A Study on Robotic Process Automation (RPA) implementation with emphasis on worker satisfaction and cost reduction:

An Indian Bank Case Study

by

Tina Amarjit Arora, M.COM, M.B.A.

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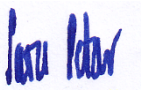
Tina Amarjit Arora

Supervised by

Dr. Monika Singh

APPROVED BY



Prof.dr.sc. Saša Petar, Ph.D., Dissertation Chair

RECEIVED/APPROVED BY:

Renee Goldstein Osmic

Admissions Director

Dedication

This work is dedicated to my mother, whose unwavering belief in me has been my foundation, and to my son, who inspires me to look at life beyond boundaries.

To my mentor, Professor Monika Singh – thank you for your insightful guidance, constructive critique, and patient encouragement. Your clarity of thought and high standards elevated my work and helped shape this research into what it has become.

To every individual who supported me silently through this journey – your strength became mine.

And finally, to all professionals navigating the evolving intersection of technology and human purpose – may this research contribute meaningfully to your path.

ABSTRACT

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Tina Amarjit Arora

2025

Dissertation Chair: <Chair's Name>

Co-Chair: < Co-Chair's Name>

This study examines the implementation and impact of Robotic Process Automation (RPA) within the service operations of an Indian bank, focusing on four key dimensions: operational cost reduction, employee satisfaction, implementation challenges, and sustainability of benefits. As automation reshapes the financial services landscape, this research provides an evidence-based evaluation of RPA's role in enhancing service efficiency and workforce dynamics.

A mixed-method research design was employed, integrating employee surveys, interviews, focus groups, and secondary data from organisational reports. Quantitative analysis using T-tests, ANOVA, and regression models were used to assess the relationship between RPA adoption and changes in operational and human performance metrics. Qualitative data was

thematically analysed to uncover implementation barriers and enablers from a workforce perspective.

The findings demonstrate that RPA contributes meaningfully to cost and productivity improvements by streamlining repetitive tasks and reducing manual error rates. Employees reported enhanced satisfaction and reduced work stress, particularly in roles where automation complemented rather than replaced human input. Challenges identified included integration with legacy systems, change resistance, and the need for structured training and communication during deployment phases.

Importantly, the study highlights that the benefits of RPA are perceived as sustainable and scalable when supported by appropriate governance and change management strategies. The alignment between technological capability and organisational readiness emerged as a critical success factor.

This research adds to the limited body of literature on RPA deployment in Indian banking and offers practical insights for leaders seeking to balance automation with workforce engagement. It underscores the importance of thoughtful implementation to ensure long-term value from digital transformation initiatives.

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1.1 Introduction

The term "robotic process automation" (RPA) refers to the creation of digital assistants, or "bots," that carry out work that was traditionally performed by people (Zaharia-Radulescu et al., 2017). Swivel-chair integration" describes the use of robotic process automation to move email contacts into a CRM (Stople and Steinsund, 2017). The purpose of robotic process automation (RPA) is not as a stand-alone programme but as an additional layer atop an organization's existing infrastructure to support other business processes (Dilla and Jaynes, 2015). RPA robots are equivalent to a single software license and are best suited for repeatable, rules-based tasks (Willcocks et al., 2015c). Compared to other forms of automation software, RPA has two key advantages: it uses a drag-and-drop interface that does not require programming expertise, and it does not need to integrate with the systems or applications it interacts with (Willcocks et al., 2015d).

The term "digitalization" is now commonly used, and advances in information technology are continuously creating new opportunities and products. This has led to ongoing digital changes in modern business settings, resulting in complex information systems (Vedder and Guynes, 2016). Although automation and robots are not new in digital transformation, many companies have recently focused on robotic process automation (RPA) to automate non-value-adding activities in a cost-efficient, scalable manner and reduce turnaround times. In addition to the benefits mentioned, another advantage of using RPA is that it can help reduce errors caused by human intervention, resulting in increased accuracy and reliability. By automating repetitive tasks, employees can focus on higher-value work that requires creativity and critical thinking, leading to improved job satisfaction and productivity. RPA can also help companies keep up

with ever-changing business requirements and regulations, as software robots can quickly adapt to new processes and rules.

However, due to the potential disruption to both established procedures and established personnel responsibilities, RPA implementation necessitates meticulous preparation. In light of this, it is essential to conduct an in-depth analysis of the current processes and to identify the greatest chances for RPA adoption (Vom Brocke et al., 2018). While RPA can be useful for businesses aiming for operational excellence, this is by no means the only area in which it can be put to use (Madakam et al., 2019). Incorporating new technology across the board is a key part of digital transformation, which has far-reaching effects on productivity and the quality of service provided to customers (Marciniak and Stanislawski, 2021). And because of this shift in behaviour, businesses now have to deal with the unrelenting onslaught of unfavourable reviews, assessments, and setbacks. Businesses that provide services often undergo a process known as "digital transformation" to update their methods. When it comes to digital transformation, there are challenges that are specific to both small and large enterprises (Nadkarni and Prügl, 2021).

Adding new technology to an existing BPA (Business Process Automation) is done to increase productivity and profit for an organisation. The service industry needs to rediscover effective methods in order to meet rising consumer demand, broaden the scope of their operations, and meet rising scalability demands (Marciniak and Stanislawski, 2021). Any business, to be successful, must prioritise efficiency and expansion. The banking industry is only one of several industries throughout the world that is reinventing itself in order to stay afloat by means of enhanced BPA (Business Process Automation). More and more organisations are turning to hardware and software robots for their scalability, reliability, ability to search massive amounts of digital data, and effectiveness in aiding management in making business-critical decisions

(Madakam et al., 2019). In order to address scale and efficiency, the banking sector is increasingly turning to robotics and softbots in strategically important business segments. Although digital transformation is most commonly applied to businesses, the impact is also felt when other organisations, such as states, government departments, and institutions, use one or more of the current and developing technologies to address societal issues like pollution and ageing populations (Vom Brocke et al., 2018).

The banking industry is also feeling the effects of the digital revolution. To better serve their customers, banks are increasingly turning to digital technology. Customers like the added ease, and everyone benefits from the reduced wait time (Hofmann et al., 2020). In this way, digitalization helps cement customer loyalty by reducing the likelihood of human error. With the advent of online banking, people now have access to their funds around the clock. It is now much less of a hassle to manage large sums of money. Customers have benefited from digitalization as well, because it has increased the prevalence of cashless transactions. Customers can now perform instantaneous monetary transactions without the need to keep large sums of money on hand (Furjan et al., 2020). Among the many innovative technologies that the banking industry has adopted in order to improve the efficiency, speed, and safety of its operations is robotic process automation (RPA).

Today's banking institutions are under increasing pressure to maintain the leanest feasible operations while providing their customers with superior service and knowledge at the most competitive prices. With RPA, major financial institutions can realise these goals and maintain their competitive edge in a dynamic, ever-changing market (Aguirre and Rodriguez, 2017). Simply explained, RPA is the ability to create software or a robot that can mimic and include human interaction into business operations that are otherwise automated. RPA robots use the same user interface that humans do to collect and manipulate data (Furjan et al., 2020). RPA

bots can perform a wide variety of repetitive tasks, including translation, response activation, and process interaction (Sibalija et al., 2019). However, there is a deficiency in the academic literature of a theoretical and all-encompassing analysis of RPA. The purpose of this research is to shed light on the use of RPA in the banking industry in India, in response to the call for more information made by (Van derAalst et al., 2018). Researchers use of these methodological approaches resulted in a more comprehensive and coherent body of knowledge, as well as direction and emphasis for future studies of RPA. The focus of the research was not merely on RPA; rather, its relationships to a variety of other technologies and research topics were investigated as well.

1.1.1 History

Adapting to the digital revolution necessitates integrating newly developed technology into every facet of a company's operations, which has a profound impact on how one works and how they deliver valuable services to customers. This shift in attitude also necessitates that businesses learn to deal with ongoing evaluations, assessments, and expressions of dissatisfaction. Service-based businesses are undergoing what is known as "digital transformation," a process of reorganising their company operations. Different problems arise during digital transformation for businesses of different sizes (Herm et al., 2022).

The goal of any BPA (Financial Process Automation) upgrade involving the incorporation of technology is to enhance service efficiency on a massive scale while maximising business gain. The service industry needs to rediscover effective methods in order to meet rising consumer demand, broaden its business's scope, and meet rising scalability demands (Santiago and Alejandro, 2017). Efficiency and expansion into new markets are crucial to the success of any business today. To stay afloat in today's global marketplace, the banking industry is just one of many that is reinventing itself with advanced BPA (Business Process Automation). More and

more organisations are turning to hardware and software robots for their scalability, reliability, and ability to scan massive amounts of digital data and provide effective business decision support (Akpata, 2019). To address scale and efficiency concerns, the banking sector is increasingly turning to robotics and softbots in mission-critical business activities. Although the term "digital transformation" is most often applied to businesses, the impact is also felt when other organisations, such as states, government departments, and institutions, use one or more of the current and evolving technologies to address societal issues like pollution and ageing populations (Chen et al., 2021).

The banking industry is also feeling the effects of the ongoing digital transformation. Banks can better serve their customers by embracing digital technology. Customers appreciate the added peace of mind, and everybody benefits from the extra time saved (Bican and Brem, 2020). Human error is reduced because of digitalization, which in turn strengthens relationships with customers. With the advent of online banking, people now have access to their funds around the clock (Hess et al., 2016). The management of large sums of money has also gotten less complicated. Customers have also benefited from digitalization because it has facilitated more cashless transactions. Customers can now make transactions without keeping funds on hand and at any convenient time (Furjan et al., 2020). As part of this process of change, the banking industry has adopted a slew of cutting-edge technologies like Robotic Process Automation (RPA) to improve efficiency, cut down on manual labour, and increase safety across the board (RPA). There is increasing pressure on financial institutions to maintain the leanest operations feasible while yet providing superior customer service. With RPA, major financial institutions can realise these goals and maintain their competitive edge in a dynamic, ever-changing market (Thekkethil et al., 2021). RPA refers to the tools that make it possible for anybody to create software or a robot that can mimic and combine human interaction into business workflows. RPA robots use the same user interface that humans do to collect and

manipulate data. RPA bots can execute a wide variety of repetitive operations thanks to their capacity to translate, trigger replies, and communicate with other processes (Jovanovi et al., 2018).

The concept of robotics process automation was developed long before it was publicised in the early 2000s. Screen scraping, workflow automation, and AI were the foundational technologies for robotic process automation. The term "screen scraping" refers to a technique used to gather information from an obsolete user interface for use in a modern one (Kumar and Balaramachandran, 2018). Software that automates workflows can boost output, reliability, and accuracy, cutting down on time spent keying in data and increasing the speed with which orders are fulfilled. With the help of artificial intelligence, computers can perform tasks that would normally require human intervention (Patri, 2020). Robotic process automation (RPA) software is not integrated into existing company IT infrastructure. It stays on top so that the business may ease into the product's introduction without having to make major adjustments to how they operate. The RPA is the ability to recognise and respond to circumstances that are different from the norm when it comes to IT automation. Data can be controlled, replies provided, new activities initiated, and autonomous interaction with other systems achieved through the use of RPA software if such software is able to monitor and analyse the behaviour of existing software applications for various tasks (Patri, 2020).

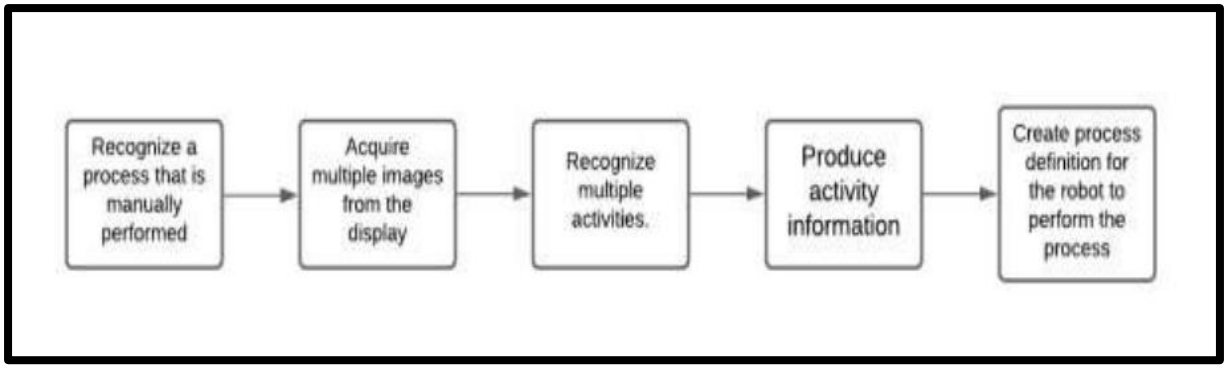

Figure 1: Banking process (Patri, 2020).

RPA accomplishes its goals by executing the various steps shown in Figure 1.The robots are given step-by-step directions on what to do. With these processes already written into RPA, the product may execute the programme and finish the predefined activity at different times according to the demands, and it can interact with other frameworks through integrations and screen scraping to perform tasks like a desk representative (Patri, 2020).

After completing the literature analysis, some benefits of utilising RPA technology are as follows:

- Saving money on labour costs by automating routine physical tasks.
- The purpose of RPA is to build efficient groups capable of handling complex tasks and delegating routine ones to robots.
- Robots will work without breaks or holidays, around the clock. Programming algorithms for RPA can nearly entirely eliminate errors and block off the possibility of human intervention.
- The normal payback period for an RPA project is between nine and twelve months, which directly lowers the expenses associated with the delivery of operations. RPA robots take between three to six months to design and implement (Villar and Khan, 2021).

The factors for determining which processes are amenable to automation include:

- Low cognitive requirements: Systems that have a lot of easy activities are excellent candidates for RPA implementations. On the other hand, complex processes that involve a wide variety of tough tasks can be difficult (or perhaps impossible) to manage with RPA (Osman, 2019).
- Robotic process automation can be used to a broad number of different systems, but it is most commonly used to automate operations or procedures within a single programme or information system.
- The most successful candidates for RPA deployments are those that involve reasonably regular processes and a large number of activities or tasks that need to be completed.
- A high probability of making a mistake due to human intervention: in most cases, operator-led processes and tasks are those that carry a high probability of making a mistake due to human intervention. According to the available statistics, the first option is to use RPA deployment strategies (Villar and Khan, 2021).
- Limited handling of exceptions: Processes that are necessary to be automated using RPA should be performed in a way that allows for a very small chance of exceptions. These kinds of processes are suitable for RPA implementation (Villar and Khan, 2021).

1.1.2 Background

Automatic processes are a subset of AI, which can be characterised as "software systems intelligently imitating human behaviour" (Britton and Atkinson, 2016). Automation and robotics can coexist with hardware and software, enabling the accomplishment of relatively cognitive tasks, if they are able to intelligently perceive their environs (Herbert et al., 2016). The use of automation is nothing new; ATMs are just one example of its pervasiveness in the

financial sector (Dilla and Jaynes, 2015). Low-level software automation techniques such as screen scraping and scripting are the norm in the industry (Willcocks and Lacity, 2015). Robotic process automation (RPA) is a new type of software technology used in digital business operations that enlists software robots to undertake jobs that were previously done by people. Automation, from a technical standpoint, is any system that can be programmed to perform a certain task based on a "if/then" condition (Stople and Steinsund, 2017). Similar to how industrial robots automate routine tasks in production, robotic process automation (RPA) automates routine tasks that deal with data and information (Kirchmer, 2017).

