UNIVERSIDADE CATÓLICA PORTUGUESA

Understanding the Adoption and Acceptance of RPA Bots in Modern Workplaces: A Mixed Methods Study

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Católica Porto Business School

2023

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Understanding the Adoption and Acceptance of RPA Bots in Modern Workplaces: A Mixed Methods Study

Final work in the form of a Dissertation
presented to Universidade Católica Portuguesa
to obtain a master's degree in management with specialization in Business Analytics

by

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under the guidance of
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Católica Porto Business School
April 2023

Acknowledgements

As I sit down to write this acknowledgements part of my dissertation, I'm filled with emotions. This marks the end of an incredible journey in which the people that I will mention played a crucial role.

I would like to begin by expressing my deepest gratitude to my mother, father, and great-aunt, without them all of this would have never been possible. They are the pillars of my life, and I will be forever grateful.

Next, I would like to acknowledge my brother, who has always been my role model and my best friend. His advice, guidance and wisdom have been invaluable throughout every step of my life.

I would also like to mention my niece, who has recently entered this world and has already become the most important person in my life.

To my girlfriend, Bruna, I cannot express my gratitude enough. Your support, understanding and encouragement have been incredible. Your belief in me, even during the most challenging times, has given me the strength to overcome this dissertation journey. I am truly fortunate to have you by my side.

To my family, as a whole, you have played a pivotal role in my life, and I am immensely grateful for your love and support.

I also want to extend my appreciation to my friends, who have brought so much joy and laughter into my life. You know you are the best.

To my GKN family, especially my manager, thank you for being understanding and flexible during this demanding period. Being part of a team that is also a family has been a true blessing.

Finally, I would also like to express my deepest gratitude to my advisor, Professor António Andrade. Thank you for all the advice and especially for the availability. It was a pleasure to work under your mentorship.

To all of you, my sincere gratitude.

Resumo

À medida que as tecnologias de automação se tornam mais prevalentes nos locais de trabalho, os bots de Automação de Processos (RPA) surgem como ferramentas valiosas para otimizar a produtividade. No entanto, a adoção bem-sucedida dos bots de RPA vai além de suas capacidades técnicas. Esta tese utiliza uma abordagem de métodos mistos para explorar a adoção e aceitação dos bots de RPA nos locais de trabalho modernos. A análise quantitativa, guiada pelo Modelo de Aceitação do Utilizador para RPA de Wewerka, revela o consenso dos participantes em relação à influência social positiva, relevância para o trabalho e utilidade percecionada dos bots de RPA. Variações na confiança e motivação hedónica destacam a importância de abordar preocupações e aprimorar a satisfação para uma aceitação generalizada. A análise qualitativa revela diversas motivações para a adoção dos bots de RPA, enfatizando a automação de tarefas, melhoria da eficiência e impactos positivos nos processos de trabalho. Os participantes demonstram satisfação em relação às formações e ao apoio recebidos, destacando a ausência de grandes obstáculos na adoção. Além disso, reconhecem o valor das competências humanas no uso dos bots de RPA. Olhando para o futuro, os participantes vislumbram um aumento na automação e enfatizam a necessidade de formação contínua e desenvolvimento de competências. Esta pesquisa oferece contributos sobre a aceitação, benefícios, desafios e perspetivas futuras dos bots de RPA no local de trabalho moderno.

Palavras-chave: Robotic Process Automation, RPA, adoção, aceitação, local de trabalho, métodos mistos, Modelo de Aceitação de Tecnologia, Teoria Unificada de Aceitação e Utilização de Tecnologia.

Abstract

As automation technologies become more prevalent in workplaces, Robotic Process Automation (RPA) bots have emerged as valuable tools for optimizing productivity. However, the successful adoption of RPA bots extends beyond their technical capabilities. This thesis employs a mixed methods approach to explore the adoption and acceptance of RPA bots in modern workplaces. The quantitative analysis, guided by Wewerka's User Acceptance Model for RPA, reveals participants' consensus on the positive social influence, job relevance, and perceived usefulness of RPA bots. Trust and hedonic motivation variations highlight the importance of addressing concerns and enhancing enjoyment for widespread acceptance. The qualitative analysis uncovers diverse motivations for adopting RPA bots, emphasizing task automation, efficiency improvement, and positive impacts on work processes. Participants express overall satisfaction with training and support, minimal barriers to adoption, and recognition of the value of human skills. Looking ahead, participants envision increased automation and emphasize the need for ongoing training and skills development. This research provides insights into the acceptance, benefits, challenges, and future outlook of RPA bots in the modern workplace.

Keywords: Robotic Process Automation, RPA, adoption, acceptance, workplace, mixed methods, Technology Acceptance Model, Unified Theory of Acceptance and use of Technology.

Number of words: 9895

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Acronyms

AI – Artificial Intelligence

BPMS – Business Process Management Software

BPO – Business Process Outsourcing

FTE – Full Time Equivalent

HR – Human Resources

IDT – Innovation Diffusion Theory

IT – Information Technology

MDM – Master Data Management

MM – Motivational Model

MPCU - Model of PC Utilization

OCR - Optical Character Recognition

PEoU – Perceived Ease of Use

PU – Perceived Usefulness

RoI – Return on Investment

RPA – Robotic Process Automation

SCT – Social Cognitive Theory

TAM – Technology Acceptance Model

TRA – Theory of Reasoned Action

UTAUT – Unified Theory of Acceptance and Use of Technology

1. Introduction

1.1 Background and contextualization

RPA is a relatively new technology that has become increasingly popular in various industries. It involves the use of software robots to automate repetitive and routine tasks, which can improve efficiency, reduce errors, and free up time for employees to focus on higher value-added activities (Plattfaut et al., 2022; van der Aalst et al., 2018). Despite its potential benefits, the adoption of RPA in organizations is still limited and there is a lack of understanding of the factors that influence its successful implementation and use. Therefore, there is a need to investigate the factors that contribute to the adoption and acceptance of RPA in organizations.

1.2 Purpose of the study

The purpose of this study is to investigate the factors that influence the adoption and acceptance of RPA bots in the workplace. The motivation behind this research is to better understand how users perceive and interact with these bots, and to identify the challenges and facilitators that impact their usage. Through this study, we hope to uncover the drivers of RPA bot adoption and the benefits that users derive from their implementation. Additionally, we aim to examine the potential impact of RPA bots on job satisfaction, security, and prospects in the industry. Ultimately, our goal is to provide insights that inform successful strategies for the integration and implementation of RPA bots in the workplace.

1.3 Research Objectives

The study aims to achieve the following research objectives: identify the factors influencing RPA adoption, use, and acceptance in the workplace, investigate their relationship with users' behavioral intention to use RPA bots, explore RPA users' experiences, perceptions, and concerns of the impact of RPA bots on their work and job satisfaction, and identify any potential barriers to RPA adoption and use.

1.4 Research Methodology

In this study, a mixed-methods approach will be utilized, involving both quantitative survey and open-ended qualitative questions. The survey will consist of 40 Likert scale questions and eight open-ended qualitative questions, which will be administered to a diverse sample of four RPA users from various industries and work areas. The quantitative data will be analyzed using descriptive statistics. Additionally, the qualitative data will be used to provide further context and support for the findings obtained through the quantitative analysis. The quantitative and qualitative data will be integrated to check for consistencies and discrepancies and will be compared with the existing literature.

1.5 Dissertation Structure

This dissertation is organized into six chapters. Chapter 1 introduces the study, including the contextualization, purpose, research objectives, and methodology. Chapter 2 reviews the relevant literature on RPA adoption and use, focusing on the factors that influence user acceptance and adoption. Chapter 3 reviews the existing literature on the Technology Acceptance Models on which the User Acceptance Model for RPA by Wewerka et al. (2020) is based on, namely TAM and UTAUT. Chapter 4 presents the research methodology in detail,

including the survey design, sampling strategy, and data collection. Chapter 5 presents the results and findings of the study, including the quantitative and qualitative results, their integration, and comparison with existing literature. Finally, Chapter 6 provides a summary of the study's main findings, conclusions, limitations, and recommendations for future research.

2. Robotic Process Automation

2.1 Robotic Process Automation

RPA has emerged as a promising technology for automating repetitive tasks in various industries, offering the potential to reduce costs and improve efficiency (Plattfaut et al., 2022). However, the successful implementation of RPA depends on the acceptance of its users (Wewerka et al., 2020). The purpose of this literature review is to provide an overview of the current state of research on RPA and its applications, with a specific focus on understanding the factors that influence user acceptance and adoption of RPA. By reviewing the existing literature on RPA, we aim to identify the key factors that contribute to user acceptance of RPA and provide insights for organizations considering RPA implementation.

2.2 Definition and history of RPA

RPA is a software-based solution that can automate structured, routine, and manual tasks, enabling knowledge workers to focus on more complex and value-adding activities (Leopold et al., 2018; Syed et al., 2020). RPA operates on the user interface of other computer systems, mimicking human actions to capture and interpret existing applications for processing transactions, manipulating data, and communicating with other software systems (Leshob et al., 2018). Unlike traditional workflow technology, RPA requires no changes to the information system and aims to replace people by automation done in an 'outside-in' manner (van der Aalst et al., 2018). RPA is a technology that can learn from people and replicate their processes, resulting in much faster task handling. RPA is also incredibly versatile and can improve efficiencies for a wide range of computerized business processes, including increasingly complex tasks. As RPA

technology continues to develop, it is expected to become even more proficient at handling these tasks, which can further increase efficiency and productivity in the workplace (Kroll et al., 2016; Plattfaut et al., 2022).

