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Automating telephone collection by implementing automated outbound calls

Case OK Perintä Oy

School of Technology and Innovations
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UNIVERSITY OF VAASA**School of Technology and Innovations****Author:** Perttu Kauppi**Title of the thesis:** Automating telephone collection by implementing automated outbound calls: Case OK Perintä Oy**Degree:** Master of Science in Economics and Business Administration**Programme:** Industrial management**Supervisor:** Petri Helo**Year:** 2024 **Pages:** 64

ABSTRACT:

In the debt collection industry, there is fierce competition between companies. The industry faces a lot of changes in regulations, which obligates continuous development in order to keep the collection efficient and fair at the same time. The debt collection process includes many steps which have a high potential for development. Process automation and Robotic Process Automation offer numerous opportunities for companies to improve efficiency in their operations and this also applies to debt collection companies.

Customer calls are a central part of the debt collection process, which is above all a customer-oriented way of contacting the customer. However, this requires resources primarily in terms of time and labor, which affects the profitability of the entire collection process.

This master thesis focuses to the telephone collection process automation with automated outbound calls. The purpose of the thesis is to find out does automated calls suit for the telephone collection process. Thesis includes a theory section of key theories and case study, where the functionality of automated calls is being tested with A/B test. The case study is made in cooperation with debt collection company OK Perintä Oy.

In the literature review of the work focuses on debt collection process and process automation. The case study is carried out with A/B testing, where the suitability of automated call is tested and compared to a call made by a customer service agents. The research data is collected by implementing two test groups for outbound customer calls: automated calls and calls made by human.

Based on the research, it was found that the automated call seems to be suitable as part of the telephone collection process. The test results show the functionality of the automated call in speeding up the payment and activating the debtor. The overall profitability of automated calls is also good thanks to the low costs. There were also no complaints from debtors towards automated calls.

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Keywords: Debt collection, Process Automation, Business Process Automation, Robotic Process Automation, Automated Calls, Robocalls.

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TIIVISTELMÄ:

Perintäalalla vallitsee kova kilpailu alan toimijoiden välillä. Ala kohtaa paljon muutoksia sääntelyissä, joka velvoittaa jatkuvaan kehittymiseen, jotta perintä saadaan pidettyä samanaikaisesti tehokkaana ja oikeudenmukaisena. Perintäprosessi sisältää monia vaiheita, joissa on paljon kehityspotentiaalia. Prosessin automatisointi ja Robotic Process Automation tarjoavat lukuisia mahdollisuuksia yrityksille parantaa toiminnan tehokkuutta automaation avulla. Tämä pätee myös perintäalan yrityksiin.

Asiakspuhelut ovat keskeinen osa perintäprosessia, joka ennen kaikkea on asiakaslähtöinen tapa ottaa yhteyttä asiakkaaseen. Tämä kuitenkin vaatii resursseja pääasiassa ajan ja työvoiman suhteen, mikä vaikuttaa koko perintäprosessin kannattavuuteen.

Tämä pro gradu tutkielma keskittyy puhelinperintäprosessin automatisointiin automaattisten ulosottojen avulla. Tutkielman tarkoituksena on selvittää soveltuvatko automatisoidut puhelut puhelinperintäprosessiin. Tutkielma sisältää teoriaosion keskeisistä teorioista ja tapaustutkimuksen, jossa automatisoitujen puhelujen toimivuutta testataan A/B-testillä. Tapaustutkimus on tehty yhteistyössä perintäalan yrityksen OK Perintä Oy:n kanssa.

Tutkielman kirjallisuuskatsauksessa keskitytään perintäprosessiin ja prosessin automatisointiin, erityisesti robotiikan avulla. Tapaustutkimus toteutetaan A/B-testillä, jossa testataan automatisoitujen puhelujen sopivuutta ja verrataan niitä asiakaspalvelijoiden tekemiin puheluihin. Tutkimusaineisto kerätään toteuttamalla kaksi testiryhmää ulosottoja varten: automatisoidut puhelut ja ihmisen tekemät puhelut.

Tutkimuksen perusteella havaittiin, että automaattinen puhelu vaikuttaa sopivan hyvin osaksi puhelinperintäprosessia. Testitulokset osoittavat, että automatisoidun puhelun toiminnallisuus nopeuttaa maksamista sekä aktivoi velallista. Automatisoitujen puhelujen kokonaiskannattavuus on myös hyvä alhaisten kustannusten ansiosta. Reklamaatioita automaattipuhelua kohtaan ei myöskään havaittu.

Tätä Pro Gradu tutkielmaa on ollut tukemassa Vaasan Teknillinen Seura ry. Tutkimusprojektia varten on myönnetty tehtaanjohtaja, diplomi-insinööri Reino Ignatiuksen stipendirahaston stipendi vuonna 2023. Erytiskiitos Vaasan Teknilliselle Seuralle.

Keywords: Debt collection, Process Automation, Business Process Automation, Robotic Process Automation, Automated Calls, Robocalls.

Sisällys

1	Introduction	8
1.1	Background of the study	9
1.2	Objectives of the study, limitations, and research question	11
1.3	Company introduction	11
1.4	Research process	12
2	Literature Review	15
2.1	Debt Collection process	15
2.1.1	Credit control	15
2.1.2	Collection supervision & legislation	17
2.1.3	Debt collection process	18
2.1.4	Payment reminder	20
2.1.5	Payment demand	20
2.1.6	Legal collection	22
2.1.7	Telephone collection	23
2.1.8	Automated calls and telephone collection	24
2.2	Process Automation	27
2.2.1	Business Process Automation (BPA)	29
2.2.2	Robotic Process Automation (RPA)	32
2.2.3	Utilizing RPA in call centers	36
2.3	Summary of literature review	37
3	Method	41
3.1	Research design	41
3.2	Data collection	43
4	Results and Discussion	45
4.1	Overview of AB Testing Results	46
4.1.1	Calls, answers, and answer rates	46
4.1.2	Payments and payment plans	47
4.1.3	Debtors contacts	49

4.1.4	Costs	50
4.2	Analysis	51
5	Conclusions	57
5.1	Summary and conclusions	57
5.2	Research limitations and Recommendations for Future Research	58
	References	60

Figures

Figure 1. Debt collection stage by stage (Financial and debt counselling, 2023)	10,17
Figure 2. Structure of thesis	14
Figure 3. Life cycle of receivable (Rikalainen & Uitto 2008, p. 185)	16
Figure 4. Debt collection process chart	19
Figure 5. Process Automation (Tibco, n.d.)	28
Figure 6. RPA Architecture (Asatiani & Penttinen (2016)	33
Figure 7. Stages of RPA introduction in the company (Asatiani & Penttinen (2016)	35
Figure 8. Research IPO	42
Figure 9. Automated call process	45
Figure 10. Human made call process	45
Figure 11. Answer rate	47
Figure 12. Payments	48
Figure 13. Amount of payment plans	49
Figure 14. Average size and length of payment plans	49
Figure 15. Debtors contacts	50
Figure 16. Human made calls vs. Automated calls	53
Figure 17. Success rate	55
Figure 18. Success rate and total costs	55

Abbreviations

API	Application programming interface
AI	Artificial Intelligence
BPA	Business Process Automation
BPM	Business Process Management
CMR	Customer Relationship Management
DPA	Digital Process Automation
IPA	Intelligent Process Automation
IPO	Input Process Output
IVR	Interactive voice response
NLP	Natural language processing
OCR	Optical character recognition
PA	Process Automation
RPA	Robotic Process Automation

1 Introduction

In the development of business processes, the role of automation is growing significantly in today's digitalized and technology-driven business environment. Business process automation (BPA) refers to the use of advanced technology to execute business processes with minimal human manual involvement. A business process comprises activities aimed at achieving a particular organizational objective, such as manufacturing a product, integrating new employees, or acquiring new customers (Hashemi-Pour et al., 2022). Business process automation offers organizations the opportunity to enhance operations, improve efficiency and achieve better results overall (Mohapatra, 2009, p. 1).

One key business area that benefits significantly from automation is debt collection. Debt collection is an integral part of the economic system, and its effective process management is crucial for maintaining economic stability. Debt collection enables companies to manage their credit more efficiently, improve their cashflow and helps them to avoid financial difficulties. According to research produced by Visma (2017), automating collection functions significantly improves reporting, reduces the amount of routine work and speed up the receipt of payments. However, the debt collection process still includes a lot of manual work.

Usually, the voluntary debt collection process includes different kinds of methods to contact debtor clients. One efficient and customer friendly method is outbound calls to debtor customers, which is commonly called as telephone collection. Telephone collection usually activate customers more than just payment demands, and they are above all good customer service (OK Perintä, 2018).

Just like most manual actions, outbound calling takes a lot of resources from customer service, due to the calling is made by customer service agents. This is where the process automation comes into picture. Automated outbound calls are one significant technological advance that can be utilized in the debt collection process. The idea of automated outbound calls is that call centers place outbound calls without manual input. This could

happen for example with pre-recorded calls, where the customer can make selections using the number keys. According to Singh (2022), automated outbound calls offer many advantages for businesses, such as greater operational efficiency, improved employee productivity, targeted and data-driven marketing, and cost efficiency while maintaining scalability.

This master thesis examines the automation of telephone collection processes through the implementation of automated outbound calls, identifying potential benefits and challenges in such an approach. As part of this master's thesis, a case study will be produced in cooperation with the debt collection company OK Perintä Oy. The case study examines a new potential automated outbound call -product and analyzes product functionality in telephone collection process. The case study will be carried out with A/B testing, by creating test groups for automated calls and calls made by customer service agents. The results of the A/B test are analyzed, and the results will be summarized into comprehensive report to OK Perintä Oy.

1.1 Background of the study

The idea of producing this master's thesis originally arose from the author's own academic background in industrial management and work career in debt collection industry. During my early studies I worked in the debt collection field in the customer interface, advising debtor clients regarding debt collection. Working with debtor customers gave a good overall picture of the debt collection process, both from the point of view of creditors and debtors. At the same time, during my studies in industrial management, I became particularly interested in process development and improving efficiency with adding automation. For the past year, I have been able to work in the same company as a data analyst, combining my practical knowledge of debt collection and my scientific background of industrial management studies from University of Vaasa.

According to Financial and debt counselling (2023) in figure 1, debt collection process starts after the due date of invoice, with payment reminders. If the debt has not been paid after the due date of the payment reminder, a payment demand will be sent. If debt stays unpaid after due date of payment demand, the debt can be sued in the district court. After the court judgement, the claim may be sent for enforcement action. Generally, debt collection agencies also use different kinds of additional actions to activate debtors and promote voluntary debt collection.






				
Due date Late-payment interest starts to accrue from the day following the due date	Payment Reminders 1 or 2 EUR 5/letter	Payment demands from a debt collection agency 1 or 2 EUR 14, EUR 24, or EUR 50 / first letter	Application for a summons from district court EUR 115–246 in expenses	Enforcement Amount of enforcement fee depends on amount of payment made. For example, a fee of EUR 27 is charged for a debt of EUR 200 payable in one instalment.
Private-law debts	min. 2 weeks from due date	min. 4 weeks from due date	min. 8 weeks from due date	after district court judgment

Figure 1. Debt collection stage by stage.

The debt collection industry is broad and covers several different companies which create competition and pressure for collection agencies to stand out from their competitors. An effective way to stand out from the competition is to develop the collection process to meet the needs of vendor customers. This could mean adding more voluntary collection actions to the debt collection process, for example, by calling debtor customers. Outbound calls are widely used practice in the debt collection industry, and they are commonly called as telephone collection.

While outbound calls is at the same time an effective and customer friendly method to contact debtors, it also takes a lot of resources. Using customer service agents for outbound calls takes up resources from customer service and reduces the profitability of

the process. Case company, OK Perintä, is interested about the automation of this process with pre recorded outbound call product. The new product has the potential to make more outgoing calls in significantly less time and at lower costs, and it would also release human resources from calling to other tasks. With this the case company aims for better efficiency of telephone collection process.

1.2 Objectives of the study, limitations, and research question

The primary objective of this study is to find out how automated outbound calls performs in the telephone collection. The secondary objective is to expand the understanding of Process Automation in the telephone collection process through literature review. With the A/B test, we examine whether the automated outbound call is effective and suitable as part of the telephone collection process.