The goal of robotic process automation (RPA) in financial institutions is to automate repetitive, high-volume, normal business activities so that time, money, and resources can be saved. Customers can do a variety of financial transactions, including making deposits, withdrawals, and payments, without the assistance of a human bank employee, thanks to the appropriate banking technology and CRM integration services (Thekkethil et al., 2021). This type of robotic process automation improves the banking industry's bottom line. In addition, banks can replace even more forms of repetitive work by combining automation with artificial intelligence. When applied to business, AI capabilities have astounding results that bring value. RPA is finding an increasing number of uses in the financial sector as development in the field proceeds. Digital banking, mobile payments, cryptocurrencies, and the other advantages of Web 3.0 are attracting a lot of people's attention. These and other results of RPA and AI in banking are driving the industry forward in terms of innovation (Martin, 2022).

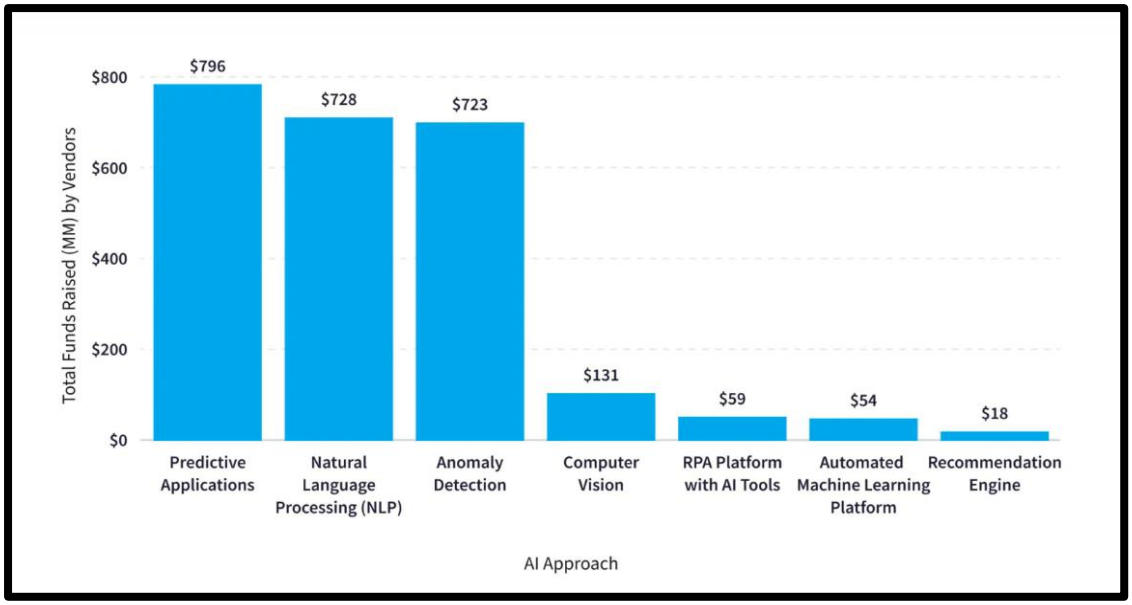

Figure 2: AI approach (Lamberton et al. 2017).

Although several leading banks have begun exploring RPA installations, few have been able to fully realise the benefits that have been touted for the technology (Lamberton et al., 2017; Stople and Steinsund, 2017). While studies have shown increased innovation, decreased costs, and improved decision-making in the industrial sector, similar studies have not been conducted in other sectors (Britton and Atkinson, 2016). Many businesses still doubt RPA's efficacy, and those that have adopted the technology are sometimes at a loss on how to increase their level of RPA maturity (Willcocks et al., 2017).

1.1.2.1 RPA

Robotic process automation (RPA) is being widely adopted by financial institutions in low- and middle-income nations to automate routine, labor-intensive tasks (Aguirre and Rodriguez 2017). Robotic process automation refers to the practice of automating mundane commercial procedures with software robots (RPA) (Alberth & Mattern, 2017). According to (Moffitt et al., 2018), robotic process automation (RPA) is a "virtual workforce" that uses robotics software to perform rule-based and repetitive processes that are prone to error due to worker

fatigue. The hope is that by using RPA, workers may devote more time to creative problem solving within their organisations' procedures (Geyer-Klingeberg et al., 2018). RPA helps banks and other financial institutions save time by automating mundane activities, cut expenses, and boost productivity all while better satisfying consumers (Anagnoste, 2017). Several banks are using computer programmes to execute monotonous operations faster and more accurately to better serve their customers. As stated by (Rotatori et al., 2020), RPA and other technologies of the Fourth Industrial Revolution necessitate clear goals and objectives for the future workforce on the part of an organization's human resources department. There is significant concern among workers that they may be laid off in the near future due to the rise of RPA and related concerns. Most tasks in a financial institution have some monetary implication, yet the laborious nature of the monetary transaction processes necessitates the use of technologies like RPA to improve efficiency and precision. There is no hard data to support the claim that RPA is being used to eliminate jobs for humans. Technology solution tasks like selecting, installing, and assessing are not performed in a vacuum and involve human input (McClure, 2017).

Geyer-Klingeberg et al. (2018), state that a human labour force is essential for "process mining," the activity of identifying prospective RPA business processes. The RPA seems to have exacerbated the problem caused by comparing human productivity to that of machines. Asatiani & Penttinen (2016); Lacity et al. (2021) are only a few of the many recent studies on the RPA. Neither the difficulties faced by financial institutions in Africa nor the difficulties associated with RPA deployment have been the focus of any of this research. This research sought to fill the aforementioned information void by exploring, from the perspective of a financial organisation, the tensions that exist between human labour and RPA. As a result of this awareness, RPA and human labour can be integrated without any hitches, leading to better service for the customer at no extra expense (Hofmann et al., 2020). Researchers use activity

theory (AT) as a theoretical framework since this study necessitates an examination of two activity systems—the human labour force and robotic process automation—to accomplish its goals. Multiple perspectives can be analysed with the AT's help, allowing for the detection and tracking of system interactions previously unseen (Moffitt et al., 2018).

1.1.2.2RPA in finance and banking: Effective use cases and implementation

The fast adoption of RPA has an impact on sectors all across the world. As a result, it is anticipated that the total size of the RPA market will rise to $23.9 billion by the year 2030's end (nixUnited, 2020).

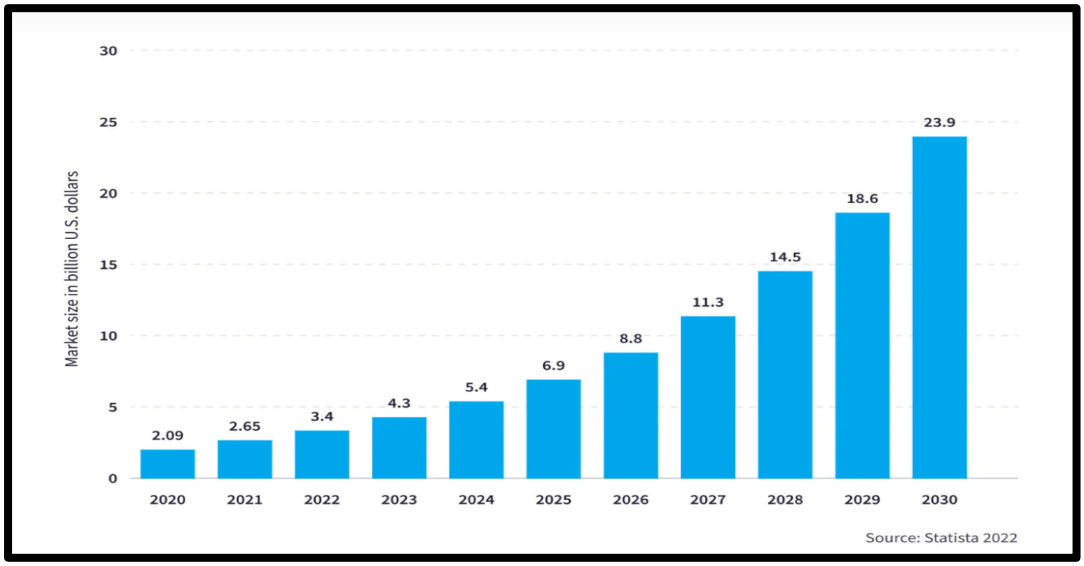

Figure 3: Market size in billion us dollars (tele.net2022).

Banks and other financial institutions have experienced meteoric expansion in recent years. These industries are bolstering their online presence and employing innovative strategies to adapt to the shifting environment brought on by technological breakthroughs and the aftermath of the pandemic (tele.net, 2022). The use of RPA in the financial sector is widely regarded as a potent weapon for institutions to gain an advantage over rivals through the improvement of operational efficiency and the enhancement of the customer experience. By 2025, it is expected

that financial services will have spent $1.12 billion on robotic process automation (nixUnited, 2020).

1.1.2.3 The Basics of Robotic Process Automation

Robotic process automation software is unique in that it automates tasks by interacting with user interfaces rather than modifying the underlying programmes themselves. The benefits of system integration can be gained with little outlay of resources. Current technological capabilities allow the automation of a wide range of tasks in various industries. Only a small number of vocations are completely immune to technological advancements, but the vast majority contain at least some aspects that can be automated. Therefore, at least 30% of all processes in 60% of all vocations can be automated with current technology (nixUnited, 2020).

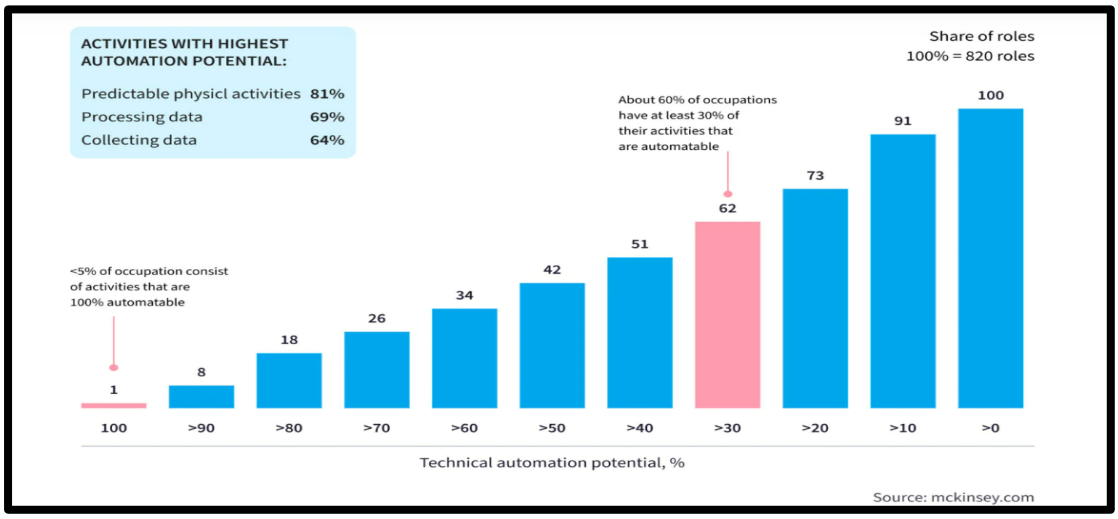

Figure 4:Mckinsey.com

1.1.2.4 Areas for Automation in the Financial and Banking Sector

As previously mentioned, complete automation of business processes is not possible for all tasks. In the financial sector, some tasks can be automated to a greater extent using robots, while others cannot be automated due to the current available technology. It is important to

identify which types of operations have the greatest potential for implementing RPA (nixUnited, 2020).

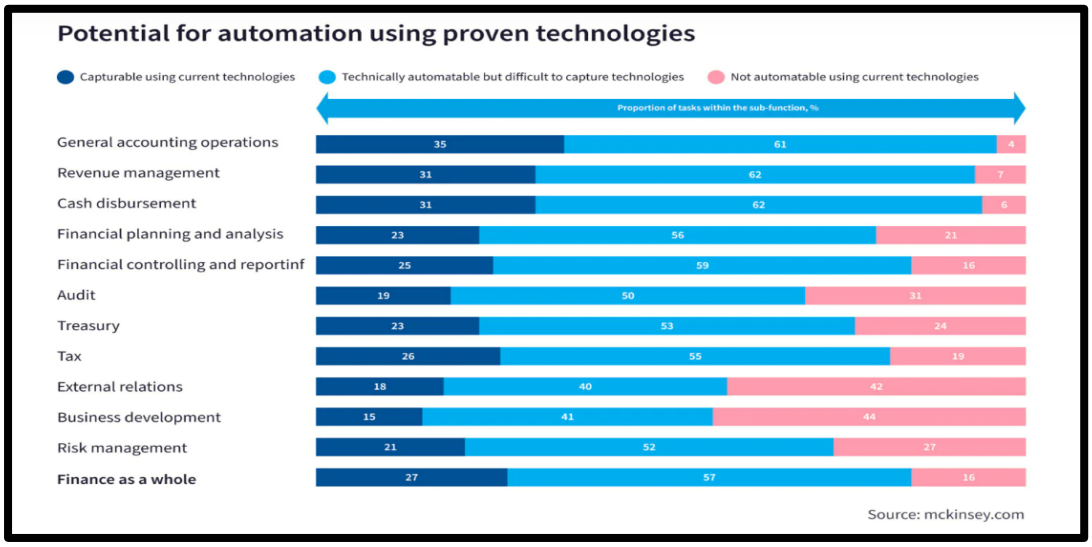

Figure 5: Potential for automation using proven technologies (Mckinsey.com)

The most common applications for robotic process automation, or RPA, are routine and laborious operations such as standard accounting procedures and cash disbursement. This is to be expected. Analysis, planning, regulating, and reporting are just few of the many areas where automation can be useful. Technology can even help with more high-level tasks, such as company development and public relations, though to a much smaller extent than with the preceding groups (nixUnited, 2020).

1.1.2.5 Bank and Financial Institutions RPA Applications

Tasks like data entry, reporting, cross-checking, and record maintenance are ideal for RPA systems, and financial institutions with accounting and procurement departments have plenty of them (McKinsey & Company, 2022). Additionally, most processes have a decent structure and rule-based foundation, necessitating neither exceptions nor manual intervention. Targeted

automation in financial processes that makes use of RPA can give a significant amount of value if it is applied to the appropriate use cases. The following examples are some of the more beneficial ones (Le Clair, UiPath & Prism, 2018).

Maximizing Efficiency in the Call Center

Financial institutions receive an unprecedented volume of calls to their support centres due to the scarcity of available physical communication channels and the widespread adoption of digital alternatives. Robotic process automation in banking can help with this volume. For example, bots can handle mundane tasks, while complex questions are routed to the most qualified human experts (McKinsey & Company, 2022).

Methods for Financing International Trade

Banks can expand their role in the financial supply chain and increase the efficiency of their trade operations by adopting RPA solutions. Letters of credit are frequently used as a kind of trade finance, and RPA in banking automates the tasks involved in their issuance, management, and closure. The automation boosts throughput, increases transparency throughout the process, and decreases operational expenses (McKinsey & Company, 2022).

Acquisition of New Customers

For some customers, the financial services industry's client onboarding process can be a scary one. Manual identity document verifications are particularly time-consuming. The onboarding process is incomplete without a thorough Know Your Customer (KYC) check. The annual expense of client due diligence and compliance procedures can run hundreds of millions of dollars for some financial institutions. Tools for intelligent automation can save time and money while reducing the possibility of human error (McKinsey & Company, 2022).

