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**EXPLORING RPA PROJECT SUCCESS FROM THE  
SUPPLIER PERSPECTIVE**



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# TIIVISTELMÄ

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Exploring RPA project success from the supplier perspective

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Ohjelmistorobotiikka (RPA) on uudehko teknologia, joka mahdollistaa manuaalisten ja rutiininomaisten prosessien automatisoinnin vapauttaen resursseja ja säästää aikaa sekä kustannuksia. Tämän pro gradu -tutkielman tavoitteena on tutkia RPA-projektien onnistumista toimittajan näkökulmasta sekä edistää RPA-tutkimusalueen yleistä ymmärrystä. Tutkimuksessa keskityttiin keskeisimpien RPA-projektien menestyskriteerien sekä menestystekijöiden tunnistamiseen RPA-toimittajan näkökulmasta laadullista tapaustutkimusmenetelmää hyödyntämällä. Tapaustutkimuksen kohdeyritys on pieni suomalainen ohjelmistoyritys. Kirjallisuuskatsaus käy läpi RPA-teknologiaa yleisellä tasolla eri näkökulmista, IT-projektien onnistumisen teoreettista taustaa sekä RPA-implemентаatioiden onnistumiseen vaikuttavia tekijöitä aikaisemmista tapaustutkimuksista. Tämän pohjalta tutkimuksen empiirisen osan tarkoituksena oli vastata tutkimuskysymyksiin ja luoda yksityiskohtaisempi ymmärrys ilmiöistä keskittyen RPA-toimittajan näkökulmaan. Tutkimuksen tulosten perusteella RPA-hankkeiden keskeisimmät menestyskriteerit toimittajan näkökulmasta ovat projektin vaikutus asiakkaaseen, projektinhallinnallinen menestys, jatkuvuuden saavuttaminen ensimmäisen asiakkaan kanssa toteutetun projektin tuloksena sekä oppiminen niin yrityksenä sisäisesti kuin myös asiakkaan prosessiympäristöön ja toimintaan liittyen. RPA-projektien menestystekijöitä koskeviin havaintoihin tutkimustulosten perusteella sisältyy oikeiden ihmisten osallistuminen, prosessin analysointi ja automatisoinnin määrittely, projektiviestintä, projektinhallinta sekä asiakkaan vakuuttaminen. Tutkielmassa esitetyt tulokset vahvistavat aikaisemmassa kirjallisuudessa esiintyviä havaintoja samalla tuoden uudenlaista näkökulmaa RPA-projektien tutkimusalueeseen. Tuloksia voidaan hyödyntää RPA-toimittajayrityksen kommunikaation ja toimintatapojen tukena osana projektityötä.

Avainsanat: ohjelmistorobotiikka, RPA, projektin menestys, menestyskriteerit, menestystekijät

## ABSTRACT

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Robotic Process Automation (RPA) is a relatively new technology that enables the automation of processes that involve manual and routine tasks, freeing up resources and saving time and costs. The aim of this Master's thesis is to investigate the success of RPA projects from the supplier perspective and advance overall understanding of RPA projects, as well as extend the body of knowledge in the still emerging research area of RPA. The research focused on identifying the project success criteria and the project success factors of RPA projects from the supplier point of view. A qualitative case study method was applied to explore the RPA project success attributes from the supplier perspective. The case company of this study is a small Finnish software company. The literature provided the theoretical background of IT project success as well as implications of RPA success from prior case studies. Building on this, the empirical part of the study aimed to answer the research questions and create a more detailed and comprehensive understanding of the phenomena focusing on the supplier point of view in RPA projects. The results of the study suggest the following success criteria for RPA projects from the supplier perspective: impact on customer, project management success, achieving continuum as a result of the first project with the customer, and learning both internally as well as in relation to the customer's process environment and operations. The findings on the success factors of RPA projects include involving the right people, analyzing the process and defining the automation, project communication, project management, and convincing the customer. The results of the study support the findings in the previous literature, while introducing a new perspective to the research area of RPA projects. The results can be utilized to support the communication and operating methods of an RPA supplier company as part of the project work.

Keywords: Robotic Process Automation, RPA, project success, success criteria, success factors

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# 1 INTRODUCTION

Organizations are in constant pressure of facing increasing challenges of remaining competitive by reducing costs. Robotic Process Automation (RPA) enables the automation of rule-based business processes that include repetitive manual tasks. The reported benefits that organizations have gained through the implementations of RPA include reductions in costs, speed, and errors as well as improved quality, efficiency, and productivity (Aquirre & Rodriguez, 2017). RPA's popularity has quickly risen because of its unique capabilities and advantages compared to previous process automation technologies (Primer, 2015). It is stated that the utilization of automation is essential for organizations since the development is unstoppable and those who will not take the leap towards automating processes will suffer huge losses (Primer, 2015).

RPA projects are typically seen as business change projects that involve multi-disciplinary teams with the aim to accomplish business and process related objectives with quick delivery time-scales (Willcocks, Hindle & Lacity, 2018). According to a report of Ernst and Young (2017), around 30-50% of RPA projects end up stalling, not scaling, being abandoned or moved to other solutions. This indicates that RPA projects come not without challenges. When a project is carried out through a contract, different parties with different needs are involved which adds complexity to the projects even more. The documented attributes on RPA project success and failure as well as the whole research area on RPA projects is still narrowly addressed.

The goal of this study is to advance understanding of RPA project success from the RPA supplier perspective. The focus lays on success criteria and success factors of RPA projects. However, since few prior studies has formally addressed success of RPA projects this study aims to create understanding of RPA projects in general as well as theories on project success in the area of information systems and build upon the insights gained through that. The objective of this study is to benefit the RPA project life cycle by better understanding project success from an RPA supplier perspective.

With this approach, the study aims to answer the questions:

- What are the success criteria of RPA projects from the supplier perspective?
- What are the success factors of RPA projects from the supplier perspective?

The study consists of two parts. The first part builds up the literature review and the theoretical foundation of the study. It first goes through the concept of Robotic Process Automation to grasp the context of the study and advance understanding of its current state in research, benefits, challenges, process selection, development process, and business models. Next, the study introduces the research area of project success from the project management and information systems literature point of view. The goal is to form an understanding of the nature of information system projects, project success criteria and success factors. Finally, RPA project success is addressed by building on project success theories and current RPA research.

The second part forms the empirical research of this study. A qualitative case study method approach is used to collect and analyse the data of the case company. These are presented in chapter three. Chapter four presents the results of the case study. Chapter five includes the discussion of the study, and finally the conclusion is presented in chapter six.



## 2 LITERATURE REVIEW

The first part of the paper forms the literature review of the study. The first theme, Robotic Process Automation, is discussed in the first section. The second section discusses the concepts and theories of project success from the information systems and project management research point of view. Finally, the third section goes through the topic of RPA project success building on RPA research and the theories of project success.

The literature review is conducted in a systematic manner. Scientific research related to both themes, RPA and IT project success, were searched from different databases using Google Scholar. Search terms included "Robotic Process Automation", "RPA", "RPA project", "RPA implementation", "Software/IT/IS project success", "project success factors", "project success criteria" and different combinations of the terms. In addition, references from found articles were used to search further literature. Books and scientific articles were selected and evaluated based on the publisher, citations and counts of citations, as well as their relevance to the study objective. Most of the selected articles on RPA are qualitative case studies starting from the year 2012. The papers on project success include both qualitative and quantitative studies starting from the year 1979.

### 2.1 Robotic Process Automation

Robotic Process Automation as a term was first introduced in 2012 by Patric Geary, who worked as marketing director for the software company Blue Prism (Hindle, Lacity, Willcocks, & Khan, 2018). Aalst, Bichler and Heinzl (2018) describe Robotic process automation (RPA) as an umbrella term for tools that utilize the user interface to perform actions in a way a human does. Gartner's definition for RPA is as follows: "RPA tools perform [if, then, else] statements on structured data, typically using a combination of user interface interactions, or by connecting to APIs to drive client servers, mainframes or HTML code. An

RPA tool operates by mapping a process in the RPA tool language for the software robot to follow, with runtime allocated to execute the script by a control dashboard.” (Tornbohm & Dunie, 2017). In its current state RPA has moved from screen scraping and scripting to an overall solution that offers the capabilities to work alongside other technologies like Business Process Management (BPM) and Enterprise Application Integration (EAI) in order to automate complex processes and tasks (Barnett, 2015).

The aim of RPA is to take over human work by performing structured tasks cost-efficiently and fast (Slaby, 2012). Unlike the image of a "robot" brings to one's mind, an RPA robot is no physical, human-like metal machine, but a software that is installed on the computer. It is only a "robot" based on its operating principle (Asatiani & Penttinen, 2016). RPA is implemented through a software robot that performs tasks via front-end of IT systems and communicates through the back-end of other systems simulating processes step by step, in the same way as the user would do, using software such as ERP systems and productivity tools (Asatiani & Penttinen, 2016).

RPA reduces employees' burden on repetitive, simple tasks. (Aguirre & Rodriguez, 2017). The difference between RPA and other automation solutions is its incremental nature and fast development time. RPA uses an outside-in approach, which means, the existing information systems remain unchanged. No redesign of systems is needed, only human work is replaced by agents. The demand for RPA tools has risen, since most organizations are increasingly looking for ways to cut costs and connect their legacy systems and applications. In addition, RPA is seen as a way to gain a high Return on Investment (RoI) in a short time frame (Aalst et. al, 2018). The rising demand has also formed a market of purely RPA focused vendors like AutomationEdge, Automation Anywhere, Blue Prism, Kryon Systems, Softomotive, and UiPath that only offer RPA software (Tornbohm & Dunie, 2017)

In comparison to traditional IT solutions RPA is often classified as lightweight IT (Bygstad, 2017). Lightweight IT is a recent term that is used to describe front-end software solutions like apps, sensors and Internet-of-Things where deployment is done frequently by users or vendors whereas heavyweight IT describes back-end software solutions that have control over large systems and advanced integrations. Heavyweight IT is owned by the IT department while lightweight IT is usually adopted outside the IT department (Bygstad, 2017). RPA projects are usually business-driven but IT also needs to be involved for setting up the underlying infrastructures.

### **2.1.1 Benefits of RPA**

There are several advantages of RPA that are discussed in prior studies. These include its integrability with any software that a human worker would use. Openness issues with third party applications, which limits the communication of many corporate IT systems, that are proprietary without public APIs, can be solved with RPA. Also, the implementation of RPA can be carried out in a very

short time frame compared to enterprise software integrations. In addition, RPA-robots are highly versatile and flexible and hence, can be easily modified, when changes in processes or software occurs. Unlike in automation achieved through back-end integration, no redesign of existing systems is needed either. (Asatiani & Penttinen, 2016).

