



Improving accounts payable processes

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<p>Abstract:</p> <p>The purpose of this study is to prepare for robotic process automation in Hartela's accounts payable. The aim is to create valuable information for the employer. The goal is to understand and find out the first steps in robotic process automation preparation and apply it in the company's service center. The research question for the thesis is: How to prepare for robotic process automation in an accounts payable team to improve procedures? A qualitative research method was applied to describe, understand, and explain how to improve business processes. Qualitative (group) interviewing with semi-structured questions were conducted from theory to identify development targets and analyze the process. Interviews were carried out with Hartela's accounts payable team members and service center manager. Hartela's business is still on its way to a consistent approach and better results. Processes work well but there is still room for development and to the state where Hartela would like to be. Manual work should be eliminated. There must be functioning universal program. Transparency in the system is required. Existing systems must be utilized before thinking robotic process automation. It was important to identify and realize the processes in current company and draw the precise picture of every phase. Evaluation of current situation was needed. Hartela want to improve the processing of invoices by automation. Hartela wants real-time reporting and flexibility to be able to utilize existing information more effectively. Palette has automated many steps, but there is still room for a development and full potential is not completely utilized. There are many suitable tasks for a robot in accounts payable process. The whole robotic process automation project has to be considered very carefully involving a group of specialists. Well planned and implemented robotic process automation will deliver significant productivity increase in different activities around the company.</p>	
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List of Abbreviations

AP	Accounts payable
API	Application programming interface
BPM	Business process management
CIO	Chief information officer
CRM	Customer relationship management
ERP	Enterprise resource planning
FTE	Full-time equivalent
HR	Human resources
HTML	Hyper Text Markup Language
IA	Intelligent automation
ICT	Information and communications technology
IT	Information technology
POC	Proof of Concept
RDP	Remote Desktop Protocol
ROI	Return on Investment
RPA	Robotic process automation
SaaS	Software as a service
TCM	Tocoman Oy TCM-software
VAT	Value Added Tax

1 INTRODUCTION

Digital technologies change a business model and provide new revenue opportunities. Employing digital technologies and information to transform operations is the process of digital business. It creates new business designs by blurring the digital and physical worlds. Digitalization increases process efficiency and improves data transparency.

Robots, drones, and all the other digital machines that move in the physical world are best suited for work that is dull, dirty, dangerous, and dear or expensive. The more of these attributes a given task has, the more likely it is to be turned over to digital machines. This pattern is seen over and over at present time. Many business processes that today involve people are virtualizing. Virtualization is a long-term trend that will generally increase over time as machines gain more capabilities. Automations of all kinds are becoming more cheaper, more widely available, more capable, and more diverse all at the same time. (Brynjolfsson & MacAfee 2017 p. 99, 107, 108, 125)

Automation, cognitive computing, and crowds are paradigm-shifting forces that will reshape the workforce now and in the near future. Organizations are redesigning jobs to take advantage of cognitive systems and robots. Organizations should experiment and implement cognitive tools, focus heavily on retraining people to use the tools, and rethink the role of people as more and more work becomes automated. (Deloitte 2017 p. 119)

Jobs and tasks that follow structured rules and logic are making steady progress in robots and cognitive technologies. This requires reframing careers and designing new way of working and new way of learning – both in organizations and as individuals. Research by Deloitte finds that the future workforce will require a balance of technical skills and more general-purpose skills such as problem-solving skills, creativity, social skills, and emotional intelligence. (Deloitte 2017 p.124-125)

Companies need to reimagine the form and function of their human workers in tandem with mowing toward greater use of robotics and automation. For many companies, continuous improvement by automation in administrative tasks and shared-service processes

are atop of the strategic agenda. More companies have been investigating the possibility of robotic process automation (RPA). Companies are convinced robotics will deliver a significant productivity increase in different activities. (Deloitte 2018 p. 3)

Different kinds of processes are designed to streamline the way that team work. When everyone follows a well-tested set of steps, there are fewer errors and delays, less duplicated effort, staff and customers feel more satisfied. Also, resources are not wasted, and costs are saved. When process work well, they can significantly improve efficiency, productivity, and customer satisfaction. It is important to improve processes when they are not working well.

1.1 Aim

The purpose of this study is to prepare for robotic process automation in Hartela's accounts payable. The aim is to create valuable information for the employer. The goal is to understand and find out the first steps in robotic process automation preparation and apply it in the company's service center. It is important to identify and realize the processes in the current company and draw the precise picture of every phase before implementing robotic process automation. Before going further, it is essential to take advantage of existing software systems. Evaluation of the current situation is needed. Certain models are applied from the theory to lead this evaluation procedure.

1.2 Research Question

The research question provides an explicit statement of what it is the researcher wants to know about. Research questions are crucial because they will guide literature search, decisions about the kind of research design to employ, decisions about what data to collect and from whom, analysis of data, writing-up of data, avoid unnecessary diversions, and provide readers with a clear sense of what the research is about. (Bell & Bryman p. 10)

The research question for the thesis is:

How to prepare for robotic process automation in an accounts payable team to improve procedures?

1.3 Limitation

This thesis is concerning Hartela company. The concentration of the study is on planning and preparing for robotic process automation in an accounts payable team to improve business procedures. The theme is specific and related to author's workplace.

2 THEORETICAL FRAMEWORK

Digitalization is the use of digital technologies to transform a business model and offer new ways to generate profit. It is the method of changing business operations by using digital technologies and data. This is the process of moving to a digital business. Digital business is the creation of new business designs by blurring the digital and physical worlds. Automation is a major part of the digitalization. Digitalization increases process efficiency and improves data transparency. (Bloomberg 2018)

A business process is a set of steps or tasks that teams use repeatedly to create a product or service, reach a specific goal, or provide value to a customer or supplier. When processes work well, they can significantly improve efficiency, productivity, and customer satisfaction. It is important to improve processes when they are not working well. Dysfunctional processes can create unhappy customers, stressed colleagues, missed deadlines, and increased costs. A streamlined process means fewer errors and delays. Processes can be formal or informal. Formal processes (procedures) are documented and have well-established steps. Formal processes are particularly important when there are safety-related, legal or financial reasons for following steps. Informal processes are not written down and persons have their own created instructions and steps. (MindTools 2019)

Automation and digital data assist to meet external and internal requirements. The more routines are automated, the better they scale. Digital, standardized and centralized processes are faster transformed and developed. Automated processes have better quality and time is not spent on possible manual errors prevention. Intelligent financial management demands visionary leadership and development expertise. New technologies are useless

unless the foundation is in order, for example, automating a bad or unnecessary process will not add value. (Kaarlejärvi & Salminen 2018 p. 13)

2.1 Presentation of the Company

It was decided to study the digitalization phenomenon and cooperate with Hartela to create valuable information for the company. The manager of Hartela's service center suggested to research the topic of Robotic Process Automation (RPA) which has been current theme of Hartela's meeting and upcoming project. This project involves a lot of time and contribution.

Hartela is a construction company founded in 1942 in Turku by Emil Hartela and Vilho Heinonen. It is a family company. Over the years, the company has expanded its operations. Hartela Group includes the parent company Hartela-yhtiöt Oy and associated companies Hartela Länsi-Suomi Oy, Hartela Etelä-Suomi Oy, and Hartela Pohjois-Suomi Oy (Figure 1). The Group's main business areas are in Southern Finland, Päijät-Häme, Southwest Finland, Satakunta, Pirkanmaa and Oulu. Hartela has offices in Helsinki, Lahti, Turku, Tampere, Rauma and Oulu. (Vilhonon 2016 p.10) Customer proximity, professional pride and initiative are values of Hartela Group. Their goal is to be the most desirable partner in their industry.