Know Your Customer Procedures and AML (AML)

These procedures, while required, are time-consuming and resource-intensive because to the volume of data involved. Because of this, however, they are excellent candidates for RPA. Automation is possible for a wide variety of functions that were previously performed manually, including the detection of suspicious banking transactions and the execution of verification procedures (McKinsey & Company, 2022). As an example of RPA in the banking industry, consider the full automation of anti-money-laundering (AML) investigations. The average case can take up to 40 minutes to complete because of the extensive human labour required. Due to the repetitive nature and rule-based nature of the process, RPA can be used to automate it, resulting in a faster turnaround (McKinsey & Company, 2022).

Methods for Checking Account Balances

Bank reconciliation is a very time-consuming task since it involves knowledge workers gathering transactional data from different institutions and balancing the numbers. But robots that have been properly designed can do the job just as well as humans (McKinsey & Company, 2022). Each payment can be checked against other records and reconciled quickly with the use of rule-based automation. When differences are detected, the robots will send the relevant files to human reviewers (nixUnited, 2020).

Administration of Credit Requests

Banks and other financial institutions can use RPA to simplify the loan application procedure for their customers. When requesting a loan or assessment, borrowers typically amass massive stacks of paperwork (McKinsey & Company, 2022). The groups have to sift through the applications, pull relevant information, check it against multiple forms of identification, and manually assess the applicants' creditworthiness. Considerable time and energy may be needed

to complete this task. Many, if not all, of these tasks can be automated by RPA technologies powered by artificial intelligence (nixUnited, 2020).

Opening and Closing an Account

Robotic process automation has made account opening and closing easier, faster, and more accurate in the financial services industry. Errors are avoided and data quality is improved because to automation (McKinsey & Company, 2022). Robots are able to efficiently complete a variety of tasks, including document availability checks, email distribution, database updates, and more. This allows knowledge workers to spend more time actually doing their jobs (nixUnited, 2020).

Mortgage Financing

Many banks and other financial organisations regularly engage in this practise. Mortgage lending, like a lot of other things to do with document processing, takes a lot of time (McKinsey & Company, 2022). Robotic process automation (RPA) in financial institutions can automate a wide variety of previously manual tasks, such as loan application, data entry, quality assurance, and more. In the long run, businesses will speed up their processes and prioritise consumer happiness (nixUnited, 2020).

Machine-Generated Reports

In the banking profession, a considerable amount of time is spent on reports. Robotic process automation (RPA) allows institutions to eliminate the need for human labour in report generation by automating tasks such as data collection from internal and external systems, data consolidation, report template creation, and report reconciliation (nixUnited, 2020).

Accepting Credit Card Applications

The processing of credit card applications is another area where robotic process automation (RPA) in banking stands to revolutionise the sector. Successful automation allows businesses to issue credit cards in a matter of hours (McKinsey & Company, 2022). Robots may swiftly travel through systems, verify data, run the required background checks, and finally approve or deny the application (nixUnited, 2020).

Methods for Handling Purchase Orders

An enormous amount of time is spent on the boring but necessary task of placing purchase orders. Software robots powered by AI can be taught to examine orders for vital information, enter that information into the system, and initiate approval processes (nixUnited, 2020).

Processing of Invoices

When invoices have a wide range of formats, it might be difficult for staff to process them all. In the financial sector, robots can expedite repetitive and rule-based tasks, relieving the pressure on back-office workers (nixUnited, 2020).

Handling of Loans

Because it is such a time-consuming task, loan processing has long been considered a potential for robotic process automation. The process may be automated, though, and will be as technology advances. As technology improves, financial institutions will be able to speed up their processes even more, which will be a boon to both their employees and their customers (nixUnited, 2020).

Support for Customers

Participants in the banking and financial sectors regularly field similar questions from customers. Support staff may find it difficult to respond immediately to these inquiries. Companies can improve internal processes and reduce response times by using automation (nixUnited, 2020).

1.1.2.6 Indian economy

The Indian government's Ministry of Finance is often regarded as the country's economic fulcrum. An economic downturn is possible if human mistake occurs in the banking and finance industry. It is a major issue in India that conventional banking procedures are both expensive and time-consuming. India's economy relies heavily on the efficient management of routine, time-consuming operations performed with scarce resources (McKinsey & Company, 2022). Robotic process automation (RPA) has the potential to speed up processes while decreasing the room for human mistake. Robotic process automation and artificial intelligence are both crucial to the progress of the banking industry (Newsroom, 2022). Though it has enormous potential, RPA is only in its infancy in the financial services industry. It aids humans in doing their work more precisely and efficiently, and if the Indian government can get control of the financial sector, it will be a major step forward for the country's economy (Newsroom, 2022). The significance of robotic automation procedures in the banking industry is explained by expert opinion. It is a crucial operation that has been simplified, allowing the banking sector to operate more smoothly and extending the life of the legacy system. India's banking industry is committed to maximising the long-term benefits of technological transformation by reducing or eliminating disruptive business interruptions and temporary fixes (Newsroom, 2022).

Robotic process automation sees extensive international application in industries such as manufacturing, healthcare, and insurance. It was made to help the financial industry streamline its operations and cut down on unnecessary repetition. To the tune of $1.57 billion in 2020, RPA installation boosted productivity (Newsroom, 2022). A significant presence for the RPA system in the financial sector of the corporate world is predicted for the future. Building client interest in the functionality and bettering the country's economy are both outcomes of implementing an RPA system in the banking system. The attractive qualities of RPA technology are the reason for its implementation in the banking sector. The banking industry can increase output thanks to robotic process automation (Osman, 2019). The RPA method speeds up efficiency by cutting down on labour needs. It can function for long periods of time without rest, reducing the costs associated with hiring and maintaining human labour. The IT department constantly sabotages the banking industry's tried-and-true procedures. IT department intervention is reduced and robotic aid is developed through RPA development (Newsroom, 2022). Because it is built on top of pre-existing banking apps, it does not necessitate any major infrastructure upgrades to expand functionality. By implementing RPA and mandating high productivity ratios, the Indian government has similarly changed the country's banking sector. Robotic process automation (RPA) aids the banking industry in India in the areas of mortgage processing, accounts payables, investment management, client value knowledge, and report generating (Vijai et al., 2020).

1.1.2.7 XYZ Bank

XYZ Bank is a well-known bank in India that has been providing financial services for several years. Over the years, the bank has adapted to new technologies and implemented innovative solutions to improve its operational efficiency and customer service. One of the latest technologies adopted by the bank is Robotic Process Automation (RPA), which is a software

solution that automates repetitive and rule-based tasks (Nanonets, 2022). This case study focuses on the implementation of RPA at XYZ Bank, with a particular emphasis on worker satisfaction and cost reduction. The bank recognized the potential benefits of RPA, such as improved accuracy, faster processing times, and reduced costs, but also wanted to ensure that employees would be comfortable with the new technology and that their jobs would not be affected negatively (Aguirre and Rodriguez, 2017).

This study investigates the adoption of RPA by a bank, examining the challenges encountered during the implementation process and assessing the effects of RPA on worker satisfaction and cost reduction. The case study emphasizes the significance of employee involvement and training during the implementation, as well as the importance of continuous support and monitoring of the RPA system (Asatiani and Penttinen, 2016). By analyzing the case study, the research provides valuable insights into the advantages and difficulties of RPA implementation in a banking context, and how the technology can be used to enhance operational efficiency and employee satisfaction while lowering expenses. It's worth noting that the decision to adopt RPA at XYZ Bank was driven by the desire to improve service delivery quality and speed while also reducing costs (IRAQI, 2018).

The bank recognized that traditional processes were time-consuming and prone to errors, which resulted in delays and dissatisfaction among customers. By implementing RPA, the bank was able to streamline its processes, reduce manual errors, and free up staff to focus on more strategic tasks. However, the bank also realized that the introduction of RPA could lead to resistance from workers who might perceive it as a threat to their jobs (Kumarand Balaramachandran 2020). To overcome this challenge, the bank took a proactive approach to training and engaging its staff. Employees were provided with detailed training on how to use

the RPA software and how it would impact their roles, ensuring they understood the benefits and how to work alongside the new technology (Global Newswire, 2022).

Another key challenge faced by the bank during the implementation of RPA was the need to integrate the new technology with existing systems and processes. The bank had to ensure that RPA was seamlessly integrated with its existing infrastructure, minimizing any disruption to business operations (Lacity and Willcocks, 2018). The study highlights the importance of thorough planning and testing during the implementation phase to avoid any technical glitches or delays. The case study on XYZ Bank provides an example of how RPA can be successfully implemented in a banking environment to improve operational efficiency and worker satisfaction while reducing costs. The study highlights the importance of employee engagement, training, and ongoing support during the implementation process, as well as the need for careful planning and integration with existing systems. By embracing new technologies like RPA, banks can achieve significant improvements in their service delivery and customer satisfaction levels (Romão et al., 2019).

1.1.2.8 Advantages of using RPA in banking

Robotic Process Automation (RPA) is utilized by numerous industries including healthcare, production, and insurance. In the financial sector, 80% of leaders are presently using RPA for diverse functions (Martin, 2020). The key advantages of automation in the financial sector include seamless scalability, time-saving, cost reduction, no additional infrastructure cost, increased human employee efficiency, and reduced possibility of human error. Robots can operate continuously without taking breaks and handle increased request volumes during peak hours. A study by Deloitte found that with RPA in place, work time on specific tasks might be cut by as much as 90 percent. Furthermore, Accenture estimates that certain roles might expect an 80% cost reduction thanks to RPA implementation (Deloitte 2022). Since RPA in banking

and finance operates as a skin over existing banking software, it is not necessary to make extensive changes to existing infrastructure to accommodate its introduction. Employees' well-being and job satisfaction can improve as a result of the use of robots, which can do jobs up to five times faster than humans. By using a methodical approach to completing tasks, Financial RPA removes the chance of mistakes due to human nature (Deloitte, 2022).

In addition to the benefits mentioned in the original passage, there are several other advantages that RPA offers to the banking industry. In the banking sector, for instance, RPA can greatly enhance accuracy and consistency, decreasing the likelihood of errors and inconsistencies that could result in losses or other harm (Deloitte, 2022). Moreover, RPA can help banks and financial institutions to comply with regulations and ensure that their processes are auditable and transparent. By automating key financial processes and ensuring that they are consistently executed according to predefined rules, RPA can help banks to meet regulatory requirements and maintain compliance (Vijai et al., 2020).

Another advantage of RPA is that it can help to enhance customer service and satisfaction. By automating routine tasks such as account updates, balance inquiries, and other common transactions, RPA can free up human employees to focus on more complex customer inquiries and other high-value tasks that require a human touch. This can help to improve the overall customer experience and increase customer loyalty and retention (Deloitte, 2022). It is worth noting that RPA is still a relatively new technology, and its capabilities are constantly evolving. As more banks and financial institutions adopt RPA, it's likely that new use cases and applications will emerge, and the technology will continue to become more sophisticated and capable (Amr, 2022). This means that there is significant potential for RPA to transform the banking industry in the coming years and help financial institutions to deliver better service, reduce costs, and improve their bottom line (Marciniak and Stanislawski, 2021).

1.2. Research Problem

Robotic Process Automation (RPA) is increasingly being adopted by organizations globally as a way to automate repetitive, time-consuming tasks and improve operational efficiency (Nawaz, 2019). The effects of RPA on worker satisfaction and cost reduction in the Indian banking sector have received little attention, despite the technology's rising profile. This research intends to fill that void by investigating the effects of RPA on worker happiness and cost savings in an Indian bank. In India, the banking sector is facing increasing pressure to improve operational efficiency and reduce costs while still providing high-quality services to customers (Moffitt et al., 2018). The adoption of RPA technology has the potential to provide a solution to these challenges, by automating repetitive tasks and reducing manual labor. However, there are concerns about the impact of RPA on worker satisfaction and the cost savings it can provide. This study aims to address these concerns by exploring the implementation of RPA in an Indian Bank and examining the impact on worker satisfaction and cost reduction (Madakam et al., 2019).

The purpose of this research is to examine the determinants of RPA implementation in the banking sector of India, given the intense competition among major Indian banks and the market risks affecting bank charges. Indian banks can increase their profits by reducing their operational costs and adopting innovative practices. Robotic Process Automation (RPA) is an advanced technology that can enhance productivity in companies by automating repetitive tasks (Lacity, 2017). Financial institutions are using RPA because of the many advantages it offers (Stople and Steinsund, 2017). Most studies have found that when RPA is put into place, employees spend less time on administrative tasks related to their core responsibilities (Cahill, 2017). It is assumed that fewer workers will be needed once RPA and other forms of administrative task automation have been put into place. However, before making the final call

to embrace RPA, institutions should assess the full scope of its potential benefits (Willcocks et al., 2015b). And with the time freed up from the automation of routine administrative duties, banks are putting their employees to better use by having them focus on more interesting projects (Stople et al., 2017). Instead of entirely replacing humans, software robots can be employed to strengthen existing teams and improve overall productivity (Stople et al., 2017).

Management effectiveness, liquidity, asset quality, earnings potential, and capital adequacy are only few of the variables that influence India's banking sector's overall performance. The banking sector in India has been modernised during the past decade in response to technological developments and the emergence of new concepts (Vijai et al., 2020). To attract international investment and expand a country's commerce abroad, the banking sector is essential. Due to the country's size and openness to foreign investment, foreign banks have been given considerable freedom to develop and oversee India's economy (Eikebrokk and Olsen, 2020). Foreign investors can find healthy competition in the financial system. Technology has helped banks in many ways, but there are still problems with mortgage processing, investment management, accounts payables, knowing consumer values, and report generation. RPA (Robotic Process Automation) can help in these places to guarantee happy clients (Villar and Khan, 2021).

Manual handling of payable accounts is time-consuming, and a performance report document is prone to errors. Traditional mortgage processing requires two months, and human error chances exist, which slows down the process. Banking is impeded by the time-consuming nature of getting to know consumers. Compliance with anti-money laundering regulations and anti-fraud measures taken by clients and workers damage the credibility of financial institutions (Anagnoste, 2017). Therefore, it is important to create an RPA system in order to accurately assess the performance of the banking sector and to manage accounts payable. RPA may

process payables using optical character recognition and provide daily, monthly, and annual financial reports. In the banking industry, RPA allows for the handling of problems and the creation of reliable performance reports (Yatskiv et al., 2019).

There is also an insufficiency of literature containing research cases on RPA in the financial sector, it is imperative that more be conducted in this area (Stople and Steinsund, 2017). It is difficult to generalise the characteristics that drive adoption since the banking industry has social behaviour that is unlike other industries. The volume of financial transactions that automation will affect will moderate how difficult it is to quantify the benefits of automation (Trkman, 2013). Researchers have reached different conclusions about the efficacy of Business Process Management (BPM), with some arguing that it has failed to live up to its promise (Ringim et al., 2012). Articles detailing studies of RPA installation can be used to improve the quality of automation services provided to businesses (Lacity, 2017).

Organizations in the Indian banking sector who are thinking about using RPA technology can benefit greatly from the insights provided by this study, which adds to the current literature on RPA implementation (Hyeonyounggeun and Yijuyeon, 2018). This research will aid businesses in weighing the pros and cons of using RPA by examining the effect that it has on worker satisfaction and cost savings. In sum, this study will contribute to the dearth of literature on RPA implementation in the Indian banking sector and offer useful information to businesses considering this technological shift (Ivančić et al., 2019).

1.3 Research Aim & Objectives

Aim

The aim of this research is to examine the implementation of Robotic Process Automation (RPA) in an Indian Bank with a focus on worker satisfaction and cost reduction.