According to Asatiani & Penttinen (2016), RPA providers often propose the technology as an alternative for offshore outsourcing routine, non-core tasks like invoice processing, bookkeeping or data entry. Although outsourcing may reduce staff costs and fosters to focus on a company's core operations, challenges like hidden cost of management, communication problems and complex service level agreements may occur. RPA, however, reduces costs even further without having to deal with management problems and miscommunication.

In addition, according to Willcocks', Lacity's and Craig's (2015) case studies, RPA adopters have reported major benefits from cost, process efficiency accuracy, regulatory compliance and speed to reliability, error reduction, and improved customer satisfaction which often appear simultaneously.

What comes to workforce, RPA enables employees working on routine tasks to shift to more productive tasks and jobs. Also, RPA itself creates jobs for example in managing robots, analytics and consulting (Asatiani & Penttinen, 2016).

Lacity's and Willcocks' (2017) studies on RPA adopters have found organizations achieving a so-called triple-win, which describes the benefits and sources of shareholder, customer and employee value that RPA has delivered. The triple-win attributes are summarized in Figure 1.

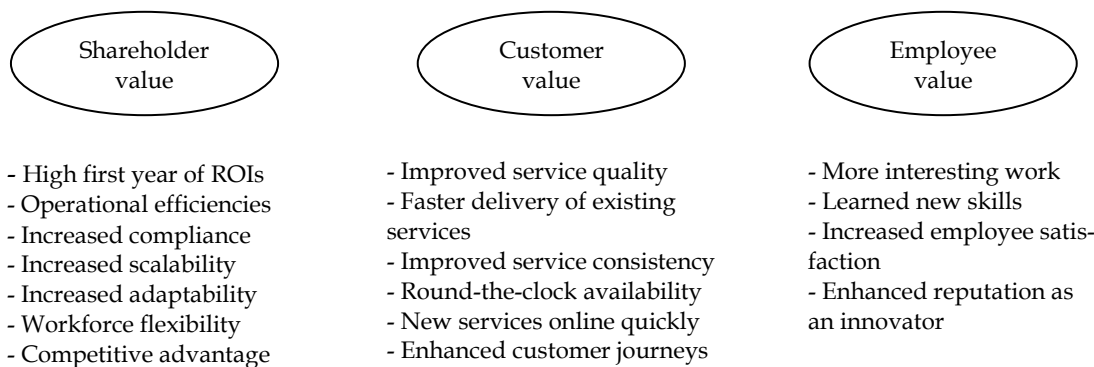


Figure 1 The RPA 'triple-win' (adapted from Lacity & Willcocks, 2017)

Overall, the benefits of RPA deployment are well documented. However, Sued et al. (2019) suggest that the benefits of adopting RPA in an organization should not be taken for granted. Therefore, they state that to support factors of benefit realisation such as organizational readiness, RPA technology adoption, implementation, delivery of RPA solutions, and measuring the benefits are topics that should be further addressed by developing a systematic approach. In

addition, benefits are commonly measured by time, cost, error and human resources reduction but RPA delivers additional benefits than these tangible and direct outcomes. For example, there are several benefits linked to RPA adoption that are difficult to measure such as the employee related benefits listed in Lacity's and Willcock's (2017) 'triple win' figure.

### **2.1.2 Challenges of RPA**

RPA comes not only with its benefits; some challenges are presented in current literature as well. It is stated, for example, that RPA still lacks capability in back-end integration, and currently, RPA is considered rather as a temporary solution that fills the gap between manual processes based on legacy IT systems and redesigned processes running on fully automated systems (Asatiani & Penttinen, 2016).

Even though there is an obvious hype around RPA because of its high promises, it also still lacks a proven track record. Hence, a convincing business case is needed for potential clients to overcome caution (Asatiani & Penttinen, 2016).

In addition, RPA has received some scepticism on the impact on current jobs that it replaces. Although no significant job losses have been noted after implementations, robots can still be seen as competitors for jobs. This can lead to tensions between management and employees. RPA deployment must therefore be addressed and communicated properly (Asatiani & Penttinen, 2016).

There are also some challenges associated with RPA's relation to IT functions. Misunderstandings about RPA's attributes, its fit with corporate IT architectures, skill sets, governance and security policies often create barriers for adoption of RPA and delays in gaining its benefits (Willcocks, Lacity & Craig, 2015). To overcome this barrier Willcocks et al. (2015) state that CIOs and other IT professionals, who have a critical role in the success of RPA, need to be aware of how RPA can be utilized in the long-term.

### **2.1.3 Process selection and RPA implementation**

The evaluation of tasks that are suitable for RPA should begin with defining if a task is routine or non-routine and if it requires manual or cognitive efforts. Cognitive tasks that require creative thinking and non-routine tasks with no definable repetitive patterns have, in principle, little potential for automation. The best fitting tasks and processes for RPA are those that can be precisely written down step by step with all possible events and outcomes (Asatiani & Penttinen, 2016).

To evaluate suitability and viability of RPA in long-term, additional factors should be considered. Table 1 summarizes essential factors that can help as a guide in strategic decision making not only for companies considering implementation of RPA but also for RPA providers in marketing the technology (Asatiani & Penttinen, 2016).

Table 1 RPA suitability assessment criteria (adapted from Asatiani &amp; Penttinen, 2016)

Assessment criteria	Definition
High volume of transactions	Task considered for RPA is performed frequently or includes high volume of sub-tasks.
Need to access multiple systems	Task involves accessing multiple systems. Example: copying data from a spreadsheet to a customer registry.
Stable environment	Task is executed within predefined set of IT systems that remain same every time a task is performed.
Low cognitive requirements	Task does not require creativity, subjective judgment or complex interpretation skills.
Easy decomposition into unambiguous rules	Task is easy to break down into simple, straightforward, rule-based steps, with no space for ambiguity or misinterpretation. Example: Allocate all incoming invoices from Company X with value €3000 or more to category Y.
Proneness to human error	Task is prone to human specific error, not occurring to computers. Example: matching numbers across multiple columns.
Limited need for exception handling	Task is highly standardized. Little or no exceptions occur while completing a task.
Clear understanding of current manual costs	Company understands current cost structure of a task and is able to estimate difference in cost and calculate return on investment (ROI) of RPA.

Compared to traditional software development the development process of RPA is very lightweight since it takes advantage of the existing presentation layer of applications and their logic and security (Slaby, 2012). What comes to the implementation process of RPA, Asatiani and Penttinen (2016) suggest that although the whole idea of RPA is rather simple, time should be devoted to evaluate, analyse and plan the implementation. This is important not only for the successful configuration and deployment of the robot but also for demonstrating a transparent business case for sceptical clients (Asatiani & Penttinen, 2016). The literature on implementation methodologies for RPA is currently quite narrow because RPA as a research area only recently has begun to rise. There are different guidelines and frameworks created by vendors and consultants for the selection and implementation of RPA, as well as case studies that document the implementation methodologies of companies that have carried out RPA implementations. However, these do not always provide unbiased information (Syed et al., 2019).

K2 partnering, for example, suggests four phases for the implementation of RPA (Figure 2.) These include assessing, approving, designing and implementing (Whaley, 2017). In the first phase the process to be automated will be assessed based on its nature and its fit for RPA. In addition, the process is evaluated based on key criteria such as key performance indicators (KPIs) and suc-

cess factors which should be set and agreed on before implementation. The outcome of this phase is a feasibility report of the RPA project.

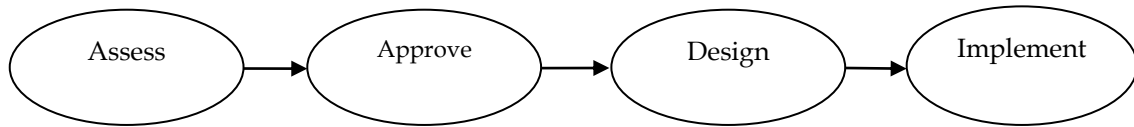


Figure 2 Phases of RPA implementation (adapted from Whaley, 2017)

In the approving phase the agreed process will be investigated and a documentation of the AS-IF process that describes it when performed by a human, as well as the TO-BE process, that describes it when performed by the robot, will be created. This phase also includes a business case of the project, including ROI which will be presented to the steering committee.

In the third phase, designing, the vendor for the developing tool will be selected and after that, the robot will be developed. The development process is iterative since the goal is to build a fine-tuned robot that is able to efficiently and reliably perform needed tasks. At the end, a user acceptance test will be performed. In the last phase the robot is implemented in its actual working environment and its performance monitored. If changes in the process will occur, the robot needs to be reprogrammed (Whaley, 2017).

As another example, in case studies of Lacity et al. (2016), Asatiani and Pentinen (2016), and Willcocks and Lacity et al. (2016) the most typical phases that companies go through in their RPA implementations include process assessment, Proof of Concept (PoC), and RPA lifecycle (Figure 3). Process assessment is the phase where the potential for RPA use cases is identified and addressed and the processes mapped out by RPA and process experts. This phase usually includes a workshop together with the client. In the Proof of Concept phase, the RPA implementation's technical and financial capability is analysed. In the next stage, RPA lifecycle, additional processes that have been analysed in the process assessment phase will be automated. In addition, for each automated process the development goes through the stages of defining, designing, developing, testing, executing and verifying.

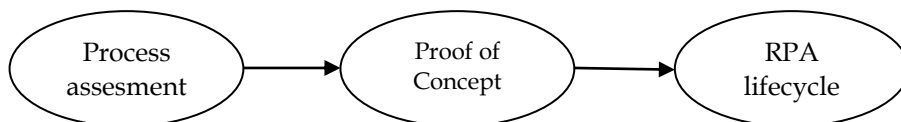


Figure 3 Phases of RPA implementation (adapted from Lacity et al., 2016; Asatiani & Pentinen, 2016)

#### 2.1.4 RPA business models

From the RPA provider's perspective, there are several business models that can be considered for offering the technology. Asatiani and Penttinen (2016) discuss the following alternatives in their case study: 1) License reseller, 2) Value-added consultant and reseller, 3) Software-as-a-Service (SaaS) provider, and 4) Outsourcing partner. They point out that each of the different business models have their benefits but also shortcomings that need to be addressed. One of the reasons for this is that not only has to be considered the current state of the RPA market but also future development directions, since the RPA business is still emergent in nature and it is evolving rapidly (Asatiani & Penttinen, 2016).

