



Identifying RPA opportunities for Back Office

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This Bachelor's thesis was made as an assignment for the Logistics and Operations Back Office department of Company x. Company x has an ambitious growth strategy and needs to ensure successful implementation of both supply growth and production growth. There is a strong focus on building-up global capabilities, internal cooperation and external partnership to drive the growth agenda. Company x is currently undergoing a business transformation towards a more digital way of working.

The quick business growth and expansion to new methods of transportation has created a lot of manual work and a need to transfer huge amounts of work to the Back Office from Commercial Operations. The aim of this thesis project was to find a solution to recognize these new Back Office work tasks that can could be automated with the help of robotic process automatization (RPA).

The knowledge base of this thesis consists of two different sections. The first section explains the definition of RPA and introduces the UiPath -software. The second section examines how RPA is used at Company x by other departments. The material found on RPA is still limited due to it being a fairly new technology. After explaining the knowledge base, the research process is defined. Instead of a regular qualitative interview, a brainstorming session was held to compile data for this research. The brainstorming session was held remotely due to the covid-19 pandemic.

The context of the theoretical part gives a good overview of the common work tasks and how to detect the work tasks that could be automated with RPA. Even though RPA is one of the fastest growing tech trends and is heavily a part of our daily lives, not everyone is aware of its existence. This study also revealed that in a large company there can be big variations between departments in RPA knowledge. This is mainly due to departments working in silos.

Keywords: BPM, Brainstorming, Digitalization, RPA, UiPath

Sain toimeksiannon opinnäytetyöhöni yritys x:n logistiikan ja operaatioiden Back Office osastolta. Yritys x:llä on erittäin kunnianhimoinen kasvustrategia. Voidakseen toteuttaa nämä liiketoiminnalliset kasvumahdollisuudet, yritys x:n on pystyttävä vastaamaan globaalien valmiuksien saavuttamiseen, sekä ulkoisten, että sisäisten sidosryhmien kanssa. Yritys x läpikäy myös tällä hetkellä digitalisaation tuomaa muutosta.

Liiketoiminnan kasvun ja uusien kuljetusmenetelmien tuoma manuaalinen työ on lisännyt kaupallisten operaattoreiden työkuormaa. Tästä johtuen työkuormaa siirretään Back Office operaattoreille. Tämän opinnäytetyön tarkoituksena on löytää keino jolla voisi tunnistaa manuaalisia Back Office työtehtäviä, joita olisi mahdollista automatisoida RPA:n avulla.

Tämän opinnäytetyön tietopohja koostuu kahdesta eri kategoriasta. Ensimmäinen osio kertoo RPA:n määritelmän ja esittelee UiPath-ohjelmiston. Toisessa osiossa kerrotaan kuinka RPA:ta käytetään yritys X:n eri osastoilla. RPA:n ollessa vielä suhteellisen uusi teknologia muoto, siitä saatavilla oleva materiaali on jokseenkin suppea. Kerrottua tietopohjasta, määrittelen sen jälkeen tutkimusprosessin. Perinteisen laadullisen haastattelututkimuksen sijaan käytin aivoriihisessiota jolla keräsin tietoa tähän tutkimukseen. Aivoriihi pidettiin etäkokouksena Covid-19 pandemian vuoksi.

Opinnäytetyön teoreettinen osuus antaa kattavan katsauksen yleisimpiin RPA:n avulla automatisoitaviin työtehtäviin ja niiden havaitsemiseen. Vaikka RPA on yksi nopeinten kasvavista teknologia trendeistä ja ollessaan myös hyvin vahvasti mukana ihmisten päivittäisessä elämässä, moni ei silti edes tiedä RPA:n olemassaoloa. Tämä tutkimus osoitti myös, että isossa yhtiössä voi olla suuriakin eroja osastojen välisessä RPA-tietoisuudessa. Tämä johtuu suurimmaksi osaksi siitä, että osastot työskentelevät silloissa.

Asiasanat: Aivoriihi, BPM, Digitalisaatio, RPA, UiPath

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1 Introduction

There has been a lot of hype about RPA recently and the RPA software market has been growing rapidly since 2018. In 2019, the dramatic increase of using RPA has continued and therefore the funding value has risen to over 2 billion dollars. (Stoudt-Hansen, Karamouzis, Villa, Ray, Dunie, Sturgill, Shotton, Miers & Biscotti 2019)

I joined company x in 2019 as a summer trainee. Company x was just undergoing the final steps of an extensive digital transformation that is planned to be finalized in the end of 2020. Our Logistics and Operation team started setting up the RPA environment in late 2019 and I was asked to join the task force at that time. To get started on the work we decided to do an inquiry on how much employees in the organization actually knew about RPA to begin with.

Based on the interesting topic and being able to join a task force on the verge of something new, which needed to be investigated, I decided to bring forward the idea of doing my thesis on the subject. This was received well by the management and I was assigned to write my thesis about the topic 'Identifying RPA opportunities for Back Office'. When making plans about how to move forward, I decided to use a brainstorm session as my research method. For the session I invited twelve Back Office Operators and I acted as the host myself. I then analyzed my findings and presented them to my superior at company X.

In chapter two, I will go over the context, research problems and research question of this thesis. In chapters three and four I introduce what RPA is and how RPA has been used at company x. The next chapters, five and six, focus on the research of this thesis. These chapters include the whole research process from selecting the research method to the results and action points. The last chapter consists of the conclusion and discussion. The final chapter also contains the summary of the whole thesis with the main results and new perspectives.