The purpose of this study is to conduct a comprehensive investigation of the effects of Robotic Process Automation (RPA) on worker satisfaction and cost reduction in an Indian bank. The study aims to uncover the advantages of implementing RPA as well as the difficulties faced during the process. Data will be collected through interviews, surveys, and examination of existing records, with a focus on a single Indian bank as a case study (Yatskiv et al., 2019). This study will contribute to the current body of research on RPA implementation by providing new insights into the implementation process and its effects on worker satisfaction and cost reduction. Its results will be useful for organizations considering the adoption of RPA technology, as it explores the benefits and potential drawbacks of RPA implementation (Akpata, 2019).

Objectives:

- To assess the contribution of RPA to operational cost reduction in the service operations of an Indian Bank, focusing on key areas such as labour costs, processing time, and error reduction.
- To evaluate the impact of RPA on worker satisfaction, with particular emphasis on changes to job roles, workload, and job security as perceived by employees directly involved in automated processes.
- To identify the obstacles encountered during the implementation of RPA, including resistance to change, integration with legacy systems, and adequacy of training programs provided to employees.
- To explore the overall benefits of RPA adoption for service efficiency and accuracy, highlighting areas where automation has improved service delivery and customer satisfaction while assessing potential for long-term scalability.

- To recommend strategies for optimising the use of RPA in banking operations, ensuring that cost efficiency and worker satisfaction are both maximised in future implementations.

This study aims to examine the effects of RPA on the Indian banking industry as its primary focus. The success of India's banking industry hinges on two factors: happy clients and reliable workers (Akpata, 2019). Manual banking procedures are time-consuming and costly, therefore eliminating any room for human error is crucial for keeping customers happy. As a sort of limited-resource digital transformation, robotic process automation in the banking industry has the potential to boost client satisfaction through the use of cutting-edge technology (Alexander et al., 2018). Assessing the RPA system's ability to avert major losses in the financial industry is crucial. Rapid process automation (RPA) is a time-saving solution that necessitates centralised data processing. The banking industry has a lot of room for improvement in terms of customer satisfaction, but only if it pays attention to the independent variables that contribute to customer satisfaction. This study provides a rough outline for examining these factors in order to determine how the RPA system affects customer satisfaction (Asatiani and Penttinen, 2016). The RPA system has become a vital instrument in the banking industry of India, despite the fact that its actual consequences have not been researched in full.

1.4 Research Questions

1. What is the extent of RPA’s contribution to cost reduction in the service operations of an Indian bank?
2. How does RPA Implementation impact worker satisfaction within service operations?
3. What are the main challenges faced during RPA implementation in the bank?
4. What are the operational benefits observed from RPA implementation, and how sustainable are they?

1.5 Research Rationale

The significance of this research lies in its contribution to the existing literature on Robotic Process Automation (RPA) implementation and its impact on worker satisfaction and cost reduction in the Indian banking sector. The study will provide valuable insights for organizations considering the adoption of RPA technology in India and help address the current gap in the literature on RPA implementation in the Indian context (Akpata, 2019). In India, the banking sector is facing increasing pressure to improve operational efficiency and reduce costs while still providing high-quality services to customers (Ansari et al., 2019). The adoption of RPA technology has the potential to provide a solution to these challenges, by automating repetitive tasks and reducing manual labor. However, there are concerns about the impact of RPA on worker satisfaction and the cost savings it can provide. This study will provide a comprehensive examination of the implementation of RPA in an Indian Bank and its impact on worker satisfaction and cost reduction (Hofmann et al., 2020).

The findings of this study will be useful for companies in the Indian banking sector who are thinking about implementing RPA software. This research can aid businesses in making educated decisions about whether or not to deploy RPA by examining the effects of the technology on worker happiness and productivity as well as costs. Organizations throughout the world that are thinking about using RPA technology will benefit greatly from the study's findings, and the findings will add to the existing literature on RPA deployment (Romo et al., 2019). Over all, this research will aid institutions in the Indian banking sector in determining whether or not to utilise RPA technology and in doing so, to better comprehend its effect on employee happiness and cost savings. The results of this study will add to the body of literature on RPA implementation and offer important lessons for businesses around the world (Susilo et al., 2021).

1.6 Scope of research

The scope of this research is to examine the implementation of Robotic Process Automation (RPA) in an Indian Bank and its impact on worker satisfaction and cost reduction. This study will provide a comprehensive examination of the benefits, obstacles, and disadvantages of RPA implementation in the Indian banking sector and the suggested solutions to the problems that have been identified (Thekkethil et al., 2021). Additionally, the study will explore the significance of RPA on cost reduction in the Services Operations at the Indian Bank. The study will be conducted through a case study approach, focusing on a single Indian Bank. Data will be collected through a combination of interviews with key stakeholders, surveys of workers, and an analysis of the bank's financial data. The findings of the study will be analyzed using statistical methods to provide a comprehensive examination of the impact of RPA on worker satisfaction and cost reduction (Vijai et al., 2020).

Banking institutions can save money by using robotic process automation technologies to shorten the customer service cycle. When compared to competing financial management tools, it excels at rule-based performance (Villar and Khan, 2021). By implementing automation in the banking sector, India can save up to $6 billion annually. Currently, 455 industries globally have implemented automation practices in their business models (Shukla and Rebello, 2017). The RPA system is not only efficient and cost-saving but also beneficial for agility, ease of deployment, and speed. The banking industry stands to save a substantial amount of money on human resources expenditures by adopting RPA. The RPA system controls human resources and boosts performance in the Indian banking sector, ensuring effective development and productivity (Furjan et al., 2020). The robotic system improves data analytics, processes transactions in real-time, centrally manages data flow, and can retrain itself to ensure functioning accuracy. By combining AI with the robotic automation process, RPA in the

banking industry can boost productivity and satisfaction among customers. With this method, financial institutions can boost services including wealth counselling, fraud prevention, loan processing, and customer satisfaction (Herm et al., 2022).

This research will focus specifically on the Indian banking sector and will provide valuable insights into the unique challenges and opportunities associated with RPA implementation in this context (Akpata, 2019). This study's findings will help Indian banking institutions better understand the benefits and drawbacks of implementing RPA. This study's focus is on how the introduction of RPA into the Indian banking industry has affected employee happiness and productivity (Furjan et al., 2020). The study does not examine the wider impact of RPA on the Indian economy or the broader implications of RPA implementation for workers in other sectors. The findings of this research may not be generalizable to other organizations or industries (Chen et al., 2021). This study's overarching goal is to shed light on how the use of robotic process automation (RPA) in an Indian bank has affected employee happiness and bottom-line savings. Organizations in the Indian banking sector that are thinking about adopting RPA technology may benefit greatly from the information provided by this study (Akpata, 2019).

Research Structure

The thesis will have a structured format comprising of several segments. The first section will introduce the topic, give a brief explanation of the research issue, and provide the study's background. The next section will review previous academic and industry research on Robotic Process Automation (RPA) implementation, investigating its impact on worker satisfaction and cost reduction. This segment will offer a comprehensive overview of the subject, highlighting the advantages and challenges of RPA adoption. The third part will detail the study's research design, including the methodology, data collection techniques, and data analysis methods

employed. The fourth section will display the research findings, incorporating the results of data analysis. Finally, the last section will sum up the conclusions drawn from the findings and give recommendations for future research, as well as practical implications for businesses contemplating RPA implementation. The researcher will carefully scrutinize the results, provide data-backed conclusions throughout the thesis, and discuss their implications in detail.

Chapter II: Literature Review

2.1 Introduction

Robotic process automation (RPA) has emerged as a potential solution in recent years for companies aiming to increase operational efficiency while decreasing expenses. RPA is the practise of using software robots to carry out rule-based, repetitive tasks that were traditionally carried out by humans (Herm et al., 2022). The banking industry is among the many that are seeing an uptick in the adoption of RPA due to its ability to assist institutions cut down on manual labour while simultaneously increasing productivity and precision (Vishnu et al., 2017).RPA is different from other cognitive technologies and AI, using rules-based procedures to process structured data and generate single conclusions, while AI can handle unstructured data and generate multiple solutions (Willcocks et al., 2015a; Lacity, 2017). There are three main types of cognitive technology: AI, knowledge-based automation, and rules-based automation (Grung-Olsen, 2017). Combining RPA and AI into intelligent process automation (IPA) can handle both structured and unstructured data, but cognitive robots are more expensive and often reserved for high-value jobs (Kirchmer, 2017; Bollard et al., 2017; Lamberton et al., 2017).

Stople and Steinsund (2017) note that several banks have implemented RPA, and the challenge lies in effectively integrating the technology into their ecosystem to provide long-term benefits. Cahill (2017), has documented numerous use cases for RPA in banking, each with the potential to increase time and labor efficiency. The increased productivity of RPA technology may result in fewer employees being needed to perform previously automated tasks (World Economic Forum, 2017). However, cost savings through layoffs should not be the sole focus of businesses seeking to reap the benefits of RPA's many uses (Willcocks et al., 2015a). Financial institutions

that have adopted RPA have been able to reallocate their workforce to more engaging tasks and have used bots to augment their human teams rather than replace them (Stople et al., 2017).

A comprehensive literature review was carried out because there were insufficient reliable resources. The terms "Robotic Process Automation" and their variants were used to search scholarly databases for as many relevant publications as feasible. Finding the high-quality studies necessitated more research, including checking the articles' references and, in some cases, acquiring the authors' full reports (Albuquerque et al., 2016). Since there were so few papers about RPA, we looked into some comparable technologies that were recommended by industry leaders (Willcocks et al., 2015). RPA, a technology stack for automating routine business operations, is closely associated with Company Process Management (BPM) (Stople and Steinsund, 2017). This literature review aims to provide an overview of academic and industrial research on RPA adoption, with a specific focus on cost savings and worker satisfaction. The analysis centers on the implementation of RPA in an Indian bank and its advantages and disadvantages. The review will examine the impact of automation on worker satisfaction, as well as how the adoption of RPA influences worker satisfaction. Further elaboration on RPA will be discussed in subsequent paragraphs.

2.2 RPA in banking

The current banking industry is rushing to develop and implement digital technology in order to improve the customer experience and save operating costs. The fact that this is now required does not mean it is sufficient. Banks cannot afford to fail in this ever-changing ecosystem without first understanding how their own actions affect the long-term health of the institution (Agarwal, 2017). Each and every one of a bank's activities has an effect on businesses, the environment, and the economy, and hence on the bank's long-term viability (Ciufudean, 2018). It is no longer a secret that in today's competitive banking industry, differentiation is key to

survival. This means that banks must constantly innovate to offer customers the best service possible. With so many online banking services available, banks are under intense pressure to streamline their operations and make the most of their available resources (Gobareva, 2019). Other difficulties that bank face today include a scarcity of trained resources, a sudden increase in human costs, and the imperative to enhance the efficiency of banking procedures. As a result, the financial industry has started using robotics, commonly known as Robotic Process Automation (RPA) (Kasyanov, 2020; Gobareva, 2018). This research delves at the significant effects robotics has had and will have in the future on the quest to establish and maintain fiscal stability in the banking sector (Meena, 2019).

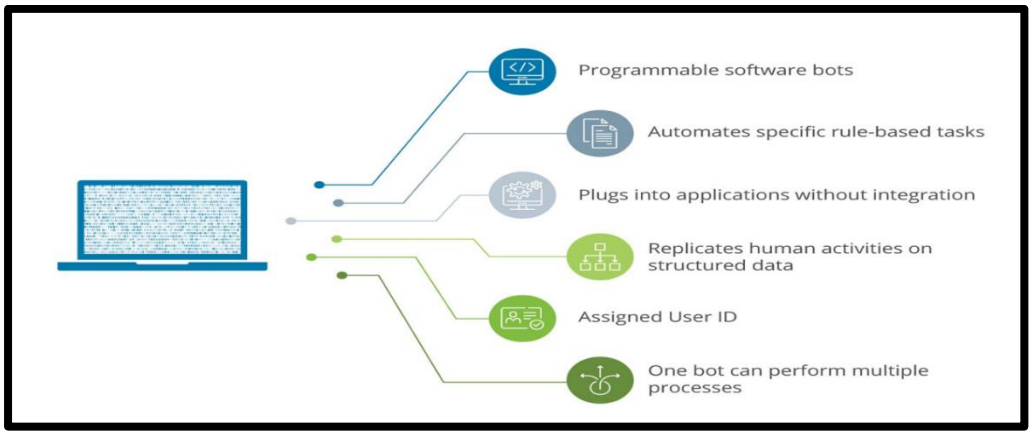

Figure 6: RPA (Kasyanov 2020)

The banking industry is evolving in the direction of less human error, more accountability, lower costs, and full compliance. The goal of RPA is to help financial institutions with this (overcoming these limitations) (Katke and Kamat, 2019). Robotic process automation has the ability to upend the standard audit strategy in the compliance industry since it can carry out rule-based operations that would otherwise be time-consuming and labor-intensive to complete manually. RPA is expected to transform the auditing profession by eliminating routine work while increasing the importance of decision-making and creative problem-solving (Moffitt et al. 2018). RPA is a widely used technology in front office processing as it helps businesses

eliminate the need for human involvement in back offices, resulting in significant cost savings (Barnett, 2015). Research shows that robots are 11 times more efficient than humans in performing repetitive tasks without compromising on quality (Anagnoste, 2017). By automating these tasks with RPA, businesses can save money, as RPA can automate the same activity for as little as $15,000, making it a cost-effective alternative to low-cost outsourcing (Petersen and Rohith, 2017). Furthermore, RPA's OCR feature can help production organizations reduce costs, eliminate errors, and improve overall performance by shifting workers to other positions that require human energy, aided by RPA's recognition capabilities (George et al. 2021; Ma et al., 2019).

RPA is implemented in various frameworks to increase efficiency and productivity. In a Corporate Service Provider (CSP) framework, RPA bots automate paperwork, resulting in a high net efficiency increase (William, 2019). RPA has also been suggested to streamline Student Information System (SIS) management processes and integrate SIS functions into enterprise resource planning (ERP), benefiting businesses by improving productivity and information control (Gajra et al., 2019). RPA technology has also increased productivity and operation expenses in public administration work processes, indicating its potential for enhancing institutional performance (Houy et al., 2019). Additionally, incorporating a chatbot into the bank reconciliation process can simplify the process and reduce the amount of clicking required to complete the task (Madakam et al., 2019).

RPA technology has improved various sectors, including human resources, by automating repetitive and manual tasks (Thekkethil et al., 2021). This technology has allowed HR personnel to focus on more nuanced issues and make more informed decisions, leading to increased efficiency and reduced errors. RPA can also be used in the hiring process, where it can sort through resumes and send messages to unsuccessful candidates. This integration has

resulted in optimized and cost-effective recruiting, leading to an increase in the calibre of hires (Nawaz, 2019).

2.3 Indian Banks

Robotic process automation, or RPA, is a software-based automation solution that simulates human behaviour to carry out rule-based transaction processing. While RPA adoption can be seen in many industries, the banking and financial services sectors are leading the charge. Banking is an industry that is rife with repetitive, volume, and time-intensive activities, yet RPA adoption has made this sector more efficient and transformed it (Oshri and Plugge, 2021). Underwriting loans is a critical yet time-consuming and error-prone procedure that necessitates information compilation from numerous sources, making it a great use case for robotic process automation implementation, which has proven to be very beneficial for banks. Regulatory and compliance duties are impacted by RPA since it automates manual operations for frequent reporting and disclosures while maintaining audit characteristics of processes to lessen risk (Ramona et al., 2020). The Indian banking industry has been an early adoption of this technology, and as a result, they have reaped the benefits of increased production, improved accuracy, and reduced operating expenses. Some companies, like HDFC and ICICI Bank, have been using RPA to automate various tasks since 2016 (Vinoth, 2022).