From the point of view of the debt collection process, this study is limited to dealing only with consumer debt collection (B2C). Also, the research is limited to dealing with debt collection in Finland, since the laws regarding debt collection and modes of operation vary between countries.

The research question of this study is “Are automated calls suitable for telephone collection process?”.

1.3 Company introduction

OK Perintä Oy is Finland's second largest debt collection company and part of the Norwegian international group, B2 Impact ASA. B2 Impact is one of the leading pan-European debt management companies. The Group is headquartered in Oslo, Norway and it employs around 1,700 people across the markets (B2 Impact, 2024). OK Perintä was merged to B2 Impact on 2012. was founded in 1991 and today it employs 150 people in

Finland. In 2022 company's turnover was 76 MEUR and profit 25 MEUR. (OK Perintä, 2023).

OK Perintä offers financial management services, collection services and consultant services. Financial administration services include the company's invoicing services and various monitoring services, such as the credit information service. Debt collection services include voluntary and legal collection, post collection, invoices reminder service, debt purchase and repo collection service. Consulting services include legal services, receivables management consulting, integrations and interfaces, and renting a collection expert-service. (OK Perintä, n.d.)

OK Perintä offers its services in three different solution categories, which are fast, efficient, and extensive. Fast solution is a quick self-service channel for small billers and entrepreneurs, efficient solution is a comprehensive outsourced solution for invoicing and debt collection, and extensive solution offers tailored credit management solutions for large enterprises and large billers. (OK Perintä, n.d.)

OK Perintä shares common values with its group. On its website, B2 Impact states the company's values as follows: "The core values are the common language that we use and live each and every day to clearly demonstrate B2's culture. Agility, Integrity, Diversity, Excellence and Responsibility (AIDER) are our core values in short. Aligned with our new name and identity as B2 Impact, we have made it clearer what these values mean to us and how we act in with our values."

1.4 Research process

The research process of this master's thesis began with the search and narrowing of the subject area together with the company OK Perintä Oy. The purpose was to find a research topic that would meet the needs of both parties. After several different research

ideas and topics, the current research topic of automating telephone collection process was selected for implementation.

After the research topic was chosen, it was formulated in the form of a research proposal and approved by the University and other parties. At the same time, the research plan was created, and we started planning the project with the case company. The project plan was soon completed, and the project schedule fit well with the thesis schedule. As soon as the project plan was completed, the work on the written part of the thesis began. A clear structure was outlined for the thesis, utilizing the material commissioned by the University of Vaasa to support the writing of the master's thesis in Industrial Management (Helo et al., 2019).

The research process continued with working on the written part of the thesis, as well as planning and selecting the A/B test groups for the case part. The test groups had to be selected and the tests carried out well in advance of the implementation of the analysis, because in this study, some of the results needed to be gathered at least week after the implementation of the test. The different test groups were also carried out in different weeks, which requires time. During the implementation of the test groups, the theory part of the work was started. The theory part of the thesis was implemented as a literature review, which purpose was to learn about the most central theories of this thesis, as well as to examine previous studies on similar topics.

After the implementation of the literature review, we move on to the method section. This section explains the research design, research IPO (Input Process Output) and describes the data collection process.

Next chapter deals with the outcome of the A/B test and analyzes its results. In this section, the results of the A/B test were discussed and analyzed. The steps of data analysis are explained in detail.

The last chapter of this thesis includes conclusions and a summary of findings. This part discusses the research question of the thesis and answers it based on research made in this thesis. The summary section aims to summarize all the relevant information that has been discussed in this thesis.

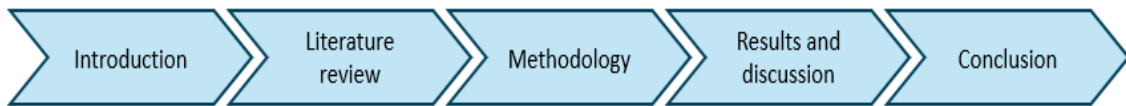


Figure 2. Structure of thesis

2 Literature Review

This literature review section focuses on two main theoretical frameworks, which are Debt Collection Process and Process Automation. First, it is needed to familiarize with debt collection process and understand the process section where case study will be carried out. The entire debt collection process will be discussed, and after which we will focus on telephone collection, which is in the key part of the collection process in this research. Automated calls are also presented in this section.

The second section of literature review deals with the concept of Process Automation and its various trending sub-concepts, such as Business Process Automation, Robotic Process Automation and Artificial Intelligence. In this section, we familiarize ourselves with the content of the theories and make observations on how this theory could be utilized with customer call centers and outbound calls. Finally, we summarize all the information we discussed in this literature review into a concise summary.

2.1 Debt Collection process

2.1.1 Credit control

Today, most of the trade between companies is credit trade, which means that the invoice of the trade is paid after handover. This brings with it the credit risk, the possibility of not getting payment for delivered products. Managing this risk is called credit management or credit control. According to Niemi (2014, p. 1–3) credit control refers to measures taken by the creditor to monitor the debtor's payment behavior and ensure the debt collection if necessary. The main point for credit control is to get the loaned credit back with interest and costs in the agreed payment schedule.

The life cycle of receivables describes the entire credit control well. In below figure 3, the life cycle of receivable is included in the credit control process. Debt collection is an

important part of credit control, and it takes place at the end of the life cycle of receivable, starting after the due date of the invoice. An efficient debt collection process reduces the credit risk of companies and enables credit management in whole society. (Rikolainen & Uitto, 2008, p. 184–188)

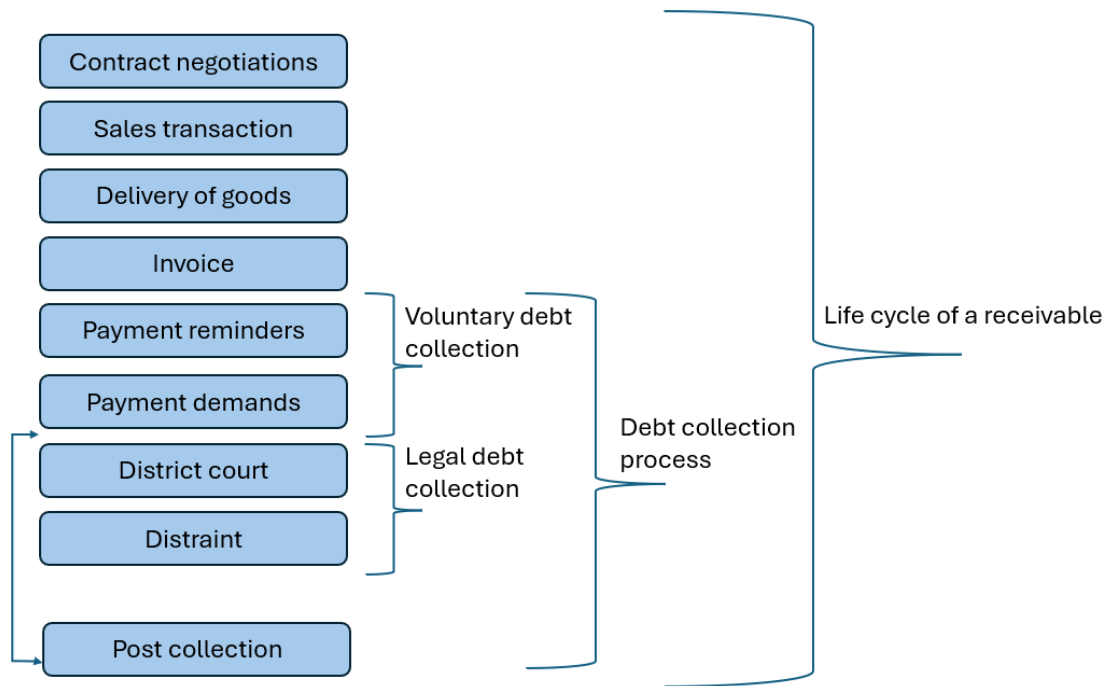


Figure 3. Life cycle of receivable.

The life cycle of the receivable first begins with contract negotiations, which is followed by the sale of the product or service. In credit trade, the product or service is delivered at this stage and the invoice is sent to the customer. If the customer does not pay the invoice by the due date, the payment reminder is usually sent to the debtor. If the payment reminder is not followed by payment of the invoice, a payment request can be sent to the debtor. Voluntary collection refers to all actions aimed at getting the debtor to voluntarily pay the overdue receivable. This includes payment reminders, payment demands, payment plans, extension of the payment period, telephone collection and voluntary debt settlements (Niemi, 2014. p. 147). If these voluntary collection measures do not lead to payment of the invoice, the debt can be transferred to legal collection. In

legal collection, the debt is usually sued in the district court, which might follow the district court's judgment. After the judgment, the debt can be sent to the distraint (Enforcement Authority, n.d.), where the debt can be seized from the debtor's property. An alternative to legal collection is post collection, where the claim is kept in voluntary collection, trying to get the debtor to pay the debt without legal measures. Post collection is an important part of the collection process, because when the company has marked its unpaid receivables as bad debts, the bad debt losses can be recognized as revenue after the collection has ended (Rikalainen & Uitto 2008, 184–188).






				
Due date	Payment Reminders	Payment demands from a debt collection agency	Application for a summons from district court	Enforcement
Late-payment interest starts to accrue from the day following the due date	1 or 2 EUR 5/letter	1 or 2 EUR 14, EUR 24, or EUR 50 / first letter	EUR 115–246 in expenses	Amount of enforcement fee depends on amount of payment made. For example, a fee of EUR 27 is charged for a debt of EUR 200 payable in one instalment.
Private-law debts	min. 2 weeks from due date	min. 4 weeks from due date	min. 8 weeks from due date	after district court judgment

Figure 1. Debt collection stage by stage.

2.1.2 Collection supervision & legislation

As mentioned earlier, debt collection is important for maintaining companies' credit control. However, debt collection cannot be practiced arbitrarily, which is why in Finland the rules for the debt collection sector have been defined in the law (Debt Collection Act 513/1999, Act on the registration of debt collectors 411/2018). According to the Debt Collection Act (12 f §), in case of collection of consumer debts, compliance with the provisions of this Act is supervised by the Consumer Ombudsman. In addition to this, the actions of debt collection agencies are supervised by Regional State Administrative Agencies, which are responsible for ensuring that registered debt collection agencies comply with the applicable laws and good collection practice (Regional State Administrative Agency, 2023).

The concept of "good collection practice" plays a central role in supervision of debt collection sector. In Debt Collection Act (4 f §), good collection practice is defined as following:

Practices contrary to good collection practice or otherwise inappropriate with regard to the debtor may not be used in debt collection. Payment arrangements shall be approached responsibly in debt collection. In debt collection, it is prohibited to: 1) provide untrue or misleading information on the consequences of non-payment or on other matters relevant to the debtor; 2) impose unreasonable or unnecessary costs or unnecessary harm on the debtor; 3) compromise the debtor's privacy. A receivable that has become time-barred or has expired for another reason may not be collected.

As a part of good collection practice, debtor's right to information is defined in the law. Debtors have the right to receive timely and detailed information about their total debts, including a breakdown of outstanding amounts, repayments, and explanations of interest and expenses without any charges (Debt Collection Act, 4 f §). Denial of payment liability is also defined as a part of good collection practice. Collection under this Act shall be suspended if the debtor denies liability for the payment. However, the collection may proceed if the debtor fails to provide reasons for the denial or cites reasons that are evidently irrelevant to their payment obligation (Debt Collection Act, 4 f §). Debtors have also a right to request suspension of the collection, in case of consumer debt. This means that debtor has the right to request the suspension of collection, and request that the case be postponed for judicial debt collection instead. However, this request can only be made when the entire receivable is due for installments. The request must be in writing, and if no compensation is sought for collection costs, the collection may persist, with the debtor being informed that no costs will be claimed for actions taken post-suspension request. (Debt Collection Act, 4 f §)

2.1.3 Debt collection process

The debt collection process is a multi-stage process that usually starts after the due date of the receivable and ends with the payment, expiration or termination of the receivable.