RPA combines screen scraping, workflow automation, and AI. Screen scraping bridged the gap between systems but had compatibility issues. Workflow automation improved efficiency by eliminating manual data entry. AI involves computer systems performing human-like tasks. RPA enhances these capabilities with easy-to-use features and no coding required (Smith, 2016).

Recent years have seen a significant increase in the adoption of RPA and OCR technologies. According to Deloitte's (2022) report, 74% of survey respondents are already implementing RPA, up from just 13% in 2015. Similarly, 50% of organizations now use OCR technology. The success of early adopters has led to the widespread use of the full suite of intelligent automation tools, including AI, process mining, and process monitoring. The report indicates that AI is the most desirable emerging technology, with 46% of organizations planning to implement it in the next three years, followed by process mining and monitoring.

These findings suggest that organizations are increasingly recognizing the benefits of intelligent automation and are taking steps to implement these technologies to improve their operations and stay competitive in their industries.

There are several RPA solution vendors, Gartner separates 15 of the most notable vendors into four categories: Challengers, Leaders, Niche Players, and Visionaries as shown in Figure 1.

Figure 1 - Magic Quadrant for RPA (Gartner, 2022).

2.3 Applications of RPA in various industries

RPA is being increasingly adopted by organizations across various industries for process digitalization and automation. Finance, Travel and Expenses, Fixed Assets, Accounting, MDM, and HR are some of the key areas where RPA is currently making a significant impact. These functions often involve tedious and repetitive tasks that can take away valuable time from employees who could be working on critical creative and strategic functions, which require important decision-making that only humans can perform. RPA enables employees to focus on value-adding activities that are essential to the firm, while freeing them from

copying and pasting information in different systems or other rule-based processes (Figueroa-García et al., 2017; Kroll et al., 2016).

RPA excels in automating rules-based processes that require routine tasks, structured data, and deterministic outcomes. Most applications of RPA are used to automate tasks related to service business processes such as validating insurance premiums, generating utility bills, paying healthcare insurance claims, and keeping employee records up-to-date (Figueroa-García et al., 2017).

Real-life examples of RPA's success include Telefonica O2 (Leslie Willcocks & Craig, 2015), which implemented an RPA trial on two highly standardized processes. One process involved SIM swaps, and the other was the application of pre-calculated credit to a customer's account. Telefonica found that RPA yielded a quicker payback period compared to using BPMS for automation. Another example is Xchanging (Willcocks & Craig, 2015), a business process and technology services provider that successfully applied RPA in the insurance industry. RPA software was used to manage the structured parts of the process, including error detection, data retrieval, sales record creation, and broker notification. Xchanging reported cost savings averaging 30% per process. RPA has also been applied in the finance industry, energy, and BPO (Figueroa-García et al., 2017).

RPA adoption is not limited to specific industries, with organizations around the globe, including telecommunication firms, insurance companies, and soccer clubs, now implementing RPA. Despite being a comparably new phenomenon in process digitalization and automation, RPA has received a lot of media attention. (Plattfaut et al., 2022). In summary, RPA has the potential to significantly improve operational efficiency and reduce costs across various industries.

2.4 Benefits and Challenges of RPA and its Adoption

2.4.1 Benefits

RPA is a technology that offers companies numerous benefits, particularly in terms of cost-effectiveness and quality improvements, and overall job satisfaction on employees. RPA enables quick implementation, requiring minimal capital or infrastructure investment and not necessarily requiring changes to existing IT systems and processes. It can act as an additional employee, working between IT systems and back-office processes in various functions (Kroll et al., 2016).

RPA also has the potential to improve job satisfaction by automating repetitive, time-consuming, and error-prone tasks, which can free up employees to focus on more creative and engaging work. By automating routine tasks, employees can increase reduce their stress levels, and have more time to focus on value-added activities (Leopold et al., 2018; Plattfaut et al., 2022).

Another of the main advantages of RPA as highlighted by Kroll et al. (2016) is its ability to reduce human error by up to 20% while completing tasks quickly, accurately, and at a lower cost than human employees. In fact, software robots can cost as little as 1/3rd of the price of an offshore full-time employee (FTE) and 1/5th of the price of an onshore FTE, resulting in anywhere between 20%-50% cost savings. RPA also increases productivity, with one study showing that a group with RPA was able to handle 21% more cases than a group without RPA (Figueroa-García et al., 2017).

The implementation of RPA solutions is straightforward and requires minimal programming skills. RPA is set to work by just dragging, dropping, and linking icons (Figueroa-García et al., 2017). Additionally, RPA can help organizations quickly achieve a high return on investment (RoI) and positive impacts on strategic goals, staff productivity, and customer service (Syed et al., 2020).

Moreover, the main benefits of RPA, as presented by Chugh et al. (2022), are of a monetary nature: cost saving in comparison to traditional forms of process optimization and quick return on investment. These cost savings include reductions in facilities and personnel costs, as bots do not require office space and reduce headcount, which also reduces the cost of recruitment, training, and managing Human Resource issues. Furthermore, RPA does not require expensive IT upgrades and helps reduce the costs of offshoring and outsourcing, as bots do not require supervision or negotiation with outsourcing partners and are geographically independent.

RPA is versatile and can increase efficiencies for a wide range of computerized business processes. As RPA mimics the behavior of end-users, the corresponding transfer from human processing to robotics can be done quickly (Plattfaut et al., 2022). RPA projects can be executed in a short time and very cost-efficiently, with success stories reporting tremendous effects on process efficiency and effectiveness.

In summary, RPA is an attractive technology for companies looking to reduce costs, increase productivity and employee satisfaction, and achieve a quick return on investment.

2.4.2 Challenges

Besides having numerous benefits, RPA also presents several challenges to organizations that seek to implement it regarding user acceptance and adoption. One significant challenge is the lack of understanding and awareness of RPA among stakeholders. This lack of knowledge can lead to distrust, negative attitudes, and active resistance to RPA adoption. Employees may fear losing their jobs, and management may prioritize their current work cultures over innovation. To address this challenge, organizations must communicate clearly

with all stakeholders and involve the diverse stakeholders throughout the implementation (Chugh et al., 2022; da Silva Costa et al., 2022).

Another challenge of RPA implementation is the impact on employees. The change management process requires organizations to redeploy and upskill employees whose roles will be affected by RPA adoption. Some employees may avoid implementing RPA out of fear of losing their jobs, leading to lower adoption rates (Chugh et al., 2022; da Silva Costa et al., 2022; Plattfaut et al., 2022; Deloitte, 2018). Organizations need to involve employees in the implementation process and provide adequate training and support to address this challenge (da Silva Costa et al., 2022; Plattfaut et al., 2022; Razak & Ismail, 2022).

Many authors state that process standardization is a significant challenge for those who have implemented and scaled RPA. Identifying suitable processes for automation is crucial for successful RPA adoption. Attempting to automate unsuitable processes is a recurring challenge for organizations, particularly when the processes are manual, complex, or involve multiple parties. Redesigning the process or selecting a more suitable process for automation can often be the best solution (Fernandez & Aman, 2021; Wewerka et al., 2020; Wright et al., 2018).

The adoption of RPA is also accompanied by concerns related to access and security. In the past, humans had been responsible for managing access to resources. However, with the introduction of software robots, new measures must be put in place to ensure they have the necessary access to information. Moreover, current security practices are ill-equipped to cater to the existence of digital workers, making it challenging for organizations to implement a new security framework that accounts for RPA. Due to these challenges, users may become apprehensive about the security and privacy of their data, thus affecting their acceptance of RPA. Hence, it is crucial to address these concerns and enact appropriate measures to ensure the secure and safe adoption of RPA (Chugh et al., 2022; da Silva Costa et al., 2022; Fernandez & Aman, 2021).

In conclusion, RPA adoption presents several challenges, particularly regarding users and people. Employees may fear losing their jobs, and stakeholders may prioritize their current work cultures over innovation. Process standardization and access and security are also significant challenges. Organizations must involve all stakeholders, provide adequate training, and support, and conduct thorough research to address these challenges and increase the acceptance of RPA by users.

2.5 The Future of RPA and Its Implications for Jobs and Skills

The future of RPA is expected to bring significant changes to the workforce. While RPA adoption will create new job roles that require critical thinking, problem-solving, and creativity, some current jobs may be threatened as RPA can automate repetitive, manual, and low-value tasks. Moreover, the next phase in robotic systems will involve artificial and cognitive intelligence computing, where robots will act just like humans. This will lead to the emergence of advanced AI-powered robots that can learn, make decisions, and perform complex tasks without human intervention. Therefore, it is crucial for individuals to upskill and reskill to prepare for the changing job market and stay relevant in the digital age (Chugh et al., 2022; Fernandez & Aman, 2021).

3. Technology Adoption Models

In this chapter, the objective is to present the User Acceptance Model proposed by Wewerka et al. (2020) while also briefly explaining the two underlying models on which it is based (TAM and UTAUT).

3.1 Technology Adoption Models

The area of technology adoption has been an important research domain in information systems for several years. As technology evolves rapidly, so too have the theories and models developed to better explain the factors driving technology adoption, Table 1 provides an overview of these models, their authors, and the key constructs or determinants of adoption they propose.

