

Master's Programme in Information and Service Management

Evaluating the Suitability of Auditing Tasks for Robotic Process Automation

The Case of NeonAudit

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Title of thesis Evaluating the Suitability of Auditing Tasks for Robotic Process Automation

Programme Master of Science in Economics and Business Administration

Major Information and Service Management

Thesis advisor(s) Associate Professor Esko Penttinen

Collaborative partner NeonAudit

Date 20.12.2024

Number of pages 117

Language English

Abstract

This master's thesis examines the identification of auditing tasks and evaluates their suitability for robotic process automation (RPA). In the context of small and medium-sized auditing companies, operational efficiency and scalability are critical factors for maintaining competitiveness. The study addresses these challenges by applying a systematic framework developed by Eulerich *et al.* (2022) to evaluate the technical feasibility and benefits of automating specific auditing tasks.

The research applies a group interview to gather a comprehensive overview of auditing tasks and a Delphi expert panel to gather opinions and achieve a consensus on the most suitable candidates for automation. Through the group interview, a total of 202 auditing tasks were identified. These tasks were then categorized into 29 process groups which were then further narrowed down to 15 high-priority processes. These processes are characterized by repetitive and rule-based nature. During the Delphi rounds these tasks were analysed to evaluate their alignment with automation criteria, including for instance data structure, process stability, and organizational value.

Findings indicate that tasks such as data extraction from financial statements and collecting documents are particularly well-suited for RPA. Automating these tasks offers benefits in terms of both accuracy and efficiency. The findings highlight the numerous tasks within the auditing process that have the potential for automation.

This research contributes to the theoretical discourse on identifying the potential for automating auditing tasks. It also highlights the importance of the socio-technical systems (STS) theory in RPA implementation. The study also reinforces the view that there is a need for systematic evaluation frameworks for identifying processes for automation. The managerial implications emphasize three key actions for organizations to take. First, to focus on these identified high-impact processes. Second, to adopt a structured framework grounded in STS theory for evaluating auditing processes. Third, actively engaging employees on the RPA implementation process. By applying these strategies, auditing companies can ensure successful adoption of RPA.

Keywords robotic process automation, financial auditing, evaluation criteria, efficiency, audit quality

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Työn nimi Tilintarkastustehtävien soveltuvuuden arviointi ohjelmistorobotiikalle

Koulutusohjelma Kauppatieteiden maisteri

Pääaine Tieto- ja palvelujohtaminen

Työn ohjaaja(t) Apulaisprofessori Esko Penttinen

Yhteistyötaho NeonAudit

Päivämäärä 20.12.2024 **Sivumäärä** 117

Kieli Englanti

Tiivistelmä

Tämä pro gradu -tutkielma käsittelee tilintarkastustehtävien tunnistamista ja näiden soveltuvuuden arviointia ohjelmistorobotiikalle. Pienten ja keskisuurten tilintarkastusyriyten toimintatehokkuuden ja skaalautuvuuden parantaminen on kriittistä kilpailukyvyyn ylläpitämiseksi. Tutkimuksessa vastataan näihin haasteisiin soveltamalla Eulerich *ym.* (2022) kehittämää systemaattista viitekehystä, jonka avulla arvioidaan tiettyjen tilintarkastustehtävien teknistä soveltuvuutta RPA ohjelmistorobotiikalle ja automatisoinnista saatavia hyötyjä.

Tutkimuksessa käytettiin ryhmähaastattelua kattavan yleiskuvan saamiseksi tilintarkastustehtävistä, sekä Delfoi-menetelmää asiantuntijoiden arvioiden keräämiseen ja yksimielisyyden saavuttamiseen automaation kannalta sopivimmista tehtävistä. Ryhmähaastattelun kautta tunnistettiin aluksi yhteensä 202 tilintarkastustehtävää. Nämä tehtävät luokiteltiin 29 prosessiryhmään, ja edelleen karsittiin 15 korkean prioriteetin prosessiin. Nämä prosessit ovat luonteeltaan toistuvia ja sääntöpohjaisia. Delfoi menetelmän kierroksilla näiden tehtävien soveltuvuutta arvioitiin kriteerien, kuten esimerkiksi datan rakenteen, prosessin vakauden ja automatisoinnin tuottaman lisäarvon perusteella.

Tulokset osoittavat, että esimerkiksi datan kerääminen tilinpäätöksistä ja dokumenttien noutaminen soveltuvat erityisen hyvin ohjelmistorobotiikalle. Näiden prosessien automatisoinnilla voidaan saavuttaa hyötyjä tehokkuuden ja tarkkuuden näkökulmista. Tulokset korostavat tilintarkastusprosessin useiden tehtävien potentiaalia automatisoinnille ohjelmistorobotiikalla.

Tämä tutkimus edistää teoreettista keskustelua tunnistamalla potentiaalisia automatisoitavia tehtäviä tilintarkastusprosessissa. Lisäksi se korostaa sosiaalisen- ja teknisen järjestelmäteorian tärkeyttä ohjelmistorobotiikan käyttöönotossa. Tutkimus vahvistaa myös näkemystä, että prosessien tunnistamiseen automaatiota varten tarvitaan systemaattisia arviointiviitekehysjä. Käytännön johtopäätökset korostavat kolmea keskeistä toimenpidettä, joita organisaatioiden tulisi toteuttaa. Ensinnäkin on keskityttävä näihin tunnistettuihin korkean vaikuttavuuden prosesseihin. Toiseksi on omaksuttava sosiaaliseen- ja tekniseen järjestelmäteoriaan perustuva strukturoitu viitekehys tilintarkastusprosessien arvioimiseksi. Kolmanneksi on aktiivisesti sitoutettava työntekijät mukaan ohjelmistorobotiikan käyttöönottoon. Näitä strategioita soveltamalla tilintarkastusyriykset voivat varmistaa onnistuneen ohjelmistorobotiikan käyttöönoton.

Avainsanat ohjelmistorobotiikka, tilintarkastus, arviointikriteerit, tehokkuus, tilintarkastuksen laatu

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Preface and acknowledgements

First, I want to thank my thesis advisor Associate Professor Esko Penttinen for guidance. Fluent cooperation and good advice helped me to carry out this research.

In addition, I want to thank NeonAudit for this opportunity and all the experts that contributed to the interviews and Delphi expert panel.

Helsinki, 20 December 2024
Jussi Teerisalo

Abbreviations

AGM Annual General Meeting

AI Artificial Intelligence

API Application Programming Interface

CTM Clearly Trivial Mistake

IS Information Systems

ISA International Standards on Auditing

LCE Less Complex Entities

ML Machine Learning

OCR Optical Character Recognition

PM Performance Materiality

RPA Robotic Process Automation

STS Socio-Technical Systems

VBA Visual Basic for Applications

1 Introduction

This chapter introduces background and motivation for this study. Next, objectives and scope are determined. Lastly, structure of this thesis is presented.

1.1 Background and motivation

Robotic process automation (RPA) is becoming increasingly common across various industries (Lacity and Willcocks, 2016). As an emerging technology, it has gained significant attention because of its potential to boost productivity through the implementation of software robots (Lacity and Willcocks, 2016). In 2020, the market size of RPA was valued at an estimated range of two to four billion dollars (Lacity and Willcocks, 2021). Furthermore, Lacity and Willcocks (2021) note that the market's growth rate in the foreseeable future is projected to range between 30% and 50%, according to nearly all sources of prediction.

Although RPA is widely recognized for its capability to automate repetitive tasks, reduce costs, and enhance efficiency, it has not yet been universally adopted (Cooper *et al.*, 2019; Eulerich *et al.*, 2022). Eulerich *et al.* (2022) argue that many companies lack comprehensive frameworks for identifying processes suitable for automation. Instead, process identification often relies on past experience and individual judgment (Eulerich *et al.*, 2022). As a result, companies frequently face challenges in recognizing processes that could benefit from RPA. This limitation prevents them from fully leveraging the potential advantages RPA offers.

Both Hofmann, Samp, and Urbach (2020) and Syed *et al.* (2020), observe a strong interest in RPA within the corporate world, but note a lack of theoretical analysis on the subject. Additionally, Lacity, Willcocks and Craig (2015) emphasize that potential adopters require practical examples of client adoption experiences to build confidence in RPA's benefits. However, Willcocks (2019) reports that only around one-quarter of companies successfully realize the full potential of their automation efforts.

The case company for this research is a small auditing firm named NeonAudit. As stated by Eulerich *et al.* (2022), many auditing companies lack of company-wide systematic frameworks. Similarly, NeonAudit does not have a framework for identifying processes suitable for RPA. This reliance on individual judgment and guidance from RPA software providers can limit the company's ability to fully explore RPA's potential (Eulerich *et al.*, 2022). NeonAudit currently uses RPA in certain auditing processes. These have been identified in collaboration with its software provider. They have now recognized the need to independently identify additional processes suitable for automation.

Leveraging RPA can enhance their efficiency. Better efficiency can provide a foundation for further expansion. However, achieving this requires ongoing effort and attention to identifying processes suitable for automation. This case study aims to identify and map auditing process steps to the framework developed in the research by Eulerich *et al.* (2022). Such an approach ensures a sustainable RPA implementation strategy which also enables auditing companies to become more independent in adopting RPA. As Cline, Henry and Justice (2016) aptly state in their RPA-related article that to ensure success in the future, you have to take the steps today.

1.2 Objectives and scope

The goal of this research is to evaluate auditing process steps identified in collaboration with the employees of NeonAudit. The outcomes of this study provide a list of auditing tasks that were seen as suitable for RPA in small auditing company. Also, companies can see a practical application of how the framework has been used to identify auditing processes suitable for RPA. Therefore, this research seeks to answer the following question: Which steps of the auditing process are the most suitable for robotic process automation?

The objective of this research is to gather expert insights into identifying the steps in the auditing process where RPA could be effectively utilized. The information collected will be mapped to a framework to evaluate the suitability of these process steps for automation. This framework will provide a structured method for assessing which auditing tasks meet the necessary conditions for automation. To achieve this, the research applies an empirical study using the Delphi method. It utilizes a panel of auditing experts who will provide input through several rounds of evaluation.

The scope of this research focuses specifically on small and medium-sized auditing companies. While the findings are expected to have broader implications, the auditing steps under evaluation are those specific to NeonAudit. Nonetheless, the insights gained from identifying these steps and mapping them to a firm-wide framework for RPA can also benefit other companies.

The outcomes of this research are anticipated to be highly valuable for NeonAudit. The company will receive a comprehensive evaluation of how RPA can be further leveraged in its current processes. In the long term, adopting this framework can enable companies to ensure the full potential of automation technology. This can lead to increased competitiveness and sustained growth in an industry increasingly driven by technological advancements. However, a key challenge lies in evaluating the process steps with sufficient practical and concrete examples. The framework must also be adopted by employees to ensure they remain motivated to use it in the long term. This is critical for maintaining a sustainable RPA implementation strategy.

1.3 Structure of the thesis

This thesis presents a case study of NeonAudit. It is a company seeking to identify auditing process steps that could be automated using RPA. The thesis begins with a literature review that defines RPA and examines its benefits and challenges. Additionally, it introduces RPA suitability criteria, and the framework used in the empirical study. The aim is to provide a detailed foundation for understanding RPA concepts and evaluating process suitability.

Next, the chosen research methods are presented. This section explains the methods in detail. Also, it includes the action steps and how the empirical data was analysed. It concludes with an evaluation of the trustworthiness of the methods and their suitability for the study.

This is followed by the empirical study. It begins with an introducing NeonAudit and its background. Next, the findings of the group interview are presented which aimed at identifying auditing tasks. Subsequently, the evaluation of these steps and the outcomes of the Delphi rounds are presented.

The discussion chapter focuses on the implications of the study. It presents both theoretical and managerial perspectives. This is followed by an analysis of the research's limitations and suggestions for future studies. Finally, the thesis concludes with references and appendices. Semi-structured group interview questions, outcomes of the interviews and Delphi round evaluations are listed as appendices.

2 Literature review

This literature review explores existing research on RPA and the criteria used to evaluate the suitability of processes for RPA. It begins with a definition of RPA which aims to provide an understanding of the concept. This is followed by defining the criteria for assessing RPA suitability and introducing the framework used for evaluating RPA suitability. This framework serves as the foundation for the empirical analysis.

2.1 Robotic process automation

Gotthardt *et al.* (2020) describe RPA as a technology used to automate standardized and rule-based processes. They explain that RPA operates through scripts and requires structured data to function effectively. Essentially, RPA is a software designed to automate repetitive tasks typically carried out by humans (Cooper *et al.*, 2019). Similarly, Lacity and Willcocks (2021) define RPA as tools for automating human tasks, particularly those that are repetitive and often considered "mindless" or routine, such as "swivel chair" activities. Both Lacity and Willcocks (2021) and Syed *et al.* (2020) note that various forms of RPA exist and that there are multiple software vendors in the market. Organizations can either develop RPA solutions in-house or purchase them as service packages (Hallikainen, Bekkhus, and Pan, 2018).

Historically, RPA applications have been used in processes related to fixed asset accounting, accounts payable and receivable, travel expense management, employee record maintenance, and master data management (Aguirre and Rodriguez, 2017). These applications have been most popular in back-office and support processes that do not involve direct customer interaction (Aguirre and Rodriguez, 2017).

However, it is crucial to note that RPA is designed to handle only highly structured data and processes that are strictly rule-based (Lacity, Willcocks and Gozman, 2021). Hallikainen, Bekkhus, and Shan (2018) emphasize that the wide range of tools marketed as RPA makes it challenging to generalize about their capabilities beyond their core purpose of automating rule-based tasks currently carried out by humans.

2.1.1 RPA in auditing context

According to Gotthardt *et al.* (2020), RPA has had, and is expected to continue having, a considerable impact on auditing and accounting processes. Audit processes are widely regarded as highly time-consuming and requiring substantial manual effort (Chan and Vasarhelyi, 2011). Furthermore, as a relatively recent technology, RPA has not yet been fully leveraged within the accounting profession (Cooper *et al.*, 2019). Huang and Vasarhelyi (2019)

highlight the unique nature of auditing, which has contributed to slower adoption of RPA in the industry. Nevertheless, auditing could greatly benefit from partial automation (Issa, Sun and Vasarhelyi, 2016). Both Gotthardt *et al.* (2020) and Cooper *et al.* (2019) provide detailed insights into how RPA is currently utilized to manage data-heavy tasks in auditing and accounting.

Accounting professionals use RPA software to program bots that automate tasks for both internal operations and client-facing services (Cooper *et al.*, 2019). Accountants are encouraged to identify tasks suitable for automation and even participate in programming the bots, as it involves relatively light programming (Cooper *et al.*, 2019). This is separating RPA from other emerging technologies (Cooper *et al.*, 2019).

Gotthardt *et al.*, (2020) illustrate how UiPath has transformed invoice processing for several organizations. UiPath has automated processes such as registering, reading, validating, and posting invoices, significantly reducing manual interventions (Gotthardt *et al.*, 2020). The RPA bot extracts critical information from PDF invoices, such as invoice date, company name, reference number, tax details, total amount, and inputs this data into SAP systems (Gotthardt *et al.*, 2020). After extracting the data, the bot logs into SAP as a human user would, searches for vendor information, and organizes the data accordingly (Gotthardt *et al.*, 2020). The final step involves validating VAT details and either posting or parking the invoice based on predefined rules. According to Gotthardt *et al.*, (2020), this automation reduced manual workload by 65% to 75% and improved accuracy by minimizing human errors in data handling. This case demonstrates RPA's capacity to manage high-volume data extraction tasks effectively.

Cooper *et al.* (2019) conducted a study on how the Big Four auditing firms - Deloitte, PwC, EY, and KPMG - leverage RPA across their major service lines, namely taxation, assurance, and advisory. Over two-thirds of professionals in taxation believe that RPA tools provide significant value to their functions (Rainey, Brown and Kirk, 2017). Participants in Cooper *et al.*'s (2019) study highlighted how RPA streamlines tasks such as automatic data reconciliation, eliminating duplicates, and ensuring that data aligns with the trial balance. This is particularly beneficial when dealing with tax data from multiple feeder systems, as RPA reduces manual interventions when there is a need to pull data from different systems (Cooper *et al.*, 2019). One participant noted that audit processes are especially suitable for RPA because there are global methodologies and international standards governing them. However, the study also acknowledged that while RPA may appear ideal for certain processes in theory, its practical implementation can be more complex.

All in all, both Gotthardt *et al.* (2020) and Cooper *et al.* (2019) highlight the significant opportunities for automation with RPA. Both studies identify data extraction and integration across systems as key areas where RPA is currently being utilized.

2.1.2 Benefits

RPA is considered a cost-effective method for automating tasks, as it offers relatively short implementation timeframe (Penttinen, Kasslin and Asatiani, 2018). This timeframe typically ranges from a few weeks to a couple of months which enables a relatively quick return on investment (Penttinen, Kasslin and Asatiani, 2018). RPA facilitates the automation of processes that were previously seen as too expensive or complex to automate (Barnett, 2015). Additionally, RPA often does not require software programmers to code the automation which further enhances the cost efficiency (Willcocks, Lacity and Craig, 2015). RPA is frequently described as a "lightweight" IT solution because it functions alongside existing systems (Willcocks, Lacity and Craig, 2015). It eliminates the need to build, replace, or extensively enhance costly platforms (Willcocks, Lacity and Craig, 2015).

According to Cooper *et al.* (2019), RPA can significantly enhance efficiency of accounting companies. For instance, in 2017, one accounting firm reportedly saved over one million human work hours by automating processes with RPA. Another firm stated that a process that previously required 16 hours could now be completed in just 17 seconds (Cooper *et al.*, 2019). Beyond efficiency gains, RPA tools in accounting have achieved accuracy rates as high as 99,9%, compared to the typical human error rate of approximately 10% (Cooper *et al.*, 2019). These improvements in efficiency and quality result in cost savings by minimizing human involvement in low-value tasks (Cooper *et al.*, 2019). Companies utilizing RPA in financial processes have reported savings of up to 65%-75% (Gotthardt *et al.*, 2020). Moreover, RPA offers scalability in auditing processes, which can further amplify efficiency and cost savings (Cooper *et al.*, 2019). On the other hand, estimates for cost savings associated with RPA vary widely (Asatiani and Penttinen, 2016).

2.1.3 Challenges

While RPA offers numerous benefits, it also requires careful consideration of risks and regulatory issues (Cooper *et al.*, 2019; Gotthardt *et al.*, 2020). Farinha, Pereira and Almeida (2024) identify data security as one of the primary criteria for assessing RPA suitability. Similarly, the framework developed by Eulerich *et al.* (2022) emphasizes the importance of considering potential data restrictions, ethical concerns, government regulations, and company or customer policies before implementing RPA. Furthermore, as RPA requires access to existing systems, it may necessitate encryption or, at a minimum, thorough testing and validation (Forrester, 2011). However, these challenges are not unique to RPA. Information security constantly faces new threats with the adoption of emerging technologies and innovative methods (Lin, Wittmer and Luo, 2022).

In addition to data security concerns, RPA is inherently limited to automating rule-based processes with digital inputs (Penttinen, Kasslin and Asatiani, 2018). Such processes must have low cognitive requirements and limited exception handling (Fung, 2014). Lacity, Willcocks and Gozman further describe that RPA is designed specifically for handling highly structured data and strictly rule-based processes. Additionally, RPA relies on existing "heavyweight" IT infrastructure to function effectively (Penttinen, Kasslin and Asatiani, 2018).

While RPA can deliver improvements in speed and accuracy, the robots are still constrained by the overall pace of the processes they automate (Penttinen, Kasslin and Asatiani, 2018). Although RPA is often considered business-driven, it still requires IT support for maintenance (Penttinen, Kasslin and Asatiani, 2018). Many organizations view RPA as a guaranteed solution, but it demands substantial management and oversight to succeed (Willcocks, 2019). Studies have shown that approximately half of RPA automation projects fail (Herm *et al.*, 2023).

Currently, RPA is often seen as a temporary solution to balance the need for automation in legacy systems with manual task management (Asatiani and Penttinen, 2016). This is particularly in cases when full-scale system upgrades are impractical (Asatiani and Penttinen, 2016). Back-end system automation is superior to RPA in handling large transaction volumes and delivering high performance (Asatiani and Penttinen, 2016). However, RPA offers faster implementation and quicker returns (Asatiani and Penttinen, 2016).

Canhoto and Clear (2020) highlight in their study that improper implementation can lead to value destruction instead of creating added value. Despite these challenges, the benefits of RPA are often realized more quickly and are more substantial compared to earlier waves of technology adoption (Willcocks, 2019).

2.2 RPA suitability criteria

Farinha, Pereira and Almeida (2024) identify 32 different criteria relevant for determining which tasks could be automated. These criteria are listed on Table 1. These are designed to support decision makers in selecting appropriate processes for automation. The criteria can differ based on the context and specific needs of the organization (Farinha, Pereira and Almeida, 2024).

The authors conducted a Delphi study to develop these criteria. In the first round, open-ended questions were used to gather criteria from an objective perspective. Participants were asked to list as many criteria as possible for evaluating business processes suitable for automation. By the end of the first round, 33 criteria and their frequency of mention had been collected.

The second round focused on achieving consensus among the expert panel. In this round, participants were asked to evaluate each of the criteria identified in the first round. To refine the findings further, a third round was

conducted. It allowed participants to re-evaluate the criteria. This iterative process aimed to produce more accurate and reliable results. The factor values in Table 1 are calculated by subtracting the item's position from 33 and then dividing the result by 100.

The most important criterion according to their Delphi study is feasibility. The feasibility criterion's primary assessment is to evaluate if the idea is overall doable when considering the technical and operational requirements. This refers to the complexity of the process, the availability of resources and stability of the environment.

The second most important criterion is accurate process description. It refers to the fact that can the process be detailed and described precisely. Clear steps and defined process description are crucial for successful RPA implementation (Farinha, Pereira and Almeida, 2024). This is required for identifying the processes that could be suitable and for overall evaluation if the process can be automated.

Thirdly, input and output data should be structured and in digital format (Farinha, Pereira and Almeida, 2024). Unstructured data makes it much more complicated for RPA robot to succeed. In addition, digital data is a key factor when considering RPA implementation (Farinha, Pereira and Almeida, 2024).

Fourthly, the number of needed applications is evaluated. The more applications involved, the more complex and costly the automation (Farinha, Pereira and Almeida, 2024).

The fifth criterion is data security. Data security can be a decisive criterion even though the process would fill all other criterion. This evaluates how well the process complies with organizational and legal data security standards.

The sixth criterion evaluates if a process is rule-based. Processes should rely on well-defined rules and include minimal variation. This is to ensure that the automation is efficient and can follow standard rules without exceptions (Farinha, Pereira and Almeida, 2024).

The seventh and eighth criteria are related. The seventh evaluates the efficiency that can be gained with the automation. The more the automation can bring significant efficiency gains the more beneficial the automation is (Farinha, Pereira and Almeida, 2024). The eighth criterion can be the result of the efficiency gains. In addition to efficiency gains this criterion evaluates if the automation can minimize human errors which could lead to costly corrections or reducing the need for human labour.

Lastly, the ninth and tenth criteria both evaluate the stability of the process. The ninth criterion refers to if the process has changed recently. The more the process changes the more the automation is going to need reprogramming and updating. The last one refers more to how standardized the process is. Measuring if the process follows consistent workflow which makes it more predictable and therefore more suitable for automation.

Moreover, the list of criteria is there to support the process of decision-making which tasks could be automated (Farinha, Pereira and Almeida, 2024). However, process of decision is not that straightforward (Farinha, Pereira and Almeida, 2024). Deciding the right process can be the determining factor between success and failure (Farinha, Pereira and Almeida, 2024). The findings suggest that the problem may be more complicated than initially anticipated. The criteria that they highlighted include several areas that must be taken into account. Meaning that it involves requirements from both strategic and operational level along with the entire process environment, which is the factor that makes it complex (Farinha, Pereira and Almeida, 2024). However, the framework proposed was successfully applied in practice and serves as a starting point in a field that warrants further exploration. On the other hand, this framework was not done for specifically auditing processes, but it demonstrates the areas and criteria that must be taken into consideration when choosing the processes for automation.

Table 1 RPA criteria (Farinha, Pereira and Almeida, 2024, p. 163)

Position	Item	Definition	Factor
1	Feasibility	Whether an idea is doable	0,32
2	Accurate process description	If the process is well-detailed and described	0,31
3	Input and Output data	If there are structured and digital inputs and outputs	0,3
4	Applications requirements	Amount and types of applications access	0,29
5	Data security	What concerns exist regarding data security	0,28
6	Rule-based process	If a process is based on rules	0,27
7	Efficiency	How efficient is a process	0,26
8	Savings	How much savings can the automation bring	0,25
9	Process stability	Did the process change in the last 12 months	0,24
10	Process standardize and stability	Is the process stable and is not going to change	0,23
11	Test data	If data exists to perform test	0,22
12	Process complexity	How complex is a process to be automated	0,21
13	Applications maturity	Are the systems related to the process stable	0,2
14	Process cost	How much costs the process (manually)	0,19

15	Human error	Is the process prone to risks	0,18
16	Time-consuming	How much time a process consumes before automatization	0,17
17	Repetitive	Is the process repetitive	0,16
18	Number of exceptions	How many exceptions does the process have	0,15
19	SLA impact	Does the automation of the process satisfy the SLAs	0,14
20	Number of systems involved	How many systems are involved in the process	0,13
21	Data digitalization	If there is data being digitally managed	0,12
22	OCR involved	Is there any OCR involved in the process	0,11
23	Volume of items per transaction	How many items per transaction	0,1
24	Predictability of outcomes	Are the outcomes of the process predictable	0,09
25	Applications similarity	Are the systems involved similar	0,08
26	Human involvement	How much manual involvement is required to complete a transaction	0,07
27	Automation type	What is the type of automation required	0,06
28	Human effort	Is the process labour intense on the employee	0,05
29	Reusability	Can the process be reused once automated	0,04
30	Number of robots allowed	Number of robots that can run in the same instance	0,03
31	Cognitive requirements	Is there any cognitive ability required to complete a transaction	0,02
32	Number of users	Number of users using the automation	0,01

2.3 Framework for evaluating the suitability

According to Eulerich *et al.* (2022), while companies are increasingly leveraging RPA, individuals often lack the knowledge to select appropriate processes for automation. This challenge is particularly pronounced in organizations without dedicated RPA experts. Despite RPA's potential to improve auditing efficiency, there is limited empirical evidence of its application in audit environments (Moffitt, Rozario and Vasarhelyi, 2018). There are

frameworks that have evaluations for different stages of the automation journey. For example, the framework developed by Huang and Vasarhelyi (2019) includes stages for implementing and evaluating RPA in action. However, this study concentrates on companies that are still at the process identification phase. Therefore, this study applies the framework proposed by Eulerich *et al.* (2022).