2 Context and the demarcation of this thesis

This thesis is written in a working life collaboration with company X and contains unrestricted data of business and processes. In order to keep company X anonymous there will not be any introduction about company X or the business environment company X is operating.

The aim of this thesis is to find a solution for company X to recognize work tasks from their Back Office -department that could be automated with the help of RPA. This is an exceptionally current issue, particularly with the newly built Back Office team that has the purpose of streamlining and harmonizing processes globally.

As RPA is already being used in the other departments to an extent, I demarcated the subject to comprise only the Back Office -department of logistics and operations. That is why this thesis does not contain any information that has been used within other departments.

2.1 Research problems and question

As the business has evolved over the years, the Company X is currently undergoing a major business transformation program to improve their competitive advantage. This includes replacing old outdated legacy IT systems. The transformation also contains an ERP implementation that aims to harmonize the business processes between the whole supply chain, information systems, finance and production.

At Company X the current tool landscape is fragmented which leads to manual tasks when retrieving and transferring data between the systems. There is a significant amount of time that is spent on routine and repetitive activities, which add no value. The ERP solution did not bring adequate automation to existing and growth related processes, and left the operative level to fill out numerous excel-sheets to incorporate and communicate information to different organizations since the data is not available through the systems and their reporting. In addition, the manual tasks are prone to errors and slow down the core processes of company X. At company X, the RPA knowledge and required resources are limited and there are only a few RPA developers now in the Logistics and Operations Back Office department globally.

Currently the department is getting into RPA and has set up an environment for their first automations. The problem is that there is a need to recognize and collect ideas to the pipeline, on the tasks that could be automated with the help of RPA.

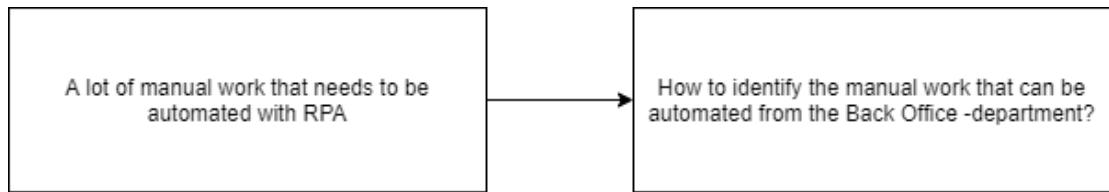


Figure 1: The thesis process as a template figure

3 What is RPA?

In this part, we will get to know the definition of RPA and I will shortly introduce different RPA software, focusing on the UiPath platform that is in use at Company X. I will also go through the subject of what to automate and how to recognize the opportunities.

Robotic process automation known as RPA is a software robot that is able to replicate manual processes and tasks. What makes RPA so efficient is that it can do human kind actions, for instance reading data, typing data and clicking icons in the desktop and browser environments. RPA is easy to use from widely used to automate processes of ERP software to custom legacy systems coded by .NET, Java, command-line or mainframe terminal. (Tripathi 2018, 9-12.)

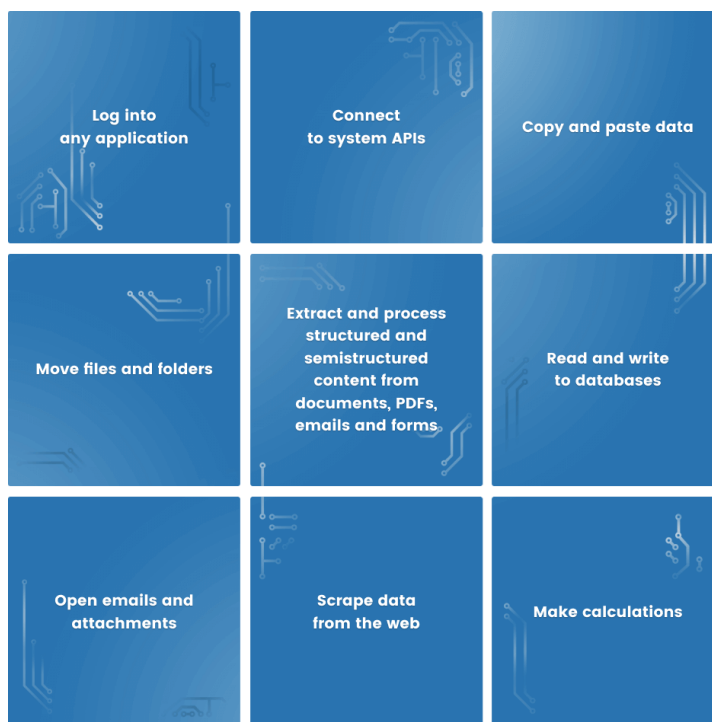


Figure 2: How does Robotic Process Automation work? (UiPath 2020)

If you talk about the benefits of RPA, most commonly people will point out the return of investment (ROI). The formula is calculated by adding up the net benefits with the costs and multiplying it with 100 ($ROI (\%) = (\text{Net Benefits} / \text{Costs}) \times 100$). An RPA robot is more inexpensive for a company than an offshore employee. It is due to this cut in costs and by using RPA that companies have been able to improve their processes all the while saving money. The savings due to RPA are also more than just monetary value. In many cases, RPA increases the quality of the process. Automating manual and repetitive boring work increases the time to focus more on the meaningful tasks, which can lead to a much better employee satisfaction. (Philips & Philips 2005, page 8; Taulli 2020, chapter 1.)