TAM emerges as one of "*the most valued research studies that contribute to IT adoption*" (Bryan & Zuva, 2021).

Theory/Model	Author(s)/Year	Constructs/ Determinants of adoption
Diffusion of Innovation Theory	Everett Roger (1960)	The innovation, communication channels, time and social system.
Theory of Reasoned Action	Ajzen and Fishbein (1975)	Behavioural intention, Attitude (A), and Subjective Norm.
Theory of Planned Behaviour	Ajzen (1985)	Behavioural intention, Attitude (A), and Subjective Norm, Perceived Behavioural Control.
Social Cognitive Theory	Bandura (1986)	Affect, anxiety.
Technology Acceptance Model	Fred D Davis (1989)	Perceived usefulness and perceived ease of use.
Technology-Organization-Environment framework	Tornatzky and Fleischer (1990)	Technological context, organizational context, and environmental context
The Model of PC Utilization	Thompson et al. (1991)	Job-fit, Complexity, Long-term consequences, Affect Towards Use, Social Factors, Facilitating Conditions.
The Motivation Model	Davis et al. (1992)	Extrinsic motivation (such as perceived usefulness, perceived ease of use, and subjective norm) and intrinsic motivation (such as perceptions of pleasure and satisfaction).
Extended TAM2 model	Venkatesh and Davis (2000)	Social influence processes (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and perceived ease of use).
Unified Theory of Acceptance and Use of Technology (UTAUT)	Venkatesh et al. (2003)	Performance expectancy, effort expectancy, social influence and facilitating conditions.
Extended TAM3 model	Venkatesh and Bala (2008)	Relationships between perceived usefulness and perceived ease of use; Computer anxiety and perceived ease of use; Perceived ease of use and behavioral intention are all moderated by experience.
Model of Acceptance with Peer Support (MAPS)	Sykes et al. (2009)	Behavioural intention, System use, Facilitating conditions, Network density, Network centrality, Valued network centrality, Valued network density.

Table 1 - Evolution of Technology adoption models adapted from Sharma & Mishra (2014).

3.2 Technology Acceptance Model

This section provides an overview of the TAM. It traces the historical development and evolution of TAM, including its origin and extensions over time. The key constructs and concepts of TAM are discussed and additionally, the strengths and limitations of TAM are outlined.

3.2.1 Historical Development and Evolution of TAM

3.2.1.1 Origin of the Technology Acceptance Model

TAM was first introduced by Davis (1986) as a model to explain individuals' acceptance and usage of information technology. It was based on the Theory of Reasoned Action (TRA) that was developed by Fishbein and Azjen in 1975, which posits that attitudes and subjective norms were the primary determinants of behavior. Davis (1986) adapted TRA to the context of technology adoption by proposing that PU and PEoU were the two key determinants of user acceptance of new technologies. Davis' original TAM model was validated in several studies and became widely used in the field of information systems research.

3.2.1.2 Extensions of TAM over time

TAM is a widely used model in the field of information technology that aims to explain an individual's adoption and usage behavior of information technology (Wewerka et al., 2020). The original model was proposed by Davis (1989) and was later extended to TAM 2 by Venkatesh & Davis (2000) and to TAM 3 by Venkatesh & Bala (2008).

Venkatesh & Davis (2000), proposed TAM 2 by expanding the original TAM model by incorporating several additional external variables and two moderators to the determination of PU. These variables include the subjective norm, image, job relevance, output quality, and result demonstrability. The first

two variables represent social influence, while the others are system characteristics (Venkatesh & Bala, 2008). The authors of TAM 2 also include the moderators' experience and voluntariness.

The Subjective norm captures the perceived social pressure to conform to the opinions and actions of important reference groups. Job relevance highlights the extent to which the use of technology is relevant to one's job performance, while image refers to the individual's perceived image or status associated with the use of technology. Output quality pertains to the perceived quality of the output produced by the technology, and result demonstrability refers to the visibility and tangibility of the results produced by the technology (Venkatesh & Davis, 2000).

Finally, experience and voluntariness refer to the user's prior experience with the technology and the degree to which its use is perceived as voluntary or mandatory, respectively (Venkatesh & Davis, 2000).

TAM 3, developed by Venkatesh & Bala (2008), expands on previous TAM models by introducing additional factors that influence PEoU. It incorporates computer anxiety and user experience as determinants, which moderate the relationships between PEoU and PU, as well as PEoU and behavioral intention. This model enhances our understanding of technology acceptance by considering the impact of individuals' anxiety and prior experience in shaping their perception of ease of use and subsequent behavioral intentions. TAM 3 proposes the following relationships, which are all moderated by experience: (1) PEoU to PU; (2) Computer anxiety to PEoU; and (3) PEoU to behavioral intention as shown in Figure 2.

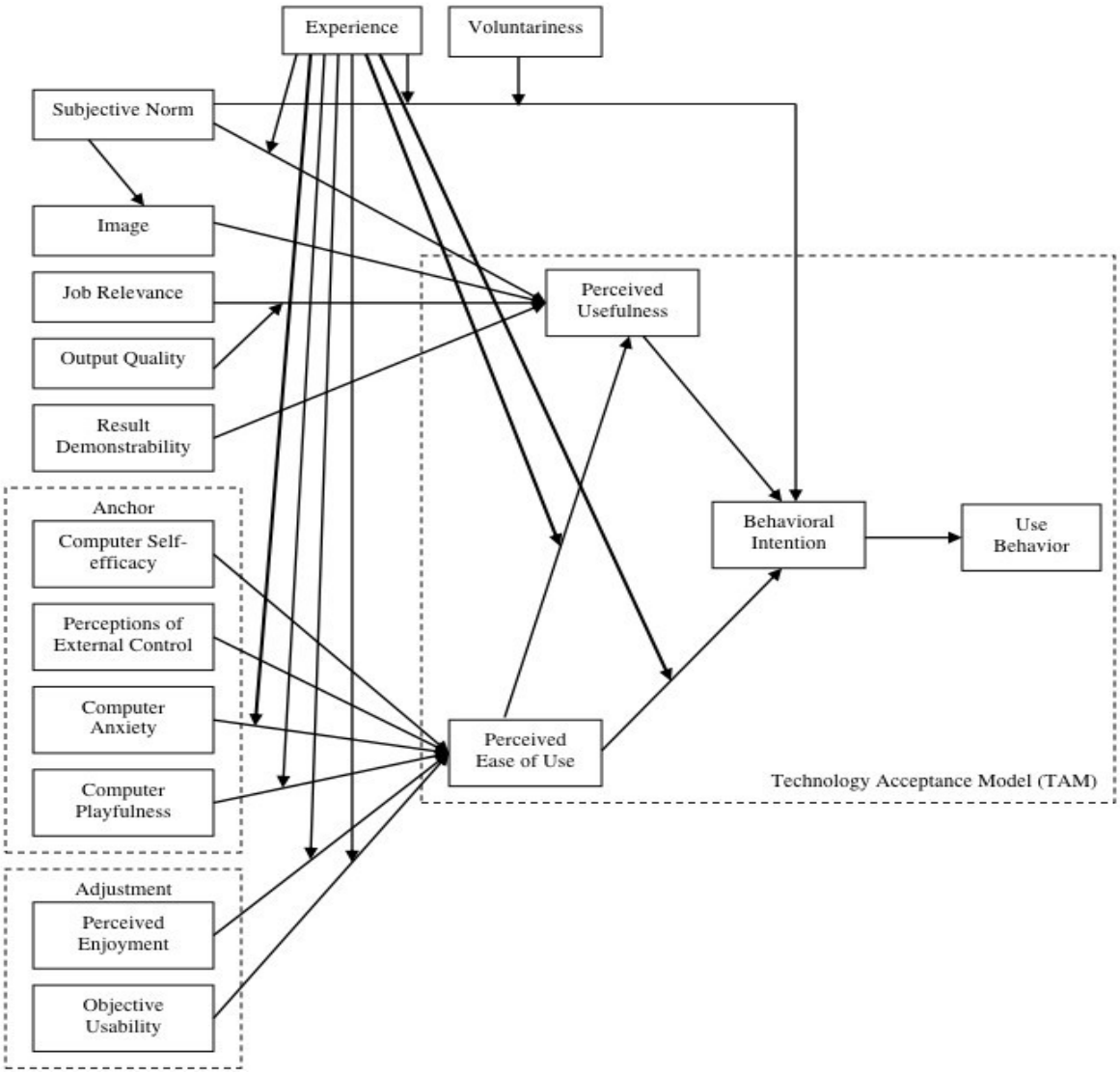

Figure 2 - Technology Acceptance Model 3 (Venkatesh & Bala, 2008)

3.2.2 Key Constructs and Concepts of TAM and its Relevance in the Field of information technology

The model is based on three key constructs, PU, PEoU, and attitude toward using the system (Bryan & Zuva, 2021). Davis (1989) defines PU as "*the degree to which a person believes that using a particular system would enhance his or her job performance*" and PEoU as "*the degree to which a person believes that using a particular system would be free of effort*". The author also proposed that the user's attitude towards the system was a significant factor in determining whether they would

accept or reject its use. As said before, the model was based on the Theory of Reasoned Action (TRA) which suggests that social behavior is driven by an individual's attitude and that this attitude can be used to predict information system use (Sharma & Mishra, 2014).