The creditor can collect the receivable by themselves or transfer the receivable to a collection agency. The choice of collection method is influenced by the quality of the receivable, amount of receivable, possible guarantees of the receivable, and the creditor's resources for managing the debt collection (Niemi, 2014, p. 147). Usually, outsourcing debt collection for professionals is a profitable option for most companies.

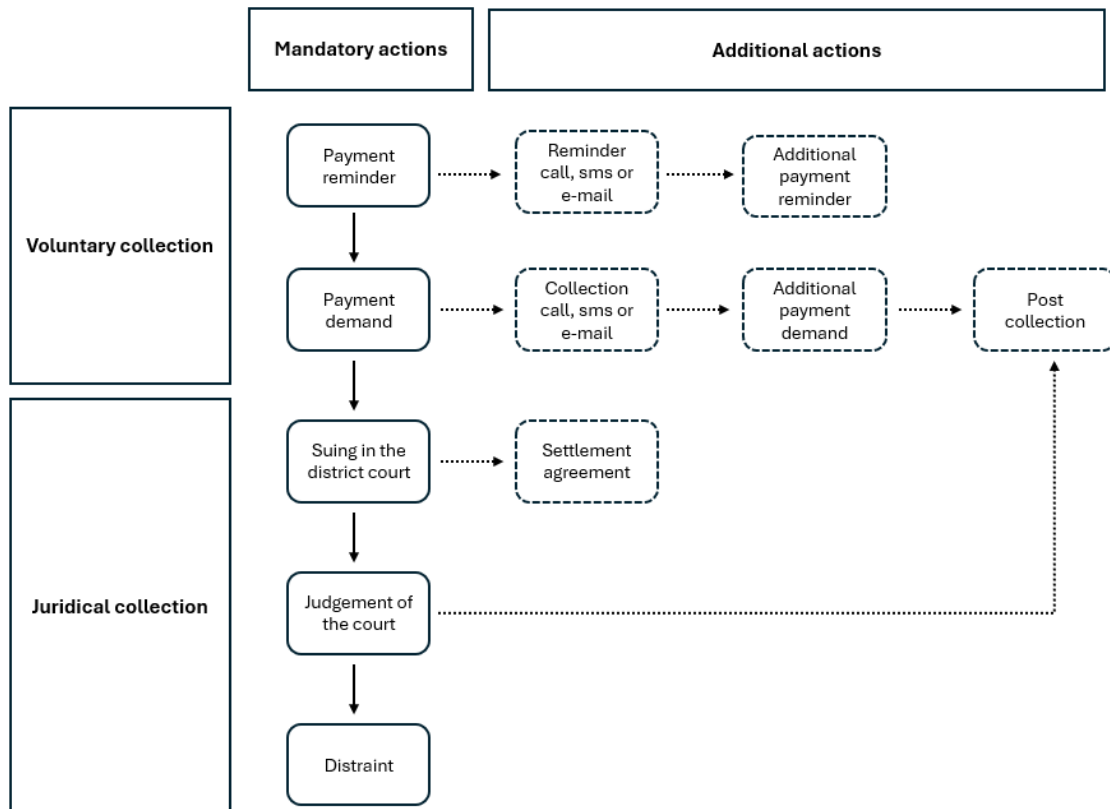


Figure 4. Debt collection process chart.

Figure 4 shows the process chart of the debt collection process. The debt collection process starts from the top left corner and flows downwards as the process progresses. In addition to mandatory actions in the debt collection process, some additional actions can be made before moving downwards in the process. If these additional actions do not lead to payment, the process should be continued. Post collection is an exception to the normal flow of the process. Post-collection refers to the stage of collection, which is moved to when other measures of voluntary collection have been completed, but the creditor does not want to proceed to the legal collection (Intrum, 2022). Post collection

is also defined when the judicial case reverts from distraint back to the voluntary collection. In some situations, after the judgment, sending debt to distraint is not profitable, which is why it is transferred to post collection. Post collection ensures that the debt does not expire. The development of the debtor's financial situation is monitored, so when the ability to pay gets better, the debt can be collected (Intrum, 2022).

2.1.4 Payment reminder

According to The Financial and Debt Counselling (2023), the first step of the debt collection process is payment reminder which, in the case of consumer customer, can be sent two weeks after the due date of original invoice. The creditor can send either one or two paid payment reminders by themselves, or creditor can also outsource the sending of payment reminders to a collection agency, which sends payment reminders in the name of creditor (Lindström 2014, 175 – 178). The Debt Collection Act does not regulate the content of the payment reminder. However, the payment reminder should contain the information of the original invoice, such as the invoice number, due date and account number to which the invoice should be paid. Still, a payment reminder is a necessary part of the collection process, without which the process cannot proceed. In figure 4, we can see that debt collection process starts from the top left corner with payment reminder. Sending at least one payment reminder is mandatory before other collection actions can be made (Debt Collection Act, 5 f §). In addition to the payment reminder, the reminder process can be enhanced with additional measures such as contacting the debtor or sending another payment reminder.

2.1.5 Payment demand

According to Debt Collection Act (5 f §), “a demand for payment may not be issued or sent before the debtor has been reminded of the receivable after it has fallen due and at least 14 days have elapsed since the payment reminder was issued or sent.” So to say, 14 days after sending the payment reminder, a payment demand can be sent to the debtor. Depending on different interpretations, sending a payment demand is seen as

the first official collection action (Kontio Perintä, n.d.). From another interpretation, according to the Finnish Competition and Consumer Authority (2023) payment reminders are also seen as collection action.

The demand for payment must be in writing and must include at least: the name and address of the creditor, the basis of the debt, separate capital, interest and collection costs, payment information, and the possibility to comment on the amount and basis of the debt (Debt Collection Act, 5 f §). Most often, the payment demand is sent by letter, but under certain conditions it can also be sent, for example, by e-mail (Finnish Competition and Consumer Authority, n.d.). In figure 4, we can see that in addition to the payment demands, other additional methods are often used to enhance the collection.

A payment demand differs from a payment reminder in terms of the way the process is carried out, content and the tone of the message. The payment demand should show that the creditor is serious, but at the same time comply with debt collection law and be matter of fact. (Lindström 2014, p. 271 – 272)

Voluntary collection includes not only payment demands and payment reminders, but also other additional actions to activate the debtor to pay the debt. Usually, this refers to contacting the customer in different ways and negotiation on payment, for example by moving the due date or creating a payment plan (Niemi 2014, p. 150.). The Debt Collection Act (10 f §) also regulates payment plans and due date transfers and determines how much costs can be collected from the debtor.

By contacting the debtor using different methods, the aim is to enhance collection. These methods are widely used throughout the whole collection process. Debtors are usually contacted by outbound calls, text messages and e-mails. When using these methods for debt collection, the primary goal is to activate the debtor and obtain a payment or payment plan (Lindström 2014, p. 278.).

2.1.6 Legal collection

Collection can be continued with legal actions if the means of voluntary collection have not been effective. According to the Debt Collection Act (6 f §), a payment demand must be sent and overdue before you can move on to legal collection. As mentioned above, usually voluntary collection has included other additional measures before this happens. The primary goal of legal collection is to get the debtor to pay the debt, and the secondary goal is to get a court judgment, which can be used to send the debt to distraint (Lindström 2014, p. 291). Distraint authorities can finally seize the debt from the debtor's property.

According to Niemi (2014, p. 172), legal collection is usually divided into two stages which are trial and distraint. Legal collection begins with preparing a subpoena application and submitting it to the district court (Lindström 2014, p. 291). The subpoena application will be processed by the court and the trial process will start. Simple, clear, and undisputed cases are initiated with a brief summons application, to which the debtor can respond by disputing the case. If they are not disputed, they will be judged by a unilateral judgment (Lindström 2014, p. 298). Only disputed cases are referred to the actual trial. In this case, the matter will be dealt with in court as a dispute (Lindström p. 2014, 298).

Distraint is the collection of an invoice or debt by the authorities of National Enforcement, which is based on the Enforcement Code (705/2007). National Enforcement can distraint the debt directly from the debtor's income or savings. Distraint can be carried out by also seizing valuable property. Certain debts under public law, for example taxes and some insurance can be collected without a court decision (National Enforcement, n.d.). According to the National Enforcement (n.d.), "the enforcement authorities are neutral and protect the rights of both debtors and creditors."

Distraint is usually the last part of the collection process and the life cycle of debt. In some cases, when it is not possible to foreclose the debt or it is not profitable, the matter

can still be returned to post-collection, where the collection of the debt is continued by means of voluntary collection (Finnish Competition and Consumer Authority, n.d.).

2.1.7 Telephone collection

Outbound calls to the debtor are commonly called telephone collection. According to Lindström (2014, p. 275), telephone collection is above all a negotiation with the debtor. The call aims to commit the debtor to pay the debt. In some situations, the call may be the first contact that reaches the debtor, or sometimes the invoice is simply forgotten (Lowell, 2023). Many people are also not familiar with the life cycle or process of invoices and collection, which is why contacting the debtor with phone call and informing about different options is very useful for both parties (Lowell, 2023). It is also possible that for some reason the debtor is not aware of the collection before the phone call, in which case the call can even save the customer from distraint and a payment default entry (Perintäritari, 2017).

Telephone collection needs significantly more resources compared to letter collection both in terms of money and time (Lindström 2014, p. 277.). Lindström (2014, p. 277) states that telephone debt collection is especially suitable for larger debts in the case of debtors whose financial situation requires quick action. He continues that telephone collection usually also provides other information that can help form operating models with the same customer or similar situations.

Telephone collection is done in many ways and at many different stages in debt collection process. In the debt collection process, the earliest stage where telephone collection is made could be even before payment reminder is overdue. This is called a pre collection call. With pre collection call, the caller tries to prevent the debt from being transferred to debt collection (OK Perintä, 2020). More commonly, reminder calls are also made when the payment reminder is overdue. The goal of the reminder call is to reach the customer, especially in situations where the original invoice and payment reminder have been left unintentionally unpaid, and the debtor would be saved from being transferred

to debt collection (OK Perintä, 2018). According to OK Perintä (2018), the purpose of the reminder call is above all customer service.

The actual collection calls are also made in different ways and at different stages of the collection process. The collection call is most often made after the payment demand is due, where the primary goal is to activate the debtor to pay the invoice immediately. Usually, collection agencies offer debtor opportunity to make a payment plan or postpone the due date (Lowell, 2023). Telephone collection can also be carried out in other stages of debt collection process, for example with the aim of preventing an active payment plan from unraveling, or to prevent the debt progressing to legal debt collection.

Telephone collection is regulated in Finland by the competition and consumer authorities. According to the Finnish Competition and Consumer Authority (2023), collection must not cause unnecessary harm to the debtor. In the case of telephone collection, the unnecessary harm could be, for example, calling at a disturbing time. Collection actions to debtors should not be done on Sundays or public holidays, nor on weekdays between 20:00 and 07:00. It is also stated that the availability of customer service must also be secured in debt collection, considering the needs of different customer groups and possible restrictions. For many debtors, the telephone is practically the only possible method of contact. Therefore, the availability of the telephone service must be secured in debt collection. This is also important to remember when automating outbound customer calls. Contacting the debtor may also not result in additional fees exceeding the normal price of the contact method (Finnish Competition and Consumer Authority, 2023).

2.1.8 Automated calls and telephone collection

This thesis deals with automated calls in debt collection. In this section, we will learn more about what automatic calls are and how they have been applied in debt collection so far. We also discuss how automatic calls should be implemented in telephone collection.

Automated calls are also called robocalls in some contexts. According to Kaspersky (n.d.), automated calls, or robocalls, refers to call which delivers pre-recorded messages through automatic dialer software. Usually, this does not involve manual work done by a person. While certain robocalls offer beneficial information like appointment reminders or flight cancellations, there are also a large number of situations where robocalls are used to scam or spam (Kaspersky, n.d.). For this reason, when talking about automated calls, one should distinguish between scam calls and genuine calls.

Automated calls have been widely used around the world in various contexts, including debt collection. In Finland, there is not much information about automated calls being used in telephone collections. In other countries, the use of automated calls in debt collection has been variable, as the laws of different countries affect the use of the product. For example, in the United States, automated calls have been a problem for consumers. According to Harrison (2020), in 2018, an estimated 48 billion automated calls were made in the United States. These automated calls have been used a lot especially in debt collection (Harrison, 2020). In 2020 the Federal Communications Commission (FCC) set strict restrictions in the Telephone Consumer Protection Act about use of automated calls in debt collection in the United States (Cnet, 2020. Francis Mailman Soumilas, n.d.). The common thing in the different regulations regarding automatic calls in debt collection is that the call should not be disruptive to the debtor.