The framework developed by Eulerich *et al.* (2022) is based on a three-step evaluation model specifically designed to help auditors identify processes suitable for automation. This framework is grounded in socio-technical systems (STS) theory, which emphasizes the interaction between technical systems and human or "social" elements (Winter *et al.*, 2014). A critical insight from STS theory is that an organization's success relies on intricate, multidirectional interactions between technical and social factors (Winter *et al.*, 2014). Eulerich *et al.* (2022) argue that organizations must avoid focusing solely on optimizing the technical component without considering the human aspect. In this context, auditors represent the social component, while RPA serves as the technical system. For example, if NeonAudit implements RPA for certain processes but fails to address employees' skills and familiarity with the technology, the RPA initiative is likely to fail (Eulerich *et al.*, 2022).

The framework defined by Eulerich *et al.* (2022) begins with two fundamental questions to determine whether RPA can be utilized at all. The first question is about if automation is allowed to be used. They refer to that it is important to consider data restrictions, ethical considerations, government regulation and company/customer policies etc. The second question examines whether adequate data is available for the bot to function accordingly. This question refers to that only if the data exists and is accessible. It does not include difficulty of programming it. If the answers for either one of these questions is "no" then the automation should not be carried out.

2.3.1 Technical feasibility

The technical feasibility evaluation form is listed on Table 2. The first evaluation criterion regarding the technical feasibility is activity type. This criterion refers to how much the audit process requires human thinking and judgment. RPA bots can handle well rule-based activities but still tend to struggle if processes require human evaluation even though machine learning (ML) and artificial intelligence (AI) have developed RPA more to that direction (Eulerich *et al.*, 2022).

The second criterion is data structure. This evaluation is about the format of the data. For successful RPA implementation, the data must be structured, such as organized numbers or text (Eulerich *et al.*, 2022). If the data is in unstructured formats, like images, or if the bots cannot utilize application programming interfaces (APIs), the automation is likely to fail (Eulerich *et*

al., 2022). Next one is process stability. It refers to how frequently the underlying task changes. A process that evolves constantly will require frequent updates to the RPA bot which makes it inefficient to develop a bot. This is because it demands the same level of effort for updates as its initial creation (Eulerich *et al.*, 2022). The fourth criterion is development requirements, which evaluates the resources needed to develop the bot, such as time, money, and expertise. This criterion also considers factors like data sensitivity and the necessity for the bot to perform tasks accurately every time. Task complexity increases with the number of data sources, alternative paths, and exceptions involved in the process (Eulerich *et al.*, 2022). The fifth criterion is about evaluating if RPA is preferred solution to carry out the automation. Eulerich *et al.* (2022) state that it's important to consider which way is the best one for automation as RPA is just one tool. RPA is usually good choice if there are several different systems (Eulerich *et al.*, 2022). Conversely, if the task involves automating processes within a single application like Microsoft Excel, it may be more efficient to consider alternatives such as macros. Visual Basic for Applications (VBA) within Excel can be surprisingly practical when embedded to audit modules (Debreceeny *et al.*, 2005). Lastly, there is a final evaluation of technical feasibility. This refers to evaluating the overall technical feasibility of the process based on the previous evaluation fields.

Table 2 Technical feasibility evaluation form (Eulerich *et al.*, 2022, p. 714)

Technical Feasibility	Lower feasibility				Higher feasibility
Activity type	1 Judgment based	2	3	4	5 Rule-based
Data structure	1 Unstructured	2	3	4	5 Structured
Process stability	1 Low	2	3	4	5 High
Development requirements	1 High	2	3	4	5 Low
RPA as preferred solution	1 No (or unsure)	2	3	4	5 Definitely
Final evaluation of technical feasibility	1 Low feasibility	2	3	4	5 High feasibility

2.3.2 Benefit evaluation

The second evaluation model focuses on assessing the benefits of developing an RPA bot. The benefit evaluation form is listed on Table 3. Both evaluation forms conclude with a final question which requires an overall evaluation of the aspect. The last evaluation is based on the responses to the preceding criteria.

First evaluation criterion regarding benefits is evaluating the effort needed for the activity. This criterion measures how resource intensive the process is. It focuses specifically on the task itself rather than the effort involved in creating the bot. Auditing tasks that require significant effort yield greater benefits when automated (Eulerich *et al.*, 2022). Second criterion evaluates how frequently this task is performed. The more frequently the task is needed to be performed the greater the benefit automation will provide (Eulerich *et al.*, 2022). Third one measures the degree of quality. If currently some specific auditing tasks have high error rates those could be improved with automation. Activities that require high quality and have a high risk are more beneficial to be automated (Eulerich *et al.*, 2022). Fourth criterion refers to the life cycle of the process. For instance, if the activity changes often or requires updates then it at the same time shortens the life cycle of the automation. The longer the life cycle the more beneficial it is (Eulerich *et al.*, 2022). Lastly, there is evaluated if the automation can be utilized within the organization outside the auditing task. This can bring additional benefits if the automation could be leveraged in for example support functions (Eulerich *et al.*, 2022).

Table 3 Benefit evaluation form (Eulerich *et al.*, 2022, p. 715)

Benefits of bot	Less beneficial				More beneficial
Effort needed for activity	1 Judgment based	2	3	4	5 High
Frequency of activity	1 Unstructured	2	3	4	5 High
Need for quality improvement	1 Low	2	3	4	5 High
Useful life	1 High	2	3	4	5 High
Organizational value	1 No (or unsure)	2	3	4	5 High

Final evaluation of benefits	1 Low feasibility	2	3	4	5 High benefits
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2.3.3 Process evaluation matrix

Third step of the evaluation process is to map the findings to the matrix in Figure 1. The mapping is done based on the final evaluation questions regarding both evaluation forms. Technical feasibility line on the matrix can be adjusted according to the company's resources and skills. If the company has high resources and skills, then the line should be moved lower and vice versa. Processes mapped to quadrant 2 should be prioritized, as these are the most suitable for automation and offer the highest benefits (Eulerich *et al.*, 2022). Once these processes have been addressed, attention can shift to those in quadrant 1. These are also suitable for automation but provide comparatively fewer benefits. Processes located in quadrant 3 are currently not suitable for automation, as they fail to meet the necessary criteria. Lastly, quadrant 4 processes should only be considered for automation once technical feasibility has improved.

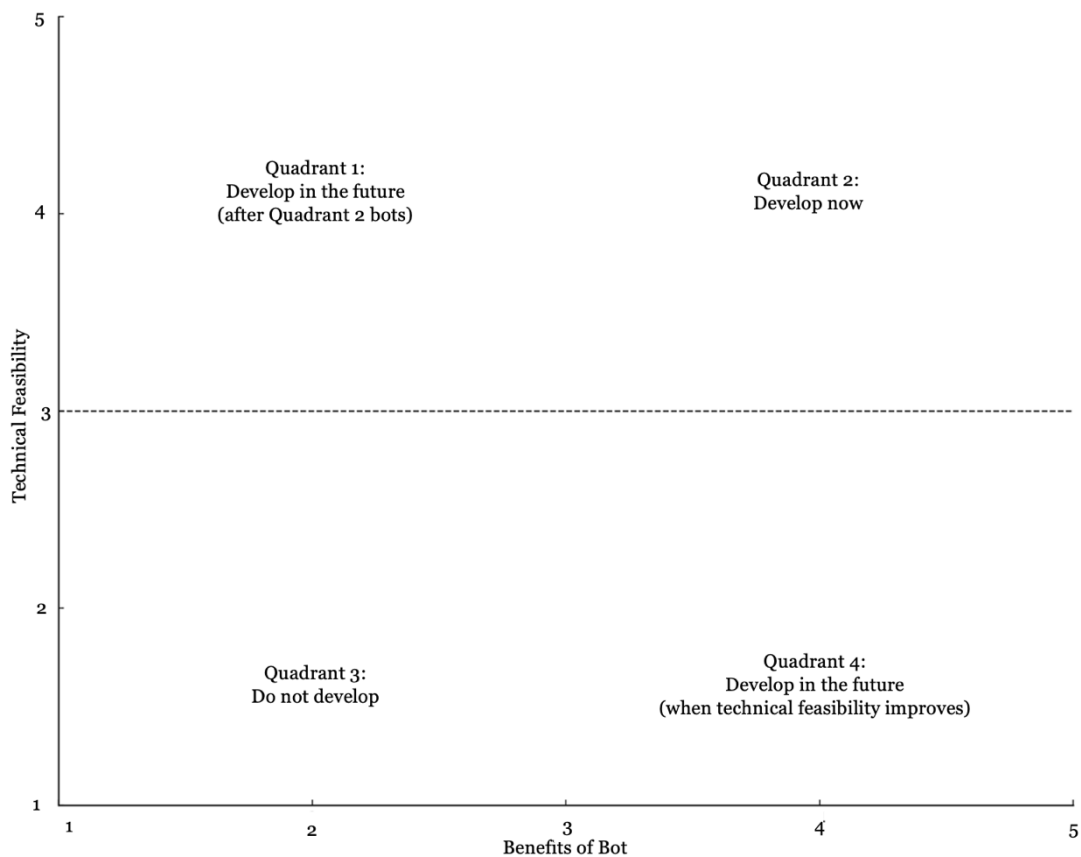


Figure 1 Process evaluation matrix (Eulerich *et al.*, 2022, p. 716)

3 Research methodology

The idea for this research emerged from the researcher’s observations and insights gained while working at NeonAudit. It was evident that there was potential to further leverage RPA. Discussions with the company’s partners confirmed this perspective. They agreed that a thorough evaluation of the processes could be beneficial. These discussions led to the initiation of this project.

This chapter begins by outlining the background and rationale for selecting the research methods. Following this, the chosen research methods are explained in detail. This is followed by presenting the approach used to analyse the collected data. Finally, the chapter concludes with a discussion on the trustworthiness of the selected methods.

3.1 Collection of empirical data

Collection of empirical data consists of collecting primary and secondary data (Eriksson and Kovalainen, 2008). Eriksson and Kovalainen (2008) define data that has been firsthand collected by the researcher as a primary data and data that already exists somewhere as a secondary data. The data collection procedures used in this study are visualized in Figure 2. The primary data collection methods are semi-structured group interview and a Delphi study.

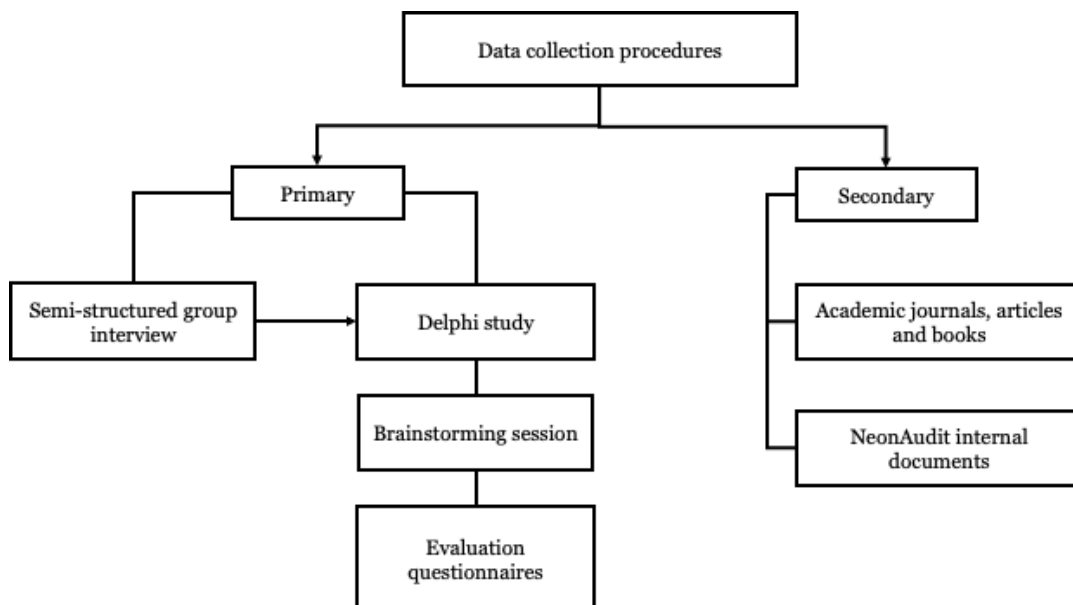


Figure 2 Data collection procedures

The secondary data was gathered during the literature review phase of the study. This data was primarily sourced from Aalto University’s databases and consisted mainly of academic journals, articles, and books. Additionally,

NeonAudit's internal documents related to the auditing process were utilized to gain a deeper understanding of the company's procedures. Orientation material was also reviewed prior to the group interview to ensure a comprehensive understanding of the entire process. During the group interview, a process overview chart (Figure 5) was presented to confirm that all aspects of the auditing process were covered.

3.1.1 Background for choosing the research methods

The goal of this research was to identify which specific auditing tasks are the most suitable for automation using RPA. Despite the growing interest in RPA, there had not been a clear consensus on how to systematically identify processes for automation. At NeonAudit, decisions regarding RPA utilization have largely relied on individual auditors' judgment. At the same time, NeonAudit has experienced significant growth in recent years which has made efficiency increasingly critical as the company scales. A systematic evaluation of process steps that could be automated would help the company make well-informed decisions to enhance efficiency and fully capitalize on the potential of RPA.

Firstly, the research aimed to develop a comprehensive understanding of the entire auditing process. Input from NeonAudit employees, who directly perform the audit process, was needed to develop this understanding. Secondly, the identified processes needed to be evaluated using a selected framework. The nature of this research required input from experienced auditors who understand the complexities of the auditing processes. To gather the most relevant and accurate insights, it was essential to use methods that effectively captured the diverse perspectives of these experts.

A semi-structured group interview was chosen as the first research method. This approach allowed for open discussion among participants while it ensured that all necessary topics were addressed. The semi-structured format enabled the group to refine their insights through discussion and to reach a shared understanding of the full auditing process.

The Delphi method was chosen as the second research method to evaluate the potential of RPA effectively. This consensus-driven approach allowed employees to evaluate the suitability of auditing tasks for RPA in a systematic and iterative manner. The Delphi method was especially well-suited to this study's needs because it emphasizes expert consensus. It ensured the focus remained on the auditors' in-depth knowledge of the processes. External RPA experts can be knowledgeable about automation but lack familiarity with the detailed steps of the audit processes. Additionally, the iterative nature of the Delphi method enabled the collection and refinement of insights across multiple rounds. This led to more reliable and well-constructed conclusions.

The Delphi method also addressed concerns about inclusivity. The partners of NeonAudit expressed concerns that their more extensive experience might unintentionally overshadow the perspectives of less-experienced employees. NeonAudit employs auditors with diverse backgrounds and varying levels of experience. While the auditing process is mostly consistent, the Delphi method allowed less-experienced auditors to contribute their evaluations without feeling pressured to conform to the opinions of senior auditors. By combining the semi-structured group interview and the Delphi method, this research provided a structured identification and evaluation of auditing processes.

3.1.2 Semi-structured group interview

The first part of this study was conducted using a semi-structured group interview. Interviews are commonly used to gather participants' opinions on specific topics (Sarajärvi and Tuomi, 2018). The goal of qualitative interviews are to collect empirical data relevant to the research being conducted (Eriksson and Kovalainen, 2008). According to Eriksson and Kovalainen (2008), it is essential to recognize that research questions and interview questions are not the same. The aim of conducting interviews is to gather material that enables the researcher to answer the research question through the analysis of the collected data. Consequently, it is important to invest sufficient time in crafting effective and appropriate interview questions.

According to Flick (2022), group interviews can be viewed as interactive interviews designed to promote situations where participants react to one another's opinions and think aloud. This interactive approach often leads to the generation of more profound insights (Gaudet and Dominique, 2018). Group interviews also have the potential to refine individual views which can make them more accurate through collective discussion (Flick, 2022). The semi-structured or semi-directive format of the interview allows for open conversation while it ensures that key subjects are not overlooked (Gaudet and Dominique, 2018).

The semi-structured nature of the group interview means that the discussion is guided by preplanned questions while maintaining flexibility (Eriksson and Kovalainen, 2008). This format encourages more in-depth responses while ensuring that all relevant topics are discussed (Eriksson and Kovalainen, 2008). However, it requires that the interviewer balances between allowing in-depth discussion while making sure that all relevant aspects are discussed (Eriksson and Kovalainen, 2008).

3.1.3 Conducting the group interview

The group interview was conducted face-to-face at NeonAudit's office. It was carried out in Finnish as it is the first language of all participants. Conducting

the interview in the participants' native language likely resulted in more comprehensive answers by eliminating potential language barriers. The interview was initially planned to last approximately one and a half hours, but not all the planned topics were covered within this timeframe. To ensure that all necessary topics were addressed without overburdening the participants, it was decided during the session to divide the interview into two parts. Each session lasted approximately one and a half hours. It resulted in a total interview duration of just over three hours. This approach aligns with Yin's (2015) recommendation. Interviews typically last one to two hours but focus group interviews may require extended durations (Yin, 2015).

The primary objective of the interview was to gain a comprehensive understanding of the auditing process. Participants were selected based on their positions at NeonAudit. The emphasis was on including individuals with varying levels of experience. This diversity was important, as auditors often interpret the same audit processes differently depending on their experience and perspective (Alles *et al.*, 2006). The interviewees included two audit managers, one senior audit manager, and one partner. All of them had at least one year of experience working at NeonAudit. This selection ensured that the interview captured a range of views and approaches to the auditing process.

The interviews were audio-recorded and subsequently transcribed. Transcription allows the researcher to thoroughly familiarize themselves with the interview content (Eriksson and Kovalainen, 2008). Recording also enabled the interviewer to focus on the discussion and the participants rather than note-taking. Only key responses were documented as notes during the session. The transcription process was completed on the same day as the interview and the following day while the discussion was still fresh in memory.

The focus of the interview was only on identifying the discrete process steps involved in the auditing practices. Efforts were made to keep the process steps at a similar level of detail. By documenting these steps, the research aimed to build a comprehensive overview of the full auditing process. This interview did not involve making judgments about whether the identified tasks were suitable for automation. The goal was purely to establish a detailed list of auditing process steps that accurately reflect the current state of auditing practices. This list will serve as the foundation for the next phase of the research. These tasks will be evaluated for their automation potential in the Delphi questionnaire rounds.

3.1.4 Delphi study

The Delphi method is a structured and iterative process which is designed to gather the judgments of experts on a particular issue (Skulmoski, Hartman and Krahn, 2007). The method is based on gathering expert opinions through multiple rounds of questionnaires and reach consensus on a specific

topic (Hsu and Sandford, 2007). The multiple rounds helps refine individual opinions and move the group towards a consensus (Skulmoski, Hartman and Krahn, 2007). It's particularly effective in situations with conflicting or incomplete knowledge which makes it an ideal choice for forecasting, policy analysis, and decision making (Skulmoski, Hartman and Krahn, 2007).

Rowe and Wright (1999) describe the classical Delphi method by dividing it to four critical areas. Firstly, they highlight the anonymity of Delphi participants. The anonymity ensures that the participants can give their honest opinions without letting other opinions to affect those. The evaluations are based on their own experiences. As stated earlier, a concern was raised about less experienced auditors potentially not sharing their true opinions because they could modify their opinions. This issue makes the Delphi method especially suitable for this research, as one of its key benefits is that it allows experts to provide feedback without direct confrontation or influence from others (Okoli and Pawlowski, 2004). This allows employees with less experience to give their honest opinion and not let them modify their opinions to be according to more experienced auditors. In addition, some auditors may have less experience from auditing, but they may have more experience of automation which makes it important to get their honest opinion.

According to Rowe and Wright (1999), the second key feature is iteration. This allows the participants to rethink their answers and compare it with the average consensus of the group. In this study, this allows the experts to reach a consensus even though the employees come from different backgrounds and experiences. Thirdly, they highlight controlled feedback. This one is related to the iteration. The participants are informed about other participant's perspectives. This makes them evaluate their opinions thoroughly and combined with iteration to modify their evaluations. Lastly, they highlight statistical aggregation of group response. The responses are aggregated to reach the consensus of the whole group.

3.1.5 Research sample

Skulmoski, Hartman and Krahn (2007) illustrate the typical Delphi process on Figure 3. Literature review, research question setting and research design have been done in previous chapters. The research sample refers to selecting the participants (Skulmoski, Hartman and Krahn, 2007). The selection of the expert panel is a major factor of Delphi research since the output is fully based on their opinions (Adler and Ziglio, 1996; Bolger and Wright, 1994).

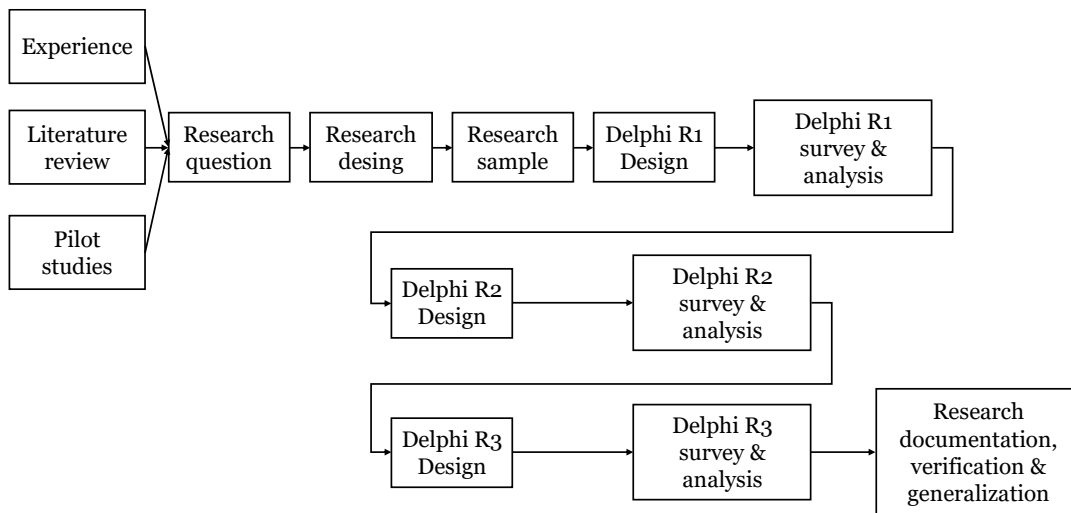


Figure 3 Three round Delphi process (Skulmoski, Hartman and Krahn, 2007, p. 3)

Adler and Ziglio (1996) define four criteria for expertise. They highlight knowledge and experience as the first criterion. In this study the auditors are the most experienced about the process steps in auditing. Auditing processes can vary depending on the company’s processes and practices. Secondly, they highlight capacity and willingness to participate. All participants in this study voluntarily agreed to contribute and demonstrated motivation to provide meaningful input. The potential impact of this research on their routine tasks at NeonAudit likely increases their interest in participating. Thirdly, they add sufficient time to participate. While this is challenging to measure beforehand, the participants' interest in the study’s outcomes is expected to motivate them to dedicate the necessary time to complete the Delphi questionnaires. The fourth and final criterion is effective communication skills. This refers to the ability to express priorities and opinions clearly. This is particularly when voting or ranking options. The panel of experts for this study consists of auditors at NeonAudit. These participants have different levels of experience, ensuring a broad range of perspectives of the auditing process.

The auditors at NeonAudit are qualified to evaluate the auditing process steps, as they are the most familiar with these processes. Accurately defining and assessing the process steps requires hands-on experience. Thus, the employees meet all the expertise criteria outlined by Adler and Ziglio (1996).

Regarding the number of participants, Skulmoski, Hartman and Krahn (2007) note that expert panels can range from 4 to 171 members. For more homogenous groups, a smaller sample size is often sufficient. In this study, the participants form a homogenous group. They are all auditors, which makes a smaller sample appropriate and efficient.

3.1.6 Delphi rounds

According to Skulmoski, Hartman and Krahn (2007), the typical Delphi process serves as a general guide rather than a strict template. They add that it can be modified to fit for the research questions. For instance, the questions can be switched from more open ended to closed ones (Skulmoski, Hartman and Krahn, 2007). In this study, the questionnaire includes the framework for evaluating auditing processes done in Eulerich *et al.* (2022) research. Consequently, the questions are closed but include an option for participants to provide additional comments to complement their evaluations.

Earlier researches using Delphi method have shown that three rounds are generally enough to reach a consensus (Fan and Cheng, 2006). While it is typical to conduct three rounds, there are also studies that have successfully employed single- or double-round Delphi approaches (Skulmoski, Hartman and Krahn, 2007). If the group of experts is small and homogenous, fewer rounds may be adequate to achieve consensus (Skulmoski, Hartman and Krahn, 2007). The researcher must determine appropriate point at which to stop polling (Schmidt, 1997). In some studies, the number of rounds is predetermined to avoid the risk of reaching an artificial consensus (Asatiani *et al.*, 2019). Also, the first round can sometimes be more like a brainstorming round (Schmidt, 1997). The aim of consequent rounds are for participants to verify their responses on previous rounds and reflect their responses and opinions (Skulmoski, Hartman and Krahn, 2007). The participants will then have an opportunity to modify or exaggerate their responses as they have now seen also other's answers. Usually, the rounds become more focused on the specific details of the research (Skulmoski, Hartman and Krahn, 2007).

In this research, the number of rounds was decided beforehand. The chosen number of rounds was three. It was based on evidence that it is generally enough to reach consensus. The mean was used as the primary tool for measuring consensus. Lastly, Skulmoski, Hartman and Krahn, (2007) note that the results in a Delphi study are continuously verified throughout the process. In this study, with its three rounds, the findings were validated iteratively as the process progressed.

3.1.7 Conducting the Delphi study

The expert panel for this Delphi study was selected based on the experience of the employees. To qualify for participation, individuals needed to have at least one year of auditing experience. Also, they needed to be primarily engaged in auditing, either currently or in the past. The panel of experts and their positions are listed on Table 4. It consisted of eight experts with different positions and levels of experience.

According to Alles *et al.* (2006), the most efficient approach to identify the automatable aspects of the audit process is to involve personnel with the

most experience in that process. By leveraging the insights of these experienced auditors, the study ensured a thorough evaluation of NeonAudit’s auditing processes.