ICICI Bank's Operations Department used RPA for 10 processes in the first year, increasing that number to 200 processes by the end of the year so that the bank could better support its many different businesses (Vijai, 2019). These businesses include retail, corporate, treasury, agri-business, trade, and currency, and together they process over 10 lakh transactions per day. Presently, ICICI Bank uses 750 robots to conduct more than 20 lakh transactions daily, allowing them to automate 1350 operations related to customer onboarding, loan processing, and reconciliation (Gupta, 2021).

HDFC Bank, an ICICI Bank rival, has decreased the loan processing time by 50% utilising RPA. Similarly, ICICI Bank, one of India's largest private sector banks, has implemented RPA in various processes, including account opening, KYC verification, and mortgage processing. The bank has reported significant improvements in process efficiency, with a 50% reduction in turnaround time for account opening and a 30% reduction in processing time for KYC verification (Gupta, 2021). The bank has also reported a reduction in manual errors, resulting in improved process accuracy and customer satisfaction. This has a direct influence on HDFC Bank's capacity to handle additional loans. Since all credit administrators can now see the progress of loan processing in real time from one centralised place, efficiency has increased by 12%. HDFC's Electronic Virtual Assistant (EVA) is an intriguing example of customer engagement technology because it is a chatbot powered by artificial intelligence that can integrate information from a variety of sources and offer answers in 0.4 seconds or less (Aggarwal, 2020).

At the State Bank of India, the adoption of RPA has resulted in productivity benefits that have been estimated at 700 hours per day across all processes. With the use of RPA, SBI Card was able to streamline the process of following up on disputes regarding transactions, which ultimately improved the customer service they provided (Aggarwal, 2020). As a result of the lessons learned, eight additional processes are being standardised, which will yield even greater efficiencies. Finance, human resources, and information technology are just a few of the areas where SBI plans to use RPA. Digital channels account for 40-45% of Axis Bank's personal loan sales, with advanced analytics playing a major part in determining an applicant's creditworthiness and robots automating otherwise time-consuming back-office tasks (Aggarwal, 2020). At Axis Bank, RPA and AI are used to automate all inbound clearance processes. In addition to the above examples, there are several other Indian banks that have implemented RPA to enhance their operational efficiency, cost savings, and employee

satisfaction. For instance, Axis Bank, one of India's leading private sector banks, has implemented RPA in its retail operations, including customer onboarding, account opening, and loan processing. The bank has reported a 40% reduction in transaction time and a 30% improvement in process accuracy, resulting in cost savings and improved customer experience (Aggarwal, 2020).

RPA implementation in Indian banks has led to cost savings, operational efficiency, and employee satisfaction, with potential for further enhancement through AI and machine learning integration. Widespread use of automation is expected to boost India's economy by $2.0 to $2.5 trillion over the next five years (EY, 2023). Integrating RPA with AI and analytics allows for fundamental changes in business operations and customer experiences (Kaya et al., 2019) The tech revolution, including robotics and automation, has disrupted industries, with financial institutions striving to provide exceptional service while maximizing productivity and safety. RPA is an efficient tool that automates routine tasks, addressing these internal challenges (Aggarwal, 2020; EY, 2023)

According to Madakam et al. (2019), robots are devices that can be programmed by computers to perform complex tasks automatically, transforming input into output. Robotic process automation (RPA) is the next step in automation, and many financial institutions are adopting it to reduce the time and human error involved in processing massive amounts of data (Alkhaldi, 2022). Automating repetitive tasks has allowed banks to improve efficiency, production, staffing, and cost-effectiveness, ultimately reducing their reliance on human interaction (Lacity et al., 2016). Sophisticated RPA software is referred to as robotics in the banking sector, which has streamlined many back-office forms (Alkhaldi, 2022). The predicted value of robotics in the banking sector industry is expected to reach $2.9 billion by the year 2022, up from a paltry $250 million in 2016 (Sbarcea, 2019; Pokharkar, 2019).

- Setup the desktop
- Deploy a variety of software robots at the end-user device level
- Workforce Development in Artificial Intelligence
- Offer remote help services

Advancements in robotic technology have transformed the banking industry and attracted millennials due to its more automated feel. Robotic process automation (RPA) has significantly reduced the workload of administrative tasks, such as deposit and loan applications, by replacing manual labor, lowering risks and meeting regulatory requirements (Vijai, 2020). The adoption of RPA enables banking institutions to enhance efficiency, reduce costs, and increase their bottom line. According to McKinsey, 10-25% of bank processes will be automated with software and machines in the next two years, increasing productivity and enabling personnel to focus on more valuable tasks (Choubey and Sharma, 2021). The robotics in the banking sector industry is expected to reach $2.9 billion by 2022, compared to just $250 million in 2016 (Sbarcea, 2019; Pokharkar, 2019).

The implementation of robotic process automation (RPA) has enabled bank employees to access information anytime and anywhere, which is just one of the many ways robotics has helped the banking sector (Chen et al., 2021). For instance, banks can use robotics to perform tasks such as auditing and compliance, processing transactions, and retail banking functions. By using RPA, banks can save time and reduce costs while improving accuracy and efficiency. In terms of audit and compliance, robots can be used to perform tasks that would otherwise require the help of consultants. For example, Bank of Tokyo-Mitsubishi implemented a robot named Nao that could identify multiple languages, communicate with customers in different

branches, and answer their queries. This type of robot can be used to enhance the customer experience while also reducing the cost of hiring consultants (Choubey and Sharma, 2021).

Robots have also been helpful to the banking industry in the processing of jobs. ICICI Bank, for one, employs RPA to process over a million banking transactions every day within their backend operations. That has enhanced their accuracy and decreased their response time by 60% (Chen et al., 2021). More than 200 different banking procedures in retail banking, agro-banking, treasury, FX, and commerce have already included robotics (Choubey and Sharma, 2021). Robots are used in several areas of Barclays Bank, including customer service, account receivables, risk management, and the processing of loan applications. To further improve its ability to respond to consumer concerns, HDFC bank has adopted Eva, an AI-based chatbot that handles over 50,000 requests and facilitates everyday customer interactions (Choubey and Sharma, 2021). To complement their use in conversations with people, chatbots are now being programmed to exchange information with one another. It is common practise for customer service departments and online stores to employ them to address issues raised by buyers (Choubey and Sharma, 2021). With the proliferation of chatbots, new channels of customer interaction and conversational commerce with customers have been made possible. Overall, robotics has significantly impacted the banking sector, allowing banks to improve their efficiency and customer experience while also reducing costs (Bican and Brem, 2020).

2.3.1 Robotics use-cases in banking

There are numerous distinct cases in the robotics and automation field due to the wide range of business functions and automation projects that can utilize them, as illustrated in Figure 6.

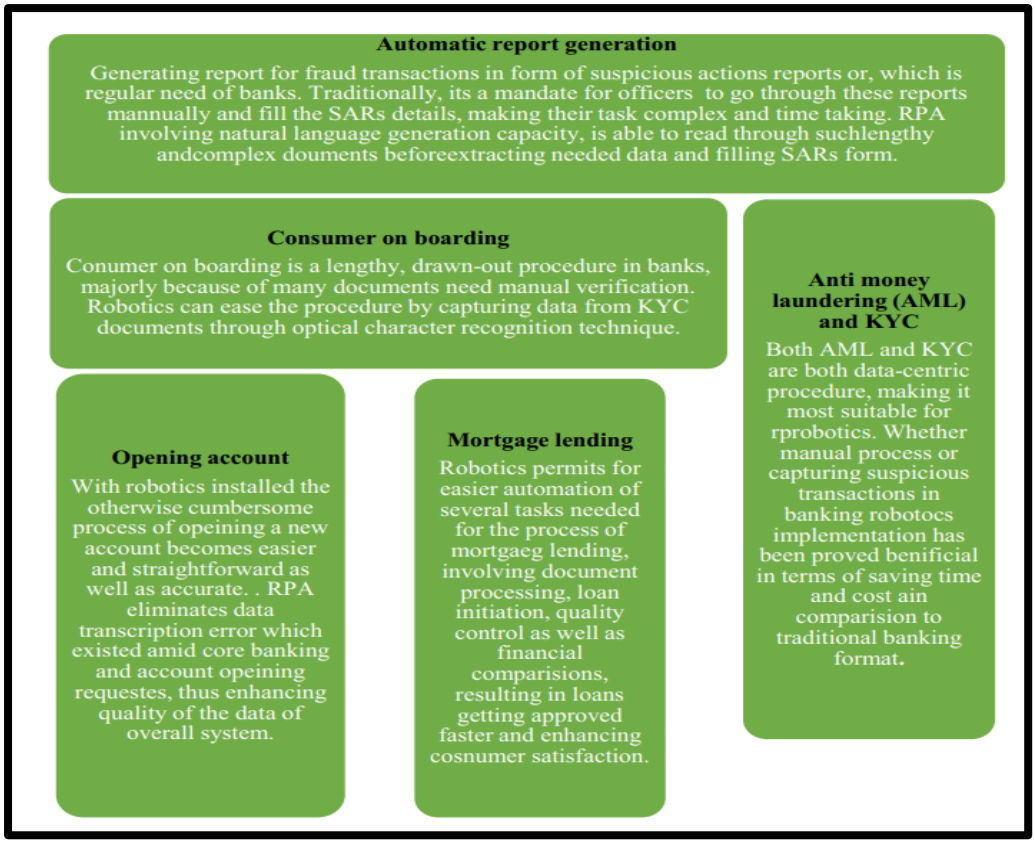

Figure 7:Use of robotics (Choubey and Sharma, 2021).

2.4 Robotics: sustainability and bank future

More than $321 billion has been spent on fines and compliance procedures by the financial sector and banking firms during the previous decade (Dietz et al., 2022). More than 10% of banks' overall operating costs are allocated to compliance operations, or around $270 billion annually (Data Semantics, 2022). More people are looking for improved methods of managing compliance as rising operating costs and regulatory fines and obligations slow down procedures and produce a poor customer experience. Banks can benefit from RPA in a number of ways, including the reduction of human labour, the reduction of risk, the provision of greater compliance, and the enhancement of both the client experience and the bank's long- For the banking industry, RPA is an excellent choice because to its low-code and no-setup requirements. RPA in banking aims to assist with mundane banking activities, boost efficiency,

and involve consumers in real time by taking advantage of robots. However, using robotics need for intensive training of workers, organised inputs, and management oversight. If programmed correctly, robots can replace humans in every way, including typing, clicking, emailing, and using software (Furjan et al., 2020).

It is important to note that software, rather than real robots, is used in robotics-supported procedure automation, and thus allows for the creation of a digital workforce that works alongside human employees to achieve higher efficiency(Jovanovi et al., 2018). The cost of using smart robots with sophisticated procedural flows to automate tasks previously done by humans is about 0.3USD per hour, which is 50 times cheaper than manual labor. Research by Cognizant found that 46% of banks could save 15% annually by implementing digital technology like robotics to reduce time spent on client interactions and front-office operations (Choubey and Sharma, 2021). Using robots in banking tasks can improve efficiency, reduce error rates, and increase safety (Chen et al., 2021). This technology has also made the banking industry more competitive, leading to more meaningful customer interactions. Banks can become more sustainable by using robots to store information, work alongside humans, and improve productivity and resource utilization. In the near future, banks may even employ robot advisors to assist customers in making sound financial decisions (Osman, 2019).

According to study on "Robotics in banking", robots have the potential to replace human workers in the banking industry in the near future (Villar and Khan, 2021). Robots are ideal for automating tedious and repetitive tasks, allowing banks to provide efficient and cost-effective customer support. Embracing robotics is crucial for banks to remain competitive and sustainable, as studies suggest that robotics will shape the future of banking. Alongside technologies like AI, web, touch speech, and 5G, banks use robots for tasks like data collection, responding to customer queries, and transactions. Robotics also reduces the risk of fraud and

errors in banking, as automation of procedures like Know Your Customer (KYC) confirms consumer data with greater accuracy and little staff intervention (Choubey and Sharma, 2021).

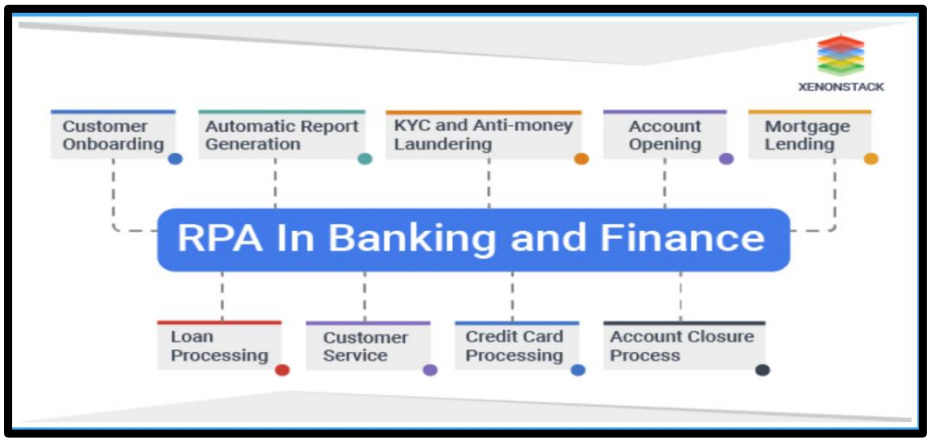

Figure 8: RPA in bank (Choubey and Sharma 2021).

According to Brown et al. (2015), robots in banking can help to reduce costs, improve skills, and enhance customer experiences, which are key factors for future sustainability. Major reasons for automation outside of cost savings have been identified through this research. These include lowering error rates, minimising redundant jobs, enhancing workflow processes, decreasing reliance on many screens and systems, and eliminating friction. Sustainability and cost reductions of up to 55% are possible as a result of the deployment of robots in the banking industry (Choubey and Sharma, 2021). Smarter banks, geared towards a new generation brought up with technology and cell phones, are expected to develop as a result of the ongoing industrial revolution. Through rule-based processing and decision-making, robots will soon be used in back-office duties to automate manual procedures, leading to the elimination of errors and the intelligent management of back-office machinery. According to Dasgupta (2014), cloud robotics is a sort of cloud computing that will soon be used by financial institutions. Robots with cloud robotics have the ability to interface with a remote computer through the internet and move their autonomous behaviour to the cloud.

According to Chen et al., (2021), banks can use cloud robotics technology provided by cloud computing to automate both their back- and front-office processes. A thorough understanding of actuation, sensing, and intelligent control is crucial for building robots, but not all parts are necessary for modern designs. Alternative options like wind-up motors or biogas engines can reduce electricity usage without affecting precision (Choubey and Sharma, 2021). Incorporating sustainable technology into robotics requires expertise in mechanical engineering, electrical energy conservation, and smart control. This approach can help advance sustainability goals and create new applications. Innovative engineers and businesspeople familiar with classic robotics and the local ecosystem are essential. Sustainable robotics can also benefit the banking industry by utilizing local resources and fostering creativity (Chen et al., 2021).