One of the limitations of RPA is that it requires maintenance attention continuously. Any change in the process or input data can make the bot crash. In addition, the design of the process has to be very clear, so that the RPA developer is able to perceive the whole process. Because RPA is designed to tackle routine and repetitive tasks, there cannot be any functions that require the cognitive decision-making of a human being. (Taulli 2020, chapter 1.)

3.1 What to automate and how to recognize it?

One of the objectives of this thesis is recognizing the work tasks of the back office that can be automated by using RPA. The most common features that need to be recognized are tasks that could be suitable for RPA are the tedious, rule based and repetitive work tasks that are high in volume. For example in the finance department of a big company, there are many manual work steps regarding handling the invoice processes. Tom Taulli (2020, chapter 4.)

The main things before starting the automation is to define and map out the actual processes that are in the scope of automation. This can be time consuming, because you have to dig deep into the process with all the details. After the process is mapped, it is good to go through the process in practice with the employees. We need to be sure how the process goes before we can start the automation. When the process is completely mapped out, it is useful to review and evaluate if some of the parts could be improved somehow. After this, we can start with the decision of making the automation. Even if we would not be able to automate the process, we have probably made some good findings on how to improve the process in other ways, so the evaluation would not be a complete waste of time. (Luukka 2016.)

3.2 RPA platforms

There are currently multiple RPA software service providers available. The global research and advisory company Gartner divides the RPA platforms into 4 categories. Challengers, leaders, niche players and visionaries. The most popular software now are UiPath, Blue Prism and Automation Anywhere and they all are currently located in the leaders section of the table (Miers, Kerremans, Ray, Tornbohm. 2019).



Figure 3: RPA Platforms

3.3 UiPath

Daniel Dines founded UiPath in 2005 and now 15 years later with 2900 employees in 25 offices, they have become a leading company in the RPA software industry. They want to build the best RPA software in the world and their goal is ambitious. Quoting Daniel Dines, the CEO of UiPath: “Bill Gates used to talk at Microsoft about a computer in every home. I want a robot for every person.”

There are two different editions for UiPath. The enterprise edition is designed for big companies that aim to increase the quantity of bots in the future. This edition enables a big scale up if needed. The community edition is a free of charge, always updated and fits more for the use of individual developers. (Tripathi 2018, 24.)

The three basic components for UiPath are UiPath Studio, UiPath Robot and the UiPath Orchestrator. The studio is the interface where the actual automation is done. Even though automation is mostly done by drag and drop -style activities there is also the option to use programming functions from the .net framework. Creating these kinds of drag and drop-style

in a flowchart type of diagram helps to perceive the whole process. There can be three types of UiPath Robots, unattended, attended or free. The difference between these is that the attended works in the same environment as the employee and the unattended runs in a virtual environment. The free -type of robot is used in the development environment for testing purposes. The idea of the Orchestrator is to supervise all the robots. The Orchestrator operates from a server that can be accessed by a web browser. (Tripathi 2018, 25-26.)

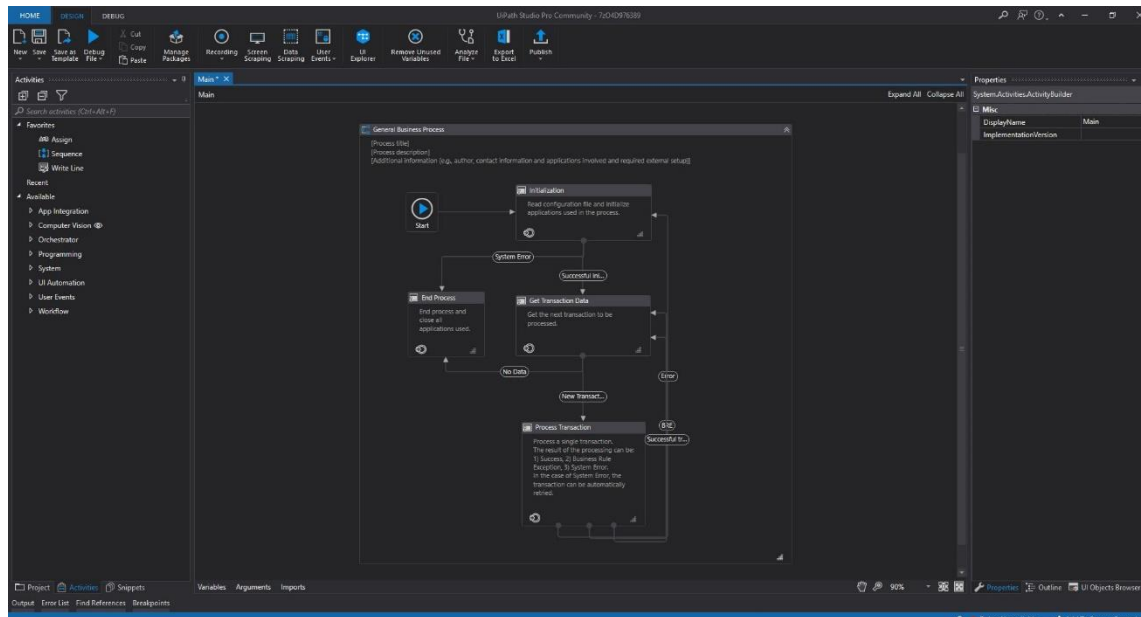


Figure 4: Screenshot of the UiPath Studio environment

4 RPA at Company X

The journey with RPA at Company X started in the year 2017. In the beginning, they had to choose a platform and they decided to go with UiPath. During the first half of 2018, they had pilot cases and managed to process the first automations to production. In March 2020 Company X had their 100 automation put into production and founded a RPA Developers channel to the Company X's intranet, so all RPA developers can share information and the best practices related to RPA. Company X is providing RPA - training continuously throughout the year, usually with a one to two day training session. (Company X 2020)