Hartela Group builds business, manufacturing and residential buildings. Construction sites range from new buildings to renovation projects and to combinations thereof. The sizes range from small store and pipe renovation projects to large shopping centers and office buildings. (Vilhonon 2016 p.10)

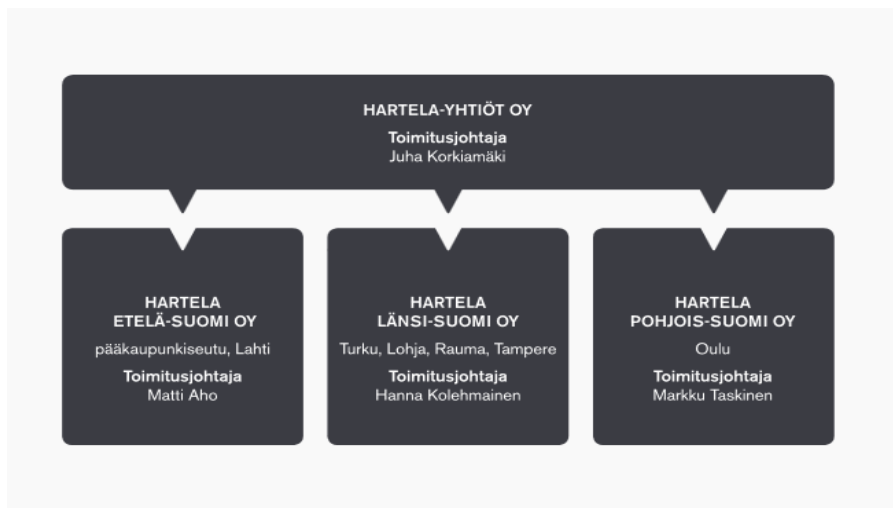


Figure 1 Hartela organization (Hartela)

The researcher began working in Hartela-yhtiöt Oy accounts payable team in February 2014 when the company established a service center in Helsinki. The service center provides basic financial and payroll management for internal customers. The service center was established with the aim of standardized practices and improved financial management. It has required different degrees of change in procedures. The benefits of unified practices and stronger operating models brought by the service center include:

- simpler, smoother and more efficient processes
- reliable and comparable financial information
- faster response
- improved transparency and comprehensibility of costs

In the service center, there are four teams; payment transactions, accounting, accounts payable, and accounts receivable. Payroll is also part of the financial service center, but it situates in Turku. Accounts payable team is mostly handling purchase invoices. It is responsible of receiving invoices, circulation controlling, paying, clearing and correcting. Tasks are very routine and processes well established and structured, demonstrated in Figure 2. There are also very good documented instructions for every process. The business is responsible for procurements, issuing invoicing instructions to suppliers, receiving goods and services, and checking and approving purchase invoices. The business is also responsible for requesting credit invoices from suppliers.

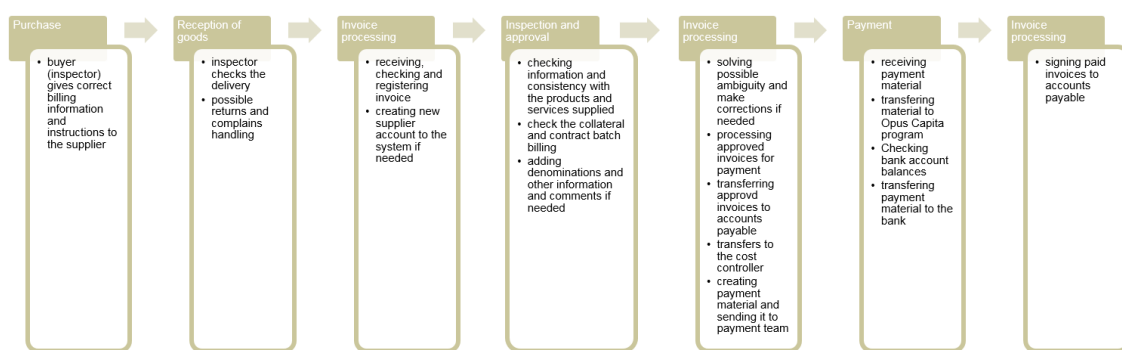


Figure 2 Main steps of purchase invoices processing (Hartela 2014)

In April 2016, the researcher became responsible of accounts payable processes after this position became available. This person in this role is the primary contact for internal customers and responsible for accounts payable services' quality, which will be reported to a manager. One important task is to develop accounts payable processes more efficiently and maintain the principles of purchase invoices.

The amount of purchase invoices has increased almost every year and currently there are less personnel employed. Accounts payable team processes over 60000 purchase invoices every year. The company's total amount of purchase invoices has increased 10% from 2017 to 2018 – an increase of almost 7000 purchase invoices. The amount of purchase invoices during 2012 to 2018 is demonstrated in Table 1 and Figure 3. The amount of work for a single individual is quite extensive.

Table 1 Amount of purchase invoices in Hartela during 2012-2018

	Hartela Länsi-Suomi Oy		Hartela Etelä-Suomi Oy		Hartela Pohjois-Suomi Oy		Companies total	
	Pcs	Million €	Pcs	Million €	Pcs	Million €	Pcs	Million €
2012	32767	112	26980	151	7868	18	67615	281
2013	26224	73	26584	117	7778	17	60586	207
2014	22069	74	25064	117	5585	12	52718	203
2015	30553	111	28469	144	7529	19	66551	274
2016	27253	96	28632	130	5694	13	61579	239
2017	31911	126	23044	121	5708	18	60663	265
2018	32767	122	24385	134	9754	36	66906	292
Total	203544	714	183158	914	49916	133	436618	1761

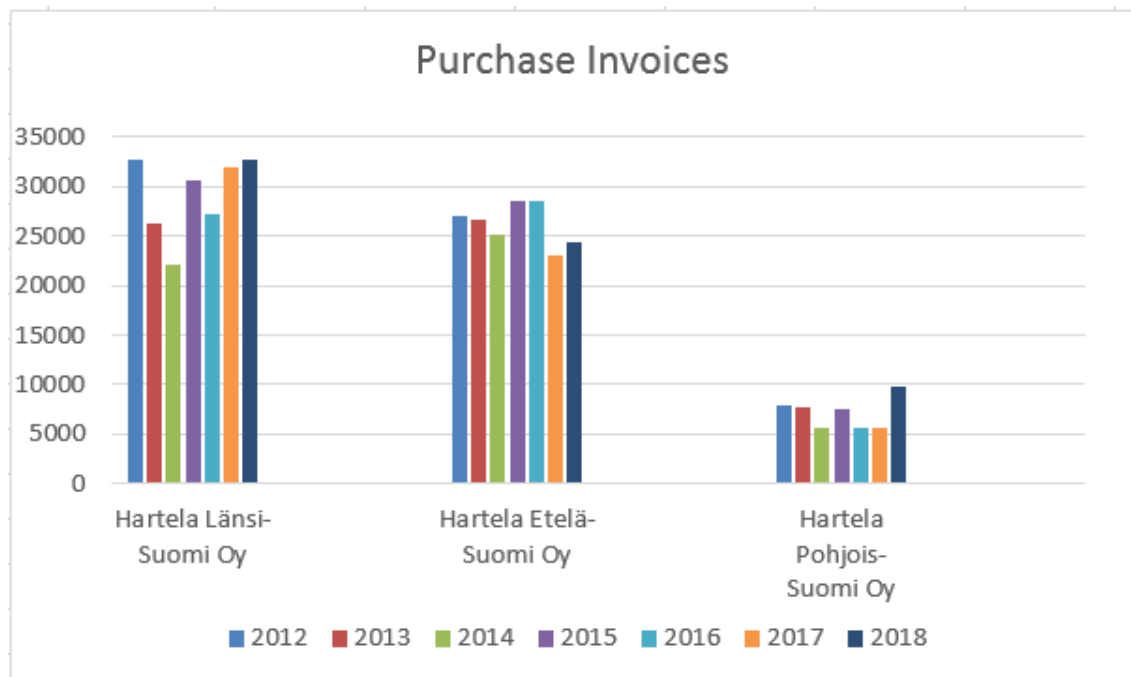


Figure 3 Amount of purchase invoices in Hartela during 2012-2018

The challenge for the Hartela is the high volume of invoices, which requires a significant amount of time for processing. Hartela want to improve the processing of invoices by automation. The personnel can then concentrate more on teamwork and better customer service. There is also a desire to improve reporting and transparency. Hartela also desires real-time reporting and the flexibility to be able to utilize existing information more effectively.