2.5 Influence of Robotic Process Automation (RPA) in Indian Banking Industry

The introduction of RPA into India's banking sector has had far-reaching effects (RPA). With the advent of RPA, organisations have been forced to abandon their long-established practices in favour of cutting-edge technology alternatives. Service delivery, accountability, visibility, performance, and productivity have all seen boosts as a result of RPA's increased operational efficacy. In addition to saving money, time, and preventing fraud, RPA has improved efficiency in many businesses. It is crucial for accounting firms in India to implement RPA and the technologies that go along with it in order to be competitive as the business landscape there continues to change. Failure to do so could lead to a loss of productivity and efficiency, which could impact a company's bottom line. The adoption of RPA has already begun in the banking industry in India, with the use of automation tools such as chatbots and virtual assistants becoming increasingly popular. However, there is still a significant opportunity for growth, and companies need to embrace RPA to stay ahead of the competition. As the Indian economy

continues to expand, the demand for automation technologies will only increase, and companies that fail to adapt will be left behind (EY, 2017).

Proponents of automation acknowledge that growing automation eliminates certain jobs, but they counter that it also produces new, more complex jobs. Proponents of automated processes argue that technological advances in robotics will have a net positive effect on employment (Fung, 2014). However, those who are against automated systems believe that 57% of American employment is in danger of being automated away (Frey, 2017). No matter how advanced RPA and AI become, human intelligence will always be necessary to perform and administer technology facilities successfully and efficiently, therefore don't expect them to ever replace human workers. Accountants play a crucial role in interpreting the findings of AI and robotics research for sound business decisions. The goal of robotic process automation (RPA) is to enhance human performance in a more technologically advanced manner (Gosen 2019). Despite concerns about replacing human workers with robots, RPA has the potential for rapid adaptation in various business processes beyond banking, including accounting processes such as financial reporting, inventory management, financial statement closing, and tax planning. The COVID-19 pandemic has accelerated the adoption of RPA in banking, enabling automated customer service policies and monthly account statement compilations (Kumar 2020). RPA software, such as UiPath and Blue Prism, eliminates the need for laborious manual work and enhances operational efficiency (Asquith and Horsman, 2019).

2.5.1 Record Keeping

Processing invoices and record keeping are some of the most labor-intensive and time-consuming tasks that companies, especially accounting firms, need to perform manually, which costs them millions of naira each day and month (Vijai et al., 2020). However, artificial intelligence and robotic process automation have transformed these processes. Previously,

invoices in the millions, if not billions, were processed manually, which took a long time and consumed important company resources. Automation of these processes using RPA has significantly increased efficiency, reduced human errors, and improved supplier relationships for accounting firms (Zhou, 2021). With AI-powered accounting process automation, formerly time-consuming and laborious tasks have become easier, quicker, and more streamlined. Robots can perform tasks such as data imputation, categorization, organization, extraction, and manipulation, particularly for large datasets, which may not be feasible for humans to handle (Vijai et al., 2020).

2.5.2 Payroll (Receipt and Payment)

These are some of the most regular and routine responsibilities that accountants have to take on. They deal with money transfers between individuals, businesses, and other institutions on a daily basis (Madakam et al., 2019). Accounting firms spend more time and money on these jobs since they require a large number of employees to complete them manually; however, with the advent of RPA through the use of artificial intelligence, businesses can complete these operations with greater ease, speed, and efficiency (Egiyi and Chukwuani, 2021). As a result, operational efficiency improves, costs and errors go down, and overall organisational performance and productivity go up. In addition to the aforementioned benefits, Robotic Process Automation also enables businesses to instantly give clients information such as account balances, statements, credit bills, and account status (Gosen, 2019).

2.5.3 Cost Management

Robotic process automation (RPA) can perform jobs 24/7 without error at a higher cost than hiring humans, saving firms 25–50%. The annual remuneration for a software robot can be as low as one-third that of an offshore FTE or one-fifth that of an onshore FTE (Mookerjee and

Rao, 2021). Automating accounting processes and procedures has many important advantages, one of the most important being better control over expenses and, more specifically, their decrease. By replacing human accountants with robots to do repetitive, error-prone activities, businesses can save money and time. Therefore, this improves the effectiveness, performance, and production of the organisation (Martins, 2018). Robotic Process Automation, aided by AI, will be able to manage the majority of accounting companies' routine and non-routine operations; it will be able to read all receipts, payments, audit charges, and warn the business anytime there is a breach in the system (Mookerjee and Rao, 2021).

2.5.4 Audit

Robotic process automation (RPA) has revolutionized the auditing process in accounting by providing auditors with real-time access to a company's financial data, making it easier to monitor and evaluate business activities for auditing purposes. The adoption of digital methods, along with AI and RPA, has significantly improved the efficiency and productivity of the accounting industry. RPA can analyze data independently, making it an autonomous tool for use in decision-making processes (Martins, 2018). This technological advancement has led to significant improvements in audit effectiveness, as well as overall business performance and productivity (Martins, 2018). As technology advances, accountants are expected to take on new roles in the industry, focusing on problem-solving, advising, strategy formulation, and leadership. The rise of automation is expected to eliminate 40% of transactions previously handled by traditional accounting methods by the end of 2020, allowing accountants to shift their focus to analysis and novel approaches (Chen et al., 2021). The new roles that accountants are expected to play include:

i) Advisory roles

To remain relevant in the accounting industry, accountants need to develop soft skills as AI and RPA continue to automate various accounting processes, including taxes, payroll, audits, and banking. Forbes predicts that up to 40% of traditional accounting transactions will be eliminated by the end of 2020 due to automation (Su, 2018; Chen et al., 2021). Therefore, accountants must adapt by focusing on advisory roles and helping clients automate their financial, operational, and human resource procedures with the help of RPA (Egiyi and Chukwuani, 2021).

ii. Consultative roles

With the advent of RPA powered by AI, accountants are recommended to shift their focus to providing strategic advice to businesses on resource optimization (Januszewski et al., 2021). RPA enables accountants to gather crucial information about businesses and offer consultation on running more efficiently and utilizing capital effectively. Therefore, accountants must hone their soft skills, such as creativity, sound advice, effective strategy development, and crisis management. To improve advisory services during RPA rollout, Big Four consultants are exploring ways to streamline the bidding process for clients (Januszewski et al., 2021).

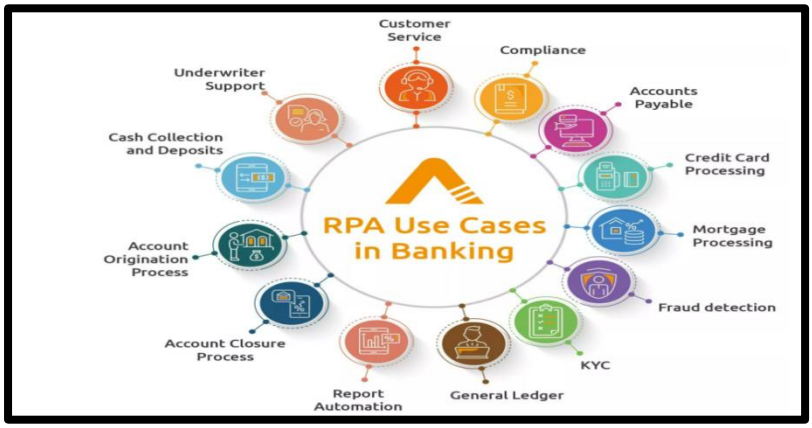

Figure 9:Use of RPA

2.6 The Positive Effects of RPA on the Indian Banking Industry

2.6.1 Reduction of Costs and Improvement of Profitability

In addition to saving businesses between 25 and 50 percent on labour costs, running reliably and accurately around the clock, and never tiring, RPA has been shown to improve productivity (WNS n.a.). In comparison to the automated tools, which completed three times as many transactions in a fraction of the time, a BPO service provider's full-time human workers required about 12 minutes to process insurance benefits through the application (WNS n.a.). Even better, implementing robotic process automation led to significant returns on investment in as little as six months, even when automating a single operation. By automating laborious manual tasks with RPA, businesses can enhance their profit margins. Robotic process automation enables employees to use the programme entirely or partially, freeing up time to focus on more strategic, high-level endeavours. Adopting RPA to handle repetitive, high-volume activities can result in cost savings for businesses (Doguc, 2020).

According to Patri (2021), robotic process automation is typically implemented to automate operations, which in turn reduces the need for human workers. As a result, a reduction in the total number of employees will lead to a corresponding reduction in payroll expenses. Yarlagadda (2018), argued that productivity would rise as RPA systems gradually replaced human workers. As a result, the firm is able to produce more with fewer workers while saving money. Given that RPA is a server-based technology and an automated model with a constant presence, work must be completed without interruption or regard to weekends or holidays. RPA can be scaled, which is another advantage it has. When RPA is used, scalability is greatly enhanced since the system can expand or contract in response to fluctuating workload demands (Vasarhelyi and Rozario, 2018).

Boost Productivity: Robotic process automation (RPA) can lead to improved service delivery, precision, and decreased cycle time while eliminating the need for constant personnel training. Implementing an RPA system can reduce the time and effort needed to fix IT problems by 60%, leading to increased operational efficiency and investment returns. RPA can also optimize IT infrastructure through improved administration, monitoring, and reporting of devices, increasing IT workers' productivity. According to Madakam et al. (2019), RPA's swift task execution enhances processing frequency and efficiency. While guidance is required during the initial stages of RPA implementation, Kumar and Balaramachandran (2018) suggest that implementing an RPA system can significantly enhance an organization's operational agility and efficiency by allowing for quick response to instructions and the performance of specific tasks at any given time.

Improve Client Experience: Businesses are now more focused than ever on providing clients with high-quality products and services. Robotic process automation (RPA) can be implemented in the back office to automate repetitive activities and large amounts of data, allowing for a better customer experience and a higher chance of exceeding customer expectations (Valgaeren, 2019).

Integrating and ensuring compliance with data: Due to the numerous computer systems and software programmes used by businesses, one computer will produce hundreds of logs. When logs are inspected for each programme, there will be delays. It is possible to train workers on RPA in a matter of weeks, and the system can be coupled with already existing systems after a fast configuration process that calls for no coding knowledge (Romao et al., 2019). As a result, all of the necessary consolidated logs may be recorded and delivered in a more streamlined fashion. Regulatory compliance is another concern that may be handled by RPA thanks to its ability to track changes and provide an audit trail.

Accuracy: Improved operational correctness by inputting the proper data and avoiding any human interaction is only one of the many benefits of robotics process automation (Madakam et al., 2019). Other benefits include increased employee morale, shorter cycle times compared to manual processes, greater productivity, fewer technical obstacles as no programming skills are required, and greater consistency by reducing the likelihood of human error (Devarajan, 2018).

2.6.2 RPA's Effective Adoption in the Banking Industry

Financial institutions have successfully implemented RPA, according to Partnership (2019) and P&S Market Research. Bank of New York Mellon has used RPA for trade settlement procedures since 2016, resulting in an 88% reduction in transaction execution time and improved accuracy (Devarajan, 2018). The use of RPA has also allowed employees to focus on operational quality assurance and anomaly identification. BNY Mellon has saved money and increased efficiency through the implementation of RPA (Vijai et al., 2020).

Large banking institution BB&T Corporation said in 2019 that it would invest up to $50 million in financial technology companies as part of the company's ongoing digital business transformation (Pega, 2019). BB&T claims in their 2017 annual report that they have increased their bottom line by using automation in their banking services (Corporation, 2019). Pega, a provider of RPA solutions, is one of BB&T's clients. SunTrust Bank also implemented RPA in 2016, resulting in 3.8 times increase in transaction processing time, a 50% reduction in training time, and a 65% decrease in error rates (Accenture, 2018). To enhance productivity and allocate more time to valuable work, SunTrust is focusing on automation. Danske Bank utilized RPA in processing corporate actions and income payments, which led to a 45% increase in customer-facing tasks and a 40% reduction in average processing time (BB&T, 2017). KAS Bank introduced RPA in 2016 to simplify their client process, reducing the need for human

intervention and the occurrence of errors. By automating approximately 15 operations, KAS Bank was able to improve customer service quality by reducing response and throughput times, as stated in their 2017 annual report (BB&T, 2017).

The bank is more compliant now because of the standardised checks and error-free approach they've implemented. KAS Bank's customers now benefit from fast, efficient, and high-quality automated end-to-end procedures thanks to robotic process automation (RPA), which has freed up internal resources for the creation and distribution of novel, high-quality products and services (Bank, 2017). Researchers Madakam et al. (2019) found that Deutsche Bank reduced new hire training time by automating their software. Kaya et al. (2019) reported that CB&S Bank used RPA to streamline its daily, weekly, and monthly processes to complete a line of credit in one hour.

2.7 Challenges of RPA in Banking Industry

Robotic process automation has made significant contributions and benefits to many industries, but there are also problems associated with its deployment. According to Fung (2014), some of the disadvantages of RPA include the elimination of jobs, the need to retrain workers, the removal of humans from the service delivery process, a rise in people's general ignorance of the risks they face at work, and higher labour costs (Devarajan, 2018). Other obstacles to RPA implementation include: i). Robotic process automation's lack of intuitiveness makes it challenging, if not impossible, for it to make autonomous decisions that are beneficial to the company without human intervention. For example, if the datasets used to train the RPA models are themselves biased or missing key information, the resulting analysis will be flawed. In turn, this lowers people's trust in the system (Vishnu et al., 2017). ii). Although the benefits of RPA implementation are vast, not all business processes are good candidates for automation because of the system's incapacity to handle non-routine tasks. iii). The output of RPA is

typically predictive and suggestive in character; this simply indicates that there is still a requirement for human intervention in order to successfully run the system (Devarajan, 2018). iv.) An excessive dependence on robotic process automation (RPA) and artificial intelligence (AI) can lessen the relevance and contribution of accountants to the sector, which can lead to a brain drain in the industry (Devarajan, 2018).

2.7.1 Risks involved in Implementing RPA

According to Kamat (2019), there have been clear examples of RPA projects being successful, yet many organisations are still struggling. Some have installed hundreds of bots, but they have little to show for it in terms of productivity. Some have released numerous tactical pilots without a comprehensive plan, leading to chaos and resource allocation problems. There will undoubtedly be certain difficulties and dangers in using RPA because it is a software technology that requires configuration on hardware devices before it can be used properly. Yarlagadda (2018) highlighted the drawbacks of RPA implementation at work. The cost of deploying and maintaining an RPA system may be prohibitively high for some companies. Furthermore, the success of RPA deployment is highly dependent on technical expertise, which can be a significant barrier. Additionally, managerial resistance to change is also a factor. Organizations must overcome resistance and uncertainty in order to adapt to and benefit from the inevitable technological disruption.

Kamat (2019), did study into the impact of RPA adoption in the financial industry and found a number of difficulties that RPA-using banks must contend with. Among these difficulties are:

• Concerns about privacy and security are warranted because banks deal with huge amounts of sensitive material around the clock, and RPA still has certain privacy and security ramifications, such as the unintentional disclosure of clients' private details, hacker risks, and

device spamming. Nonetheless, a number of strategies are discussed in the literature as potential ways out of these problems.

• The banking and financial industry is subject to strict regulatory compliance requirements, including the provision of highly regulated services. Consequently, working with software that functions as a "Black Box" - with all processes hidden - could lead to regulatory issues (Rudin, 2019).

• The main issue is the shortage of knowledgeable personnel in RPA and its proper use, due to high demand and limited supply. RPA alone is not sufficient and the most effective results are achieved when it is used in conjunction with other cognitive solutions such as AI and ML, which may come at a higher cost and pose technical challenges. Previous studies, such as (McClure, 2018) and (Osmundsen et al., 2019), have explored RPA's compatibility with various technologies.