Table 4 Expert panel

Position	Experience of auditing
Partner	24 years
Partner	18 years
Partner	16 years
Partner	5 years
Senior Audit Manager	4 years
Audit Manager	2 years
Audit Manager	1,5 year
Audit Assistant	1 year

The primary objective of the first Delphi round was to capture a focused selection of 15 process groups. These would then advance to the next rounds for deeper evaluation. The number of process groups was decided during the first round. The aim was to ensure that the subsequent rounds would not be too heavy.

The first round of the Delphi study served as a collaborative brainstorming session and was conducted face-to-face at NeonAudit’s office. This approach aligns with Schmidt's (1997) observation that the first round of a Delphi process often takes the form of brainstorming rather than formal evaluation. The primary objective of this round was to narrow down the number of process groups for further evaluation. Participants systematically reviewed the list of process steps identified during the group interview. The aim was to identify those most promising for automation.

The session began with an introduction to the study’s purpose and the concept of RPA. The framework developed by Eulerich *et al.* (2022) was presented to ensure participants understood the criteria for evaluating automation suitability. Insights from the literature review were used to explain the potential benefits of RPA. Also, the suitability criteria from the study by Farinha, Pereira, and Almeida (2024) were briefly introduced to further support participants in their evaluations. This introduction was important as some participants had limited prior knowledge of RPA.

The introduction was followed by presenting the outcomes of the group interview. Appendix B was briefly reviewed. As Appendix B contains 202 process steps, only an overview was presented to provide context for Appendix C. It contains the thematically grouped processes. Participants reviewed these groups and examples of the processes within them. The evaluation then proceeded based on two critical questions from Eulerich *et al.* (2022, p. 714). The critical questions were: “Are you allowed to use automation for the task under consideration?” “If the bot is working with data, is there sufficient

data/information for the bot to achieve its intended objective?” If the answer to either question was "no," the process group was excluded from further evaluation. If both answers were "yes", the process group was left for further evaluation. Following this initial evaluation, 21 out of 29 process groups remained under consideration. A subsequent group discussion refined this selection. Participants assessed feasibility and potential benefits of RPA using the Eulerich *et al.* (2022) framework. Consensus on the selected processes was reached organically through discussion and brainstorming, without a formal use of the evaluation forms.

The second round of the Delphi study focused on the technical feasibility (Table 2) and benefit evaluation (Table 3) forms presented in Eulerich *et al.* (2022) study. This round was conducted using Microsoft Forms and included each process groups selected in the first round. It included examples of the processes within each group and the two evaluation tables. Participants were additionally given a free text field to leave comments.

The third and final round was conducted in a similar manner to the second. However, this round included the average scores from the evaluation tables in the second round. Presenting these averages allowed participants to re-evaluate their answers and refine their responses.

Through this structured and iterative process, the Delphi study systematically evaluated auditing process steps. It provided a foundation for mapping the most suitable candidates for RPA. The combination of expert insights and detailed evaluations ensured that the selected processes represent a high-potential cross-section for automation.

3.2 Analysis of empirical data

According to Yin (2015), the process of analysing the data begins with compiling a database. The whole process is visualized in Figure 4. Constructing the database involves organizing all the notes and data collected during the study. The two-way arrows between the phases in the figure indicate that the process is iterative. It often requires multiple repetitions. This back-and-forth movement allows for refining and restructuring the data as it is disassembled and reassembled into a comprehensive database.

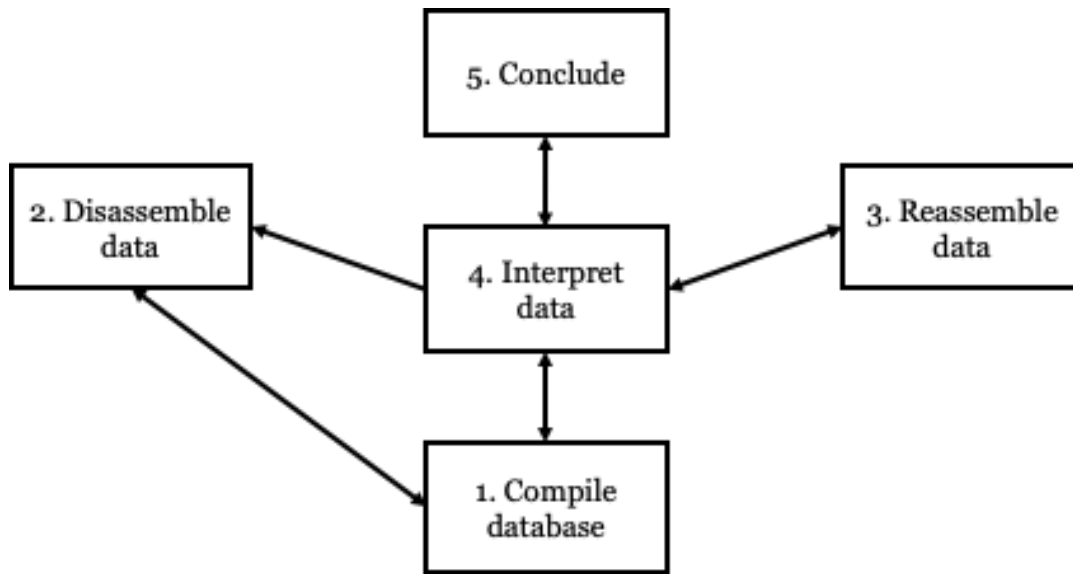


Figure 4 Analysing qualitative data (Yin, 2015, p. 186)

Third step is to reassemble data by dividing the data to groups. This involves thematic analysis approach. This concentrates on finding out and articulating implicit and explicit ideas within the gathered empirical data (Guest, MacQueen and Namey, 2012). Then this is followed by developing codes to represent these identified themes (Guest, MacQueen and Namey, 2012).

Appendix B illustrates how the outcomes of the group interview were organized into groups and assigned new codes to facilitate the identification of different themes and categories. Each process step was assigned a unique code corresponding to the specific phase of the audit in which it occurs. For instance, preparatory tasks were coded with numbers beginning with "1.x," while subsequent phases, such as gathering basic information, were coded as "2.1," "2.2," and so forth. This coding system ensured consistency and provided a structured framework that aids in the subsequent stages of analysis and evaluation.

The next phase, as described by Yin (2015), involves interpreting the data. It resulted in the creation of Appendix C. This step entailed a more detailed analysis of the data. The processes were further divided into refined themes and groups. The tasks were thematically grouped and afterwards the groups were given a name that corresponds to the nature of the tasks. According to Yin (2015), the interpretation phase may also involve creating tables or graphs to construct a new narrative from the data.

Finally, the process concludes with the final analysis, which synthesizes the findings of the study. This step ties the interpretations back to the study's overall objectives and research questions (Yin, 2015). Importantly, the analysis process is iterative rather than linear (Yin, 2009). It requires repeated refinement and reassessment throughout (Yin, 2009).

3.3 Validity of the study

This study utilized both a semi-structured group interview and a Delphi questionnaire. In research, validity focuses on the credibility of the findings (Seale, 1999). It examines whether the empirical evidence and logical reasoning adequately support the theoretical claims (Taylor, 2013; Keller and Casadevall-Keller, 2010). These methodologies are widely recognized in qualitative research, and the Delphi method has been extensively used in the information systems (IS) field for many years (Skulmoski, Hartman and Krahn, 2007). The researcher plays a central role in ensuring trustworthiness (Eskola and Suoranta, 1998). In this study, trustworthiness was assessed at every stage of the analysis, as the subjective decisions made throughout have a direct influence on the results presented. These methods were chosen because they address the specific needs of this study.

The semi-structured group interview aimed to gather insights directly from employees engaged in day-to-day auditing tasks at NeonAudit. This approach ensured that the data reflected the practical knowledge and experiences of those most familiar with the company's operations. The semi-structured format enabled participants to openly share their perspectives. It led to a deeper understanding of the whole audit process. In this study, data analysis was conducted according to the iterative process outlined in the previous chapter. Multiple stages during the interpretation phase increases the validity as it improves the completeness (Yin, 2015).

Moreover, by involving multiple participants, the interview phase strengthened the credibility of the findings. This is because the identified processes were based on a broad perspective of the company's operations. This improves the credibility as the group interview has the potential to refine individual perspectives which enhances the accuracy because of collaborative discussion (Flick, 2022). However, the size of the group is relatively small, and the interview involves only employees of NeonAudit which can make the outcomes subjective. Also, the use of semi-structured group interview may have introduced confirmation bias, with participants potentially focusing on familiar tasks or those already considered for automation.

Moreover, Guest, MacQueen and Namey (2012) note that thematic analysis, involves a degree of subjectivity that may affect reliability. Nevertheless, they emphasize that thematic analysis remains as one of the most effective and widely used methods for uncovering meaning within textual data.

The group interview was followed by the Delphi rounds. It was used to systematically evaluate the identified process steps using a predefined RPA suitability framework. As the nature of the Delphi method is iterative, it enhanced the reliability of the results, as participants had the opportunity to refine their opinions based on structured feedback from others in the group (Skulmoski, Hartman and Krahn, 2007). This feedback loop ensured that the conclusions drawn were thoroughly informed by the collective expertise

within the company. Also, the selection of the expert panel has an effect on the credibility (Adler and Ziglio, 1996; Bolger and Wright, 1994). The experts' background and areas of expertise were evaluated in the previous chapters. Strict rules were set to determine which employees were selected.

Furthermore, they were all willing and motivated to participate which can be seen as one validity criterion (Adler and Ziglio, 1996). Additionally, as the number of rounds was predetermined, it can have had positive impact on the motivation of the participant. It can also have prevented an artificial consensus. In Delphi studies where there are multiple rounds, there is a risk of reaching an artificial consensus (von der Gracht, 2012). On the other hand, the reliance on participants' self-assessment during the Delphi process is a limitation. Participants' familiarity with specific tasks and their understanding of RPA technology likely influenced their evaluations of feasibility and efficiency gains. While the Delphi method provides a structured approach to achieve consensus, these subjective assessments may reflect individual perceptions rather than an objective analysis. However, Delphi method is dependent on subjective evaluations (Turoff and Linstone, 2002).

4 Empirical study

The aim of this empirical study was to evaluate which auditing process steps are the most suitable for automation using RPA. The study was conducted to systematically assess the suitability of specific auditing steps for automation. It relied on expert input gathered through a semi-structured group interview and a Delphi questionnaire. The primary objectives were to identify auditing process steps and to present these steps in the process evaluation matrix.

4.1 Company background

The case company for this research is a Finnish auditing company founded in 2017. NeonAudit operates primarily in the field of auditing. As of 2023, the company had a revenue of 1.28 million euros and the company's revenue growth was 26.9%.

NeonAudit offers a range of services including financial audits, CFO services, business restructuring, tax advisory, and management consulting. These offerings are designed to help businesses manage compliance challenges as well as navigate growth and transformation. For instance, its' CFO services provide companies with interim financial leadership which helps fill roles in situations of temporary vacancies or as businesses scale up. Additionally, NeonAudit offers specialized tax advice for companies and corporate tax planning.

4.2 NeonAudit's role in the research problem

NeonAudit has experienced steady growth in recent years as its customer base has expanded. As the company grows, it has become increasingly important to ensure that internal processes are both efficient and scalable. One of the key challenges facing NeonAudit is maintaining this efficiency while continuing to grow and serve an expanding client base. To address these challenges, NeonAudit has been investing more heavily in automation. However, a lack of comprehensive understanding regarding which process steps are the most suitable for automation has hindered the full realization of its potential benefits.

Currently, the primary challenge is not the availability of RPA tools but rather the absence of a clear understanding of which processes would bring the greatest benefit from automation. As technology evolves, auditing processes are undergoing transformation (Huang and Vasarhelyi, 2019). However, current audit procedures can serve as a basis for identifying which processes are best suited for formalization and automation (Alles *et al.*, 2006; Vasarhelyi *et al.*, 2004). Without a structured evaluation of its auditing processes, NeonAudit risks overlooking key opportunities where RPA could

deliver significant improvements. Additionally, the company's reliance on external RPA providers to identify automation opportunities slows its ability to independently drive its RPA strategy.

The following chapters aim to give an overview of what kind of tasks the whole auditing process involves. The objective is to identify specific steps in the auditing process that are the most suitable for automation and to provide recommendations for prioritizing RPA efforts. By reaching a clear consensus on these processes, auditing companies will be better equipped to streamline their RPA implementations. In the long term, this approach can reduce the burden of manual and repetitive tasks.

4.3 Auditing process

The goal of financial reporting is to deliver information that is useful to management, stakeholders, investors, and creditors (Holzmann and Munter, 2014). This information aids in making informed resource allocation decisions and assessing the amount, timing, and risks associated with future cash flows generated by their investments in an entity (Holzmann and Munter, 2014). The purpose of auditing is to build confidence that the reported financial data are substantially correct (Burlaud, Niculescu and Predescu, 2024).

An overview of the current auditing process at NeonAudit is presented in Figure 5, which illustrates the workflow from the perspectives of auditors and audit assistants. Partners and main responsible auditors have additional steps beyond this workflow. They are also involved in client acquisition and client visits. Figure 5 is based on NeonAudit's internal process workflow material and was utilized both to structure the group interview and during the interview itself to ensure that all aspects of the auditing process were considered.

NeonAudit's auditing process is designed to be a structured workflow. It is meant to ensure that audits are conducted systematically and consistently. At the core of this process is a comprehensive Microsoft Excel workbook, which guides auditors through each stage of the audit. This workbook serves as a primary tool. It standardizes the process while allowing for tailored adjustments to meet the specific needs and risks of each client.

The auditing process begins after the client acquisition phase. The client acquisition phase involves several steps which are not taken into closer analysis in this study. For instance, the partners handle client outreach, negotiate pricing, and finalize service agreements. Once a service agreement is secured, the main auditing workflow is initiated. The group interview focused primarily on this workflow, which auditors and audit assistants perform.

NeonAudit's auditing team includes partners, audit managers, and audit assistants. Each of them have distinct roles and responsibilities. Partners serve as the primary responsible auditors. They manage client relationships and oversee the audit engagements. Also, they are responsible for performing

audits and ensuring compliance with legal and professional standards. Moreover, audit managers support the partners by managing the workflow and assigning specific tasks to audit assistants. While they actively participate in audits, they are not authorized to act as the main responsible auditors. Audit assistants execute various elements of the audit. It can include document verification and performing parts of the auditing process. Depending on the size of the client company, audit assistants may handle assigned sections of the audit or perform almost the entire auditing process.

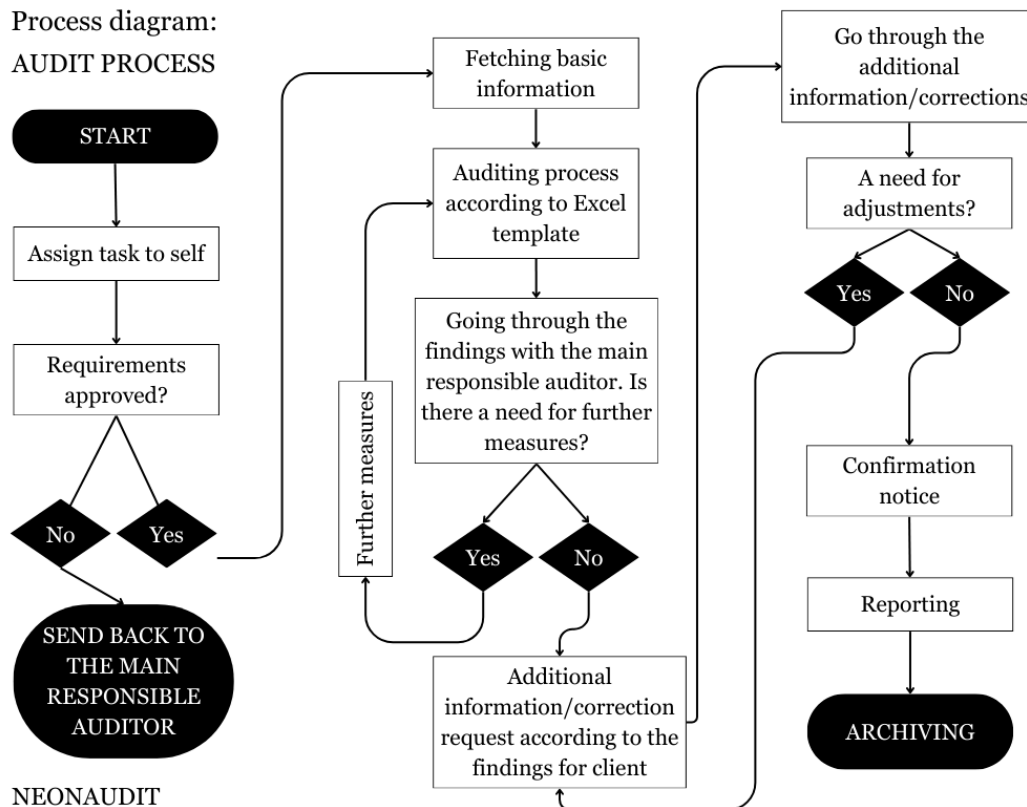


Figure 5 Overview of auditing process at NeonAudit

4.3.1 Basic information gathering

The detailed auditing process steps are listed on Appendix B. It is the outcome of the group interview. The following chapters are based on that table and the aim of the following chapters is to present an overview of the outcomes of the group interview.

First, the client provides necessary documentation via email. It typically includes a year-end financial statement, balance sheet, and other essential files. These documents are usually received by the partner and those are then managed using a workflow system. NeonAudit uses an Outlook add-in software called Asana to streamline some parts of this process. This tool allows emails and their attached documents to be exported directly into Asana,

which then generates a task that includes all necessary information. The task is then visible for all the audit staff members.

The formal start of an auditor's responsibilities occurs when the assigned employee claims the task in Asana, as indicated in the Figure 5. Audit managers can claim tasks themselves, but audit assistants wait for audit managers to assign the tasks for them. Once the task is claimed, the auditor must take several initial steps to proceed. First, the auditor requests access to the client's OneDrive folder from the main responsible auditor. This access is essential for being able to collaborate with other auditors and reviewing the historical files and documentation of the company. One of the auditor's first duties is to verify that the client's folder contains the legally required record of auditor selection. This document is crucial, as the audit cannot continue without it. If the record is missing, the auditor must return the task to the partner, who will then work with the client to obtain the necessary documentation. Once all required documents are verified, the auditor can move forward with the next phase.

Before the auditor can proceed to the Excel workbook, they must collect basic documentation of the company. The collection of basic documents of the company is a step in to establish the client's corporate and legal status. This typically involves accessing publicly available records, such as the trade register, tax debt register, and certificate of incorporation. For new clients, this step may also include additional compliance checks, such as retrieving documents for client identification, performing anti-money laundering checks, and identifying actual beneficiaries. These documents ensure that the audit is based on accurate and complete information.

4.3.2 Setting up the Excel workbook

The process in Excel workbook begins with gathering essential information about the client from the documents that were retrieved in earlier stage. Most of the essential information are typically from shareholder meeting minutes. This data includes details like the accounting period, client name, and business ID. NeonAudit uses DataSnipper, which is a Microsoft Excel add-in that uses optical character recognition (OCR) to extract information from PDF documents. While DataSnipper makes parts of the process more effective, the auditor still needs to manually locate and crop each piece of relevant information.

After the essential data is collected and verified, the auditor performs an independence evaluation to identify any potential conflicts of interest with the client. This evaluation consists of answering a series of questions to ensure compliance with independence requirements. The auditor must assess whether the client relationship poses any risk to objectivity and flag any issues that could compromise objectivity. If potential threats to independence are identified, these concerns are escalated to the main responsible auditor

for further review and resolution. This stage requires a strong understanding of professional ethics and also understanding of the client's operations and industry landscape. This step is based on auditors' discretionary evaluation rather than a rule-based straightforward comparison.

After the independence check is completed, the auditor proceeds to set up an analytical worksheet. The current fiscal data from the client's financial statements and balance sheet are entered into dedicated cells within the Excel workbook. The data must be set to the specified cells, so that the data flows to other sheets. For returning clients, historical financial data from up to four previous fiscal years are also included.

4.3.3 Risk assessment

The client's business activities and the environment in which they operate is essential to understand to effectively conduct an audit. This knowledge influences risk assessments, applicable laws, and the overall audit approach. Understanding client activities is the first step. This involves developing a clear picture of what the client does. It includes analysing the nature of its operations and key business processes. By identifying these activities, the auditor can better assess the inherent risks and determine which laws and regulations are the most relevant to the client's industry.

Furthermore, the scope and depth of reporting and documentation vary based on client size. Larger entities typically require more extensive documentation and reporting. While, smaller clients may qualify for certain simplifications. This assessment is not just a matter of understanding the scale of the client's operations but also to ensure that the audit approach is proportionate and efficient. Once client's activities and size are evaluated, classifying the complexity of the client becomes necessary. The auditor must determine if the client is considered a simple entity under the International Standard on Auditing for Audits of Financial Statements of Less Complex Entities (LCE) standard or if it falls under the more complex category. Larger companies require adherence to specific standards under the International Standards on Auditing (ISA). Most clients qualify for LCE simplifications. Nevertheless, understanding the complexity ensures that the appropriate level of audit scrutiny is applied.

Moreover, risk assessment has an effect on the materiality determination. It ensures that the auditor focuses its efforts on areas that could substantially impact the financial statements. The Excel workbook provides default percentage values for materiality calculations. The values are based on the fiscal data presented in the analytical sheet. Materiality levels are divided into three main categories. The different levels are clearly trivial mistake (CTM), performance materiality (PM), and overall materiality (M). Each level serves a specific purpose and requires distinct actions.

Clearly trivial mistake is defined as a minor error that does not materially impact the financial statements. These are typically related to cut-off errors or small misstatements. When an error falls below the CTM threshold, it is noted in the corresponding observation, which may result in no further action being required, depending on the nature and size of the mistake. This ensures efficiency in addressing only those errors that are substantial.

Performance materiality sets the threshold for errors that require deeper examination. All income statement and balance sheet items exceeding this level must be audited. Errors that fall between the CTM and PM thresholds are documented under significant findings on the workbook. These findings alert the main responsible auditor, who can then decide whether corrections are necessary or whether these errors should be considered when drafting the audit report.

Materiality represents the maximum allowable error before the audit report must be modified. Errors exceeding this threshold are critical and must be flagged in the significant findings worksheet. Even if the impact on profit is slightly below the overall materiality threshold, substantial errors in revenue or expenses must be highlighted and addressed.

Choosing the appropriate level of materiality involves careful consideration. The auditor must justify the selected materiality and document the rationale behind their chosen method and materiality levels. Any special considerations, such as unique industry risks or client-specific factors, should also be noted.

4.3.4 Governance and related party review

The governance review begins with documenting the official appointment of the auditor. The auditor's appointment must be recorded in the minutes from the company's annual general meeting (AGM). To confirm this, the auditor reviews the meeting minutes and documents the verification. Next, the review involves extracting and documenting any dividend decisions made during the AGM. The number of dividends decided upon must be accurately recorded.

In addition to these tasks, the auditor examines relevant governance documents for any irregularities. This includes checking for inconsistencies like incorrect numbering of meeting minutes, discrepancies in trade register information, or other governance-related issues. Any identified concerns are documented and communicated to the client as part of the final audit report. The auditor provides guidance on how these issues should be addressed. The aim is to ensure that governance practices are aligned with best practices and regulatory standards.

Moreover, a review of related party relationships and transactions must be done. The process begins with retrieving a document from a certain website. This is followed by identifying related parties. All identified related

parties, and their relationships are recorded for reference. This initial identification step ensures that the auditor is aware of any associations that could influence financial transactions.

Following the identification, the auditor conducts a detailed search for related party transactions. This step typically takes place later in the data collection process and involves reviewing purchase and sales invoices to ensure that all transactions involving related parties are properly documented. The method for extracting and reviewing these transactions depends on the accounting software used by the client. Each related party transaction is assessed for potential risks or inconsistencies. For instance, favorable terms or conditions that could indicate conflicts of interest or improper financial reporting.

4.3.5 Assertions in auditing

During the interview the participants emphasized the importance of understanding the assertions used in auditing. When auditing items in the balance sheet and financial statements, it is essential to recognize and evaluate risks of material misstatement at the assertion level. All the following assertions are being used when conducting the auditing process.

The first step is verifying the existence of all assets recorded on the balance sheet. This can mean about confirming that they are physically present. For instance, inventory items can require physical inspection visits.

Secondly, completeness is another critical assertion which aims to ensure that all relevant transactions and events are fully captured in the financial records. Auditors confirm that all transactions involving fixed assets, including additions and disposals, are documented in the accounting records. They also verify the entirety of reported revenue by comparing figures to the general ledger. The aim is to identify any significant discrepancies to ensure the income statement is complete.

Thirdly, accuracy and valuation further support financial statement reliability. These assertions mean about requiring that assets and liabilities are recorded at their correct values and transactions are accurately documented. For example, asset valuation involves checking that publicly traded shares are recorded at cost or the lower market value. Auditors also verify that transactions are registered correctly in both the balance sheet and the general ledger.

Fourthly, rights and obligations assertion is to ensure that the entity has the rights to its assets and that its liabilities represent actual obligations. This involves reviewing agreements, such as leases for office spaces or equipment, to identify any special terms and confirm that these are disclosed appropriately in the financial statement notes. Bank account access and payment approvals are also examined to ensure they are properly arranged and documented. This part safeguards the entity's financial obligations and rights.

Lastly, classification and presentation play a key role in maintaining the integrity of financial statements. Items must be categorized correctly and presented appropriately. Auditors review classifications, such as ensuring securities are accurately listed on the balance sheet and that pension expenses are reported as pension costs in the income statement, rather than being misclassified under other personnel-related expenses. They also assess the presentation of trade receivables, including intercompany receivables, to confirm compliance with accounting principles and accurate representation in the financial statements.

4.3.6 Auditing balance sheet

The auditing of balance sheet involves reviewing different accounts. Auditing these items can include same process steps. In Appendix B is listed all steps included in auditing different accounts. The following overview outlines how auditors approach each balance sheet account. Auditors' primary focus is on verifying assertions which were listed in the previous chapter.