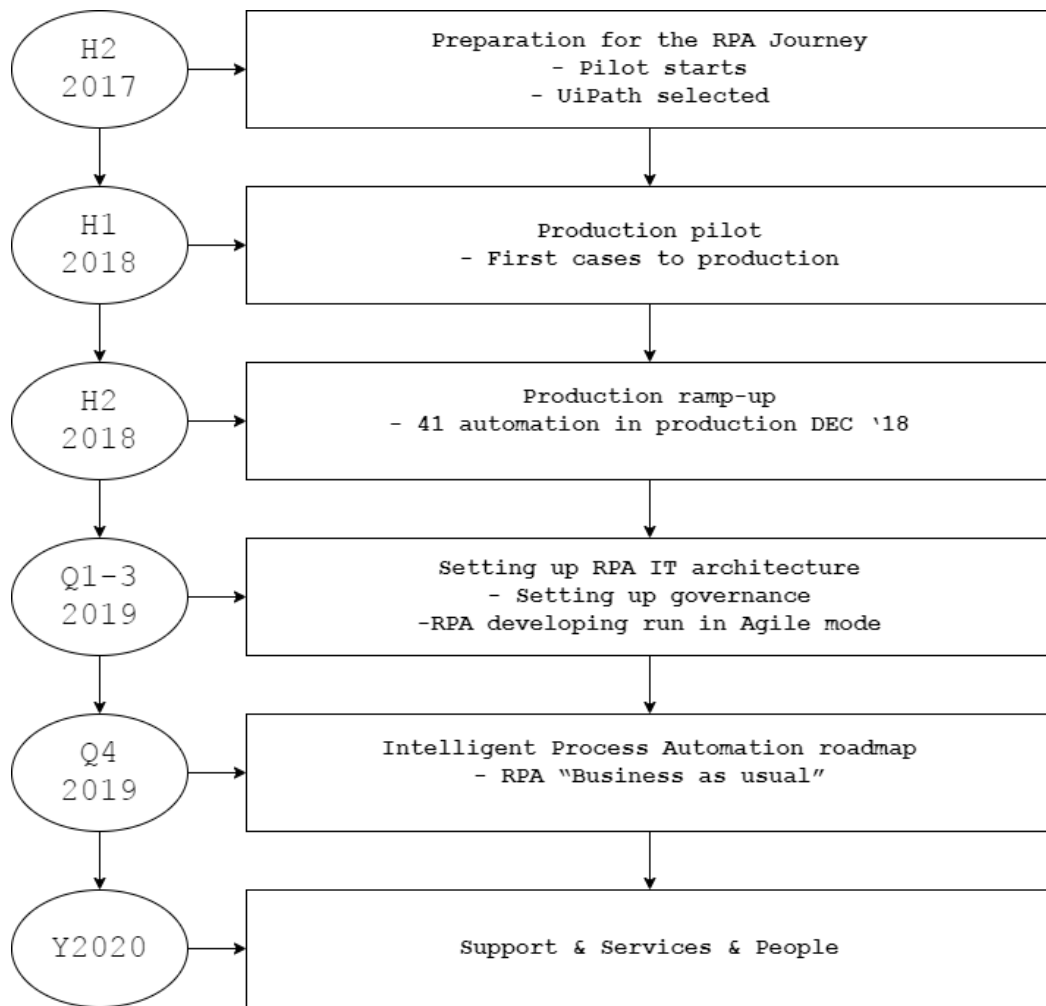


Figure 5: The RPA journey at Company X

In the logistics and operations back office department the journey with RPA started in June 2019, when the foundations for RPA were created. At this moment there are more than 20 opportunities identified. If successfully designed and implemented, it would mean that there are less errors in data, which means less corrections and time wasted. Processes can be leaner and so called waste work can be minimized. Correct and timely reporting can also give added value to the Suppliers and Customers. The automation opportunities can bring benefits in minimized manual workloads and need for high increase in personnel resourcing.

The next step is to get the right people to the right roles to scale up the process automation. These foundations and first automations were done with the help of a consulting firm. In large companies, it is usual to outsource this part of the process to a consulting firm. It is important to find the right consultant firm that has the ability to give your company a suitable team and at the same time is able to see the big picture of the industry and environment the company is working in. (Tauli 2020, chapter 4.)

4.1 RPA governance, training paths and roles in Company X

Company X has remodeled the RPA governance-operating model to match their own ways of working. This model consists of three parts, hubs and the center of excellence, raining paths and the RPA development delivery process. The purpose of the RPA COE (center of excellence) is to provide information and include it into the organization (Taulli 2020, chapter 6).

There are different roles in Company X for the COE. These roles are RPA Manager, RPA lead developer and IT contact. The RPA managers are responsible for supporting and developing the RPA - processes at Company X. They also arrange RPA trainings and coaching to make sure that all the best practices are in the documentations. The managers also act as a SCRUM master in the Agile robot development delivery process. (Company X 2020.)

The role of a RPA business hub consists of product owners, RPA business analysts, RPA lead developers and RPA developers. The role of the RPA business analyst is to actively identify potential candidates for automation, filling the SIPOC and PDD forms and participate in the UAT (User acceptance testing). The business analyst training at Company X is a one-day onsite course. (Company X 2020.)