TAM has been widely used in various contexts. For instance, a study by Muñoz-Leiva et al. (2017) extended the classic TAM model to identify the determinants of intention to use mobile banking apps. Meanwhile, Patricia Aguilera-Hermida (2020) research investigated college students' use and acceptance of emergency online learning during the pandemic. Both studies highlight the continued relevance of TAM in explaining technology acceptance behavior. Despite the model's age, it remains a fundamental and adaptable tool for studying the acceptance and adoption of technology in the field of information technology.

3.2.3 Strengths and Limitations of the Technology Acceptance Model (TAM)

3.2.3.1 Strengths of TAM

The TAM has gained widespread popularity for its IT-specific and parsimonious approach to exploring and predicting the acceptance of various technologies. It is flexible and has a strong theoretical and psychometric foundation, making it a robust tool with strong explanatory power. The two core constructs of TAM, PU, and PEoU are primary determinants of system use and explore a wide range of acceptance beliefs and behavioral intentions. The model is simple and easy to understand, which makes it a popular means of measuring the scale of technology acceptance by users (Bryan & Zuva, 2021; Chatterjee et al., 2021).

3.2.3.2 Limitations of TAM

TAM has been a widely used framework for understanding users' acceptance of technology. However, despite its popularity, the model has several limitations that warrant consideration. Firstly, the TAM relies on subjective measures, such as behavioral intention (BI) and interpersonal influence, which can be challenging to reliably quantify. Secondly, the model neglects external variables, such as age and education, which can have a significant impact on users' acceptance of technology. Additionally, the reliance on self-report data can introduce inaccuracies and abstractness when measuring actual system usage. Moreover, the model overlooks hidden personality traits that may motivate behavior, further complicating the reliability of the model. Finally, given that the TAM model utilizes theoretical frameworks and models, researchers must be aware of their limitations when applying them, as the complexity of the model's underlying constructs needs to be fully understood (Ajibade, 2018; Bryan & Zuva, 2021).

3.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

3.3.1 Introduction to UTAUT and its purpose in technology acceptance research

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a highly regarded model in the field of technology acceptance research. Its primary aim is to explain and predict user acceptance and usage behavior towards information technologies. The model was first proposed by Venkatesh et al. (2003), and has undergone several updates since then, incorporating additional factors and variables that can influence technology adoption. UTAUT builds on the

foundations of several existing theories such as the Theory of Reasoned Action (TRA), the TAM, the Motivational Model (MM), the Theory of Planned Behavior (TBP), a combined TBP/TAM, the Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT) to create a comprehensive framework for understanding users' attitudes and behavior towards technology. Its flexibility and comprehensive nature have made it one of the most widely used models in the field of information systems and technology management (Williams et al., 2015).

In the following section, we aim to provide an overview of the UTAUT model and its key components.

3.3.2 Key Elements and Constructs of UTAUT

The UTAUT model is composed of four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). These constructs are used to explain the factors that influence individuals' acceptance and use of technology and can be seen in Table 2.

Construct	Definition	Source model of the construct
Performance expectancy	This construct refers to the degree to which individuals believe that using a technology will help them perform their tasks more effectively or efficiently. This includes factors such as perceived usefulness, perceived ease of use, and perceived benefits (Venkatesh et al., 2003).	Perceived usefulness (TAM/TAM2), Extrinsic motivation (MM), Job-fit (MPCU), Relative advantage (IDT) Outcome expectations (SCT)
Effort expectancy	This construct is concerned with the perceived ease of use of a technology, which includes the degree to which individuals believe that using the technology will be free from effort. Effort expectancy is influenced by factors such as complexity, usability, and learnability (Venkatesh et al., 2003).	Perceived ease of use (TAM/TAM2), Complexity (MPCU), Ease of use (IDT)
Social influence	This construct describes the degree to which individuals are influenced by the opinions and behaviors of others. This includes factors such as subjective norms, social identity, and social support (Venkatesh et al., 2003).	Subjective norm (TRA, TAM2, IDTTPB, TPB) Social factors (MPCU), Image (IDT)
Facilitating conditions	This construct refers to the degree to which individuals believe that the necessary resources and support are available to use a technology effectively. This includes factors such as technical support, training, and infrastructure (Venkatesh et al., 2003).	Perceived behavioural control (TPB, DTPB, C-TAM-TPB) Facilitating conditions (MPCU), Compatibility (IDT)

Table 2 - Constructs of UTAUT adapted from Sharma & Mishra (2014)

3.4 A User Acceptance Model for RPA

3.4.1 Overview of the User Acceptance Model for RPA

In recent years, RPA has emerged as a promising technology to automate business processes and increase operational efficiency (Syed et al., 2020). However, the successful adoption and integration of RPA in organizations depend heavily on user acceptance. Despite its potential benefits, some employees may resist RPA due to fears of job displacement or the perceived complexity of the technology. To address this challenge, researchers have developed user acceptance models to identify the factors that influence RPA adoption and use. One such model, as said before, is the TAM, which has been widely applied in various technology adoption contexts. However, the RPA user acceptance model presented in this paper is not solely based on TAM but also includes elements from the Unified Theory of Acceptance and Use of Technology (UTAUT) to provide a more comprehensive understanding of the factors that affect RPA adoption and use. Through the evaluation of the model in the automotive industry, the paper contributes to the understanding of RPA user acceptance and offers practical implications for organizations seeking to maximize the benefits of RPA (Wewerka et al., 2020).

3.4.2 Explanation of how the model was developed

In order to develop the User Acceptance Model, the authors followed two major steps.

The initial step involved collecting external variables from the TAM and its extensions literature. As seen in 3.2, TAM 1 considers both PU and PEoU and has two extensions, namely TAM 2 and TAM 3. TAM 2 focuses on external variables that influence PU, whereas TAM 3 investigates those that affect PEoU. The inclusion of attitude towards use, which was originally a part of TAM 1, has been

found to be insignificant in practice and has subsequently been removed from the extensions. However, given the significant association between PEOU and behavioral intention (BI), it has been reintroduced into the model. Table 3 shows the external variables derived from TAM and UTAUT literature.

In the next step, the authors reviewed the RPA literature to decide whether to include or exclude the variables derived from TAM and UTAUT from the model. They also considered critical success factors discussed in Business Process Management (Mutschler & Reichert, 2006), Process-aware Information Systems (Mutschler et al., 2008), and Workflow Implementation (Becker et al., 1999; Choenni et al., 2003; Parkes, 2002). Table 4 shows which variables were included and excluded, and Figure 3 shows the final model.

Variable	Definition	Model
Social influence	The extent to which an individual perceives pressure from others to use or not use a technology.	TAM 2, UTAUT 1
Image	The extent to which the use of a technology is perceived to enhance the social image or status of the user	TAM 2
Job relevance	The degree to which a technology is perceived to be useful for an individual's job tasks.	TAM 2
Result demonstrability	The extent to which the outcomes and benefits of using a technology are visible and tangible.	TAM 2
Output quality	The extent to which the technology provides accurate and reliable results when performing job-related tasks.	TAM 2
Computer self-efficacy	The belief or confidence in one's ability to use a computer effectively to accomplish a task or solve a problem	TAM 3
Facilitating conditions	The degree to which the necessary resources and support are available for an individual to use a technology.	TAM 3, UTAUT 1
Computer Anxiety	Users' fear or apprehension when using computers.	TAM 3
Computer playfulness	User's enjoyment and willingness to engage with new technologies in a playful and creative manner	TAM 3
Hedonic motivation	The degree to which users perceive the use of a technology as fun, enjoyable, or pleasurable	TAM 3, UTAUT 2
Objective usability	Actual effort required to complete specific tasks using the technology	TAM 3
Price Value	Tradeoff between perceived benefits of the technology and the costs caused by its use	UTAUT 2
Habit	Automatic behavior due to learning.	UTAUT 2

Table 3 - External Variables derived by the authors from TAM and UTAUT literature adapted from Wewerka et al. (2020)

Variable	Included/Excluded	Reason of inclusion/exclusion
Social Influence	Included	Literature on RPA suggests that management commitment is a crucial factor for successful adoption of RPA bots.
Job relevance	Included	The level of job relevance of RPA bots can determine their acceptance by users as they need to be reliable and offer relevant features that can alleviate repetitive tasks.
Result demonstrability	Included	Helps users understand the benefits of the technology, see the tangible results of their efforts, and build trust in the reliability of the bots
Computer self-efficacy	Included	According to RPA literature, users should be involved in RPA projects and their fear of losing their job should be reduced.
Facilitating conditions	Included	The support by experts and documentation are considered important success factors for RPA
Innovation joy	Included	Included to explore if a positive attitude towards new technology affects acceptance, the opposite of computer anxiety.
Hedonic motivation	Included	RPA adoption can shift employees to more stimulating tasks, implying that enjoyment and pleasure in using the technology may influence acceptance.
Image	Excluded	Reputation improvement through technology use is considered irrelevant as today's focus is on consistent hard work and delivering results.
Output quality	Excluded	Excluded from the RPA acceptance model due to binary nature of bot output, making it unmeasurable on a scale.
Computer playfulness	Excluded	RPA bots only work in the defined way and the user cannot play with them or try out different functions
Objective usability	Excluded	Excluded from RPA acceptance model due to lack of user control over bot execution time, making it difficult to measure and influence objective usability.
Price value	Excluded	In practice, users do not pay to use RPA bots. Hence, price value is excluded.
Habit	Excluded	To measure this variable, it is required to conduct the survey several times.