Auditors begin auditing fixed assets and financial securities by verifying the completeness of fixed asset transactions. The aim is to ensure that all additions and disposals are recorded in the accounting system. This involves retrieving supporting documentation, such as purchase invoices, receipts, and appraisal reports, and reviewing the general ledger for any unrecorded changes. To confirm existence, significant assets like buildings or machinery may be physically inspected or validated through alternative means, such as appraisals. To ensure accuracy the auditor must go through transactions and document that those are properly registered in the trade register and general ledger. Auditors use sampling methods to check selected transactions for correctness and reconcile asset values between accounting records and balance sheet. For valuation, auditors review depreciation rates, ensuring compliance with tax regulations and the correct application of depreciation schedules. Securities and other personal assets are also evaluated to confirm that valuation adjustments are accurate and appropriately documented.

This is followed by auditing inventory account. The aim when auditing inventory is to ensure completeness, existence, accuracy, valuation, and presentation. Auditors retrieve detailed inventory reports, stock ledgers, and related documents to confirm that all transactions are documented and included in financial records. To verify existence, they may participate in physical inventory counts, following International Standard on Auditing (ISA 501). Accuracy is ensured by reconciling inventory values with supporting documentation, and valuation checks are conducted to account for obsolescence or slow-moving items. Auditors also analyse inventory changes and perform substantive testing on sample items to validate unit prices.

For accounts receivable, auditors ensure completeness by selecting significant items for review and gathering evidence to confirm that all receivables

are recorded. Auditors check that recorded receivables represent actual claims. They perform accuracy checks by comparing receivables with supporting evidence and assessing valuation by identifying overdue receivables and evaluating potential write-downs for collectability. Presentation is reviewed to ensure that trade and intercompany receivables are appropriately disclosed. Similar steps are followed for other receivables, with substantive testing to confirm the validity and valuation of significant items.

Auditing cash and bank balances involves verifying existence, accuracy, valuation, and ownership. Auditors request bank confirmations to ensure balances are accurate and available. They reconcile figures from bank statements with the financial statements and review monthly transactions to confirm that all entries in the general ledger are correct. Additionally, auditors check that bank account access rights and payment approvals are properly documented.

The review of equity accounts addresses completeness, existence, accuracy, valuation, ownership, and presentation. Auditors verify that equity transactions, such as share capital changes and dividend distributions, are fully recorded and supported by official documentation. They reconcile equity balances with financial statements and assess the impact of profit distributions on the company's solvency. Ensuring proper classification and disclosure of equity components is essential for compliance with accounting standards.

For loans, auditors ensure completeness by extracting data on all bank loans and instalment debts. This includes details such as loan amounts, interest rates, and repayment terms. Existence and accuracy are confirmed through evidence gathering and reconciliation with bank confirmations. Auditors also check the classification of loan repayments. This is done to ensure that short-term and long-term liabilities are correctly distinguished based on repayment schedules.

The audit of accounts payable and other liabilities focuses on completeness, existence, accuracy, and presentation. Auditors select significant payables for review, gather evidence, and reconcile these amounts with accounting records. Also, they analyse outstanding and negative balances and investigate long-overdue payables and ensure that all liabilities are accurately valued. For intercompany payables, auditors confirm proper disclosure and classification. Documentation of any discrepancies and follow-up actions ensure that the financial statements are free of material misstatements.

4.3.7 Auditing income statement

Auditing of income statement begins with auditing the revenue account. The goal is to ensure all revenue transactions are correctly registered and invoiced. Auditors check for completeness by identifying revenue changes compared to the previous year and budget. This can require cross-check sales

transactions with sales orders, delivery receipts, and customer confirmations to ensure only genuine transactions are recorded. Accuracy is tested by reviewing revenue details. This can be done by checking sales invoices and checking that those include descriptions, quantities, dates, customer information, and prices. Procedures like cut-off testing and contract reviews ensure revenue is recognized in the correct accounting period and in alignment with contractual terms. Additionally, adjustments for returns, discounts, and allowances are carefully examined to prevent revenue overstatement.

Purchases account is audited to confirm that all purchase transactions and expenses are fully recorded. Auditors begin by performing an analytical review to identify any changes in purchases compared to the previous year and budgeted figures. They analyse significant variances and investigate unusual trends. For completeness, auditors review purchase accruals, especially those recorded in the final month of the fiscal year, to detect any cut-off errors. Existence is verified by matching purchase invoices with the receipt of goods or services. Accuracy checks involve reconciling recorded amounts with supporting evidence and ensuring the correct classification of expenses. Auditors also review and assess the appropriateness of any adjustments made to expense accounts.

Personnel expenses require verification of payroll-related transactions. Auditors check for completeness by ensuring that all payroll expenses are recorded. To audit these, reports like income register report 600 is needed. An analytical review of personnel expense changes helps identify significant variances from prior years or budgeted amounts. Existence is confirmed by verifying that all payroll transactions are genuine. Accuracy is ensured through the verification of social contribution rates and payroll reconciliations. Key areas of focus include the assessment of accrued holiday pay and bonuses, as well as testing accrual calculations to ensure they are supported by documentation and accurately recorded.

Other operating expenses are audited to ensure that all transactions are genuine and correctly classified. Auditors extract data from various expense subcategories, perform analytical reviews to identify significant changes, and select items for detailed testing. Reconciliation of expenses with supporting evidence ensures that amounts are recorded accurately. Special attention is given to expenses recorded near the fiscal year-end. Cut-off testing is performed to attribute expenses to the correct period. For legal expenses, supporting invoices are gathered. Also, a legal letter is requested from the company's attorney to confirm any outstanding matters but only in cases when this is relevant.

Auditing financial income and expenses involves understanding the nature of financial items such as bank loan expenses, interest income, and other expenses. Auditors conduct an analytical review to compare current year figures with prior periods. They select major financial items for testing and gather supporting evidence to verify completeness, existence, and accuracy.

Reconciliation of financial income and expense amounts ensures they are recorded correctly in the financial statements.

4.3.8 Finalization of auditing process

After auditing the balance sheet and income statement there are taxes, journal entries, financial statement and notes, and a final review. These involve a series of steps designed to ensure the accuracy, completeness, and compliance of the financial statements. These processes are integral to providing a high level of assurance on the financial health and reporting integrity of the audited entity.

Furthermore, audit of taxes focuses on verifying that all tax-related liabilities and expenses are accurately recorded and compliant with tax regulations. To ensure completeness, auditors retrieve tax reports and confirm that all tax obligations are recorded in the financial statement. Existence is verified by examining tax calculations and ensuring they represent genuine obligations. For accuracy, auditors assess whether tax figures and calculation methods are appropriate and compliant with relevant tax laws. Reconciliation is a key step, where auditors match tax amounts in the tax reports with entries in balance sheet and income statement to ensure correctness.

Audit of journal entries is a critical component of detecting potential misstatements or fraudulent activities. Auditors start by understanding the client's internal controls over journal entries, reviewing control questionnaires, and identifying the types of entries used. They perform risk assessments to pinpoint areas susceptible to misuse, focusing on manual or unusual entries. Inquiry with financial reporting personnel helps to uncover any suspicious activities. Evidence gathering involves collecting supporting documents for selected journal entries and reconciling them with the general and subsidiary ledgers to confirm accuracy. Detailed examination and substantive testing ensure that journal entries are correctly recorded and free from signs of financial manipulation.

One part of the finalization process is to verify the accuracy of accompanying notes. This is done to ensure compliance with applicable regulations and standards. The process begins with an opening balance review to reconcile current fiscal year balances with those from the previous year. Reconciliation of figures in the income statement and balance sheet with the general ledger ensures consistency. Auditors also check that the financial statement formats are correct and compliant. The management report is reviewed to ensure it accurately reflects performance and meets disclosure requirements. Notes compliance checks and the reconciliation of figures within the notes further guarantee that the financial statements are comprehensive and clear. Auditors also review accounting policies and assess contingent liabilities for completeness.

The final review phase is crucial for summarizing and evaluating all audit work. The main responsible auditor ensures that all significant findings are addressed and documented. A comprehensive evaluation of audit evidence confirms that it is sufficient to support the audit opinion. Preparation of the audit report involves drafting a summary of findings and determining the appropriate opinion type. All significant findings are reviewed, and compliance with auditing standards is verified. Main responsible auditor considers management representations and resolves any outstanding issues. A completion checklist is used to finalize audit procedures. The aim is to ensure that all documents and review points are addressed. Subsequently, main responsible auditor drafts an audit report and reviews it. Signing the audit report marks the conclusion of the audit, followed by the archiving of all related materials.

In addition to the regular auditing process, one participant pointed out that around ten percent of clients still use paper-based accounting records. This adds additional tasks and complexities to the auditing process. The process "Naming of documents", was included as the final item in Appendix B. This process was identified during the concluding part of the interviews when participants were invited to share any additional processes they felt had not yet been addressed in the discussion. This process was given a code "N/A" because it's on occasions when there are paper-based accounting records or if the bookkeeper has not given any names to the documents. This made it impractical to place in between some processes on Appendix B.

4.3.9 Grouping the auditing tasks

The auditing process at NeonAudit involves a structured and repetitive set of procedures, designed to ensure the correctness, trustworthiness, and compliance of financial statements. During the evaluation of NeonAudit's processes, a total of 202 distinct steps were identified which are listed on Appendix B. To maximize efficiency, these were consolidated into 29 distinct groups using thematic analysis. This approach reflects the shared characteristics of tasks in terms of their nature, the methods and requirements for handling data, and the objectives they aim to achieve. The grouping was informed by insights gathered during interviews conducted with NeonAudit employees, where participants identified overlapping functions and recurring workflows within the auditing process. These discussions provided a practical perspective that supported to use the thematic analysis. This ensured that the groupings aligned with both theoretical criteria and the day-to-day realities of the audit workflow.

Firstly, the tasks *task creation in asana* 1.1, *task assignment* 1.2, and *request access to client folder* 1.3 were not assigned to any group. These tasks are performed exclusively at the start of the audit process and do not repeat throughout the workflow. Additionally, they were not grouped under one same group because of the distinct nature of those processes.

The third group in the list is *verification*. These tasks are centered around various verification activities. For example, task 7.1 involves confirming that the appointment of the auditor has been officially recorded in the AGM. Similarly, task 14.2 requires verifying that, in cases where equity is negative, this has been properly documented in the trade register. The commonality among these tasks lies in their shared objective of ensuring accuracy and compliance. It reflects the similar nature and methods of their processes.

The fourth group, *basic data collection*, includes tasks 2.1 and 2.3. Task 2.1 involves collecting company information, such as trade registry and tax debt register documents. Similarly, task 2.3 focuses on gathering basic documents for new clients. It includes additional items like engagement letters, money laundering risk assessments, and beneficiary information. Both tasks share similar activities and handle comparable types of data, which makes them well-suited to be categorized within the same group.

The fifth group, *assessment and evaluation*, encompasses tasks that require discretionary judgment and analytical evaluation by the auditor. For example, task 3.2 involves assessing the independence of the audited company by answering a series of predefined questions. Similarly, task 5.1 requires the auditor to understand the nature of the client's business, which directly influences risk assessments and the identification of applicable laws. These tasks share a focus on analytical reasoning and decision-making, aligning them under the same group.

The sixth group is *extracting data from financial statement and balance sheet to dedicated cells*. It includes tasks 4.1 and 4.2 which were categorized into a distinct group because they differ from other types of data extractions. Financial statements and balance sheets are typically presented in consistent formats, and the extracted data is entered into dedicated cells, ensuring a standardized output. This contrasts with other data extraction tasks, which may involve varied data types and lack predefined areas for precise placement. These characteristics make this group uniquely defined.

This is followed by four distinct groups. Each of these consist of a single task. The first group focuses on *extracting data from previous years' Excel workbooks*. This task is categorized separately due to its unique data source. It exclusively involves extracting data stored in Excel which distinguishes it from other data extraction processes. The second group is *identifying data sources*. This task involves determining where the relevant data is stored. It directly impacts the systems the audit team needs access to and the scope of audit procedures. Its specificity and influence on subsequent tasks warranted its individual grouping. The third group is *using pre-prepared questionnaires*. It involves gathering additional information from the client. This task's unique focus on structured client interaction justified its placement in a standalone group. The eleventh group is *choosing the appropriate level of materiality*. While this task could have been grouped under *assessment and evaluation* because of its evaluative nature, it was categorized separately

because it is more rule-based compared to the discretionary processes in that group. This distinction reflects its structured approach, which sets it apart from the others.

The twelfth group consists of 19 similar tasks. All of these are related to *gathering evidence* or retrieving documents. These tasks involve document retrieval, such as obtaining supporting documentation like purchase invoices, receipts, and appraisal reports for asset additions and disposals. While the specific documents being retrieved may differ, the underlying process across these tasks remains largely the same. The tasks share a common workflow of locating, accessing, and downloading the required documentation. Although the data source varies depending on the accounting software used by the client, the similarities in the retrieval process and the nature of the data justify grouping these tasks together.

The next group is *identifying changes* which consists of 28 tasks. These tasks focus on identifying variations or updates within financial records. For example, task 8.2 involves identifying related party transactions from the general ledger. Similarly, task 9.2 pertains to identifying any additions, disposals, or destroyed assets under account 6800, which relates to fixed assets and financial securities. While the specific focus of each task may vary, they share a common objective which is about analysing data to detect and document changes. This grouping reflects the consistent methodology required for these tasks, which often involves reviewing ledgers or accounts to highlight significant updates or transactions relevant to the audit process.

The next group is named as *sampling*. It consists of eight tasks that share a common approach of selecting items for review to meet a desired sample size. For example, task 9.3 involves selecting a sample of asset additions and disposals to verify their accuracy. Unlike the *selection of items for review* group, where items are chosen based on predefined rules, the *sampling* group focuses on tasks where some sort of randomness is a key element in the selection process. This method is often employed when the review requires a specific number of items, but significant items alone do not meet the required quantity. By incorporating random sampling, these tasks ensure that the audit achieves adequate coverage while maintaining an unbiased approach to item selection. However, it was noted that it's not always that straightforward. Sometimes the sampling can require much more analytical selecting. This is supported by Christensen, Elder and Glover's (2015) study where they state that in some larger auditing companies there are strict rules for sampling.

This is followed by *extracting data* group. It consists of 21 tasks focused on transferring data from PDFs to Excel. For instance, task 7.2 involves extracting the amount of dividend decided upon during the AGM. Similarly, task 9.4 requires documenting values from the balance sheet and corresponding evidence into the workbook. These processes share the common

activity of collecting data from source documents, such as evidence files or the general ledger, and systematically inputting it into Excel.

This is followed by a group named *reconciliation* which comprises 25 tasks centered on ensuring consistency and accuracy across financial records. For instance, task 9.5 involves reconciling sampled asset values with supporting documents to verify that they match the amounts recorded on the balance sheet. Similarly, task 10.4 focuses on reconciling inventory figures by comparing data from the balance sheet, detailed inventory reports, and supporting documents. These reconciliation tasks are repeated across various accounts, reflecting their critical role in validating the integrity of financial information. By systematically comparing records and identifying discrepancies, this group ensures that financial statements accurately represent the underlying data.

The seventeenth group, *documenting*, consists of nine tasks focused on recording findings, discrepancies, and explanations during the audit process. For instance, task 9.8 involves documenting any issues or discrepancies identified in related party transactions. Similarly, task 17.5 requires documenting all differences under account 2900 (Other Liabilities). The objective of this task is to provide explanations for significant findings and investigating any unusual or unexplained variances. These tasks share a common goal of creating a transparent and detailed audit trail which is to ensure that all issues and anomalies are properly recorded and addressed. This documentation is critical for maintaining accountability and supporting subsequent reviews or evaluations.

The next group is named as *reviewing*. It consists of eight tasks that involve discretionary review of key documents. For example, task 9.9 focuses on reviewing lease or property purchase agreements to ensure all terms are appropriately disclosed and classified. Similarly, task 18.6 involves reviewing major contracts and agreements with customers to ensure that revenue recognition aligns with contractual terms. This includes checking for clauses that may affect revenue timing, such as performance obligations or return policies. These tasks require a deeper level of judgment and interpretation compared to rule-based checks, as they often involve assessing compliance with complex terms and identifying potential impacts on financial reporting.

This is followed by *calculation* group, which consists of six tasks focused on performing various financial calculations. For instance, task 9.10 involves calculating the valuation of assets to ensure they are accurately valued, particularly for securities and personal assets. Similarly, task 16.9 requires calculating the correct valuation of liabilities as of the balance sheet date, taking into account relevant foreign exchange rates and ensuring proper adjustments are applied. These tasks share the objective of verifying that financial figures are accurately determined and properly reflected in the financial statements. The processes often involve precise calculations and adjustments based on applicable standards or external factors.

Next, there are five remaining groups which consist of a single task. The first group is *physical inventory*, represented by task 10.7, which involves participating in the physical inventory count as a mandatory audit procedure, required under ISA 501. This task necessitates direct involvement and physical presence which distinguishes it from other tasks. The second group is *credit risk assessment*. It involves task 11.6, which focuses on identifying clients who have gone bankrupt but still have receivables recorded at full value. This process includes cross-referencing the audited company's receivables with a bankruptcy registry to ensure the accuracy of recorded values. The third group consists of task 15.5 and is named as *classification check*. The aim of this task is to ensure that loan repayments due within the next financial year are classified as short-term liabilities, while repayments scheduled for later periods are classified as long-term liabilities. This task involves verifying proper classification to align with financial reporting standards. The fourth group, *discussion with financial reporting personnel*, is represented by task 24.4. It involves inquiring about any inappropriate or unusual activities related to journal entries by discussing these matters directly with financial reporting personnel. This task is distinct because of its reliance on direct communication and professional judgment. The final distinct group is *naming of documents*. It was identified during the conclusion of the interview and does not have an assigned task number. Participants noted that this task involves naming of scanned paper accounting records. It varies in timing but is often repeated multiple times if paper records are involved. All of these tasks were grouped separately because of their unique characteristics and lack of overlap with other groups. These have distinct roles within the auditing process.

Furthermore, *analysis* group includes 14 tasks focused on conducting in-depth evaluations and interpretations of financial data. For example, task 14.5 involves using a solvency analysis to assess whether the proposed profit distribution could jeopardize the company's liquidity or its ability to meet obligations. Similarly, task 19.2 requires performing an analytical review to understand the development and structure of purchases and other expenses. These tasks are characterized by their reliance on analytical methods to interpret financial trends, identify risks, and support decision-making. The common focus on detailed evaluation and insight-driven conclusions makes these tasks distinct and justifies their grouping under the same group.

Subsequently, the next group is *selection of items for review*. It consists of eight tasks that focus on selecting significant items from accounting records for audit purposes. For example, task 11.1 involves selecting significant items from balance sheet breakdowns for auditing, as does task 12.1, which follows the same methodology. These tasks are similar to those in the *sampling* group but differ in their selection criteria. Instead of random selection, the *selection of items for review* tasks are based on predefined rules, such as selecting items in descending order of value or other specific criteria.

Next, there is a group named as *accuracy testing* which includes two tasks focused on verifying the precision and correctness of financial records. Task 18.12 involves ensuring that revenue transactions are accurately recorded, including verifying details such as product or service descriptions, quantities, dates, customer information, and pricing. Task 25.5 focuses on checking that the formats of the income statement and balance sheet are correct and comply with regulatory requirements. Both tasks emphasize validation to ensure that financial information is accurate and meets the required standards. Their shared methodology and focus on precision justify their categorization under the *accuracy testing* group.

Furthermore, next group is *financial statement reconciliation*. It consists of tasks 25.4, 25.7 and 25.9, which all focus on ensuring the accuracy and consistency of financial statements. Task 25.4 involves tracing figures in income statement and balance sheet back to financial statement to confirm their accuracy. Task 25.7 requires reconciling detailed balance sheet items to ensure they align with figures presented in main balance sheet. 25.9 is same as 25.7 but reconciling income statement. These tasks share the objective of verifying that the financial statements are supported by underlying records which aims to ensure the integrity of reported figures.

The final group is named as *final review*. It includes 16 tasks related to the concluding stage of the auditing process. While these tasks involve diverse activities, they all pertain to the final review phase, which participants identified as critical tasks they prefer to perform themselves. For example, task 25.10 involves verifying that the accounting policies used are disclosed, appropriate, and consistently applied. Similarly, task 26.1 requires the main responsible auditor to review the entirety of the audit work. It aims to ensure that all significant findings are addressed and documented. This task also includes summarizing the results of audit procedures to evaluate the overall conclusions reached. Despite their varied nature, these tasks are unified by their focus on finalizing and validating the audit process, ensuring the accuracy and completeness of the audit findings. Their importance to the integrity of the overall audit justifies their inclusion in the *final review* group.

4.4 Evaluation of auditing processes for RPA

Following the initial phase of identifying auditing tasks through a semi-structured group interview, a Delphi study was conducted to evaluate the potential of specific process groups for RPA. This Delphi study aims to gather insights from specific group of NeonAudit's employees involved in auditing. The aim of the first round was to narrow down the identified groups to 15 process groups to proceed to subsequent rounds. The second and third round were to evaluate the selected groups and to reach a consensus about the most suitable auditing tasks for RPA.

4.4.1 Identification of automatable processes

Firstly, the processes of *task creation in Asana* and *task assignment* were excluded from further evaluation because they were identified as low-effort tasks that require minimal time and resources to complete. Given their simplicity and the lack of significant manual burden, automating these processes was not deemed necessary or impactful. Consequently, they were left out of consideration for the next evaluation round.

The expert panel identified the process of *requesting access to the client folder* as one with a structured, rule-based nature. It was seen as well-suited for automation. Additionally, the panel highlighted that this process currently relies on manual work, and it could benefit of automation as client folder is often forgotten. However, it was seen as relatively low effort process. Nevertheless, automating this task was seen as an opportunity to enhance efficiency and improve quality of the process which could ensure consistent and timely access permissions.

Subsequently, the *verification* process group was excluded from further evaluation because it involves tasks that require some degree of discretionary judgment and professional evaluation by auditors. Examples include verifying the official appointment of the auditor in the AGM or checking the recording of negative equity in the trade register. These tasks are judgment based because the verification can be done in different ways. It somewhat relies on an auditor's expertise which makes them unsuitable for rule-based automation. Therefore, the verification group was excluded from further consideration.

In contrast, the *basic data collection* was identified as a process group which could be highly suitable for automation because of its repetitive and structured nature. Tasks within this group, such as collecting company trade registries and tax debt registers or gathering engagement letters and risk assessments for new clients, were seen as routine but critical steps in the auditing process. Currently, these tasks are manually intensive and time-consuming, creating opportunities for inefficiencies and errors.

The *assessment and evaluation* process group was excluded from further evaluation because it primarily involves tasks requiring discretionary judgment. In some cases, it can also involve in-depth analysis, and professional expertise from auditors. For instance, tasks such as evaluating the independence of the audited company or understanding the client's operations to assess risk and applicable laws require understanding of the financial and regulatory context. These processes depend on auditor's ability to interpret data and make informed decisions, which are not easily replicable by rule-based automation. As these tasks involve substantial human judgment, they were deemed unsuitable for RPA.

The process group *extract data from financial statement & balance sheet to dedicated cells* was selected for further evaluation because of its structured

and rule-based nature. This task involves transferring financial data from financial statements and balance sheets into dedicated cells in Excel workbooks. It's a process that is consistent across audits and relies mainly on standardized data formats. This task was identified as time-intensive and prone to manual errors which makes the automation beneficial in improving accuracy and efficiency. Automating this process would not only save time for auditors but also enhance the reliability of the data transfer process. The expert panel recognized this process as a clear fit for RPA, both in terms of technical feasibility and the potential benefits it could bring.

Similarly, the process group *extract data from previous years' Excel workbooks* was selected for its similarity to *extract data from financial statement & balance sheet*, as both involve structured and rule-based data extraction. This task specifically focuses on retrieving historical financial data from Excel files which is a consistent and standardized data source. It makes it highly compatible with RPA. On the other hand, it was noted by the participants that it should be figured out if there was a solution in Excel to carry out this. However, automating this process would reduce manual effort, ensure accuracy, and standardize data retrieval. Therefore, this task was selected for further evaluation.

The process group *identify data sources* was excluded because it involves direct communication with the client to determine where relevant data is stored. This interaction often requires clarifications and discussions that are not easily automated. Similarly, the task *use pre-prepared questionnaires* was left out as it relies heavily on client communication to gather responses. The variability in client answers and the need for follow-up discussions make it unsuitable for rule-based automation. Also, the task *choose appropriate level of materiality* was excluded because it involves professional judgment and consideration of multiple factors specific to each audit engagement. The subjective nature of this task, combined with its impact on audit strategy, was seen to make it unsuitable for automation.

The expert panel saw the process group *evidence gathering* as a highly repetitive and rule-based task and therefore well-suited for automation. Furthermore, the panel recognized the significant manual effort currently required for this process, which often occurs in multiple audit phases. Automating this task was viewed as an opportunity to enhance efficiency and accuracy while reducing the time auditors spend on this activity. The expert panel emphasized that this would streamline the audit workflow. However, it was noted that there are multiple different accounting software so the data sources can vary a lot.

The *identifying changes* process group was seen as a suitable candidate for automation because of its repetitive and rule-based nature. This group involves systematically reviewing records, such as the general ledger, to detect additions, disposals, or other changes. The panel noted that this process often involves handling structured data and following standardized

procedures, which aligns well with the capabilities of RPA. Additionally, the panel emphasized that automating this task could reduce the manual effort required, particularly in identifying patterns or discrepancies across large datasets.

The *sampling* process group was seen as relatively suitable candidate for automation. This group involves selecting samples of transactions, such as asset additions and disposals, to ensure an adequate scope of audit testing. The panel noted that RPA could streamline the process by efficiently applying sampling methodologies.

Furthermore, the expert panel identified the *extract data* process group as a suitable candidate for automation because this involves tasks such as transferring data from PDFs into Excel workbooks, documenting values from evidence documents, and populating relevant fields in audit workbooks. These tasks are somewhat structured and these often involve defined templates and consistent data formatting. These were seen to align well with the capabilities of RPA. The panel emphasized that automating these extraction tasks would significantly reduce manual effort. Additionally, the automation of such processes was seen as a way to save time during the audit process. Overall, the panel concluded that the extract data group presents an opportunity for measurable efficiency improvements within the auditing process. However, it was noted that the documents can be in different formats and therefore to locate the needed information can be problematic.

The *reconciliation* process group was considered suitable for automation because it encompasses tasks with clearly defined procedures, such as verifying alignment between accounting records and supporting documents or cross-referencing balance sheet figures. Tasks like reconciling asset values or comparing bank statements with general ledger entries often involve handling high volumes of data and follow predictable patterns which makes them practical targets for RPA. The expert panel emphasized the potential efficiency gains automation could bring to these activities. By reducing the need for manual cross-checking and improving accuracy, RPA could streamline these critical but time-intensive audit steps.