All of the RPA lead developers and RPA developers have to complete the RPA business analyst training in order to continue their path to the two-day onsite RPA developer training. In addition to the business analyst training, before you can take part in the RPA developer training the company X requires a completion of an approximate of 40-hour RPA Developer Foundation eLearning plan in the UiPath Academy. The role of a RPA developer is to develop the robot. They take items from the backlog to development, maintain, and make enhancements to the existing items. RPA developers are also required to attend all relevant Scrum meetings, Sprints and operate with the Company X development practices. The way the role of an RPA lead developer differs from the role of an RPA lead developer role is that the RPA lead developers need to take part in the COE meetings. RPA lead developers are also required to assist and train RPA developers. (Company X 2020.)

4.2 Development and delivery process

The RPA development delivery process in Company X has four main parts. The parts are identification, evaluation, automation and monitoring. The process starts with identification. The business analyst identifies candidates for automation and fills in the SIPOC - form. Then the process continues to evaluation. If everything goes as planned, the SIPOC goes through the Agile Scrum process and is sent back to a detailed identification. After the identification, it is time to prepare the process description document (PDD). When the lead developer approves the PDD, the case is ready for automation.

The developer/lead developer selects the PDD approved items from the backlog and starts the automation to be done in the sprint. This part includes building the automation and creating a solution design document (SDD). When the developer is done with the previous part the business will perform a user acceptance testing (UAT) in the test environment. After the test is passed the automation, items will be scheduled to go to the production environment. The final step is the monitoring part. In this part, the automations are running and the lead developers monitor the automations daily. After the automation is live, the business analyst can suggest further development ideas. These ideas have to take the same process through the development as the original idea.

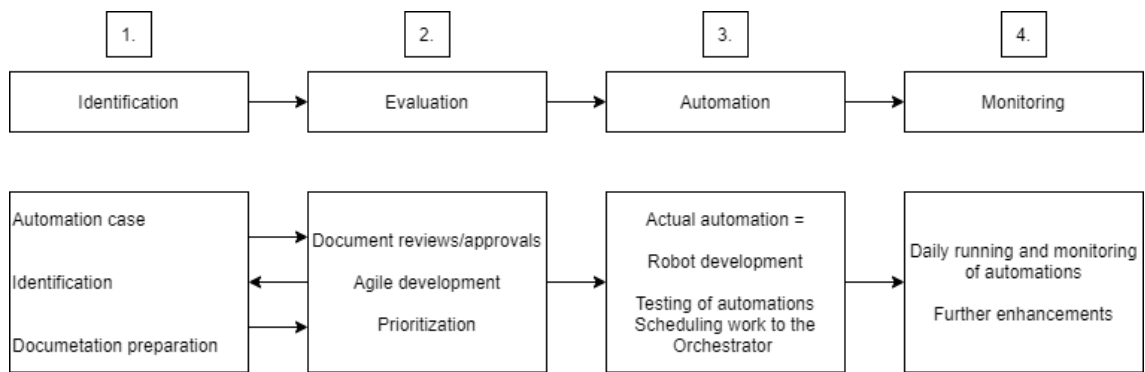


Figure 6: The RPA development delivery process pictured

At company x the documentation of a RPA automation project consists from the following mandatory documents SIPOC, PDD (process design document) and SDD (solution design document). SIPOC comes from the words supplier, input, processes, output and customers. The SIPOC is filled by the business analyst and is used to answer the questions of who, what, where, when, why and how. The SIPOC is done before the project and it provides the information of mapping the process and the scope of the project. (Badiru & Osisanya 2013, 196)

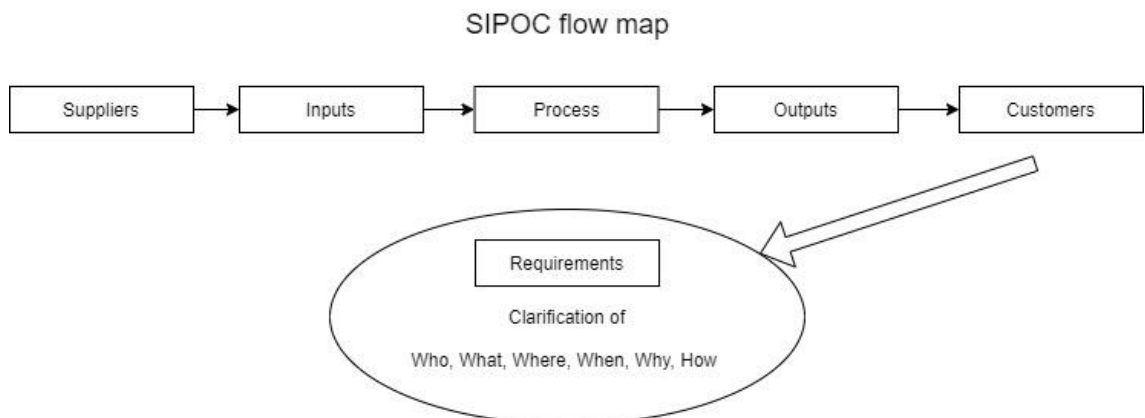


Figure 7: Sipoc flow map

PDD (Process design document) is a document where every step of the work process is documented. It should contain all the relevant information, so that the RPA developer is able to develop the automation. SDD is the final document and it should contain the following information of the automation. List of all applications used, list of inputs and outputs, snapshots, version history, overview of the process and mention of known errors. If there is, some code written in the automation it should be explained in the SDD -document. (Company x 2020)

5 A qualitative research

In this part, I will introduce the research method and the method that I used to solve the research problem.

