued until saturation was achieved, i.e. new interviewees provided no further essential knowledge. All interviews were recorded and the data was then transcribed into text. The citations have been run by and approved by the interviewee in question. The research process of this study is exhaustively presented in Section 3.1., and thus assessment is made possible for the reader. Patton (1990) states that, in qualitative research, the final evaluation of the quality of the research (and the research report) is done by the users of the report.

*Confirmability* is about being able to pursue all the findings and interpretations to the data (Lincoln & Guba 1985). Audit trail was used as a method to increase conformability, i.e. the researcher held a diary in which the phases of the interpretation process were recorded. The
coding and interpretation technique has been made transparent by including an excerpt of the process (see Appendix 5). All the interviews were recorded at the consent of the interviewee. The data that was collected in the interviews was then transcribed. After that, the data was classified according to the interview themes. Each theme was given a different color, and the essential information was marked in the text. Then the answers were pooled together according to themes and worked into text. All the citations have been run by and approved by the interviewee in question. As Lincoln and Guba (1985) mention, member checking improves both the credibility and confirmability of research results. The conclusions that are drawn in Chapter 5 are based on the results presented in Chapter 4, and the author has tried to make the connection evident by employing cross-referencing.
4 Research Results

In this chapter, the results of the interviews are presented. First, the demographics of the interviewees are presented. In the following sections, the interview results, structured according to the research framework (context, content, process; see Figures 2 and 4), are presented. Next, the results of the additional analysis, i.e. the survey, are summarized. Finally, the research results are summarized.

4.1 Demographic Information of the Interviewees

Table 1. Demographic Information of the Interviewees.

<table>
<thead>
<tr>
<th>Firm</th>
<th>Financial Auditors</th>
<th>Information Systems Auditors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm 1</td>
<td>Partner</td>
<td>Manager</td>
</tr>
<tr>
<td>Firm 2</td>
<td>Senior Manager</td>
<td>Senior Manager</td>
</tr>
<tr>
<td>Firm 3</td>
<td>Partner</td>
<td>Director</td>
</tr>
<tr>
<td>Firm 4</td>
<td>Senior Manager</td>
<td>Manager</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Financial Auditors</th>
<th>Information Systems Auditors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of years in this position</td>
<td>2.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Average number of years with this job description</td>
<td>15.3</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Table 1 provides demographic information on the interviewees. The interviewees have been grouped by auditor type (financial or IS) and by firm. The IS auditors have a slightly longer tenure in their present positions than financial auditors, but have typically a lower rank. On average, the participating financial auditors have held their current job longer. All but one of the interviewed financial auditors are authorized KHT- or HTM- auditors\(^{11}\), and all but one of the IS auditors have the CISA\(^{12}\) certificate. One of the interviewed IS auditors is also a certified KHT-auditor.

\(^{11}\) There is a two-tier system of auditors in Finland: Auditors approved by the Central Chamber of Commerce (KHT auditors) and auditors approved by a local Chamber of Commerce (HTM auditors).

\(^{12}\) CISA = Certified Information Systems Auditor, an ISACA certification.
4.2 Context

4.2.1 Outer context

Due to the pervasive nature of IT in companies of today, the auditing of information systems is seen essential in connection with the financial audit by both financial and IS auditors. They acknowledge that with solely substantive testing, reasonable assurance that the financial statements are free of material misstatement is never achieved – at least not efficiently. Many interviewees highlight that IS auditing should therefore change more towards data analysis.

“The expected value of the financial audit is a little bigger than that you have from a million transactions tested 25.” (Financial auditor)

“If I were the responsible auditor, I would feel a lot more comfortable signing the papers [the audit report] if I knew that the testing has been extensive.” (IS auditor)

At the same time the interviewees feel that the concentration on general IT controls should be decreasing. All interviewees, however, are unanimous that the significance of the IS auditing in the financial audit process is increasing and that it is essential for the efficiency of the financial audit.

“I think that it will increase and increase how we can utilize the systems audit.” (Financial auditor)

The growing use of cloud computing, mobile devices, and remote work are factors that are seen to be increasing the use of the IS specialists in audit engagements. As systems become more and more complex, the IS audit is believed to be a part of ever smaller engagements. Furthermore, the proportion of the IS auditing in the current IS audit engagements is seen to increase. At the same time, outsourcing of IT to service providers is seen to reduce the need for a separate IS audit in connection with the financial audit: these are covered increasingly with so called third party audits, for example the ISAE 3402 audit\(^\text{13}\).

Many of the interviewees feel that the IS auditing and financial auditing will become closer; that financial auditing will ever more utilize the IS type of auditing.

“-- rather, this type of so called basic financial auditing is decreasing, through that this job is converting more into the systems side.” (Financial auditor)

\(^{13}\) The audit of IT processes of a service provider, which provides information of the effectiveness of controls operated by the service organization. (IFAC 2009b)
“I think that the traditional role of financial audit is going to change. That financial auditors are going to be more and more systems audit oriented.” (Financial auditor)

“I think it should develop more on that direction that all financial auditors’ role would be at some level to do IS auditing and understand it, and then we should utilize specialists.” (Financial auditor)

All in all, the interviewees mention that the auditing of the information systems—regardless of by whom it is performed—is not yet done enough in Finland. On the one hand, they feel that it is not done enough in connection with financial auditing; on the other hand, some mention that even the client organizations themselves could benefit from having IS auditors in their own internal audit functions. It is acknowledged, however, that the IS audit is a relatively young phenomenon, and as a part of the financial audit process it has the possibility to improve substantially. One of the Big 4 firms in Finland has recently launched a local development project regarding the role of the IS auditing and the co-operation of financial and IS auditors. The ultimate goal is to optimize the role of the IS auditing so that it helps make financial audit more efficient. Along with the project, for example, the internal IT training of financial auditors has been improved; IS auditors have been trained in financial auditing; and shared tools and practices and other ways to improve co-operation have been developed. There has also been a project to educate so called “IT trained auditors”, i.e. financial auditors that would be equipped to handle the IS auditing in smaller companies, so that their work is only reviewed by IS auditors. The project is recent, but already some improvements can be seen:

“I think that the dialogue has improved, that we have become closer. We do more together, plan what we do, and on the whole, financial auditing has begun taking IS audit better into account and the conversation is on a much better level.” (IS auditor)

In addition to these kind of changes in the current practices, some interviewees suggest more fundamental changes. One IS auditor states that the current audit standards are not up to date in terms of tackling the pervasiveness of IT in companies; IS auditors should, according to this interviewee, be required by law to be a part of the financial audit engagements. In addition, the participating IS auditor suggests that IT should be a section in the authorization examination for future authorized public accountants. One interviewed financial auditor mentions that before, there were no assistant IS auditors; all IS auditors were on manager level or higher and assistant financial auditors did the practical work. The interviewee feels that the accounting professional is the best IS auditor:
“I would hire more younger persons [to IS auditors] that would have the educational background that they could move on to financial auditing and take the HTM or KHT examination at some point.” (Financial auditor)

There seems to also be an interest from the younger financial auditors’ side towards information systems auditing:

“Maybe now, when the younger generation [comes]... Also, some KHT auditors ask me how could I take the CISA examination, what does it require?” (IS auditor)

In summary, the IS type of auditing is according to the interviewees becoming more important. There seems to be a consensus that financial audit is becoming more and more systems-audit-oriented, but there are different perceptions about who performs the work; the financial auditor or the specialist IS auditor.

**4.2.2 Inner context**

The formal IS audit functions in the Big 4 companies in Finland have been implemented variably during the 1990’s and early 2000’s. The functions are organized differently with regard to the organizational position. In two of the firms, IS audit function is a part of the financial audit function. In the other of the firms that has IS audit function as a part of the financial audit function, it has been a very recent change. In the remaining two companies the functions are organized separately, and the IS audit function is a part of an advisory function. Typically, regardless of the organization, the IS audit function performs at least some advisory type activities. The majority of the interviewed financial auditors are of the opinion that the IS audit should be a part of financial audit function, because it is seen as an obvious support function for the traditional financial audit. One financial auditor stated:

“Well absolutely it should be.” (Financial auditor)

Often financial auditors justify their opinion with the presumption that the majority of the engagements of the IS audit function come from the financial audit. However, according to the interviewed IS auditors, the percentage of financial audit-related work of the work load of the IS audit function is on average 50 %. The other half of the work is composed of different kinds of separate IT-related advisory engagements, which in turn would support the organization in connection with the advisory services.
Other favorable arguments from the financial auditors regarding why the IS audit should be a part of the financial audit function include for example the similarity of the work in terms of the laws and regulations that define the tasks as well as the knowledge of the client. It is argued that the IS auditors do not know the client well enough if they are a separate function. The IS auditors in turn mention the potentially closer co-operation if they were a part of the financial audit function. One IS auditor from an accounting firm that has financial and IS audit in separate functions commented:

“We are not in a one-team situation.” (IS auditor)

Some financial auditors mention the synergy aspect; when IS auditors are a part of the financial audit function, the knowledge and skills of one another can better be utilized. The organizational position is also seen to have an impact on the level of communication. In the firms that do not have the IS audit function as a part of the financial audit function, some financial auditors say that they do not personally know any IS auditors, which they feel has an impact on the level of the communication. Also, when trying to arrange meetings with a big audit engagement team, the so called outside specialists, such as IS auditors or tax advisors are easily forgotten. Even more than the organizational position of the IS audit function, its actual physical location was considered an issue among both the financial and IS auditors. There were wishes that at least the physical location of the functions would be nearer each other, which was seen to potentially enhance the communication. One financial auditor in the Big 4 firm with the change in the organization regarding the organizational position of the IS audit function expects the change to have an impact on the communication between financial and IS auditors:

"I feel that we are more and more going to [communicate], probably because they are nearer and become more familiar, something that will also lower the threshold. -- I am sure that this organizational change will enhance our co-operation and increase the use of the IS audit." (Financial auditor)

More about the communication aspects of the audit process, see Section 4.4.3.

The organizational boundaries that would or actually do – depending on the accounting firm – separate IS and financial audit functions are sometimes even considered an outright problem both by financial and IS auditors, especially regarding the budget allocation. Nevertheless, some auditors are of the opinion that the organization should not be of significance, because the over function lines co-operation should work as easily as inside functions. They feel that as long as the co-operation is smooth and the communication is working, the organization is insignificant. At the same time, some auditors feel that
although co-operation over organizational functions is talked about, the boundaries are in practice still very visible. One IS auditor stated regarding the organization:

“I don’t think that it should be of significance in which unit the IS audit function is organized. If we were a part of the financial audit function, I don’t want to think that it would be easier for us to work more integrated as a part of an audit team. It should not have an impact; communication, tasks allocation, budgeting should be as easy. But does it have significance…? I don’t know. One thing is of course the physical location, that if we would be closer to financial auditors, it could make the daily communication easier.” (IS auditor)

In the firms that the IS audit is not a part of the financial audit function, financial auditors appreciate the pooling of the IT knowledge of the firm in one place. IS auditors in turn feel that the advisory related work is meaningful, and when organized in the advisory services, they can also collaborate with other advisory functions. Some IS auditors presume that the more IT-oriented people among the IS auditors are likely to enjoy more doing the kind of work advisory services has to offer.

In accordance with the preconception, many interviewees also mentioned budgets as sometimes problematic. The audit business in Finland is increasingly competitive, which presses down audit fees and makes it challenging to maintain profitability. This entails how much engagement hours can be allocated to the IS auditor, a specialist, who often internally more expensive than a regular auditor. Especially in the Big 4 firms that do not have the IS audit function organizationally as a part of the financial audit function, part of the revenue for the audit engagement is actually transferred outside the financial audit function, which is sometimes seen to reduce the willingness to allocate hours to the IS auditors. One factor that can reduce the willingness even more is the result-based rewarding; the result of your function directly impacts your level of compensation. In those companies where the IS audit is a part of the financial audit function, this was seen to facilitate the budget communication.

4.3 Content

4.3.1 The Role of the IS Audit in the Financial Audit Process

The Big 4 accounting firms have certain processes for deciding whether an IS auditor is included in a financial audit engagement or not. This methodology originates from the international auditing standards. Basically, in all client companies that have information
systems in use (which is practically all companies) the understanding of the information systems plays a part in the audit. Usually, however, the financial auditor has the competence to manage the systems in smaller companies, in which case an IS auditor is not needed. Nevertheless, this process has to be documented and the exclusion of the IS auditor justified.

In practice, the bigger the audit, the more likely is an audit strategy that relies on internal controls. In these cases the information systems cannot be circumvented with substantive procedures, and an IS auditor is needed to verify the IT controls. Typically, the audit engagements that include IS auditors are for clients with a substantial amount of audit hours budgeted; those that have a large number of transactions; listed companies; companies under SOX legislation (usually subsidiaries of American parents); those that have big, complicated IT systems; companies whose operations are very dependent on the IT systems; and/or that operate in a certain industry field (e.g. banks, insurance companies, finance establishments). Also, for new clients, clients with system changes, or clients with system-related problems, an IS auditor can be included into the engagement regardless of the size and IT intensity. One IS auditor points out that the decision whether an IS auditor is included or not is not merely a categorization based on size or other factors, but rather a result of a risk-based conversation among the audit team: what are the risks in the engagement, and how are they related to information systems.

It is difficult to estimate the percentage of the audit engagements that an IS auditor is included in. All the Big 4 firms audit huge amounts of tiny housing associations, which make the percentage of the IS audit inclusion in all engagements low; about 20-30 % was estimated by the interviewees. However, the percentage is higher of the total amount of the clients’ turnover as the clients that have an IS auditor included in the engagement are in general bigger. Calculated this way the percentage was by the interviewees estimated to be around 75 %. The proportion of the audit engagement hours that are allocated to the IS audit was estimated to be on average between 5 % and 15 %. If the client is very IT intensive, and IT has a strong impact on the information presented in the financial statements, the percentage might increase to 20-30 %. Many IS auditors point out that the percentage of hours and, by implication, the amount of work that the IS auditors perform in the audit engagements is low in Finland, and could be increased.

The IS auditors feel that if the client engagement is too small, the inclusion of an IS auditor into the engagement is neither practical for the financial audit nor meaningful for the IS auditor. They feel that these small assignments should be discarded so that they are tackled by financial auditors, and IS auditors should be part of merely the bigger engagements.
“We try to hold on to this [test only big customers], otherwise we can’t develop this service. Over the past years we have had too many little companies in which we do a 7.5 hour ITGC audit that doesn’t benefit anyone.” (IS auditor)

The participating financial auditors were asked how the work of IS auditors affect their work load. The answers were quite mixed. On the one hand, many acknowledged that when the IS audit succeeds, it reduces the amount of work that financial auditors have to perform. Especially data analysis was highlighted as a source of increased efficiency. On the other hand, the testing of general IT controls was not seen to have any major direct impact. Of course, if IS auditors would not perform the work, then financial auditors would have to do it some other way.

“Sad to say, but too little [IS audit influences the financial auditor’s work load]. Because it [IS audit] is usually testing general IT controls, and then maybe you are not able to take advantage of them [the results], and think about how they affect the other audit testing -- It isn’t so effective always." (Financial auditor)

Communication came up in this context as well; the lack of communication between financial and IS auditors was seen to affect the usability of the IS auditors’ work:

"It should affect more than it does right now because the information flow between them and us is more or less poor. -- Unfortunately, in some cases it is so that regardless of what they find... -- we perform the same audit procedures. There is a clear call for improving.” (Financial auditor)

The communication between the IS and financial auditors is more closely discussed in Section 4.4.3.

The duties of IS auditors in the audit engagements are quite similar among the Big 4 accounting firms in Finland.

“They [IS auditors] assist our audit. --What would manually take long is more easily done with systems audit, of course we utilize it [in those cases].” (Financial auditor)

According to the preconception based on the previous research, the main duty of IS auditors is to ensure that general IT controls (ITGCs) are in place in the systems that produce financial data. The general IT controls include according to the different company methodologies for example proper access rights, segregation of duties, disaster plans and change management practices. Usually, the testing of ITGCs is considered as an “automatic” duty of IS auditors; when they are assigned to an engagement it is usually implied that
testing of ITGCs is to be done. The IS auditor can also assist the financial auditor in testing automated application controls, but this is dependent on the engagement and has to be agreed upon separately. In some companies, the IS auditors also assist in making the process walkthroughs, for example going through the client company’s sales process with the financial auditor and helping to identify the control points in the sales system.

The IS auditors are also used in audit engagements to help automate the testing of balance or income statement posts, often for example stock, wages or sales. With the help of, for example, ACL analysis the data can be sorted and analyzed for unusual patterns, which helps make the audit more efficient. Also data analysis, or assisting in so called substantive procedures, are a smaller part of the IS auditor’s duties, and not done in every engagement. Who does the data analysis in the companies also varies. Technically, as some interviewees point out, for example ACL analysis is not IS auditing as much as taking advantage of computer technology in auditing. In some Big 4 firms it is not the IS auditors that do the work, but financial auditors that have a requisite training. Some financial auditors point out that ACL analysis was a part of the education of accounting professionals in universities still some ten years ago, and was a basic duty for financial audit assistants. Now it has been “reinvented” and is increasingly done by IS auditors.