A license reseller is described as the most straightforward model. The provider resells third party RPA software licenses bundled with standard process libraries to its clients with commission fee profits. The benefit of this model is its easy execution and low risk and barrier to enter the markets. Profit margins as well as threshold for competition are, however, low (Asatiani & Penttinen, 2016).

A value -added consultant and reseller offers, in addition to selling licenses, implementation consultation and support. The value for the client comes through RPA and process redesign expertise and in comparison to the reseller model, the possibility to differentiate from competitors is better and profit margins higher. However, Asatiani and Penttinen (2016) suggest that the business for a consultant is limited. Unlike bigger projects like ERP implementations, that can generate hundreds of billable hours of work, RPA projects are much smaller and take only a few weeks to implement. Also scaling up the business rapidly can become a bottleneck.

A SaaS provider offers license and software bundled with process libraries and the client pays for the right to use the software hosted, developed and maintained by the provider on a subscription basis. The purpose of a SaaS model is to appeal to mass markets. It enables longer term relationships between the provider and its clients. However, because of limited customer specific customization SaaS providers need to continually compete on usability, features and price (Asatiani & Penttinen, 2016). Asatiani and Penttinen suggest that with the SaaS model an RPA provider has, however, the chance to offer post-sale value-added expertise because the RPA solution always needs to be customized to some level.

An RPA enabled outsourcing partner makes outsourcing contracts with its clients taking over control over outsourced processes with a promise of using RPA for completing the tasks. Processes are redesigned to fit RPA and the client pays per-process. Hence, RPA is not delivered through IT-projects but through an outsourcing deal (Asatiani & Penttinen, 2016). According to Asatiani and Penttinen (2016) this model has the ability to create long- term relationships and client lock-in effects but requires outsourcing recourses and expertise. The ad-

vantages and disadvantages of the four business models are summarized in Table 2.

Table 2 RPA business models advantages and disadvantages (adapted from Asatiani & Penttinen, 2016)

<b>Business model</b>	<b>Advantages</b>	<b>Disadvantages</b>
License reseller	<ul style="list-style-type: none"> <li>- Easy to enter the market early on.</li> <li>- No special expertise related to RPA is required.</li> <li>- No development, maintenance, or customization costs.</li> </ul>	<ul style="list-style-type: none"> <li>- No long-term business.</li> <li>- Low profit margins.</li> <li>- Low threshold for competition.</li> </ul>
Value-added consultant/reseller	<ul style="list-style-type: none"> <li>- Provide unique value to the client.</li> <li>- Competitive advantage through automation expertise.</li> <li>- Cumulative knowledge base in the long term.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited business opportunity after implementation is complete.</li> <li>- Limited opportunity to innovate in process redesign.</li> <li>- Limited control over software tools.</li> <li>- Fairly low threshold for competition.</li> </ul>
Software-as-a-Service (SaaS) provider	<ul style="list-style-type: none"> <li>- Control over the software.</li> <li>- Mass-market appeal.</li> <li>- Easy to scale.</li> <li>- Predictable income.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited customer specific customization.</li> <li>- Market scale is essential.</li> <li>- Chance for price competition driving profit margins down.</li> </ul>
RPA-enabled outsourcing partner	<ul style="list-style-type: none"> <li>- Familiar model to clients.</li> <li>- Easy to establish a business case.</li> <li>- Long-term relationship with a client/lock-in effect.</li> <li>- Full control over process automation.</li> <li>- Ability to provide combination of human and virtual assistants to tackle outsourced processes.</li> <li>- Accumulated intellectual property, such as process libraries, which can be used with future clients.</li> </ul>	<ul style="list-style-type: none"> <li>- Requires outsourcing expertise.</li> <li>- Requires resources to manage outsourcing partnerships.</li> <li>- Outsourcing deals can be a tough sell.</li> <li>- Competition from outsourcing providers.</li> </ul>

## 2.2 Theoretical background of project success

This section discusses the key concepts of projects in the field of information systems as well as the findings in prior research related to success criteria and success factors of IT projects.

In the field of information systems work is typically carried out in the form of a project. A project can be defined as a temporary setting of people and



resources with the goal to achieve a particular objective within a defined schedule, budget and certain specifications (Schwalbe, 2010). Projects are typically unique and customized which leads to some level of uncertainty throughout the different project phases (Schwalbe, 2010). In the information systems literature different authors use different terms for projects such as IT (information technology) project, software project, software development project and IS (information system) project. In this study IT project refers to all the above-mentioned concepts.

According to Schwalbe (2010) IT projects can be very diverse and disrupted by changes in technology, project requirements, personnel and the external environment which differentiates them from projects in other industries. High complexity, conformity, changeability, invisibility, and high chances of failure are typical characteristics of IT projects (Rodriguez-Repiso, Setchi and Salmeron, 2007).

Project management is a vital part of IT projects for accomplishing the objectives of a project. It is the function of a project organization which's goal is to accomplish a certain objective with specific criteria within a schedule and budget using available resources effectively (Liu & Horowitz 1989). Project management can be defined as the process of controlling the achievement of project objectives by applying knowledge, skills, tools, and techniques to project activities (Munns & Bjeirmi, 1996). The main tasks of project management include determining the requirements and the scope of work, allocating the resources needed, planning the execution of work, monitoring the progress, and adjusting changes that deviate from the plan (Munns & Bjeirmi, 1996). IT projects cover every industry and business function; hence IT project management requires not only skills in information technology but also understanding the business area and needs of the customer (Schwalbe, 2010).

Project success is critical in the field of information technology and it has an enormous economic impact on the performance of organizations. Research on project success state that many IT projects tend to fail (Keil and Mähring, 2010). It is not unusual that IT projects are cancelled before completion, run over budget and over time, or that completed projects do not satisfy customer needs (Cerpa and Verner, 2009). Reasons for project success nor failure are straightforward. Overall it is stated that project success as a study objective is broad, ambiguous, and multidimensional (Ika, 2009). In addition, there is no uniform definition for project success or failure. However, project management literature agrees on two concepts connected with project success/failure (de Wit, 1988; Jugdev & Müller, 2005; Munns & Bjeirmi, 1996; Müller & Turner, 2007):

- Project success/failure criteria
- Project success/failure factors

Success/failure criteria can be defined as the elements that are used to determine the outcome of the project whereas project success/failure factors are the elements that can be influenced to increase the likelihood of success/failure

of the project. Criteria are the dependent variables that measure project success/failure and factors the independent variables that contribute to the success/failure of the project. To understand success factors, it is essential to define success criteria of a project (de Wit, 1988).

This study focuses particularly on project success from the suppliers' perspective, which is a rather recently noted point of view in research. " When there is a sub-contracting relationship, there are two parties, a customer and a supplier : the customer is acquiring software and the supplier is developing software for the customer. In these situations the customer and the supplier are from different organizations, and they have made a contract regarding a software development project. According to the contract, the supplier has agreed to develop software and deliver the outcome of the software development project to the customer" (Savolainen, Ahonen & Ricardson, 2012).

The next sections discuss the concepts of project success criteria and project success factors to build an overall understanding of project success and the prior research in the area of information systems.

### **2.2.1 Project success criteria**

Cost, time and quality, the so-called 'golden triangle', are commonly stated as the criteria for project success in project management research (Westerfeld, 2003). However, many studies suggest, that additional criteria for project success should be considered, since projects that have met pre-defined cost, time and quality may not have met expectations such as end-user needs, profitability and business success (Savolainen et al.,2012). On the other hand, de Bakker et al. (2010) argue that using only time, cost and quality as success criteria, very easily leads to the conclusion that a project has failed. In IT projects requirements defined at the beginning will most certainly change during the project which will influence the schedule and the budget (de Bakker et al., 2010).

Freeman and Beale (1992) point out that success can also mean different things to different people. A project which is considered a success by the project manager and the team might be considered a failure by the client because both parties are evaluating project success differently. External stakeholders often evaluate success of a project by time and cost while internal stakeholders consider attaining the scope of development as the success criteria (Argwal & Rathod, 2006). In addition, when an IT project is carried out through a contract, two parties with different perspectives and goals are involved (Taylor, 2007). The supplier is responsible for developing software for the customer and simultaneously making business for itself. Hence, it is not straightforward to define what project success or failure means for the supplier. Argwal and Rathod (2006) state that success is actually found quite rare in IT projects because of the different perceptions of stakeholders. The different expectations of parties involved is one of the fundamental problems of IT project assessment and therefore it is essential to consider several perspectives when evaluating a project's performance. Also, according to Cook-Davies (2002), success that is measured after

completion of the project should be distinguished from measuring project performance during different stages of the project.

In the field of project management can commonly be found the use of the concepts project success and project management success (PM success) (Jugev & Müller, 2005; Ika, 2009). The difference of these two concepts can be clarified through the definitions of project and project management. Project can be defined as “achievement of a specific objective, which involves a series of activities and tasks which consume resources” (Munns & Bjeirmi, 1996) whereas project management is defined as “the process of controlling the achievement of the project objectives by applying a collection of tools and techniques” (Munns & Bjeirmi, 1996). PM success is considered as measurable (cost, time, quality) while project success focuses on more long-term and customer-oriented objectives (Papke-Shields et al., 2010). The difference between project success and PM success can also be perceived by saying “the operation was a success, but the patient died” (Jugdev & Müller, 2005). It is stated that despite poor project management performance a project can still be success and the other way around (de Wit, 1988). However, while PM success can lead to project success, it is unlikely that it will prevent failure (de Wit, 1988). For that reason, Savolainen, Ahonen and Richardson (2012) suggest that the two concepts should be considered separately but interlinked.

In the literature review by Savolainen et al. (2012) they found three criteria for evaluating software development from the supplier perspective. 1) Meeting planning goals (project manager success), 2) End-user benefits (success from the end-user point of view), and 3) Contractor benefits (contractor’s success, including the commercial success of the project and potential for future revenues). Their findings also point out the importance of considering business aspects when it comes to projects from the supplier perspective distinguishing between short-term and long-term business success.