Table 4 - Variables Included/Excluded from the User Acceptance Model for RPA adapted from Wewerka et al. (2020)

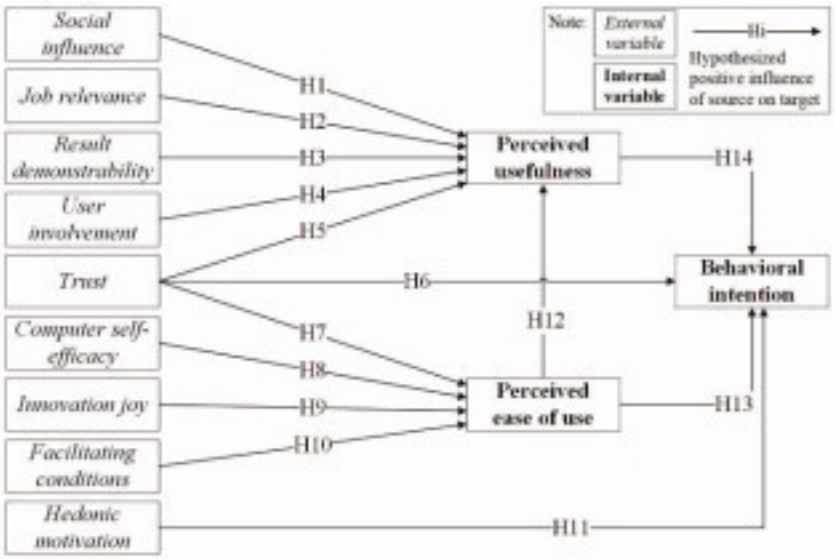

Figure 3 - User Acceptance Model for RPA (Wewerka et al., 2020)

The study identifies several recommendations to increase user acceptance of RPA bots. These include ensuring management support, establishing RPA opinion multipliers, examining potential use cases thoroughly, and demonstrating the advantages of RPA through live demonstrations. Facilitating conditions, such as offering extensive training sessions and equipping users with necessary resources, are also important. Additionally, special attention should be paid to user-friendly design, including communication between bots and users. User involvement and computer self-efficacy were found to have no significant influence on user acceptance, while the enhancement of hedonic motivation was not found to contribute to the sustainable use of RPA bots (Wewerka et al., 2020).

4. Research Methods

To get a better understanding of what factors influence how people adopt and use RPA bots in the workplace, this study uses a mix of both quantitative and qualitative research methods. This means we'll be using a questionnaire to collect both numerical data and open-ended questions to get more in-depth responses and to avoid the limitations of using only one method.

The quantitative aspect of the study involves a survey with questions measured on a Likert scale where as stated by Joshi et al. (2015) "*participants are asked to show their level agreement (from strongly disagree to strongly agree) on a metric scale*" in this case (1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree) to quantify respondents' attitudes, perceptions, and behaviors towards RPA bots.

The qualitative aspect of the study focuses on exploring the meaning and significance that individuals or groups attach to the use of RPA bots in their work processes.

Through both quantitative and qualitative questions with select participants, the study seeks to understand their perspectives on the benefits, challenges, and impacts of RPA bots on their job performance and job satisfaction.

The mixed-methods approach provides a more comprehensive understanding of the phenomenon being studied, allowing for the validation of findings from both methods (Johnson & Onwuegbuzie, 2004, 2007). This approach enables the researchers to test theories and relationships between variables through numerical data collection and statistical analysis while also allowing for a deeper understanding of the experiences and perceptions of the participants.

4.1 Research Design

4.1.1 Mixed-methods approach

A mixed-methods research, as defined by Johnson & Onwuegbuzie (2004, 2007), is an approach that incorporates both qualitative and quantitative methods, techniques, approaches, concepts, or language into a single study to gain a comprehensive and corroborated understanding of a phenomenon. This approach has gained popularity in social and behavioral sciences as it addresses the limitations of solely relying on either qualitative or quantitative methods.

According to Turner (2003), a key principle of mixed methods is to collect multiple types of data using diverse strategies, methods, and approaches, with the aim of generating complementary strengths and minimizing overlapping weaknesses. This principle is considered a major justification for mixed methods as it results in a superior outcome compared to using a single methodology.

To effectively mix qualitative and quantitative methods, researchers should consider the distinctive characteristics of each approach, including the focus on deduction and confirmation in quantitative research, and induction and discovery in qualitative research. By considering these characteristics, researchers can effectively mix the two methods to yield the most comprehensive results (Johnson & Onwuegbuzie, 2004).

4.1.1.1 Qualitative research

Qualitative research is a method of exploring the meaning and significance that individuals or groups attach to social or human problems. It is defined by John W. Creswell (2009) as a flexible process that involves emerging questions and procedures, data collected in the participants' own environment, an inductive analysis building general themes from observations, and the researcher's interpretation of the data's meaning. This approach values an

inductive style, an emphasis on individual meaning, and the importance of capturing the complexity of a situation. According to Johnson & Onwuegbuzie (2004), the strengths of qualitative research include the ability to capture individual perspectives and experiences, to study dynamic processes and contextual factors, and to generate explanatory theories. However, its limitations include the potential for findings to only be applicable to the specific individuals and settings studied, the difficulty in making predictions or testing hypotheses, and the susceptibility to the researcher's personal biases.

4.1.1.2 Quantitative research

Quantitative research is a method used to test theories and relationships between variables. It involves collecting numerical data through standardized instruments and analyzing it with statistical procedures (John W. Creswell, 2009). This method has advantages such as allowing for the testing and validation of theories, generalizing findings to larger populations, obtaining data for predictions, and having results that are independent of the researcher. However, it also has limitations such as the risk of confirmation bias, lacking reflection on local understandings, and producing knowledge that may be too abstract. (Johnson & Onwuegbuzie, 2004).

4.1.2 Utilizing Mixed Methods in Technology Acceptance Research

According to Wu (2012), previous studies have primarily used the questionnaire-based survey method in TAM research. However, incorporating qualitative methods into the study design can provide a more nuanced understanding of the users' interpretations and perceptions of PU and PEoU, thus enriching the results and conclusions of the study.

The benefits of combining both qualitative and quantitative methods are numerous. As stated by Wu (2012), by using qualitative methods, researchers can gain a holistic view of the technology and its perception among users or potential users and then use the findings of the qualitative analysis to support the questionnaire that will collect quantitative data, this helps in validating and cross-checking findings from each method. By triangulating the data from both methods, researchers can cancel out any biases inherent in one particular method and increase the generalizability of the results. Additionally, using both methods can provide stronger evidence for conclusions, and can lead to insights that might be missed by using only one method. It was also noted by Johnson & Onwuegbuzie (2004) that, a researcher in a qualitative study might choose to complement the qualitative research with a "*close-ended instrument*" to quantitatively measure specific variables considered important in the literature.

4.2 Research Strategy

To gain a comprehensive understanding of how users perceive and experience the use of RPA bots in their workplace, a mixed-methods research approach was employed. The research questionnaire consisted of both quantitative and qualitative questions, with the former being based on the User Acceptance Model for RPA (Wewerka et al., 2020). The qualitative part of the questionnaire, on the other hand, was designed based on the key aspects of RPA user acceptance highlighted in the existing literature. Combining these two research methods produced a more robust and insightful outcome, allowing for stronger evidence-based conclusions on the acceptance of RPA by users.

4.3 Data Collection

Data for this study was collected through a web-based questionnaire developed using Google Forms. The questionnaire aimed to explore users'

perceptions and experiences with RPA bots in their workplaces. It consisted of both quantitative and qualitative questions, allowing for a comprehensive understanding of users' attitudes toward RPA.

Participants were selected based on their experience with RPA, ensuring diversity in job functions and industries through purposive sampling. The survey was sent directly to participants, maintaining anonymity to ensure confidentiality. Completion of the questionnaire took approximately 15-20 minutes, with participants given the option to withdraw at any point. Over a two-week period, efforts were made to achieve a 100% response rate from the selected participants.

The mixed-methods approach employed in this study facilitated a deeper understanding of RPA users' perceptions and experiences, aligning with the research objectives. The quantitative questions were guided by the User Acceptance Model for RPA proposed by Wewerka et al. (2020), assessing variables such as usefulness, ease of use, attitude, and intention to use RPA. Table 5 provides an overview of the variables, their definitions, the model they originate from, and the corresponding questions in the questionnaire.

Additionally, the qualitative questions were designed to capture key aspects of RPA user acceptance found in the existing literature. These aspects included top management support, challenges, training, job security, and perceived benefits and drawbacks of RPA. The specific qualitative questions can be found in Appendix A.

It is important to acknowledge that the study's small sample size was a limitation. However, efforts were made to ensure participant diversity, enabling a comprehensive analysis of the collected data. By combining quantitative and qualitative approaches, this research aimed to provide valuable insights into users' perceptions, experiences, and acceptance of RPA bots in the workplace.