Thus, a major part of the IS auditors’ work consists of testing the general IT controls. All the Big 4 firms indicate that the focus of IS audit lies in there; typically 75-80 % (ranging from 50 % to over 90 %) of the IS auditors’ workload is testing ITGCs. The approximate breakdown of the IS auditors’ duties is illustrated in Figure 5 below.
Some point out that regarding a new audit client the emphasis of the IS auditors’ work is on ITGCs especially during the first year(s), after which the ITGC testing is more of the nature of updating and there is more time for other tasks. The testing of ITGCs as a part of the financial audit is described as a high level job that does not go into depths and is seen more as an assurance of the work that financial auditors do. Sometimes there can be even a direct overlapping with the financial auditors’ tasks, for example when reviewing the access rights of the system’s user. Many auditors emphasize that the focus should lie, and has also been shifted, more towards testing the application controls and helping in the data analysis, which would bring maybe more direct advantages to the financial audit (more on this, see section 4.3.2). At the same time, the duties that IS auditors perform in the audit engagements are strongly dependent on the budget allocated to them, which is often seen to constrain the amount of duties they can perform. Many IS auditors point out that often the budget is even insufficient to perform all the measures the methodology would require.

“\textit{The problem with budgets and fees is all in all pretty big in the audit business. Competitive biddings are done all the time and fees decrease. On the other hand, audit standards require to do more and more things; fees go down and requirements up --. The reconciliation of these is quite challenging, the situation is not good.}”

(Financial auditor)

The question of budgets is also closely related to the question of whether IS auditors could do more work in the audit engagements. Some participating financial auditors are of the opinion that IS audit is for the most part done sufficiently in the financial audit
engagements, and there are not so many cases that it should be used more. However, the majority of the interviewees, both financial and IS auditors, are of the opinion that IS auditing should be used more in audit engagements to increase efficiency. This is seen especially important in large, global companies where the amount of transactions is big. Furthermore, it is seen important to actively search for new ways for IS auditors to be of assistance, because auditing the computer and by using IT is faster than manually going through folders.

The interviewees emphasize that the role of IT in companies’ generation of financial information is so pervasive that IS auditors could be given a bigger role. Examples of duties mentioned in which IS auditors could do more in assisting financial auditors include for example identifying and verifying application controls and process controls, running reports, and assisting more in data analysis. For example application controls are presently often tested by financial auditors. Some IS auditors doubt whether financial auditors possess the competence for this. One financial auditor affirmed:

“I get this feeling -- do we go deep enough when testing the system? We test how it shows to the user -- but we don’t go looking inside the system to look at the bits and codes, that could someone change something.” (Financial auditor)

On the other hand, some financial auditors point out that some controls, for example IT dependent manual controls, are simply more efficiently carried out by financial auditors, because the results will likely be used in substantive testing performed by the financial auditor. If the IS auditors would perform more tasks in assisting financial auditors, they would need to have stronger knowledge of the financial audit process, say many financial auditors. Also more active communication would be required. One financial auditor points out that the IS auditors and financial auditors are not integrated enough in the process:

“Financial auditors move too easily some analysis to the IS audit side, and are satisfied when they get a report, when actually you would need co-operation and knowledge of the client and the IT side.” (Financial auditor)

The Big 4 firms have quality assurance processes in place, which means that a more senior employee always reviews the work done. Hence, when the IS auditor has completed his/her work and documented it in the company database, the working papers are reviewed by his/her superior. Then the work is assessed by the financial auditors to ensure that the quality requirements from the point of view of the financial audit are met. Usually even this assessment has to be documented. Some IS auditors feel that they do not always get enough feedback:
“Probably some think from the point of view of what has to be done according to the standards, okay now it’s done and documents are there [in the database] ready, that’s fine. On the application control side or substantive testing side it [IS audit] touches the financial auditor’s work closer and then we also discuss more .” (IS auditor)

That said, some IS auditors feel that it is rather their duty to communicate the findings actively to financial auditors, not vice versa. Many point out, however, that the situation has improved and the IS audit has become a more integral part of the financial audit also in this aspect.

The possible weakness that IS auditors find in the controls affect the amount of work financial auditors have to perform, if the work that IS auditors performs is targeted right. The nature of the IS auditors’ duties seems to play an important part; if the IS auditors perform ITGC testing, the impact of the findings on the audit process is not very evident:

“It [the impact on the audit process] depends on what we do. If we only do that [ITGC testing] and let’s say, a typical finding is related to user access rights, that they have too large access rights, it won’t probably affect how they [financial auditors] do their job. They will probably test just as much.” (IS auditor)

Financial auditors have to document the weaknesses and the plan how to tackle them. The ideal would be that IS auditors and financial auditors together evaluate the situation: How do the weaknesses impact the process level controls? Can we find compensating controls, or do we have to do more substantive testing instead? In some Big 4 firms this is achieved; The IS auditors give recommendations to financial auditors about what kind of impact their findings have for the audit process and together they decide about further measures. This is, however, not the case in all Big 4 firms. In those companies where the discourse is not present, IS auditors point out that they do not see the impacts of their findings on the audit process. More on communication in Section 4.4.3.

4.3.2 The Value-added of IS Auditing in the Financial Audit Process

Both the IT and financial auditors are unanimous that the IS audit is useful for financial audit, as indicated in the citations below:

”If you consider that the audit client has 10,000 purchase invoices. If you think that you audit two folders of them, or that you audit them all with systems audit, it probably describes it [the benefits].” (IS auditor)
“It is [useful]. Absolutely. It is a requisite part [of the audit] if we go for a control based strategy.” (Financial auditor)

The reasons for why the IS audit is seen so useful, what are the most helpful tasks IS auditor can perform in a financial audit process, and what is required for the benefits to be realized then appear to vary among the IS and financial auditors.

The interviewees, both the financial and IS auditors, emphasize that the IS audit helps to make the audit process more effective by allowing the financial auditors to rely on controls more, thus reducing the amount of manual work needed. Further, a bigger sample can be covered from the accounting data material with the help of utilizing computers in the audit, which entails that the financial auditors can with more confidence express that the financial statements are free of material misstatements. Financial auditors seem to appreciate the most the fact that they get more audit evidence through the measures of IS auditors and get the needed assurance with less effort. Hence, they have more time to focus more fully on the client’s specific needs. The IS auditors highlight the importance of the IS auditing to the overall risk management in the audit engagement; the state of the IT environment is significant for the financial audit. Through the IS audit the financial auditors get reliance on applications, the application controls and systems outputs.

Both the financial and IS auditors highlight the benefits of the IS audit for the customer. The IS auditors’ work often touches upon the data protection, and as an end product there can be good recommendations and development ideas for the client to enhance their data security. Through that the client gets additional value from the audit, and the audit firm can get possible additional sales, if the recommendations spawn development projects.

“So that the client would see also other benefits from it, besides getting the statutory obligation fulfilled.” (IS auditor)

In addition, the client management is increasingly experienced to wish for systems audit due to the pervasive nature of IT in today’s companies.

For the benefits of the IS audit to the financial audit to be realized, the tasks of the IS auditors have to be carefully planned and focused on the right things, so that they really help the financial audit. Also, the timing of the IS audit has to be right for it to bring out the benefits. IS auditors highlight the importance that financial auditors understand what the IS audit is, and how it can help the financial audit. Financial auditors in turn express a desire for more understanding and proactivity from the IS auditor’s side; more consideration of what their work and its findings actually mean to the financial audit. One financial auditor stated:
“-- if they bring up an issue, we consider the implications but it is difficult to get a solution from them. Everyone can find a problem...”. (Financial auditor)

Some IS auditors indicate that the financial auditors may not feel that the IS audit eases their work load, especially when focusing on the audit of general IT controls. Furthermore, the IS auditors sometimes feel that relevance of the ITGC audit for the financial audit is not as evident as it is with application controls or data analysis. Expressions like “necessary evil”, were sometimes used to describe the ITGC audit. IS auditors express concerns that financial auditors only value the part that substantially reduces their work load and give more direct benefits that give direct assurance but forget the basics underneath that are also important. This concern is however not reflected in the answers of the financial auditors: albeit they feel that the biggest benefits of the IS audit lie in the more efficient ways of getting audit evidence, they also highlight the need to be able to trust the basis, the IT environment.

“That the systems stand, that they are secured, those are the basics that a systems auditor always has to verify. On that basis we can build -- it gives a pretty solid basis that probably this data what it [the system] generates is essentially right.” (Financial auditor)

In the case of off-the-shelf applications, that usually do not allow in-house modifications, or when testing only a few controls, financial auditors may consider the audit of ITGCs a little useless. But also in those cases, it is acknowledged that the underlying processes have to be checked.

The general IT controls are also seen as an important part of the company’s governance and internal control, on which the auditor has to express his/her opinion as well. From general IT controls, the financial auditors highlight the significance of reliable access controls and that the segregation of duties is proper. Behind malpractice there is often found shortages in these areas, which is why some financial auditors expressed that ITGC audit is the most useful thing the IS auditor does for the financial audit. One financial auditor stated:

“It exists in every company, the fact that who has access rights and passwords and all this... If they are completely ineffective, you do wonder how this is going to end.” (Financial auditor)

Judging from the comments of the financial auditors, they do not, however, see the purpose of all the ITGC audit measures that the IS auditors take for the financial audit, such as checking disaster recovery plans or back-ups. It is suggested that the whole concept of ITGC testing is thought through more carefully:
“Because ITGCs have -- different process areas, for one client it can be much more sensible not to do all the sections, but instead do some specific section and do it better.” (IS auditor)

“-- with general IT controls we would think more carefully that what we actually need to do, that we would focus only on the essential things.” (Financial auditor)

The auditing of information systems is seen essential in connection with the financial audit by both the financial and IS auditors due to the pervasive nature of IT in the contemporary organizations. They acknowledge that with solely substantive testing, reasonable assurance that the financial statements are free of material misstatement is never achieved. The question whether it should be an IS auditor that performs the work divides the interviewees. The IS auditors seem more positive towards the idea that the financial auditors themselves would perform the needed actions to verify the reliance on the IS systems. Especially in smaller client companies, where the IS audit is not very specific and overly technical, this is considered a very viable option. In one of the Big 4 firms, a program has recently been started for educating financial auditors to do the testing of general IT controls themselves. In smaller engagements it is also a matter of costs; it would be more cost efficient for financial auditors to do the IS audit work themselves. One IS auditor stated:

"I believe that financial auditors are becoming more like the IS auditors." (IS auditor)

Many IS and financial auditors note that this is in the end only a matter of the interests of the financial auditor. Some point out, however, that as soon as the applications and IT systems get more complicated, the IS auditor should be consulted because of their deeper technical skills. Some financial auditors also point out that if the financial auditors do not conduct IS auditing regularly, they may not be as effective as when an IS auditor performs the work. Some financial auditors feel that the requirements for their competence are already so wide that they consider the IS audit the best option to tackle the problems that the ever more complicated IT systems pose for financial auditing.

The interviewed IS auditors were asked whether they feel that the financial auditors appreciate their work. The most common answer was "It depends.". IS auditors feel strongly that the fact if the responsible financial auditor understands why IS audit is performed in the first place and sees the benefits it can entail directly correlates with the level of appreciation. The appreciation will grow through increasing the awareness and understanding. The IS auditors feel that the appreciation has grown compared to the past, along with the younger financial auditors that understand the significance of IT better.
Some IS auditors feel that the appreciation is more apparent when the IS auditors perform tasks that clearly reduce the workload of financial auditors, for example data analysis:

"Sad to say, I feel it is so that when we don't do some substantive testing, they probably often feel it [IS audit] as a necessary evil, that this has to be done but does not decrease their work load." (IS auditor)

One IS auditor underlines the responsibility of the IS auditor as well:

"We have to look into the mirror as well and take care of that the audit work is of high quality. We have to earn the respect.” (IS auditor)

### 4.4 Process

#### 4.4.1 The Typical Financial Audit Process from the Perspective of IS Auditing

Figure 6 depicts the typical financial audit process with the duties of the IS auditors embedded, assuming a financial year of the calendar year. In this case, the audit process overlaps the year-end, i.e. the date to which the financial statements relate to. The process is described as a circle, because often the audit clients are continuous, which entails that the process starts all over again next year.
Planning for the current year audit begins in the spring, after the previous year’s audit is finalized. Optimally, the IS auditor is involved in the risk assessment and planning phase of the audit. Typically, in this phase, there are one or more meetings between the audit engagement team, which include also the IS auditors. In these meetings, the client’s unique characteristics and essential risks are considered, and the focus of the audit is determined; which applications are present, which of the applications produce financial data and, taking these into account, what would be the duties of the IS audit professionals. Based on this, working hours are allocated to the IS auditor, and a schedule for the IS audit is determined. The audit plan is then communicated to the client company in a meeting, in which IS auditors can attend or not, depending partly on the Big 4 company in question, partly on the size of the audit client company. Both financial and IS auditors emphasize the importance of the communication of the audit plan to the client, so that the client understands why IT is considered in the financial audit in the first place, which applications are tested, and what are the matters that are investigated in the applications.

Many IS auditors describe that sometimes, however, financial auditors plan the audit without IS auditors, and at some point later in the process they remember that IT has to be
considered as well. The worst case scenario is, as described by one IS auditor, that the contact between financial and IS auditors happens when

“-- it should have already be done, and practically, the processes and controls testing of the financial audit has been completed and then something compulsory should be checked [of IT].” (IS auditor)

The situation differs among the Big 4 firms: in some firms the IS auditor being a part of the risk assessment and planning process is more the norm than the exception. Also, inside the firms there seems to be differences depending on the team and client in question. The importance of the IS auditor being part of the planning phase is highlighted by all the interviewed IS auditors.

“If we are not involved in the planning phase, it [the IS audit] is not linked to the financial audit well enough, common goals become blurred, and we do not get all the benefits of the systems audit realized.” (IS auditor)

If the client is new to the company, the audit planning often starts earlier, already when making the offer, and the IS auditor is more involved in the process. Usually, the IS auditors have also had a meeting with the client prior to the planning, and mapping the IT environment of the client. Also for continuing clients, a conversation with the client IT management about the latest developments of their IT environment would be beneficial every year, but this is not yet achieved in practice, says one IS auditor. Thus, for continuing clients, the planning for the audit begins typically in the spring.

However, due to schedule pressure, the planning does sometimes not begin until September. Many IS and financial auditors highlight that it is essential that the planning process and the presence of the IS auditor in the team would start as early as possible. There is a clear consensus among the interviewees, regardless IS or financial auditors, that the earlier the IS auditors complete their tasks, especially the testing of general IT controls (discussed in Section 4.3.1), the better it serves the financial audit. The methodological requirements as well as practicality suggest that IS auditors conduct the general IT controls testing before the financial auditors begin testing the application or other IT dependent controls, as all other control testing is based on the quality of them. According to audit standards, the scope of the audit has to be changed according to the possible findings of the IS audit, which makes it essential for IS auditors to carry out their work before the financial auditors do theirs; the findings of IS auditors guide the work of financial auditors. This is, however, sometimes not possible for schedule reasons etc., in which case the IS auditor’s work
overlaps with the process and controls testing of the financial auditor. One IS auditor described the reason why the methodological requirements are not always met:

"-- it would mean that we would practically do a year's worth of work in August, which is not quite possible." (IS auditor)

Here the prior knowledge and experience with the client plays an essential role, says one IS auditor. If the client's IT environment has traditionally been problem-free, it can be assumed that it continues to be so, in which case the overlapping of work poses less of a risk. In the worst cases, the IS auditor does his/her work after the financial auditors have completed their work. This is in fact wrong according to the audit methodology, but it seems to occur from time to time, mainly in smaller, not prioritized engagements. One financial auditor says:

"-- in these cases we are, if not fallen off the cliff, often on the edge\textsuperscript{14}." (Financial auditor)

Thus, depending upon when the planning is started, the actual IS audit work begins just before the summer holiday season, or in the early autumn. The concentration of the IS audit into the autumn is a problem area that was brought up by almost all the IS auditors. One factor contributing to this schedule bias is that in the spring, financial auditors are notoriously busy with finishing the previous year audit, and there is a limited amount of time before the client and the auditors take their summer vacations. IS auditors tell that this bias also significantly complicates resource allocation in the IS audit function, when all the accessible resources do IS auditing in the autumn, and then in the spring all these people should have something else to do. During these months IS auditors can have other engagements (e.g. in consulting) or they can rotate inside the company and help the financial auditors with their year-end substantive procedures. In practice, however, these months are often a very quiet time for the IS auditors. Consequently, the autumn becomes a time of increased schedule pressure and long hours for the IS auditors, which not everyone is content with, preferring a more even work load throughout the year. The IS auditors feel that this is a genuine issue restraining the development of the IS audit practice, and that something should be done to improve the situation. The IS auditors also point out, that there is no defensible foundation for the focusing of the IS audit to the fall:

"-- there is not many valid reasons for this [the focusing of the IS audit to the fall]. If it is a continuing client -- we can as well do it already in the spring." (IS auditor)

\textsuperscript{14} Not a direct translation; the interviewee used a Finnish figure of speech. Originally; "-- ei nyt mennä ojaan, mut ollaan kyl penkassa välillä."
After testing general IT controls, the IS auditor can help the financial auditor by testing application controls, and/or doing different kinds of computer-assisted data analysis, if assigned by the financial auditor. If the testing of IT general controls is done early in the spring, the IS auditor updates his/her work later during the year to make sure that the controls remain the same. After the IS auditor has completed his/her tasks, the results and findings are communicated to the financial auditor. This is often, and preferably, done face-to-face in a separate meeting among the audit team, but in some cases, there is not time to do so. In these cases, the results are communicated via telephone or e-mail. Communicating the findings only via the company audit tool was considered the worst case scenario. Many IS and financial auditors highlighted that the effective communication of the results, and together assessing the effects they would have on the audit and the measures that should be taken is essential, but not always achieved.