Another way to compartmentalize project success is using the perspectives of project management success, impact on stakeholders, organizational and business success, impact on team and learning success (Shenhar & Divir, 2007; Shenhar et al., 2001). Project management success assesses the criteria impacting the efficiency and short-term performance objectives of the project. Impact on stakeholders is the dimension that considers success in terms of external parties, such as customer satisfaction. Organizational and business success focuses on the financial point of view, impact on team reflects on how the projects effects the team members, and learning success assesses project success from a knowledge management perspective. This classification emphasizes project success from different viewpoints and does not ignore the different parties involved nor the difference between project and project management success. Table 3 summarizes the different dimensions of project success, their assessment criteria, and time perspective.

Table 3 Project success criteria dimensions (adapted from Shenhar & Divir, 2007; Shenhar et al., 2001)

Success dimension	Assessment criteria	Time perspective
Project Management/Project Efficiency	Time cost quality Measurable Internal	Short-term
Impact on stakeholders	Customer oriented External Satisfaction of users and stakeholder needs	Long-term
Organizational and Business success	Business and direct success Financial rewards Cycle time	Long-term
Impact on team	Team satisfaction Team member growth Skill development	Long-term
Learning/Preparing for future	Knowledge management Lessons-learned Organizational capabilities New markets New competency	Long-term

### 2.2.2 Project success factors

As stated in the previous section project success factors can be defined as the elements that can be influenced to increase the likelihood of success of the project. In prior studies project success factors are discussed in different ways. For example, Cerpa and Verner (2009) discuss project success factors as such, Fortune and White (2006) use a framework in order to classify the factors, Cerpa, Bardeen, Kitchenham and Verner (2010) use factors as a basis for models to estimate project outcome and Procaccino, Verner and Lorenzet (2006) group them by people, process, and product factors.

What comes to the different groups in which success factors are discussed, Procaccino et al. (2006) suggest that people are the most important contributors in influencing the success of a software project. People related factors influence project success include competence, skills and experience of project managers and project team members, staff turnover, top management support, stakeholders' involvement, and quality of project management and leadership (Gottschalk & Karlsen, 2005). It is stated that people related factors are often substantial for successful projects. For instance, a significant factor to cost overruns, is inadequate project management (Cusing, 2002). It is even stated that most IT projects that tend to fail to meet the success criteria are characterized by non-technical, people related issues experienced during, usually in early stages, of the development process (Procaccino et al., 2010)

One research direction in studies of project success factors is the Critical success factor (CSF) approach which was developed by Rockart (1979) and later refined by Bullen and Rockart (1981). They define CSFs as “the limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department, or organization. CFS’s are the few key areas where ‘things must go right’ for the business to flourish and for the managers goal to be attained.” In the area of IT projects, CFS’s are stated to relate to primitive project management techniques (Reel, 1999) or to the combination of software development and business strategy (Bytheway, 1999). According to Boghossian (2002), CFS’s in the area of IT projects consist of the dimensions of development lifecycle, estimation and validation, executive management, project management and resource- and strategic-level planning.

In his research Sudhakar (2012) aimed to identify CFSs based on frequency of occurrence in literature and categorized them into seven categories: communication factors, technical factors, organizational factors, environmental factors, team factors, product factors and project management factors. Upon the categorization he built a conceptual model that identified the dependencies between them (Figure 4). The findings of the study highlight the importance of project management, product, team and communication factor categories.

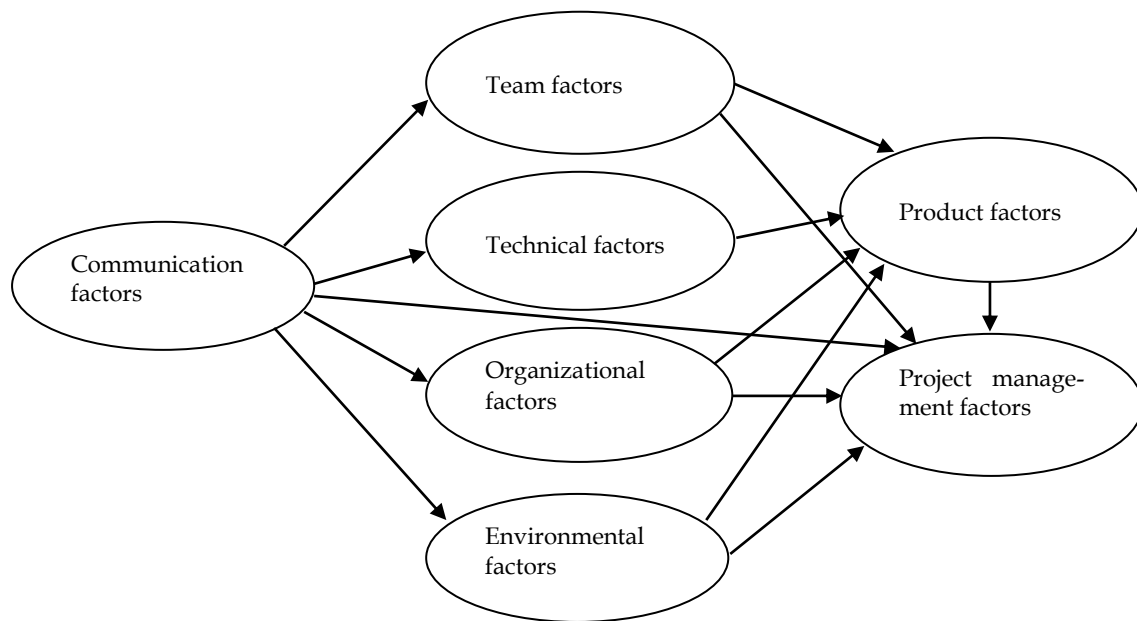


Figure 4 Critical success factor categories (adapted from Sudhakar, 2012)

Communication factors include i.a. communication, leadership, relationship between stakeholders, reducing ambiguity, maximizing stability, balancing flexibility and rigidity, and cooperation (Sudhakar, 2012). According to Ahimbisibwe, Cavana and Daellenbach (2015), internal project communication improves information sharing, collaboration, stability among team members and reduces team conflicts that may result in project delays and exceeding budget. In addition, it is stated that internal project communication has a significant

positive impact on process and product performance (Jun, Qiuzhen & Qingguo, 2011). Effective communication also increases the feeling of responsibility between the team and the project tasks.

Technical factors include technical tasks, trouble shooting, technical uncertainty, technology support, system testing, specification changes (Sudhakar, 2012; Ahimbisibwe et al., 2015). It is stated that factors that are related to organization, management and culture impact the success of the project more than the technical factors (Thite, 1999).

The organizational CSFs include top management support, realistic expectations, organizational politics, project planning and controlling, leadership characteristics, change management and vision and mission (Sudhakar, 2012; Ahimbisibwe et al., 2015). Among the factors related to organization, top-level management support is stated to be the primary CSFs for software projects. One potential reason for this is that top management support influences the other organizational factors.

Environmental factors include user involvement, customer involvement, vendor partnership, external environment events and client acceptance (Sudhakar, 2012).

Team related factors include team capability and competence, teamwork, commitment, team composition, project team coordination, and team empowerment (Sudhakar, 2012). Team factors have been stated to have a positive impact on any IT related project's success (Ahimbisibwe et al., 2015). Even though team factors mostly relate to the project team, some factors, like team empowerment, are influenced by the organization and its culture (Howell et al., 2010).

Product factors are accuracy of output, reliability of output, timeliness of output, quality control, documentation of systems and procedures, realization of requirements and product management (Sudhakar, 2012)

Project management factors include project planning, project control mechanisms, project schedule, Project manager's competence, clear project goal, progress meetings, project review and feedback, and risk management (Sudhakar, 2012).

In current literature many studies have used the approach of grouping CSFs but there seems to be not much of consensus in the categorization (Fortune & White, 2006) and therefore alternative frameworks for the categorization of CSFs are suggested by many recent researchers (Ahimbisibwe et al., 2015).

### **2.3 RPA project success**

RPA is considered as lightweight IT and in comparison, to heavyweight IT projects, RPA projects can be carried out in a much shorter time frame. In addition, the development is less technical since no changes to underlying systems are needed. According to Lamberton et al. (2017) however, many RPA projects still tend to fail. When an RPA solution is delivered by a supplier, different parties with different needs are involved which can impact the successful delivery of

the project. To avoid pitfalls, it is crucial to define the success criteria in the context of RPA projects and the factors that affect and can be influenced to increase the success of a project.

At this point prior academic papers addressing success of RPA projects from the RPA supplier perspective are limited. Also, other perspectives on RPA success from the project's point of view are still narrowly discussed. Since RPA is a relatively young field, no standard project methodologies have been formed by now either. There are, however, scholars that discuss RPA success from the implementation, adoption, (Lacity, Willcocks & Craig, 2015) commercial (Asatiani & Penttinen, 2016), and organizational perspectives. Papers addressing RPA success generally suggest adopting different practices like checklists, best practices, lessons learned, and experience reports of implementations based on conducted case studies from different industries to guide RPA projects.

As stated in the previous chapters, it is important to determine success criteria of a project in order to understand its success factors. In his study on critical parameters for successful process automation, Kaushik (2018) follows this premise by stating that it is important to define the meaning of success in the context of RPA projects in order to increase the odds of success for the projects. He determines an RPA project to be successful if it 1) is planned well, 2) is executed well, and 3) the impacted stakeholders are not overburdened. Apart from Kaushik, determining success criteria for RPA projects other scholars addressing RPA project success could not be found. Also, Kaushik's definition only considers PM success but does not address project success.

The next sections discuss different factors that have been suggested to affect RPA project success in current literature. In order to establish a systematic understanding this study follows the approach to group the different factors into the categories of communicational factors, technical factors, organizational factors, environmental factors, team factors, product factors and project management factors adopted from Sudhakar (2012).

### **2.3.1 Communication factors**

In recent studies it is suggested that an essential factor for the organizational adoption of RPA is communicating the positive messages and success stories throughout the organization. In addition, it is important to share experiences of RPA implementations to foster the company to learn to use RPA effectively (Hallikainen, Bekkhus & Pan, 2018). An RPA supplier is in a vital role for communicating the benefits at the beginning and during the project, especially if the customer organization is new with the technology.

Willcocks et al. (2015) suggest that during the project it is utmost important to clearly and openly communicate the processes. Furthermore, Anagoste (2018) states that the project team must have strong organizational and stakeholder communication skills to guide the actions during the project. Seasongood (2016) suggests that it is beneficial not only for the success of the project but for the successful adoption of RPA to create a communication strategy to avoid com-

municational issues. In an ideal state, this strategy ensures that all stakeholders are tied to the success of the project.