2.2 Six Steps to Improve Team's Process

Different kinds of processes are designed to streamline the way teams work. When everyone follows a well-tested set of steps, there are fewer errors and delays, there is less duplicated effort, and staff and customers feel more satisfied. Also, resources are not wasted, and costs are saved. When a team encounter some of the problems mentioned above, it may be time to review and update the relevant process. MindTools Club has prepared and presented the following six steps. (MindTools 2019)

Step 1: Map the Process

Once it is decided which process to improve, document each step using a Flowchart. This tool shows the steps in the process visually. Flowcharts make a process easy to understand at a glance using a few words and some simple symbols. They clearly show what happens at each stage and how this affects other decisions and actions. It is important to explore each phase in detail, as some process may contain sub-steps that others are not aware of. Consulting people who use the process regularly is important to ensure that anything significant is not overlooked. (MindTools 219)

All manner of organizations use flowcharts to define, standardize, communicate, and improve a process. Also, organizations use flowcharts to identify bottlenecks or waste in a process and solve problems. Bottlenecks are setbacks or obstacles that slow down or delay a process. Bottlenecks can restrict the flow of information, materials, products, and employee hours. They can occur in any process where networks of people and tasks rely upon one another to keep the work flowing. For example, software developers can use them to work out how the automated and manual parts of a process join up. Inexperienced team members might follow a flowchart to help them to complete activities in the right order. (MindTools 2019)

Step 2: Analyze the Process

Use flowchart to investigate the problem within the process. Consider the following questions:

Where do team members get frustrated?

Which of these steps create a bottleneck?

Where do costs go up and/or quality down?

Which of these steps requires the most time, or cause the most delays? (MindTools 2019)

It is possible to use Root Cause Analysis, Cause and Effect Analysis, or The 5 Whys to trace the problem to its origins. The problem will continue if only the symptoms are fixed. Speaking to the people who are affected by the process is important. Ask, what do they think is wrong with it and what are their suggestions to improve it. (MindTools 2019)

Step 3: Redesigning the Process

In this phase, a process will be redesigned to eliminate problems that have been identified. It is best to work with the people who are directly involved in the process. Their ideas may reveal new approaches, and they are more likely to buy into change if they have been involved at an early stage. Everyone must understand what the process is meant to do. Explore how identified problems in step 2 can be addressed. Note everyone's ideas for a change, regardless of the costs involved. Narrow list of possible solutions by considering how team's ideas would translate to a real-life context. It is good to conduct an Impact Analysis to understand the full effects of the team's ideas. Then, carry out a Risk Analysis and a Failure Mode and Effects Analysis to spot possible risks and points of failure within your redesigned process. These tests will help to understand the full consequences of each proposed idea and allow to make the right decision for everyone. Once a team agrees on a process, create new diagrams to document each step. (MindTools 2019)

Step 4: Acquire Resources

To implement a new process, there is a necessity to secure the resources needed. Everything must be listed that is required to do this. This could include guidance from senior managers or from colleagues in other departments, such as IT or HR. Communicate with each of these groups and make sure that they understand how this new process will benefit the organization as a whole. It may be needed to prepare a business case. (MindTools 2019)

The business case is a key element in the initial stage of a project. It details how the project will proceed, and it is the key document that decision makers need to decide whether to approve and fund the project. It sets the baseline for the project's scope, costs, and timelines. It is a key document for determining whether the project is judged as a success or a failure. The business case provides an opportunity to engage with key stakeholders and build support for the project. (MindTools 2019)

Step 5: Implement and Communicate Change

Improving business process will involve changing existing systems, teams, or processes. For example, there may be a need to acquire new software, hire a new team member, or organize training for colleagues. Rolling out a new process could be a project in itself; it

must be planned and managed carefully. Allocate time for dealing with upcoming troubles and consider running a pilot first to check for potential problems. Change is not always easy. People can be resistant to it, especially when it involves a process that they have been using for years. It is possible to use tools such as the Change Curve and Kotler’s 8-Step Change Model to overcome resistance to change. (MindTools 2019)

Step 6: Review the Process

Few things work perfectly right from the start. After a new process is rolled out, closely monitor how things are going to ensure that the process is performing to expectations. This monitoring will also allow to fix problems as they occur. Make it a priority to ask the people involved with the new process how it is working and if they are experiencing frustration. Adopt continuous improvement strategies such as Kaizen. Small improvements made regularly will ensure that the process stays relevant and efficient. (MindTools 2019)

2.3 Robotic Process Automation

Robotic Process Automation (RPA), often referred to as ‘robotics’ or ‘robots’, is described as computer-based process automation which uses the interface that can run on any device, including web-based applications, ERP and mainframe systems. Deloitte has collected facts in Table 2 to quickly present what RPA is and is not. It also summarizes what RPA can do. (Deloitte 2018)

Table 2 Robotic Process Automation (Deloitte 2018)

RPA is...	RPA is not
Computer-coded software	Walking, talking auto-bots
Programs that replace humans performing repetitive rules-based tasks	Physically existing machines processing paper
Cross-functional and cross-application macros	Artificial intelligence or voice recognition and reply software
What it can do...	
Opening e-mail and attachments	
Scraping data from the web	
Logging into web/enterprise applications	
Connecting to system API	
Moving files and folders	
Making calculations	
Copying and pasting	
Extracting structured data from documents	
Filling in forms	
Collecting social media statistics	
Reading and writing to databases	
Following 'if/then' decisions/rules	

The software bot uses different information systems as a human would. It helps to automate various processes of knowledge work. For example, a software bot may enter data into an ERP system, retrieve information from a system, generate reports, or combine data between different structures, as a person would. The software bot does not require a separate programming interface (API) from the information system, but uses the systems through the normal interface. The software bot is a program that uses other programs. Robots can be used in any programs and they are not software dependent. Software bots are designed for business-driven use for corporations. The software bots are at their best with recurring and regular processes having large volumes (Table 3). Easy process steps are already automated in the software itself. Software bots should be utilized especially in cases where multiple software is used in the process; the process phase and the integration of the construction or software customization is laborious/expensive. The software bots record human work through the user interface and repeats the recorded work steps. (Kaarlejärvi p. 19)

Table 3 Differences between traditional IT, RPA and IA (Lehtinen 2018)

	Traditional IT	RPA	IA
Business Approach	Big bang deployments with long paybacktimes and investment risks	Incremental deployments with short payback times	Implemental deployments with short payback times
Approach	New processes	Current process as basis	Current process as basis
Process Rules	Clear rules	Clear rules	Machine learns some of the rules by examples
Process Inputs	Structured, machine readable inputs	Structured inputs	Any kinds of inputs
Process Volume	High volumes	High volumes	Very high volumes
Number of FTE's	> 10 FTE's	>0.3 FTE's	>3 FTE's
Techniques Used	Conventional computing	Conventional computing	Conventional computing and cognitive techniques
Other Requirements	IT specification	Detailed business process description	High amount of samples: test or historical data
Implementation Effort	From man months to man years	Usually 1-6 man weeks per task	Usually 2-8 man weeks per task

Robotic Process Automation enables companies to easily automate mundane, repetitive tasks in order to free up employees to perform higher value work. RPA replicates the actions of humans interacting with application user interfaces. No changes to existing interfaces and IT systems are needed. They efficiently execute high volume work. (Juselius 2018)

The best candidate tasks for RPA:

- High volume
- Repetitive tasks
- Manual data entry
- Multiple legacy systems
- Logic & rules based processes
- High full-time equivalent (Juselius 2018)

Software robots are taught to use computers on behalf of a person:

Skills

- Machine vision
- Mouse & keyboard
- Work 24/7
- Rule based usage of IT systems
- No need to change existing IT

Applications

- All existing applications if business rules exist: can be complex and bi-directional
- E.g. Windows apps, RDP/Citrix, CRM, ERP, HTML/Web, terminal (Lehtinen 2018)

2.3.1 Cost and Return on Investment

Before further steps, a company should consider whether a robot is the right solution. There are other ways to automate processes (integration tools, BPM tools, changing application). Consider whether the robot has sufficient benefit versus possible maintenance costs. Question if this process is optimal or necessary at all. (Honkanen 2018)

Once the automation targets have been identified, the list should be prioritized according to return on investment (ROI). In normal cases, the ROI may be between 400 and 800% (1 month- 1 year). The importance of the effect depends on the level of risk selected (cost/time). To avoid risk, it may be better to automate only a small part of the process. This is better way to assess the cost and duration of the project. In smaller projects, the ROI is also smaller. (Kaarlejärvi 2017)

RPA implementation has an attractive payback period. Payback (Deloitte survey 2017) was estimated at less than 12 months with robotics providing an average of 20% of full-time equivalent (FTE) capability. 78% of those who have already implemented RPA expect to significantly increase investment in RPA over the next three years. Organizations that have piloted RPA expect an average payback period of 9.3-months, while those that have introduced and extended RPA actually achieved a payback period of 11.5 months. 63% reported that their expectations of implementation time had not been achieved, and