In Finland, automated calls are partly regulated by law. According to the Office of the Data Protection Ombudsman (2019), automated calls may not be used in marketing or sales without the consumer's consent. Consent must be given clearly and must not, for example, be embedded in the terms of use and contract so that the consumer has no real opportunity to influence the granting of consent (Office of the Data Protection Ombudsman, 2019). In other cases, the use of automated calls is allowed in Finland, and it has been used in various contexts, even by the public sector. In 2020, when health care overcrowded by the COVID-19 epidemic, three municipalities in Finland tested the use

of automated calls when informing about the current COVID-19 situation and by inquiring whether the exceptional situation has caused challenges for them or their family and whether they want the municipality's employees to contact them personally (Sitra, 2020). The test got positive results and it was decided to continue the use of automated calls in the municipalities. Several other experiments with robocalls have also been carried out in the public sector of Finland. For example, in 2021, a test was carried out in the North Savo region in six municipalities, where the aim was to involve the municipal residents in the development of the municipality and to bring out new ideas and perspectives on the municipality's operations (Miettinen, 2021). What is significant about the test results is that 95% of those who answered the call perceived the robot as either a neutral or a positive contact method. Only a few percent had reservations or doubts about the robot (Miettinen, 2021).

As previously mentioned, automated calls are already used in several contexts in Finland. Use of automated calls may contain some problems, but when used correctly, it is an effective and useful way to contact people. It can be suitable, for example, for different types of announcements and reminders. According to Yle (2022), automated calls has been used somewhat for payment reminders. In payment reminders, an automated call can be a more customer-oriented contact method. There can be shame associated with receiving a payment reminder, and therefore it can be easier for the debtor if a robot handles the reminder, and there is no need to deal with a real person (Yle, 2022).

Customer orientation plays an important role when starting to automate the telephone collection process. The most important things when considering automated debt collection calls are compliance with the Debt Collection Act and especially with the good collection practice. According to the good collection practice, collection must not cause unnecessary harm to the debtor and the calling must take place at a reasonable time (Finnish Competition and Consumer Authority, 2023). This should be strictly followed when automating telephone collection, and special attention should be paid to the fact that

debtors do not find automated calls harmful. In the previously mentioned study by Mietinen (2022), the automated call itself has been received mostly neutrally and positively, and this is important to ensure also while automating collection calls. Another important part of good collection practice is securing the debtor's privacy policy. Automatic debt collection calls must be carried out in such a way that they do not endanger the debtor's privacy (Finnish Competition and Consumer Authority, 2023). This means that the call recording cannot contain identifying or confidential information. That is why it is good to make an automatic call without debtor-specific information and consider the content of the recording to be a universal reminder which is same for whole group of calls.

If implemented correctly, the automated call would be useful for both creditors and debtors. Automation could reduce costs and free up customer service resources for other work. From the debtor's point of view, automated calls can be a customer-friendly way of reminding of the debt without having to talk to a real person. In addition, automation enables several contact attempts instead of just one call attempt, which therefore improves the debtor's contact rate.

2.2 Process Automation

The second part of this literature review focuses on explaining the concept of process automation, as well as applying it from the point of view of automating telephone collection. We get to know the most central parts of the theory and summarize the essential information from the point of view of this research.

When we talk about process automation, we refer widely to the development of various processes with the help of automation. The idea behind process automation is to use technology to automate complex business processes (Tibco, n.d.). Process automation has a lot of benefits for all kinds of businesses. According to Otar (2019), it can aid a company in cost containment, simplifying operations, accelerating digital transformation, improving service quality, and enhancing service delivery.

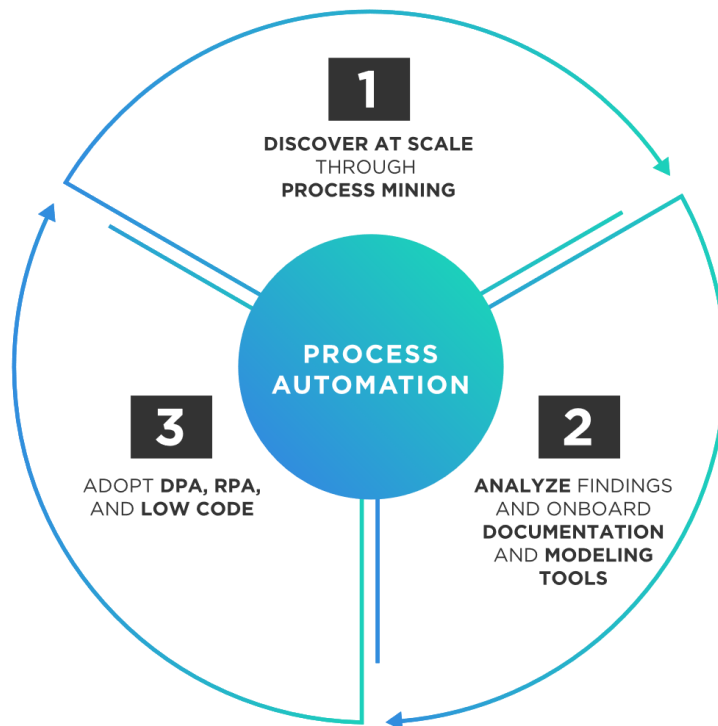


Figure 5. Process Automation.

In figure 5, we can see the lifecycle of usual process automation. The process automation begins with a comprehensive discovery phase, conducted at scale through process mining techniques. This initial step involves analyzing existing business processes to identify inefficiencies, bottlenecks, and areas for improvement. Once the findings are gathered, the next stage focuses on analyzing these insights and onboarding documentation and modeling tools to further understand and visualize the processes. This phase allows for a deep dive into the identified issues and helps in formulating strategies for optimization. Finally, armed with a clear understanding of the processes and potential solutions, the

adoption of Digital Process Automation (DPA), Robotic Process Automation (RPA), and low-code development tools is initiated. This holistic approach ensures that organizations can streamline operations, improve efficiency, and drive innovation across their business processes. (Tibco, n.d.).

Process automation generally has three functions, which are process automation, information centralization, and reducing the need for human input (Tibco, n.d.). When we think about automating the telephone collection process, we want to focus especially on the last function, reducing the need for human input. Process automation is originally rooted in the industrial world and the development of industrial processes, but nowadays it is established as a concept for Business Process Automation (BPA).

Process automation includes the concepts Business Process Automation (BPA) and Robotic Process Automation (RPA), which are understood in some contexts as overlapping. In this literature review focuses to these two concepts. The content of both concepts is discussed and separated from each other.

2.2.1 Business Process Automation (BPA)

When talking about Business Process Automation (BPA), there are many interpretations of the concept. According to Hashemi-Pour et al. (2022), BPA refers to the use of advanced technology to execute business processes with minimal human manual involvement. A business process comprises activities aimed at achieving a particular organizational objective, such as manufacturing a product, integrating new employees, or acquiring new customers. According to Santos et al. (2020), automation is made possible by a variety of technologies as well as integrations, which allow data to be retrieved from many systems, for example, without requiring changes to the IT architecture. Mohapatra (2009, p. 1) emphasizes that BPA offers organizations the opportunity to enhance operations, improve efficiency and achieve better results overall. Different interpretations are united by the basic idea that in BPA, a complex business process is usually automated with the help of advanced and latest technologies.

BPA can be seen as part of a larger entity, Business Process Management (BPM). While BPM focuses on managing business processes, BPA is concerned with automating business processes (Perfectapps, 2022). It can be said that all BPA is a part of BPM, but not all BPM consists of BPA, so BPM offers a theoretical framework around BPA. According to Hashemi-Pour et al. (2022), BPA is centered on simplifying and streamlining business processes through automation. In contrast, BPM, which could include automation if needed, utilizes diverse methods for discovering, modeling, analyzing, changing, and optimizing end-to-end business processes (Hashemi-Pour et al., 2022). Both BPA and BPM aim to increase production, boost morale, and satisfy consumers by streamlining workflows, eliminating pointless procedures, and improving efficiency (Perfectapps, 2022).

Business Process Automation (BPA) can be used in the development of many different business functions, such as management, supply chain, HR processes and marketing. Hashemi-Pour et al. (2022) present four different practical business scenarios where BPA improves processes. Integrating a new employee is a crucial business process that calls for several low-level but meticulous duties. In onboarding of new employees, BPA can streamline tasks, reduce paperwork, and ensure meticulous completion, thereby enhancing recruitment and retention practices. In the financial sector, financial services providers like banks, insurers, and other finance companies must run background checks on potential new clients upon onboarding and make the necessary notifications to the authorities. BPA, integrated with artificial intelligence, can speed up these processes, ensuring regulatory compliance and elevating customer satisfaction. For IT service desk support, BPA becomes an essential ally. Use of BPA could improve them by analyzing and routing tickets to relevant employees, ensuring timely updates, and predicting and resolving issues with AI integration, enhancing compliance and service efficiency. Within marketing automation, BPA could optimize workflows across channels, freeing up staff from repetitive tasks, boosting efficiency, and empowering strategic initiatives for gen-

erating valuable sales leads. All of these scenarios highlight BPA's transformative capabilities, which provide companies with a strategic imperative for streamlined, efficient, and customer-centric processes. (Hashemi-Pour et al., 2022)

Despite all the benefits of BPA, there are also some challenges for implementing BPA, since all business processes may not be automated efficiently. Hashemi-Pour et al. (2023) states that tasks with high volume, recurring, time-sensitive, and multi-person operations are the ideal candidates for BPA. Enterprises should routinely assess how changes in governance standards, legislation, security, and other factors affect automated processes, as automation is not a one-time event. According to Hashemi-Pour et al. (2023), there are a spectrum of challenges that necessitate careful consideration. One such challenge is the issue of scaling. While a business may initially adopt BPA tools for specific tasks, expanding these tools to encompass broader organizational objectives can create difficulties. This scalability hurdle requires strategic planning to ensure a seamless integration across diverse functions. Another challenge is synchronization, particularly in the collaboration between automation systems and human workers. Training individuals to effectively work alongside BPA tools and ensuring the tools receive the necessary information for optimal functioning can be complex. This highlights the importance of a well-coordinated approach to address the human-automation interface. In the pursuit of accelerated processes through BPA, businesses may inadvertently overlook potential roadblocks. BPA tools are often adopted with the primary goal of expediting tasks, neglecting considerations for disruptions that could impede their efficiency. Proactive identification and mitigation of potential roadblocks are crucial for the sustained success of BPA implementations. Clear and comprehensive documentation of processes is another critical aspect of successful BPA integration. BPA tools rely on well-documented procedures presented in a step-by-step format. Businesses lacking in this documentation must prioritize its development to overcome this hurdle before implementing BPA effectively. (Hashemi-Pour et al., 2023, Turdibayeva, n.d.)

In essence, businesses venturing into BPA must navigate challenges related to scaling, synchronization, overcoming roadblocks, and ensuring sufficient documentation. Addressing these challenges strategically will contribute to the successful and sustainable integration of BPA within the organizational framework. Turdibayeva (n.d.) summarizes that successfully implementing process automation demands a holistic strategy, addressing communication, collaboration, planning, and change management. In the current landscape, business process automation is indispensable for efficiency. Beyond robotic assistance, it reshapes work dynamics with improved systems and workflows. Speed is key; a strategic plan ensures purposeful adoption, driven by goals.

2.2.2 Robotic Process Automation (RPA)

Robotic process automation (RPA) is an emerging field within BPA. The core idea behind RPA is the replication of human actions within a computer system by software. This replication can be configured without programming skills and without the need for application programming interfaces (APIs). According to the Institute for Robotic Process Automation & Artificial Intelligence (2018), RPA is the utilization of technology that empowers employees within a company to set up computer software or a 'robot' with the capability to capture and interpret existing applications, process transactions, manipulate data, trigger responses, and communicate with other digital systems (IRPA AI, 2018). These robots usually refer to virtual robots on a software platform rather than physical robots. According to Syed et al. (2020), in center of RPA are the software agents called 'bots'. Bots emulate the manual steps taken by a human navigating various computer applications to execute specific tasks within a business process. These tasks usually involve rule-based, well-structured, and repetitive activities. Examples include screen scraping for data transfer between applications, automated processing of email queries, and the consolidation of payroll data from diverse sources (Syed et al., 2020).