### **2.3.2 Technical factors**

The RPA literature is, related to the technical perspective, consistent with the well-known quote by Bill Gates, “automating an inefficient process only magnifies its inefficiency”, by emphasizing the need to optimise processes first before automating them (Primer, 2015). In addition, it was stated that redesigning processes is the key to maximising RPA capabilities (Lacity et al., 2016). According to Tornbohm and Dunie (2017) processes need to be standardized before implementing RPA.

What comes to the development of the robots it is suggested that time should be devoted for defining the process. In addition, domain experts and end-users should be involved in the conceptualization order to capture their knowledge (Hallikainen et al., 2018). Involving IT staff, in turn, is stated to be a vital part when designing the RPA solution for the robot to be able to authenticate and interact with the underlying systems as well as to follow existing security, auditability, and change management standards (Lacity & Willcocks, 2016).

### **2.3.3 Organizational factors**

According to Lacity (2015) a successful introduction to RPA requires the executive team to support and culturally adopt the technology in the organization where RPA is planned to be deployed. The executive team usually involves business and IT functions and is responsible for enabling the implementation. For this reason, it is recommended that automation initiatives and technology is introduced companywide to enable efficient and successful automation and RPA capability as well as fosters RPA readiness of the organization (Schuler & Gehring, 2018).

According to Rutaganda et al. (2017) an important organizational factor that affects the project’s long-term success is the lack of long-term RPA vision. Organizations often do not dare to set longer-term goals to their RPA strategy which results in ineffective utilization of the technology and comprehensive benefits will not be achieved. It is suggested to first initialize RPA use and capability, build that capability to replicate the success in other processes, and finally institutionalize RPA as an enterprise capability that can give increased performance and strategic value to the business. An RPA supplier’s role in this would be to encourage the organization to set long-term goals and to support the strategy of building up RPA as an enterprise capability.



### 2.3.4 Environmental factors

One focus of the RPA literature is the importance of bringing forth the buy-in of all stakeholders, from top-level management to end users. This is a critical factor for ensuring the success of an RPA project (Syed et al., 2019). A report by ACCA (2015) states that CFOs may not fully comprehend the benefits of RPA in comparison to employees working closer to the process. Therefore, it is important to demonstrate how RPA is transformative for the organization. Instead of only focusing on return on investment and cost reduction, it is crucial to highlight other business impacts of RPA such as the impact on customer (Boulton, 2017). In a report of Deloitte (Wright, Witherick & Gordeeva, 2018) it is suggested to show examples of benefits that RPA has delivered in other organizations to mitigate scepticism.

At the beginning of the project it is important to reach out to the business unit of the organization where RPA is to be implemented. The business operations know the processes and their possible bottlenecks, and also provide for the business case and funding. Demonstrating a transparent business case is important to overcome doubt of sceptical stakeholders (Asatiani & Penttinen, 2016). Involving employees and IT staff in an early stage of the project and addressing concerns and suggestions also decreases resistance of people that are affected by RPA and reduces possible delays (Lacity & Willcocks, 2016).

### 2.3.5 Team factors

In prior RPA literature it is suggested that in order to achieve successful project outcomes collaboration between internal and external teams is declared as necessary (Carden, Maldonado, Brace & Myers, 2019).

In addition, related to team factors team skills were discussed in Lacity's and Wilcock's (2017) case study. It was summarized that the "ability to extract logical structures from chaotic business data to build algorithms" is the most important RPA developer's skill requirement. In addition, IT skills were also seen as essential.

### 2.3.6 Product factors

Willcocks et al. (2015) have listed the key deliverables of RPA projects. The ones that are seen as the minimum necessary in any case are described as the AS-IS and TO-BE documents. These include the description of the workflow from scoping the process to the ready to be implemented robot. The AS-IS document, also called Process Definition Document (PDD), defines the process and its steps as it is performed currently. The TO-Be document, also called Solution Definition Document (SDD), describes the automated solution in detail including cost-savings, avoidance calculations, time steps and the decision-making process about automating the process or not (Shuler & Gehring, 2018). The SDD is usually used as the agreement between the different parties to start the im-

plementation phase. It is stated that too much of unnecessary documentation of the RPA project may cause complexity and overburden stakeholders and the project team and should therefore be avoided (Willcocks et al., 2015).

### **2.3.7 Project management factors**

According to Boulton (2017) many RPA projects tend to fail due to poor management. If the time schedule for development is tight communication of the process may be overlooked which in turn can cause havoc and problems related to corporate compliance. Project delivery approaches should, however, avoid postponing delivery dates far to the future since it conflicts with one of RPA's key benefits which is its fast development and launch of the solution (Rutaganda et al., 2017).

Prior case studies suggest that RPA project roll-out should start with an initial proof of concept (PoC) and after that proceed to scaling up to other processes. Rutaganda et al. (2017) state that it is important to clearly define and measure the PoC through straightforward key performance indicators (KPIs). However, the PoC should not be seen as more important than the long-term value creation. Focus should be set on identifying the real business in the organization and defining concrete RPA use cases with KPIs from these drivers (Rutaganda et al., 2017).

## **2.4 Literature review summary**

The literature review of this study was divided into three parts. The first part discussed the concept of RPA from different perspectives. The aim was to build an understanding of the context of this research and the current state of the overall concept of RPA as well as from which perspectives it is discussed in prior research. It went through the topics of benefits of RPA, challenges related to the technology, process selection and RPA implementation, and RPA business models. The second part focused on theories of IT project success as well as key concepts related to it including project success criteria and project success factors. The goal was to build a theoretical foundation to guide the topic of the study. The third part discussed RPA project success building on the concepts of IT project success and the findings of current literature related to RPA success from different perspectives.

RPA was defined as an umbrella term for tools that are used to automate repetitive tasks in a way a human would. RPA is considered as lightweight IT and RPA projects are characterized as short and quick to implement since no changes to underlying systems are needed. This is also one of RPA's essential advantages. Related to the topic of this thesis no prior research related to RPA project success from the supplier perspective was found. However, case studies

addressing implementation and adoption success of RPA from the end-user organizations perspective have been conducted by a few authors.

In the research area of project management, project success is typically discussed through two key concepts: project success criteria and project success factors. Success criteria are defined as the elements that are used to determine the outcome of the project. In prior research it is stated that defining the success criteria of a project is important for understanding the success factors. Success criteria are commonly discussed in terms of project success and project management success. The different between these two concepts can be clarified through the definitions of project and project management. A project involves a series of activities and tasks which with available resources aims to achieve certain objectives whereas project management is the process of controlling the achievement of the project objectives by applying a set of tools and techniques. Project success as a research area is broadly studied in the past decades, however, according to Savolainen et al. (2012), the supplier perspective is rather a recently noted focus area in research. When comparing the perspectives of a supplier and the customer in a project, project success can mean different things to the different parties which makes it essential to define what success actually means in a certain project context. From the reviewed literature the following success criteria categories were identified that are seen important from the supplier perspective: project management success, impact on customer, organizational and business success, and learning. These consider both PM and project success as well as the different parties' perspectives involved when a project is carried out through a subcontract.

Success criteria of RPA projects is, based on this literature review, a subject that needs to be further addressed. The research on RPA did not add much to the findings from IT and project management literature on project success criteria. No definitions on the RPA supplier perspective of project success criteria could be found either. To understand success factors in a certain project context, it is important to define the success criteria of the project and for this reason this study suggests that success criteria should be further defined in the context of RPA projects.

Success factors were defined as the elements that can be influenced to increase the likelihood of success of the project. Success factors of IT projects are discussed in prior literature in a comprehensive manner in different project contexts. This literature review was able to identify different research directions in the area of project management and information systems related to project success factors. One essential research direction related to success factors is the critical success factor (CSF) approach. CSFs are defined as the few key areas where things must go right in order to achieve success in a project. The research on CSFs offered a framework of different factor areas which was used to review RPA related success factors in a systematic manner. According to Procaccino et al. (2006) the most important factors that influence the success of a project are related to people. It was also stated that often when a project fails to meet its

success criteria it is due to non-technical, people-related issues usually in the early phases of a project (Procaccino et al., 2006).

Success factors in RPA projects should, based on this study, also be further studied. In previous RPA related studies success is discussed through case studies from implementation, adoption, commercial, and organizational perspectives in a qualitative manner. This study combined findings of previous literature to build understanding on success factors of RPA projects focusing on the RPA supplier perspective. The findings were derived from the suggested practices from papers discussing successful RPA implementations. The different factors were discussed through the categories of communicational factors, technical factors, organizational factors, environmental factors, team factors, product factors and project management factors adopted from the IT project CSF literature. Since the different factors are discussed in different contexts in prior literature, they can be seen as guiding assumptions of RPA success factors or so called best practices. Based on this literature review, the categorization with its individual factors needs to be further defined in the context of the supplier perspective of RPA project success factors.

Based on the theories and findings of the literature review, the empirical part of this study aims to build a more detailed understanding on the success criteria and success factors in the context of RPA projects from the supplier perspective and hence, complement the current research on both RPA projects as well as the supplier perspective on project success. The next chapter introduces the empirical research of this study. The results of the study are presented in chapter four, and chapter five and six include the discussion and conclusion of this thesis.

### 3 EMPIRICAL RESEARCH

This part of the study describes the empirical research process, how it was planned and executed. The first section introduces the case company, the second part defines the methods used, the data collection is described in the third section and the final section defines the data analysis.

#### 3.1 Case company description

The case company is a small Finnish software firm with around 30 employees. It specialises in the area of customer service and its customers operate in several different industries. Its offerings include both software products and applications such as intelligent contact center software, chatbots and customer experience measurement software as well as services such as consulting and service design. In addition the company's offerings include Robotic Process Automation (RPA) and Natural Language Understanding (NLU) solutions.

RPA has been a part of the company's offerings since 2017. The RPA software used is UiPath. The business model for selling RPA is a value added consultant and license reseller. However, during the past year the firm has partly shifted to a more SaaS-like model. The RPA solution is planned, developed, and implemented either as an on premise solution for the customer or the robots run on the company's servers from where they are maintained and monitored. Each RPA robot is customized for each individual customer and its processes.

The company's RPA projects typically include the phases process analysis, project kick off, defining the process to be automated, developing the implementation, and testing. One project's duration is usually around four weeks depending on the scope of the project.

This study aims to promote understanding of RPA project success as well as piece together the current knowledge of employees that are working on the projects in different roles and therefore have different perspectives on project

success attributes. The goal is to improve the communication of wanted RPA project outcomes and practices that affect the success of the project both internally and externally to the organization.