Variable	Definition	Model	Question(s)
Demographic	Demographic information that may impact user acceptance of a technology.	TAM 2, Venkatesh & Davis (2000); UTAUT 2, Venkatesh et al. (2012)	Q1, Q2, Q3
Social Influence	Perceived pressure from others to use or not use technology.	TAM 2 Venkatesh & Davis (2000); UTAUT 1 Venkatesh et al. (2008)	Q4, Q5, Q6
Job relevance	Perception of usefulness for individual's job tasks.	TAM 2 Venkatesh & Davis (2000)	Q7, Q8, Q9
Result demonstrability	Visibility and tangibility of technology's outcomes.	TAM 2 Venkatesh & Davis (2000)	Q10, Q11, Q12
User involvement	Degree of involvement in technology's design and evaluation.	User Acceptance Model for Robotic Process Automation Wewerka et al. (2020)	Q13, Q14, Q15
Trust	Belief in reliability, security, and privacy of technology.	User Acceptance Model for Robotic Process Automation Wewerka et al. (2020)	Q16, Q17, Q18
Computer self-efficacy	Confidence in using a computer effectively.	TAM 3, Venkatesh & Bala (2008)	Q19, Q20, Q21
Innovation joy	Enjoyment and pleasure from using a new technology	TAM 3, Venkatesh & Bala (2008); UTAUT 2, Venkatesh et al. (2012)	Q22, Q23, Q24
Facilitating conditions	Availability of resources and support for technology use	TAM 3, Venkatesh & Bala (2008); UTAUT 1, Venkatesh et al. (2008)	Q25, Q26, Q27
Hedonic Motivation	Perceived fun, enjoyable, or pleasurable aspects of technology use	UTAUT 2, Venkatesh et al. (2012)	Q28, Q29, Q30
Perceived usefulness	Perception of technology's usefulness in enhancing job performance	TAM 1, Davis (1986)	Q31, Q32, Q33
Perceived ease of use	Perception of technology's ease of use and learnability	TAM 1, Davis (1986)	Q34, Q35, Q36
Behavioral intention	Intention to use technology in the future	TAM 1, Davis (1986)	Q37, Q38, Q39

Table 5 - Definition and respective model of the variables addressed in the quantitative part of the questionnaire adapted from Wewerka et al. (2020)

4.4 Sample

The sample for this study was a convenience sample and consisted of four individuals who have previously used RPA in their respective workplaces. As said before, the participants were selected through purposive sampling, which involved selecting individuals who had experience using RPA across different companies and job functions. The sample consisted of two males and two females, with ages ranging from 24 to 33 years old. The job functions of the participants included a Spare Parts Demand Planner who used RPA for data extraction and processing, a Talent Acquisition Specialist who utilized RPA to automate some candidate screening tasks, an HR Generalist that used RPA to automate employee onboarding processes, and an Accounting Specialist who used RPA for invoice processing. The participants' companies operate in various industries, including automotive, transport and logistics, engineering & technology, and telecommunications. All participants had used RPA for at least six months and were able to provide detailed insights into their experience with the technology. The small sample size is acknowledged as a limitation of the study, however, the aim was to conduct an exploratory investigation into RPA users' perceptions and experiences rather than making generalizable conclusions. Table 6 shows the people that have participated in the study.

Person nº	Company Industry	Area of work	RPA Tool used	Tasks Automated
1	Engineering & Technology	Spare Parts Demand Planner	Automation Anywhere and Alteryx	Data extraction and processing
2	Automotive and construction equipment	Accounts Payable Specialist	UiPath	Invoice processing
3	Transport and Logistics	Talent Acquisition Specialist	Microsoft Power Automate	Candidate screening
4	Telecommunications	Human Resources Generalist	Microsoft Power Automate	Employee onboarding

Table 6 - Information about the participants of the study

5. Results Analysis

This section aims to provide an understanding of the perceptions and experiences regarding the usage of RPA bots in their work.

Through both quantitative and qualitative data analysis, this section explores patterns, trends, and insights related to the adoption and impact of RPA bots in the workplace. The integrated analysis of the data provides a comprehensive understanding of participants' attitudes, perceptions, and behaviors, highlighting motivations for adoption, changes in work processes, job satisfaction, barriers faced, training and support, and perceptions of job security. The discussion of the results interprets their implications and relates them to existing literature.

5.1 Quantitative Analysis

5.1.1 Social Influence

	Person 1	**Person 2**	**Person 3**	**Person 4**
Q1	5	4	4	4
Q2	5	4	5	3
Q3	5	5	5	5

Table 7 - Answers to Social Influence Questions

The analysis of social influence indicates a strong overall agreement among the participants that people who influence their behavior, individuals important to them, and their management support and recommend the use of RPA bots. This positive social influence can play a significant role in shaping their perceptions and acceptance of RPA technology. The findings suggest that the participants are likely to perceive RPA bots as valuable and beneficial due to the endorsement they receive from influential figures and the support provided by their organizations.

5.1.2 Job Relevance

	Person 1	Person 2	Person 3	Person 4
Q4	4	4	5	4
Q5	4	5	5	5
Q6	4	4	4	3

Table 8 - Answers to Job Relevance Questions

The analysis of job relevance highlights a consensus among the participants regarding the importance and relevance of using RPA bots in their respective jobs. Across question 4, which focuses on the importance of RPA bots, and question 5, which evaluates their relevance, all participants rated positively, with Person 3 consistently expressing the highest level of agreement. This indicates a shared belief that RPA bots hold significance and can contribute meaningfully to their work. While the participants generally agreed that their workload could be effectively handled with RPA bots, there was some variability in responses, with Person 4 being slightly less convinced.

5.1.3 Results Demonstrability

	Person 1	Person 2	Person 3	Person 4
Q7	5	4	5	4
Q8	5	5	5	5
Q9	5	4	5	5

Table 9 - Answers to Results Demonstrability Questions

The findings related to result demonstrability reveal a positive perception among the participants regarding their ability to comprehend and communicate the outcomes of using RPA bots. They generally agreed that the results were comprehensible to them, indicating a clear understanding of the impact of RPA bot usage. Additionally, participants expressed ease in discussing the results with others. Furthermore, they felt confident in explaining why using RPA bots can be beneficial or not.

5.1.4 User Involvement

	Person 1	Person 2	Person 3	Person 4
Q10	5	4	4	4
Q11	5	4	4	3
Q12	4	4	4	3

Table 10 - Answers to User Involvement Questions

The results related to user involvement indicate a generally positive level of engagement among the participants. Person 1 reported a high level of involvement in the explanation and clarification of automation needs and objectives, as well as in the testing of RPA bots. Person 2, Person 3, and Person 4 displayed moderate levels of involvement in these areas, demonstrating their participation to a significant extent. However, Person 4 exhibited slightly lower involvement in the testing phase compared to the other participants. Regarding the information provided prior to implementation, all participants reported receiving some level of awareness about the new possibilities created by automation. Person 1 showed a relatively higher level of understanding in this regard. These findings emphasize the importance of involving users in the decision-making process, as well as keeping them informed about the potential benefits of automation, to ensure their active participation and acceptance of RPA bot technologies.

5.1.5 Trust

	Person 1	Person 2	Person 3	Person 4
Q13	3	4	4	4
Q14	5	3	3	2
Q15	5	4	4	4

Table 11 -Answers to Trust Questions

The findings related to trust reveal mixed perceptions among the participants regarding their trust in RPA bots. While Person 1 expressed a relatively lower level of trust in the privacy-protecting and tamper-proof behavior of RPA bots,

Persons 2, 3, and 4 exhibited a moderate level of trust in this aspect. When it comes to accepting the results of RPA bots without subsequent checking, Person 1 demonstrated a high level of acceptance, whereas Persons 2, 3, and 4 displayed a lower level of acceptance. In terms of trust in the performance of RPA bots, all participants generally expressed a moderate level of trust, with a slight variation among individuals. These results highlight the need to address concerns related to privacy, data integrity, and result verification to enhance trust in RPA bot technologies. By ensuring transparency, robust security measures, and effective communication, organizations can foster greater trust among users in the reliable and accurate functioning of RPA bots.

5.1.6 Computer Self-Efficacy

	Person 1	**Person 2**	**Person 3**	**Person 4**
Q16	4	4	5	4
Q17	4	3	4	4
Q18	4	3	4	4

Table 12 - Answers to Computer Self-Efficacy Questions

The findings related to computer self-efficacy suggest a generally positive perception among the participants regarding their confidence and ability to handle computer-related tasks. Participants across all four individuals expressed a moderate to high level of self-efficacy in solving difficult computer problems, indicating a belief in their problem-solving skills with sufficient effort. When it comes to handling unexpected error messages, Person 1 and Person 3 exhibited a higher level of confidence, while Persons 2 and 4 displayed a slightly lower level of confidence. Additionally, participants expressed confidence in troubleshooting computer problems, demonstrating their belief in their ability to identify and resolve issues. These results highlight the participants' overall self-assurance in dealing with computer-related challenges. Organizations can leverage this self-efficacy by providing training and support resources to further

enhance individuals' computer skills and confidence, ensuring smooth adoption and utilization of RPA bot technologies.

5.1.7 Innovation Joy

	Person 1	Person 2	Person 3	Person 4
Q19	5	4	4	5
Q20	5	4	4	4
Q21	4	2	5	3

Table 13 - Answers to Innovation Joy Questions

The findings related to innovation joy indicate a generally positive attitude among the participants towards trying out new technologies and embracing innovation. Participants exhibited a moderate to high level of willingness to explore new technologies, with a general lack of hesitation. They expressed confidence and relaxation while engaging with new technologies, suggesting a positive and open mindset towards technological advancements. However, there were variations in the participants' concerns about the potential impact of technology on their job security. While Person 3 displayed a high level of confidence and was not afraid of their job being done by computers in the near future, Person 2 expressed a lower level of confidence and had higher concerns about job replacement. Overall, the participants showed a positive inclination towards innovation and a willingness to adopt new technologies, which can foster a culture of continuous learning and adaptation within the organization.