A qualitative research is usually done by different kind of interviews. The purpose of qualitative research is to find out how people think and feel about the subject. One of the main challenges is to encourage people to talk openly without pressure. People can also mean different things with different words, so it is important to get the intent behind the words. (Juuti & Puusa 2020, chapter introduction)

Because the idea of this research is to find a procedure or a process, therefore this research has been done by an approach of using a qualitative research method (Juuti & Puusa 2020, chapter 4). Instead of a regular interview, I used the brainstorming session to compile data for this research.

I have described the phases of this research in Figure 6. It started with a 45 -minute workshop session, where we brainstormed the problem with the employees of the back office. In the second part, I analyzed the findings and did a reflection with the current situation at company X. In the last phase, I created a couple of development ideas that I portrayed in the results. This whole process defines the theoretical framework of this thesis.

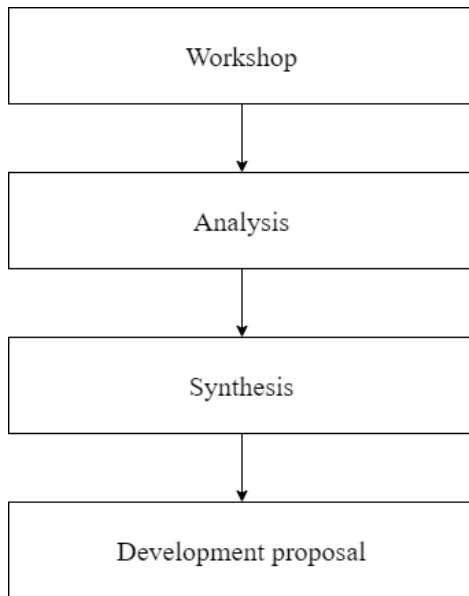


Figure 8: Phases of the research process

5.1 Creative problem solving

After defining a problem, the problem obviously needs to be solved. In order to solve a problem with efficient techniques rules are required. There are five main rules to solve a problem creatively. The first rule is to create as many new ideas as possible. This rule is based on the idea that it is more likely to find good ideas from a large number of initial ideas. The second main rule is to withhold all kind of criticism. This creates more efficient and independent ideas. The third rule is to generate strength to have a good feeling. This will increase the creativity. The fourth rule is to build on other people's ideas. Developing and mixing these ideas may create new ideas. The final rule is that all kinds of ideas are welcome, even the craziest ones. (Harisalo 2011, 75-78)

Creative idea creating techniques are great if you want to produce a lot of ideas in a short amount of time. These useful and creative problem-solving techniques have become a common day-to-day activity in the organizational working environment. By using ideas as a problem solving method, we are able to create quickly efficient solutions to solve problems. (Harisalo 2011, 78-79)

5.2 Brainstorming the problem

The method that I chose for solving the problem of this thesis is classical brainstorming. Alex Osborn invented the classical brainstorming in 1941. The storm in the word brainstorm literally reflects to the action which is storming the problem. With brainstorming, you are able to achieve all the ideas, including some good and bad ideas. This might come up

convenient because some of the ideas that are bad now may be useful in the future. (Harisalo 2011, 79)

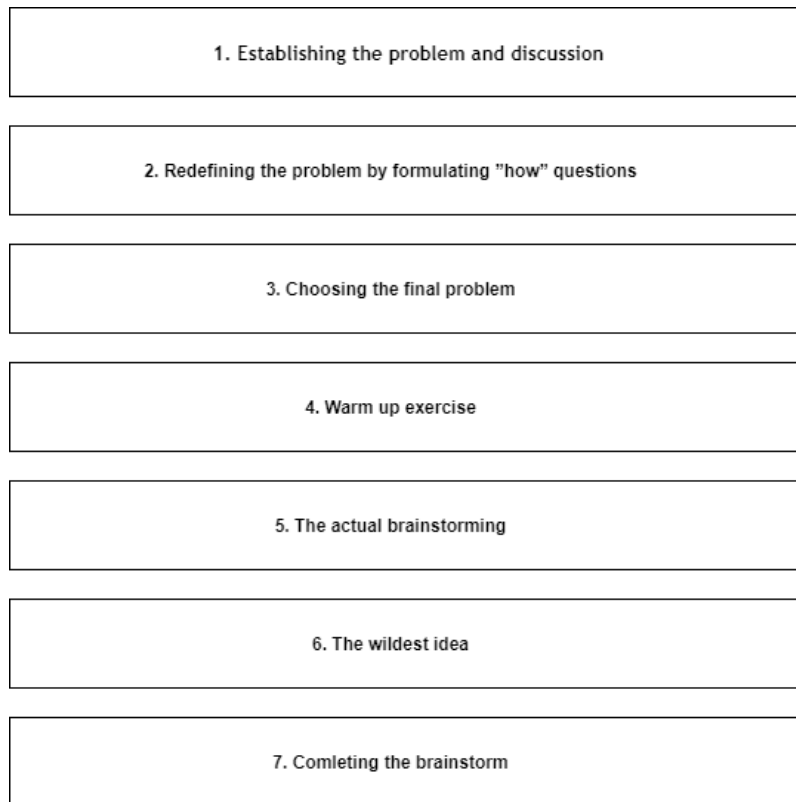


Figure 9: Seven steps of classical brainstorming

Due the Covid-19 pandemic, company x has instructed all employees to work agile from home if the work allows it. I had to facilitate the brainstorming session as an online workshop. Company X is using the G Suite platform and with the help of these tools, this session was easy to arrange. I created an event in the google calendar and invited co-workers in our Back Office Invoice handling -Chat to join. I was happy that all team members joined the session, which was held on 8.5.2020. There was simultaneous use of the Google Meets app for the conversation and the Google Jamboard app that was used to collect the sticky notes. Even though the official working language at company X is English, but because all of the participants spoke Finnish, I did not define the language, so the session was held by using both languages.