## 3.2 Methods

The method used in the empirical part of this study is qualitative, since the topic is emergent and the current understanding on success factors of RPA projects is rather narrow. Qualitative methods are preferred when the studied phenomenon is not well known and previous research on the subject is limited. A qualitative approach provides opportunities to explore, and make observations on the research problem to gain a deeper understanding. The aim of qualitative research is not the testing of theories or hypotheses, but a comprehensive and detailed interpretation of the data that seeks to reveal unexpected findings (Hirsjärvi et al.,2009.) This study aims to address the research questions from a point of view that will increase the understanding in a qualitative manner and promote further research on the topic through a case study approach.

### 3.2.1 Data collection

There are several different data collection methods that can be used in case studies (Yin, 2003) such as individual interviews, focus groups, analysis of records or documents, observations, or small scale surveys. In this study, a semi-structured interview was chosen as the data collection method. In a semi-structured interview the interview contains a set of questions based on themes which are conducted in the same way for each interviewee. The questions are formulated beforehand but with the goal to leave space for open and explorative conversations.

The research problem covers multiple different perspectives and therefore, people who are working with RPA projects and have knowledge and experience on different perspectives of the projects were chosen for the interviews. Hence, people from the operational, and business and sales side as well as the RPA team members with a more technical expertise were interviewed. The interviewees have experience of working with more than one RPA project. All the interviewees are from the case company as the study focuses on the RPA supplier perspective.

The interviews went through the themes of RPA project characteristics, success criteria of RPA projects, success factors of RPA projects, and challenges and risks of RPA projects. The themes were derived from the research questions and the literature review of this study but with the aim to keep the conversation open and not too much tied to the theories and frameworks discussed in the

literature part of this paper. The goal of the interviews was to gain understanding of the studied phenomenon in a comprehensive and detailed manner.

The interviews were conducted through Teams-meetings and took between 17-34 minutes. One of the interviews was a group interview which involved two interviewees and the rest of the interviews were conducted individually. Each interview was recorded and transcribed into text format for the analysis. The interviewees and their background are presented in Table 4.

Table 4 Interviewee backgrounds

Interviewee	Role	RPA experience	Number of projects
Interviewee 1	Senior Business Designer	4 years	Dozens
Interviewee 2	Head of RPA	4 years	~50
Interviewee 3	RPA Specialist	3,5 years	30-50
Interviewee 4	RPA Developer	2,5 years	10-20
Interviewee 5	Designer	2 years	over 20
Interviewee 6	Customer Experience Advisor	0,5 years	2
Interviewee 7	Customer Experience Advisor	3,5 years	~10

### 3.2.2 Data analysis

After conducting interviews, the analysis of the collected data was carried through. The different levels of analysis can typically vary between society, organization, group and individuals and usually the recommendation is to select only one level in the analysis to avoid cross-level misattribution. (Bryman & Bell, 2003) However, in organizational context interactions tend to happen in multiple interdependent levels. For instance, teams and organizations can influence individual-level attitudes, beliefs and behaviours and on the other hand individual's characteristics can affect the organization. (Costa, Graca, Marques-Quinteiro, Santos, Caetano & Passos, 2013) The method used was a thematic content analysis, which aims to find common patterns across the data set. This method suits the best to the research setting, since the objective is to find criteria that define and factors that affect the success of an RPA-project and its outcomes, and make such conclusions out of the gathered data. The steps of the analysis process typically include:

- Getting familiar with the data (reading and re-reading).
- Coding (labelling) the whole text.
- Searching for themes with broader patterns of meaning.
- Reviewing themes to make sure they fit the data.
- Defining and naming themes.
- The write-up (creating a coherent narrative that includes quotes from the interviewees).

After the interviews were transcribed into text format, Excel was used as the tool for the analysis. The data was coded, thematized, and categorized with help of spreadsheets and Excel data tools with the aim to find common patterns and get a detailed interpretation of the interviews. The results of the analysis are presented in chapter 4.



## 4 RESULTS

This section contains the results of the case study interviews. The results are presented thematically. The presented themes are: Characteristics of RPA projects, Success criteria of RPA projects, and Success factors of RPA projects. The different success factors are further divided into categories which are presented in the chapters 4.3.1-4.3.5. The presented results and their implications are discussed in section 5.

### 4.1 Characteristics of RPA projects

To examine perceptions of RPA projects and how they are different to other projects, the first theme considered RPA project characteristics. In the analysis of the interviews several characteristics were found. Overall RPA projects were described by the interviewees as process-oriented executions where work is done in close collaboration with the customer with the aim to find solutions to customers' challenges by automating manual tasks.

The single most mentioned characteristic considered the time and workload of RPA projects. Five out of the seven interviewees described RPA projects as short and fast both in time and in workload. This was mainly seen as a positive or neutral matter. However, one interviewee stated that the projects are even too short, since it easily leads to instability of the continuity of work from the supplier perspective. Also, another interviewee described the nature of the projects as "dotty" as it is easy and fast to spot and automate single processes. This in turn can lead to a situation where the bigger picture of RPA is overlooked.

*"It's like stuff at the lower end of the food chain. Automating some things and not looking at it as a whole in terms of processes and making a bigger plan. That is a typical feature in RPA projects." (Interviewee 1)*

The second most pointed out characteristic considered RPA's Return on Investment (RoI). One interviewee stated that the whole project usually starts from RoI calculations which is a vital part of deciding where to begin. Two other interviewees mentioned that a short RoI time is a typical characteristic of RPA projects, since quick benefit realization is one of RPA's advantages and therefore it is also most often expected.

Interviewee 2 stated that since the hype around RPA technology is slowly fading, the focus of projects is shifting, or at least should shift, from so called low hanging fruits to a more business as usual kind of thinking. Also in relation to this, interviewee 1 noted that a Proof of Concept (Poc) should not be a thing anymore in the year 2020 in the context of RPA projects.

The next chapter presents the different success criteria found in the analysis of the interviews.

## 4.2 Success criteria of RPA projects

The next studied theme focused on the success criteria of RPA projects and what is seen as the determinants for a successful project from the supplier perspective. As in the literature review was stated, to understand factors that affect and that can be influenced to increase the success of a project, it is important to define the criteria of a successful project in its context. This theme was studied by asking the interviewees what to their opinion is a successful RPA project and by which criteria they would judge the outcome of the project.

In the analysis of the interviews several aspects considering the criteria for RPA project success were identified. The most mentioned aspect was related to the project outcome's impact on the customer. All seven interviewees considered it as a determinant for a successful project that the customer's expectations and needs are met. This was defined in terms of achieving both qualitative and quantitative benefits of RPA in the customer organization through the project but also in terms of how the outcome of the project corresponds to what has been promised to the customer.

*"One success criteria from the supplier point of view is that the customer's expectations and our promises meet. This is important because otherwise the customer will feel that it is was not a successful project even if it was a successful project in our opinion. The expectations must be the same on both sides." (Interviewee 6)*

Quantitative and measurable benefit actualization was defined by interviewees in terms of meeting the objectives of the business case and achieving ROI as well as the amount of time the customer has saved through the automation, and the reduction of human errors in the processes.

Qualitative benefits mentioned by the interviewees included employee satisfaction and how the automation has effected the work of employees. Interviewee 5 stated that the qualitative benefits of RPA should be emphasized more

in the projects as customer organizations tend to judge project outcomes too often only based on quantitative benefits.

“There are certain jobs that do not belong to the present day. Man mainly wants to do meaningful work. When done correctly, the robot also makes no mistakes, while a human, for example, may come to work after a poorly slept night. In many cases, I would rather trust a robot than a human.” (Interviewee 5)

Interviewee 7 suggested that it would be useful to measure also qualitative outcomes in addition to quantitative outcomes for example employee satisfaction before and after the project to see how the automation has impacted the customer organization and its employees.

The second most mentioned success criteria was achieving continuum. RPA projects often tend to be experimental because they are seen as fast and cheap to implement in contrast to heavyweight IT projects. This is, from the supplier point of view, a downside since the determinant for business and success depends on getting into a continuum of RPA projects. Four of the interviewees mentioned that one success criteria of RPA projects is that a continuous customer is obtained and the project gives rise to more projects. This was seen as beneficial not only for the supplier to achieve business success but also for the customer to utilize the full potential of RPA in their organization.

“From the business point of view a project is successful if the customer wants to continue and do the next case as well.” (Interviewee 1)

Interviewee 2 stated that it is also a potential risk in RPA projects when active continuum can't be achieved.

“In a situation where there is a break from active work new opportunities and ideas do not rise. Through this there is a risk that we might get into a so called downward spiral. Also from this point of view one goal and success criteria of a project is achieving continuum.” (Interviewee 2)

The third success criteria mentioned by interviewees 3, 4 and 5 was related to project management success. These included the so called golden triangle also discussed in the literature: time, cost and quality. Related to these, an RPA project was determined successful if it was carried out within the available resources, the pre-defined scope and workload estimates. Quality of the project was mentioned in terms of the robots operational reliability and amount of needed maintainability.

The fourth mentioned success criteria was related to the perspective of learning which was mentioned by interviewee 1, 2, and 5. Learning as a success criteria was discussed mainly through the fact that even if a project outcome might not be the one that was planned or other success criteria were not met, it still can be seen as successful at some level because of the learning process that derived from the project. This, on the other hand, can also lead to a new project with a new focus.

“If, for example, during the project is noticed that RPA is not fitting for the certain process, even then, it is possible to succeed in improving the process or targeting RPA elsewhere. The greatest potential may be found, for example, inside or next to the original process.” (Interviewee 5)

“There can be a situation where we might fail at the first project and achieving the expected benefits of the automation but by looking at it from different perspectives and a broader point of view, the potential can still be found. So after one failed project it is not necessarily worth just quitting.” (Interviewee 1)

“For some customers the problem that needs to be addressed might be that the environment is blurry and it is not clear where to begin. So then, the essential thing is to grab something and to learn by doing after which the idea takes shape gradually.” (Interviewee 2)

In conclusion, the aspects of RPA project success criteria derived from the analysis of the interviews could be categorized into impact on the customer, achieving continuum, project management success, and learning. The next chapter discusses the success factors of RPA projects.