The IS auditors usually write a report on their findings. Before going forward with the report, the findings are also discussed with the client to see that he agrees with and understands the findings. The IS audit report is then either communicated directly to the client (IT) management or merged with the financial auditors’ interim reporting. The practice is again dependent on the Big 4 firm in question as well as the client. Typically, for public companies, the reporting is done jointly for the audit committee and eventually for the board. One financial auditor points out that also in the smaller companies with separate reporting it would be better to bring the IT related findings to the top management, otherwise there is a risk that the information stays at the IT department, and corrective measures are not taken in which case the same problems remain for the following years.

4.4.2 The Characteristics of IS and Financial Auditors

A typical IS auditor in the Big 4 firms in Finland has his/her educational background in either economics (typical major e.g. information systems science or accounting) or in the technical field and has an average working experience of 5-6 years in IS auditing. All the interviewees emphasize, however, that more important than the formal educational background is the understanding of both business and information systems.

“It is often said that business and information management do not have a common language, so basically [IS auditor should be] an interpreter between them.” (IS auditor)
A good IS auditor is described to be analytical, accurate, persevering and enthusiastic. Also the ability to endure stress is considered a good quality. Both financial and IS auditors highlight the importance of good communication skills (both oral and written), team working skills as well as sociality and customer service orientation of the IS auditors.

Both financial and IS auditors point out that in IS auditing (especially when conducted to support the financial audit), the technical knowledge of the IS auditor is not very essential. They state that the most important thing is to understand how IT affects the client’s business processes and is present in the financial administration, and how a possible finding in the IS audit affects the financial audit. One financial auditor incisively stated:

“[A good IS auditor] is a former financial auditor.” (Financial auditor)

Also, the auditor’s mindset – an enquiring and questioning attitude – is emphasized above technical skills:

“I think we have bad examples in all these houses [Big 4 firms] that e.g. a SAP consultant is hired as an IS auditor. It is considerably harder to teach him what is auditing, than teach an auditor what are the SAP’s inherent controls.” (Financial auditor)

The skills of a competent IS auditor are described as a balancing act between on the one hand technical knowledge of the operating systems, servers, databases and networks etc., and on the other hand financial auditing and accounting. In addition, as the IS auditors also pointed out, because there are not altogether so many IS auditors in Finland, an IS auditor have to possess expertise in many different systems.

The IS auditors point out that there is not only one certain type of competent IS auditor, as there is not only one type of competent financial auditor either; it is a question of roles in the engagement. Also a more technical and not very audit-oriented person can be a good IS auditor, if his/her role in the engagement is suitable for that kind of knowledge base. However, one IS auditor pointed out:

“But never can a whole IS audit in a financial audit engagement be based on the fact that no one of the IS auditors understands accounting or the financial audit process.” (IS auditor)

Especially the more senior IS auditors that are in charge of the IS audit must possess deeper knowledge of the audit process, so that they can perceive the whole picture and can find the right resources for the right tasks. The different duties that the IS auditors can have in the audit process also require different kinds of skills: the testing of process controls requires
more knowhow of business than testing of general IT controls; application testing requires a deeper knowledge of the system in question; and data analysis requires the skills to use the specific tools and software.

Financial auditors’ perceptions of whether the IS auditors are competent or not vary. Some feel that they are competent, at least today. Some Big 4 firms in Finland have IS auditors that are also authorized public accountants, and possess thus extensive knowledge of business processes and financial accounting. Some financial auditors nonetheless feel that the IS auditors’ knowledge of financial auditing is not on a desired level:

“[They are competent] in their own field, yes. But it is pretty much limited to that.”
(Financial auditor)

Also IS auditors acknowledge that especially among the younger professionals, the knowledge of business processes is not always on a sufficient level. They point out, however, that it is difficult to find new employees that would be IS audit-oriented; these kinds of professionals are not educated anywhere in Finland. Both financial auditors and IS auditors mention that there is a shortage of IS auditors in Finland and they emphasize that IS auditors should be educated through different educational systems. One reason for the shortage is also seen to be the uneven distribution of the work load of IS auditors: in the fall there is a shortage, in the spring an excess of IS auditors. In some Big 4 firms, the turnover of IS auditors poses a challenge.

Thus, the majority of the interviewees see a need for more IS auditors. However, there are differing opinions as well. Some point out that if financial auditors themselves would be capable of for example analyzing data differently, then IS auditors would not necessarily be needed as much. One financial auditor stated:

“I would say rather that way that we have too little financial auditors that understand IT. Because it would better improve the situation than to have more of separate IS auditors.”
(Financial auditor)

One financial auditor suggested that separate IS auditors would not necessarily be needed at all:

“I don’t think we would necessarily need to have them [IS auditors] at all but rather financial auditors with IT skills-- that have IT as their specialty. Every financial auditor has nowadays specialties, so similarly general IT controls should be someone’s specialty, [or] doing data analyses.”
 (Financial auditor)
That said, one IS auditor commented that if the IS audit skills are scattered among the financial auditors, they would lack a converging force:

“When you have an own function, there are certain motives to develop those activities.” (IS auditor)

More discussion about the actual demand on and value-added of separate IS auditors in Section 4.3.3.

One financial auditor stated regarding the IT skills of financial auditors:

“The significance of them has been emphasized during the past few years.” (Financial auditor)

The majority of the financial auditors acknowledged that deficiencies in financial auditors’ IT skills can affect audit quality.

“If the responsible financial auditor does not understand anything of IT then how can he/she target the audit procedures on the right things?” (Financial auditor)

“All financial auditors and IS auditors have to have the ability, you have to understand the systems. You cannot test controls if you don’t understand the system. You cannot conduct a risk analysis if you don’t understand the system, when you don’t know which reports are generated by the system or estimates.” (Financial auditor)

Also, the financial auditor has to be able to understand the work of the IS auditor in order to utilize it:

“You have to have a certain understanding of the working papers of the IS auditor, so that you as an auditor can use them and make your own conclusions about it [the work] as well.” (Financial auditor)

“It [the complexity of IT systems] also requires more from us. It can’t be so that the IS auditor is going to handle this and we don’t understand enough what it means. It poses a big challenge for us, too.” (Financial auditor)

Some financial auditors feel that the possible deficiencies in their IT skills have an even bigger impact on the audit efficiency. The audit quality could always be caught with some manual substantive procedures, but it would take much more time and would not be nearly as efficient as utilizing IT. The interviewed financial and IS auditors agree that financial auditors do not have to be very technical, but that they have to understand the basics regarding IT and the logic behind the most common ERP systems: how do entries move
from the subledgers to the general ledger, how does the system transfer the information. The interviewed financial auditors have not received much IT training during their university education, and have rather been trained on the job and through (internal or external) professional training. Some feel that there is a sufficient amount of training arranged for financial auditors regarding IT; that the knowhow is available for those who want it.

"I think that we have sufficient training at work, but then it depends on the fact that not everyone is willing to adopt the information." (Financial auditor)

On the other hand, some feel that there would be a need for more training:

"We have IT-related internal training, but we should have more of it because its [IT’s] significance has been increased. The education has not been added in relation to the increase in the significance of IT." (Financial auditor)

Financial auditors emphasize that they also have to remember to be active themselves and update their IT skills continuously. It is mentioned that altogether, not all financial auditors are interested in IT nor willing to educate themselves in it, which is why IT skills should be regarded already in the recruiting phase.

Financial auditors and IS auditors agree that the IT skills of financial auditors are not always on a sufficient level. Especially it is mentioned that the older auditor generation does not possess strong IT skills and have not been willing to learn either. It is also criticized that the use of audit software, for example ACL analysis no longer is a part of the education curriculum of future audit professionals. With regard to the IT skills of financial auditors, many of the interviewed auditors are however positive about the future. The new, younger generation of financial auditors is considered to have significantly better IT skills, or at least, a better ability to learn:

“Increasingly yes [financial auditors have sufficient IT skills]. Because the people that come into the business are of course a lot further in their IT skills than the colleagues of same age or older than me. I think the ability to understand systems is a lot better.” (Financial auditor)

The IS auditors emphasize that the IT skills and understanding of financial auditors have a considerable impact on their work:

"It facilitates the co-operation substantially if financial auditors understand the data processing environment that the client has, and especially what consequence a
control deficiency, e.g. in access rights or change management, has on the financial audit.” (IS auditor)

They state that, at present, it is not always the case that the financial auditor understands what IS auditors do in the engagement in practice, although this is considered to have improved. This is seen also as a communication challenge; it is essential that the IS auditors are present already in the risk assessing and planning phase of the audit and that their work is clearly linked to the financial audit.

4.4.3 Team Work and Communication in the Financial Audit Process

As the findings so far indicate, good communication is an essential factor in the effective conducting of the IS audit in connection with the financial audit. Communication was found to help IS auditors to see the impacts of their findings on the audit process and impact the usability of the IS auditor’s work for financial auditors (see Section 4.3.1). In addition, the IS and financial auditor’s characteristics (see Section 4.4.2) play a role for the level of communication. Subsequently, for the teamwork and communication to be optimal in the audit engagement teams, the interviewees emphasize the understanding of each other’s domain:

“--That everyone would understand each other at some level. That the financial auditor would understand the IT aspect at some reasonable level. On the other hand, the IS auditor should in fact have quite deep knowledge of the business processes so that he/she can assist the audit engagement team.” (IS auditor)

Financial auditors state that the fact how well the IS auditors understand the financial auditing process and the function of IS auditing in the process promote the level of cooperation. IS auditors in turn point out that the understanding from the financial auditor’s point of view of why IS auditing is done in the first place determines how much IS audit is utilized in the audit engagements.

According to the interviewees, IS and financial auditors typically communicate both formally and informally during the audit process. Usually, the communication process between the IS and financial auditors seems to include the following communication points: some communication during planning; communicating the plans on when to visit the client; after the visit communicating the preliminary results, or if there are problems, contacting financial auditors during the visit; communicating the results, conclusions and possible further actions (including setting the working papers and conclusions to the company audit
tool); and together drafting the reporting. Communication practices in terms of giving feedback vary among Big 4 firms. In some companies there is a formal feedback system, in others not. Giving informal feedback is partly dependent on the auditors’ own activity, and is given at need. Some firms have summary meetings in the end of the audit cycle where the audit team (IS auditors included) discuss the successes and failures of the engagement. Among auditors in accounting firms that did not have this kind of practice, there were aspirations for this.

According to audit methodologies there are certain “mandatory” communication points, for example in the end of the planning phase, and when finishing the interim audit. How well the methodology is followed and how often there are meetings and communication between the IS and financial auditors in the process, vary partly depending on the audit company in question, partly inside the companies depending on the teams and the size of the client. In bigger engagements the communication is more frequent, in smaller ones less so. Some financial auditors feel that the communication relies too much on the passive audit tool, and not on active, direct communication:

“But it is unfortunately so, albeit usually in smaller engagements, that we have to check the audit tool if there is any work performed and what is the conclusion.”

(Financial auditor)

Sometimes the documentation of the IS auditor’s findings is delayed although the work itself has been performed, which is why some financial auditors also underline the real-time use of the audit tool. All in all, many financial and IS auditors say that the exchange of information should be continuous during the process. One factor that is also seen to affect the quantity and quality of communication is the planned amount of IS audit in the engagement; if the IS audit plays a major role in the particular audit engagement, than there is naturally also more communication between the IS and financial auditors. Furthermore, many financial and IS auditors point out that the level of communication between IS and financial auditors is dependent on the communicative styles and skills of the people, i.e. the auditors involved in the engagement team.

Both the IS and financial auditors state that the communication between the IS and financial auditors is essential because the IS auditor has to be aware of what is expected of him/her in the particular engagement; what do financial auditors search for, and why? If this is not achieved, then there might be an expectation gap between the tasks that financial auditors expect the IS auditors to do, and what they actually do. As a result of an effective communication of the mutual goals, on the one hand, the IS auditor is able to do the needed
measures, and on the other hand, does not do unnecessary measures from the audit point of view.

The overall difficulties with the scheduling of the IS audit, i.e. the focusing of the IS audit in the autumn (discussed previously in connection with the audit process in section 4.4.1), is also mentioned as a challenge to the communication between financial and IS auditors. When all the IS auditors are really busy during the autumn, it poses a challenge to succeed in co-operation via regular discourse. In some Big 4 firms there are also resource problems, in terms of too few IS auditors and/or financial auditors, which also has an impact on the level of communication. Some of the participating IS auditors specifically mentioned the wish to have proper time for the background work and discussion with the financial auditor, which in the present situation is not always achieved.

The IS auditor can be at the client at the same time as the financial auditors. Many IS auditors and financial auditors say that they would prefer this, because it would enhance communication and help creating the feeling of one audit team. It is also seen to give a more coherent picture of the audit with regard to the visibility to the client. For practical reasons, however, the IS auditors often complete their tasks independently and keep in touch with the client directly. These practical reasons include for example schedules, and that the physical location of the IT department can be different than that of the accounting department. On the other hand, it is not always seen to be necessary and even practical to be at the client at the same time, if not the measures that the IS auditors conduct require the presence of financial auditors, for example when directly assisting financial auditors in their tasks.

Of the participating auditors, three financial auditors and three IS auditors were of the opinion that the communication between the IS and financial auditors in audit engagements is on a good level in general. That said, five financial auditors and four IS auditors were not satisfied with the level of communication, at least in some of the cases. They felt that the flow of information is poor, there is a need for improvements, and more communication is needed:

“This silence, we have to get rid of it.” (Financial auditor)

There are differing opinions on who has the responsibility for the communication in the audit engagement, the financial auditor or the IS auditor. Some financial and IS auditors feel that, as the audit process is financial auditor driven, also the communication should be so. At the same time, some IS auditors state that when they are active on their part, they also get responses from the financial auditors. The IS auditors acknowledge that the active
communication of their findings to the financial auditor is on their responsibility. Many IS and financial auditors feel that the level of communication in the audit engagement is personified on the responsible financial auditor; if he/she understands the relevance of IS audit as a part of the financial audit process, the communication towards the IS auditors is more active. Overall, the improving of the communication between IS and financial auditors is seen as one major concern regarding the whole process and the perceived quality and usability of IS audit. Good communication is seen to improve the synergy of the IS and financial audit as well as the knowledge of the professionals involved.