37% claimed that their hopes of execution costs had not been met. Organizations that have implemented or scaled across the enterprise have already invested an average of \$3.5m in robotics. (Deloitte 2018)

2.3.2 Benefits

RPA enables the development of personnel skills. It increases staff motivation by automating manual routines and helps people realize their full potential. Robotic process automation is future Excel. Better quality of work will be provided. It forces uniform processes and transparency increases. Faster reporting is also one advantage. Better customer satisfaction and new unidentified business opportunities will reveal. RPA provides a competitive advantage and future salvation. (Tiala 2018)

Key benefits of robotic process automation are that it accelerates time to value. Creating, testing and delivering new automations occurs in days or weeks. It reduces human errors and eliminates copy/paste mistakes. RPA increase quality and fulfills automated tasks in seconds or minutes, around the clock. Development costs decreases by quick automations with simple record/playback functions. (Juselius 2018) Benefits of RPA are:

- a. Efficiency improvement
- b. Throughput time improvement
- c. Reduced human errors
- d. Employee wellbeing
- e. Customer experience
- f. Compliance and control points
- g. Scalability
- h. Reduced costs
- i. Short payback times (Lehtinen 2018)

RPA delivers value for business leaders. The benefits of RPA adoption are significant. RPA tends to outperform non-financial benefits standards such as reliability, schedules, versatility, and improved regulation. According to a Deloitte RPA survey, at least 85% of respondents reported that in these regions, RPA fulfilled or exceeded their expectations. A total of 61% reported meeting or beating their cost reduction goals, which

allowed them to move people from transactional roles to higher-value projects. This resulted in increased job satisfaction. (Deloitte 2018 p. 2, 4)

2.3.3 Challenges

Robots are designed to work in a specific way, not for change or agility. Robotic automations need exceptional handling. It requires process analyses to understand processes and select the right activities to automate. Robots do not have human task, case, complex rule capabilities. RPA is not always the right answer to a process automation problem. (Juselius 2018)

Robots break down in the presence of change. Almost any change in environment can disrupt the robot's operation. Error management and anticipation is more difficult than traditional software development. It is impossible to anticipate all influential changes. In the implementation of robots, one has to think quite extensively about what could go wrong and how to notice that something has gone wrong. Exceptional handling must be taken into account in the implementation of robotic process, just as in traditional programming. The focus must be on thinking more about how everything in the environment can change and not just the logic of the program. It is worth to be skeptical about robot's functionality. (Honkanen 2018)

When any previously human operated process is automated, it is easy to supervise in the beginning, because the person who has done the work controls whether the tasks are rolling correctly. Time passes by and without immediate problems, a human is no longer actively thinking about the process. If the robot fails after a long time passed, the recovery can bring up challenges. (Honkanen 2018)

Standardization of operations is the top challenge facing companies throughout the RPA journey. System complexity fuels robot difficulty: it increases RPA development and deployment costs and challenges, raises operational cost and expands business disruption. Robots require comprehensive system reliability and need to be trained at the keystroke level. Processes are not always fully known by companies, even where there is comprehensive system information. Implementation teams need to work diligently with the

business to fully understand the complex procedures and address any issues proactively. (Deloitte 2018 p. 5, 14)

Business and IT need to work together. It is governance of new business and new IT changes. A common operating environment for all automation technologies is needed - not just RPA. (Juselius 2018) To set up a robust and stable bot network, the IT department is important and can hold the key to evaluating application, accepting testing, signing off go-live, and handling networks. Engaging CIO support is important to create a small selected team of agile, digital-minded technologists to support RPA implementation and help successfully navigate the wider IT organization. Standardization of procedures and management of transition was identified as the main challenge in the RPA path along with proof of concept and pilot phases. The alignment with other IT systems and the versatility of the RPA approach are often cited as obstacles as companies transition to pilot, deployment and scaling. Key challenges for those who scaled RPA and put it into practice:

1. Standardization of process
2. Buy-in and support of IT
3. Integration and flexibility of solution
4. Buy-in and expectations of stakeholder
5. Impact of employee (Deloitte 2018 p. 5, 15)

2.3.4 RPA Providers

Implementation may involve working with a committed third-party advisor for most organizations, often to provide guidance and expertise that are lacking in their own company. This support ranges from turn-key solutions to cooperating to up-skill in-house teams and construct core RPA-delivery capability. Third-party support decisions are likely driven by the nature of the digital workforce that an organization is obtaining to establish and by elements, such as the difficulty and number of roles required, the need for flexibility, and the need for quality assurance. (Deloitte 2018 p. 18)

The leaders of robotic process automation are UiPath, Automation Anywhere, and Blue Prism (presented in Figure 4). They have strong current offering and strategy. There are

many other competitors on the market who are strong performers and contenders. It is possible to implement robotic process automation on premise or as a service.



Figure 4 Providers of RPA (Lehtinen 2018)

2.3.5 Acquisition of New Skills

RPA implementation also contributes to the creation or acquisition of new skills in many organizations. Designers and developers familiar with robotic process automation products, and operators are new roles. There is a need not only for specialist skills unique to RPA. Expertise in project supervision, system and change management are important. Businesses will need to upgrade the people working alongside the robots to enable them to deliver higher value activities. RPA expertise can be housed in business units or as centers of excellence with the ability to move people between these cores depending on demand. (Deloitte 2018 p. 18)

The importance of improving analytics capabilities has increased dramatically. It is the third most important strategic goal for companies according to Deloitte survey. This highlights the value of converting information to insight. Improved tools and techniques for interpreting this data are available to help generate insight and support better decision-making. (Deloitte 2018 p. 5, 6)

2.3.6 Robotics Uses in Accounts Payable Processes

RPA systems are tools for enterprises; they can be extended in principle to any robotic operation. A virtual workforce's benefits should be measured throughout the enterprise, not just in operational silos, and adoption support should be led from the top. It is now recognized by most of the companies. Human workforce can be redeployed to more value adding activities. Instead of seeing RPA as pure cost cutting exercise, companies should explore ways to invest time saved in more satisfying jobs and flexible work conditions, thus improving employee experience. (Deloitte 2018 p. 4, 5, 10) These accounts payable tasks can be transferred to robots:

- Establishing new suppliers to the system
- Checking suppliers' prepayment and value-added tax register status
- Checking invoice basic information
- Picking order number from invoice data
- Repairing or deleting invalid order numbers
- Selecting the invoice type
- Completing monitored targets on the invoice
- Selecting the invoice inspector
- Sending invoices to circulation
- Transferring invoices to accounts payable system
- Matching credit and debt invoices in accounts payable system
- Creating payment data (Kaarlejärvi 2017)

2.3.7 Robotic Process Automation Steps

Robotic process automation is still in its infancy and its advantages have not been understood by many organizations. Most companies have IT challenges, complexities of systems, unrealistic expectations, and a piloting strategy. Maximizing the effect of RPA requires a dedicated change from innovation to transition of mentality and motion. Organizations must make the right strategic choices regarding digital workforce to maintain a competitive advantage in their move. In addition, learning about and applying RPA on scale takes time for large organizations. Strict planning, design and implementation of digital workforce are required. The rush to commoditize robot design has resulted in organizations failing to realize that high-quality architecture, scheduling, and virtual

workforce building will produce extensive results. Implementing a premium digital workforce across the company requires support and sponsorship from C-suite. Strategic management of organizations and C-suite that have adopted and expanded RPA are the most active stakeholder groups. (Deloitte 2018 p. 7, 8, 12)

Figure 5 presents progression in financial management development from a current state to a target state. It involves four main steps: current status mapping, identification of development targets, planning a target state, and implementation of changes. Every step has topics that are reviewed from the company’s point of view.