5.1.8 Facilitating Conditions

	Person 1	Person 2	Person 3	Person 4
Q22	5	4	5	4
Q23	4	3	4	3
Q24	5	4	5	5

Table 14 - Answers to Facilitating Conditions Questions

The findings related to resource availability and knowledge indicate that the participants generally perceive themselves as well-equipped to use RPA bots. They feel that they have the necessary resources, such as infrastructure and tools, to effectively utilize RPA bots in their work. Additionally, participants expressed a moderate level of confidence in their knowledge and skills required for using RPA bots, suggesting that they possess a baseline understanding of the technology. Furthermore, participants reported a high level of availability of assistance when facing difficulties in using RPA bots, indicating the presence of dedicated support personnel or groups within the organization. These findings suggest that the participants feel adequately supported in terms of resources, knowledge, and assistance, which can contribute to their overall readiness and capability to leverage RPA bots effectively.

5.1.9 Hedonic Motivation

	Person 1	**Person 2**	**Person 3**	**Person 4**
Q25	5	3	3	4
Q26	5	4	3	4
Q27	3	3	3	3

Table 15 - Answers to Hedonic Motivation Questions

The findings related to hedonic motivation suggest that participants have mixed perceptions regarding the enjoyment and entertainment value associated with using RPA bots. While some participants expressed a moderate level of enjoyment and found it fun to use RPA bots, others showed a neutral view, indicating that they did not strongly associate RPA bot usage with a sense of pleasure or entertainment. These varying responses may be influenced by individual preferences and attitudes towards technology. It is important to consider these differences in hedonic motivation when designing and implementing RPA bot initiatives, as they can impact user engagement and satisfaction. Organizations can explore strategies to enhance the enjoyment factor

of using RPA bots and make the experience more enjoyable for a broader range of users, thereby fostering a positive user experience.

5.1.10 Perceived Usefulness

	Person 1	Person 2	Person 3	Person 4
Q28	5	5	5	5
Q29	5	5	5	5
Q30	5	5	5	5

Table 16 - Answers to Perceived Usefulness Questions

The findings related to PU indicate a unanimous agreement among participants regarding the positive impact of using RPA bots in their job. They strongly believe that RPA bots increase productivity, enable them to accomplish tasks more quickly, and find them overall useful in their job. These results highlight the recognition of the practical benefits and advantages that RPA bots bring to their work processes. Participants perceive RPA bots as valuable tools that streamline their tasks, enhance efficiency, and contribute to overall job effectiveness. This strong perception of usefulness aligns with the existing literature on the potential benefits of RPA bots in improving work outcomes and suggests a high level of acceptance and endorsement of RPA bot technology in the workplace.

5.1.11 Perceived Ease of Use

	Person 1	Person 2	Person 3	Person 4
Q31	4	4	4	4
Q32	5	3	4	3
Q33	5	4	4	4

Table 17 - Answers to Perceived Ease of Use Questions

The findings related to PEoU suggest a positive perception among participants regarding their experience with RPA bots. They generally find it easy to get RPA bots to do what they want, indicating a level of effectiveness and control in

working with the technology. Additionally, participants perceive learning to work with RPA bots as relatively easy, indicating a manageable learning curve and adaptability to the technology. Moreover, participants find RPA bots overall easy to use, suggesting that the interface and functionality of the bots are intuitive and user-friendly. These results reflect a positive user experience and highlight the importance of user-friendly design and ease of use in promoting acceptance and satisfaction with RPA bot technology.

5.1.12 Behavioral Intention

	Person 1	**Person 2**	**Person 3**	**Person 4**
Q34	5	4	5	4
Q35	5	4	5	5
Q36	5	5	5	5

Table 18 - Answers to Behavioral Intention Questions

The findings related to behavioral intention reveal a positive inclination among the participants towards using RPA bots in the future. They expressed a strong intention to use RPA bots frequently, indicating a desire to incorporate the technology into their work routines consistently. Participants also indicated that they would always try to use RPA bots if their tasks are suitable, emphasizing a proactive attitude towards leveraging the technology when appropriate. Additionally, participants expressed a high likelihood of using RPA bots in the near future, further reinforcing their positive attitude and intention towards adopting and utilizing the technology. These results highlight a favorable disposition towards RPA bots and suggest a readiness to integrate them into their work processes, showcasing the potential for widespread acceptance and implementation of RPA bot technology in the organizational context.

5.2 Qualitative Analysis

5.2.1 Q1 – Motivation to Start Using RPA Bots

The respondents' motivations varied. Person 1 was motivated by the need to automate time-consuming and repetitive tasks to focus on value-added activities. Person 2 mentioned joining a company where bots were already implemented. Person 3 emphasized efficiency improvement and time reduction, enabling them to focus on higher-value work. Person 4 was excited to discover that their company had implemented bots, as it addressed the time-consuming and repetitive nature of candidate screening.

5.2.2 Q2 – Impact of RPA Bots on Work

Participants highlighted the highly beneficial nature of RPA bots in automating repetitive tasks and enabling focus on more complex work, resulting in improved efficiency and job satisfaction. Quotes from Person 2, "*RPA bots have been helpful in automating repetitive tasks...focus on more complex tasks,*" and Person 4, "*incredibly helpful in automating...candidate selection*," support these insights. However, challenges such as the initial learning curve and the need for ongoing monitoring and troubleshooting were also acknowledged. Overall, the qualitative data emphasized the positive impact of RPA bots while acknowledging the challenges associated with their implementation.

5.2.3 Q3 – Job Satisfaction

Overall, participants perceived RPA bots positively, with the consensus that they contributed to increased job satisfaction. The following quotes exemplify this sentiment: Person 1 mentioned that "*repetitive tasks eventually become tiresome and boring*", and Person 3 noted that automation allowed them to "*focus on more interesting and valuable tasks.*" The participants appreciated the opportunity to

dedicate their time and efforts to more meaningful and fulfilling work, highlighting the value that RPA bots brought to their job roles.

5.2.4 Q4 – Barriers and Overcoming Them

Most respondents reported a smooth transition when incorporating RPA bots into their work, with minimal barriers encountered. One participant mentioned, "*The only barrier I can mention is learning because, although the bots are quite intuitive, they always require some familiarization time*." However, the participants also emphasized the importance of receiving adequate training and support from their company's IT teams. This quote from Person 4 reflects the sentiment: "*Yes, I received proper training and support in using RPA bots. The company provided comprehensive training sessions to familiarize me with the RPA software and its features. Moreover, the IT team was always available to answer any questions or concerns that arose during the implementation and use of the RPA bots*."

5.2.5 Q5 – Training and Support

In general, respondents expressed satisfaction with the training and support they received in using RPA bots. One participant stated, "*Yes, I received and understood well how to use*" (Person 1). Another participant mentioned, "*Yes. Our IT department gave us extensive training on how to use the bots and was always available to answer any questions or concerns we had*" (Person 2). However, there was also a suggestion for improvement, as one respondent highlighted the need for additional documentation to assist employees who are less familiar with automation. This comment reflects the sentiment: "*We receive training on the use of bots from the IT team. However, I think you could provide documentation for employees who are less familiar with automation*" (Person 3).

5.2.6 Q6 - Perception of Colleagues and Managers

Positive reactions were observed from some colleagues and managers due to the increased efficiency and improved quality of work achieved through RPA bots. The ability to complete tasks more efficiently and quickly was well-received. However, it is worth noting that some participants mentioned no noticeable changes in the way their colleagues or managers viewed their job performance.

5.2.7 Q7 – Concerns about Job Security and Prospects

There were concerns expressed by respondents about the impact of RPA bots on job security. The potential for certain tasks to be replaced by automation raised apprehensions. However, respondents also acknowledged that skills requiring logic and critical thinking would remain valuable and irreplaceable. One participant mentioned, "*It is important that people try to specialize in tasks that require logic and critical thinking, which is something that bots don't have and therefore can't perform certain functions*" (Person 1). This recognition of the unique human skills and abilities necessary for certain tasks provided reassurance amidst concerns about job security.

5.2.8 Q8 – Future Evolution of RPA Bots

Respondents anticipated a continued evolution of RPA bots, foreseeing greater automation of tasks in the future. This was viewed as an opportunity to shift focus towards higher-level cognitive tasks. One participant stated, "*Many tasks will be performed by bots, which will allow a greater focus on what really adds value to the company, which requires cognitive capabilities*" (Person 1). However, challenges were also acknowledged, including the need for ongoing training to keep up with advancements in RPA technology. Data security and privacy were also identified

as potential challenges. The respondent highlighted the importance of staying current with training and skills, stating, "*It will be important to stay updated in terms of training and hard skills to use bots effectively*" (Person 2). These insights highlighted the potential benefits and challenges associated with the future use of RPA bots.

5.3 Integration of Quantitative and Qualitative Findings and Comparison with the Literature

5.3.1 Integration of quantitative and qualitative findings

When comparing the results, several consistencies emerge. Both the quantitative and qualitative data indicate that the motivation for using RPA bots lies in time-saving and increased productivity. Respondents find RPA bots beneficial in automating repetitive tasks, allowing them to dedicate more time to value-added activities. Similarly, the impact of RPA bots on work is positive, with increased productivity and the ability to focus on complex tasks being common themes across both data sets. Job satisfaction is also positively associated with RPA bot usage, as respondents appreciate the elimination of repetitive tasks and the opportunity to engage in more meaningful work.