### **4.3 Success factors**

Success factors were studied by asking the interviewees to describe what they consider as important to take into account in RPA projects and what factors they think have had an effect on the success in the projects. In addition, mentioned factors were asked to put into order in terms of their importance. The interviewees both described factors through past project examples and from a more general perspective. To find additional factors and perceptions on RPA projects that can affect the success of the project, the interview also approached success from the opposite perspective by discussing challenges and risks related to RPA projects. Through the analysis of the interviews certain themes could be discovered. The following chapters present the results of each theme.

#### **4.3.1 Involving the right people**

The most often mentioned as well as among the most important rated factors were related to project roles and responsibilities. All seven interviewees defined involving the right people in the project both from the supplier as well as the customer side as the success factor of RPA projects.

According to interviewee 3, from the customer’s side in the project should at least be involved someone who is familiar with the process, IT-staff, and operational management who makes the decisions. From the supplier side, in turn, important was seen to involve the right people to help the customer to spot and verify the processes that have the potential for RPA. According to interviewee 2, supplier’s responsibility is also to guide the customer to get the right people

involved in the project. In addition, it should be clearly defined who will have the responsibility of bringing the project forth from both the supplier and the customer sides.

“There should be clearly defined persons responsible of the project. Unless the project is clearly anyone's responsibility, then it does not proceed as it should.” (Interviewee 6)

Also timing was considered important in this context by interviewee 1:

“Once the management has made the decision which direction will be taken, both the customer and the supplier must have the right people bundled to the project at the right time with an enthusiastic and goal-oriented attitude.” (Interviewee 1)

Interviewees also highlighted the importance of having a person involved from the customer's side who is committed to take actions. Interviewee 2 stated:

“From the supplier point of view the customer must have a committed person with a mandate to take that matter forward and to find processes that can be automated and has management's approval for that to be done.” (Interviewee 2)

Very similarly interviewee 7 and 5 noted:

“The most important thing is that there is a person with a mandate to take care of and promote the objectives.” (Interviewee 7)

“The customer must be committed, active and make an effort to make the agreed things come true.” (Interviewee 5)

Another thing that came up by two interviewees in relation to roles and responsibilities was the importance of involving everyone right from the beginning of the project, to ensure everyone has the same goals and objectives. Especially important was seen to involve the person who knows the process to be automated from the beginning of the project in order to make sure the right directions are taken and the right decisions are made both from the technical and the business point of view. In addition, involving stakeholders in an early phase was seen as an enabler for further opportunities.

“Involving stakeholders makes it easier for a successful project to be followed by the next one. Also, stakeholders should be conditionally involved in the project from the beginning so that they see for themselves whether it is worth continuing to the next one or not. Not that the internal sales of the customer starts only when there is one successful project and no one even knew about it. In this way, the customer doesn't need to be talked into the next projects either.” (Interviewee 2)

### 4.3.2 Analysing the process and defining the automation

Analysing the process and defining the automation was mentioned as success factors by six interviewees. In addition, defining the automation was ranked by interviewees 3 and 4 ranked as the most important success factors.

Analysing the process thoroughly was seen important for making sure what can be automated with RPA and what not and how it should be done to achieve efficiency.

“Finding and digging for the right case worth automating is essential. So if it doesn't work right from the start then it will be challenging.” (Interviewee 6)

“There is a risk that the RPA project is targeting the wrong process because not enough time and effort was put into planning and analysis.” (Interviewee 5)

In addition, making an effort in the analysis phase of the project was mentioned to enable to see the bigger picture of the process environment and achieving the most efficient solution.

“RPA is one way to implement process improvements but by emphasizing process design, service design and process analysis in addition to just thinking about RPA we can move from these so called low hanging fruits to seeing the wider process. Through this we might be able to make changes in the processes, automate those that have potential for RPA and then the human's role shifts entirely from a “copy-paste” worker to a decision maker.” (Interviewee 2)

Defining the automation, in turn, was mentioned to promote the successful execution of the project through having a clear plan and scope but also in order to produce a technically feasible implementation.

“It is essential to do a comprehensive definition of the necessary implementation at an early stage of the project.” (Interviewee 4)

“The process must be comprehensively planned and defined before programming begins so that the technical solution is the best and most reasonable possible for the situation.” (Interviewee 3)

This was also seen important in terms of avoiding misunderstandings and unexpected situations related to process specifications or system compatibility issues.

“There is a risk that changes need to be made in the process specifications due to inaccurate definition at the beginning of the project. Also, unexpected system compatibility issues might occur due to poor preparation or planning.” (Interviewee 3)

### 4.3.3 Project management

Project management related factors were mentioned by interviewees 2, 5, 6, and 7. Among the answers project management was mentioned as such but also individual factors related to the category were brought up. These included managing project progress, controlling the objectives and the scope of the project, scheduling, and managing recourses, and documentation.

Managing project progress was mentioned by interviewee 6 in terms of measuring and keeping intermediate checks and by interviewee 7 in terms of ensuring that the project overall goes smoothly forward.

“Measurability is an important issue in RPA projects. It is also a good to keep intermediate checks frequently throughout the project to ensure that everything is going in the same direction.” (Interviewee 6)

Controlling project objectives and scope was mentioned by interviewees 2 and 3 in terms of making sure that during the project the objectives are adhered to and in terms of avoiding the risk of scope creep.

“In general it is important to, at least, sticking to what was being done. This is, of course, a general project logic. So during the project, there shouldn't be much meandering... there is a risk of scope creep, that is, the expansion of the scope to something completely different from where we set off. You have to try to protect yourself against it no matter how much you would like to add, and expand, and do more... New ideas, however, can of course be gladly accepted and kept in mind for later so that they will not be forgotten.” (Interviewee 2)

“scope creep to something completely different from what was sent. you have to try to protect yourself against it no matter how you want to add and expand and do.

Scheduling was mentioned in terms of dedicating the time needed for the project by interviewee 5. In addition, interviewee 2 mentioned that time management is important to avoid the risk of prolonging lead time of the project.

“Long lead times should be avoided. In other words, if there is idle time during the project due to either us or the customer. This has proven to be a challenging.” (Interviewee 2)

Managing resources was mentioned by interviewee 2 in terms of making sure that needed resources are available since there is always some level of uncertainty involved when it comes to project work.

In addition, documentation of products, best practices, and procedures was mentioned as one factor that benefits the building of internal project capabilities and their communication throughout the organization.

#### 4.3.4 Project communication

Communication was mentioned by five interviewees as the success factors of RPA projects and was also among the most important ranked factors. Communication was mentioned as such by three of the interviewees. In addition, two interviewees gave a more specific definition of what they consider effective project communication and examples of communication practices that have been proven successful.

Interviewee 5 mentioned that project communication should be systematic and proactive.

*“Communication should be carried out in a planned and agreed manner, for example, through weekly-meetings or daily check-mail...it is important that both parties are themselves, and keep each other updated.” (Interviewee 5)*

Interviewee 2 stated that communication is so easy to take for granted but in many cases it is one of the most essential factors of the project where things must go right. Also it was seen important to not only communicate the positive news but also the bad news in order to build trust between the different parties.

*“Customer communication and remembering that the customer is not a mind reader. When you get something done in a week and are satisfied, at the same time the customer might be scratching their head and wondering what is going on because they have heard nothing from you. Then, on Monday morning when the customer has to ask about the project’s situation we have to explain ourselves even if everything is in good shape. This is why proactive communication is so important. And even in situations where things don't go well, tell it before the customer has to ask what's wrong because it makes the customer feel safe and they will rely on the fact that you will let them know if any problems come up.” (Interviewee 2)*

#### 4.3.5 Convincing the customer

Convincing the customer came up in the interviews as one success factor category. This was mentioned by four interviewees. It was seen that in order to achieve a successful RPA project, it is essential to convince the customer about the benefits that can be achieved through the project. This was connected to both getting started with the first automation but also with achieving continuum with the customer after the first project.

According to the interviews when starting projects with new customers, there is often some level of scepticism related to RPA. Convincing the customer, therefore, can be pivotal in order to accomplish a good starting point for the project. To get there, interviewee 6 mentioned that often in sales situations the business case for the project is in a vital role. Also, the customer often wants to see something concrete that supports their decision making process.

*“I remember one situation where the customer was not convinced because they did not see a concrete example. Although we would have had everything necessary to of-*



fer. But because the customer could not see, experience, or test anything they did not dare to order it from us." (Interviewee 6)

Interviewee 5 mentioned, that the different benefits should be specified and the customer needs to be convinced that the implementation will not bring them additional work.

Interviewee 1 mentioned that one challenge related to convincing the customer is that there might be conflicting opinions between the different teams in the customer organization.

"One thing that has come up a lot is that if the business and IT disagree about the RPA case or its necessity. Often the situation is that the business would see an opportunity but then IT states that they don't have the resources or so. So in general, the conflict between the customer organization and its teams. Often it is IT that needs to be convinced."

Building trust was also seen important in relation to this. Interviewee 3 mentioned that if the customer is an old one and through previous projects trust has been built with them, starting new projects is easier because the phase of convincing the customer does not need to be addressed. Also Interviewee 6 stated that building trust helps in convincing the customer. Also, if the trust is lost it is very hard to try to rebuild it.

"Convincing the customer is important but one shouldn't promise something that can't be achieved. The risk of losing trust is not something that should be taken." (Interviewee 6)

In addition, interviewee 1 mentioned that to achieve continuum with the customer it is important that the customer is convinced about the outcome of the project.

## 5 DISCUSSION

This section includes the discussion of the study. The first chapter discusses the implications for research of the findings in the light of the research questions. The second chapter discusses reliability, validity, and limitations of the study. Finally, chapter three discusses further research topics. The conclusion of this thesis is presented in section 6.

### 5.1 Implications for research

The aim of this study was to advance understanding of RPA project success with a focus on the RPA supplier perspective. With this approach, this thesis aimed to answer the following research questions:

- What are the success criteria of RPA project?
- What are the critical success factors of an RPA project?

The literature review discussed RPA project success from the perspective of previous studies on successful RPA implementations and IT project success. RPA project success was reflected on two concepts that the project management literature agrees on (de Wit, 1988; Jugdev & Müller, 2005; Munns & Bjeirmi, 1996; Müller & Turner, 2007): Project success criteria and project success factors. The empirical part followed this premise by investigating the success criteria and success factors for RPA projects from the supplier perspective through a qualitative case study approach.