Conversely, the *documenting* process group was excluded from further evaluation because of its reliance on auditors' discretionary judgment and narrative input. Tasks within this group, such as recording discrepancies or providing explanations for significant findings, often require a high degree of context-specific decision-making and the ability to articulate nuanced observations. Additionally, the expert panel recognized that while documenting is an essential part of the audit process, it does not present significant opportunities for automation without compromising the quality or depth of audit documentation. Automation in this area would likely require advanced natural language processing capabilities, which could be overly complex or resource-intensive compared to the potential benefits.

In addition, the *reviewing* process group was excluded from further evaluation as it predominantly involves tasks requiring auditors' professional judgment and expertise. Activities such as reviewing contracts, verifying disclosures, and evaluating compliance with standards demand understanding of the financial context and legal implications. These tasks are subjective and require interpretation, which cannot be effectively replicated by RPA. Moreover, automating these tasks could risk undermining the quality of the review process, as human insight is crucial for identifying potential risks or inconsistencies that may not be apparent through predefined rules.

Also, the *calculation* process group was excluded from further evaluation because of the expert panel's observation that most tasks within this group already benefit from existing software tools and do not require additional automation through RPA. Tasks such as calculating asset valuations, foreign exchange adjustments, or liability assessments are often integrated into the Excel workbook, making the need for standalone RPA solutions less critical. Additionally, the expert panel noted that while these calculations are rule-based and involve structured data, they typically rely on specialized formulas or functions embedded within the workbook.

Additionally, the *physical inventory* process group was excluded from further evaluation because the task of participating in the physical inventory count as mandated by audit standards involves observing and verifying the existence and condition of inventory, which necessitates the physical presence of auditors. The expert panel noted that while some aspects of inventory management, such as documenting or reconciling inventory data, could potentially be automated, the core task of physically verifying inventory requires human judgment and interaction.

Subsequently, the *analysis* process group was excluded from further evaluation because of its reliance on discretionary evaluation, and professional judgment. Tasks within this group, like performing solvency analysis to assess the impact of profit distribution on liquidity or conducting an analytical review of expenses, require auditors to interpret financial data and apply domain-specific expertise. The expert panel emphasized that while these tasks involve some repetitive elements, the interpretive nature of analysis makes them unsuitable for automation through RPA. These processes often depend on context-specific insights and understanding of financial trends, which cannot be effectively replicated by rule-based automation tools.

The *selection of items for review* process group was identified as a suitable candidate for automation. The processes were seen as structured and rule based. This group involves tasks such as selecting significant items from accounting records, specifically balance sheet breakdowns, to be audited. The selection process often follows predefined rules, such as sorting items in descending order or based on materiality thresholds, making it inherently systematic and repetitive. The expert panel recognized that these tasks require some level of discretionary judgment, but it often relies on objective criteria

that can be programmed into an RPA system. Given this advantage, the panel agreed that this process group is seen as suitable for RPA and should proceed to further evaluation in subsequent rounds.

Also, the *credit risk assessment* process group was included in the selected processes. The task involves identifying clients with overdue receivables and cross-referencing them against bankruptcy databases to ensure the receivables are accurately recorded. This process is repetitive and relies heavily on standardized data which makes it suitable for automation. The expert panel noted that automating this process could significantly improve the quality of this process. By automating the identification and cross-referencing tasks, auditors can ensure a more thorough and timely assessment of credit risks which would enhance the overall reliability of this audit process.

In addition, the *classification check* process group was selected for automation as they saw potential for streamlining the process. This task involves verifying that loan repayments due within the next financial year are appropriately classified as short-term liabilities and ensuring repayments scheduled for later periods are listed as long-term liabilities. The process requires adherence to consistent classification rules and relies on structured data. However, one expert noted that automating this task could be more efficiently carried out in Excel, leveraging the platform's capabilities for organizing and analysing financial data. On the other hand, the repetitive nature and standardized rules governing this process align well with RPA's strengths. Therefore, this process provides an opportunity to reduce manual workload which is why it was selected for further evaluation.

Moreover, the *accuracy testing* was identified as a suitable candidate for automation because it primarily involves rule-based checks against predefined criteria. For instance, ensuring compliance with regulatory requirements or verifying transactional details like dates, quantities, and customer information. These tasks often demand a high level of attention to detail but are repetitive in nature which makes them suitable for RPA. One of the factors influencing its selection was the critical role these tasks play in ensuring the accuracy and regulatory compliance of financial statements. Automating these tasks would enhance the quality of the audit. However, it was noted that the format and structure of the documents can vary a lot which can affect on the feasibility.

The process of *discussing with financial reporting personnel* was not selected for automation because of its judgment-driven nature. This task involves engaging in direct conversations to inquire about any unusual or inappropriate activities related to journal entries, which requires human interpretation and the ability to respond dynamically to the nuances of the discussion.

Next, the *financial statement reconciliation* process group was selected for automation because of its' systematic and structured nature. This group includes tasks such as tracing figures in the income statement and balance

sheet back to the financial statement. The aim is to ensure accuracy in reported values. The tasks involve comparing data across documents to ensure consistency, making them rule based. The expert panel highlighted that these tasks are ideal candidates for automation because they require data matching and validation, which they believe that RPA could handle efficiently.

The *final review* process group, which includes tasks like checking the consistency and appropriateness of accounting policies and performing a comprehensive review of audit findings, was intentionally excluded from further evaluation. The expert panel emphasized that these tasks require a high degree of professional judgment and discretion, qualities that are not easily replicable by automation technologies like RPA. Tasks within this group often involve synthesizing the entire audit's findings, interpreting the results in the context of regulatory requirements, and forming an overall opinion on the financial statements. Given the complexity and critical nature of these evaluations, the panel agreed that these processes should remain under the direct responsibility of auditors to ensure the quality and reliability of the audit.

Lastly, the process group for *naming of documents* was selected for subsequent rounds because of its time-consuming nature. This task involves detecting the type of document being downloaded or scanned and assigning a standardized name based on its content. The expert panel recognized that this process is often very time consuming. Additionally, the panel highlighted that the task aligns well with the capabilities of RPA. Automating this task would not only ensure uniformity in naming conventions but also reduce the time spent on document handling, especially in cases where paper accounting records are still used. The expert panel also emphasized the potential scalability of this automation. For example, applying consistent naming standards across various client records could improve both internal workflows and client-facing documentation practices. While the task is straightforward, its frequent occurrence and broad applicability made it a strong candidate for RPA implementation.

In summary, these process groups met the critical questions that Eulerich *et al.* (2022) stated in the beginning of the framework. Also, the selected process groups represent a balance between technical feasibility and operational benefits. The selected 15 process groups, detailed in Table 5, were identified as the most feasible and beneficial for automation.

Table 5 Outcomes of the first round

Task	Number
Request access to client folder	1.3
Basic data collection	2.1 & 2.3

Extract data from financial statement & balance sheet to dedicated cells	4.1 & 4.2
Extract data from previous years' Excel workbooks	4.3
Evidence gathering	8.1, 9.1, 10.1, 11.2, 12.2, 13.1, 15.2, 16.2, 17.3, 18.7, 19.10, 19.14, 20.1, 21.5, 21.13, 22.6, 23.1, 23.5, 24.6
Identifying changes	7.3, 8.2, 9.2, 10.2, 11.6, 11.8, 16.5, 16.6, 16.10, 18.1, 18.3, 18.4, 18.14, 18.15, 18.17, 19.1, 19.5, 19.6, 19.7, 19.8, 19.13, 19.17, 21.2, 21.3, 21.8, 21.11, 21.12, 22.2
Sampling	9.3, 16.1, 18.6, 19.9, 21.2, 22.5
Extract data	3.1, 7.2, 9.4, 10.3, 11.3, 12.3, 13.2, 14.3, 15.1, 15.3, 16.3, 17.2, 18.8, 19.11, 19.14, 20.2, 21.1, 21.6, 21.8, 21.9, 22.7
Reconciliation	9.5, 10.4, 10.6, 11.4, 12.4, 12.5, 13.3, 13.5, 14.4, 15.4, 16.4, 17.4, 18.5, 18.9, 18.13, 19.3, 19.12, 19.15, 19.16, 21.7, 21.10, 22.8, 23.6, 24.8, 25.1
Selection of items for review	11.1, 12.1, 16.1, 17.1, 18.6, 19.9, 21.4, 22.5
Credit risk assessment	11.7
Classification check	15.5
Accuracy testing	18.12, 25.5
Financial statement reconciliation	25.4, 25.7, 25.9
Naming of documents	N/A

4.4.2 Evaluating the chosen processes

The second round of the Delphi study aimed to further evaluate the feasibility and benefits of automating specific auditing tasks at NeonAudit. This phase built on the outcomes of the first round, where processes with high potential for RPA were identified through collaborative discussion. The focus of this round was to assess these tasks systematically using structured evaluation forms. The following chapters are based on Appendix D where all the evaluations of the second round are listed.

The *access to client folder* process was evaluated with technical feasibility score of 3.25 and 2.38 in benefits. The evaluations indicate that the process is highly rule-based, and data structure is of a structured format. Also, development requirements were seen as very low. On the other hand, RPA was not clearly seen as preferred solution and the process was not stable. One participant commented that Asana is very new tool and there could be changes in the future. In addition, effort needed for this activity was seen as very limited offering low organizational value and impact. As a result, while automation is possible and could be relatively easily done, the process may not significantly enhance efficiency or quality which makes it a lower priority for immediate RPA implementation.

The *collecting basic documents* received a technical feasibility score of 4.00 and 3.38 in benefits which indicates strong suitability for automation. The high feasibility score reflects its rule-based structure, stable workflow, and reliance on structured data. Also, RPA was seen relatively strongly as preferred solution. This could be because collecting basic documents involves interacting with internet websites. Eulerich *et al.* (2022) describe that RPA can probably be superior if the process requires interacting with Internet websites. The benefit of automating this process was seen as moderate. However, the organizational impact and need for quality improvements was seen as relatively low. Overall, this task presents a solid opportunity for automation, particularly because of feasibility.

The *extract data from financial statement and balance sheet* process was rated with a technical feasibility score of 4.00 and 4.13 in benefits. This makes it one of the most suitable tasks for automation. The high technical feasibility score reflects the process's structured and rule-based nature, along with its stable workflows. Also, the strong benefit score highlights its potential to improve efficiency and reduce manual errors. This process, being both frequent and time-intensive, stands out as a high-priority candidate for automation.

The *extract data from previous years' Excel workbooks* process was rated with a technical feasibility score of 3.63 and 3.38 in benefits. This makes it relatively suitable task for automation. This process was evaluated to be rule-based with structured data. Also, RPA was seen as moderate candidate for

automating this. The benefit was also seen as moderate as all scores under benefit evaluation criteria were between 3.13 and 3.50.

The *evidence gathering* process scored 3.25 in technical feasibility and 4.50 in benefits. The evaluations suggest challenges with data structure and moderate development requirements. This can be because clients use several different kinds of accounting software, and the data can be in different formats. However, RPA was seen as a strong candidate as preferred solution, and it was seen as highly beneficial. All average evaluations under benefit evaluation criteria were at least 4.00. This makes it a strong candidate for automation based primarily on its high impact and organizational benefits.

The *identifying changes* process group scored 3.88 in technical feasibility and 4.13 in benefits, indicating it is both technically suitable and beneficial for automation. The high feasibility score reflects its reliance on structured data and stable, rule-based workflows. However, one participant commented that RPA can be a preferred solution but if data extraction from files can be automated, then Excel could be superior in automating this task. The process got high evaluation scores on frequency of activity and effort needed. This leads to that it was seen as highly beneficial. This task is a high-priority candidate for automation because of its ability to deliver organizational value and efficiency improvements.

The *sampling* process scored 3.25 in technical feasibility and 3.38 in benefits. The feasibility score indicates moderate alignment with automation capabilities, as the process may involve both rule-based tasks and elements requiring some judgment. The benefit score reflects potential efficiency gains and error reduction, though the overall impact on organizational value or audit quality is somewhat limited compared to higher-scoring tasks. While automation could streamline this process, its priority for implementation may be moderate, depending on specific organizational needs and resources.

The *data extraction* process scored 3.38 in technical feasibility and 3.88 in benefits. The technical feasibility evaluations indicate that data can be somewhat unstructured. One expert commented that for instance invoices often contain the same types of information, but their formats can differ widely between clients which poses challenges for automation. The overall score of technical feasibility is moderate. The benefit score highlights its potential to save time and reduce manual effort which makes it a valuable target for automation. While not the highest priority, this task presents a strong opportunity for RPA to enhance efficiency and support broader audit processes.

The *reconciliation* process scored 3.13 in technical feasibility and 3.88 in benefits. The feasibility score suggests moderate suitability for automation, with potential challenges arising from variability or exceptions in the structure of the data. Also, RPA was seen as moderate candidate for preferred solution. On this one also, one participant commented that if the data extraction could be automated then Excel can be superior in this but if not, then RPA is the best choice. However, the benefit score reflects its ability to

improve efficiency and enhance audit quality. This task was seen as very frequent, and it could bring high organizational value. Overall, it was moderately suitable but highly beneficial.

The *selection of items for review* process scored 3.25 in technical feasibility and 3.00 in benefits. The feasibility score indicates moderate potential for automation, as the process involves rule-based selection criteria with some judgment-based decision-making. The benefit score suggests limited organizational impact or efficiency gains, which reflects the task's lower effort requirements and need for quality improvements. While automation could streamline portions of this process, its overall priority for RPA implementation is lower compared to other tasks with higher scores.

The *credit risk assessment* process scored 3.88 in technical feasibility and 3.75 in benefits. The high feasibility score indicates strong alignment with RPA capabilities, as the process relies on structured data and rule-based criteria. The benefit score reflects its potential to improve efficiency and consistency, though the overall impact on organizational value or audit quality may be moderate. This task is a promising candidate for automation, particularly for reducing manual effort and enhancing the accuracy of credit risk evaluations.

The *classification check* process scored 3.00 in technical feasibility and 2.71 in benefits. The feasibility score indicates moderate potential for automation. Overall, the task received high evaluations under technical feasibility, but RPA was not seen as strong candidate as preferred solution which lowered the overall technical score. Also, the benefit score reflects limited impact, as the process does not occur frequently and there is not big need for quality improvement. While automation could provide some efficiency gains, this task is a lower priority for RPA implementation.

The *accuracy testing* process scored 3.63 in technical feasibility and 3.88 in benefits. The feasibility score indicates moderate alignment with automation capabilities, with rule-based tasks and RPA as preferred solution making it suitable for RPA. However, the data was not seen as totally structured which can bring some challenges while automating it. The benefit score highlights its potential to improve efficiency. While not the highest-priority task, automating accuracy testing offers a valuable opportunity to streamline repetitive checks and ensure more consistent audit outcomes.

The *financial statement and balance sheet reconciliation* process scored 4.13 in technical feasibility and 4.00 in benefits, making it one of the most suitable candidates for automation. The high feasibility score reflects the structured, rule-based nature of the process and its stable workflows, which align well with RPA capabilities. The benefit score highlights significant potential for efficiency improvements, as well as enhancements in audit quality. This task is a strong priority for automation due to its high technical suitability and organizational impact.

The *naming of documents* process scored 3.38 in technical feasibility and 3.88 in benefits. The feasibility score reflects moderate suitability for automation, as the process is largely rule-based but may involve some variability in data. The benefit score indicates potential for improved efficiency and reduced manual effort, particularly in large-scale document handling tasks. While not the highest-priority task, automating this process offers a valuable opportunity to streamline administrative aspects of auditing.

4.4.3 Conclusion of the second round

The Table 6 has the evaluated processes listed with the average scores that those got in the second round. Processes have been given new numbers so that those can be easily mapped to the Figure 6. It visualizes the outcomes of the second round.

Table 6 Evaluations of the second round

Number	Task	Technical score	Benefit score
1	Request access to client folder	3.25	2.38
2	Basic data collection	4.00	3.38
3	Extract data from financial statement & balance sheet	4.00	4.13
4	Extract data from previous years' Excel workbooks	3.63	3.38
5	Evidence gathering	3.25	4.50
6	Identifying changes	3.88	4.13
7	Sampling	3.25	3.38
8	Data extraction	3.38	3.88
9	Reconciliation	3.13	3.88
10	Selection of items for review	3.25	3.00
11	Credit risk assessment	3.88	3.75
12	Classification check	3.00	2.71
13	Accuracy testing	3.63	3.88
14	Financial statement & balance sheet reconciliation	4.13	4.00
15	Naming of documents	3.38	3.88

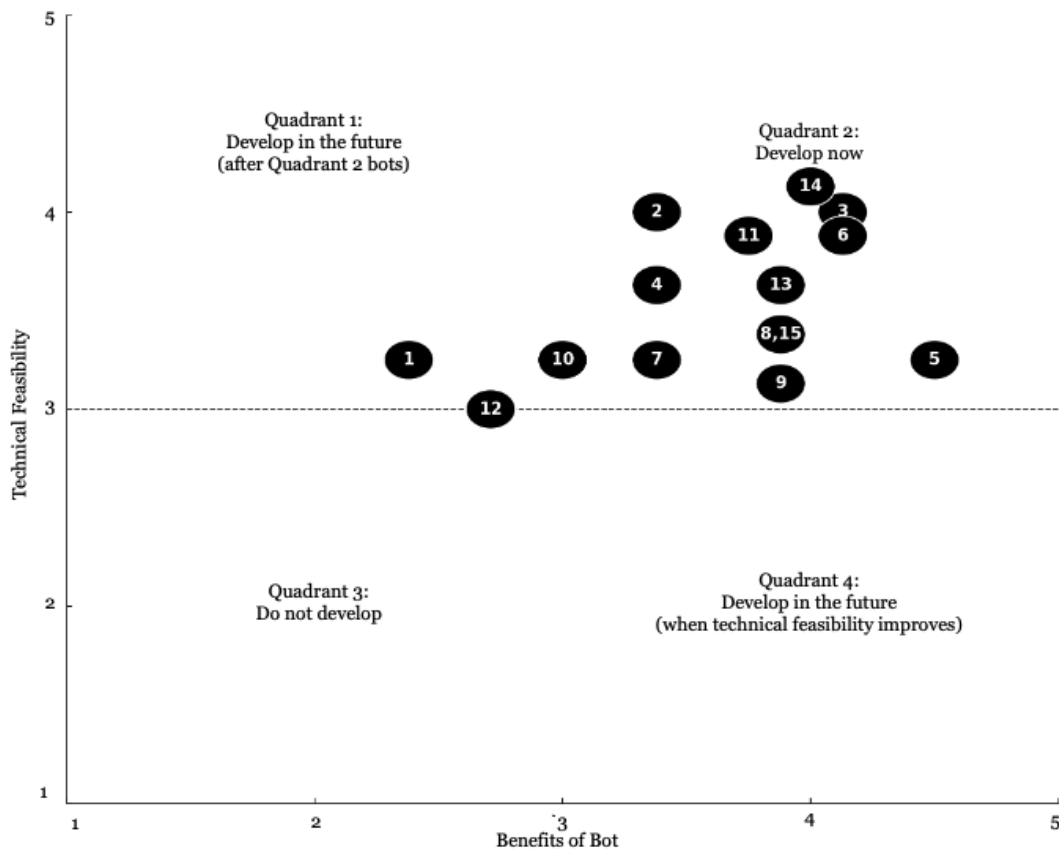


Figure 6 Outcomes of the second round

The evaluation results reveal distinct patterns in the technical feasibility and benefits of automating various auditing processes. It provides clear priorities for RPA implementation. Tasks with the highest technical feasibility scores generally involved rule-based workflows, mainly structured data, and stable processes. The most feasible tasks were *financial statement and balance sheet reconciliation* (4.13), *extract data from financial statements and balance sheet* (4.00), *identifying changes* (3.88), and *credit risk assessment* (3.88). These processes demonstrated structured, repetitive workflows well-suited for RPA. Moderately feasible tasks, such as *extract data from previous years' Excel workbooks* (3.63) and *accuracy testing* (3.63), indicated more complexity but still aligned with automation capabilities. Lower feasibility scores for processes like *classification check* (3.00) and *request access to client folder* (3.25) suggested challenges due to RPA was not seen as the preferred solution.

Tasks with the highest benefit scores were those requiring significant effort, occurring frequently, or offering substantial quality improvements. *Evidence gathering* (4.50) was the most beneficial task, promising considerable time savings. Other highly beneficial tasks included *extract data from financial statement and balance sheet* (4.13), *identifying changes* (4.13), and *financial statement and balance sheet reconciliation* (4.00), reflecting their

critical roles in improving efficiency and accuracy. Moderately beneficial tasks, such as *data extraction* (3.88), *naming of documents* (3.88), and *accuracy testing* (3.88), highlighted their potential to enhance workflows, while tasks like *request access to client folder* (2.38) and *classification check* (2.71) were less impactful because of their limited frequency and effort needed for activity or organizational value.

Processes scoring high in both technical feasibility and benefits emerged as the strongest candidates for automation. These included *extract data from financial statement and balance sheet*, *financial statement balance sheet reconciliation*, and *identifying changes*, all of which combined structured workflows with high potential for improving efficiency. Moderate candidates for automation, such as *credit risk assessment*, *accuracy testing*, and *data extraction*, showed balanced feasibility and benefits, offering meaningful opportunities for automation while presenting manageable challenges. Lower-priority tasks, such as *request access to client folder*, *classification check*, and *selection of items for review*, were less suitable for immediate automation but could be revisited as technology advances or organizational needs change.

Overall, the findings provide a roadmap for prioritizing automation efforts. According to the second round, financial statement *reconciliation* and *extract data from financial statements and balance sheets*, should be the initial focus for RPA, as they promise high feasibility and improved efficiency.

4.4.4 Reaching a consensus

The third round of the Delphi questionnaire focused on reaching a consensus regarding the suitability of specific auditing tasks for RPA. This phase built on the evaluations from the second round. In the third round, participants were given the average scores from the second round for each process and criterion. This feature allowed them to compare their initial evaluations with the collective feedback and reconsider their assessments if needed. By reflecting on the group's overall evaluations, participants could adjust their ratings and contribute to a more aligned perspective.

The task *request access to client folder* saw a slight increase in both technical feasibility (from 3.25 to 3.63) and benefits (from 2.38 to 2.50). This change suggests an improved perception of its rule-based structure and modest benefits, though it remains one of the lower-priority tasks for automation.

Basic data collection experienced an increase in technical feasibility (from 4.00 to 4.13) but a decrease in benefits (from 3.38 to 3.00). This shift indicates greater confidence in the technical capability to automate the task but reduced expectations regarding its overall impact or efficiency gains.

Extract data from financial statement and balance sheet showed an increase in technical feasibility (from 4.00 to 4.25) while maintaining a stable

benefit score (4.13 to 4.00). This highlights its continued strong potential as a high-priority automation candidate, with further clarity on its feasibility.

Extract data from previous years' Excel workbooks experienced increases in both technical feasibility (from 3.63 to 4.13) and benefits (from 3.38 to 3.13). This reflects an enhanced perception of its structured workflows and organizational value.

Evidence gathering saw an increase in both technical feasibility (from 3.25 to 3.50) and benefits (from 4.50 to 4.63). This reinforces its position as a high-benefit task, with growing confidence in its technical suitability for automation.

Identifying changes experienced a slight decline in both technical feasibility (from 3.88 to 3.75) and benefits (from 4.13 to 4.00). While still a strong candidate for automation, this shift indicates some reassessment of its complexity or impact.

Sampling saw increases in technical feasibility (from 3.25 to 3.38) and benefits (from 3.38 to 3.50). It suggests a growing consensus on its suitability and value for automation.

Data extraction showed increases in both technical feasibility (from 3.38 to 3.63) and benefits (from 3.88 to 4.13). These changes highlight its growing recognition as a promising automation candidate.

Reconciliation experienced increases in technical feasibility (from 3.13 to 3.38) and benefits (from 3.88 to 4.00). It reflects enhanced confidence in its potential to improve efficiency and quality through automation.

Selection of items for review saw a slight decrease in technical feasibility (from 3.25 to 3.13), with benefits remaining stable at 3.00. This indicates a slightly diminished perception of its automation potential while maintaining its moderate benefit rating.

Credit risk assessment increased in technical feasibility (from 3.88 to 4.00), while the benefit score remained unchanged at 3.75. This task continues to show balanced potential for automation.

Classification check experienced a significant decline in both technical feasibility (from 3.00 to 2.63) and benefits (from 2.71 to 2.38). This reflects a reduced perception of its suitability for automation and impact.

Accuracy testing saw increases in both technical feasibility (from 3.63 to 3.50) and benefits (from 3.88 to 4.00). This suggests growing confidence in its automation potential and organizational value.

Financial statement and balance sheet reconciliation demonstrated further improvement in technical feasibility (from 4.13 to 4.50), while benefits remained stable at 4.00. This task remains one of the strongest candidates for RPA, with consistent high scores across both dimensions.

Naming of documents experienced no change in technical feasibility (3.38), but its benefit score increased (from 3.88 to 4.13). This reflects enhanced recognition of its organizational value and efficiency gains.

Overall, the third round of evaluations showed increased technical feasibility for several tasks. High-benefit tasks like *evidence gathering*, *financial statement and balance sheet reconciliation*, and *extract data from financial statement and balance sheet* maintained their strong positions as top automation priorities. Meanwhile, tasks like *classification check* saw diminished potential, reflecting evolving expert consensus. These shifts provide refined guidance for prioritizing RPA initiatives.

4.4.5 Conclusion of the third round

Tasks with the highest technical feasibility scores include *financial statement and balance sheet reconciliation* (4.50), *extract data from financial statement and balance sheets* (4.25), *credit risk assessment* (4.00), and *basic data collection* (4.13). These processes are characterized by structured data, stable workflows, and rule-based activities, making them ideal candidates for automation. Processes like *evidence gathering* (3.50) and *extract data from previous years' Excel workbooks* (4.13) also demonstrated strong technical feasibility, indicating confidence in their suitability for RPA despite slightly more complex workflows or RPA as preferred solution.

In terms of benefits, the most impactful tasks were *evidence gathering* (4.63), *extract data from financial statement and balance sheet* (4.00), and *financial statement and balance sheet reconciliation* (4.00). These tasks stand out due to their frequent execution, effort requirements, and potential for quality improvement. Processes like *extract data* (4.13), *naming of documents* (4.13), and *reconciliation* (4.00) also showed high benefit scores, reflecting their ability to save time, enhance accuracy, and deliver organizational value.