However, a discrepancy arises regarding concerns about job security. While the quantitative data do not directly address this aspect, the qualitative responses reflect varying perspectives. Some express worries about job replacement, while others see potential job opportunities in RPA development and maintenance.

In summary, integrating the quantitative and qualitative findings reveals consistencies in the motivation for using RPA bots, the impact on work, and the positive association with job satisfaction. This combination of data enhances the

validity and reliability of the analysis by providing converging evidence and complementary insights.

5.3.2 Comparison with the literature

The findings from both the quantitative and qualitative analyses align with existing literature on the adoption and impact of RPA in the workplace. The quantitative results indicate high levels of PU, PEoU, and behavioral intention to use RPA bots among the participants. This is consistent with previous studies that have highlighted the positive impact of RPA on productivity and efficiency (Figueroa-García et al., 2017; Kroll et al., 2016; Plattfaut et al., 2022; Syed et al., 2020; van der Aalst et al., 2018). The qualitative responses further support these findings by providing specific examples of how RPA bots have improved work processes and allowed employees to focus on higher-value tasks. The qualitative data also revealed some challenges related to the learning curve and the need for ongoing training and support, which is consistent with the literature emphasizing the importance of proper training and change management during RPA implementation (da Silva Costa et al., 2022; Plattfaut et al., 2022; Razak & Ismail, 2022; Wewerka et al., 2020). Additionally, the concerns expressed by participants about job security resonate with prior research that highlights the potential displacement of certain roles due to automation (Chugh et al., 2022; da Silva Costa et al., 2022; Plattfaut et al., 2022; Wright et al., 2018). However, the qualitative responses also shed light on the potential for new job opportunities in RPA development and maintenance, which aligns with the literature that emphasizes the need for upskilling and reskilling to adapt to the changing job landscape (Chugh et al., 2022; Fernandez & Aman, 2021). Overall, the integration of quantitative and qualitative findings and their comparison with the literature enhances the validity and reliability of the analysis, providing insights into the

motivations, experiences, and attitudes of individuals using RPA bots in their work.

6. Conclusions

6.1 Summary of Findings

The study's quantitative analysis revealed a strong consensus among participants regarding the positive social influence, job relevance, and PU of RPA bots. They expressed a favorable perception of result demonstrability and user involvement, emphasizing the importance of effective communication and active participation. However, perceptions regarding trust and hedonic motivation were mixed, indicating the need to address concerns and enhance enjoyment. Participants demonstrated a positive attitude towards innovation, PEoU, and a behavioral intention to use RPA bots in the future. Overall, these findings suggest a favorable disposition towards RPA bots, highlighting their potential value in improving work processes. The study's qualitative analysis complemented these quantitative findings by uncovering additional insights. Participants reported varied motivations for adopting RPA bots, including the desire to automate repetitive tasks, improve efficiency, and the influence of organizational implementation. They emphasized the positive impact of RPA bots on their work, leading to improved efficiency, increased job satisfaction, and the ability to focus on more valuable tasks. While challenges such as the learning curve and ongoing maintenance were acknowledged, barriers to adoption were minimal. Participants expressed overall satisfaction with the training and support received, although there was a suggestion for additional documentation for employees less familiar with automation. Positive reactions from colleagues and managers were observed, but some participants reported no noticeable changes in how their performance was viewed. Concerns about job security were raised, but participants recognized the value of human skills requiring logic and critical thinking. Looking ahead, participants anticipated the future evolution of RPA

bots, foreseeing increased automation and emphasizing the need for ongoing training and skills development. These qualitative findings provided valuable insights into the benefits, challenges, and potential of RPA bots in the workplace, complementing the quantitative findings and enriching our understanding of the topic.

6.2 Limitations of the Research

While this study provides valuable insights into the perceptions and experiences of participants regarding RPA bots, there are several limitations to consider. First, the sample size was relatively small, consisting of only four participants from different companies, industries, and areas of work. While the inclusion of participants from diverse backgrounds adds some variability to the findings, it still may not be fully representative of the larger population. Furthermore, the study relied on self-reported data, which is subject to biases and may not fully capture the participants' actual behaviors or experiences. Lastly, the study was cross-sectional, providing a snapshot of participants' perspectives at a specific point in time and not accounting for potential changes or long-term effects. Therefore, caution should be exercised when interpreting the results, and future research with larger and more diverse samples is needed to validate and expand upon these findings.

6.3 Future Research

To build upon the findings of this study and further advance our understanding of RPA bots in the workplace, future research avenues can be explored. First, conducting larger-scale studies with more diverse samples across various industries would help validate and generalize the findings. Longitudinal studies can also provide insights into the long-term effects of RPA bot adoption and identify any evolving challenges or benefits. Future research can also explore

the impact of RPA bots on specific job roles or departments within an organization to understand how different contexts influence perceptions and outcomes. Lastly, investigating the integration of RPA bots with other emerging technologies, such as artificial intelligence or machine learning, would shed light on the synergistic effects and potential advancements in automation. Overall, by addressing these areas, future research can contribute to a more comprehensive understanding of RPA bots and their implications for the workforce.

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Annex

Annex I

Variable	Question nº	Questions
Social Influence	Q1, Q2, Q3	People who influence my behavior think that I should use RPA bots. People who are important to me recommend me to use RPA bots. The management has advised me to use RPA bots.
Job relevance	Q4, Q5, Q6	In my job, the usage of RPA bots is important. In my job, the usage of RPA bots is relevant. My workload could hardly be handled without RPA bots.
Result demonstrability	Q7, Q8, Q9	The results of using RPA bots are comprehensible to me. I have no difficulty telling others about the results of using RPA bots. I have no difficulty explaining why using RPA bots may or may not be beneficial.
User involvement	Q10, Q11, Q12	I was involved in the explanation and clarification of the automation needs and objectives. I was heavily involved in testing RPA bots. Prior to the implementation, I was informed about new possibilities the automation creates for me.
Trust	Q13, Q14, Q15	I trust the RPA bots to behave in a privacy-protecting and tamper-proof manner. I accept the results of RPA bots without subsequent checking. I trust the RPA bots to perform as designed and deliver the desired results without malfunctions.
Computer self-efficacy	Q16, Q17, Q18	I can always manage to solve difficult computer problems if I try hard enough.

		I am confident that I can handle unexpected error messages from the computer efficiently. I feel confident troubleshooting computer problems.
Innovation joy	Q19, Q20, Q21	In general, I am not hesitant to try out new technologies. I feel confident and relaxed while trying out new technologies. I am not afraid that my job will be done by computers in the near future.
Facilitating conditions	Q22, Q23, Q24	I have the resources necessary to use RPA bots. I have the knowledge necessary to use RPA bots. A specific person (or group) is available for assistance when I have difficulties using RPA bots.
Hedonic motivation	Q25, Q26, Q27	Using RPA bots is fun. Using RPA bots is enjoyable. Using RPA bots is entertaining.
Perceived usefulness	Q28, Q29, Q30	Using RPA bots in my job increases my productivity. Using RPA bots enables me to accomplish tasks more quickly. Overall, I find RPA bots useful in my job.
Perceived ease of use	Q31, Q32, Q33	I find it easy to get RPA bots to do what I want them to do. Learning to work with RPA bots is easy for me. Overall, I find RPA bots easy to use.
Behavioral intention	Q34, Q35, Q36	I intend to use RPA bots frequently. I will always try to use RPA bots if my tasks are suitable. I will use RPA bots in the near future.

Table 19 - Quantitative part of the questionnaire adapted from Wewerka et al. (2020)

Appendix

Appendix A

Questions	Question n°	Reference
What motivated you to start using RPA bots in your work?	1	(Chugh et al., 2022); (Razak & Ismail, 2022)
How have RPA bots changed the way you work? How have they been helpful, and on the other hand how have they been challenging?	2	(Plattfaut et al., 2022); (Chugh et al., 2022); (da Silva Costa et al., 2022); (Kroll et al., 2016); (Figueroa-García et al., 2017); (Leopold et al., 2018)
Do you feel that RPA bots have improved your overall job satisfaction? If yes, why, or why not?	3	(Plattfaut et al., 2022); (Chugh et al., 2022)
Which barriers, if any, you found when you started using RPA bots? And how did you overcome them?	4	(Syed et al., 2020)
Have you received adequate training and support in using RPA bots? If not, what could be improved?	5	(da Silva Costa et al., 2022); (Plattfaut et al., 2022); (Razak & Ismail, 2022)
Have you noticed any changes in the way your colleagues or managers see your professional performance since you started using RPA bots? If yes, how did they react?	6	(Plattfaut et al., 2022); (Razak & Ismail, 2022); (Wewerka et al., 2020)
Do you have any concern about the impact of RPA bots on job security or job prospects in your industry?	7	(Chugh et al., 2022); (da Silva Costa et al., 2022); (Deloitte, 2018); (Plattfaut et al., 2022); (Fernandez & Aman, 2021)
How do you see the use of RPA bots evolving in the future? What new opportunities or challenges do you foresee?	8	(Smith, 2016); (Chugh et al., 2022); (Fernandez & Aman, 2021)

Table 20 - Qualitative part of the questionnaire (self-developed questions based on the literature)