The most common answer to the question whether the IS and financial auditors consider they form a uniform audit team while in an engagement was: “It depends.” The trend seems to be, similarly as with communication, that in smaller engagements the situation is more challenging than in the bigger ones. However, many IS and financial auditors point out that the one-team feeling has improved over the years. The comments from financial auditors seem in general more positive about the situation. They feel that teams are cohesive, and do not see separate IS and financial audit functions, but a team with different competencies. Some financial auditors emphasize that only through understanding the financial audit process and the meaning of the IS audit findings, the IS auditors can become a part of the audit team and there will be a feeling of common goals. One financial auditor, in an accounting firm where the IS audit function is a part of the financial audit function, stated:

“Now that we are part of the same function it will probably change the stance generally towards that [a uniform team].” (Financial auditor)

From the IS auditors the reaction to the question about the one uniform team was more often the “it depends”. For them, the size of the engagement seems to have an even bigger impact; in smaller engagements they feel more like they are doing their own project than being a part of the audit team. There were comments about feeling like a necessary evil in the engagement, and that the appreciation for each other’s work is low, when neither understands what the other does. The fact that IS auditors are included in general in many more engagements than financial auditors was also seen to have an impact; they simply do not spend as much time with the team. One IS auditor stated:

“When you have been with the same financial auditors at the same client for several years, then you might feel a little bit more like you are a part of the team. But not maybe as equal a member as financial auditors are with each other.” (IS auditor)

Some interviewees feel that the whole IS auditor–financial auditor set-up is a conceptual problem, and that the juxtaposition is artificial. One IS auditor stated:
“There is one audit team that has auditors for different fields. I don’t think it leads to an optimal end result if it [IS audit] is seen separate.” (IS auditor)

In some of the Big 4 companies, the turnover of the IS auditors is considered a problem. Some interviewees mention, that competent IS auditors are often lost to client companies looking for competent, IT-skilled professionals. In addition to spending the accounting firm’s resources the turnover is seen to impact the audit team atmosphere and complicating the building of the work community. Turnover inside the audit teams is also considered bad, because when the auditors have been at the same client longer, they know the unique characteristics of the client, know the personnel, and the personnel know them and their practices. Furthermore, the tacit knowledge that has developed during the years helps the auditors to be more efficient; with new clients, much of the time goes to getting to know the client. What is mentioned as an important reason for preferring stability in the audit engagement team is the clients’ preferences; clients want to have the familiar audit team, and not different faces every year. On the other hand, turnover is sometimes seen as a positive thing. It is done for example for rotation reasons, and to develop one’s skills and capabilities. It is considered negative to be too many years at the same client; one becomes blind to the possible problems. One financial auditor stated:

“Sometimes it is really good that the IS auditor is changed, because the new auditor might question different things, notice different things.” (Financial auditor)

There are sometimes differing opinions inside the audit engagement teams between the IS and financial auditors. Sometimes conflicts (rather referred to as disagreements by the interviewees) arise from different opinions regarding how to audit something, or what a certain finding indicates. Financial auditors expressed opinions that the IS auditors tend to have a more black-and-white approach; a finding is a finding and is not going to disappear. The IS auditors in turn felt that the financial auditors do not see all findings as critical as the IS auditors, for example regarding a weakness in logical access controls. These conflicts or disagreements are by definition task conflicts (see e.g. Thompson & Pozner 2007: 922 and Jehn & Mannix 2001). Some disagreements arise from the communication, which is sometimes seen to be too passive, especially from the side of the IS auditors towards financial auditors. In addition, a gap due to insufficient communication of financial auditor expectations for the IS audit can cause quarrels. Sometimes the personal chemistry among the audit team members is not working, and sometimes disagreements can be simply caused by stress. Possible disagreements are solved by conversation and in the end, the responsible auditor is of course in charge of the decisions and actions.
Nevertheless, disagreements or conflicts were not often experienced between the IS and financial auditors. One financial auditor stated:

"Rarely [there are disagreements], because they are experts in their own field, and you have confidence in it." (Financial auditor)

The disagreements that arise are also seen to be fruitful for the profession by forcing the engaged auditors to think through and justify their practices. In that way, disagreements provide new perspectives and can generate new ways of working.

Outside the individual engagement teams, the causes gnawing at the relations of IS and financial auditors are mentioned to be timing questions and budgets. Due to the focus of the IS auditing to the autumn period as well as limited resources, financial auditors sometimes experience that they do not get the IS audit at an optimal time slot for them. This causes at times friction between the financial and IS auditors. No signs of the possible factors mitigating the intrateam relationship mentioned in the literature, i.e. the groupthink and common information effect, came up in the course of this study, from which can be gathered that they do not pose a major problem with regard to the financial auditor–IS auditor relationship in Finland.

The relationship between the financial and IS auditors was commonly highlighted as a possibility for development; there is a wish for closer co-operation. Ideas how the relationship could be improved include for example more communication in the engagements, also in the earlier phases, through which the IS auditors would become more integrated into the team. Going together to the client more often is offered as one solution. Also rotation inside the audit firm is suggested, both from the IS audit side to the financial audit side, and vice versa. This would increase the mutual understanding and appreciation of each other’s work. As one IS auditor expressed:

"[That they would understand] that we are not stealing the ever smaller audit budgets, but rather striving towards increased effectiveness." (IS auditor)

Although the interviewees agree that the relationship and co-operation between the IS and financial auditors has improved over the years, there are still some potential improvement areas according to the interviewees. The most commonly mentioned are summarized below in Figure 7. These include for example better timing of the IS audit, better communication, better level integration in the audit engagement team, and better understanding of each other’s domains. They have been discussed in more detail in their respective sections (see Sections 4.2.1-4.4.2).
Figure 7. The Improvement Areas with regard to IS Audit as a Part of the Financial Audit Process.

"Because the financial auditor is not an IS auditor, they could sometimes communicate more and get new perspectives on whether this could be done in some other way." (Financial auditor)

Also outside the individual audit engagements, more communication between the financial and IS auditors is desired: updates on what is new, what is coming, what should be taken into account. Finally, the interviewees commented that in the past, the IS audit was more of a separate engagement than an integral part of the financial audit process, also with regard to the communication in the process. Despite the fact that some feel that the communication is still not on a satisfactory level, it is seen to have improved significantly in the past years.
“But it is now woven together in the same thing. We are in contact regularly, and have meetings in the beginning, middle and end, too. Otherwise it [IS audit] will get out of hand. For it to assist the financial audit, it has to be managed.” (Financial auditor)

4.5 Additional Analysis

To increase the credibility of this study (see Lincoln & Guba 1985), the interviewees were asked seven questions of their level of agreement with the following statements:

1. IS audit is an essential part of the financial audit.
2. IS audit is becoming more important.
3. The amount of duties performed by the IS auditor in the financial audit process is suitable.
4. The auditing of general IT controls is important.
5. A finding of a weakness in general controls is likely to affect the scope of the audit.
6. A finding of a weakness in application controls is likely to affect the scope of the audit.
7. Financial auditors and IS auditors form a uniform audit team in an audit engagement.
Table 2. Interviewees’ Responses Regarding IS Auditing.

1. IS audit is an essential part of the financial audit.

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<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>Financial auditor</td>
<td>1</td>
<td>7</td>
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<td>IS auditor</td>
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2. IS audit is becoming more important.

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<th>Strongly Disagree</th>
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<td>Financial auditor</td>
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<td>IS auditor</td>
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3. The amount of duties performed by the IS auditor in the financial audit process:

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<th>Could Be Strongly Decreased</th>
<th>Could Be Decreased</th>
<th>Suitable</th>
<th>Could Be Increased</th>
<th>Could Be Strongly Increased</th>
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<tbody>
<tr>
<td>Financial auditor</td>
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<td>5</td>
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<td>6</td>
<td>1</td>
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<tr>
<td>IS auditor</td>
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4. The auditing of general IT controls is important.

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<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>Financial auditor</td>
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<td>IS auditor</td>
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5. A finding of a weakness in general controls is likely to affect the scope of the audit.

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<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
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<th>Agree</th>
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<tbody>
<tr>
<td>Financial auditor</td>
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<tr>
<td>IS auditor</td>
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<td>4</td>
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6. A finding of a weakness in application controls is likely to affect the scope of the audit.

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<tr>
<th></th>
<th>Strongly Disagree</th>
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<tbody>
<tr>
<td>Financial auditor</td>
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<tr>
<td>IS auditor</td>
<td>1</td>
<td>5</td>
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7. Financial auditors and IS auditors form a uniform audit team in an audit engagement.

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<th>Strongly Disagree</th>
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<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<td>Financial auditor</td>
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<td>4</td>
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<td></td>
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<tr>
<td>IS auditor</td>
<td>3</td>
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</table>
Table 2 presents interviewee’s responses to the questions. Responses are grouped by auditor type (financial or IS auditor) and respective opinion. All the interviewees, whether IS or financial auditors, agree that the IS audit is an essential part of the financial audit and that it is becoming more important. All IS auditors feel that the amount of duties that the IS auditor performs in the financial audit process could be increased, whereas three out of eight financial auditors feel that it is suitable as it is. Both financial and IS auditors agree that the auditing of general IT controls is important. Financial auditors are somewhat more likely to agree that a weakness in general controls will affect the scope of the audit than are IS auditors, which is in line with the doubts about the importance of general IT controls testing expressed by IS auditors (see section 4.3.2). Both generally agree that a finding of a weakness in application controls is likely to affect the scope of the audit. The last question regarding the team cohesion divides the financial and IS auditors. Interestingly, all the auditors that disagree are from the audit firms where the IS audit function is not organized in connection with the financial audit function, suggesting an impact of the organization position on the group cohesiveness.

The responses of the small-sized survey were in line with the answers received in the interview. In the interview, however, the nuances of the answers came up; these matters are not always unambiguous. For example, regarding statement number 7 “Financial auditors and IS auditors form a uniform audit team in an audit engagement”, many interviewees expressed opinions like “it depends” and “not always”, but nevertheless replied “agree” or “strongly agree” in the survey. This illustrates the added value that is achieved with the face-to-face interviews compared to a survey.

The responses in Vendrzyk and Bagranoff’s (2003) study were very similar to the responses received in this study despite the difference in time and country: A majority of IS and financial auditors feel that IS audit is becoming more important; financial auditors are more likely to agree that a finding of a general control weakness is likely to affect the scope of the audit than are IS auditors; and both agree that a finding of a weakness in application controls is likely to affect the scope of the audit.

4.6 Summary

The bigger the audit engagement, the more likely is an audit strategy that relies on internal controls. In these cases the information systems cannot be circumvented with substantive procedures, and an IS auditor is needed to verify the IT controls. Typically, the audit
engagements that include IS auditors are for clients with a substantial number of audit hours budgeted; those that have a large number of transactions; listed companies; companies under SOX legislation; those that have big, complicated IT systems; companies whose operations are very dependent on the IT systems; and/or that operate on a certain industry (e.g. banks, insurance companies, finance establishments).

The typical audit process from the IS audit point of view comprises of the following phases: Being part of the planning and risk assessment, performing the tasks allocated to them (ITGC testing, application controls testing and/or data analysis) and reporting the findings to the financial auditors. The process is summarized in Figure 6 in Section 4.4.1. The planning begins usually in the spring after the previous year’s audit is finalized, and optimally the IS auditor would be a part of it in order for the IS audit to be linked to the goals of the financial audit. The situation differs, however, among the Big 4 firms, and also inside the firms depending on the team and client in question.

Depending upon when the planning is started, the actual IS audit work begins just before the summer holiday season or in the autumn. Traditionally, the IS audits have been concentrated to the autumn, which is a problem brought up by almost all interviewed IS auditors. Methodological requirements as well as practicality suggest that the earlier the IS auditors complete their tasks, especially the testing of general IT controls, the better it assists the financial audit, but this is not always achieved. After testing the general IT controls, the IS auditor can help the financial auditor by testing the application controls, and/or doing different kinds of computer-assisted data analysis, if assigned by the financial auditor. However, the main duty of the IS auditors in Finland remains the testing of the general IT controls, covering typically 75-80 % of their work load in the audit engagements. Many auditors emphasize that the focus should lie, and has also been shifted, more towards testing the application controls and helping in the data analysis, which would bring maybe more direct advantages to the financial audit. After the IS auditor has completed his/her tasks, the results and findings are communicated to the financial auditor; usually the IS auditors also write a report on their findings.

The majority of the interviewees, both the financial and IS auditors, are of the opinion that the IS auditing should be used more in audit engagements to increase efficiency. It is seen important to actively search for new ways for IS auditors to be of assistance, because auditing the computer and with the computer is faster than manually going through folders. Presently, the IS auditing is estimated by the interviewees to cover a 5-15 % proportion of the engagement hours. The impact of the IS audit to the work load of the financial auditor is not clear. On the one hand, if the IS audit succeeds, it reduces the amount of work that the
financial auditors have to perform. On the other hand, testing of ITGC’s was not seen to have a direct impact, partly because the financial auditors were not seen to be able to utilize the results.

Thus, the financial auditor’s IT skills are important with regard to the usability of the IS audit findings. Deficiencies in financial auditors’ IT skills can affect audit quality, if the auditor does not understand where to target the audit procedures. The interviewed financial and IS auditors agree that financial auditors do not have to be very technical, but that they have to understand the basics regarding IT and the logic behind the most common ERP systems. IS auditors emphasize that the IT skills and understanding of financial auditors have a considerable impact on their work. The interviewed financial auditors have not received much IT training during their university education, and have rather been trained on the job and through (internal or external) professional training. Some feel that there is a sufficient amount of training arranged for financial auditors regarding IT, while others would desire more training. The financial auditors and IS auditors also agree that, at present, the IT skills of the financial auditors are not always on a satisfactory level. Many interviewed auditors are, however, positive about the future.

With regard to the IS auditor’s skill set, the interviewees emphasize the understanding of both business and information systems, which is considered to be far more important than pure technical knowledge. In addition, the role of the IS auditor in the engagement is considered crucial; the role has to match the knowledge base of the IS auditor. At present, some financial auditors nonetheless feel that the IS auditors’ knowledge of financial auditing is not on a desired level. One problem seems to be that IS auditors are not educated anywhere in Finland; it is difficult to find persons with a suitable educational background. Some financial auditors feel that this also comes down to the IT skills of financial auditors; if financial auditors themselves would be capable of for example analyzing data differently, then the IS auditors would not necessarily be needed as much.

The findings of this study indicate that good communication is an essential factor in the effective conducting of the IS audit in connection with the financial audit, and has implications for the perceived quality and usability of the IS audit. For the teamwork and communication to be optimal in the audit engagement teams, the interviewees emphasize the understanding of each other’s domain. During the audit process, IS and financial auditors typically communicate both formally and informally. There are certain “mandatory” communication points according to the accounting firms’ methodologies, but how these are followed varies in practice. Typically, in bigger engagements the communication is more frequent, in smaller ones less so. Also the planned amount of the IS audit in the engagement
is significant; if the IS audit plays a major role in the particular audit engagement, than there is naturally also more communication between the IS and financial auditors.

The present level of communication divides the opinions of the interviewees; some feel that it is on a good level, others would desire significantly more communication. Factors that are seen to have an impact on the level of communication are the schedule pressures of IS auditors in the fall, the actual physical location of the IS audit function, and the organizational position of the IS audit function (is it organized in connection with the financial audit function or not). The majority of the interviewed financial auditors are of the opinion that the IS audit function should be a part of the financial audit function, because it is seen as an obvious support function to the traditional financial audit. Other favorable arguments, why the IS audit should be a part of the financial audit function include for example the similarity of the work with the laws and regulations, increased knowledge of the client, potentially closer co-operation and communication as well as better utilization of skills and knowledge of each other.

There are sometimes differing opinions both inside and outside the audit engagement teams between the IS and financial auditors, but this is not a common phenomenon. Reasons for disagreement are for example timing questions and budgets. When asked whether the IS and financial auditors feel like they form a uniform audit team while in an engagement, the most common answer was: “It depends.” In smaller engagements the situation seems to be more challenging than in the bigger ones, and is also seen to have improved over the years. All in all, the relationship between financial and IS auditors was commonly highlighted as a possibility for development; there is a wish for closer co-operation.

Both the IT and financial auditors are unanimous that the IS audit is useful for the financial audit; it is seen to make the audit process more effective by allowing financial auditors to rely on controls more thus reducing the amount of manual work needed. Also, both the financial and IS auditors highlight the benefits of the IS audit for the customer. For the benefits of the IS audit to the financial audit to be realized, the tasks of the IS auditors have to be carefully planned and focused on the right issues. The IS auditors emphasize the importance of financial auditors’ understanding what the IS audit is and how it can help the financial audit. Financial auditors in turn express a desire for more understanding and proactivity from the IS auditor’s side; more consideration of what their work and its findings actually mean for the financial audit.

The IS auditors sometimes feel that not all their tasks are appreciated as highly by the financial auditors, for example the relevance of the testing of the general IT controls for the
financial audit is not as evident as it is with the application controls or data analysis. Expressions like “necessary evil” were sometimes used to describe the ITGC audit. This concern is however not reflected in the answers of the financial auditors: albeit they feel that the biggest benefits of the IS audit lie in the more efficient ways of getting audit evidence, they also highlight the need to be able to trust the basis, the IT environment. The financial auditors do not, however, understand the purpose of all the ITGC audit measures that the IS auditors take for the financial audit, such as checking disaster recovery plans or back-ups. It is suggested that the whole concept of the ITGC testing is thought through more carefully. Also, many interviewees highlight that, in the future, the IS auditing should change more towards data analysis. All in all, the IS auditors do not always feel that the financial auditors appreciate their work, but feel that the situation has improved. They point out that through increasing the awareness and understanding the appreciation will grow.

Although the interviewees agree that the relationship and co-operation between the IS and financial auditors has improved over the years, there are still some potential improvement areas according to the interviewees. The most commonly mentioned areas include for example better timing of the IS audit, better communication, higher level of integration in the audit engagement team, and better understanding of each other’s domains.

In summary, the auditing of information systems is seen essential in connection with financial audit by both the financial and IS auditors due to the pervasive nature of IT in the organizations nowadays. The question whether it should be an IS auditor that performs the work divides the interviewees: some feel that financial auditors are becoming more like the IS auditors, while others feel that the IS auditors are always going to be needed, and the requirements for financial auditors’ competence are already wide enough. Regardless, many of the interviewees feel that the IS auditing and financial auditing will become closer; that financial auditing will more utilize the IS type of audit.