• Integrating RPA into a complex IT infrastructure can be challenging, especially for financial institutions that still rely on outdated, non-automated legacy systems and software. Wewerka and Reichert (2020) argue that RPA can interface smoothly with legacy systems, but it is critical to understand why RPA approaches fail to avoid future complications. For successful implementation of RPA, the right RPA must be developed, the right process must be selected, and an environment must be created to support RPA integration. Thus, the following concerns must be addressed for RPA to be useful:

2.7.1.1 Unrealistic Expectations

According to Goris (2019), robotic process automation is a fundamentally novel phenomenon in enterprises. As a consequence of this, having excessively high and unrealistic expectations of the results of robotic process automation's performance might dramatically alter its

performance. It is not in the best interest of businesses or accounting firms in particular to implement the concepts of RPA generated by advertising agents or vendors without first completing sufficient and extensive research. A company's success is jeopardised if its leaders don't undertake enough research before implementing and integrating Robotic Process Automation in operations (Nadkarni and Prügl, 2021).

2.7.1.2Getting Employees on board

Employees may resist Robotic Process Automation (RPA) because they fear being replaced by technology, leading to RPA implementation failures (Patri, 2020). Engaging workers in discussions about RPA's design, benefits, and impacts on procedures can help ensure successful implementation. Effective communication with employees is crucial for RPA to succeed in the workplace. Once these issues are addressed, RPA can provide limitless benefits for businesses, especially accounting firms (Goris, 2019).

2.7.1.3 RPA and the Accounting Industry (Bank)

The banking industry has been transformed by technological developments such as Artificial Intelligence (AI), leading to the automation of repetitive tasks and a shift in industry practices (Marciniak and Stanislawski, 2021). This has enabled accountants to focus on advisory and consultative work, which improves the effectiveness of company decisions and leads to higher-value, revenue-generating tasks (Martins, 2018; Nadkarni and Prügl, 2021). The benefits of AI and automation include competitive advantage, reduced costs, increased efficiency, productivity, profitability, and growth, but businesses must be open to change to reap these rewards (Marciniak and Stanislawski, 2021). However, many worry that accounting automation will simply replace accountants who perform such tasks (Sibalija et al., 2019). Several studies have concluded that AI and RPA do not replace human accountants but instead

increase their productivity by eliminating repetitive tasks (Martins, 2018). Accounting firm managers must choose between using robots to increase automation and save costs or training humans to perform advisory and consultative roles for tasks automated by machines. RPA does not endanger the employment of accountants but rather provides them with opportunities to learn about and implement cutting-edge technology in the industry, creating new roles and avenues for growth (Furjan et al., 2020).

The accounting business has undergone significant change due to automation of tasks and activities, and this shift augurs well for the industry's future growth. It is also important to remember that with such fantastic prospects come unprecedented challenges that will tremble the accounting industry like never before. Organizations that embrace accounting process automation see gains in areas such as speed and convenience of service delivery, accuracy, performance and productivity, cost and mistake reduction, and so on (Van derAalst et al., 2018).

2.8 Empirical Studies: A review

"Robotic process automation" refers to the use of machines and technology to improve human labor by increasing speed, reducing effort, and improving accuracy (Furjan et al., 2020). These tasks are often monotonous, costly, and time-consuming, and companies adopt RPA to improve the efficiency of their operations and services. RPA has become an essential part of modern business infrastructure, especially in the accounting industry, where it has spurred significant advancements and changes (Cohn et al., 2019).

As stated by Cooper et al. (2019), RPA software and technologies are frequently used by accounting firms to streamline mundane and repetitive business activities by automating the input, processing, and output of data across computer software. Research shows that the

incorporation of RPA in tax, advisory, and insurance services has increased the productivity and reliability of businesses without leading to the replacement of workers. However, it is important for workers to invest in their own professional growth to continue playing a significant role in the industry as RPA adoption becomes more widespread (Patri, 2021). To fully leverage the advantages of RPA and AI, organizations should prepare by educating and training employees to view it as an opportunity for transformation and development (Chen et al., 2021). Zhang et al. (2022) suggest that ICT developments have improved data handling and boosted operational efficiency and organizational productivity through automation. However, addressing prejudices associated with the deployment of these technologies is crucial for businesses to benefit from RPA and Januszewski (2021), argues that RPA has a major impact on accounting organisations, notably in the areas of cost reduction and increased operational efficiency. One of RPA's most important functions, in his view, is assisting businesses in lowering or managing expenses while simultaneously boosting productivity. This position is supported by Zhang (2019), who argues that accounting firms can greatly benefit from implementing RPA and other forms of cutting-edge technology in order to better manage, reduce, or eliminate errors and fraudulent activities while conducting audits of themselves or other businesses.

Plattfaut (2022) study shows that Robotic Process Automation (RPA) aims to boost human productivity, while Business Process Reengineering (BPR) aims to replace humans in businesses. Studies have shown that accounting organizations can benefit from AI automation and should acknowledge the value of doing so. Contrary to popular belief, RPA adoption does not necessarily lead to a reduction in the workforce. Instead, it can create new job opportunities. Therefore, businesses should consider adopting RPA when appropriate. Additionally, Nagarajah (2016) suggests that a wide range of occupations are susceptible to computerization. Mookerjee and Rao (2019) study shoes that RPA will lead to a 94% chance of replacing

auditors and accountants if their work is automated. However, Gami et al., (2019) claim that RPA will have a limited impact on simple tasks and will not eliminate accounting jobs entirely. Instead of replacing human accountants, RPA will allow them to focus on higher-value tasks, providing added value to their work (Willcocks et al., 2015). While Fernandez and Aman (2018) suggest that technology may lead to job substitution, Plattfaut (2022) argues that the automation of processes has a positive impact on businesses, creating new job opportunities rather than reducing the workforce.

2.9 Theoretical Context

2.9.1. Behavioral Accounting Theory

Behavioral accounting, first proposed by Becker (1967), employs the methodologies and principles of the behavioural sciences to investigate how accounting and human behaviour are related. Behavioral accounting theory analyses the effects of accounting choices on the actions of accountants and the ways in which accountants influence employee behaviour. Accounting information system user interactions is also analysed in this theory. Behavioral accounting technology may shed light on the effects of RPA adoption on employee behaviour and job satisfaction in the banking industry, as well as on the bottom line, which is the focus of this investigation.

2.9.2. Stakeholder Theory

This theory, as presented by Donaldson and Preston (1995), explains how businesses can operate optimally by functioning in both descriptive and prescriptive as well as instrumental ways simultaneously. It suggests that stakeholders play a critical role in influencing a company to achieve its goals, and is viewed as a model for how businesses should work (Freeman, 2019).

2.9.3. Task Technology

Goodhueand Thompson (1995), proposed the Task-Technology Fit theory, which evaluates the effectiveness of technology based on its compatibility with user needs and task requirements. The theory emphasizes the importance of understanding how technology works and how it can be used to improve performance. In the context of RPA implementation in Indian banks, TTF can be applied to ensure that the technology meets the specific requirements of the bank's tasks and the abilities of its employees. By evaluating the compatibility between RPA and the bank's operations, TTF can help to ensure that the implementation is successful and improves the bank's overall performance.

2.10 Literature Gap

The literature gap concerns Indian banks' RPA implementation, worker satisfaction, and cost reduction. Few studies have examined how RPA increases worker satisfaction or saves Indian banks money. Numerous research has examined the merits and cons of banking RPA adoption. Further research is needed on what factors enable RPA's successful adoption and deployment in India's banking sector. Identifying these literature gaps helps us understand the pros and cons of RPA adoption in Indian banks. One literature gap on RPA implementation with an emphasis on worker satisfaction and cost reduction in Indian banks may be the need for study on the obstacles and opportunities faced by Indian banks in implementing RPA and how they relate to worker satisfaction and cost reduction. Although there is previous research on RPA adoption in numerous industries, including banking, there may be particular problems and opportunities that Indian banks confront that have not been thoroughly examined. Despite RPA's cost reduction and efficiency benefits, there may be few studies on worker satisfaction in Indian banking. So, further research is needed to evaluate how RPA affects worker satisfaction and cost reduction in Indian banks, as well as its unique challenges and potential in this industry.

CHAPTER III: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is essential for performing and analysing research. It includes the research methodology, design, data gathering, and analysis methodologies. Research methodology is one of the most important chapters since it motivates and guides researchers in doing various forms of research. According to Newman and Gough's analysis (2020), it is also highly useful for the researcher to get a good understanding about the data in order to find out the major finding according to the various sorts of research aims and questions. This can be done in order to find out the major finding. This methodology can be helpful in outlining the various kinds of research variables, including the analysis, data gathering, and other aims to find the important data regarding a given research issue (Sileyew, 2020). It is possible for the management of relevant research methodology to be effective for the purpose of assuring that the better result in the study will be legitimate and reliable in a variety of activities carried out by the organisation. This kind of activity during the day has the potential to be helpful as well due to the fact that it incorporates all of the metrics for lessening the overall bias and mitigating a variety of errors that might occur during the research procedure.

According to the opinions of Pandey and Pandey (2021), the implementation of a methodology that has been thoroughly developed can be useful for the researcher in minimising the impact of a variety of potential problems during the process of carrying out the research in its entirety. If the researcher is able to improve the whole process of data collection, it will be easier for them to be transparent in their work and will provide them the ability to finish their research by reproducing the overall research process. It may need a significant amount of work on the part of the researcher to generalise all of the findings they obtained from the various databases. This aspect may also contribute to the improvement of the findings of the research as a whole.

The success of this study will largely be determined by how well distinct findings about the A Study on Robotic Process Automation (RPA) implementation with emphasis on worker satisfaction and cost reduction, the right findings are going to be obtained by the collection of data and the analysis of several ways. The researcher intends to follow Saunders Onion in order to obtain a significant number of outcomes and to generalise several different theories regarding the research methodology. The chapter will review research methods, including the philosophical approach method design and analysis, which assists the researcher in efficiently formulating the research process. This chapter also discusses the many different applications of sampling procedures, as well as the ethical considerations that need to be maintained by the researcher in order to successfully complete their research.

This study will detail the research methods utilised to study the adoption of Robotic Process Automation (RPA) in an Indian bank, focusing on worker satisfaction and cost savings. This study will use a quantitative research strategy to collect numerical data and evaluate it using statistical methods to develop conclusions and inferences. To understand RPA acceptance in banking, the study will use survey questionnaire data and secondary data from case studies, journal publications, reports, and bank reports (Khandan and Sarwar, 2023). The relevant literature will be used to create the survey questions for bank staff directly affected by RPA adoption. The survey data will be summarised and interpreted using pie charts, graphs, and descriptive statistics like means, frequencies, and percentages. Secondary data from diverse sources will be reviewed for context and support. Purposive sampling will choose survey participants to ensure that the sample is representative of the population of interest. The research will follow ethical guidelines like informed consent and confidentiality (Vadakedath and Kandi, 2023). This study will add to the RPA adoption literature in banking and illuminate the relationship between RPA deployment, worker satisfaction, and cost reduction. This study's research methodology will be rigorous and dependable to answer the research questions.

3.2 Research Onion

The research onion framework (Figure 10) was proposed by Saunders et al., (2012) as a visual representation of the many aspects of the research that need to be considered and planned for in order to arrive at a solid research design. As a result, the research onion guides the researcher as they create their approach. Saunders et al., (2019), categorised research decisions into three tiers: Three parts make up a research project: (1) the guiding principles and outlook; (2) the research design, which comprises the methodology, study plan, and timeline; and (3) the strategies, which include data collecting and analysis. According to Patel and Patel (2019), this onion can be used to great purpose when trying to determine which layer provides the most help in a given setting in order to achieve a desirable outcome. The researcher is breaking down each layer into its component elements in order to determine which approach will yield the best results. Below, we outline the four main levels that must be taken into account when managing this study.

The philosophical underpinnings of the study's validity lay out the various underlying assumptions and tenets that guided its design. Among the many major assumptions and functions that fall under this category are those of an ontological, methodological, and epistemological nature. The assumptions behind a study can be identified with the use of these layering tactics. The remaining layers, research methodology, methodologies, and data collection design, provide the researcher with a fair chance to obtain all forms of data by assessing all their efficacies. According to Dissanayake (2022), the time horizon layer is also well-known as one of the right methods that aid in the development of a proper time plan for recognising the research's findings. In a similar vein, the design and strategy provide clues for figuring out the full scope of data collection. Similarly, there are many moving pieces in a data

collection programme. Therefore, the organisation can benefit from following the many layers of the Saunders onion to achieve its goals.

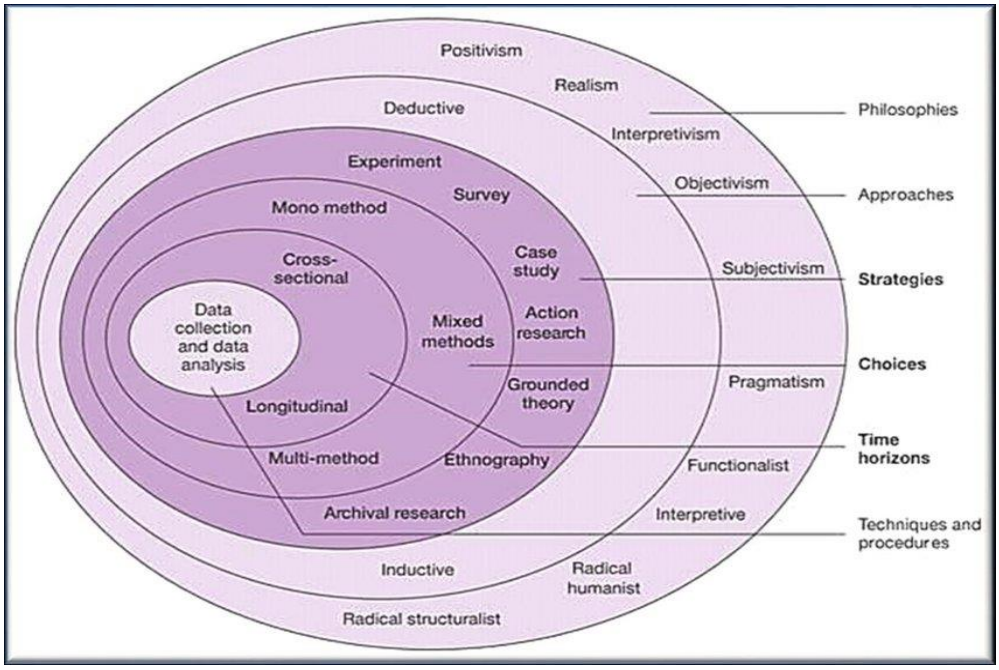

Figure 10: Research Onion (Saunders et al., 2019).

3.3 Research Philosophy

The concept of "research philosophy" refers to the process by which new knowledge is cultivated as well as the characteristics of the new information. (Saunders et al., 2007). The philosophical underpinnings of a study's conception and execution in terms of how researchers think and feel about the world and the nature of knowledge. Commonly employed research philosophies in the social sciences include positivism, critical realism, interpretivism, and pragmatism. According to Richie and Lewis (2003), numerous fundamental philosophical debates have always arisen when determining the best approach to studying society. Several of these problems have to do with ontology, the branch of philosophy that deals with the extent to which human beings may know about the universe. Ontology is a compound word derived from the Greek terms ontos and logos. Being is the former, while theory and knowledge are

the latter (Duberly et al., 2012). According to Lawson (2004), ontology is "the science or study of being," which begs the question, "What is it like to be alive?" Hence, ontology is the philosophical study of what things are like at their core and how they come to be. So, asking about the ontological presence of anything is frequently the same as wondering how real or fictitious it is. Questioning the reality of anything outside the scope of human understanding and perception is known as an "ontological inquiry" (Duberly et al.,2012).