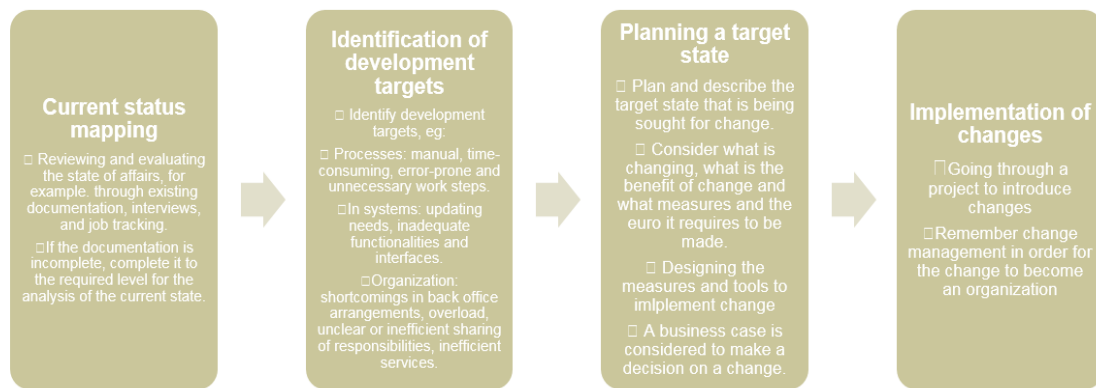


Figure 5 Progress from the current state to the target state (Kaarlejärvi p. 13)

Figure 6 presents perspectives on financial management development containing many questions for a company to consider. Questions to consider are about company’s processes, systems and organization. Knowledge about general business and management is required to answer these questions.



Figure 6 Perspectives on financial management development (Kaarlejärvi p.14)

Steps of RPA are demonstrated in figure 7. First step is robotics introduction. Second step is a process workshop to collect ideas about development targets. In the third step, evaluation of the process is needed to realize the best benefit with least effort. Also, the maturity of the process must be reviewed. Proof of concept is conducted in fourth step to ensure that the selected process is robotic. Four steps in intelligent automation adaption are:

1. Potential discovery
 - Why to automate?
 - Analyses and prioritization
 - Building the business case
2. Automation platform
 - Technology selection
 - Ease of use vs. functionality
 - Automation platform roadmap
3. Production operations
 - Implementing automation

- Monitoring
- Maintenance
- 4. People and competences
 - Building skills: technology and continuous automation
 - Change management (Lehtinen 2018)

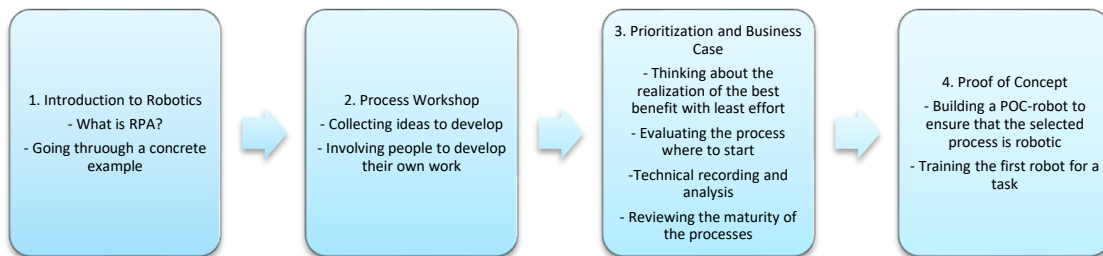


Figure 7 First Steps of RPA (Tiala 2018)

Process automation maturity levels help to define where is company on its journey (Figure 8). First step is planning, where company identifies potential, creates a business case and chooses automation partners. Second step is piloting RPA where business case is validated, process is tested, and competence starts to grow. Third step is scaling up where automation is expanding to other processes. Large scale production is the fourth step where RPA is business as usual and applied to many tasks. Final step is intelligent automation where automation technologies are combined and process re-engineered.

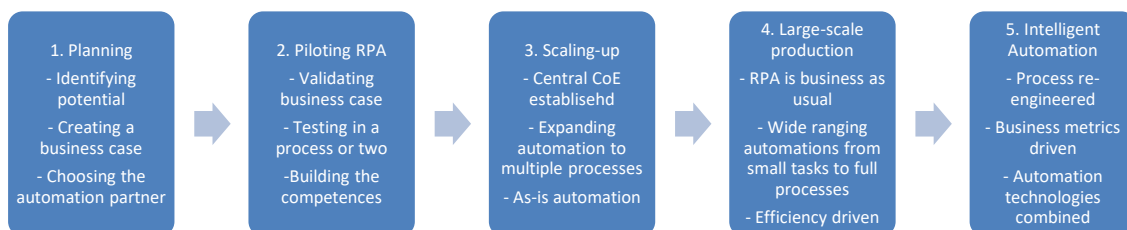


Figure 8 Process Automation Maturity Levels (Lehtinen 2018)

3 METHODS

The research method of the thesis is qualitative. Figure 9 outlines the main steps of qualitative research. Qualitative research usually emphasizes words rather than quantification

in the collection and analysis of data. It gives an inductive view of the relationship between the theory and research. The stress is on the understanding of the social world through an examination of the interpretation of that world by its participants. (Bell & Bryman p. 392, 728)

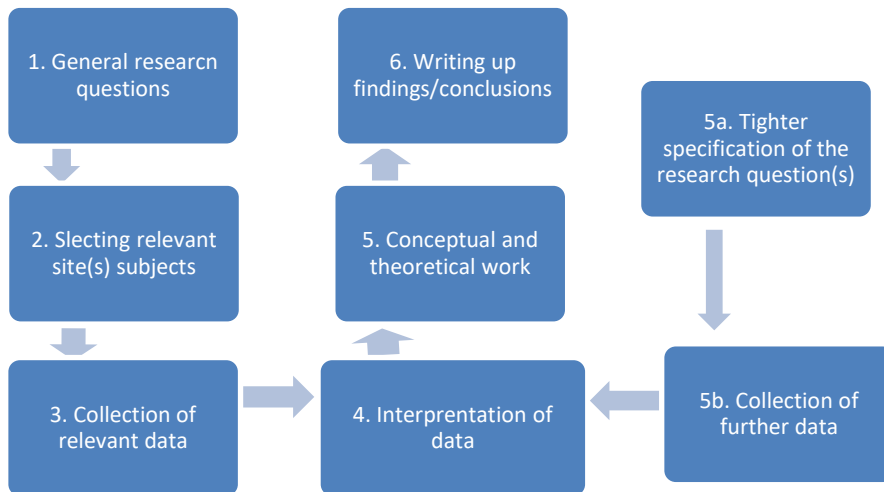


Figure 9 The main steps of qualitative research (Bell & Bryman 2017 p. 395)

The participant observer/ethnographer immerses herself in a group for a period of time observing behavior, listening what is said in conversations, both between others and with the fieldworker, and asking questions. Participant observers and ethnographers gather further data through interviews and the collection of documents. An ethnographic approach implies intense researcher involvement in the day-to-day running of an organization, so that the researcher can understand it from an insider's point of view. A researcher concentrates on the specific social processes within one particular community. (Bell & Bryman 2015 p. 444, 447)

One of the key and most difficult steps in ethnography is gaining access to a social setting that is relevant to the research problem in which the person is interested. This is not an issue in this instance, as the researcher has been over five years part of the organization and the team. The way which access is approached differs according to whether the setting is a relatively open one or relatively closed one. The majority of organizational ethnography is done in predominantly closed or non-public settings of various kinds, such as offices. (Bell & Bryman 2015 p. 448)

A qualitative research method was applied to describe, understand, and explain how to improve business processes. Theoretical data was collected from books, internet and organizational documents. Purchase invoice process charts, accounts payable manuals, and instructions have been reviewed. Organizational documents provide the researcher with valuable background information about the company. Documents are used by organizational ethnographer as part of the investigation to build up a description of the organization and its history. They are also useful in structuring a timeline, particularly in processual studies of organizational change. (Bell & Bryman p. 561) Google Web-page was used to search different topics. Lot of material was provided by a service center manager who had attended different robotic process automation seminars. Many texts were translated from Finnish to English language using Google Translator.

A research method is simply a technique for collecting data. Interviewing in qualitative research is typically of an unstructured or semi-structured kind. In qualitative research, interviewing may be the sole method in an investigation or used as part of an ethnographic study with another qualitative method. Qualitative interviewing is meant to be flexible and to seek out the world views of research participants. As with ethnographic research, investigation using qualitative interviews tends not to employ random sampling to select participants. (Bell & Bryman 2015 p. 49, 509) Participants were from accounts payable team and service center manager. Qualitative (group) interviewing with semi-structured questions were conducted to identify development targets and analyze the process. Questions for interviews were selected and combined from theory. Interviews were recorded and after that transcribed and translated from Finnish to English language. The main qualitative research method in this study is observation and interviewing. Collected data and documents are qualitatively analyzed.