The interviewees were asked several questions in the end of the interview to check their level of agreement with certain statements. Table 2 in Section 4.5 presents the responses. All the interviewees, whether IS or financial auditors, agree that the IS audit is an essential part of the financial audit and is becoming more important. All the IS auditors feel that the amount of duties that the IS auditor performs in the financial audit process could be increased, whereas three out of eight financial auditors feel that it is suitable as it is. Both financial and IS auditors agree that the auditing of the general IT controls is important. The financial auditors are somewhat more likely to perceive that a weakness in general controls could affect the scope of the audit than are IS auditors. Both auditor types generally agree that a finding of a weakness in the application controls is likely to affect the scope of the audit. The
question regarding the team cohesion divides both the financial and IS auditors. Interestingly, all the auditors that disagree that the financial auditors and the IS auditors form a uniform audit team in an audit engagement are from the audit firms where the IS audit function is not organized in connection with the financial audit function, suggesting an impact of the organization position on the group cohesiveness.
5 Analysis of the Findings

This chapter discusses the findings of the study by contrasting the theoretical framework and previous research to the results of the empirical study. The objective of this study was to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between the IS and financial auditors in the audit process. To address these issues, the main objective of the study was divided into three specific research questions: (1) What is the role of the IS auditor in the financial audit process?; (2) How is the co-operation between the IS and financial auditors perceived by them?; and (3) What is the perceived value-added of the IS auditing in the financial audit process? The findings of this study will be discussed and analyzed below with regard to these research questions, and they form the sub-sections for this chapter. Finally, a synthesis of the theoretical framework and empirical results is presented.

5.1 The Role of the IS Auditor in the Financial Audit Process

The bigger the audit engagement, the more likely is an audit strategy that relies on internal controls. In these cases the information systems cannot be circumvented with substantive procedures, and an IS auditor is needed to verify the IT controls. Typically, the audit engagements that include IS auditors are for clients with a substantial amount of audit hours budgeted; those that have a large number of transactions; listed companies; companies under SOX legislation; those that have big, complicated IT systems; whose operations are very dependent on the IT systems; and/or that operate on a certain branch of industry (e.g. banks, insurance companies, finance establishments). These factors are similar to the ones mentioned in previous research, see for example Curtis et al. (2009), and in the professional standards. Nevertheless, the interviewees emphasize the fact that on more than one predetermined client or engagement characteristic, the inclusion of an IS auditor in a financial audit engagement is based on risk assessment.

Hunton et al. (2004b) suggested that financial auditors are overconfident about their ability to assess risks in spite of the complexity level of the IT environment, and were therefore unlikely to seek the help of an IS auditor. Such a conclusion cannot be drawn from the results of this study. However, the IT competence of the financial auditors is found to vary in practice, and is not always considered to be on a sufficient level. Hence, this suggests that the financial auditors are not necessarily up-to-date about when an IS auditor should be
consulted, which in turn can have negative implications for the inclusion of IS auditor in the audit engagement.

Bagranoff and Vendrzyk (2000) found that the role of the IS auditor in the financial audit process was to support the financial auditors by doing control evaluation work. There was a shift in the IS auditor’s work from focusing on general IT controls to also testing application controls, while in some firms IS auditors were still concentrated solely on ITGC testing. Interestingly, although the article by Bagranoff and Vendrzyk is over ten years old, the results of this study bear a resemblance to them: the duties of the IS auditors are still a mixture of general and application controls while the focus remains on general controls. The findings of this study also indicate that, at present in Finland, there is a shift towards the IS auditors increasingly testing application controls, and the significance of ITGC testing is decreasing. This ten-year time lag may be due to the fact that the IS audit practice has been launched later in Finland than in the USA, and thus the development lags behind to some extent.

Thus, the findings of this study are in line with previous research, in that the main duty of IS auditors is to ensure that the general IT controls are in place in the systems that produce the financial data. The results indicate that in all Finnish Big 4 firms the focus of the IS audit lies on the above-mentioned aspect; typically 75-80 % (ranging from 50 % to over 90 %) of the IS auditors’ workload comprises of testing ITGCs. Also the other duties of IS auditors mentioned in the literature, see for example Merhout & Havelka (2008), were present: the IS auditor can also assist the financial auditor in testing automated application controls, making process walkthroughs, and/or analyzing data with different kinds of software or tools. However, these duties are not as frequent as the ITGC testing, and are more dependent on the particular engagement. All in all, the duties of the IS auditors in the audit engagements are quite similar among the Big 4 companies in Finland. That said, some firms utilize IS auditors for more tasks than others. For example data analysis divides the companies: in some companies, data analysis (e.g. with the help of ACL) is done by the financial auditors, in others it is a duty of the IS auditors. Technically, as some interviewees point out, for example ACL analysis is not IS auditing but rather taking advantage of computer technology in auditing. Also, some financial auditors point out that the ACL analysis was a part of the education of accounting professionals in universities still some ten years ago, and was a basic duty for financial audit assistants. Now it has been “reinvented” and is increasingly carried out by the IS auditors.

One major finding of this study relates to the timing of the IS audit. According to the audit standards, the scope of the audit has to be changed according to the possible findings of the
IS audit, which makes it essential for the IS auditors to conduct their work (especially general IT controls testing) before the financial auditors conduct theirs as the findings of the IS auditors guide the work of financial auditors. At present, this situation is not, however, always achieved in practice in Finland. This is because the IS audits are concentrated very heavily to the autumn period. The IS auditors are considerably busy during the autumn, a part of the audit engagements (mainly the smaller, not prioritized) are, albeit involuntarily, postponed so that factually and methodologically it can be too late for the financial auditors to do anything regardless of the findings of the IS audit. In addition, the concentration of the IS audit to the fall is a genuine problem for the IS auditors and significantly complicates resource allocation, thus restraining the development of the IS audit practice.

Consistent with the findings of Venderzyk and Bagranoff (2003), the interviewed financial and IS auditors have similar perceptions about the future job description of the IS auditors; both believe that the focus of the IS audit will continue to be on controls evaluation with a mix of general and application controls. According to Venderzyk and Bagranoff (2003), the IS auditors perceive the audit of the general controls to be less important than do financial auditors, which was also found in this study; the IS auditors have reservations about the importance of the ITGC testing. Overall, Venderzyk and Bagranoff (2003) reported that the IS auditors perceive themselves to be more than just a financial audit support function, whereas financial auditors feel that the growth in the IS audit practice will come from the need for services in connection with the financial audit. This was also consistent with the findings of this study: Financial auditors perceive the IS audit merely as a support function, and do not seem to be aware that only approximately half of the work that the IS auditors do related to financial audit support.

Many interviewees point out that the percentage of the audit engagement’s total hours (approximately 5-15 %) and, by implication, the number of hours that the IS auditors spend on audit engagements is low in Finland, and could be increased. Examples of the duties mentioned in which the IS auditors could do more in assisting the financial auditors include for example identifying and verifying the application controls and process controls, running reports, and assisting more in data analysis. For example the application controls are presently often tested by the financial auditors. Some IS auditors argue that financial auditors do not necessarily possess the adequate competence for this. One financial auditor affirmed this doubt, which is an interesting finding. It raises a question: Is the competence of the financial auditors sufficient for all the tasks that they are presently performing, taking into account the pervasiveness of IT? At the same time, however, many interviewees acknowledge the demand for increased knowledge and skills, if the IS auditors were to begin
performing more application control testing. Similar to the findings of Majdalawieh & Zaghou (2009), some of the interviewed financial auditors felt that the IS auditors were not considered the best ones to conduct these controls tests because they might have less knowledge of the business processes. All in all, the tasks and roles in the process boil down to the skills of the financial auditor and the IS auditor; who is competent to perform what tasks?

Similar to the findings of Hunton et al. (2001), budgets were found to negatively affect the willingness of the financial auditors to engage the IS auditor in the audit engagements. The situation is challenging in the auditing business; fees decrease and at the same time requirements for the audit increase. Especially when the IS audit function is not a part of the financial audit function, the actual revenue is transferred into another function, which was seen to further reduce the willingness to allocate more hours to the IS audit. At present, as some IS auditors point out, the budget is often even insufficient to perform all the measures that the methodology would require. The question of budgets is also closely related to the question of whether the IS auditors could do more work in the audit engagements. The majority of the interviewees, both the financial and IS auditors, are of the opinion that the IS auditing should be used more in the audit engagements in order to increase efficiency. Furthermore, it is seen to be important to actively search for new ways for the IS auditors to be of assistance, because the auditing of computer and with the computer is faster than manually going through folders. As the benefits of the IS audit for the financial audit are potentially significant, some solution should be sought with regard to the budget issues.

One of the main findings of this study regarding the role of the IS auditor in the financial audit process is that it is essential that the IS auditors are involved already in the risk assessment and planning phase of the audit. The interviewees highlight that otherwise the goals of the IS audit are not linked well enough to the goals of the financial audit. The presence if the IS auditor in the planning phase is also seen to have implications for the further integration and level of communication in the process. In summary, the role of the IS auditors in the financial audit process is ambiguous, depending much of the accounting firm in question. In some firms, the IS auditors are already an integral part of the audit process, and participate in close co-operation with the financial auditors in many phases of the audit. In other accounting firms, the IS auditors are still fairly independent, and sometimes they even feel like they are working on a separate project. Also the tasks in the process vary: In some firms there has been a shift from focusing on the general IT controls to testing the application controls, in other firms, however, the IS auditors are still
concentrating on the general controls. Thus, there is a substantial amount of variation in the extent to which the accounting firms have adopted the IS audit as a part of the financial audit process.

5.2 The Co-operation of IS and Financial Auditors

In order for the roles and duties in the process to be divided optimally, and the co-operation to be as fruitful and fluent as possible, the IS and financial auditors should form a cohesive team. This in turn requires active communication. In order for the teamwork and communication to be optimal in the audit engagement teams, the interviewees emphasize the need for understanding each other’s domain. As Brazel (2008) pointed out: investigating the financial auditor’s relationship with the IS auditor requires taking into account both the competence of the IS auditor and the IT expertise possessed by the financial auditor.

The financial auditors mention that the significance of the financial auditors’ IT skills has been emphasized during the past few years. They also acknowledge that deficiencies in them can affect audit quality, as IT has grown to essentially impact the rightness of financial statements. The financial auditor must be able to utilize the work of the IS auditor, as he/she is also responsible for the supervision of it when an IS auditor is engaged in the audit team. The results of this study suggest that, at present, the financial auditors do not always understand what the IS auditor does in practice. This is also a matter of active communication; the IS auditors have to be integrated in the team from the beginning of the process, and the goals of the IS audit have to be made clear for all team members. Hence, concurrent with Brazel (2008), the findings of this study suggest that even when including specialized skills in the audit engagement, the audit quality may be dependent on the skill set of the financial auditor. Some interviewees point out that the significance of IT is so considerable in the financial audit settings of today that the IT skills of the auditor should be considered already in the recruiting phase.

Hence, in order for the co-operation and communication to be optimal, both the business process knowledge of the IS auditor and, vice versa, the IT skills of the financial auditor, have to be at a sufficient level. The findings of this study suggest that this is not always the case; the IS auditors’ knowledge of the financial auditing is not always on a desired level. Thus, Brazel’s (2008) finding that IS auditor’s competence varies in practice is supported. In general, the interviewees stated that the IS auditors are competent, but that it is in many
cases limited to their own field of expertise, i.e. to technical matters. The problem seems to be that the IS auditors have to possess knowledge on a variety of subjects, as indicated by Strous (1998) as well. In addition, as the findings indicate, because there are not altogether very many IS auditors in Finland, an IS auditor have to possess expertise in many different systems and cannot be completely specialized.

The IS auditor turnover is considered a problem in Finland in some of the Big 4 firms. Similar to Brazel (2008), it was found that accounting firms lose competent IS auditors to companies seeking to improve their own internal controls. In addition to consuming unnecessary resources, the IS auditor turnover (possible financial auditor turnover as well) affects the level of cohesiveness in the audit teams; if the members of the team constantly change, a "one-team" situation is not achieved. This could in turn have negative implications for the audit efficiency. Asare and McDaniel (1996) argue that when working together on multiple engagements, an audit team develops into a cohesive group, which in turn reduces the uncertainty inherent in working with less familiar team members, and can lead to better audit efficiency.

However, a cohesive group does not necessarily implicate an effective group. Reflexivity is argued to be the key ingredient in making a cohesive group effective. Reflexivity is the extent to which the group reflects about factors affecting it, for example objectives, strategies, processes and social dimensions of the group work. (Fincham & Rhodes 2003: 197) Thus, reflexivity in the IS audit–financial audit setting implies the same as is meant by “active communication” by the interviewees: the dynamic team discussions about the objectives, the audit plan, the conducting of the audit, the results and further measures etc. In addition, through reflexivity, the knowledge of the professionals involved can be improved which further enhances the synergy effect (i.e. that the group outperforms its best members).

One of the main findings of this study is that sufficient communication in the IS auditor–financial auditor relationship is essential for a successful and effective financial audit. The communication is present throughout the process at many different stages. Communication is essential for the financial auditors to understand what the IS auditors do in order to mitigate a possible expectation gap. As a result of an effective communication of the mutual goals, on the one hand, the IS auditor is able to perform the needed measures, and on the other hand, does not do unnecessary measures from the audit point of view. Many IS and financial auditors highlight the need for effective communication of the IS audit results, and together thinking about the effects that they have on the audit and the measures that should be undertaken. The level of communication varies, depending partly on the Big 4 firm in question, and partly on the particular team inside the firm. In general, if the role of the IS
audit is planned to be extensive in the financial audit, there is more communication between the financial and the IS auditors. Although the communication is seen to have improved over the years, some interviewees still feel that it is the single most important factor affecting the use and usability of the IS audit. Thus, the improving of the communication between the IS and the financial auditors is seen as one major concern regarding the whole process of the IS auditing in connection with the financial audits.

No signs of the possible factors mitigating the intrateam relationship mentioned in the literature, i.e. the groupthink and common information effect, came up in the course of this study, from which can be gathered that they do not pose a major problem with regard to the financial auditor–IS auditor relationship in Finland. Conflicts (rather referred to as disagreements by the interviewees) are not frequent, and the ones that arise are usually task conflicts (differences in viewpoints and opinions about the task at hand). These conflicts were, similar to the findings of several previous studies (see e.g. Thompson & Pozner 2007: 922 and Jehn & Mannix 2001) found to have a positive relation to the task performance: The conflicts (or disagreements) are seen fruitful for the profession by forcing the interviewed auditors to think through and justify their practices. Therefore, conflicts provide new perspectives and can generate new ways of working.

Also processual factors seem to impact the level of communication. The timing of the IS audit is essential; if the IS audit is conducted during the busy season, the communication suffers as a result. Also the ways of working are significant. At present, due to schedule reasons, IS auditors and financial auditors do not often visit the client simultaneously. Many say, however, that they would prefer visiting the client at the same time, because it would enhance the communication and help creating a feeling of one audit team. Furthermore, it is not always clear who has the responsibility for the communication. Some feel that, as the audit process is financial auditor driven, also the communication should be so. At the same time, some IS auditors state that when they are active on their part, they also get responses. The optimum seems to require activity from both sides. Thus, the communication skills of engagement team members play a major role.

The organizational position of the IS audit function rises as one of the most interesting elements in this thesis. It is seen to have a significant impact on the communication and cooperation between the IS and financial auditors. In two of the studied Big 4 firms the IS audit is part of the financial audit function, in two not (it is a part of the advisory services). In the other of the firms that has the IS audit function as a part of the financial audit function, it has been very recently changed. Many financial auditors strongly feel that the IS audit function should be a part of the financial audit function as it is considered a clear
support function. Nevertheless, as the findings of this study indicate, only approximately 50% of the assignments of the IS audit function come from financial auditing. The other half of the work originates from different kinds of separate IT-related advisory engagements, which in turn would support the organization in the advisory services.

In general, the auditors in firms where the IS audit function is organized together with the financial audit function seem more content with the level of co-operation. Especially in the accounting firm in which it has been recently changed, the new organization is expected to enhance the communication and cohesiveness of the IS and financial auditors. Also the synergy aspect is highlighted; when the IS auditors are a part of the financial audit function, the knowledge and skills of one another can better be utilized.

In the companies with the functions organized separately, many interviewees mention that they do not know people personally from the other function, which is seen as a barrier for communication. Although some auditors state that the organization should not be of significance because the over function line co-operation should work as easily as inside functions, some auditors feel that the boundaries are in practice still very visible, despite the active talk about co-operation over function lines. Especially in the Big 4 firms that do not have the IS audit function organizationally as a part of the financial audit function, part of the revenue for the audit engagement is actually transferred outside the financial audit function, which is sometimes seen to reduce the willingness to allocate hours to the IS auditors. One factor that can reduce the willingness even more is the result-based rewarding; the result of your function directly affects your level of compensation. In those companies where the IS audit is a part of the financial audit function, it was seen to facilitate the communication.