In the beginning, I had a short introduction of RPA and explained the benefits of successful automation of processes. I also presented the problem to the team. I noticed early on that the team actually has very little knowledge of RPA and understanding of the opportunities that it can provide. It became clear that company x has not communicated about RPA to the wider masses in an easy to understand manner, but have remained more on a higher level.

This resulted in employees not to understand what RPA could mean in their daily work. I proceeded to the second part to refine the problem by using “how” questions.

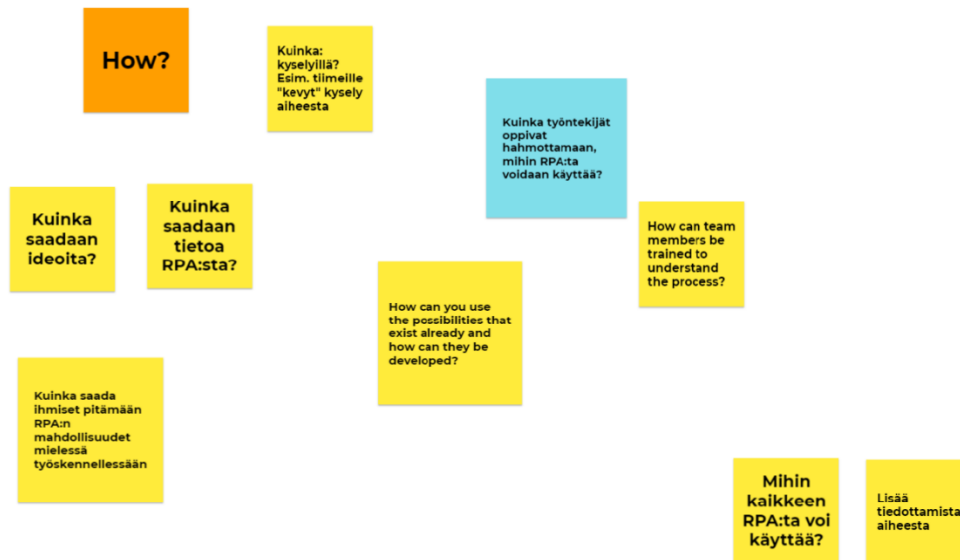


Figure 10: “How” questions formulated at the workshop

After this part, we chose the final problem. It became clear that the main problem was in fact the lack of RPA knowledge, so I defined this to be the problem in the actual brainstorming. Before the actual brainstorming, I used the warm up exercise. The purpose of this exercise is to raise the level of enthusiasm (Harisalo 2011, 85). The actual brainstorming lasted about 10 minutes. I did not receive any ideas that I could categorize to be a so-called wild idea. Since there were only a few, I decided that we could vote for the best idea. I numbered the ideas and then the participants voted for their favorite idea in the Meet -chat.

6 Research results

In this chapter, I will go through the research and the results. I will describe what was accomplished in the workshop and include some raw material to visualize the results. To be able to perceive and analyze the answers, you need to collect and recognize the ones that have a similar meaning (Puusa 2020, chapter 9). I created a code structure to analyze the answers and discussion that arose in the workshop session.

After the brainstorming session, I found there to be another issue in addition to the research problem. It actually has a great impact on how we are able to view our research problem since we were not able to get the needed ideas from the participants due to their lack of knowledge on the subject of RPA. This presents us with a new issue that in my opinion needs

to be addressed before we can get back on track with our plan to get ideas on automatization. The most repetitive topic was that the back office employees did not know what RPA is or its uses in practice. There was some discussion about whom the employee should contact in case of an idea, so we need to provide a quick and easy way for the employee to come forth and give their ideas.

In the current RPA process at company X the way of working is that an employee in the logistics and operations back office department identifies a work tasks that could be automated with RPA. The problem with this loops back to the fact that the majority of employees did not even know about RPA, so they did not actually know how to recognize these work tasks. The employees need more information about RPA and a channel for the ideas.



Figure 11: The new issue that came up during the session

7 Conclusion and Discussion

The research problem in this thesis was that the department has a lot of manual work that needs to be automated with the help of RPA and the research question in this thesis was how to identify the manual work that needs to be automated with RPA. In comparing the research problem and findings of the brainstorming results, I realized that our department needs to have more knowledge about RPA before we can start searching candidates for automation. This research also gave light to the fact that there is a possible issue in communication between the departments at company x and I find this to be the synthesis of my thesis.

Currently there is great pressure to take new digital tools into use, and that makes it challenging when the relevant internal stakeholders work in silos.

The result of this thesis was surprising since the aim was to find a solution and instead we found an additional problem. We went through the research results in this thesis with the back office manager of company x. The feedback was positive and we can use these findings in the future when scaling up the RPA in our back office. One of the action points is to arrange an info session for back office employees. There is also a business analyst training arranged in the fall after the summer holiday season. Training more business analysts could increase finding work tasks to be automated. The trained business analysts could recognize processes by listening and observing challenges that the employees have. The back office at company x has an idea room created with the Google Jamboard- tool for ideas and that could be a good pipeline to collect ideas.