The goal of this study is to investigate how to prepare for robotic process automation to improve Hartela's accounts payable procedures. It is important to identify and realize the processes in current company and draw the precise picture of every phase before implementing robotic process automation. It is essential to take advantage of existing software systems before going further. Evaluation of current situation is needed.

Kaarlejärvi's *From the Current State to the Target State* model has been selected to understand the current state mapping, identification of development targets, and target state planning when considering robotic process automation. The fourth step, implementation of changes, is left out from the study because this is a further step for when the project is approved in the future. Kaarlejärvi's model is supported by Mindtools' Improving Business Processes six steps which are: map the processes, analyze the process, redesign the process, acquire resources, implement and communicate change, and review the process. Only the first three steps are applied in the study. The concentration of the study is on planning and preparing. These two models are combined to form the questions for interview.

A research design provides a framework for the collection and analysis of data. Research design of this study is demonstrated in Table 4. A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process. These include the importance attached to:

- expressing casual connections between variables,
- generalizing to larger groups of individuals than those actually forming part of the investigation,
- understanding behavior and the meaning of that behavior in its specific social context, and
- having a temporal appreciation of social phenomena and their interconnections. (Bell & Bryman 2015 p.49)

Table 4. Research design

Research Problem	How to improve Hartela's accounts payable process more efficient?		
Research Question(s)	How to prepare for robotic process automation to improve Hartela's accounts payable procedures?		
Framework	Improving business process from the current state to the target state	1. Current status process mapping	
		2. Analyzing the process and identifying development targets	
		3. Redesigning the process and planning a target state (to eliminate the problems identified)	
Methods and Measurement Questions	Hartela's purchase invoice processing flowchart. This tool show the steps in the process visually. It's important to explore each phase in detail, as some processes may contain sub-steps that are not aware of. Consult people who use the process regularly to ensure that you don't overlook anything important. Documents		
	Using flowchart to investigate the problem within the process. Root Cause Analyses, Cause and Effect Analyses, The 5 Whys (Trace the problem to its origins)	<p>Interview with service center manager</p> <p>Processes (strive for unified processes, practices and systems, automate at least repetitive routine procedures): What kind of processes financial management (AP) have, how it operates? Are work methods consistent and effective? Which processes and process steps are automatic, which manual? What is the outcome of processes? Systems (update needs, incomplete functionalities interfaces utilizing system functionality, interfaces, and robotics, transfer, process and archive electronically): What systems financial management have? Where is master data maintained? How does information move between different systems? Organization (shortcomings in reserve arrangements, overloading, unclear or inefficient allocation or responsibilities, inefficient services): Do you have your own employees or have outsourced jobs? What is the division of labor between the financial department and other organization and within the finance department? At what stage and by whom the task is most effective in terms of quality and cost?</p>	<p>Interviews with accounts payable team</p> <p>Where do team members get frustrated? Which of these steps crate a bottleneck? Where do quality go down? Which of these steps require the most time or delays? What is wrong with the process? What suggestions do they have for improving it? What are development targets? What are manual, time consuming, error-prone, unnecessary steps? Has Palette improved purchase invoice processing? What do you think about using Palette, pros and cons? Are instructions clear and easy to use? Have there been problems with Palette? Are these problems solved?</p>
	How you can address the problems you identified in step 2? Brainstorming and noting down ideas for change. Narrowing list of possible solutions, how ideas would translate to a real-life context. Impact Analysis, Risk Analysis and Failure Mode and Effects Analysis. These tests will help to understand the full consequences of each proposed idea, and allow you to make the right decision for everyone. Once all in team agree on a process, creating new diagrams to document each step.		
Findings	Analysing steps in Hartela's purchase invoice processing flow chart		
	Finding out main problems and answers to interview questions		
	Analyzing the main problems identified and possible solutions		

In qualitative research, interviewing is part of an ethnographic study. Qualitative interviewing is meant to be flexible and to seek out the world views of research participants. In qualitative interviewing, the researcher wants rich, detailed answers. Interviewing in qualitative research is typically of the unstructured or semi-structured kind. In a semi-structured interview, the researcher has a list of questions on topics to be covered (interview guide). Questions may not follow on exactly in the way outlined on the schedule. Questions that are not included in the guide may be asked as the interviewer picks up on things said by interviewees. (Bell & Bryman 2015 p. 480-481)

As with ethnographic research, investigation using qualitative interviews tend not to employ random sampling to select participants. (Bell & Bryman 2015 p. 509) Interviews were carried out with Hartela's accounts payable team members and service center manager. There were eight accounts payable team members invited to participate in interviews; four full-time employees and four part-time employees (they are occasionally working because they are students and one participant is working full-time in accounts receivable team). One full time employee had left to another department in Hartela but she agreed to participate in the interview. Questions were sent to participants by e-mail before the interview. They had more time to think their answers and collect ideas. If they were unable to physically take part of the (group) interview in certain day, they were asked to send answers by e-mail. Group interviews were recorded and transcribed thereafter.

There were different questions for accounts payable team and service center manager. The service center manager was questioned about general processes, systems, and the organization. The accounts payable team had questions related to work tasks and steps. For example, team members were asked where they get frustrated, and what are manual, time consuming, error-prone, and unnecessary steps in their positions. There were also questions about the new purchase invoice processing software Palette, which was introduced in the beginning of 2019.

Qualitative (group) interviewing with semi-structured questions was conducted to identify development targets and analyze the process. There were two group interviews. One group had two participants and other had three members. One participant answered questions by e-mail because he was unable to participate physically. Questions from Mindtools' Improving Business Processes second step Analyze the Process were used in interviews with the accounts payable team. There were also questions asked about Palette Software as part of the business process improvement.

Questions from Kaarlejärvi's model of *Perspectives on financial management development* were also used in interview with the service center manager. Kaarlejärvi's model is appropriate because she is one of Finland's leading financial management development

experts. She has experience in financial management and reporting processes development in over 50 companies. These models are presented in the report.

4 RESULTS

Detailed results are in a separate report addressed to the company. Previously presented models are used to evaluate company's current state and planning first steps of process automation. Detailed purchase invoice processing chart has been analyzed. Also, other documents and manuals are reviewed. Research framework is based on these models. All models have common features. The first steps that are applied to Hartela's account payable procedures are:

- Current state mapping of the process
- Identifying development targets and analyzing the process
- Planning the target state and redesigning the process

4.1 Current State Mapping of the Process

Palette Software is a new program which was selected to replace Hartela's old program for purchase invoices processing. A new program was launched to use in January 2019. Whole process started in the beginning of 2018 and demanded lot of extra work to have all necessary information and inputs. The old program is still used to search information about previous invoices or projects. Palette Software is part of Hartela's automation process in financial department to decrease workload on people.

Hartela Group automates the processing of purchase invoices with Palette's solution. The Palette mobile solution is able to automate the entire purchase to pay process by linking the company's incoming invoices. The choice of Palette solution was also emphasized by strong construction industry references and knowledge of industry specific requirements. The solution also offers opportunities for the extensive development of the purchase program, which Hartela sees as an important feature in the near future. (Palette 2018)

The challenge for the Hartela Group was the high volume of invoices, which handling requires a lot of time, especially for the shared service center. Hartela wanted to improve

the processing of invoices by automation. There was also a desire to improve reporting and transparency. Hartela wanted real-time reporting and flexibility to be able to utilize existing information more effectively. Hartela valued user-friendliness and mobile usability as important features. The clear user interface and mobile functionality of the Palette solution were the strengths in the selection process. The company has end-users across Finland, for example on the site, so the functionality of the solution through the browser and on the mobile makes it easier for everyone to work. Palette's dedicated SaaS was chosen as the most appropriate solution for Hartela, as it provides the company more than a licensed solution. (Palette 2018)

Hartela does not have a purchase order system that is directly linked to purchase invoices and accounts payable. It is instructed and assumed that buyer (inspector) will provide the supplier with the necessary billing information and instructions. Sometimes a supplier has an incorrect billing address or invoice is sent to the buyer's e-mail. This situation should be eliminated. The invoices are imported automatically through PaletteMaster system in certain timeframe. After that, the accounts payable team will go and check manually logs if there are any un-transferred invoices.