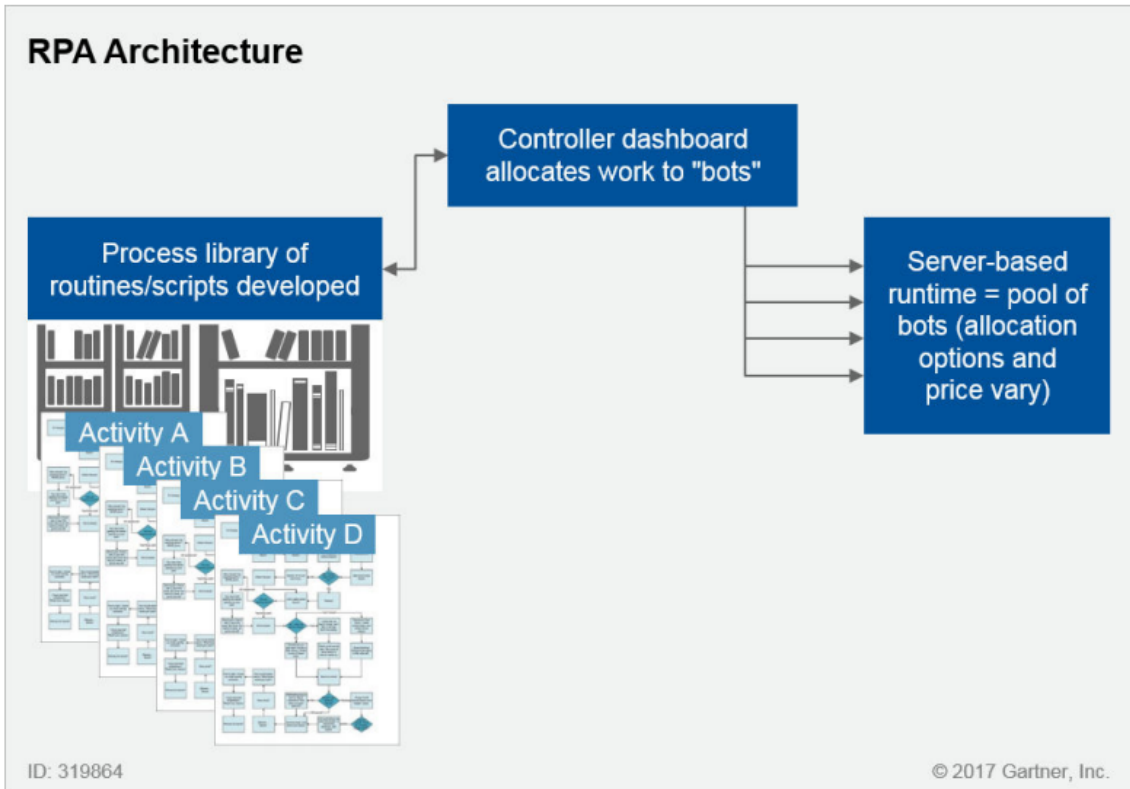


Figure 6. RPA Architecture.

Figure 6 shows one example of the architecture solution of RPA. According to Tornbohm & Dunie (2017, p. 2-3), RPA tools execute conditional commands such as "if, then, else" on organized data, often through a combination of user interface (UI) interactions or by establishing connections to APIs to interact with client servers, mainframes, or HTML code. The basic idea in RPA architecture is that an RPA tool functions by creating a map of a process using the specific language of the RPA software. This map guides the software "robot" on how to perform the tasks outlined in the process. The control dashboard then allocates runtime for the execution of the script, ensuring that the tasks are carried out efficiently and according to the defined workflow. (Tornbohm & Dunie, 2017, p. 2-3).

The popularity of RPA has grown rapidly in recent years, making it a trending method in business process automation. In connection with RPA, you often hear talk about the utilization of artificial intelligence (AI). According to Lawton (2021), when AI and machine learning are integrated with RPA, it enhances the system's ability to comprehend the

content it processes. This includes reading text or handwriting through optical character recognition (OCR), extracting entities like names, invoice terms, or addresses using natural language processing (NLP), and gaining additional insights from images. For instance, it can automatically assess accident damage in a picture submitted for an insurance claim. (Lawton, 2021)

Done right and in the right place, RPA has many positive effects on companies' business operations. According to Syed et al. (2020), companies which have successfully adopted RPA have seen gains in their employee productivity, customer service and strategic goals. They also state that industries that tend to adopt new technology quickly, especially those reliant on process-aware information systems like banking and insurance, show a keen interest in RPA. The debt collection industry also belongs to this same category. Differing from this interpretation, the Institute for Robotic Process Automation & Artificial Intelligence (IRPA AI, 2018), states quite ambitiously that: "Any company that uses labor on a large scale for general knowledge process work, where people are performing high-volume, highly transactional process functions, will boost their capabilities and save money and time with robotic process automation software." According to this interpretation, it can be stated that there is a lot of demand and users in the market for RPA.

Asatiani & Penttinen (2016, p.4) mention the benefits of RPA in cost reduction, due its potential to reduce costs by replacing manual tasks with robots that work without salaries around the clock. Another significant benefit is process improvement, which happen mainly due RPA does not require changes to existing IT systems and operates within the user interface, allowing for quick implementation without significant system redesign. (Asatiani & Penttinen, 2016, p.4). They also state that RPA has some concerns and downsides. According to Asatiani & Penttinen (2016, p.4) RPA is considered a temporary solution that bridges the gap between manual processes and fully automated systems, lacking the efficiency of back-end integration designed for machine-to-machine communication. They also mention that RPA is still relatively new and may require a persuasive

business case to overcome skepticism, unlike outsourcing, which has decades of experience and numerous business cases. They also bring up employee concerns. While RPA implementation generally receives positive feedback, employees may perceive robots as direct competitors for their jobs, leading to tensions and morale issues if not communicated and managed properly. (Asatiani & Penttinen, 2016, p.4).

The benefits and effectiveness of RPA in automating companies' business processes are undeniable. However, Lawton (2020) states that RPA's most important function may be as a gateway to enterprise hyper-automation. With hyper-automation Lawton (2020) refers to combining RPA with various automation tools, such as low-code and no-code development tools, BPM tools, and decision engines. The combination of Intelligent Process Automation (IPA) and cognitive automation modules facilitates the seamless integration of AI capabilities into these automated processes.



Figure 7. Stages of RPA introduction in the company.

Asatiani & Penttinen (2016, p.8) present a practical example of the RPA implementation process in a company (figure 7). Successfully setting up and deploying a robot requires following these steps and presenting a compelling business case to skeptical clients. In first stage, an RPA potential analysis workshop will be produced, where the overall potential of RPA for the company will be presented. Second stage is process assessment, where the objective is to break down and chart the process into specific rule-based steps. Third stage is business case proposal. The proposal describes how robots will streamline the process and how robotic and other automation methods can synergize with the current human workforce to attain cost-effectiveness and improved productivity. This will eventually follow the RPA implementation in the company. (Asatiani & Penttinen, 2016, p.8).

2.2.3 Utilizing RPA in call centers

RPA can also be used in the development of customer service call centers in many ways. According to Ariwala (2023), in call centers, RPA could address challenges related to customer identification, data updating and repeating calls. In customer identification, RPA streamlines the process by integrating data from multiple systems, reducing the need for agents to navigate between databases and CRMs. This results in a quicker and more efficient customer identification process, enhancing customer service and reducing call duration. With updating customer data, RPA simplifies the task of updating customer data across various applications by automating template auto-fill, copy-pasting, and field-entries. The integration with different systems minimizes the risk of errors, ensuring accurate and timely updates. With problems related to repeating calls, RPA streamlines call center operations by integrating systems, enabling agents to effortlessly track and address specific customer issues without manual monitoring. With a single click, RPA loads comprehensive customer profiles from previous interactions, eliminating the need for agents to repetitively request information, significantly enhancing customer service by addressing a major pain point. (Ariwala, 2023)

Startek (2024), mentions the call center's Interactive voice response (IVR) system as one RPA methodology. The IVR system interacts with the customer through pre-recorded voice messages, where customers can navigate using a keyboard or voice commands. IVR systems can also handle multiple calls simultaneously and transfer calls to the right representative or department, offer details about goods and services, and even take payments (Startek, 2024). Similarly as in IVR systems, RPA could also be used to automate customer service outbound calls or sending emails. Automating these functions enables call centers to enhance efficiency and release agents to manage more intricate responsibilities. This functionality is the center of this thesis.

Lanshore LLC (2023) continues with the same themes in their publication related to the use of RPA in call centers. According to Lanshore LLC (2023), RPA is transforming call

centers by automating repetitive tasks, such as data entry and transaction processing, leading to a reduction in manual efforts and allowing agents to focus on delivering personalized customer support. This automation enhances customer experience through quicker issue identification, rapid response times, and personalized solutions, fostering increased satisfaction and brand loyalty. RPA also addresses the issue of human errors in data processing, ensuring accurate and consistent task performance. Additionally, by automating routine tasks, RPA improves agent productivity, enabling them to dedicate more time to complex customer interactions, thereby enhancing overall customer support quality and reducing turnover. The seamless integration of RPA with existing call center software and systems facilitates efficient adoption without extensive overhauls. As RPA continues to evolve, it plays a key role in shaping the future of customer service, providing organizations that embrace it today with a competitive edge in the dynamic landscape of customer support. (Lanshore LLC, 2023).

2.3 Summary of literature review

This literature review was divided into two parts. The first part was a brief overview of debt collection process, with the aim of presenting the complex field in which the research of this thesis is carried out. The second part of the literature review was more theoretical, and it focused on process automation.

In the first section of this literature review, the debt collection process was comprehensively opened. The most important parts of the collection process and the laws and regulations affecting the industry were explained. The main focus in the section was describing inheritance as a process and dividing the process into parts so that the examination of the parts would be clearer. This is important because the collection process is a strictly regulated process in Finland, and knowing its entirety is important for research.

The opening of the whole debt collection process also brought to light the most critical part of this section, telephone collection. The telephone debt collection process is a key

part of debt collection and an important addition in improving both debt collection efficiency and customer orientation. In the literature review, it was stated that telephone collection is practiced in many ways at different stages of voluntary collection process, from reminder calls to end of the voluntary collection process.

The section also discussed the use of automated calls in many different contexts, and created a theoretical basis for what should be considered when automating collection calls. Automated calls have been widely used in different contexts, and it is important to distinguish between appropriate automated calls and dishonest or spam automated calls (Kaspersky, n.d.). In Finland, robocalls have been used appropriately in principle and the results have been quite good. Automated calls have been used especially by the public sector in matters of a notification nature. Publications regarding to the functionality of using automatic calls looks promising from the point of view of automating debt collection calls. When automating debt collection calls, the most important thing is to follow good debt collection practices and to protect debtors' privacy. It would also be good to monitor debtors' attitude towards automated calls.

The second part of the literature review dealt with process automation and its key concepts. First, we focused on the concept of Business Process Automation (BPA), defining it as the use of advanced technology to execute business processes with minimal human involvement. It emphasizes the automation of complex business processes using the latest technologies. BPA is seen as part of Business Process Management (BPM), focusing on automating processes within the larger context of managing them. The transformative capabilities of BPA are highlighted in various business functions, such as onboarding new employees, financial services, IT service desk support, and marketing automation. The literature review outlines challenges in implementing BPA, including scaling, synchronization, overcoming roadblocks, and the importance of documentation. Successful BPA implementation requires a holistic strategy addressing communication, collaboration, planning, and change management. Overall, BPA offers businesses the opportunity to enhance efficiency, streamline workflows, and achieve better results.