The organizational position of the IS audit function seems to have an impact on the cohesion of the audit engagement team as well. The auditors in the companies with separate organization of the IS audit and financial audit functions feel more often that financial auditors and IS auditors are not in a “one-team situation”, i.e. that the financial and IS auditors do not form a uniform audit team while working on an engagement. This was also visible in the survey questions: All the auditors that disagree with the statement that the financial and IS auditors form a uniform audit team are from the audit firms where the IS audit function is not organized in connection with the financial audit function. All these findings regarding the implications of the organizational position of the IS audit function thus support Brewer’s (2007: 711) findings about the ingroup–outgroup differentiation, i.e. the own group, organizational function, is favored above other groups.
The factors enhancing intergroup relationships specifically at work settings are summarized by Fincham and Rhodes (2003: 204–205). These include superordinate goals, more social contact and cooperation, reducing the significance of group membership and minimizing competition for resources. The suggestions of the IS and financial auditors for enhancing the relationship of the separate IS audit function and financial audit function are in line with Fincham and Rhodes, and include for example rotation inside the company from one function to another, and more social events over the organizational boundaries. Also some mutual work-related events, such as seminars about the role of the IS audit in the financial audit, could be arranged. For minimizing the competition for resources, the problem with budgets should be tackled somehow, as mentioned earlier in Section 5.1. In the end, it is only a matter of internal pricing. On the whole, the results of this study suggest that the organization of the IS audit function in connection with the financial audit function can enhance the level of communication and lead to closer co-operation between the IS and financial auditors.

5.3 The Value-added of IS Auditing for the Financial Audit

Both the IS and financial auditors are unanimous that the IS audit is useful for the financial audit. The reasons for why the IS audit is seen useful, what are the most helpful tasks the IS auditor can perform in the financial audit process, and what is required for the benefits to be realized vary among the IS and financial auditors.

All in all, the benefits that the IS audit brings to the financial audit mentioned in previous research, (see for example Kanellou & Spathis 2011 and Hall 2000: 22) were supported by the findings of this study: If the information system is without material weaknesses, the financial auditors can rely on the output of the system. In other words, by relying on the internal controls, financial auditors can reduce the amount of substantive testing that they would need to perform otherwise. This in turn enables a shorter, less labor-intensive, and less expensive audit. Both the financial auditors and IS auditors agree that the IS audit is growing in importance. The interviewees mention that the growing use of cloud computing, mobile devices, and remote work are factors that are seen to increase the use of the IS specialists in the audit engagements. On the other hand, similar to Curtis et al. (2009), there are indications that firms are relying more on control testing performed by the client or by an independent third party, which means that the teams are doing less testing of their own. This suggests that while the use of IS audit is increasing, some duties nonetheless disappear from the tasks while the role of the IS auditors continues to evolve.
One of the main findings of this study relates to the usability of the results of the IS audit, especially with regard to the testing of the general IT controls (see also Viljanen 2010). One gets the impression that the IS auditors are indeed often engaged in the financial audits, but the financial auditors are not capable of utilizing the results of their work to the fullest. At present, the situation seems to be that regardless of what the results of the ITGC testing are, the financial auditors perform the same amount of testing. Thus, the ITGC testing does not directly reduce the work load of the financial auditor, and is sometimes considered as “the necessary evil”. On the one hand, financial auditors acknowledge, that the basis (the IT environment, the general IT controls) must be verified. The IT general controls are also mentioned as an important part of the corporate governance of which the financial auditor has to express an opinion as well. On the other hand, many auditors emphasize that the focus should lie, and has also shifted, more towards testing the application controls and helping in the data analysis. This could bring more direct advantages to the financial audit. The IS auditors also feel that the financial auditors value their work more, if they do something that tangibly reduces the work load of the financial auditors, i.e. something else than the ITGC testing. The solution could be, as suggested by the interviewees, that the testing of ITGCs would be more thoroughly considered: is it really relevant in a particular case, and should the whole template be followed through. It appears that, at present, the ITGC testing is an “automatic” responsibility, and there has not been any consideration whether for example all the process areas of the controls need to be covered in each case.

One important matter that affects the perceived usefulness of the IS audit is found to be, similar to Dunmore (1989) and Brazel (2008), the stretching of the IS audit resources over more engagements due to the high demand for these services. Also the schedule bias (IS audit is concentrated in the autumn) is seen to have a negative impact. One of the main issues for the IS audit function seems to be not to be included in too small client engagements. The results of this study suggest, that in those cases, the inclusion of an IS auditor into the engagement is neither beneficial for the financial audit nor meaningful for the IS auditor. The IS auditor is allocated few hours, in which he/she does not have the time to do anything meaningful, and consequently the financial auditor does not perceive any benefit from the IS audit.

Thus, one of the most important issues to increase the usability of the IS audit is careful planning; the role of the IS auditor has to be planned so that it best supports the financial audit. Once again, the need for adequate skill sets for both the financial and IS auditors is essential. The IS auditors highlight the importance that the financial auditors understand what the IS audit is, and how it can help the financial audit. The financial auditors in turn
express a desire for more understanding and proactivity from the IS auditor's side; more consideration of what their work and its findings actually mean for the financial audit. Indeed, the most highlighted factors associated with IS audit quality, according to Stoel et al. (2012), differed between IS and financial auditors. The financial auditors highlighted business process knowledge, accounting knowledge and audit skills, whereas the IS auditors appreciated auditor experience with the auditee, IT and controls knowledge, and planning and methodology. All these factors were highlighted in this study, but a clear division between the financial and IS auditors was not noted. For example, both the IS and financial auditors point out that in IS auditing (especially when done to support the financial audit), the technical knowledge of the IS auditor is not very essential. Similarly, both the financial and IS auditors acknowledge the importance of the business process knowledge of the IS auditor.

Interestingly, both the IS and financial auditors mention the benefits of the IS audit to the client. The IS auditors’ work often touches upon data protection, and as an end product of the IS audit there can be good recommendations and development ideas for the client to enhance their data security. In addition, the client management is increasingly experienced to ask for systems audit due to the pervasive nature of IT in the companies of today.

There are still several unresolved issues facing the IS and financial audit professions. The key problem seems to be how to most efficiently tackle the challenge of the complex information systems. Will financial auditors need more training in IT; or will IS auditors become an integral, permanent part of the audit engagement team? (Hunton et al. 2004b)

What are the implications for audit efficiency if financial auditors allocate even more internal controls testing to the IS auditors compared to if more training is provided to the financial auditors in how to assess IT risks and test IT controls (Brazel 2008)?

All in all, the findings of this study imply that the role of the traditional financial audit is changing; more IS-type of auditing is going to be done. Both the financial and IS auditors agree that, at present, the pervasiveness of IT is insufficiently accounted for in the financial audit process. However, there is no general consensus about the future role of the IS auditor. Some feel, similar to the respondents of Vendrzyk and Bagranoff's study (2000), that the IS auditor and financial auditor will merge into one professional, whereas some feel that both are needed, but financial auditors could do the smaller, simpler engagements themselves. Some financial auditors argue that the requirements for their competence are already so wide that they consider the IS audit the best option to tackle the problems that the ever more complicated IT systems pose for financial auditing. The finding of Vendrzyk and Bagranoff (2000) that the financial statement audit would become almost totally an
assessment of the company’s information systems, and that the IS audit would take over the audit, did not receive support as such. The interviewees agreed that the IS-type of auditing will grow in importance, but that the most important skills for the financial auditors to possess remain to be accounting skills, not IT skills.

Nevertheless, the results of this study indicate that there might be a need to re-consider the professional guidelines and standards with regard to how well they take into account the increased role of IT; at present, there are no formal requirements for the IT skills of financial auditors. At the same time, the standards remain to rely on the judgment of financial auditors on whether to include an IT specialist in the engagement or not. Consequently, if an auditor does not possess good enough skills in IT, how does he/she know when IT poses a risk for the financial statements and an IS auditor should be consulted? As the findings of Hunton et al. (2004b) suggested, financial auditors did not always comprehend the link between the information systems’ risk and the likelihood of material misstatement. One alternative could be that IS auditors would be explicitly required by law to be included in engagements that fulfill certain criteria.

The interviewees in this study are confident that the IT skills of the financial auditors are getting better as the new generation of auditors from the “IT boom era” begins their work. However, it seems that the IT education of future financial auditors has rather gotten worse, not better, over the years. For example, the interviewees mention that, before, the use of the ACL software was a part of the curriculum of the accounting students. At the moment, one can graduate having taken only a basic course in IT, which merely touches upon the use of the Microsoft Office tools. This is an area that should be considered and responded to in the education of future auditors.

Another educational issue that is implicated by the findings of this study is the need for education of IS auditors in Finland. There is a shortage of competent IS auditors, who would possess both the technical and business process/accounting skills needed. This is seen to be so because there is no specific education for the IS auditor profession that would combine these subjects. For example in the universities in the USA, there are separate educational programs for IS auditors. This is something to be considered, especially now that it is evident that the IS audit is growing in importance in Finland as well.

In summary, the results of this study suggest that the role of IS audit as a part of the financial audit is still evolving, as financial and IS auditors continue to develop their understanding of each other’s domain and the possibilities present in increased cooperation. The interviewees emphasize that the IS audit is still a relatively young
phenomenon, and there are numerous ways in which to further develop its role in the financial audit process, some of which are also presented as the findings of this particular study.

5.4 Synthesis

According to Pettigrew (1997), the purpose of processual research is to “account for and explain the what, why and how of the links between context, processes and outcomes”. In the case of this study the context is an audit engagement team in a Big 4 audit firm. The content is the role of IS auditors in a financial audit process, their co-operation and the value added of auditing. Furthermore, this study is concerned with aspects of actions, reactions and interactions of IS and financial auditors when co-operating towards the successful conducting of an audit process. Pettigrew (1997) underlines a holistic approach; the process has to be linked to the outcome. Thus, when studying the role of the IS audit function in statutory audits, the tasks and communication in the audit process have to be clearly linked to the outcome. In this thesis, the optimal outcome of the audit process is considered to be an effective (the objectives of the audit are accomplished) and efficient (with minimum amount of unnecessary effort and expense) audit.

Figure 8 presents the synthesis of the theoretical framework and empirical results which suggests that there are numerous factors that interact in the IS audit process and influence the outcome.
The results of this study indicate that the IS audit is sometimes more of a separate than an integrated part of the financial audit process. The results suggest that, for the teamwork and communication to be optimal between the IS and financial auditors, the IS audit function...
should be a part of the financial audit function. In that way, there would be more intercommunication also over the individual engagement team boundaries and the ingroup–outgroup setting would be mitigated. This organization would also encourage the financial audit teams to engage IS auditors without having to fear losing profits to another function. The organizational position of the IS and financial audit functions is also seen to impact the cohesion of the audit team, i.e. the accomplishment of the one-team feeling, which in turn facilitates the team work and communication in the audit process.

For the optimal conducting and outcome of the audit process, the team members need to have right roles in the engagement with regard to their skills. For example, if an IS auditor is overly technical, he/she should not be responsible for testing IT controls closely related to the business processes. Overall, the role of the IS auditor in the financial audit engagement has to be well planned. The IS audit function should not take too small client engagements; otherwise the service cannot be developed. The duties of the IS auditor have to be planned so that they benefit both the financial auditors and the customer. For example, the concept of the testing of the general IT controls has to be considered more carefully so that no unnecessary measures are done, and at the same time all the necessary assurance is acquired.

Regarding the conducting of the process, the timing of the IS audit has to be correct. At present, as the results of this study indicate, the timing is not always right given the dependence of the rest of the audit process of the findings of the IS audit. There is a clear call for improvement in this sense. In addition, the IS auditors should be included in the planning and risk assessment phase of the audit. Only that way the work they are doing is linked to the overall goals of the audit. One important factor in the process is the reflexivity among the audit engagement team. There should be active communication throughout the audit process, which is why the overall communication skills of the engaged auditors should be on a satisfactory level. The results of this study suggest that there do not often occur conflicts in the audit engagement team. However, when some disagreements arise, they are seen fruitful for the profession. Disagreements force the engaged auditors to question their methods, and as a result better ways of working can be developed.

What is seen to facilitate the communication between the IS and financial auditors, is the understanding of each other’s domains. The results of this study suggest that IS auditors would desire more IT competent financial auditors, whereas financial auditors underline the need for IS auditors to understand business processes and auditing. The lack in these skills can also have a direct impact in the quality of the audit: as IT is so pervasive in the companies of today that it has to be accounted for in the audit process. Basically, at present,
the decision of whether an IS auditor is included or not in the engagement is dependent on
the decision of the financial auditor. If he/she considers himself/herself to be competent to
handle the IT, then the IS auditor might not be engaged. Therefore, if IS auditing would be
a statutory part of the financial audit process, i.e. required by law, the inclusion of the IS
auditor into the engagements would not be dependent on the (perhaps inadequate) IT skills
of the responsible financial auditor.

In summary, all the factors discussed above were in this study found to impact the role of
the IS audit in the financial audit process and the outcomes of that process. These are the
factors to be considered when aiming to further develop the role of the IS audit in the
financial audit process and striving for an effective and efficient audit.
6 Summary and Suggestions for Further Research

In the complex information technology (IT) environment of businesses today, the evaluation of information systems has to be a part of the financial audit in order to ensure that all relevant risks and controls are being taken into account (Hunton et al. 2004a: 5). This has been recognized in the current auditing standards, which suggest that an auditor may need to seek the assistance of information systems (IS) auditors in understanding and evaluating the client’s IT controls (Curtis et al. 2009). The objective of this study was to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process.

The findings of this study indicate that IS audit as a part of the financial audit process is of growing importance and is perceived to have added value for the financial audit process. However, audit budgets are found to significantly impact the use of IS auditors in financial audit engagements. The duties of IS auditors in the audit engagements are quite similar among the Big 4 companies in Finland, but the level of usage of the IS audit differs. One major finding of this study relates to the timing of the IS audit; it is not always neither practically nor methodologically correct.

Reservations about the IT skills of financial auditors as well as the business process skills of IS auditors are evident. Hence, it is essential that the duties they perform in the audit process match their skills. The importance of communication in the IS auditor–financial auditor relationship for the successful and effective conducting of the financial audit is one of the main findings of this study. In addition, the organizational position of the IS audit function rises as one of the most interesting findings of this thesis. It is seen to have a significant impact on the communication and co-operation between the IS and financial auditors.

This study contributes to the literature by providing researchers with information on the impact of IS auditing on the traditional financial audit practice in Finland. The findings of this study imply that the role of the traditional financial audit is changing; more IS-type of audit is going to be done. However, there are still several unresolved issues facing the IS and financial audit professions. The key problem seems to be how to most efficiently tackle the problems that complex information systems pose. Is training the financial auditors more in IT so that they can themselves handle the IS auditing the answer? Would taking the IS auditors to an integral (maybe statutory?) part of the financial audit process work? There is no general consensus on this issue among the interviewees. However, the documenting of the perceptions of IS auditors and financial auditors on their roles and co-operation in audit
engagements in this study gives the profession valuable information on the current issues, which is one of the most important contributions of this thesis. When the issues are identified, it can help practitioners to improve the quality and the efficiency of the audit process.

Furthermore, the results of this study have implications for the education of the financial and IS audit professionals in Finland. The interviewees in this study were confident that the IT skills of the financial auditors are getting better as the new generation of auditors begins their work. However, it seems that the IT education of future financial auditors has rather gotten worse, not better, over the years. For example, the interviewees mention that, before, the use of the ACL software was a part of the curriculum of the accounting students. At the moment, one can graduate having taken only a basic course in IT. This is an area that should be considered and responded to in the education of future auditors. In addition, IS auditors per se are not educated anywhere in Finland at the moment, and thus there is a shortage of competent IS auditors who would possess both the technical and business process skills needed. This, too, is something to be considered, especially now that it is evident that the IS audit is growing in importance in Finland as well.

The mapping of the role of the IS audit function in statutory audits in Finland is only the beginning and raises a number of potential further research questions in this area. For example, all the interviewees were Big 4 accounting firms. Thus, this study presents only a partial picture of the role of IS auditors in statutory audits in Finland, even if Big 4 firms possess approximately a 90 percent market share in the audit business (Andersson 2010: 59). As for example Axelsen et al. (2011) reported that the practices and clientele of non-Big 4 firms significantly differs from Big 4 firms’, it would be interesting to investigate the situation in non-Big 4 firms: How do they tackle the pervasiveness of IT in their audits? Do they utilize IS auditors (in-house or outside)?

In this study, the audit process was approached in retroperspective. Therefore, it significantly differs from a longitudinal perspective to a process in which the researcher gathers data and/or participates in the studied process in and throughout time. Different aspects of the audit process and co-operation could emerge with a longitudinal study. Thus, this kind of approach could be beneficial in further research.

As communication turned out be one of the crucial determinants of the usability of the IS audit, it would be interesting to study this matter more closely. What are the communication practices and how could they be improved? Further, as the planning of the IS audit seems to play an important role, research aiming to map its problems and bring
possible solutions could be beneficial. Also the other factors that rose as significant for the successful conducting of the IS audit in connection with the financial audit in this study (see Section 5.4) could be studied more closely and tested with the help of quantitative analysis.