With the Palette program, there were new supplier register created. This system is much clearer and gives a better overview of supplier invoices in all of Hartela's companies. This structure is managed by company numbers. It is possible to search all supplier invoices or select different Hartela companies by number.

Validity checking of prepayment register for all suppliers in a system has been done several times in a year manually by mass updating. The accounts payable team ensured that the invoice contains all necessary information to identify the inspector and approver. Information is entered into the system. After postings and checking all necessary information from the invoice it can be saved and sent to inspector. In Palette Logs, project is linked with inspector and approver. When a reference (project number) is matched with an invoice, it will automatically create workflow and account posting proposal. This feature creates time saving for accounts payable team, eliminating the need to check workflow from an Excel table.

It is important to add remarks to the comment field which will inform the accounts payable team and approver of the changes done by the inspector. The comment field should be used more frequently because it gives valuable information about changes and the account payable team does not have to send extra e-mails to the inspector/approver to find out information. There is also an invoice history where processing is recorded.

Transfer of pre-posted invoices to accounting program has been eliminated when Palette was introduced. Currently, transfers of approved invoices has to be done partially manually. This is a step back in processes. Palette transfers cost accounting TCM and SiteManager data automatically.

Data for payment will be created manually. After the list is checked data for payment is created. This data will go automatically to the payment team. Accounts payable team will also send payment list by e-mail. Next day, the accounts payable team will sign paid invoices in the accounting program and checks that the amount is the same as yesterday. Palette has a feature that information from paid invoices will transfer from the accounting program to Palette. Inspector and approver can check directly from Palette that the invoice is paid.

Accounts payable team must continually monitor invoices that are in circulation and notify inspectors/approvers about due dates. Reminders used to be sent from the Workflow program manually. In Palette this function is automatic.

4.2 Identifying Development Targets and Analyzing the Process

Hartela's account payable team frustrates about repeatable and similar tasks. A large number of purchase invoices and many other tasks at the same time increases stress. In a hurry, a person is not so attentive at every point. Tensions rise, when there are many work tasks and not enough employees, which cause additional mistakes. Unclear invoices waiting for solutions that are not checked by inspectors and approvers create frustration. When inspectors/approvers do not handle invoices by the due date, then payment reminders and interest bills will come, causing extra work. There is a lot to remember and consider. It is a different way to handle invoices with the new program. In a final check, invoices must

be correct and checked more carefully than before. Focus is distracted when there is lot of noise around. Month end closing is hectic. Program updates and systems not working correctly generate bottlenecks. The question is also, whether all team members take the responsibility and tasks are equally divided. It is important to help other team members when needed.

Communication is sometimes frustrating. It is good to ask if someone needs help and who is doing what. Internal communication is sometimes not working, and the accounts payable team miss important information. Lack of information flow when something is asked and not answered is frustrating. It is good to have comment field in the Palette. Still, not all comments get a respond and there is need to ask again. In Palette, it is possible to send an e-mail directly from an invoice.

The accounting program is not able to perform automatic functions. Information is needed from different programs, but they are not interacting. It does not allow importation of any prediction figures and TCM also does not perform as required. Recurring payments are manual and time-consuming work. Repairs are manual, for example, correcting a project number, a value-added tax or account, especially when it belongs to a closed period. Many errors can appeal with manual work. Accurate data production support management and decisions that they make.

The challenge for the service center is that the business does not work the same way. Current practices are questioned considering alternative ways. All processes have written instructions. Hartela's ICT is creating comprehensive map of processes that shows how everything connects. The map includes all systems.

Work tasks are consistent and effective according what the current financial program enable. The development steps regarding the accounting program has been done and that is why Hartela is considering new program. Wintime has been customized for Hartela and it had qualified certain tasks that were required. But, now there are applications that would work much better and which are also used in the construction industry. These applications are designed for the reservations handling and the partial revenue recognition processing. Working with the status of the project has been considered and thus the automation

obtained there. Wintime did not provided extra features needed. Hartela started to think their goals with the new program. The big question is what the program of cost tracking would be. After the new financial management program will be implemented, the RPA will be considered again. It can be reevaluated again in parallel with the new financial management program. The robot needs to have enough work. It requires big mass of data to be profitable.

Approved invoices handling is the most time-consuming step. Invoice handling with many account posting rows is manual. Dividing rows to different accounts, projects and areas is inefficient. There can be easily human errors. It requires using Excel for help. Prepared and editable Excel templates could be used to minimize invoice possessing time. It would be much easier if there are accounts directly linked to the invoice which are announced for the supplier previously. Invoices with many account postings should be separate invoices. Much value would be created when there is a purchase program linked to the accounts payable program.

It takes extra time when there are many new suppliers who need to be established in the system. There is a delay when new supplier is registered in Wintime Master. Palette is not showing a new supplier immediately.

Palette is slow, and this effects the process. The Log has sometimes confusing information and does not send invoices forward - even if everything is right. There was question raised, e.g., why it is not possible to add account postings in the Log phase when workflow and posting proposal is missing. It is a new program and people do not know which way would be the smartest to create workflows on Log. Project name does not appear in Log and the Log could have more information. Palette has slowed down invoice handling because there are too many different steps in process; Invoice Log, Invoice View, and Approved Invoices. In certain functions, Palette could be more user-friendly. Palette has not accelerated the whole process. In the future, it is possible to transfer invoices directly from Logs by finding the reference, matching, and transferring directly from the list without opening the invoice. Accounts payable team learns to trust the program that all the information is correctly read in determined fields. Customization according to customer's preferences would be an advantage.

Palette is more modernized and more user friendly than Workflow program. The speed and the fact that process is automated step by step is a big advantage (not yet fully automated). Hartela is going to the right direction. People do not need to remember so much information. It is easier to take someone new to start work, not requiring so much induction.

Many things are automated with Palette. Palette has made process more effective in some way but caused more work. It is difficult in Logs to handle invoices that does not have workflow proposal inserted in the system or has different way of handling. This is the problem. There are four steps; Readsoft, Log, Invoice View and Final Check. Transferring paper invoices to Palette is laborious.

There are too many stages according to the accounts payable team. Workflow and account posting proposal maintenance is time-consuming. Creating a new person in a system requires many steps to remember; User, Role, Workflow, and Account Posting Proposal. People must remember to give rights to the certain project, which is often forgotten, although there is instruction for this process. It would be better to have these steps in one place. If something is changing, it must be done in all these phases.

Invoice handling process stops when inaccurate invoices must be corrected by suppliers. Incomplete information on invoice delays the process (invoices that are missing project numbers, references, reverse VAT entry or other things that need to be resolved). If the company name is wrong, the supplier must be informed about that, and a corrected invoice is demanded. Pagero will enable send back automatically invoices that are missing correct information.

There have been problems with Palette system, but they have been solved. Program gets stuck if there is a long list of account postings and do unexpected browser updates. Then it is required to start the same process again. Invoice image also disappears when another window is open on the screen. Value-added tax calculation in the system is also problematic. People must be more careful when checking and handling invoices. When a reference is in different place, the program can not read it and must be entered manually. This

is not fixable in Palette system. Even though, the invoice has nothing wrong, the program still notices errors.

Within the service center, the teams are working strongly together. Now Hartela is doing things this way, but at some point, processes will have to be evaluated. Future financial management program plays an important role and also purchase to pay. They always bring change to work tasks. The future shows in which direction new program is directing people, how much people will work and need to work. There is always a need to view and analyze the data by someone.

4.3 Planning the Target State and Redesigning the Process

Next step with Palette is contracts of purchase invoices and defining Hartela's top ten supplier invoice data that they provide to automate workflow. E-invoice operator change will be the goal for this year. This allows to influence the fact that Hartela will no longer receive paper invoices. Operator enables the portal through which suppliers, who can not send e-invoices, send them with required information in certain fields. With the help of e-invoice data, it is possible to make certain checks. For example, if the company's name is not correct, it will automatically return to the supplier, or if there is other important information missing on the invoice. There are a lot of possibilities. In the future Palette is part of purchase to pay process. There will be more features. The contracts will be utilized and the goal is from purchase to pay. It takes long time before it comes to life. Everything must be utilized before thinking RPA.