After BPA, we delved into its growing subset, Robotic Process Automation (RPA), emphasizing its core concept of replicating human actions within a computer system using software. RPA, often associated with the use of artificial intelligence (AI), involves software agents known as 'bots' that emulate human steps in navigating computer applications to perform rule-based, well-structured, and repetitive tasks (Lawton, 2021; Syed et al., 2020). The popularity of RPA has surged, with successful adoptions leading to increased employee productivity, improved customer service, and strategic goal achievements. Industries, particularly those quick to adopt new technology, such as banking and insurance, demonstrate a keen interest in RPA. The study suggests a broad market demand for RPA, emphasizing its potential for companies engaged in high-volume, transactional process functions. Additionally, the study highlights RPA as a gateway to enterprise hyper-automation, combining RPA with various automation tools for seamless integration of AI capabilities into automated processes. (Lawton, 2021; Syed et al., 2020; IRPA AI, 2018)

Finally, we discussed the utilization of RPA in call centers. The section focuses on the diverse applications of RPA in customer service call centers, offering solutions to challenges related to customer identification, data updating, and repeating calls. RPA streamlines customer identification processes by integrating data from multiple systems, reducing the need for manual navigation between databases and CRMs. It simplifies updating customer data across various applications, minimizing the risk of errors. The literature review also presents one interesting RPA methodology, Interactive Voice Response (IVR) systems and its ability to automate outbound calls or email processes, enhancing call center efficiency and enabling agents to focus on more complex responsibilities. Overall, the transformative impact of RPA on call centers includes automating repetitive tasks, improving agent productivity, reducing human errors, and fostering personalized customer support, positioning organizations for a competitive edge in the evolving landscape of customer service. (Lanshore LLC, 2023; Ariwala, 2023; Startek, 2024).

3 Method

This research was carried out in cooperation with the case company OK Perintä Oy. The case company had a research problem and a research question ready, for the solution of which extensive resources were offered. This research works as part of an internal development project of the company, which prepared for the implementation of a new product, automated outbound calls.

3.1 Research design

The objective of this study was to find out whether automated outbound calls are suitable as part of telephone collection process. In other words, the research wanted to find out if the outbound calls made by humans could be replaced by an automated robot call.

It was decided to conduct research using an A/B test with 2 test groups: human made calls and automated calls. For both groups, a collection call was made to the debtor, either by human or automation. The objective of the calls was to activate the debtors to pay their debt. In the test, the success of the call was measured with several different indicators, which collected data of the debtors' actions after the call.

The test groups were groups of debtor customers of the case company, whose debts are owned by the case company. The test groups contained ordinary consumer receivables which collection process followed the traditional collection process, which was presented previously in this research.

The first test group represented calls made by humans. Debtor customers were called by a customer service agent a few days after the due date of the first payment demand. The purpose of the call was to discuss the payment of the debt with the debtor and to offer the possibility of a payment plan or the transfer of the due date. If the debtor did not answer the call, he or she was sent a text message that briefly explained the content of

the call attempt. The text message asked to log into the company's online service in order to arrange the payments.

The second test group represented automated calls. The content of the test group completely corresponded to the previous test group. In this group, the pre-recorded automated call was made to the debtors at the corresponding time. The call was started clearly by stating that it was an automated call from the case company. After this, the call informs that the payment demand has due, and the debtor was offered the opportunity to get the payment information, transfer the due date or make a payment plan. The debtor could make a selection using the number keys 1,2,3. In each selection, the call said that the debtor will soon receive a test message. In case of payment info, the debtor will receive payment details by SMS. If debtor chooses payment plan or due date transfer, they will receive SMS with a link to the company's online service, where the debt can be managed safely and easily. After this, the call thanks the debtor and wishes for a nice rest of the day. Unlike a call made by a human, if the call is not answered, the robot will automatically call the customer again later. If the second call attempt is not answered, a text message will be sent to the debtor. This method is used because the automated call has been purchased from an external service provider, and their priced package includes 2 call attempts and a text message.

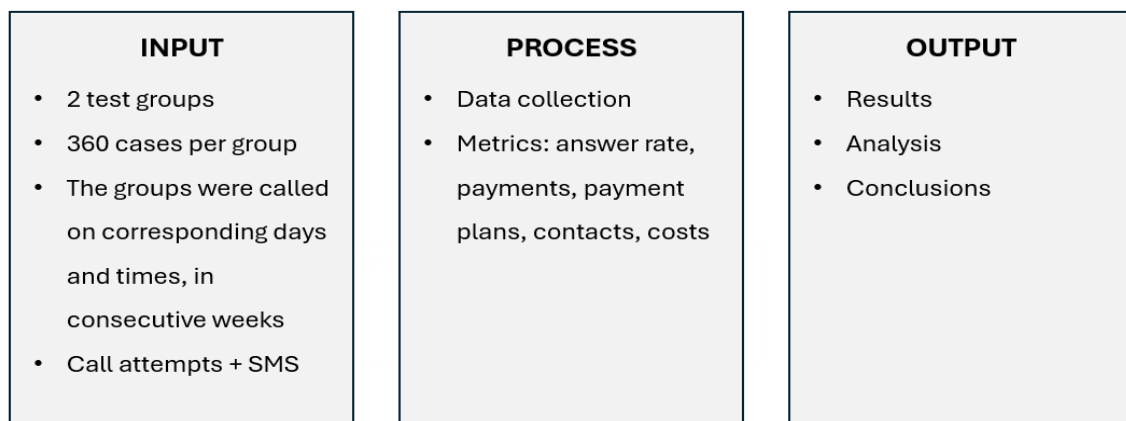


Figure 8. Research IPO.

The purpose was to compare the success of the automated calls -test group with the success of the test group of human calls. The success of the calls was primarily determined by using several metrics, which are the answer rate, number of agreed payment plans, number of payments, amount of payments and contacts with either customer service or online service. The test took into account payments within 7 days of calls. Payment plans and contacts were taken into account within one day from the call. During the test, possible complaints related to automated calls were also observed. Success was evaluated by taking into account all the above-mentioned metrics, as well as any other influencing factors that would appear in connection with data collection.

The test also takes into account the costs of the actions. The successes of the test groups were compared with the costs to create a comprehensive picture of the overall profitability. The results of the test therefore tell us the success and profitability of the two test groups' calls. Based on these results, conclusions are finally created to answer the research question of this research.

3.2 Data collection

The research data was collected from the case company's database as raw data using the SQL query language. During the data collection process, the raw data was processed into an analyzable form, after which the data was finally run into an excel file.

First, in data collection, it was ensured that the test groups are uniform. The size of the test groups and the size of the debts were standardized. The first metric was the number of answered calls, which was used to calculate the response rate.

Data was collected for the needs of the previously mentioned metrics. In the case of debtor payments, the number and amounts of payments were collected for a week from the day of the call. The number, length and size of payment plans were also calculated, as well as whether the payment plan was made on the day of the call, the day after that

or 2 days after the call. Contacts from debtors after the call were also counted and broken down according to the method of contact. The contact methods were callbacks, e-mails, and logging into the online service. The number of contacts were calculated over a 1-day period from the call.

The costs of the procedures were calculated based on the estimates provided by the case company. The data shows the price of a human-made call, depending on whether the call was answered or not. In a call made by a human, the price of an answered call is significantly higher than an unanswered one, because the call takes longer time. Also, the price of the text message sent was collected.

The price of automatic calls is determined differently than a call made by a person. The service has been purchased from an external service provider, where the procedures are priced as a package. The package includes a call attempt to the debtor, as well as an additional call attempt if the first call is not answered. After this, a text message is sent to the debtor. All these measures are included in the same price, regardless of whether the call is answered or not.

4 Results and Discussion

This part of the study includes the results of the A/B test and the analysis of the results. As said earlier, in this study two test groups were created of debtor customers of the case company, to whom were called either by a human or by an automated robot. The results of the study are thoroughly presented, after which the results are analyzed.

In figures 5 and 6 we can see the process charts of both test groups, automated call and human made call. Both processes start at the same point, which is the due date of the payment. This is followed by calls, which are made once in a human-made call, and twice in automated calls, if the first call is not answered. After this, a payment negotiation takes place, which happens in a human call with a verbal negotiation, and in an automated call with the help of three choices "payment info, due date transfer of payment plan". If the debtor does not answer calls, a test message is sent to the customer in both test groups.

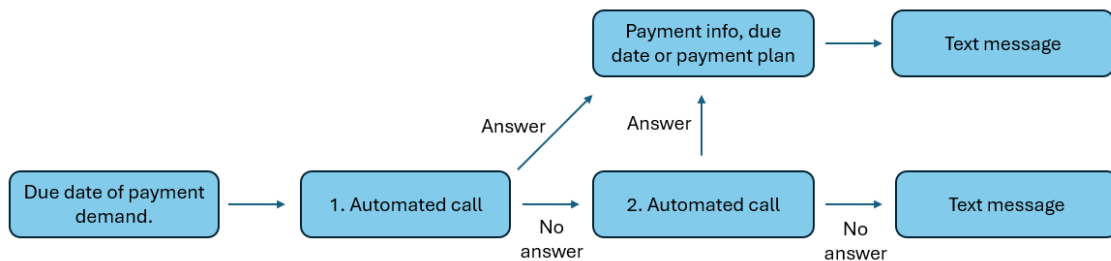


Figure 5. Automated call process.

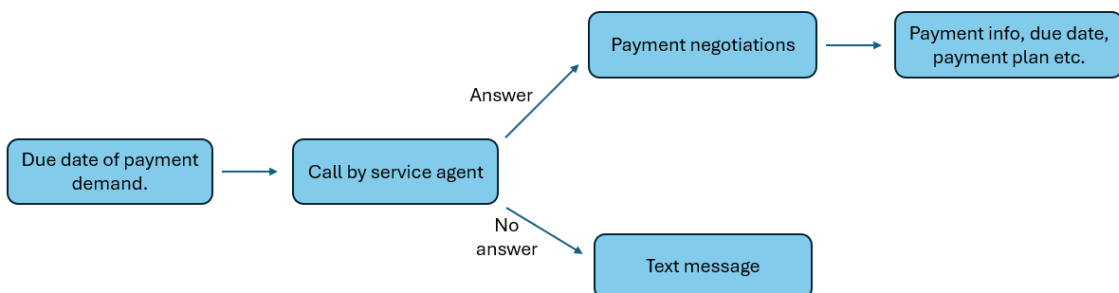


Figure 6. Human made call process.

4.1 Overview of AB Testing Results

In this section, we will discuss the test results of the study step by step. The number of calls, the number of responses and the response rate are considered first. Next, we look at the results of payments and payment plans. After this, we review the results of customer contacts and finally review the costs of the call methods.

When assembling the test groups, many factors had to be considered. First, since this is a test of a new product, the debts of the test groups must be owned by the case company. This was decided in order to avoid additional negotiations with external creditor clients. Case company regularly buys debt portfolios of various companies, and the most suitable ones were finally selected for the test. The suitability of the debts was assessed, for example, by the consistency of the cash flow, the low number of complaints, and the size of the debts. Test's debts are medium-sized consumer debts.

Approximately 400 cases were initially selected for both test groups. In the implementation of the tests, significant exceptions were removed, and the groups were unified more, after which the size of both test groups were finally reduced to 360 cases.

4.1.1 Calls, answers, and answer rates

As explained in the previous chapter, there were 360 items in both test groups. Both test groups made 360 calls, but in the automated call test group, those debtors who did not answer on first try were called again after a while.

The response rate used in this study is calculated according to Figure 7. The answer rate is obtained when number of answered calls is divided to number of contacts, and multiplied by 100.

$$\text{Answer rate} = \frac{\text{Number of answered calls}}{\text{Number of contacts}} \times 100$$

Figure 7. Answer rate.

In the test group of a call made by a human, 83 out of 360 cases answered the call. The response rate is then 23,1%. In the automated call test group, a total of 109 answered the call out of 360 cases. The response rate of automated call test group is then 30,3%.

Looking at the first call attempt of the automated call test group, it can be seen that 85 answered the first call attempt, which means 23,6% answer rate. This indicates the similarity of the test groups and strengthens the reliability of the results.

There were also no complaints found in either test group regarding automated calls as a contact method.