When considering both technical feasibility and benefits, the tasks that emerged as the most suitable for automation include *financial statement and balance sheet reconciliation*, *extract data from financial statement and balance sheet*, and *evidence gathering*. These tasks combine structured, repetitive workflows with substantial benefits, making them top priorities for RPA.

Moderately suitable tasks include *credit risk assessment*, *extract data*, and *naming of documents*, which balance feasibility and benefits, presenting opportunities for meaningful efficiency gains. Lower-priority tasks, such as *request access to client folder* (3.63, 2.50) and *classification check* (2.63, 2.38), scored lower in both feasibility and benefits, indicating limited immediate suitability for automation. RPA was not seen as preferred solution for these tasks.

Overall, the findings provide a clear consensus for which tasks were seen as the most suitable for RPA. Tasks with high scores in both dimensions should be the primary focus of automation efforts to maximize efficiency, improve audit quality, and enhance organizational value. Moderately suitable

tasks may be addressed in subsequent phases, while lower-scoring processes can be revisited as organizational needs develop further.

Table 7 Evaluations of the third round

Num-ber	Task(s)	Technical score	Benefit score
1	Request access to client folder	3.63	2.50
2	Basic data collection	4.13	3.00
3	Extract data from financial statement & balance sheet	4.25	4.00
4	Extract data from previous years' Excel workbooks	4.13	3.13
5	Evidence gathering	3.50	4.63
6	Identifying changes	3.75	4.00
7	Sampling	3.38	3.50
8	Data extraction	3.63	4.13
9	Reconciliation	3.38	4.00
10	Selection of items for review	3.13	3.00
11	Credit risk assessment	4.00	3.75
12	Classification check	2.63	2.38
13	Accuracy testing	3.50	4.00
14	Financial statement & balance sheet reconciliation	4.50	4.00
15	Naming of documents	3.38	4.13

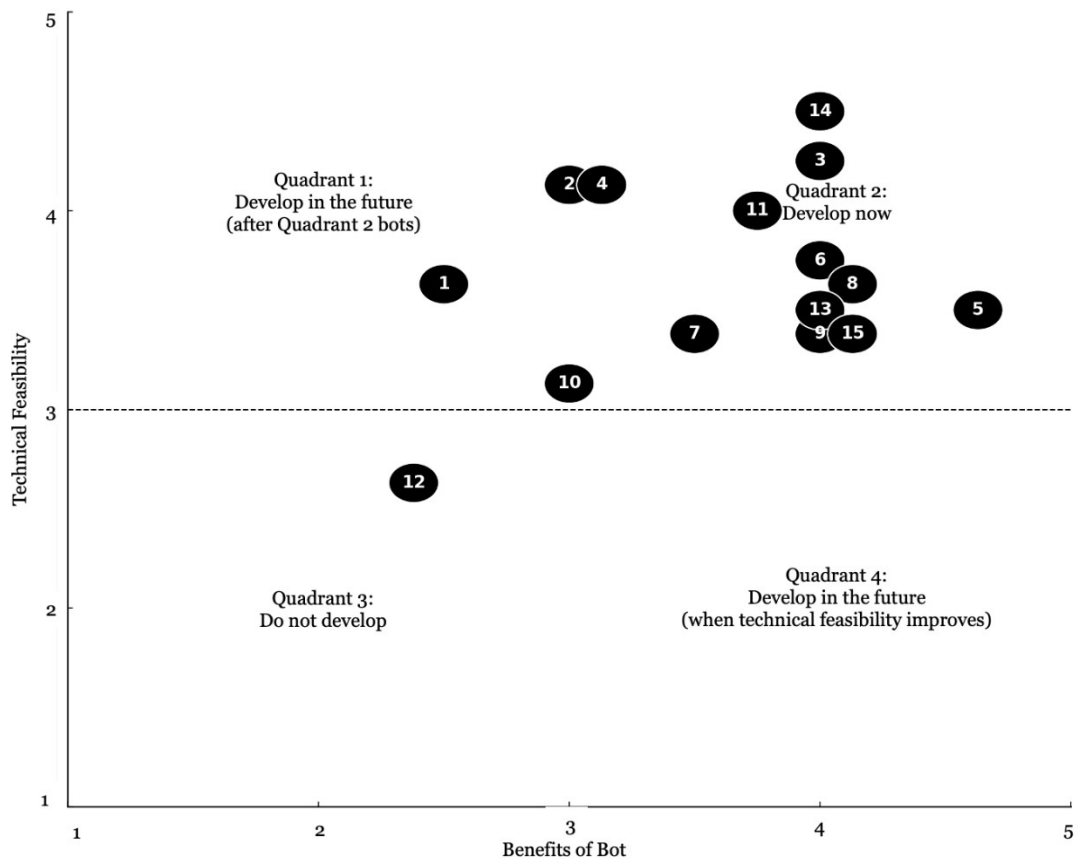


Figure 7 Outcomes of the third round

5 Discussion

This chapter summarizes the entire study while it situates the results within broader theoretical and practical contexts. The purpose of this thesis was to identify auditing tasks most suitable for RPA. The study aimed to provide actionable recommendations for automation while contributing to the theoretical understanding of RPA implementation in small and medium-sized auditing firms. The research question addressed was: Which steps of the auditing process are the most suitable for robotic process automation?

This chapter ties together the findings and reflects on their theoretical and managerial implications. It is divided into three sections to provide a summary and discussion of the research. The first section, theoretical implications, elaborates on implications from theoretical perspective. The second chapter discusses about the managerial implications. The third section, limitations, addresses the constraints of this research. Finally, suggestions for future research proposes areas for further exploration.

5.1 Theoretical implications

This chapter discusses the theoretical contributions of this study, focusing on three key areas that contribute to the existing literature. The first one is the potential for automating auditing tasks, the second is the importance of the STS perspective in RPA implementation, and the third is the necessity of systematic evaluation frameworks for automation adoption.

The first theoretical implication lies in the exploration of automation potential across auditing tasks. This study identified 14 process groups moderately or highly suitable for automation, which highlights the broader applicability of RPA in streamlining repetitive and data-intensive tasks. Previously RPA has been seen to effectively streamline tasks such as data reconciliation, eliminating duplicates, and ensuring alignment across systems (Cooper *et al.*, 2019). These processes are particularly suitable for RPA as they are governed by global methodologies and standards, which makes them replicable across industries (Cooper *et al.*, 2019). Moreover, RPA has transformative potential in high-volume data extraction, such as automating invoice handling through systems like UiPath (Gotthardt *et al.*, 2020). The automation of rule-based tasks like data extraction and reconciliation and evidence gathering in this study supports these findings. These findings reinforce the theoretical perspective on the significant potential for automation within auditing and accounting processes. The findings also indicate that many processes have the potential not only to improve efficiency but also to enhance accuracy by reducing human error. This aligns with Cooper *et al.*'s (2019) conclusion that RPA can significantly reduce errors.

The second theoretical contribution advances the understanding of STS theory in the context of RPA implementation. STS theory highlights the interplay between technical systems and human or “social” elements (Winter *et al.*, 2014). This study identified a critical gap in participants' understanding of RPA, which aligns with Eulerich *et al.*'s (2022) finding that limited knowledge among employees often hamper the effective implementation of automation technologies. Engaging employees in identifying and programming RPA tasks is essential for promoting ownership and ensuring alignment between automation tools and real-world workflows (Cooper *et al.*, 2019). Furthermore, active employee involvement in evaluating and implementing RPA solutions is the way how organizations can bridge the gap between technological capabilities and practical applications, ensuring that automation efforts are grounded in operational realities. Tailored RPA solutions can transform specific organizational workflows, such as data extraction from financial documents (Gotthardt *et al.*, 2020). This research further supports the STS perspective by emphasizing that neglecting the human component can undermine the success of RPA adoption, regardless of the technology's technical feasibility.

The third theoretical implication underscores the necessity of systematic evaluation frameworks for identifying and prioritizing automation opportunities. Deciding which processes to automate is a complex task influenced by both strategic and operational considerations (Farinha, Pereira, and Almeida, 2024). The lack of a company-wide evaluation framework often leads to missed opportunities for automation, as evidenced by the ad hoc approach to process identification in many organizations (Eulerich *et al.*, 2022). This study validates the importance of structured frameworks, such as the one proposed by Eulerich *et al.* (2022), in enabling organizations to systematically assess technical feasibility and potential benefits. The broader theoretical contribution here is the recognition that systematic frameworks are critical. Auditing companies overlook automation potential as the processes are not systematically evaluated (Eulerich *et al.*, 2022). This study highlights this issue by identifying several processes deemed suitable for automation. Without this evaluation, the case company would likely have continued to miss these opportunities for automation. By adopting a structured approach for evaluating automation potential, such frameworks ensure that RPA adoption is both strategic and systematic.

5.2 Managerial implications

This chapter discusses the managerial implications of this study, focusing on actionable strategies for auditing companies seeking to enhance their operations through RPA. The findings provide guidance on prioritizing automation opportunities, promoting employee engagement, and adopting a systematic framework for continuous process identification.

A core managerial implication is the identification of specific auditing tasks that are highly suitable for automation. As this study identified 14 process groups moderately or highly suitable for automation, companies should prioritize automating tasks mapped to the quadrant 2 on Figure 7. Tasks such as financial statement and balance sheet reconciliation, data extraction, and evidence gathering should be automated immediately. These tasks are repetitive, structured, and time-consuming, making them ideal candidates for RPA. By automating these processes, companies can achieve significant efficiency gains, reduce the risk of human error, and allow auditors to focus on higher-value, judgment-based activities. For example, implementing RPA for reconciliation tasks can streamline workflows and ensure consistent accuracy across audits. Firms should also look for scalability opportunities by grouping similar tasks. For instance, once a bot is developed for data extraction from financial statements, it can be adapted to similar processes with minimal additional effort, maximizing the return on investment. Additionally, companies should approach RPA implementation incrementally, starting with high-impact, low-complexity tasks. This allows the organization to achieve quick wins, build confidence among employees, and demonstrate benefits early in the adoption process. After achieving initial success, organizations can gradually expand automation to more complex tasks. This way they can ensure that the organization grows its RPA capabilities sustainably.

Another key implication is the importance of systematic process evaluation. Companies should adopt a company-wide practical approach to continually identify and evaluate automation opportunities. This does not require sophisticated tools, meaning that even simple evaluations based on criteria such as task repetition, data structure, and error frequency can provide valuable insights. Companies should establish routine process reviews, incorporating feedback from employees who are directly involved in daily auditing tasks. By institutionalizing a habit of evaluating processes for automation, organizations can ensure they remain agile and responsive to technological advancements.

Thirdly, engaging employees is another critical area for companies to address. This study revealed gaps in employees' understanding of RPA. Companies should invest in targeted training programs to close these knowledge gaps and build confidence in using RPA tools. Employees who feel equipped and empowered are more likely to embrace automation initiatives and actively contribute ideas for new applications. Companies can promote this engagement by creating cross-functional teams that involve both technical and non-technical staff in the development and deployment of RPA solutions. For example, encouraging auditors to collaborate with IT specialists during bot development ensures that the automation aligns with real-world needs and workflows. Therefore, companies should embed automation into their strategic objectives, making it a part of the company's vision for growth and efficiency. Recognizing and rewarding employees who contribute to RPA

initiatives can further promote a forward-thinking mindset. For instance, offering incentives for employees who identify automation opportunities or participate in bot development can drive engagement and enthusiasm for RPA adoption.

5.3 Limitations

Despite the active engagement and support of NeonAudit employees, several limitations impact the scope and generalizability of this study's findings. These limitations provide context for interpreting the results and point to areas where future research could build upon this work.

One significant limitation is the relatively small size of NeonAudit, which constrained the sample size to a limited pool of employees directly involved in the auditing process. While this allowed for deep insights specific to NeonAudit's operations, it also limits the broader applicability of the findings to larger firms with more complex structures or specialized departments. The focus on a single firm means the findings are tailored to its unique context, which may not fully represent the dynamics of larger or more diversified auditing firms.

Another limitation relates to the diversity of perspectives among participants. Although the study included employees across various experience levels, the small size of each role group may have restricted the diversity of viewpoints. Including perspectives from other departments or external experts could have enriched the analysis by offering broader insights into automation opportunities and challenges.

Also, the process steps were identified in two group interviews. The whole auditing process is a very comprehensive process. Two group interviews are relatively short time to go through the whole process with all different things that auditors must consider. It was noted by the participants that the process is almost never exactly the same because there are always some additional things to take into consideration. However, they saw that the outcome of the interview was a good overview of the process.

In addition, it's important to acknowledge that these processes were seen as the most suitable according to the employees of NeonAudit. It was noted that they are not RPA experts which can make some evaluations unreliable. For instance, it was commented that RPA as preferred solution was hard to evaluate as everyone did not have deep understanding of the field.

5.4 Suggestions for future research

While this study provides essential insights into the potential of RPA for auditing processes at auditing companies, several opportunities for future research can extend and deepen these findings. Addressing these areas could enhance the applicability of RPA at auditing companies and contribute to

broader advancements in automation frameworks for small and medium-sized auditing firms.

A key direction for future research lies in expanding the scope to include larger samples and more diverse organizational contexts. This study focused on a single firm with a limited participant pool. Conducting similar studies in larger organizations or across multiple firms could explore whether the processes identified as suitable for RPA at NeonAudit remain applicable in more complex environments. These studies could provide insights into how factors such as firm size, industry, or regulatory context influence the prioritization and feasibility of automation.

Another promising area is the exploration of alternative frameworks for evaluating RPA suitability. While this study successfully applied the Eulerich *et al.* (2022) framework, comparing it to other frameworks could yield insights into alternative criteria or methods for selecting automation candidates. Research could focus on how different frameworks perform in practice, helping to refine a more universally applicable model for RPA evaluation across varying auditing contexts.

Moreover, incorporating additional roles or departments into future studies could also enrich the decision-making process for automation. This study focused on audit-specific roles, but including perspectives from IT, compliance, or finance professionals could provide a more holistic view of automation opportunities and challenges. For instance, IT specialists might contribute technical insights on system integration, while compliance experts could address regulatory considerations that influence the feasibility of automating certain tasks.

Further research could also investigate the broader implications of RPA on the auditing profession, particularly its impact on employee roles and responsibilities. As RPA takes over routine tasks, auditors may need to develop new skills and adapt to changes in team structures. Studies examining the long-term effects of automation on employee engagement, career development, and training needs could help organizations prepare for these shifts and promote a workforce better equipped for a more automated environment.

Lastly, future studies could explore hybrid automation models that combine RPA with advanced technologies like AI or ML. According to Kokina and Davenport (2017) ML and AI automation enable to automate more advanced tasks. This can include also decision making (Lu *et al.*, 2018). However, Sutton, Holt and Arnold (2016) see that more research is needed in the field of AI and accounting. These models could address challenges identified in this study, such as document variability and tasks requiring professional judgment, thereby broadening the scope of processes that can be effectively automated.

References

Adler, M. and Ziglio, E. (1996) *Gazing Into the Oracle: The Delphi Method and Its Application to Social Policy and Public Health*. Jessica Kingsley Publishers.

Aguirre, S. and Rodriguez, A. (2017) 'Automation of a Business Process Using Robotic Process Automation (RPA): A Case Study', in J.C. Figueroa-García et al. (eds) *Applied Computer Sciences in Engineering*. Cham: Springer International Publishing, pp. 65–71. Available at: https://doi.org/10.1007/978-3-319-66963-2_7.

Alles, M. et al. (2006) 'Continuous monitoring of business process controls: A pilot implementation of a continuous auditing system at Siemens', *2005 Research Symposium on Integrity, Privacy, Security & Trust in an IT Context*, 7(2), pp. 137–161. Available at: <https://doi.org/10.1016/j.accinf.2005.10.004>.

Asatiani, A. et al. (2019) 'Impact of accounting process characteristics on accounting outsourcing - Comparison of users and non-users of cloud-based accounting information systems', *International Journal of Accounting Information Systems*, 34, p. 100419. Available at: <https://doi.org/10.1016/j.accinf.2019.06.002>.

Asatiani, A. and Penttinen, E. (2016) 'Turning robotic process automation into commercial success – Case OpusCapita', *Journal of Information Technology Teaching Cases*, 6(2), pp. 67–74. Available at: <https://doi.org/10.1057/jittc.2016.5>.

Barnett, G. (2015) 'The role that RPA can play within service providers and enterprises'. Available at: <https://www.blueprism.com/uploads/resources/white-papers/RPA-Adding-to-the-process-automation-toolkit.pdf> (Accessed: 27 October 2024).

Bolger, F. and Wright, G. (1994) 'The quality of expert probability judgement: issues and analysis', *Expert Systems*, 11(3), pp. 149–158. Available at: <https://doi.org/10.1111/j.1468-0394.1994.tb00321.x>.

Burlaud, A., Niculescu, M. and Predescu, L. (2024) 'Expectation Gap: the Story of the Auditor's Necessary and Impossible Mission', *Audit Financiar*, XXII(4(176)/2024), pp. 695–723. Available at: <https://doi.org/10.20869/AUDITF/2024/176/023>.

Canhoto, A.I. and Clear, F. (2020) 'Artificial intelligence and machine learning as business tools: A framework for diagnosing value destruction potential', *Artificial Intelligence and Machine Learning*, 63(2), pp. 183–193. Available at: <https://doi.org/10.1016/j.bushor.2019.11.003>.

Chan, D.Y. and Vasarhelyi, M.A. (2011) 'Innovation and practice of continuous auditing', *Special Issue on Methodologies in AIS Research*, 12(2), pp. 152–160. Available at: <https://doi.org/10.1016/j.accinf.2011.01.001>.

Christensen, B.E., Elder, R.J. and Glover, S.M. (2015) 'Behind the Numbers: Insights into Large Audit Firm Sampling Policies.', *Accounting Horizons*, 29(1), pp. 61–81. Available at: <https://doi.org/10.2308/acch-50921>.

Cline, B., Henry, M. and Justice, C. (2016) 'Rise of the robots'. KPMG. Available at: <https://assets.kpmg.com/content/dam/kpmg/my/pdf/Rise%20of%20the%20robots.pdf> (Accessed: 1 December 2024).

Cooper, L.A. *et al.* (2019) 'Robotic Process Automation in Public Accounting', *Accounting Horizons*, 33(4), pp. 15–35. Available at: <https://doi.org/10.2308/acch-52466>.

Debreceeny, R.S. *et al.* (2005) 'Embedded Audit Modules in Enterprise Resource Planning Systems: Implementation and Functionality', *Journal of Information Systems*, 19(2), pp. 7–27. Available at: <https://www.proquest.com/scholarly-journals/embedded-audit-modules-enterprise-resource/docview/235874266/se-2?accountid=14797> (Accessed: 1 December 2024).

Eriksson, I. and Kovalainen, A. (2008) *Qualitative Methods in Business Research*. SAGE Publications Ltd. Available at: <https://doi.org/10.4135/9780857028044>.

Eskola, J. & Suoranta, J. 1998. *Johdatus laadulliseen tutkimukseen*. Tampere: Vastapaino

Eulerich, M. *et al.* (2022) 'A Framework for Using Robotic Process Automation for Audit Tasks', *Contemporary Accounting Research*, 39(1), pp. 691–720. Available at: <https://doi.org/10.1111/1911-3846.12723>.

Fan, C.K. and Cheng, C.-L. (2006) 'A study to identify the training needs of life insurance sales representatives in Taiwan using the Delphi approach.', *International Journal of Training & Development*, 10(3), pp. 212–226. Available at: <https://doi.org/10.1111/j.1468-2419.2006.00255.x>.

Farinha, D., Pereira, R. and Almeida, R. (2024) 'A framework to support Robotic process automation', *Journal of Information Technology*, 39(1), pp. 149–166. Available at: <https://doi.org/10.1177/02683962231165066>.

Flick, U. (2022) *An Introduction to Qualitative Research*. SAGE Publications Ltd.

Forrester (2011) 'The role of IT in business-driven process automation'. Available at: <https://www.blueprism.com/uploads/resources/white->

papers/forrester_research_-_the_role_of_it_in_business-driven_process_automation.pdf (Accessed: 28 October 2024).

Fung, H.P. (2014) 'Criteria, Use Cases and Effects of Information Technology Process Automation (ITPA)'. Rochester, NY. Available at: <https://papers.ssrn.com/abstract=2588999> (Accessed: 28 October 2024).

Gaudet, S. and Dominique, R. (2018) *A Journey Through Qualitative Research: From Design to Reporting*. SAGE Publications Ltd. Available at: <https://doi.org/10.4135/9781529716733>.

Gotthardt, M. *et al.* (2020) 'Current State and Challenges in the Implementation of Smart Robotic Process Automation in Accounting and Auditing', *ACRN Journal of Finance and Risk Perspectives*, 9. Available at: <https://www.proquest.com/scholarly-journals/current-state-challenges-implementation-smart/docview/2528457568/se-2?accountid=27468> (Accessed: 22 September 2024).

Guest, G., MacQueen, K. and Namey, E. (2012) *Applied Thematic Analysis*. SAGE Publications, Inc. Available at: <https://doi.org/10.4135/9781483384436>.

Keller, D. K. & Casadevall-Keller, M. L. 2009. *The Tao of Research: A Path to Validity*. SAGE Publications Inc.

Hallikainen, P., Bekkhus, R., and Shan L. Pan (2018) 'How OpusCapita Used Internal RPA Capabilities to Offer Services to Clients.', *MIS Quarterly Executive*, 17(1), pp. 41–52. Available at: <https://research.ebsco.com/linkprocessor/plink?id=11aa9db2-4d9e-3d1b-98c3-79ffa8764711> (Accessed: 26 October 2024).

Herm, L.-V. *et al.* (2023) 'A framework for implementing robotic process automation projects', *Information Systems and e-Business Management*, 21(1), pp. 1–35. Available at: <https://doi.org/10.1007/s10257-022-00553-8>.

Hofmann, P., Samp, C. and Urbach, N. (2020) 'Robotic process automation', *Electronic Markets*, 30(1), pp. 99–106. Available at: <https://doi.org/10.1007/s12525-019-00365-8>.

Holzmann, O.J. and Munter, P. (2014) 'Conceptual Framework for Financial Reporting—Chapter 8: Notes to Financial Statements.', *Journal of Corporate Accounting & Finance (Wiley)*, 25(5), pp. 77–81. Available at: <https://doi.org/10.1002/jcaf.21976>.

Hsu, C.-C. and Sandford, B.A. (2007) 'The Delphi Technique: Making Sense of Consensus', *Practical Assessment, Research, and Evaluation*, 12(1). Available at: <https://doi.org/10.7275/pdz9-th90>.

Huang, F. and Vasarhelyi, M.A. (2019) 'Applying robotic process automation (RPA) in auditing: A framework', *International Journal of Accounting Information Systems*, 35, p. 100433. Available at: <https://doi.org/10.1016/j.accinf.2019.100433>.

Issa, H., Sun, T. and Vasarhelyi, M.A. (2016) 'Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation.', *Journal of Emerging Technologies in Accounting*, 13(2), pp. 1–20. Available at: <https://doi.org/10.2308/jeta-10511>.

Kokina, J. and Davenport, T.H. (2017) 'The Emergence of Artificial Intelligence: How Automation is Changing Auditing.', *Journal of Emerging Technologies in Accounting*, 14(1), pp. 115–122. Available at: <https://doi.org/10.2308/jeta-51730>.

Lacity, M. and Willcocks, L. (2021) 'Becoming Strategic with Intelligent Automation.', *MIS Quarterly Executive*, 20(2), pp. 169–182. Available at: <https://doi.org/10.17705/2msqe.00047>.

Lacity, M., Willcocks, L. and Gozman, D. (2021) 'Influencing information systems practice: The action principles approach applied to robotic process and cognitive automation', *Journal of Information Technology*, 36(3), pp. 216–240. Available at: <https://doi.org/10.1177/0268396221990778>.

Lacity, M., Willcocks, L.P. and Craig, A. (2015) *Robotic process automation: mature capabilities in the energy sector*. London, UK: London School of Economics and Political Science. Available at: <http://www.lse.ac.uk/management/research/outourcingunit/> (Accessed: 27 October 2024).

Lacity, M.C. and Willcocks, L.P. (2016) 'A New Approach to Automating Services', *MIT Sloan Management Review*, 58(1), pp. 41–49. Available at: <https://www.proquest.com/scholarly-journals/new-approach-automating-services/docview/1832180742/se-2?accountid=14797> (Accessed: 22 September 2024).

Lin, C., Wittmer, J.L.S. and Luo, X. (2022) 'Cultivating proactive information security behavior and individual creativity: The role of human relations culture and IT use governance', *Information & Management*, 59(6), p. 103650. Available at: <https://doi.org/10.1016/j.im.2022.103650>.

Lu, H. *et al.* (2018) 'Brain Intelligence: Go beyond Artificial Intelligence', *Mobile Networks and Applications*, 23(2), pp. 368–375. Available at: <https://doi.org/10.1007/s11036-017-0932-8>.

Moffitt, K.C., Rozario, A.M. and Vasarhelyi, M.A. (2018) 'Robotic Process Automation for Auditing', *Journal of Emerging Technologies in Accounting*, 15(1), pp. 1–10. Available at: <https://doi.org/10.2308/jeta-10589>.

Okoli, C. and Pawlowski, S.D. (2004) 'The Delphi method as a research tool: an example, design considerations and applications', *Information & Management*, 42(1), pp. 15–29. Available at: <https://doi.org/10.1016/j.im.2003.11.002>.

Penttinen, E., Kasslin, H. and Asatiani, A. (2018) 'How to Choose Between Robotic Process Automation and Back-End System Automation?', in *European Conference on Information Systems 2018. European Conference on Information Systems 2018*, GBR. Available at: <https://publications.aston.ac.uk/id/eprint/33685/> (Accessed: 27 October 2024).

Rainey, S.K., Brown, B. and Kirk, D.B. (2017) 'Bots, Natural Language Processing, and Machine Learning: Yes, these will impact your tax practice, but when and how much are still unclear.', *Tax Executive*, 69(5), pp. 38–44. Available at: <https://research.ebsco.com/linkprocessor/plink?id=53992f83-191a-3bd1-81f4-abef6822b26d> (Accessed: 13 October 2024).