At the moment, there is a program mapping project concerning purchase, cost tracking and financial program. What these systems are to work with will be determined later. Selection of these programs will define the development forward. The goal is more up-to-date and readable information. The purpose with Palette was to replace Workflow program and at that time the concentration was not on what Hartela could benefit generally. In the future, Palette will do cashflow forecasts directly from the program. It will be possible to see what is in circulation and potentially paid. Appropriate application search is for guarantees and mortgages, which will keep data up to date. But, the need for such

program is quite low and now it is thought to be one part of the new financial program. There will be a lot of changes in upcoming years.

The new process chart must be created as the new program has replaced the old one. Current chart is not valid. Updated process chart for accounts payable will come in fall 2019 to demonstrate what can be done without purchase to pay function. Palette solution consultant has more steps to introduce; reference matching, contract matching, e-invoice data posting search. Top 10 suppliers will be contacted to support automation of purchase invoices.

It would be advantageous if Invoice Log and Invoice View are combined to one step. Readsoft is another separate step where paper invoices are processed. More automatic use of Logs is preferable. It is planned to inform the suppliers about reference number and in which format they have to be.

Approved invoices must be transferred partially manually to Wintime and check that the system provided voucher numbers. This should be automatic. Reconciliation is unclear and slows down the work. Instruction for that step is missing and should be done. Also, more detailed workflow instructions are needed.

Accounts payable team wishes that cost centers would become mandatory because these are often forgotten to be added from inspector/approver. The program would be able to read which cost center to add. Cost centers would be added as default for supplier number. There should be uniform practice. Cost center's adding should not be a concern of accounts payable team.

The process has been changed and improved all the time according to what has been felt good and functional. All the benefits from Palette must be transferred to improved processes. Instructions must be up to date and maintained all the time. The new way of working takes time to internalize. It must be decided who will set up and maintain, for example, workflow proposals. The account posting suggestion maintenance must be agreed when the new project comes. The Y TJ updates must be done manually to Master, but once, because there is a unified supplier register for all companies.

Invoices with many account postings needs to come separately according to project to avoid splitting into different rows. The invoice would automatically go straight through or demand a specific approval when there is a contract in a background with determined sum and account etc. This would save manual work. They should come according to cost centers which are updated. Palette should be developed from basic level to advanced level using entire software and take advantage of it.

Hartela is on the way to better results. Processes work well but there is still room for development and to the state where Hartela would like to be. Manual work should be eliminated. Having purchase program and a new e-invoice operator, project-based cost centers, recurring payments (maybe in Palette). This could be also work for a robot. It is considered what would be a prudent practice for recurring payments and project approval notifications. It is not identified what will the new financial management program enable. Solution for electronic signatures, contract signatures and archiving are investigated. There must be universal program where everything works. The shared service center has developed and changed all the time, but Hartela's business is still on its way to a consistent approach. The attitude and mutual drive are important in development journey. Transparency is required through having everything in the system. Hartela is trying to automate as much as possible.

4.4 Summary of the Empiric Study

This research consists of two separate reports; a business report and an academic report. The theme is specific and related to author's workplace. Business report is confidential. The difference between the business report and academic text is that in business report the value is in the solution. In the academic text, the value is not the solution or conclusion, it is the entire text. Business report is for business user and intended for problem solving to find solutions.

The purpose of this study was to prepare for robotic process automation in Hartela's accounts payable. The aim was to create valuable information for the employer and the goal was to understand and find out the first steps in robotic process automation preparation.

Then, these steps were applied to the company's service center. It was important to identify and realize the processes in current company and draw the precise picture of every phase. Evaluation of current situation was needed. Certain models were applied from the theory to lead this evaluation procedure.

The challenge for the Hartela is the high volume of invoices, which handling requires a lot of time. Hartela want to improve the processing of invoices by automation. The personnel can then concentrate on higher value work. There is also a desire to improve reporting and transparency. Hartela wants real-time reporting and flexibility to be able to utilize existing information more effectively.

Different kinds of processes are designed to streamline the way team works. When everyone follows a well-tested set of steps, there are fewer errors and delays, there is less duplicated effort, and staff and customers feel more satisfied. Also, resources are not wasted, and costs are saved. (MindTools 2019)

Robotic Process Automation enables companies to easily automate mundane, repetitive tasks in order to free up employees to perform higher value work. RPA replicate the actions of humans interacting with application user interfaces. No changes to existing interfaces and IT systems are needed. Efficiently execute high volume work. (Juselius 2018)

To support drive for competitive advantage, organizations need to make the right strategic choices about digital workforce. Learning about and applying RPA on a scale is taking time for large organizations. Digital workforces require stringent planning, design and implementation. (Deloitte 2018)

From the current state to the target state model and *Six steps to improve team's process* were selected to evaluate company's current state and planning first steps of process automation. Detailed purchase invoice processing chart has been analyzed. Interviews with accounts payable team and service center manager were made. Also, other documents and manuals were reviewed. Research framework was based on these models. The first steps that are applied to Hartela's account payable procedures are:

- Current state mapping of the process

- Identifying development targets and analyzing the process
- Planning the target state and redesigning the process

Hartela does not have a purchase order system that is directly linked to purchase invoices and accounts payable system. The goal, in the future, is from purchase to pay. E-invoice operator change is planned for this year. Hartela is doing general process and program mapping to demonstrate visually whole business functions and evaluate current situation. There will be many programs replacing old ones with better solutions and functions to create valuable information for right business decisions.

Many steps are automated with Palette. It has made process more effective in some way but has caused additional work. There are too many stages according to the accounts payable team. Maintenance of different functions is time-consuming. The new way of working takes time to internalize. It must be decided who will set up and maintain functions. Accounts payable team must still learn to trust the program. Customization according to customer's preferences would be an advantage.

The process has been changed and improved all the time according to what has been felt good and functional. All the benefits from Palette must be transferred to improved processes. Work tasks are consistent and effective according what the current financial program enable. Within the service center, the teams are working strongly together. Future financial management program plays an important role and also purchase to pay. New solution always bring change to work tasks. The future shows in which direction new program is directing people, how much people will work and need to work. There is always need to view and analyze the data by someone.

Palette has automated many steps, but there is still room for a development and full potential is not completely utilized. There is still purchase program missing from the process which would be linked to invoices. In the future, the aim is from purchase to pay automation. Hartela's ICT is doing general process and program mapping to demonstrate visually whole business functions and evaluate current situation. There will be many programs replacing old ones with better solutions and functions to create valuable information for the right business decisions.

Hartela is on the way for better results. Processes work well, but there is still room for development and to the state where Hartela would like to be. There must be universal program where everything works. The attitude and mutual drive are important in development journey. Transparency is required through having everything in the system. Hartela is trying to automate as much as possible. Everything depends on the opportunities that programs bring. All the benefits from Palette must be transferred to improved processes. Palette should be developed from basic level to advanced level using entire software and take advantage of it. All functions from Palette will be utilized, and the goal is from purchase to pay. It takes long time before it comes to life. Everything must be employed before thinking RPA. There are many suitable tasks for a robot in accounts payable process and also accounting team demand extra help.

It seems like robotic process automation is easy to implement, but in a real life it contains many steps to consider and challenges that may appear. It is important to make right strategic choices to maintain competitive advantage. The whole RPA process has to be considered very carefully involving a group of specialists who are familiar with it. RPA is present competitive advantage and future salvation. Well planned and implemented RPA will deliver significant productivity increase in different activities around the company.

5 DISCUSSION

This writing project is time consuming and complicated project. It is important to clearly define research goals and methods at early stage. Theory and research must connect and reveal common features. Project demands real interest and knowledge about the subject to maintain the enthusiasm without losing the track. Supervisor plays an important role to support the writer and give feedback at every stage of the journey. Cooperation between these two parts is vital.

This project took more time than previously expected because there were lot of reviewing and rewriting. Interviews' transcribing is highly time consuming and demands good recording equipment. Otherwise you may miss some important information. Qualitative research method is more complicated than quantitative method to analyze results and

draw conclusions. This methodology was suitable for this research as qualitative method investigates the problem much deeper through interviews.

Results were predictable as author was part of accounts payable team for many years and this subject was familiar. Processes and structure of work is well known to all accounts payable team members. All participants give their best to improve processes continuously. Hartela's people were satisfied and agreed with recommendations in the business report. Research was comprehensive and with realistic results. Analysis about faced challenges and gained benefits in the first phase were conducted. There are steps that need to be developed. Research gave the opportunity to think about further developments at Hartela and possible other areas of robotization in the process. They will continue improving processes and systems in the future to guarantee good working environment for their employees.

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