4.1.2 Payments and payment plans

The test collected data on payments and payment plans made by debtor. The criterion for payments in the study was that the payment was registered within 7 days of the phone call. The number of payments and the euro amount were calculated. In the case of payment plans, the number of payment plans, their amount in euros and their length was calculated. The test took into account the payment plans made on the day of the call.

In figure 8, in the human made call test group, there were 15 payments made in 7 days after the call. The total amount paid was 0.57% of the group's total debt. In the automated call test group, there were 32 payments made. The total amount paid was 0.97% of the group's total debt.

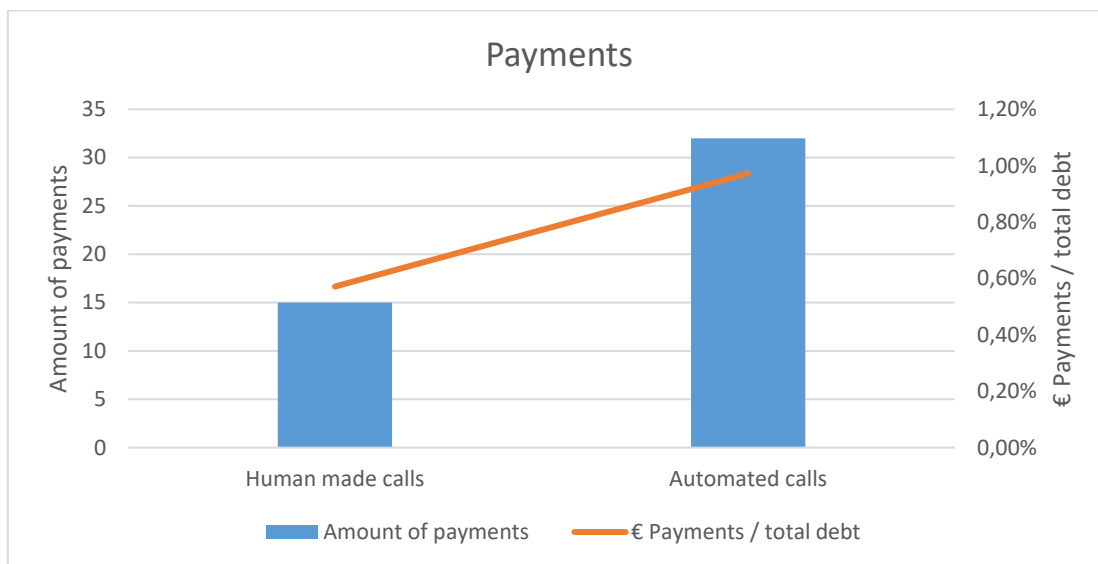


Figure 8. Payments.

When looking at the number of payment plans in figure 9, we can see that the results are the opposite of the payments. In the group of calls made by a human, 42 payment plans were made on the day of the call. The average length of the payment plans were 12 installments, and the average size of payment plan was 1 477 euros (figure 10). In the automated call group, 23 payment plans were made (figure 9). The average length of the payment plans was 10 installments, and the average size of the payment plans was 841 euros (figure 10).

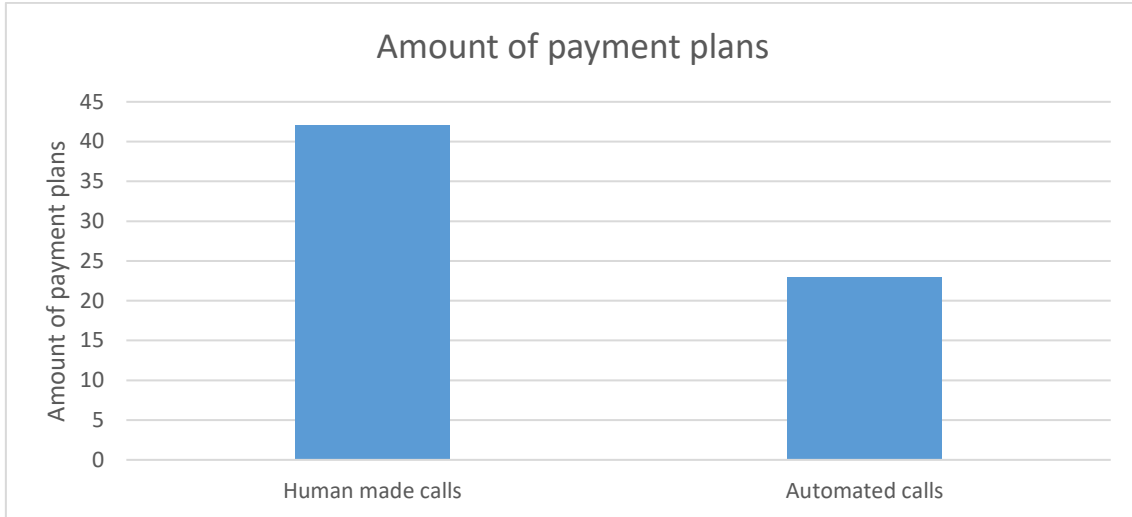


Figure 9. Amount of payment plans.

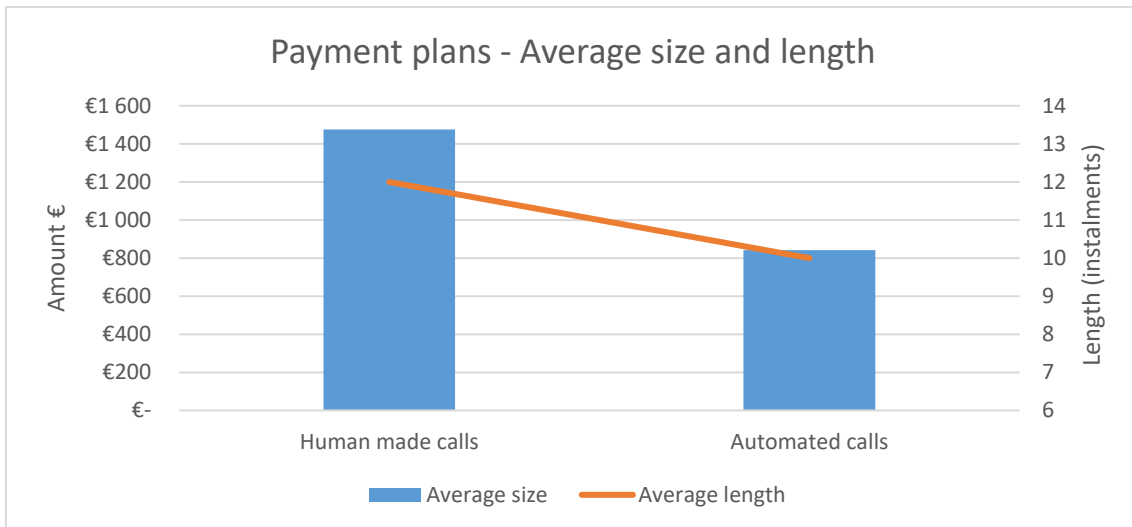


Figure 10. Average size and length of payment plans.

4.1.3 Debtors contacts

In the customer contact section, actions taken by debtors are monitored within 1 day of the phone call. Debtors' contacts were divided into 3 categories: logins to the online service, callbacks, and e-mails. Of these options, logging into the online service is seen as the best option, and it is one of the goals of contacting the debtor. Other methods of contacts produce more manual work on customer service, which is not pursued.

In figure 11, in the group of calls made by a person, debtors logged into the online service 8 times, called back 14 times, and did not send any e-mails. In the automated call group, debtors logged into the online service 33 times, called back 3 times, and sent an email once. It must be taken into account that after a call made by a person, if answered, the debtor has less need to log into the online service. The automated call, on the other hand, directs the debtor directly to the online service.

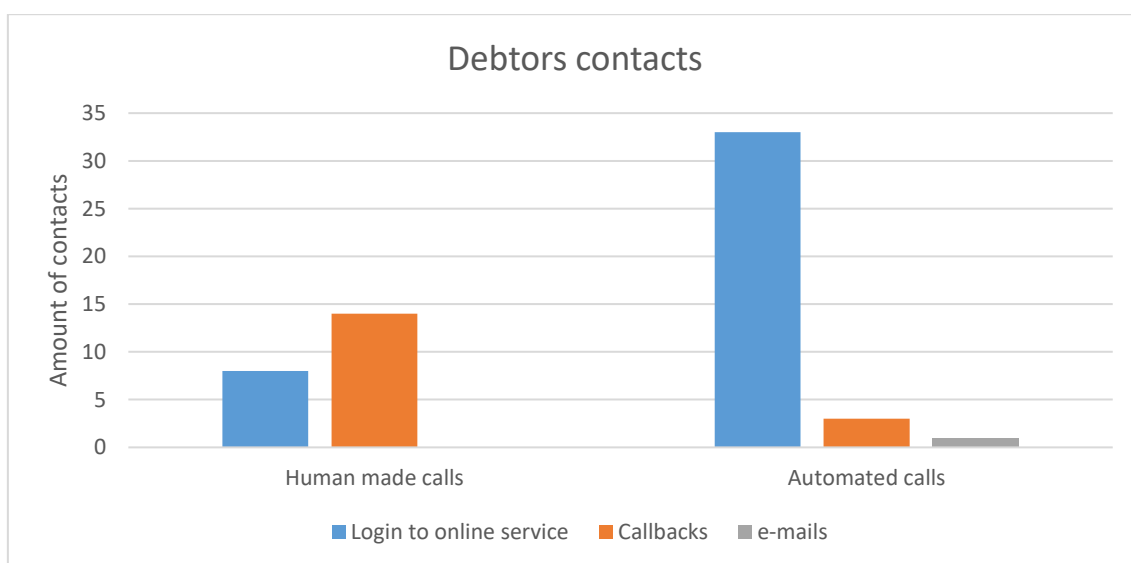


Figure 11. Debtors contacts.

4.1.4 Costs

The costs of the calls are calculated based on the company's own estimates. In the costs must consider that the automated call is acquired from an external service provider. The service is priced as a package that includes 2 call attempts and a text message. The price of a call made by a person is again determined by whether the call is answered or not. The cost of the text message is also calculated separately.

For calls made by a human, the cost of the answered call is estimated at 2.20 euros per call. The cost of an unanswered call is estimated at around 0.20 euros per call. In the test group, 83 calls were answered, so the total costs of answered calls are $83 * 2.2 = 182.60$ euros. There were 277 missed calls, so the costs of missed calls were $277 * 0.20 = 55.40$ euros.

euros. Also, SMS were sent to all 277 unanswered cases, the price of which has been calculated at around 0.1 euros each. The SMS expenses were a total of $277 * 0.1 = 27.70$ euros. The total costs for the group of calls made by a human are 265.70 euros.

The costs of the automated call group are fixed and are based on the number of cases, despite the fact that the call is answered or not, or whether the call was attempted once or twice. SMS is also included in the fixed price. The price per case is then 0.42 euros. The total cost of the test group is then $360 * 0.42 = 151.20$ euros.

4.2 Analysis

In this section, the research results are analyzed point by point. The results are analyzed precisely and critically and are mirrored through the study discussed in the thesis. The goal of the analysis is to find out what the test results mean and what can be analyzed based on them.

As mentioned earlier, this test contained many different measures, the results of which should be analyzed separately and together. In the analysis, you should also remember what the actual goal of telephone collection is. Calling aims for a better collection result, but it is also, above all, good customer service (OK Perintä, 2018). Therefore, the results of the test should be analyzed in such a way that it produces added value for both parties, the creditor, and the debtor.

When looking at the response rate, the results suggest relatively similar successes. It can be seen from the test results that the answer rate is almost the same with one call attempt. So, it can be stated that the answer rate does not depend on whether the debtor is called by a human or an automated system. On the other hand, another call attempt in the automated call test group increased the response rate from 23% to 30%. Because the automated call does not require additional resources to make a second call attempt,

which is also included in the price of the call, the automated call therefore reaches more debtors than a call made by a human.

When looking at debtors' payments within 7 days of the call, there are clear differences in the results. In the automated call group, the number of payments is 113% more than in the human-made call group. Also, when looking at the amount of euros paid in relation to the total debt, the automated call group received 70% more euros than the group called by a human. The differences between the test results are very significant, but they are also explained by several different factors. First, the test results show that significantly more payment plans are made in a group called by a human than in the automated call group. The payment plan basically transfers payments to the future, instead of paying them off immediately. Secondly, interaction with a person is always a one-time negotiation, where the individual needs and wishes of the debtor are taken into account. On the other hand, when the debtor deals with an automated call and logs into the online service, the possible limits of the payment plan and the possibilities for moving the due date are predefined for him. It is therefore possible that the debtor could have agreed to postpone payment more in a group called by a person than in the automated call group.