Furthermore, the factual as well as desired/needed competence level of both the financial and IS auditors could be more closely investigated in terms of their implications for the inclusion of the IS auditor in the financial audit engagement, their impact on the cooperation between the IS and financial auditors as well as the usability of the results of the IS audit. Based on the results of the research, the education of the professionals can be developed accordingly.

As a researcher, I had a strong pre-understanding of the topic, as I have been working in both the IS audit and financial audit functions in a Big 4 firm. This affected both positively and negatively the research process. On the one hand, familiarity with the routines of the professions ensures that aspects being present in the everyday practices were considered. On the other hand, the possible prejudices may have influenced the interpreting and evaluation of the results. A factor enhancing the credibility of this study is that it is based on multiple interviews, and the saturation of the knowledge level was achieved with the amount of auditors interviewed. Furthermore, both IS and financial auditors were interviewed ensuring the representation of both sides.

In summary, the results of this study suggest that the role of IS audit as a part of the financial audit is still evolving, as the financial and IS auditors continue to develop their understanding of each other’s domain and the possibilities present in increased cooperation. The interviewees emphasize that the IS audit is still a relatively young phenomenon, and there are numerous ways in which to further develop its role in the financial audit process and in research in the future.
Svensk sammanfattning

1 Introduktion

1.1 Forskningsproblem

Användning av informationsteknologi (IT) har starkt vuxit i företag, vilket kräver att revisionen som profession håller sig åt jour med utvecklingen. Om revisorn inte har omfattande kunskaper om informationssystem, är det möjligt att han/hon inte förstår den komplicerade teknologin bakom sina kunders kärnprocesser och därmed inte är kunnig att utföra effektiva revisioner. (Curtis Jenkins, Bedard, Deis 2009; Public Oversight Board [POB] 2000). Till exempel den växande implementeringen och användningen av integrerade affärssystem kan öka riskerna i samband med revisionen, såsom affärsavbrott, datasäkerhet, ömsesidigt beroende av processerna och total kontrollrisk (Hunton, Wright & Wright 2004b). Som värst kan revisorns brist på tekniska kunskaper leda till att revisionen misslyckas (Shaw & Pant 2006). Detta har beaktats i nuvarande revisionsstandarder som kräver att revisorn söker hjälp från en revisor av informationssystem (IS-revisor) då hans/hennes kunskaper i att förstå och bedöma kunders IT-kontroller inte räcker till (Curtis et al. 2009). Den växande betydelsen av IT har även implikationer för undervisningen för redovisningsstudierande; det finns ett växande krav på att förse professionella redovisare med undervisning som bättre utrustar dem med kunskaper som behövs i yrket (Brazel 2008).


Den utvecklande rollen av IS-revisionen kan även ha implikationer för hur smidigt revisionsprocessen genomförs. Public Oversight Boards (POB) Panel of Audit Effectiveness (POB 2000) noterade att IS-specialister ofta används i revisionsteam i de mera komplicerade informationssystemsomgivningarna. De medverkar mest genom att förstå
generella IT-kontroller eller specifika programkontroller, och används i några fall även för design och utförande av testningar relaterade till dessa kontroller. Panelen observerade däremot att nivån och effektiviteten på samordningen mellan IS-specialister och finansiella revisorer varierar och kunde ha förbättrats i nästan 20 % av uppdrag. Vidare visar sig finansiella revisorer ha reservationer om kunskaperna och mervärdet av IS-revisorer (Bagranoff & Vendrzyk 2000; Hunton et al. 2004) och verkar inse att kompetensen hos IS-revisorer varierar i praktiken (Brazel & Agoglia 2007).

Även om många forskare har framkastat att IS-revisorer och finansiella revisorer ser rollen av IS-revisionen olika, har inte många direkt tagit itu med frågan (Vendrzyk & Bagranoff 2003). I Finland finns så gott som ingen forskning i ämnet. Då rollen av IS-revisionen obestridligt utvecklas och blir viktigare, och speciellt när man lägger märke till de olika uppfattningarna om kompetensen och mervärdet av IS-revisorer, kan man konstatera att det är av stort intresse att studera saken närmare.

1.2 Syfte och forskningsfrågor

Syftet med den här undersökningen är att studera rollen av IS-revisionsverksamhet i de lagstadgade revisionerna i Finland med speciell uppmärksamhet på arbetsfördelningen och samarbetet mellan IS-revisorer och finansiella revisorer i revisionsprocessen. Det primära syftet med den här undersökningen är delat i tre specifika forskningsfrågor:

1. Vad är rollen av IS-revisor i den finansiella revisionsprocessen?
2. Hur uppfattar IS-revisorerna och finansiella revisorer sitt samarbete?
3. Vad anses vara mervärdet av IS-revision i den finansiella revisionsprocessen?

Den empiriska undersökningen i den här studien utförs genom intervjuer med erfarna IS-revisorer och finansiella revisorer i Big 4\(^{15}\)-byråer. Följaktligen faller rollen av IS-revisionsverksamhet i andra revisionsbyråer i Finland utanför ramen för den här studien. Totalt 15 professionella revisorer (åtta i finansiell revision och sju i IS-revision) intervjuas.

2 Tidigare forskning


Finansiella revisioner har låga vinstmarginaler på grund av intensiv konkurrens, som negativt påverkar villigheten hos finansiella revisorer att anlita IS-revisorer för uppdrag. Dessutom, som Hunton et al. (2004b) konstaterar, är specialisternas (såsom IS-revisorernas) priser ofta högre än de vanliga revisorernas. Om revisorn känner att han/hon är kompetent att utföra arbetet själv, kan revisionskostnaderna hållas nere genom att göra så.

Kommunikationsnivån visar sig också ha implikationer för effektiviteten av revisionsprocessen. The Panel On Audit Effectiveness (POB 2000) konstaterade att nivån på och effektiviteten i samspelet mellan IS-specialister och finansiella revisorer varierade och i nästan 20 % av fallen kunde de ha förbättrats. Viljanen (2010) fann att speciellt den effektiva kommunikationen och utnyttjande av resultaten från testning av allmänna IT-kontroller (General IT controls, ITGCs) var problematiska: evalueringen av hur slutsatserna påverkar revisionsprocessen ansågs vara svår på grund av t.ex. skillnader i utbildningsbakgrunder och kommunikationsvanor hos IS-revisorer och finansiella revisorer.

Nykelfrågan visar sig vara hur man ska angrida de problem som komplicerade informationssystem ger upphov till på ett effektivt sätt. Ska finansiella revisorer utbildas mera i informationsteknologi; eller ska IS-revisorer vara en integrerad, fast del av revisionsteamet? (Hunton et al. 2004b) Vilka är implikationerna för effektiviteten av revisionen om finansiella revisorer allokser mera testning av interna kontroller för IS-revisorer jämfört med att finansiella revisorer förses med mera utbildning om utvärdering av IT-risker och testning av IT-kontroller (Brazel 2008)?

En del av det primära syftet med den här undersökningen är att ta itu med förhållandet mellan IS-revisorer och finansiella revisorer. Det här förhållandet är närvarande både på den funktionella nivån i organisationerna (mellan IS-revisionsfunktioner och finansiella revisionsfunktioner) såväl som inom de individuella revisionsteamen. Det framgångsrika och effektiva utförandet av revisionen är ingalunda skilt från teamet som utför det, vilket


Två relaterade faktorer som anses ha en negativ inverkan på samspelet och processerna i gruppen är effekten av gemensam information (the common information effect) och grupptänkande (groupthink). Effekten av gemensam information syftar på tendensen av grupperna att ignorera information som är unik för individer i gruppen och fokusera på information som alla känner till. (Thompson & Pozner 2007: 921) Grupptänkandet syftar på förminskning av reflexivitet, samt försämrad bedömning och förmåga att nå rätta beslut, och härstammar från tryck på överensstämmelse inom gruppen. (Fincham & Rhodes 2003: 200)
Konflikter som uppkommer i grupper kan indelas i tre typer: förhållandekonflikter, uppdragskonflikter (skillnader i synpunkter och åsikter om uppdraget) och processkonflikter (konflikter om hur arbetet i projektet ska genomföras, t.ex. beträffande vem som ska utföra vilka uppgifter). Många studier har föreslagit att förhållandekonflikter påverkar prestationer negativt, medan en rimlig nivå av uppdragskonflikter påverkar prestationer positivt. (Thompson & Pozner 2007: 922; Jehn & Mannix 2001) Forskning i processkonflikter har förbundit grupper med dylika konflikter med lägre produktivitet och till och med oförmåga att effektivt utföra sitt arbete (Jehn & Mannix 2001), vilket tyder på en negativ inverkan på gruppens prestation. Sammanfattningsvis kan konstateras att fast majoriteten av revisionsforskningen funnit grupparbete fördelaktigt, bör möjligheten till processförluster p.g.a. samspelet i gruppen tas i beaktande (Bedard et al. 1998).

3 Val av metod och genomförandet av undersökningen

En kvalitativ undersökningsmetod, i form av intervjuer, betraktades som lämpligast för den här studien. Kvalitativa metoder anses lämpligare än kvantitativa då forskningen ämnar "förstå verkligheten som socialt konstruerad" och försöker "holistiskt förstå" de problem som undersöks (Eriksson & Kovalainen 2008: 5, min övers.). Syftet med den här studien är således att utforska, förstå, tyda och förklara de många aspekter som påverkar rollen av IS-revision i lagstadgade finansiella revisioner i Finland. Den här studien är en förklarande fallstudie, som ämnar fylla forskningsluckan beträffande rollen av IS-revisionsfunktionen i revisionsprocessen. Semi-strukturerade intervjuer valdes som metod därför att de låter forskaren ändra på formen och följden av frågor under intervjun.

Den empiriska undersökningen genomfördes genom intervjuer med 15 erfarna revisorer i Big 4 -byråer (åtta finansiella revisorer och sju IS-revisorer). Antalet intervjuade var lämpligt i och med att mot slutet nåddes mättnad och inga nya åsikter framkom (Hirsjärvi & Hurme 2008: 60). Intervjuerna genomfördes i maj och juni 2012 personligen. Intervjuerna tog från 30 minuter till 80 minuter. De intervjuade informerades om centrala teman i förväg och intervjuguide användes för att styra intervjuerna. Teman som behandlades var den typiska revisionsprocessen (ur IS-revisionens perspektiv); IS-revisorers roll i processen; IS-revisorers och finansiella revisorers egenskaper; grupparbetet och kommunikationen i processen; mervärden av IS-revision; och framtiden för IS-revision. För att förbättra den interna validiteten framfördes ett flertal frågor om de intervjuades nivå av samtycke med vissa påståenden (på en 5-punkts Likert-skala). Alla intervjuer spelades in med samtycke av de intervjuade, varefter materialet transkriberades.
4 Resultat

Ju större ett revisionsuppdrag är, desto mera sannolik är en revisionsstrategi som litar på interna kontroller. I sådana fall kan informationssystem inte kringgås med substansgranskning, och en IS-revisor behövs för att verifiera IT-kontrollerna. Typiska uppdrag för vilka en IS-revisor anställs är för kunder med väsentligt antal timmar planerade; som har massor av transaktioner; som är publika företag; som lyder under SOX-lagstiftning; som har stora, komplicerade IT-system; vars verksamhet är mycket beroende av IT-system; och/eller som är verksamma i en viss bransch (t.ex. banker, försäkringsbolag, finansinstitut).

Den typiska revisionsprocessen från IS-revisionens synpunkt består av följande skeden: Att vara en del av planeringen och riskutvärderingen, att utföra de uppgifter som anvisas dem (ITGC-testning, programkontroll-testning och/eller analys av data) och att rapportera slutsatserna till de finansiella revisorerna. Planeringen börjar ofta på våren efter att det föregående årets revision har slutförts, och optimalt ska IS-revisorn vara en del av den för att IS-revisionen ska vara sammankopplat till målen med den finansiella revisionen. Situationen är dock olik bland Big 4-byråer och även inom företagen beroende på teamet och kunden i fråga.


Majoriteten av de intervjuade, både finansiella revisorer och IS-revisorer, tycker att IS-revision borde användas mera i revisionsuppdrag för att öka effektiviteten. Det anses viktigt
att aktivt söka efter nya sätt för IS-revisorer att hjälpa till därför att datorassisterad revision är snabbare än att manuellt granska mappar. För närvarande uppskattar de intervjuade att IS-revisionens andel är ca 5-15 % av uppdragets timmar. Inverkan av IS-revisionen på de finansiella revisorernas arbetsmängd är inte klar. Å ena sidan, om IS-revisionen lyckas, minskar den mängden arbete som finansiella revisorer måste utföra. Å andra sidan anses ITGC-testning inte ha en direkt inverkan, delvis därför att finansiella revisorer inte anses kunna att utnyttja slutsatserna.


Forskningsresultaten antyder att bra kommunikation spelar en stor roll i det effektiva utförandet av IS-revision i samband med finansiell revision, och har implikationer för den uppfattade kvaliteten och användbarheten av IS-revisionen. För att grupperbetet och kommunikationen ska vara optimala, betonar de intervjuade förståelse för varandras specialområden. Under revisionsprocessen kommunikerar IS-revisorer och finansiella
revisorer typiskt både formellt och informellt. Det finns vissa ”obligatoriska” kommunikationspunkter enligt Big 4 byråernas revisionsmetodologier, men hur dessa följs varierar i praktiken. Det är typiskt att kommunikation förekommer ofta i större uppdrag, och i mindre utsträckning i mindre uppdrag. Även den planerade mängden IS-revision i uppdraget är avgörande; om IS-revision har en stor roll i uppdraget finns det naturligt också mera kommunikation mellan IS-revisorer och finansiella revisorer.

Den nuvarande nivån av kommunikation delar åsikterna bland de intervjuade; somliga anser att den är på en tillräckligt hög nivå, andra skulle vilja ha betydligt mera kommunikation. Faktorer som anses påverka nivån av kommunikationen är brådskan hos IS-revisorer på hösten, var IS-revisionsavdelningen fysiskt är belägen och vad IS-revisionsavdelningens position i organisationen är (är den organiserad tillsammans med den finansiella revisionsavdelningen eller inte). Största delen av de intervjuade finansiella revisorerna tycker att IS-revisionsavdelningen borde vara en del av den finansiella revisionsavdelningen därför att IS-revisionen anses vara en uppenbar stödfunktion för den traditionella finansiella revisionen. Andra positiva argument för varför IS-revision borde vara en del av den finansiella revisionsavdelningen innefattar till exempel likheterna mellan arbetsuppgifterna med tanke på lagar och författningar, ökade kunskaper om kunden, potentiellt närmare samarbete och kommunikation, såväl som bättre utnyttjande av varandras kunskaper.

Det finns ibland avvikande åsikter både inom och utanför de enskilda revisionsteam mellan IS-revisorer och finansiella revisorer, men detta är inte vanligt. Orsakerna till tvister är till exempel tajming-frågor och budgetfrågor. När IS-revisorer och finansiella revisorer tillfrågades om de anser sig utgöra ett enhetligt revisionsteam när de arbetar på ett uppdrag, var det vanligaste svaret: ”Det beror på.” I mindre uppdrag visar sig situationen vara mera utmanande än i större, och situation anses också ha förbättrats under åren. Sammanfattningsvis betonades förhållandet mellan finansiella och IS-revisorer ofta som en möjlighet till förbättringar; det finns en önskan om närmare samarbete.

Både IS-revisorer och finansiella revisorer är eniga om att IS-revision är nyttig för finansiell revision; den anses göra revisionsprocessen mera effektiv genom att låta finansiella revisorer lita på kontrollerna i högre grad. Detta i sin tur minskar på mängden manuellt arbete som behöver utföras. Därtill lyfter både IS-revisorerna och finansiella revisorerna fram nyttnan av IS-revisionen för kunden. För att nyttnan av IS-revision ska realiseras, ska IS-revisorernas uppgifter planeras noggrant och fokuseras på rätta saker. IS-revisorerna betonar betydelsen av att finansiella revisorer förstår vad IS-revision är och hur den kan hjälpa finansiell revision. Finansiella revisorer i sin tur uttrycker en önskan om mera
förståelse och proaktivitet från IS-revisorer; mera hänsyn till vad deras arbete och dess slutsatser i praktiken betyder för den finansiella revisionen.


Fastän de intervjuade är eniga om att förhållandet och samarbetet mellan IS-revisorer och finansiella revisorer har förbättrats under åren, ser de några potentiella förbättringsområden. De oftast nämnda är t.ex. bättre tajming av IS-revisionen, bättre kommunikation, bättre nivå av integrering i revisionsteamet och bättre förståelse för varandras specialområden.

Som sammandrag kan konstateras att revisionen av informationssystem anses väsentlig i samband med den finansiella revisionen av både finansiella revisorer och IS-revisorer på grund av den genomträngande rollen av IT i organisationerna nuförtiden. Frågan om det borde vara en IS-revisor som utför arbetet delar de intervjuade: somliga anser att finansiella revisorer blir mera som IS-revisorer, medan andra anser att IS-revisorerna alltid kommer att behövas och att kraven på kompetens hos finansiella revisorer redan är tillräckligt omfattande. Trots allt anser många intervjuade att IS-revision och finansiell revision kommer närmare varandra; att finansiell revision mera och mera kommer att utnyttja revision av IS-typ.