Rowe, G. and Wright, G. (1999) 'The Delphi technique as a forecasting tool: issues and analysis', *International Journal of Forecasting*, 15(4), pp. 353–375. Available at: [https://doi.org/10.1016/S0169-2070\(99\)00018-7](https://doi.org/10.1016/S0169-2070(99)00018-7).

Sarajärvi, A. and Tuomi, J. (2018) *Laadullinen tutkimus ja sisällönanalyysi*. Tammi.

Schmidt, R.C. (1997) 'Managing Delphi Surveys Using Nonparametric Statistical Techniques', *Decision Sciences*, 28(3), pp. 763–774. Available at: <https://doi.org/10.1111/j.1540-5915.1997.tb01330.x>.

Seale, C. (1999) *The quality of qualitative research*. London: Sage.

Skulmoski, G.J., Hartman, F.T. and Krahn, J. (2007) 'The Delphi Method for Graduate Research', *Journal of Information Technology Education: Research*, 6(1), pp. 1–21. Available at: <https://www.learntechlib.org/p/111405/> (Accessed: 14 October 2024).

Sutton, S.G., Holt, M. and Arnold, V. (2016) "The reports of my death are greatly exaggerated"—Artificial intelligence research in accounting', *2015 Research Symposium on Information Integrity & Information Systems Assurance*, 22, pp. 60–73. Available at: <https://doi.org/10.1016/j.acinf.2016.07.005>.

Syed, R. *et al.* (2020) 'Robotic Process Automation: Contemporary themes and challenges', *Computers in Industry*, 115, p. 103162. Available at: <https://doi.org/10.1016/j.compind.2019.103162>.

Taylor. 2013. *Validity and Validation*. Oxford University Press, Incorporated.

- Turoff, M., Linstone, H. A. 1975. *The Delphi Method: Techniques and Applications*. Addison-Wesley.
- Vasarhelyi, M.A. *et al.* (2004) 'Principles of Analytic Monitoring for Continuous Assurance.', *Journal of Emerging Technologies in Accounting*, 1, pp. 1–21. Available at: <https://doi.org/10.2308/jeta.2004.1.1.1>.
- von der Gracht, H. A. (2012) 'Consensus measurement in Delphi studies: Review and implications for future quality assurance', *Technological Forecasting and Social Change*, 79(8). Available at: <https://doi.org/10.1016/j.techfore.2012.04.013>.
- Willcocks, L. (2019) *RPA - The State of Play Today, Robotic and Cognitive Automation*. Available at: <https://roboticandcognitiveautomation.co.uk/Blog15.html> (Accessed: 27 October 2024).
- Willcocks, L., Lacity, M. and Craig, A. (2015) 'The IT Function and Robotic Process Automation', *The Outsourcing Unit Working Research Paper Series*, 1–38. Available at: https://eprints.lse.ac.uk/64519/1/OUWRPS_15_05_published.pdf (Accessed: 26 October 2024).
- Winter, S. *et al.* (2014) 'Beyond the organizational “container”: Conceptualizing 21st century sociotechnical work', *Information and Organization*, 24(4), pp. 250–269. Available at: <https://doi.org/10.1016/j.infoandorg.2014.10.003>.
- Yin, R.K. (2015) *Qualitative Research from Start to Finish*. 2nd ed. Guilford Publications.
- Yin, R.K. (2009) *Case study research: Design and methods*. 4th ed. Los Angeles: Sage.

Appendices

Appendix A: Semi-structured group interview questions

1. Introduction and overview of the audit process
 - Could you briefly describe your role and involvement in the audit process at NeonAudit?
 - Is this overview (Figure 5) based on how the audit process is typically carried out at NeonAudit?
 - Do you think any steps have been omitted from the process that should be added for accuracy?
 - Do these steps vary depending on the size of the audited company or the type of client?
2. Initial setup and basic information
 - What information is first entered into the table before starting the account-specific audit?
 - Is there standardized information (e.g., client name, fiscal year) that is always entered at the beginning? How is this information usually collected?
3. Account-specific process steps in the Excel workbook

Account 6800: Fixed assets, depreciation, and financial securities

- How is the audit of this account carried out step by step?
- Do you typically review additions or reductions from the previous year? If so, how is this information documented?
- How do you ensure the reconciliation of purchase invoices or receipts?
- What steps are involved in calculating depreciation or impairment, and do you follow specific guidelines?

Account 1500: Inventory

- How is the audit of this account carried out step by step?
- If a physical inventory count is performed, how is it recorded in the workbook?
- How do you ensure that the valuation of inventory corresponds to acquisition costs?

Accounts 1700 and 1800: Sales receivables and other receivables

- How are the audits of these accounts carried out step by step?
- What specific steps are included in reconciling trade receivables?
- How do you handle overdue receivables?
- Are there fields in the workbook to record notes about risks related to receivables?

Account 1900: Cash and bank receivables

- How is the audit of this account carried out step by step?
- How do you ensure the reconciliation of bank account balances?

Accounts 2000 and 2600: Equity and loans and interest

- How is the audit of this account carried out step by step?
- How do you ensure the sufficiency of equity?
- When auditing loans, do you review loan agreements, and how is this information recorded in the workbook?
- How do you check whether the classification of short-term and long-term loans is done correctly, and how do you verify this?

Accounts 2870 and 2900: Accounts payable and other liabilities

- How is the audit of this account carried out step by step?
- How do you review overdue accounts payable?
- Are there fields in the workbook to record notes about overdue payables?

Account 3000: Revenue

- How is the audit of this account carried out step by step?
- How do you ensure the accuracy of revenue figures?
- Is there a process in place to identify accrual differences to ensure proper allocation to the correct fiscal year?

Account 4000: Purchases

- How is the audit of this account carried out step by step?
- How do you reconcile the purchase figures in the ledger with receipts?
- Is there a process in place to identify accrual differences to ensure proper allocation to the correct fiscal year?

Account 5000: Personnel expenses

- How is the audit of this account carried out step by step?
- How do you reconcile personnel expenses between payroll data and the general ledger?
- Are benefits or social expenses reviewed separately, and how are they verified?

Account 7000: Other operating expenses

- How is the audit of this account carried out step by step?
- How do you identify unusual or significant deviations in other operating expenses?
- Is there a method for categorizing and analysing expenses by type?
- Are there often steps requiring additional entries or corrections?

Account 9000: Financial income and expenses

- How is the audit of this account carried out step by step?
- How do you audit financial income and expenses?

- If there are significant incomes or expenses, what is the process for reconciling financial transactions with documentation?
- Are the notes for this account often such that they require additional clarification?

Taxes

- How is the audit of taxes carried out step by step?

Memorial entries

- Could you explain how the audit of memorial entries is carried out step by step?
- How are memorial entries handled in the workbook?
- Is there a standard method for marking these entries for final review?

4. Accounting and financial statements, final workbook review, and audit report preparation

- Could you explain how the final stage review is carried out step by step?
- Are there standardized processes for reviewing these final sections?

5. Additional checks and summary questions related to process steps

- Are there specific accounts that often require manual reconciliation or adjustment?
- Do you find that the workbook effectively covers the steps for each account, or are additional external entries or notes made?

6. Conclusions

- Are all the key steps for each account covered, or should anything be added?

Appendix B: List of auditing tasks

Number	Task
1	Task assignment and preparation
1.1	Task Creation in Asana: Clients send the necessary documents (e.g., year-end financial statements, balance sheets) via email.
1.2	Task Assignment: Audit managers assign tasks to audit assistants or auditors.

1.3	Request Access to Client Folder: The assigned auditor requests OneDrive access from the main responsible auditor.
1.4	Verify Mandatory Documents: The auditor checks for the required auditor selection record. If missing, the task is returned to the partner.
2	Gathering basic information
2.1	Data Collection: Collect basic company information, including trade registry and tax debt register documents.
2.2	New client check: Identify if client is a new one or continuing
2.3	Data collection for new clients: For new clients, collect additional documents like engagement letter, money laundering risk assessment, beneficiary information and conduct client identification in docs
3	Workbook Setup in Excel
3.1	Extract Key Data: Extract client data (e.g., from shareholder meeting minutes).
3.2	Independence Evaluation: Answer a series of questions to ensure no conflict of interest.
3.2.1	Identify any potential independence challenges that could affect the audit team. If there are any concerns, escalate the issue to the main responsible auditor for resolution.
4	Analytical sheet
4.1	Extract data from financial statement: Input the client's financial data into the Excel workbook to the dedicated cells.
4.2	Extract data from balance sheet: Input the client's financial data into the Excel workbook to the dedicated cells.
4.3	Extract data from previous years' Excel workbooks: Extract historical data for returning clients. Continuing clients should have financial data filled for past 4 years.
5	Understanding the entity and its environment

5.1	Identify Client Activities: Understand what the client does, which impacts risk assessments and applicable laws.
5.2	Assess Client Size: The size of the client affects the extent of reporting and documentation required.
5.3	Classify Client Complexity: Determine if the client is considered simple (LCE) or complex (ISA). Most clients qualify for ISA simplifications applicable to smaller entities.
5.4	Identify Data Sources: Determine the origins of data streams. This knowledge influences which systems the audit team may need access to and the extent of audit procedures.
5.5	Use Pre-Prepared Questionnaires: The main responsible auditor can use pre-designed Microsoft Forms questionnaires to collect additional information from the client, if needed.
6	Materiality Determination
6.1	Choose appropriate level of Materiality: In the "Justify the Calculation Basis and Selected Materiality" section, document the rationale for the chosen calculation method and materiality levels. Note any special considerations considered when determining the monetary threshold.
7	Governance Review
7.1	Auditor Appointment Verification: Confirm that the appointment is officially recorded in the Annual General Meeting (AGM).
7.2	Extract Dividend Decisions: Extract the amount of dividends decided upon during the AGM.
7.3	Review Relevant Governance Documents: Identify for irregularities such as incorrect numbering of meeting minutes, inconsistencies in trade register information, or any other governance-related discrepancies. Ensure that these concerns are communicated to the client in the final reporting, along with guidance on how to address them.
8	Related Party Review

8.1	Retrieve Related Parties: Search for all related party relationships and associations relevant to the company.
8.2	Search for Related Party Transactions: Identify transactions involving related parties for review. This search typically occurs during the later stages of data collection. Depending on the accounting software used, extract and review purchase and sales invoices by searching for related party names. Ensure all transactions involving related parties are properly documented and assessed for any risks or inconsistencies.
9	6800 Fixed Assets and Financial Securities
9.1	Document Retrieval: Retrieve supporting documentation, such as purchase invoices, receipts, and appraisal reports, for asset additions and disposals.
9.2	Identifying Changes: Go through the records on general ledger to identify any additions, disposals, or destroyed assets.
9.3	Sampling: Select a sample of asset additions and disposals to verify accuracy.
9.4	Extract Data: Document the values from balance sheet and evidence to workbook.
9.5	Reconciliation: Reconcile the sampled asset values with the supporting documents to ensure they match the amounts recorded on the balance sheet.
9.6	Depreciation Checks: Check that depreciation rates do not exceed the tax-deductible maximum and that planned depreciation schedules are correctly applied.
9.7	Risk Assessment: Assess the risk of hidden dividend distribution, improper VAT deductions, or errors related to asset benefits and property allocations.
9.8	Documenting Significant Findings: Document any significant issues or discrepancies in the "Significant Findings" section, such as sales to related parties or fundamental errors.
9.9	Reviewing Contracts: If applicable, review lease or property purchase agreements to ensure all terms are appropriately disclosed and classified.

9.10	Valuation Checks: Verify that assets are correctly valued, especially for securities and personal assets, and that adjustments are accurate and well-documented.
10	1500 Inventory
10.1	Document Retrieval: Retrieve detailed inventory reports, stock ledgers, and supporting documentation, such as purchase invoices, sales records, and contracts.
10.2	Identifying Changes: Review the general ledger and inventory records to identify any significant changes, such as new inventory items, disposals, or adjustments from the previous year.
10.3	Extract Data: Document the values from balance sheet and evidence to workbook.
10.4	Reconciliation: Reconcile the inventory figures between the balance sheet, detailed inventory reports, and supporting documents.
10.5	Inventory Change Analysis: Assess the appropriateness of inventory changes by comparing income statement figures to changes in the balance sheet.
10.6	Substantive Testing: Perform testing of a sample of inventory items to verify unit prices and ensure they align with purchase invoices. Document the results and address any discrepancies.
10.7	Inventory Count Participation: Participate in the physical inventory count as a mandatory audit procedure (per ISA 501).
10.8	Analysis of Inventory Differences: Investigate and document any discrepancies found during the physical count. Work with the client to make necessary adjustments if discrepancies are material.
10.9	Slow-Moving Inventory Analysis: Conduct an analysis of slow-moving inventory items to determine whether they should be written down or adjusted.
11	1700 Accounts Receivable

11.1	Selection of Items for Review: Select significant items from the accounting records, specifically from balance sheet breakdowns, to be audited.
11.2	Evidence Gathering: Obtain supporting evidence for each selected item.
11.3	Extract Data: Document the values from balance sheet and evidence.
11.4	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence.
11.5	Payment Review: Perform a review of payments received to verify the collectability of receivables. The method of review depends on the client's accounting software. Document the size and extent of the payment review in the audit workbook.
11.6	Credit Risk Assessment: Identify receivables that are overdue by more than 90 days.
11.7	Credit Risk Assessment: Highlighting cases where a client has gone bankrupt, but the receivable is still recorded at full value.
11.8	Intercompany Receivables: If the client is part of a corporate group, ensure that intercompany receivables are not presented as standard trade receivables in the official balance sheet but are appropriately classified as intercompany items.
12	1800 Other Receivables
12.1	Selection of Items for Review: Select significant items from the accounting records, specifically from balance sheet breakdowns, to be audited.
12.2	Evidence Gathering: Obtain supporting evidence for each selected item.
12.3	Extract Data: Document the values from balance sheet and evidence.
12.4	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence.

12.5	Substantive Testing: Investigate the appropriateness of the most significant items, verifying their validity and valuation based on supporting documentation.
13	1900 Cash and Bank Balances
13.1	Bank Confirmation Request: Request bank confirmations.
13.2	Extract Data: Document the values from bank statement and financial statement.
13.3	Reconciliation: Compare the balance sheet figures and breakdown amounts with the bank confirmations or financial securities confirmations.
13.5	Transaction Verification: For one selected month, compare the debits and credits on the bank statement with the corresponding entries in the general ledger to ensure accuracy.
14	2000 Equity
14.1	Equity Balance Check: Verify that the equity is not negative.
14.2	Trade Register Check: If equity is negative, check the trade register extract to see if it has been recorded. If it has not been registered, note this as a significant finding and add a comment for follow-up.
14.3	Extract Data: Document the values of dividend and allocation of profits or handling of losses from AGM and financial statement.
14.4	Reconcile: Ensure that the allocation of profits or handling of losses aligns with decisions made by the AGM.
14.5	Assess Impact on Solvency: Use a solvency analysis to determine if the proposed profit distribution could jeopardize the company's liquidity and ability to meet its obligations.
15	2600 Loans

15.1	Data Extraction: Create a comprehensive list of all bank loans and installment debts using the provided table. Include details such as the loan amount, interest rate, repayment terms, and maturity dates.
15.2	Evidence Gathering: Obtain supporting evidence for each selected item.
15.3	Extract Data: Document the values from balance sheet and evidence.
15.4	Reconciliation: Reconcile the balance sheet amounts, detailed liability listings, and bank confirmations to ensure consistency and accuracy.
15.5	Classification check: Verify that loan repayments due within the next financial year are classified as short-term liabilities. Check that repayments scheduled for later periods are classified as long-term liabilities.
16	2870 Accounts Payable
16.1	Selection of Items for Review: Select significant items from the accounting records, specifically from balance sheet breakdowns, to be audited.
16.2	Evidence Gathering: Obtain supporting evidence for each selected item.
16.3	Data Extraction: Document the values from the balance sheet and corresponding evidence, recording them in the audit workbook.
16.4	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence.
16.5	Review of Outstanding Balances: Assess whether all recorded payables are still valid and should remain as liabilities. Highlight any long-outstanding payables as significant findings and document their necessity and reasonableness.
16.6	Identify Outstanding and Negative Payables: Identify payables that are overdue by more than 90 days.
16.7	Document Overdue and Negative Payables: Document the amounts of overdue payables.

16.8	Analysis of Outstanding and Negative Payables: Analyze overdue accounts payable and any negative balances. Investigate these items thoroughly, and document reasons for discrepancies or unusual entries.
16.9	Valuation at Year-End: Check that all liabilities are correctly valued as of the balance sheet date. Consider any relevant foreign exchange rates and ensure proper adjustments are made.
16.10	Identify Intercompany Payables: If the client is part of a corporate group, identify payables in the financial statements that are related.
16.11	Intercompany Payables: Verify that intercompany payables are not classified as standard trade payables in the financial statements. Ensure they are appropriately presented and disclosed.
17	2900 Other Liabilities
17.1	Selection of Items for Review: Select significant items from the accounting records, specifically from balance sheet breakdowns, to be audited.
17.2	Data Extraction: Extract selected amounts and record them in the "Recorded Amount" column of the audit workbook.
17.3	Evidence Gathering: Obtain supporting evidence for each selected item.
17.4	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence.
17.5	Documentation: Document all differences, provide explanations for significant findings, and investigate any unusual or unexplained variances.
18	3000 Revenue
18.1	Identification of Revenue Changes: Identify changes in revenue compared to the previous year and the budget.
18.2	Documentation: Record and explain reasons for variances. If necessary, consider further investigation, such as discussions with management or performing additional audit tests.

18.3	Identification of Sales Accruals: Identify sales accruals, focusing on sales recorded in the final month of the fiscal year.
18.4	Identification of Sales Accruals: Identify sales accruals, focusing on average monthly sales.
18.5	Comparison: Compare final months sales with average monthly sales to identify any anomalies or irregular patterns.
18.6	Selection of Items for Review: Select significant items from the accounting records.
18.7	Evidence Gathering: Obtain supporting evidence for each selected item.
18.8	Data Extraction: Extract the needed data from evidence and financial statements, including details such as the product or service, quantity, date, customer, and price.
18.9	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence so that those are correctly recorded, including details such as the product or service, quantity, date, customer, and price.
18.10	Revenue Completeness Check: Perform procedures to detect unrecorded revenue, such as reviewing sales made immediately before and after the year-end.
18.11	Existence Verification: Confirm that revenue transactions are real and valid. Cross-check a sample of recorded sales transactions with original sales orders, delivery receipts, and customer confirmations.
18.12	Accuracy Testing: Check that revenue transactions are accurately recorded in terms of product or service details, quantities, dates, customer information, and pricing.
18.13	Comparison: Compare invoices with contracts or agreements to ensure accurate billing.
18.14	Cut-Off Testing: Review transactions recorded near the fiscal year-end to verify they are attributed to the appropriate period based on delivery or service completion dates.
18.15	Identification of major contracts: Identify the major contracts.

18.16	Review of Contracts: Review major contracts and agreements with customers to ensure revenue recognition aligns with contractual terms. Check for any clauses that may affect revenue timing, such as performance obligations or return policies.
18.17	Identification of Adjustments and Returns: Identify adjustments for returns, discounts, and allowances.
18.18	Review of Adjustments and Returns: Examine adjustments for returns, discounts, and allowances to ensure they are appropriately recorded, and that revenue is not overstated. Investigate any significant or unusual returns.
19	4000 Purchases
19.1	Identification of Purchase Changes: Identify changes in purchases compared to the previous year and budgeted amounts.
19.2	Analytical Review: Perform an analytical review to understand the development and structure of purchases and other expenses.
19.3	Comparison: Compare current year figures to prior periods and identify significant changes or unusual trends.
19.4	Documentation of Variances: Record and explain reasons for large variances or shifts in purchases and expenses. If necessary, consider further investigation.
19.5	Identification of Purchase Accruals: Identify purchase accruals, focusing on purchases recorded in the final month of the fiscal year.
19.6	Identification of Purchase Accruals: Identify purchase accruals, focusing on average monthly purchases.
19.7	Comparison: Compare final months purchases with average monthly purchases to identify any anomalies or irregular patterns.
19.8	Identification of Major Expense Categories: Identify major categories of expenses that need review and testing.
19.9	Selection of Items for Review: Select significant items from the accounting records.

19.10	Evidence Gathering: Obtain supporting evidence for each selected item.
19.11	Data Extraction: Extract the needed data from evidence and financial statements, including details such as the product or service, quantity, date, customer, and price.
19.12	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence to ensure expenses are correctly recorded, including details such as amount, date, and classification.
19.13	Identification of Expenses Near End of Year: Identify expenses that could have potential Cut-Off errors.
19.14	Data Extraction: Extract the delivery dates.
19.15	Comparison: Compare the delivery dates and dates registered to the general ledger.
19.16	Cut-Off Testing for Expenses: Review transactions recorded near the fiscal year-end to verify they are attributed to the appropriate period based on the delivery of goods or completion of services.
19.17	Identification of Adjustments: Identify any adjustments made to expense accounts, such as reclassifications or accruals.
19.18	Review of Adjustments: Review and assess the appropriateness of any adjustments to ensure they are properly recorded and supported by evidence. Investigate any significant or unusual adjustments.
20	5000 Personnel Expenses
20.1	Document Retrieval: Request or retrieve income register report 600.
20.2	Data Extraction: Extract relevant information according to the Excel workbook.
20.3	Verify Social Contribution Rates: Check that the employment pension and social security rates applied are reasonable and accurate based on current regulations.
20.4	Analytical Review of Personnel Expense Changes: Analyze changes in personnel expenses compared to the previous year and the budget. Investigate any significant

	variances or unusual trends, documenting explanations and considering further investigation if needed.
20.5	Classification of Voluntary Pension Insurances: Ensure that payments for voluntary pension insurances are properly classified in the income statement under the correct heading, not grouped with other personnel-related expenses.
20.6	Accrued Holiday Pay Assessment: Calculate the accrued holiday pay provision and assess its reasonableness. Note that accrued holiday pay is not required for shareholder employees under YEL if the approach is consistent year over year.
20.7	Average Salary Analysis: Conduct an analytical review of the average salary per employee. Compare current year averages to historical figures to identify any significant anomalies.
20.8	Assessment of Accruals: Evaluate payroll-related accruals, such as holiday pay and bonuses, to ensure they are appropriately calculated and supported by documentation. Confirm the accuracy and completeness of these accruals.
20.9	Testing of Social Contribution Rates: Verify that the social contribution percentages, including employment pension and social security rates, are applied correctly to payroll expenses.
20.10	Holiday Pay Provision Analysis: Assess the reasonableness of accrued holiday pay amounts, ensuring that they are calculated based on accurate data and align with company policies.
20.11	Bonus Reasonableness Analysis: Analyze the appropriateness of accrued bonuses. Compare these amounts with prior years and budgeted figures to ensure reasonableness.
20.12	Testing of Accrual Calculations: Perform substantive testing on accrual calculations as necessary. Check that accruals for holiday pay and bonuses are correctly calculated and supported by evidence.
20.13	Verification of Payroll Reconciliation: Reconcile payroll records from the general ledger with tax authority year-end reports, TyEL declarations, or other relevant

	reports. Ensure that the payroll records are accurate and fully reconciled.
21	7000 Other Operating Costs
21.1	Data Extraction: Fill in various expense subcategories from the account-level income statement
21.2	Identification of Changes: Identify any significant changes compared to the previous fiscal year.
21.3	Identification of Major Expense Categories: Identify major categories of expenses that need review and testing.
21.4	Selection of Items for Review: Select significant items from the accounting records.
21.5	Evidence Gathering: Obtain supporting evidence for each selected item.
21.6	Data Extraction: Extract the needed data from evidence and financial statements, including details such as the product or service, quantity, date, customer, and price.
21.7	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence to ensure expenses are correctly recorded, including details such as amount, date, and classification.
21.8	Identification of Expenses Near End of Year: Identify expenses that could have potential Cut-Off errors.
21.9	Data Extraction: Extract the delivery dates.
21.10	Comparison: Compare the delivery dates and dates registered to the general ledger
21.11	Cut-Off Testing for Expenses: Review transactions recorded near the fiscal year-end to verify they are attributed to the appropriate period based on the delivery of goods or completion of services.
21.12	Identification Legal Expenses: Identify details of account 8410 or any other account used for legal fees.
21.13	Evidence Gathering: Obtain supporting invoices for these expenses.

21.14	Documentation: Document findings and the main responsible auditor may request a legal letter from the company's attorney to confirm any outstanding legal matters
22	9000 Financial Income and Expenses
22.1	Understanding Financial Items: Develop an understanding of the nature and composition of financial income and expenses. This includes identifying key items such as bank loan expenses, interest income, and other financial charges.
22.2	Identification of Major Items: Identify major categories of financial items that need review and testing.
22.3	Analytical Review: Perform an analytical review to analyze changes in financial income and expenses compared to the previous year and budgeted amounts.
22.4	Documentation: Document any significant variances or unusual trends and investigate further if necessary.
22.5	Selection of Items for Review: Select significant items from the accounting records.
22.6	Evidence Gathering: Obtain supporting evidence for each selected item.
22.7	Data Extraction: Extract the needed data from evidence and financial statements, including details such as the product or service, quantity, date, customer, and price.
22.8	Reconciliation: Compare the values from the accounting records with the amounts on the supporting evidence to ensure items are correctly recorded, including details such as amount, date, and classification.
23	Taxes
23.1	Document Retrieval: Request or retrieve Tax report.
23.2	Verification: Examine the company's tax calculation to ensure it is reasonable and in compliance with relevant tax laws.

23.3	Tax Calculation: Check the accuracy of the tax figures and assess whether the tax calculation method is appropriate.
23.4	Documentation: Verify that the tax calculation is well-documented and supported by relevant data.
23.5	Evidence Gathering: Obtain supporting evidence for tax expense, deferred tax assets, and liabilities are correctly recorded and presented.
23.6	Reconciliation: Match the tax calculation amounts with the balance sheet and income statement entries to ensure consistency and correctness.
24	Journal Entries
24.1	Understanding Internal Controls: Review the control questionnaire to understand the client's internal controls over journal entries, including the roles and responsibilities related to approval and documentation.
24.2	Journal Entry Identification: Identify the types of journal entries used by the client, distinguishing between automatic and manual entries.
24.3	Risk Assessment: Assess areas where journal entries might be at higher risk for misuse, such as manual or unusual adjustments.
24.4	Inquiry: Discuss with financial reporting personnel to inquire about any inappropriate or unusual activities related to journal entries.
24.5	Documentation: Document any findings from inquiries, even if no issues are reported.
24.6	Evidence Gathering: Collect supporting documentation, such as ledgers and source documents, for selected journal entries.
24.7	Entry Selection: Choose journal entries made at the fiscal year-end and significant adjustments for further examination.
24.8	Reconciliation: Reconcile journal entries between the general and subsidiary ledgers to ensure consistency.