As mentioned earlier, there were also considerable differences in the results of the payment plans. In the human-made call group, 83% more payment plans were made than in the automated call group. This partly explains the differences in payment results. In addition, the sizes of the payment plans differed. In the group called by a human, the average size of the payment plans was 75% larger than in the automated call group. Similarly, the average monthly installments of the payment plans were 20% higher in a call made by a person than in an automated call. The results suggest that agreeing on a payment plan is easier from the debtor's point of view when dealing with a person. This way, more payment plans are made, but also for larger debts and longer monthly installments. On the other hand, when the debtor deals with an automated call, fewer and smaller payment plans are made on average. This may be affected by the fact that in the online

service, the debtor has predetermined fixed limits for the length of the payment plan. In this case, the debtor either does not make the payment plan at all when the monthly installment is too difficult, or the debtor ends up paying off the debt immediately if he or she has the ability to pay.

In the case of debtors contacts, there were also clearly noticeable differences in the results. In the automated call, the debtor was basically directed to the online service to take the desired measures for the debt. This is also reflected in the number of online logins, which are 313% more in the automated call group than in the group called by a human. Here you must take into account the fact that after a call made by a person, the debtor has less need to log into the online service. However, debtor's transactions in the online service are basically the most optimal way from the perspective of the case company because they do not take resources from customer service. Calls and e-mails to customer service generate more manual work, which in turn takes resources from customer service. According to the results of the test, a call made by a human caused 250% more calls to customer service than an automated call. In order to analyze the overall effect of the debtor's contacts, the costs of calls and other actions should be taken into account.

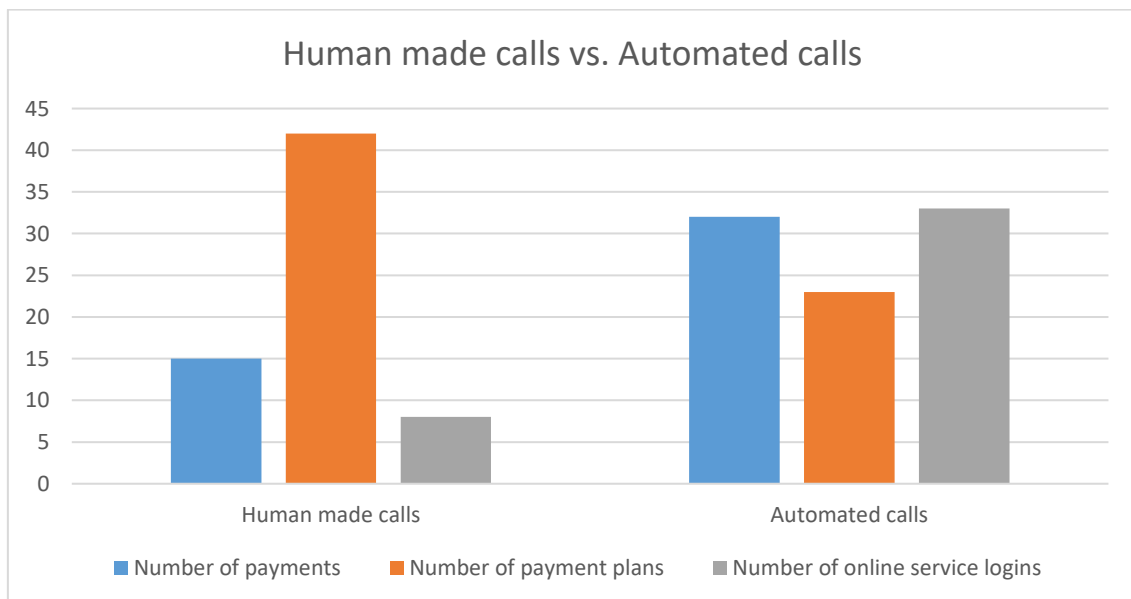


Figure 15. Human made calls vs. Automated calls.

In the previous figure, the number of payments, payment plans, and online service logins are shown in the same graph. These three meters are the key criteria for call success in this test. Examining the number of these different actions is a clear and simple way to illustrate different metrics at the same time, because the scale stays the same. Overall, the graph shows the distribution of different actions between the two test groups. The group called by a person is significantly more represented in the number of payment plans than in other actions. The number of payment plans is also higher in the human made call group than in the automated call group. In the automated call group, instead, a more even distribution is seen between different actions. Also, the number of payments and online logins is much higher than in a group called by a person. Overall, the automated call group activates various actions in greater numbers than the human calling group.

The results of the costs of calls were the clearest of all the results. For the group called by a human, the total costs of 360 cases were estimated 265.70 euros, making one case cost 0.74 euros. The automated call group's expenses for 360 cases were 151.20 euros, making one case cost 0.42 euros. So, in the case company, the automated calls can be said to be 43% cheaper than a call made by a human. If we also consider the costs of callbacks and e-mails that followed the calls, the differences would be even greater. Lower costs already improve the profitability of the process. The share of expenses can be compared well with the other measures of the test. In this way, we can evaluate the suitability of automated calls in telephone collection.

In this test, several different metrics for success have been used, which have been examined separately. The overall success of calling should be evaluated by creating a calculated success rate, which considers the key metrics weighed properly. First, the criteria for the success of the call and the weights for them must be defined. Payment and payment plan are defined as the primary success criteria. A secondary criterion of success can be considered the activation of the debtor in the online service. The number of all

the activities can be calculated from the results of the research. Since payments and payment plans are primary success criteria, their weight is * 1. Logging into the online service is seen as a secondary criterion, so their weight is * 0.5. Finally, the success rate can be calculated by multiplying each sum of activities by the weight value and dividing them by the total number of cases, which is 360. The success rate formula is shown in the following figure 12.

$$\text{Success rate} = \left(\frac{\text{Sum of payments} * 1.0 + \text{Sum of payment plans} * 1.0 + \text{Sum of online service logins} * 0.5}{\text{Amount of cases}} \right) \times 100$$

Figure 12. Success rate.

Figure 13 shows the success rate and the total costs of both test groups. In the group of calls made by a person, the success rate is 17% and the total costs are 0.74 euros. In the automatic call group, the success rate is slightly higher, 20%, but the costs are only 0.42 euros. Based on these results in figure 13, it can be analyzed that the automated call succeeds slightly better than the call made by a human. Based on the results, it can also be concluded that the costs of an automated call are significantly lower than a call made by a human.

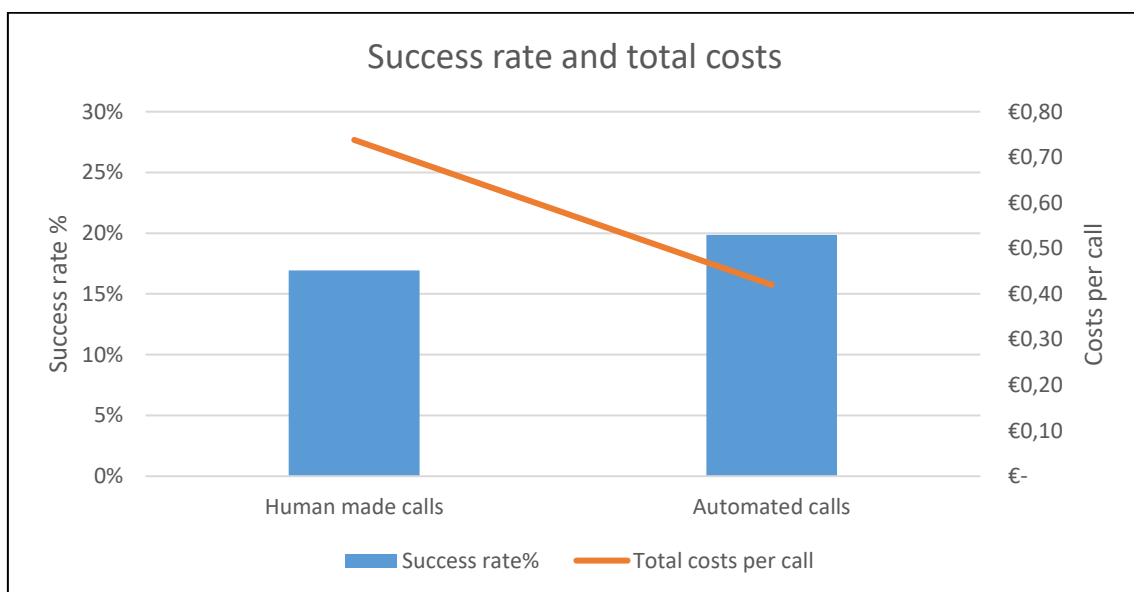


Figure 13. Success rate and total costs.

The results of this test have been analyzed mainly from a quantitative point of view. The test results gave clear and analyzable results, which are relatively simple to interpret. However, it must be remembered that the collection process is a multi-stage process where telephone collection can be used in many different stages. This test gives an indication of a typical debt collection call.

5 Conclusions

This section presents the conclusions of this study based on the previous sections. The main goal in this section is to answer the research question of this document, as well as to bring out the conclusions made based on the research. The entire study is bundled together and presented as a concise summary.

5.1 Summary and conclusions

The research question of this study was “Are automated calls suitable for telephone collection process?”. An answer to this question has been sought with the help of a literature review and the AB test. Based on the results of the research, automated calls seems to suit well as part of the telephone collection process.

Based on the test results, the automated call works well in debt collection compared to a call made by a human. An automated call would seem to activate debtors for immediate payment better than a call made by a human. Instead, a human call resulted in more payment plans than an automated call. From this it can be concluded that automated calls are particularly suitable for debts where a one-time payment is sought instead of a payment plan. Generally, smaller debts are paid at once, while payment plans are usually made for large debts. Earlier in this study has been stated that telephone debt collection is especially suitable for larger debts (Lindström, 2014, p. 277), so now we could add the statement that automatic calls are especially suitable for smaller debts.

The results of the test also found that a call made by a person resulted in more callbacks to customer service, while an automated call activated debtors to do business in the online service. These results may indicate that the automated call activates the debtor to take independent actions, instead of contacting customer service. This would also mean less load on customer service, which would free up resources for other work.

The literature review of the study presented the theoretical background of the study. Process automation and especially RPA offer companies numerous opportunities to improve operations, of which call center automation with calling robots is just one example. Overall, the transformative impact of RPA on call centers includes automating repetitive tasks, improving agent productivity, reducing human errors, and fostering personalized customer support, positioning organizations for a competitive edge in the evolving landscape of customer service. (Lanshore LLC, 2023; Ariwala, 2023; Startek, 2024).

5.2 Research limitations and Recommendations for Future Research

This thesis focused on the research question of the suitability of robocalls for the debt collection process, and the research is limited to dealing only with this theme. Due to the complexity of the collection process, the aim of this study is not to take a position on broader entities in the development of the collection process.

There was also a limited number of debt cases suitable for the test groups, which is why the size of the test groups was 360 people in the end. The sample gives a relatively reliable picture, but a larger group could give even more reliable results, especially for activities that debtors perform less often.

This study was deliberately limited to dealing only with consumer debt collection, as business-to-business debt collection differs significantly as a process from the consumer side. In addition, the study was limited to dealing with debt collection only in Finland.

The debt collection industry and automated calls creates many interesting questions for future research. In this thesis, customer satisfaction was considered very little, considering only possible complaints from the list of debtors. These were not observed in either test group, but it would be good to study the topic more in the future, so that complaints do not start to arise. Also, this study examined only one of the many debt collection calls. Next, it would be worth investigating how the automated call is successful in different

calls related to debt collection. What kind of calls does work best with automation and what kinds of calls should instead be made by a human in the future?

RPA also produces endless potential development ideas related to telephone collection. The next steps, especially regarding the automation of customer calls, could be related to harnessing artificial intelligence and IVR. These growing RPA topics have already significantly shaped company processes, and the change will certainly continue even faster in the near future.

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