One way to find new candidates for automation is to use a discovery tool called UiPath Task Mining. This task-mining tool has many features e.g. discovering processes by analyzing each mouse click to optimize the work process and automatically creating process maps of work tasks that could be automated. (Task Mining 2020.)

7.1 Reliability

In reviewing the reliability of this research, I tried to describe the research process as detailed as possible. Being detailed with the findings makes the research more reliable. Also using multiple sources to compare the information of the subject, is a part that leads the research to be more reliable. (Aaltio & Puusa 2020, chapter 11)

The main sources for working and introducing RPA were the two books, Learning Robotic Process Automation written by Alok Tripathi and The Robotic Process Automation Handbook written by Tom Tauli. These books are both informative and include a good mix of information and hands on practicalities about RPA. I have used Gartner's reports as a major source of the RPA statistics and current themes in this thesis. Gartner is a research and advisory company that provides information, trusted insights and tools for nearly 17000 business leaders in over 100 countries in the world. They have a team of 2250 research experts that use the correct research methods to deliver unbiased insights. (Gartner 2020.)

Using creative problem solving techniques can be utilized in the administrative processes, especially if you want some specific solutions when you are facing a solid problem that needs to be solved (Harisalo 2011, 10.) The book, Creative technology written by Risto Harisalo provided good and practical tools on which I chose brainstorming to solve the research problem of this thesis. It is important to have a critical approach on reviewing the reliability of this thesis. There were both pros and cons regarding the reliability. As a positive factor,

the brainstorming session was planned and executed with a detailed approach. A negative factor was that the brainstorming session was the only research method in this thesis. In the end, I was pleased with the research and Company X was also pleased with it.

References

Printed

Philips P. P. Philips J.J. Return on Investment (ROI) Basics. American Society for Training & Development.

Tripathi, A. 2018. Learning Robotic Process Automation. Birmingham: Packt Publishing.

Badiru, A.B. & Osisanya, S.O. 2013. Project Management for the Oil and Gas Industry. Florida: CRC Press.

(Badiru & Osisanya 2013, 172/192/195/196)

Taulli, T. 2020. The Robotic Process Automation Handbook. California: Apress.

Harisalo, R. 2011. Luovuuden teknologia. Tampere: Tampereen Yliopistopaino Oy.

Tuomi, J. 2018. Laadullinen tutkimus ja sisällön analyysi. Helsinki: Tammi.

Juuti, P & Puusa, A. 2020. Laadullisen tutkimuksen näkökulmat ja menetelmät. Gaudeamus.

Electronic

About Us. 2020. Gartner Inc. Referred 25.04.2020

<https://www.gartner.com/en/about>

Miers, D., Kerremans, M., Ray, S., Tornbohm, C. 2019. Magic Quadrant for Robotic Process Automation Software. Referred 10.4.2020.

https://www.gartner.com/doc/reprints?id=1-1C6RAVTI&ct=190709&st=sb&mkt_tok=eyJpIjoiTUdWaU5UJzZBPVE0yTnprdyIsInQiOiJzeGJtQXgyRFY5elpCeIE0UldXNGIPT3pjSG9jQnZUREhSSk81d2VcL2g3dzBvd1VINmppcWIEbm1qRlpSQWcrRlVkm0d2UWZXTnIDYVhPVX-piYXRyYlU2bTl3MEMzNEJldkc0MjFJM2R1S3Vobk04S2pLTzVmOEt3YUV6WHBHbGUifQ%3D%3D

(Miers, Kerremans, Ray & Tornbohm. 2019.)

(Miers etc. 2019)

Stoudt-Hansen, S., Karamouzis, F., Villa, A., Ray, S., Dunie, R., Sturgill, N., Shotton, L., Miers, D., Biscotti, F. 2019. Predicts 2020: RPA Renaissance Driven by Morphing Offerings and Zeal for Operational Excellence. Referred 13.4.2020.

https://www.gartner.com/doc/reprints?id=1-1Y5AZSMA&ct=200116&st=sb&mkt_tok=eyJpIjoiWVdRd09XUmxNVEEYTWpFdyIsInQiOiI3YnpUT0laVVNwaURabVNB1FkMmNITU1TG85YVNqZ2NrSWRjam1oWjhkZHZDMzBcL2YrMzdVcElhMFwvMUeYyMs2QnlcL2k1RTRJRnlZ2JBZ3I5SHpvMXllcTnpdkNnTnJpOHZBdmdcL2k3cEtUMnQ3UklFckNkbzA3SDc3RUvUrlwvIn0%3D

(Stoudt-Hansen, Karamouzis, Villa, Ray, Dunie, Sturgill, Shotton, Miers & Biscotti 2019)

(Stoudt-Hansen etc. 2019)

Luukka, E. 2016. Lyhyt opas RPA:n maailmaan: Automatisoitavien prosessien tunnistaminen työ-paikalla. Referred 13.04.2020. <https://digitalworkforce.com/fi/rpa-blogi/lyhyt-opas-rpan-maailmaan-automatisoitavien-prosessien-tunnistaminen-tyopaikalla>

(Luukka 2016)

Our Story. 2020. UiPath. Referred 16.05.2020.

<https://www.uipath.com/company/about-us>

Task Mining. 2020. UiPath Referred 15.06.2020.

<https://www.uipath.com/hubfs/Valentin/images/download/UiPath-Task-Mining-OnePager.pdf>

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