24.9	Detailed Examination: Trace selected journal entries back to supporting documentation, verifying their accuracy and appropriateness.
24.10	Fraud Risk Review: Review entries for any signs of asset misuse or financial statement manipulation.
24.11	Substantive Testing: Conduct substantive testing for remaining entries to confirm they are correctly recorded.
24.12	Conclusion: Document that sufficient audit evidence has been collected to address the risk of management override and confirm reasonable assurance of financial statement integrity.
25	Financial Statement and Notes
25.1	Opening Balance Review: Reconcile the opening balances of the current fiscal year's general ledger with the balance sheet from the previous year's audited financial statements.
25.2	Voucher Examination: Examine purchase and expense invoices from the first 2-3 months of the fiscal year for relevance, business connection, and proper approval.
25.3	Journal Entry Review: Assess journal entries related to the financial statements, focusing on those that could pose a risk of fraud or misstatement.
25.4	Financial Statement Reconciliation: Trace figures in the income statement and balance sheet back to the general ledger and the financial statement binder to ensure accuracy.
25.5	Verification of Financial Statement Formats: Check that the income statement and balance sheet formats are correct and comply with regulatory requirements.
25.6	Management Report Review: Ensure that the management report (if applicable) meets disclosure requirements and accurately reflects the company's performance and outlook.
25.7	Balance Sheet Reconciliation: Reconcile detailed balance sheet items to match the figures presented in the main balance sheet.
25.8	Notes Compliance Check: Verify that all required notes are included in the financial statements and that they comply with relevant accounting standards.

25.9	Figures Reconciliation in Notes: Ensure that figures in the notes match the income statement and balance sheet.
25.10	Accounting Policies Review: Check that the accounting policies used are disclosed, appropriate, and consistently applied.
25.11	Contingent Liabilities Examination: Assess the completeness and accuracy of disclosed contingent liabilities and commitments.
25.12	Signatures Verification: Confirm that all necessary signatures are present on the financial statement binder and related documents.
25.13	Subsequent Events Review: Evaluate any events occurring after the balance sheet date but before the audit report date to determine if they require disclosure or adjustment in accordance with ISA 560.
26	Final Review and Audit Report Preparation
26.1	Summary and Evaluation of the Audit: The main responsible auditor reviews the entirety of the audit work to ensure that all significant findings have been addressed and documented. Summarize the results of audit procedures to assess the overall conclusions reached.
26.2	Final Evaluation of Audit Evidence: Evaluate whether the gathered audit evidence is adequate and suitable to substantiate the audit opinion. Ensure that all significant risks have been mitigated and control assessments are complete.
26.3	Preparation of the Audit Report: Draft the audit report, which includes the auditor's opinion on the financial statements. Summarize the audit findings and decide whether to issue an unmodified or modified opinion.
26.4	Review of Significant Findings: Ensure that all significant findings from the audit are summarized and adequately addressed in the report.
26.5	Assess Compliance with Standards: Verify that audit procedures and documentation comply with relevant auditing standards and regulatory requirements.
26.6	Consider Management Representations: Review management's representations and assess whether they provide adequate support for the financial statements.
26.7	Ensure All Issues Are Resolved: Confirm that any unresolved issues or discrepancies have been documented and addressed appropriately.

26.8	Completion Checklist: Use a completion checklist to ensure that all audit procedures are finalized, necessary documents are in place, and all review points are addressed.
26.9	Audit Report Draft: Prepare and review the draft audit report, ensuring that it accurately reflects the audit findings and conclusions.
26.10	Sign-Off: The main responsible auditor signs off on the audit report once all review and documentation procedures are complete.
N/A	Naming of documents: Name documents according to the type. Especially in cases when there are paper accounting records.

Appendix C: Grouped process steps

Task	Number
Task creation in Asana	1.1
Task assignment	1.2
Request access to client folder	1.3
Verification	1.4, 2.2, 7.1, 14.1, 14.2, 16.11, 20.3, 23.2, 23.4, 24.9
Basic data collection	2.1 & 2.3
Assessment & evaluation	3.2, 3.2.1, 5.1, 5.2, 5.3, 9.6, 9.7, 20.8, 24.3, 25.2, 25.8
Extract data from financial statement & balance sheet to dedicated cells	4.1 & 4.2
Extract data from previous years' Excel workbooks	4.3
Identify data sources	5.4
Use pre-prepared questionnaires	5.5
Choose appropriate level of materiality	6.1
Evidence gathering	8.1, 9.1, 10.1, 11.2, 12.2, 13.1, 15.2, 16.2, 17.3, 18.7, 19.10, 19.14, 20.1, 21.5, 21.13, 22.6, 23.1, 23.5, 24.6

Identifying changes	7.3, 8.2, 9.2, 10.2, 11.6, 11.8, 16.5, 16.6, 16.10, 18.1, 18.3, 18.4, 18.14, 18.15, 18.17, 19.1, 19.5, 19.6, 19.7, 19.8, 19.13, 19.17, 21.2, 21.3, 21.8, 21.11, 21.12, 22.2
Sampling	9.3, 16.1, 18.6, 19.9, 21.2, 22.5
Extract data	3.1, 7.2, 9.4, 10.3, 11.3, 12.3, 13.2, 14.3, 15.1, 15.3, 16.3, 17.2, 18.8, 19.11, 19.14, 20.2, 21.1, 21.6, 21.8, 21.9, 22.7
Reconciliation	9.5, 10.4, 10.6, 11.4, 12.4, 12.5, 13.3, 13.5, 14.4, 15.4, 16.4, 17.4, 18.5, 18.9, 18.13, 19.3, 19.12, 19.15, 19.16, 21.7, 21.10, 22.8, 23.6, 24.8, 25.1
Documenting	9.8, 17.5, 18.2, 19.4, 21.14, 22.4, 23.4, 24.5, 24.12
Reviewing	9.9, 11.5, 18.16, 18.18, 19.18, 20.5, 24.10, 25.3
Calculation	9.10, 16.9, 20.6, 20.9, 20.12, 23.3
Physical inventory	10.7
Analysis	10.8, 10.9, 14.5, 16.8, 19.2, 20.4, 20.7, 20.10, 20.11, 22.1, 22.3, 24.1, 24.11, 25.6
Selection of items for review	11.1, 12.1, 16.1, 17.1, 18.6, 19.9, 21.4, 22.5
Credit risk assessment	11.7
Classification check	15.5
Accuracy testing	18.12, 25.5
Discussion with financial reporting personnel	24.4
Financial statement reconciliation	25.4, 25.7, 25.9
Final review	24.2, 25.10, 25.11, 25.12, 25.13, 26.1, 26.2, 26.3, 26.4, 26.5, 26.6, 26.7, 26.8, 26.9, 26.10
Naming of documents	N/A

Appendix D: Delphi second round evaluations

	Technical feasibility						Benefit evaluation					
	Ac- tivity type	Data struc- ture	Pro- cess sta- bil- ity	Devel- op- ment re- quire- ments	RPA as pre- ferred solu- tion	Final eval- uation of technical feasibility	Effort neede d for activ- ity	Fre- quenc y of activ- ity	Need for quality im- prove- ment	Use ful life	Or- gani- sationa l valu e	Final evalu- ation of ben- efits
Access to client folder	4	4	3	5	3	3	1	3	3	2	3	2
	5	4	2	4	2	4	1	3	3	2	2	2
	4	4	3	3	2	3	1	3	1	4	3	2
	4	4	2	3	3	3	2	4	3	3	4	3
	5	5	4	5	2	4	1	4	1	4	2	3
	5	5	3	5	1	3	1	1	5	1	1	2
	4	5	3	4	2	3	2	3	3	2	2	2
	3	3	3	4	2	3	1	3	3	3	2	3
Average	4,2 5	4,25	2,8 8	4,13	2,13	3,25	1,25	3,00	2,75	2,6 3	2,38	2,38
Collecting basic doc- uments	4	4	4	3	3	4	2	4	3	4	4	4
	5	4	4	3	5	5	3	4	2	4	3	4
	4	4	4	2	5	4	4	5	4	3	3	4
	4	4	4	3	4	4	4	4	3	3	4	3
	4	5	4	3	4	4	3	4	1	4	3	3

	3	3	5	2	5	4	4	3	2	3	3	4
	4	5	5	3	2	3	2	2	3	1	2	2
	4	3	3	2	4	4	2	4	3	2	3	3
Average	4,00	4,00	4,13	2,63	4,00	4,00	3,00	3,75	2,63	3,00	3,13	3,38
	5	4	5	4	3	4	4	5	4	3	4	4
	5	5	5	5	5	5	4	4	4	4	4	5
	5	5	4	3	4	4	5	5	3	5	4	4
	4	5	4	4	4	4	4	4	3	4	3	4
	5	5	5	5	3	4	4	5	4	5	4	4
	4	4	4	4	3	4	3	4	5	5	4	5
	4	2	2	2	3	3	4	3	2	3	3	3
	4	3	3	3	3	4	2	3	4	4	4	4
Average	4,50	4,13	4,00	3,75	3,50	4,00	3,75	4,13	3,63	4,13	3,75	4,13
	4	3	5	4	3	3	3	5	3	4	4	4
	5	5	5	5	4	5	3	4	2	2	2	2
	4	4	3	4	2	3	4	4	2	4	4	3
	5	4	3	4	4	4	4	3	4	4	3	4
	5	5	5	5	3	4	4	4	4	4	4	4
	5	5	3	4	4	4	3	3	4	3	3	4
	4	4	4	2	3	3	4	3	2	3	4	3
	4	3	3	2	4	3	3	2	4	3	2	3
Average	4,50	4,13	3,88	3,75	3,38	3,63	3,50	3,50	3,13	3,38	3,25	3,38

Evidence gathering	4	3	3	3	3	3	5	5	5	4	5	5
	4	4	4	4	4	4	4	5	4	4	4	5
	2	3	2	4	5	4	5	5	4	3	4	5
	4	3	4	3	3	3	4	4	5	5	4	4
	2	2	3	2	4	2	5	5	5	3	3	4
	4	2	5	2	5	4	5	5	4	5	5	5
	4	3	3	3	3	3	5	5	3	4	4	4
	4	3	3	4	3	3	2	3	4	4	4	4
Average	3,50	2,88	3,38	3,13	3,75	3,25	4,38	4,63	4,25	4,00	4,13	4,50
Identifying changes	4	5	4	4	4	4	5	5	5	5	5	5
	4	4	5	4	4	5	3	4	3	3	3	4
	4	4	2	4	4	3	5	5	4	3	2	4
	3	4	4	3	4	4	4	4	4	5	3	4
	3	2	3	2	3	3	5	5	4	3	4	4
	5	2	5	4	4	5	3	4	3	3	4	4
	3	2	2	5	3	3	5	5	5	3	4	4
	3	4	4	3	3	4	2	2	3	4	4	4
Average	3,63	3,38	3,63	3,63	3,63	3,88	4,00	4,25	3,88	3,63	3,63	4,13
Data extraction	3	3	4	3	3	3	4	5	4	3	4	4
	4	3	5	4	4	5	4	5	4	4	4	4
	3	2	3	4	4	4	4	5	3	3	3	4
	4	3	5	4	4	3	3	3	4	4	3	4
	4	3	3	3	3	3	4	4	3	4	3	3

	4	2	4	5	4	4	4	5	4	5	3	5
	3	1	1	5	3	3	5	5	4	3	4	4
	3	2	2	3	4	2	3	3	4	4	4	3
Average	3,50	2,38	3,38	3,88	3,63	3,38	3,88	4,38	3,75	3,75	3,50	3,88
	4	4	4	4	3	4	3	5	3	4	4	4
	4	2	3	3	2	2	4	5	4	5	5	5
	4	4	3	4	4	4	4	5	2	3	4	4
	4	3	3	3	3	3	4	4	4	4	4	4
	4	3	4	3	3	4	4	5	3	4	4	4
	5	2	3	3	2	2	4	5	2	3	4	4
	4	1	2	4	3	3	4	3	4	3	4	4
	3	2	3	2	3	3	3	3	3	2	3	2
Average	4,00	2,63	3,13	3,25	2,88	3,13	3,75	4,38	3,13	3,50	4,00	3,88
	4	4	5	3	3	4	3	5	3	5	4	3
	3	2	4	4	2	2	3	4	2	3	2	2
	2	4	3	4	4	4	4	5	2	2	3	4
	4	4	3	4	3	3	4	3	3	4	3	3
	4	4	4	4	4	4	4	5	4	4	4	4
	2	2	4	5	2	3	2	4	2	3	2	3
	3	2	3	3	3	3	2	4	3	3	3	2
	3	2	3	2	4	3	2	2	4	2	2	3
Average	3,13	3,00	3,63	3,63	3,13	3,25	3,00	4,00	2,88	3,25	2,88	3,00

Credit risk assessment	3	3	3	3	3	3	4	4	4	4	4	4
	4	4	5	3	4	5	3	2	4	4	2	3
	4	5	4	2	4	4	4	3	2	4	4	4
	4	4	3	3	3	3	4	3	3	4	3	3
	5	5	5	4	4	5	5	5	4	4	4	5
	5	4	4	2	4	4	4	2	4	4	4	4
	5	4	4	4	4	4	5	4	4	3	4	4
	3	3	3	3	3	3	2	2	2	3	3	3
Average	4,13	4,00	3,88	3,00	3,63	3,88	3,88	3,13	3,38	3,75	3,50	3,75
Loan classification check	4	4	4	4	2	3	3	2	2	4	3	2
	5	5	3	4	1	2	2	2	2	2	2	2
	4	4	2	4	4	3	3	3	2	3	2	3
	4	4	3	4	2	2	3	4	2	3	4	3
	5	4	4	3	2	3	3	3	3	2	3	2
	5	4	3	5	1	3	2	2	3	2	2	2
	4	2	2	3	2	2	5	3	4	3	3	3
	2	3	3	3	1	3	3	3	2	3	2	2
Average	4,71	4,29	3,43	4,29	2,14	3,00	3,43	3,14	2,86	3,14	3,00	2,71
Sampling	5	5	5	4	4	4	4	3	4	4	4	4
	5	5	4	4	2	2	2	4	1	1	2	2
	2	4	3	4	4	3	5	5	3	4	4	4
	5	4	4	3	4	4	4	5	4	4	5	4
	4	4	4	4	3	4	4	5	3	4	4	4

	3	4	4	5	2	3	3	4	2	3	3	3
	4	3	3	4	3	3	5	4	3	3	3	3
	2	2	3	2	3	3	2	3	3	3	3	3
Average	3,75	3,88	3,75	3,75	3,13	3,25	3,63	4,13	2,88	3,25	3,50	3,38
	3	3	3	3	3	3	5	4	3	3	3	4
	5	2	3	3	4	4	4	3	4	3	2	3
	3	4	2	4	5	4	4	5	3	3	4	4
	5	4	4	4	4	4	5	5	4	5	5	5
	4	4	4	4	4	4	4	5	4	4	4	4
	5	3	4	2	5	4	4	4	4	4	4	4
	4	2	3	4	3	3	5	4	4	3	4	4
	3	3	3	3	3	3	3	3	3	3	3	3
Average	4,00	3,13	3,25	3,38	3,88	3,63	4,25	4,13	3,63	3,50	3,63	3,88
	3	3	5	4	3	4	5	4	4	3	4	4
	5	5	5	5	5	5	3	4	4	5	5	5
	3	4	3	2	3	3	5	5	2	3	4	4
	5	4	4	4	3	4	4	4	3	5	4	4
	5	5	4	4	4	4	5	5	4	4	4	4
	5	4	5	5	4	5	3	3	2	4	5	4
	3	4	4	4	3	4	5	5	5	3	4	4
	3	3	3	2	4	4	3	3	2	3	3	3
Average	4,00	4,00	4,13	3,75	3,63	4,13	4,13	4,13	3,25	3,75	4,13	4,00

Naming of documents	4	4	4	4	4	4	5	5	5	5	5	5
	5	3	3	3	5	5	4	4	4	4	4	4
	2	4	2	4	4	3	5	5	4	3	5	4
	5	3	4	4	4	4	5	4	4	4	4	4
	2	2	3	3	3	3	3	5	4	3	3	3
	3	1	3	2	4	2	2	3	4	4	4	4
	5	3	3	4	3	3	4	5	4	5	4	4
	3	3	3	3	2	3	3	2	3	4	3	3
Average	3,6 3	2,88	3,13	3,38	3,63	3,38	3,88	4,13	4,00	4,0 0	4,00	3,88

Appendix E: Delphi third round evaluations

	Technical feasibility						Benefit evaluation					
	Ac-tiv-ity type	Data structure	Pro-cess sta-bil-ity	Devel-op-ment re-quire-ments	RPA as preferred solution	Final eval-uation of technical feasibility	Effort neede d for activ-ity	Fre-quenc y of activ-ity	Need for quality im-prove-ment	Use ful life	Or-gani-sationa l valu e	Final evalu-ation of ben-efits
Access to client folder	4	4	2	5	2	3	1	3	4	3	3	3
	5	4	2	4	2	4	1	3	4	2	2	2
	5	4	3	4	2	3	1	3	3	3	3	3
	4	4	2	4	3	3	2	2	3	3	2	2
	5	5	2	5	2	4	1	3	3	4	2	3
	5	4	3	5	2	4	1	2	4	2	2	2
	4	5	2	4	3	4	2	3	3	2	3	3
	4	4	3	5	2	4	1	3	3	3	2	2
Average	4,50	4,25	2,38	4,50	2,25	3,63	1,25	2,75	3,38	2,75	2,38	2,50
Collecting basic documents	4	4	4	3	4	4	2	4	3	4	2	3
	5	4	4	2	4	4	3	4	2	3	3	4
	4	4	4	2	5	4	3	3	3	3	3	3
	4	4	4	3	4	4	4	4	3	3	3	3
	5	5	4	3	4	4	3	4	2	4	3	3

	4	3	5	2	5	5	3	3	2	3	3	3
	5	4	5	3	3	4	2	2	3	2	2	2
	4	4	4	2	4	4	3	3	3	3	3	3
Average	4,3 8	4,00	4,2 5	2,50	4,13	4,13	2,88	3,38	2,63	3,13	2,75	3,00
	5	4	5	4	3	4	4	4	4	4	3	4
	4	4	5	4	4	5	4	4	4	4	3	4
	5	5	4	3	4	4	4	3	3	5	4	4
	4	5	4	4	4	5	4	4	3	4	4	4
	5	3	5	4	3	4	4	4	4	5	4	4
	4	4	4	4	3	4	3	4	4	5	4	5
	5	2	4	3	3	4	3	3	3	3	3	3
	5	3	4	4	3	4	3	3	4	4	4	4
Average	4,6 3	3,75	4,3 8	3,75	3,38	4,25	3,63	3,63	3,63	4,2 5	3,63	4,00
	4	5	4	4	3	4	3	4	3	4	3	4
	5	5	5	4	4	5	4	3	3	3	2	3
	5	4	3	4	2	4	4	4	4	4	4	4
	5	4	4	4	4	5	3	3	4	4	3	3
	5	5	5	5	3	4	4	3	4	3	3	3
	5	5	3	4	2	4	3	3	4	3	3	3
	4	4	4	3	4	3	3	3	3	3	4	3
	5	4	4	4	4	4	3	2	3	3	3	2
Average	4,75	4,50	4,0 0	4,00	3,25	4,13	3,38	3,13	3,50	3,3 8	3,13	3,13

Evidence gathering	3	3	3	3	4	3	5	5	5	4	5	5
	4	3	4	3	4	4	4	4	4	4	4	4
	3	3	4	4	5	4	5	5	4	4	5	5
	4	3	4	3	3	4	4	4	5	5	4	5
	3	2	4	2	4	2	5	5	4	4	4	5
	3	2	3	2	5	4	5	5	4	5	5	5
	4	3	3	3	3	3	5	5	4	4	4	4
	4	3	3	3	4	4	4	3	4	5	5	4
Average	3,50	2,75	3,50	2,88	4,00	3,50	4,63	4,50	4,25	4,38	4,50	4,63
Identifying changes	4	4	4	4	3	4	4	5	4	5	4	5
	4	4	5	4	3	4	3	4	3	4	3	4
	5	3	4	4	4	4	5	5	4	3	3	4
	4	4	4	3	4	4	4	4	4	5	3	4
	5	3	4	4	3	3	4	5	4	4	4	4
	4	3	5	4	3	4	3	4	3	4	4	4
	3	2	3	4	3	3	4	4	3	3	3	3
	4	4	4	3	3	4	3	3	4	4	4	4
Average	4,13	3,38	4,13	3,75	3,25	3,75	3,75	4,25	3,63	4,00	3,50	4,00
Data extraction	4	3	4	3	4	4	3	5	4	4	4	4
	4	2	4	4	4	4	4	5	3	4	4	4
	5	2	3	3	3	4	4	5	4	4	3	4
	4	3	5	4	4	3	3	4	4	4	4	4
	4	3	3	3	4	4	4	4	3	4	3	4

	4	2	4	4	4	4	3	5	4	5	4	5
	3	1	3	3	3	3	4	5	4	3	3	4
	4	2	3	3	4	3	4	4	4	4	4	4
Average	4,00	2,25	3,63	3,38	3,75	3,63	3,63	4,63	3,75	4,00	3,63	4,13
	4	4	4	4	3	4	3	5	3	4	4	4
	4	2	3	3	2	3	4	5	3	5	5	5
	5	3	4	4	2	4	4	5	3	4	4	4
	4	3	3	3	3	4	4	4	4	4	4	4
	4	3	4	3	3	3	4	5	3	4	4	4
	5	2	3	3	3	3	4	5	3	3	4	4
	4	2	3	4	2	3	4	4	4	3	4	4
	5	2	4	3	3	3	3	4	3	3	4	3
Average	4,38	2,63	3,50	3,38	2,63	3,38	3,75	4,63	3,25	3,75	4,13	4,00
	3	3	4	4	3	3	3	4	3	4	3	3
	4	2	3	4	2	3	3	4	2	3	3	2
	2	4	3	4	3	3	3	5	3	3	3	4
	3	3	3	4	3	3	3	3	3	4	3	3
	4	3	4	4	4	4	4	4	4	4	4	4
	2	3	3	5	2	3	3	4	2	3	3	3
	2	2	3	3	2	3	2	3	3	3	3	2
	3	3	3	4	3	3	2	3	3	3	2	3
Average	2,88	2,88	3,25	4,00	2,75	3,13	2,88	3,75	2,88	3,38	3,00	3,00

Credit risk assessment	4	3	4	3	3	3	4	3	4	4	4	4
	5	4	5	3	4	5	3	3	4	4	3	3
	4	5	4	2	4	4	4	3	3	4	4	4
	4	4	3	3	3	3	4	3	3	4	3	3
	5	5	5	4	4	5	5	3	4	4	4	5
	5	4	4	2	4	4	4	2	4	4	4	4
	4	4	4	3	4	4	4	4	4	3	3	4
	4	4	4	3	3	4	3	2	4	3	3	3
Average	4,38	4,13	4,13	2,88	3,63	4,00	3,88	2,88	3,75	3,75	3,50	3,75
Loan classification check	4	4	3	4	2	3	3	2	2	4	3	2
	5	5	3	4	2	2	2	2	2	3	2	2
	5	4	3	5	3	3	3	3	2	3	2	3
	4	4	3	4	2	2	3	2	2	3	3	3
	5	4	4	4	2	3	3	3	3	2	3	2
	5	4	3	5	1	3	2	2	3	2	2	2
	4	3	2	3	2	2	3	2	2	3	3	3
	4	4	3	4	2	3	3	2	2	3	2	2
Average	4,50	4,00	3,00	4,13	2,00	2,63	2,75	2,25	2,25	2,88	2,50	2,38
Sampling	4	5	5	4	4	4	4	4	3	3	4	4
	4	5	4	4	2	3	3	4	2	2	3	3
	3	4	3	4	3	3	4	5	3	4	4	4
	4	4	4	3	3	4	4	4	4	4	4	4
	4	4	4	4	3	4	4	5	3	4	4	4

	3	4	4	5	2	3	3	4	2	3	3	3
	4	3	3	4	3	3	4	4	2	3	3	3
	3	3	3	2	3	3	2	3	3	3	3	3
Average	3,6 3	4,00	3,75	3,75	2,88	3,38	3,50	4,13	2,75	3,2 5	3,50	3,50
	4	3	3	3	3	3	5	4	4	4	3	4
	5	2	3	3	4	4	4	4	4	3	4	4
	3	3	3	3	4	3	4	5	3	3	4	4
	5	3	4	3	4	4	5	5	4	5	5	5
	4	2	4	4	4	4	4	5	4	4	4	4
	5	3	4	2	5	4	4	4	4	4	4	4
	4	2	3	2	3	3	5	4	4	3	4	4
	3	3	3	3	3	3	3	3	3	3	3	3
Average	4,13	2,63	3,3 8	2,88	3,75	3,50	4,25	4,25	3,75	3,6 3	3,88	4,00
	5	4	5	4	4	5	4	4	3	3	4	4
	5	5	5	5	5	5	3	4	4	5	5	5
	3	4	4	3	3	4	4	3	2	3	4	4
	5	4	4	4	4	4	4	4	3	5	4	4
	5	5	4	4	4	5	5	3	3	4	4	4
	5	4	5	5	4	5	3	3	2	4	5	4
	4	4	4	4	3	4	5	5	4	3	4	4
	4	3	4	2	4	4	4	3	2	4	3	3
Average	4,5 0	4,13	4,3 8	3,88	3,88	4,50	4,00	3,63	2,88	3,8 8	4,13	4,00

Naming of documents	4	3	3	3	4	3	4	5	5	5	5	5
	5	3	3	3	5	4	4	4	4	4	4	4
	3	4	2	4	4	3	4	5	4	4	5	5
	5	3	3	3	4	4	5	4	4	4	4	4
	3	2	3	3	3	3	3	5	4	3	3	4
	3	1	3	2	4	4	3	3	4	4	4	4
	4	2	3	2	3	3	3	5	4	5	4	4
	3	3	3	3	3	3	3	3	3	4	4	3
Average	3,75	2,63	2,88	2,88	3,75	3,38	3,63	4,25	4,00	4,13	4,13	4,13