Addressing the first research question, the findings from the literature review indicate that there is not much definitions for what success means in the context of RPA projects nor by which criteria a project can be judged successful or failed. One article was found that defined success criteria for an RPA project. Kaushik (2018) determined an RPA project to be successful if it 1) is planned well, 2) is executed well, and 3) the impacted stakeholders are not overbur-

dened. The project management and information systems literature supplements the findings on project success criteria from the supplier perspective. Time, cost and quality are the most commonly known criteria for judging the success of a project but it is suggested by many authors that additional criteria should be defined. The reason for this is that a project might have met time, cost and quality requirements but doesn't fulfil user or customer needs. In addition, a long-term perspective on success of a project is neglected. From the supplier point of view the findings indicate that in addition to the measurable project management success criteria, project success should be judged from different dimensions. These include impact on customer, organizational and business success, and learning.

In comparison to the empirical findings on success criteria similarities can be identified. The success criteria for RPA projects are, according to the case study, impact on the customer, achieving continuum, project management success, and learning. Impact on customer was seen as the most important success criteria from the supplier perspective and supports the findings of the literature. Achieving continuum was not mentioned as such in the literature but according to this study it is seen as an important criteria for RPA projects from the supplier business success perspective and is related to the characteristics of RPA projects as they were defined as "dotty" and "blurry" and short. However, organizational and business success was found as one criteria category in literature which can be seen as related to continuum. Project management success as well as learning as criteria for project success that were found in both literature and empirical part of this study and therefore supports the findings of prior research. Overall the implication of the project success criteria extends the research in the area of RPA as well as the research on information systems project success by suggesting the individual criteria for project success in the context of RPA projects.

What comes to the second research question, the findings of the literature review indicate that the success factors of RPA projects from the suppliers perspective haven't been addressed before or at least no prior papers addressing the topic could be found. There are several studies, however, in the field of information systems and project management that identify success factors in different project context. Many of them apply to any kind of project and can be therefore used to reflect on success factors in different project settings. This study used the findings from project management literature as a guiding framework for success factor categorization. Success factors of RPA implementations and side notes from prior RPA research was discussed through the different success factor categories.

The findings of the empirical part adds to the current knowledge by identifying RPA project success factors from the supplier point of view. The different success factors identified were categorized and the different categories included involving the right people, analysing the process and defining the automation, project management, project communication, and convincing the customer. The most important success factor according to the case study was in-

volving the right people. This supports the findings of the literature review stating that people related factors are the most important for meeting the success criteria of a project. The identified success factors are reflected to the categorization of the literature review and a summarized comparison of the findings is presented in table 6.

Table 5 Comparison of literature and empirical findings of RPA project success factors

Success categories	Literature review success factors	Empirical research success factors
Team factors	Internal and external collaboration Team skills	Involving the right people
Technical factors	Process re-design and optimization Involving IT and end-users	Analysing the project and defining the process
Communication factors	Project communication	Project communication
Project management factors	Project management	Project management
Environmental factors	Stakeholder buy-in	Convincing the customer
Organizational factors	Management support	
Product factors	PDD SDD	

Overall the findings of this study complements the understanding of the phenomena and the research area. However, due to the limitations of this thesis and the fact that the subject of this study has been narrowly addressed in prior research, further research is needed in order to confirm the results.

The next chapter discusses reliability, validity and limitations of the research.

## 5.2 Reliability, validity and limitations of the research

To ensure reliability and validity of the study verification was done throughout the research process. According to Morse, Barrett, Mayan, Olson and Spiers (2002) verification is the process of checking, confirming, making sure, and being certain, which is used to incrementally contribute to ensuring reliability and validity, and accuracy of a study. The focus lays on identifying and correcting errors before they are built. Qualitative research is iterative rather than linear, so if the principles of qualitative inquiry are followed, the analysis is self-correcting (Morse et al., 2002). Moving back and forth between design and implementation is the key to ensure consistence between question formulation, literature, data collection methods, and analysis. Verification will help to identify when to continue, stop or modify the research process in order to achieve reliability and validity (Morse et al.,2002)

The limitations of this study are related to both the literature review and the empirical part as well as the researcher herself. The limitations might affect the results of this study and the generalization of the results. The literature review covered previous research on both Robotic Process Automation and IT project success. Regarding RPA literature, the number of conducted studies is still quite narrow and articles related to the actual topic, RPA project success from the supplier perspective, are very limited or non-existent. This effected the selection process of accurate references. IT project success related literature on the other hand is at the opposite end of the state of research. The selection of references was made from an comprehensive amount of articles. Considering the scope of the literature review, this can also be seen as a limiting factor.

There are some limitations related to the empirical part as well. The number of interviewees was quite small and all of the people interviewed work in the same company which might affect the generalizability of the results. Considering this study being qualitative, the aim was to create new and increase current understanding of a topic that has not been addressed thoroughly. So from this point of view, the low number of interviewees is not a limiting factor. Also, the selection of interviewees took into account their experience and all of the people interviewed had been working with more than one RPA project which increases the reliability of the results. Because of the fact that all interviewees work at the same company, some of the findings on success criteria and success factors of RPA projects might be specific to the case company. The comparison of the literature and empirical findings, however, shows similarities.

A third limitation of this study is related to the background of the researcher and the interview sessions. The researcher works for the case company, has been part of the projects, and knows the interviewees personally. This might affect the results as the interviews are conversational in nature. On the other hand, the background of the researcher might also promote a common understanding and trust during the interviews. Another limitation related to the interview session is that when conducting interviews, there is always a possibility of human error which might affect the reliability of the results.

The next chapter discusses further research suggestions.

### **5.3 Further research**

Based on this study and its results, suggestions on further research are related to both the topic as well as the research area of this thesis. From the perspective of the topic of this study further research could continue investigating critical success factors of RPA projects from different perspectives and project settings. As discussed in the literature review, there are different types of RPA business models from the supplier perspective. This case study focused on RPA projects from a value-added consultant and reseller business model's point of view. Other business models, for example RPA outsourcing partner or SaaS provider,

were not investigated in the context of this study and would therefore be an interesting topic in terms of project success. Another shortage of this study is the lack of perceptions of other parties involved in the projects. The focus of this study was the perspective of the supplier and the customer's and other stakeholders' point of views were not addressed and should therefore be further investigated in order to create an understanding of the bigger picture.

Considering the research area of RPA and RPA projects, there are still several research gaps that need to be further addressed. There is still a lack of research considering RPA projects in terms of project methodologies and no comprehensive understanding on that topic currently exists. This could promote RPA project practices and bring forth the research in the area. In addition, to the contrary of this study, investigating RPA project failure could generate further insights on the risks and challenges of RPA projects.

## 6 CONCLUSION

The reported benefits of Robotic Process Automation (RPA), a technology that enables the automation of routine and manual tasks and processes, include reduced costs, time, and errors as well as improved quality, efficiency, and productivity. The demand for organizations offering RPA software and services has increased during the past years as the interest for deploying RPA has risen in several industries. It is vital for supplier organizations and teams to understand where to focus on to achieve success of RPA projects when several parties are involved. RPA as a research area is still relatively new and project success in the context of RPA from the supplier perspective is narrowly addressed in prior research. This study aimed to focus on this gap by exploring success of RPA projects from the supplier point of view. The objective was to answer the questions: what are the success criteria of RPA projects/How is a successful RPA project defined, and what are the success factors of RPA projects from the supplier perspective.

A literature review was conducted with the aim to identify RPA project success related criteria and factors by building on the theories of project success derived from the information systems and project management literature and the previous studies on RPA success as well as to serve as a theoretical foundation for the study. The empirical part of the study included a qualitative case study of a small Finnish software company that provides RPA software and services for its customer organisations. Semi-structured interviews were used as the research method to capture the perceptions on RPA project attributes of people who are working with RPA projects in different roles in the supplier organisation. The results were reflected on the findings in the literature based on the key concepts and theories identified from prior research.

Project success in the area of information systems and project management is comprehensively discussed in prior studies. However, the supplier point of view is a rather recently noted focus area. Project success criteria are often stated in terms of the so called golden triangle: time, cost and quality. However, it was agreed by several authors that additional criteria should be

considered especially when a project is carried out through a subcontract and different parties with different perceptions on project success are involved. Prior research suggested success criteria categories which considered the different perspectives of different parties as well as project management success as well as project success. In the context of RPA projects, the literature review could not find project success criteria on the supplier perspective on the project since the subject is narrowly addressed and the research area rather new. The results of the empirical research of this study indicated that RPA project success from the supplier perspective can be defined through the criteria of impact on customer, project management success, achieving continuum, and learning. The identified criteria supported the findings from prior research. However, this study suggested that achieving continuum is specific to RPA projects considering that RPA projects are often short and fast and therefore getting into continuum with the customer is an essential criteria for success of a project from the supplier perspective.

Similarly to project success criteria, factors that affect and can be influenced to increase the likelihood of project success are addressed in prior research in the area of project management and information systems in a comprehensive manner. The literature review identified different approaches and research directions on project success factors. One key finding from prior research that the empirical research of this thesis supported was the importance of people related factors affecting the success of a project. The most important factor affecting success of an RPA project identified in this study was involving the right people. Additional success factors identified were analysing the process and defining the automation, project management, project communication, and convincing the customer. Overall, the findings of this study complement the research area of RPA and brings a new perspective to existing knowledge of RPA project success. The limitations of this study might affect the generalizability of the results and therefore further research is needed to confirm the findings.



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## APPENDIX 1 INTERVIEW TEMPLATE

- Haastateltavan rooli/tehtävänimike?
- Kuinka pitkä kokemus RPA:n parissa?
  - Projektien määrä?
  - Miltä seuranta-ajalta näkemys projekteihin?
- Millaisia piirteitä RPA projekteihin liittyy/Miten luonnehtisit RPA projekteja?
- Kuvaile/kerro oma käsityksesi siitä, millainen on onnistunut RPA projekti.
  - Mitä kriteerejä projektin tulisi täyttää, jotta se voidaan todeta onnistuneeksi?
  - Mitkä mainitsemistasi kriteereistä ovat mielestäsi keskeisimpiä?
- Pohdi onnistuneita RPA projekteja. Mitä asioita pidät tärkeänä projektin onnistumisen kannalta?
  - Mitkä tekijät ovat osoittautuneet vaikuttavan projektin onnistumiseen?
  - Millaiseen tärkeysjärjestykseen mainitsemasi tekijät laittaisit?
- Pohdi epäonnistuneita/haasteellisia RPA projekteja. Millaisia haasteita ja riskejä koet projekteihin liittyvän?
  - Mitkä tekijät näyttävät jo ennakoitavasti johtavan projektin epäonnistumiseen?