I slutet av intervjuerna ställdes flera frågor till de intervjuade för att kontrollera deras enighet om vissa påståenden. Alla de intervjuade är eniga om att IS-revision är en väsentlig del av den finansiella revisionen och blir viktigare. Alla IS-revisorer anser att mängden uppgifter som IS-revisorer utför i den finansiella revisionsprocessen kunde ökas, medan tre
5 Diskussion

Forskningsresultatet tyder på att IS-revision som en del av den finansiella revisionsprocessen växer i betydelse. IS-revisorernas uppgifter i revisionsupdrag är i hög grad likadana i Big 4 -byråer i Finland: Fokus ligger på testning av allmänna IT-kontroller. Därtill kan IS-revisorer även hjälpa finansiella revisorer med att testa automatiska programkontroller, att göra processgenomgångar och/eller att analysera data med olika typer av programvaror eller verktyg. Några Big 4 -byråer utnyttjar emellertid IS-revisorer för flera uppgifter än andra. Ett av de viktigaste resultaten av den här studien med tanke på IS-revisorers roll i den finansiella revisionsprocessen är att det är väsentligt att IS-revisorerna är involverade i processen redan i riskutvärderings- och planeringsskedet. De intervjuade betonar att i annat fall länkas inte målen för IS-revisionen tillräckligt bra till målen med den finansiella revisionen.

En viktig slutsats hänför sig till uppgifter och roller för IS-revisorer och finansiella revisorer. Det finns reservationer om IT-kunskaper hos finansiella revisorer och affärsprocess-/redovisningskunskaper hos IS-revisorer vilket gör det nödvändigt att de uppgifter som de utför motsvarar deras kunskaper. En fråga aktualiserades som ett resultat av den här studien: Är kompetensen hos finansiella revisorer på en tillräckligt hög nivå för alla de uppgifter de utför för tillfället, när man tar i beaktande genomslagskraften av IT och de påstådda bristerna i deras IT-kunskaper? Samtidigt visar sig betoningen av IS-revisorernas uppgifter flyttas mot testning av programkontroller. Har de tillräckliga kunskaper om affärsprocesser för att testa de här kontrollerna? Sammantaget beror uppgifterna och rollerna i processen på kunskaperna hos den finansiella revisorn och IS-revisor; vem är kompetent att utföra vilka uppgifter?

IS-revisorernas och de finansiella revisorernas kunskaper anses också ha en stor betydelse för samarbetet och kommunikationen; för att grupparbetet och kommunikationen ska vara optimala, betonar de intervjuade förståelse för varandras specialområden. Resultaten av den här studien tyder på att detta inte alltid är fallet: Finansiella revisorer är inte alltid nöjda med IS-revisorernas affärsprocess- och revisionskunskaper, och IS-revisorerna känner ofta att finansiella revisorer inte förstår vad deras arbete går ut på.

Ett viktigt resultat av den här studien har att göra med tajming av IS-revisionen. I enlighet med revisionsmetodologin är det nödvändigt att IS-revisorer utför sina uppgifter (speciellt testningen av allmänna IT-kontroller) före de finansiella revisorerna utför sina, eftersom slutsatserna från IS-revisororns arbete styr de finansiella revisorernas arbete. För närvarande
uppnås den här situationen dock inte alltid i Finland. Detta beror på att IS-revisionerna är starkt koncentrerade till hösten. Utöver de praktiska problemen med det regelrätta utförandet av revisionen, komplicerar den här snedvridningen resursallokeringen och utvecklingen av IS-revisionsfunktionen.

Budgeterna befanns påverka användningen av IS-revisorer i finansiella revisionsuppdrag. Situationen är utmanande i revisionsverksamheten; i och med att arvoden minskar och samtidigt ökar kraven på revisionen. Fast många finansiella revisorer tycker att IS-revisorer inte används tillräckligt mycket i finansiella revisionsuppdrag och att IS-revisorer potentiellt kunde göra mera för att göra revisionen effektivare, kan de vara motvilliga att allokera mera timmar till IS-revisorer som ofta är ”dyrare” än vanliga revisorer. Speciellt när IS-revisionsavdelningen inte är en del av den finansiella revisionsavdelningen flyttras den aktuella inkomsten över till en annan avdelning, vilket ytterligare anses minska på villigheten.

Betydelsen av kommunikationen i förhållandet mellan IS-revisor och finansiell revisor för ett framgångsrikt och effektivt utförande av finansiell revision är ett av de viktigaste resultatena av den här studien. Inom teorin om organisationsbeteende är aktiv kommunikation, dvs. reflexivitet, en betydande faktor när man tänker på prestationen av revisionsteamet. Kommunikationen är närvarande genom hela revisionsprocessen i många olika skeden. Nivån på kommunikationen varierar beroende delvis på Big 4 -byrån i fråga och delvis på teamet inom byrån. Allmänt kan påstås, att om rollen av IS-revisionen har planerats att vara betydande i den finansiella revisionen, finns det mera kommunikation mellan finansiella revisorer och IS-revisorer. Fast kommunikationen anses ha förbättrats under åren, lyfter några fram den som den viktigaste faktorn som påverkar användningen och användbarheten av IS-revisionen. Följaktligen är förbättringen av kommunikationen mellan IS-revisorer och finansiella revisorer en av de största utmaningarna med tanke på hela IS-revisionsprocessen i samband med finansiella revisioner.

resultaten av den här studien att organiseringen av IS-revisionsavdelningen tillsammans med den finansiella revisionsavdelningen kan förbättra nivån av kommunikation och leda till närmare samarbete mellan IS-revisorer och finansiella revisorer.

Både IS-revisorer och finansiella revisorer är eniga om att IS-revisionen är nyttig för finansiell revision; det anses göra revisionsprocessen mera effektiv genom att låta finansiella revisorer lita mera på kontroller. Detta i sin tur minskar mängden manuellt arbete som ska utföras. Därtill lyfter både IS-revisorerna och de finansiella revisorerna fram nyttan av IS-revision för kunden. Ett av de viktigaste resultaten av det här arbetet har att göra med användbarheten av IS-revisionens resultat, speciellt gällande testning av allmänna IT-kontroller. Lösningen verkar vara att noggrannare överväga behovet och mallen för ITGC-testning. Följaktligen är en av de viktigaste faktorerna för användbarheten av IS-revision noggrann planering; rollen av IS-revisor ska planeras så att den bäst hjälper den finansiella revisionen. Det betonas att IS-revisorerna inte ska inkluderas i för små uppdrag; resultaten tyder på att i de fallen är medtagandet av en IS-revisor till uppdraget varken fördelaktigt för den finansiella revisionen eller meningsfullt för IS-revisor.


Resultaten av den här studien har implikationer för utbildningen av finansiella och IS-revisionsprofessioner. För tillfället utbildas inte IS-revisorer i Finland, och därför finns det en brist på kompetenta IS-revisorer som skulle behärска både den tekniska och affärsmässiga sidan. Därtill kan en blivande finansiell revisor bli utexaminerad utan att ha tagit mera än en grundkurs i IT.

Resultaten av denna studie tyder på att rollen av IS-revision som en del av den finansiella revisionsprocessen håller på att utvecklas vidare då finansiella revisorer och IS-revisorer fortsätter att öka sin förståelse för varandras specialiteter och möjligheterna i det växande samarbetet. De intervjuade betonar att IS-revision fortfarande är ett relativt ungt fenomen och att det finns otaliga sätt att vidare utveckla dess roll i den finansiella revisionsprocessen.
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Appendix 1

Themes of the Interviews

- The typical financial audit process from the perspective of IS auditing
- The role of the IS audit in the process
- The characteristics of IS and financial auditors
- Team working and communication in the process
- The value-added of IS auditing to the financial audit process
- The future of IS auditing
Appendix 2

The role of the IS audit in the statutory audit process

INTERVIEW GUIDE – FINANCIAL AUDITOR

The objective of this study is to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process.

The interviewee:
Company:
Date:
Time:

- Rank
- How long have you been with this rank?
- How long have you worked for this company?
- Primary duties
- How long have you had these duties?
- Education and certifications

Typical audit process from the IS audit point of view

- Describe the typical audit process, and the phases in which the IS auditor is involved.

The role of the IS audit in the process

- When is IS auditor consulted? What factors affect the inclusion of an IS auditor to an audit engagement?
- In what proportion of the audit engagements is an IS auditor included in the team?
- In average, how large proportion of the audit engagement (hours) does the IS audit comprise?
- Does the work of IS auditor affect your work load? How?
- What do IS auditors do in the audit engagements?
- Is the amount of work the IS auditor does in the audit engagement adequate?
- How do you ensure that the IS auditor have made the requisite measures to e.g. evaluate internal controls?
- How does the conclusions of the IS audit affect the audit process in practice?
- How is IS audit reported to the client?
Characteristics of IS and financial auditors

- What kind of IT skills should a financial auditor possess?
- Do IT skills of the financial auditor affect audit quality?
- Do you feel like you have got enough training (in the university or at work) regarding information technology?
- What is a competent IS auditor like?
- Are IS auditor competent in their work?
- How would you describe the audit team of your dreams?
- Are there too few IS auditors? Why? Would there be more demand on IS auditors?

Team working and communication during the process

- Describe your communication during the process. Is it adequate?
- Do you visit the audit client together?
- Do you give and get feedback on the assignment?
- Is the IS audit function a part of the financial audit function in your organization? How do you see this in relation to the roles and relationships of IS and financial auditors?
- Do you feel like IS and financial auditors form one audit team when working on an engagement?
- How does the cooperation between IS and financial auditors work?
- Does it matter, which IS auditor works on which engagement, or is the IS auditor different from previous year?
- How could you enhance the cooperation between IS and financial auditors?

The benefits of IS audit for financial audit

- How do you see the problems information systems pose on financial auditing? How should they be tackled?
- Is IS audit beneficial for financial auditing?
- Do you see that general IT controls have a connection to the likelihood of material misstatement in the financial statements?

The future of IS audit

- How would you describe the future of IS audit?
- If you would have the power to change matters in your organization regarding the process, roles and co-operation between IS and financial auditors, what would you change, if anything?
Do you agree or disagree with the following statements:

1. IS audit is an essential part of the financial audit.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

2. IS audit is becoming more important.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

3. The amount of duties performed by the IS auditor in the financial audit process:
   1  2  3  4  5
   Could Be Strongly Decreased  Could Be Decreased  Is Suitable  Could Be Increased  Could Be Strongly Increased

4. The auditing of general IT controls is important.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

5. A finding of a weakness in general controls is likely to affect the scope of the audit.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

6. A finding of a weakness in application controls is likely to affect the scope of the audit.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

7. Financial auditors and IS auditors form a uniform audit team in an audit engagement.
   1  2  3  4  5
   Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree
Appendix 3

The role of the IS audit in the statutory audit process

INTERVIEW GUIDE – IS AUDITOR

The objective of this study is to examine the role of the IS audit function in statutory audits in Finland with focus on the work distribution and the co-operation between IS and financial auditors in the audit process.

The interviewee:
Company:
Date:
Time:

- Rank
- How long have you been with this rank?
- How long have you worked for this company?
- Primary duties
- How long have you had these duties?
- Education and certifications

Typical audit process from the IS audit point of view

- Describe the typical audit process, and the phases in which the IS auditor is involved.
- What would be an optimal course of the audit process in your opinion? In which phases would you be included, which tasks would you have?

The role of the IS and financial audit in the process

- When is IS auditor consulted? What factors affect the inclusion of an IS auditor to an audit engagement?
- What do IS auditors do in the audit engagements?
- Is the amount of work the IS auditor does in the audit engagement adequate?
- How do auditors evaluate your work?
- How does the conclusions of the IS audit affect the audit process in practice?
- How is IS audit reported to the client?
- How large proportion of your assignments is financial audit assignments?

Characteristics of IS and financial auditors

- What is a competent IS auditor like? What kind of skill set should an IS auditor have?
● What is a typical educational background for an IS auditor?
● What would be an optimal educational background for an IS auditor?
● What kind of IT skills should a financial auditor possess?
● How do the IT skills of financial auditors affect your work? Do you feel that financial auditors understand what you do?
● How would you describe the audit team of your dreams?
● Are there too few IS auditors? Why? Would there be more demand on IS auditors?
● How would you assess the average IS audit work experience of the IS auditors in your company (in years)? Is turnover a problem?

**Team working and communication during the process**

● Describe your communication during the process. Is it adequate?
● Do you visit the audit client together?
● Do you give and get feedback on the assignment?
● Is the IS audit function a part of the financial audit function in your organization? How do you see this in relation to the roles and relationships of IS and financial auditors?
● Do you feel like IS and financial auditors form one audit team when working on an engagement?
● How does the cooperation between IS and financial auditors work?
● Does it matter, which IS auditor works on which engagement, or is the IS auditor different from previous year?
● How could you enhance the cooperation between IS and financial auditors?

**The benefits of IS audit for financial audit**

● How do you see the problems information systems pose on financial auditing? How should they be tackled?
● Do you feel like financial auditors value your work in the audit engagements?
● Is IS audit beneficial for financial auditing?
● Do you see that general IT controls have a connection to the likelihood of material misstatement in the financial statements?

**The future of IS audit**

● How would you describe the future of IS audit?
● If you would have the power to change matters in your organization regarding the process, roles and co-operation between IS and financial auditors, what would you change, if anything?
Do you agree or disagree with the following statements:

1. IS audit is an essential part of the financial audit.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree

2. IS audit is becoming more important.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree

3. The amount of duties performed by the IS auditor in the financial audit process:
   1  2  3  4  5
   Could Be Strongly Decreased Could Be Decreased Is Suitable Could Be Increased Could Be Strongly Increased

4. The auditing of general IT controls is important.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree

5. A finding of a weakness in general controls is likely to affect the scope of the audit.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree

6. A finding of a weakness in application controls is likely to affect the scope of the audit.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree

7. Financial auditors and IS auditors form a uniform audit team in an audit engagement.
   1  2  3  4  5
   Strongly Disagree Disagree Undecided Agree Strongly Agree
# Appendix 4

## The Interviews

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Appendix 5

The coding and interpretation process of the research results

Phase 1. Transcribing the interviews

Et ensinhän me mennään näillä yleisillä tietojärjestelmäkontrollillä ja siitä riippuu sitten ettei onko ne kuinka tehokkaita sitä se, että minkälaisella otoskoolla me tehdään näillä sovelluskontrollitarkastukset, jos niitä on päättänyt tehdä. Kun tilintarkastusryhmä tekee tämmöiset niinkun process walkthrough niin me ollaan siellä sitten mukana ja tunnistetaan sitten niitä kontrollipisteitä sieltä ja sitten me tehään näillä suunnitellut sovitut tarkastukset. Pyritään mahdollisimman pitkälle tekemään tilintarkastuksen kanssa yhdessä, muta aika usein me tehdään niinku tuon manon työä, hoidetaan kaikki yhteydenpidot... Mutta pidetään kuitenkin tilintarkastajaan koko ajan yhteyttä missä menneän ja sit pyritään niihin syksyn sovittuihin audit komitean kokouksiin sitten, joissa niitä tarkastushavaintoja käydään läpi, niin tekemään ne IT-tarkastuksen havainnot myös.

Phase 2. Classifying the data according to interview themes

Themes and colors:

- The typical audit process from the perspective of IS auditing
- The role of the IS and financial auditors in the process
- The characteristics of IS and financial auditors
- Team working and communication during the process
- The value-added of IS auditing to financial audit process
- The future of IS auditing

Et ensinhän me mennään näillä yleisillä tietojärjestelmäkontrollillä ja siitä riippuu sitten ettei onko ne kuinka tehokkaita sitä se, että minkälaisella otoskoolla me tehdään näillä sovelluskontrollitarkastukset, jos niitä on päättänyt tehdä. Kun tilintarkastusryhmä tekee tämmöiset niinkun process walkthrough niin me ollaan siellä sitten mukana ja tunnistetaan sitten niitä kontrollipisteitä sieltä ja sitten me tehään näillä suunnitellut sovitut tarkastukset. Pyritään mahdollisimman pitkälle tekemään tilintarkastuksen kanssa yhdessä, muta aika usein me tehdään niinku tuon manon työä, hoidetaan kaikki yhteydenpidot... Mutta pidetään kuitenkin tilintarkastajaan koko ajan yhteyttä missä menneän ja sit pyritään niihin syksyn sovittuihin audit komitean kokouksiin sitten, joissa niitä tarkastushavaintoja käydään läpi, niin tekemään ne IT-tarkastuksen havainnot myös.
Phase 3. Working the answers into text

For example, from Section 4.3.1 “The Role of the IS Audit in the Financial Audit Process” (green color above):

In some companies, IS auditors also assist in making the process walkthroughs, for example going through the client company’s sales process with the financial auditor and helping to identify the control points in the sales system.