Richie and Lewis (2003), call attention to the important ontological concerns in social research, such as the existence of a widespread, shared social reality or multiple context-specific realities, the existence of unchangeable or generalizable principles governing social behaviour, and the existence of a social reality independent of human conceptions and interpretations. Whether they should be treated as objective things having an external reality independent of social actors (objectivism) or as social constructions that are formed by the acts and perceptions of social actors (subjectivism), this is at the heart of these ontological controversies (constructionism). Conversations on how to define and study social reality are at the heart of social ontology. That is to say, the two main ontological perspectives that have affected social science research are objectivism and social constructionism (Bryman and Bell, 2011)

The ontological position known as objectivism holds that social phenomena and their meanings exist apart from the agents who create them (Bryman and Bell, 2015). In other words, taking an ontological perspective means considering social phenomena to be unchangeable, objective facts. This idea is grounded in the recognition that reality exists independently of what any given individual may think or feel. That is to say, people's interpretations and interpretations of the world are not the same thing as the way the world actually is (Ritchie et al., 2014). In contrast, the ontological position known as constructionism holds that the construction of social phenomena and their meanings is an ongoing process. This indicates that social phenomena are

not only generated by social interaction but are also subject to ongoing modification. This perspective disproves the idea that social actors are powerless in the face of deterministic, pre-existing categories like "organisation" and "culture" (Bryman and Bell, 2015).

It is argued by Ritchie et al., (2014), that no reality exists independently of the human mind and socially formed meanings, and that this is because reality is fundamentally independent. Since talent management is a social phenomenon with varying meanings to various organisations, this research took the ontological stance of social constructionism. This means that talent management has different meanings and interpretations for different organisations based on the perspectives and experiences of their employees and leaders.

Epistemological issues concern the nature of knowledge in a certain discipline and whether or not certain claims about that knowledge are correct (Bryan and Bell, 2015). The Greek terms "episteme" (meaning "knowledge") and "Logos" (meaning "knowledge," "information," "theory," or "account") are the origins of the English word "epistemology" (Duberly et al. 2012). When it comes to epistemology, problems like how we can learn about reality and what influences the basis of the knowledge are at the forefront, as stated by Ritchie et al. (2014:6). The issue at hand is giving a philosophical basis for determining the scope and validity of information that is feasible. In common parlance, it refers to the study of knowledge itself. In other words, epistemology is the study of the criteria by which we can determine the existence and nature of knowledge, as opposed to mere belief (Duberly et al., 2012).

Positivism and Interpretivism are the two main epistemological stances on knowledge in social science research. The dominance of positivism, as a foundational philosophy, has been emphasised by academics as a defining feature of the history of management and organisational study (Symon and Cassell, 2012). Some authors define positivist epistemology as the following: first, the view that science should only deal with empirical observation, with any

reference to the intangible or subjective being meaningless; and second, the belief that hypotheses should be evaluated hypothetico-deductively by confronting objective facts from a readily observable external reality (Symon and Cassell, 2012).

Positivism, as stated by Bryman and Bell (2003), links knowledge to external, visible facts; theoretical concepts not amenable to direct observation are not tolerated in the realm of science. Central to positivism is the belief that the social environment can and should be assessed objectively, rather than inferred from subjective sources like intuition, reflection, or emotion (Easterby-Smith et al., 2008). Positivism is an epistemological position that favours applying natural scientific methods to the investigation of social reality, as defined by Bryman and Bell (2015:7). The following concepts are often linked to positivism:

- Only knowledge of phenomena, and only knowledge that has been validated by the senses, may be considered valid knowledge (the principle of phenomenalism)
- The goal of theory is to provide testable hypotheses, which in turn will allow for the assessment of lawful explanations (the principle of deduction)
- The facts upon which the law is based are gathered into knowledge (principles of inductivism)
- A value-neutral approach can (and likely should) be taken in scientific research (objective)
- It is widely held that normative claims have no place in science and that scientists should stick to making empirical observations.

The concept that human conduct is guided by law-like regularities is central to positivism, which argues that the methodologies of the natural sciences may be applied to social investigation. This view maintains that unbiased, neutral, and value-free social research is

possible (Ritchie and Lewis, 2003). One core tenet of positivism, as stated by Symon and Cassell (2012:18), is the inclination to ignore the subjective, non-rational aspect of action in favour of focusing on the objective, observable aspects of responses to environmental cues. Positivists achieve this reduction by adopting what they assume to be the methodology used in the hard sciences. This requires overlooking the emotional context in which people act. Instead, determinism is used to explain and conceptualise human behaviour, viewing actions as necessary reactions to factors that can be measured and observed in the real world.

Identifying different researchers' philosophies to acquire ideas might help the researcher improve their assumptions and beliefs about the process. It is widely acknowledged that the research philosophy is the single most important factor in facilitating the dissemination of research findings, the identification of research topics, and the tabulation of appropriate variables. According to an examination of the most prominent philosophies, positivism and interpretivism are the two sorts of philosophies that help the researcher obtain primary findings for effective results (Irshaidat, 2022). One of the best schools of thought, positivism studies all of a system's inherent boundaries and concludes that they are complete. According to Al-Ababneh's (2020), analysis, this ethos is highly effective in establishing a more solid connection between the relevant variables and the relevant scientific disciplines. It's a big assistance in connecting different areas of study and data that may be used for a wider variety of tasks. The researcher can get a taste of the many kinds of apposition by testing out all the hypotheses using the various statistical analyses and quantitative analyses that are readily available to them.

In a nutshell, positivists insist on an indisputable and immutable truth. They admire the scientific method, which values objectivity and distance in the pursuit of knowledge and relies on logic, reason, and tried-and-true methods. For positivists, the most important thing is to put

forth testable hypotheses that can separate reality from opinion (Symon and Cassell, 2012). Despite positivism's widespread adoption in management and business literature, some argue that it fails to take into account the diversity of human experience and perspective. Due to this disparity, many philosophical schools have developed to offer alternatives to positivism (Grbich, 2007).

Second, those who are sceptical of applying scientific methods to studying the social world are taken into consideration by the interpretivism epistemological standpoint (Bryman and Bell, 2011). It's generally accepted that the social sciences, which study human communities and the organisations that govern them, have a radically different focus than the natural sciences. This view contests the use of scientific methods in the study of society, saying that causal explanations are not applicable since social phenomena do not follow the same rules as natural phenomena. Researchers in the social sciences who embrace this view instead seek to explain phenomena at the level of meaning rather than causation by focusing on the experiences and views of participants and their own subjective points of view. According to Bryman and Bell (2015), a departure from the positivist ideology that has long dominated social scientific investigation may be found in this alternative epistemological paradigm, which provides a new lens through which to examine and make sense of social phenomena. Since this viewpoint is predicated on the idea that a strategy is necessary that recognises the distinction between humans and the objects of natural research, it necessitates that the social scientist comprehend the subjective meaning of social action.

This study used a positivist methodology to examine the effects of Robotic Process Automation (RPA) on worker happiness and efficiency savings in an Indian bank. While seeking knowledge and an understanding of the social environment, positivists place an emphasis on

hard, quantifiable data and empirical proof. It is characterised by a scientific and deductive approach, trying to identify generalizable patterns and principles that regulate social processes.

Several factors made a positivist methodology appropriate for this investigation.

Positivism's emphasis on objective and measurable facts is especially relevant to the examination of RPA's impact on financial institutions. This method of study uses quantitative methods to acquire consistent and uniform information that can be examined statistically, leaving little room for arbitrary interpretation or prejudice. Positivism's goal is to find universal truths and rules that can be applied to situations outside of the one being studied (Parl et al., 2019). Research findings provide valuable insights for decision making and policy implications, and may be generalised to other banks or industries considering or implementing RPA.

Positivism places an emphasis on precision and rigour in research by stressing the importance of a methodical and systematic approach (Johnson et al., 2020). The reliability and validity of the findings are increased by the use of well-defined research questions, hypotheses, and techniques. The Positivist approach relies on empirical Data, which is crucial when trying to understand RPA's effect on job satisfaction and savings. This research method generates empirical evidence that might support or deny the research hypotheses by collecting data via survey questionnaire and analysing it using graphical representation.

3.4 Research Approach

There are three main approaches to research: inductive, deductive, and abductive. When conducting research, inductive researchers first collect data through observation and then use those data to draw conclusions and formulate hypotheses (Borgstede and Scholz, 2021). The focus of this method is on adaptability and novelty. To conduct deductive research, one must

first form a theory or hypothesis to test. The method lays emphasis on conducting experiments to verify hypotheses and identify causal links. In abductive research, the two methods are combined: first, observations lead to the development of hypotheses and theories, which are then empirically tested through further observation. The right use of the research technique is one of the main ways of research that may help provide a clear picture of how to compare research and acquire a lot of data from different databases. Opie (2019), shows how this type of result can help researchers better examine primary studies when dealing with a variety of challenges. Finding the best method can help researchers examine the entire data-gathering procedure. Researcher evaluation of key strategies is aided by careful handling of aggregated research findings. The researcher might choose between two different sorts of methods in order to achieve the most important results: descriptive and inductive methods.

This study used theory-driven deductive research to examine particular hypotheses. Theories or concepts form the basis for deductive research questions and hypotheses. The research questions and hypotheses in this study are based on theories and concepts linked to RPA adoption, worker satisfaction, and cost savings in an Indian bank. Deductive research allows for controlled and systematic testing of theories. Deductive research begins with a theory or conceptual framework, formulates hypotheses, acquires evidence, then analyses it to test the assumptions. This methodical methodology grounds research in established ideas and concepts, offering a solid and scientific basis for results (Kim, 2021).

Deductive research can add to knowledge, another reason to use it. Deductive research tests theories in a specific context to build on them. This study may confirm, deny, or refine RPA adoption, worker satisfaction, and cost reduction in the Indian banking business by testing assumptions based on existing ideas (Zalaghi and Khazaei, 2016). In addition, a deductive method of research is a good fit for the quantitative research design that was selected for this

particular study. Quantitative research uses numerical data to examine certain theories. Deductive analysis uses quantitative data to evaluate particular hypotheses about variable relationships. Deductive research is also favoured when the research topics are narrow and concentrated. This study examines how RPA implementation affects worker satisfaction and bank costs in India. The deductive approach targets these specific research issues, focusing the study. A deductive research approach is warranted in this study due to its theory-driven nature, ability to contribute to existing knowledge, alignment with the quantitative research design, and fit for researching specific research issues. This method provides a formal framework for testing hypotheses and providing empirical evidence, improving the study's rigour and validity.

There is some debate in the research methods literature over whether methods and approaches are best suited to studies in the social sciences. The conventional wisdom holds that structured and quantitative approaches are the most reliable and productive. Quantitative and qualitative research methods are treated equally by researchers, who say that the research problem and its aims are what determine which method is most appropriate (Busetto et al., 2020). Theory, epistemological challenges, and ontological concerns, as outlined by Bryman and Bell (2011), play substantially distinct roles in quantitative and qualitative research. As Allwood (2012) point out, the main distinction between qualitative and quantitative research is not one of quality but of approach.

Quantitative research methods were selected for this investigation. To better comprehend and explain social events, quantitative researchers take a methodical and organised approach by collecting and analysing numerical data. Objectivity, measurable outcomes, statistical analysis, and generalizability are hallmarks of this research strategy (Mohajan, 2021). The inclusion of concrete, quantifiable evidence is a major selling point for quantitative studies. In the context of assessing the adoption of RPA in a bank, quantitative data can provide precise and

quantifiable information concerning worker satisfaction and cost reduction. Standardized data can be collected from a large sample using structured surveys or questionnaires, which helps to reduce the influence of biases and ensures a solid foundation for research. Additionally, quantitative research incorporates the use of graphical representation analytic techniques to analyse data. This enables for the detection of patterns, trends, and relationships in the data, providing empirical evidence for drawing conclusions and making assumptions (Apuke, 2017).

The possibility of generalizability is another argument in favour of quantitative research. The goal of any good quantitative study is to unearth universal truths that can be applied to situations outside of the one they were conducted in. The study's findings have important implications for decision-making and policy and may be applied to other financial institutions and sectors considering or implementing RPA. Moreover, quantitative research is generally favoured in studies where the focus is on investigating the relationship between variables, such in this study where the focus is on examining the relationship between worker satisfaction and cost savings (Opie, 2019). Numerical data and statistical analysis can provide a solid and trustworthy foundation for investigating these connections systematically and rigorously. For these reasons, as well as its potential for generalizability and suitability for evaluating connections between variables, the use of a quantitative research approach is warranted in this study. This methodology offers a systematic and rigorous framework within which to explore the study's research questions and collect data from which to draw conclusions (Leung, 2015)

3.5 Choices of Methods

The research onion model offers mono-, mixed-, and multi-method research. Mixed methods use two or more research approaches, usually qualitative and quantitative. Multi-method use more methods. This study uses quantitative techniques (Blackstone, 2012). Quantitative technique permits exact measurement and analysis of variables linked to worker satisfaction

and cost savings in the context of RPA implementation in an Indian bank. Quantitative research uses statistical analysis to derive findings, generalise, and establish meaningful links between variables (Creswell and Clark, 2017). Quantitative technique is appropriate for the research topic because RPA adoption, worker satisfaction, and cost savings are quantifiable concepts that can be quantified with numbers. Structured surveys or questionnaires with rating scales can measure worker satisfaction, while financial data and key performance indicators (KPIs) can be quantified and analysed using statistical methods to measure cost savings.

Quantitative data gathering and analysis can be faster and cheaper. Structured surveys or questionnaires and statistical tools can streamline large-scale data collecting and analysis. A bank case study may require data on worker satisfaction and cost savings from a wide sample of employees and financial records. Finally, quantitative methods improve study credibility and rigour. Statistical analysis helps quantitative researchers evaluate hypotheses and develop reliable conclusions from data. Quantitative research results can be validated by comparing them to literature and industry standards (Giri et al., 2021).

3.6 Time Horizons

A study's temporal horizon is the duration during which its data was collected and examined. Cross-sectional and longitudinal observations are distinguished by their respective time scales (Rindfleisch et al., 2008). Often utilized in surveys, cross-sectional data is collected only once. In contrast, longitudinal data is collected by tracking the same variable over time intervals that can be years, quarters, months, or even days. Cross-sectional data is being used for this investigation. The reasons below support this decision:

Data collected in a cross-sectional fashion is ideal since it provides a picture of the situation of the field at the time of investigation (Rindfleisch et al., 2008). Cross-sectional data can capture

the current perspectives, attitudes, and actions of the employees towards the research of RPA deployment, worker satisfaction, and cost savings in an Indian bank. This can help reveal important details about the short-term results and long-term viability of the bank's RPA implementation. When compared to longitudinal data, cross-sectional data collection is faster and less expensive. It is possible to quickly collect and analyse data from surveys or questionnaires sent to a representative cross-section of an organization's workforce. Given the importance of timely and cost-effective data collecting in a real-world context like a bank, this could prove especially useful to the research (Caruana et al., 2015).

In addition, cross-sectional data can offer a broader view by collecting information from a wide range of bank employees across a variety of levels, functions, and departments. Instead of narrowing your emphasis to one group or one time period, you may get a more complete picture of the effects of RPA implementation on worker satisfaction and cost savings across the bank. Cross-sectional studies have certain obvious drawbacks, such as their inability to detect trends across time or to prove a cause-and-effect relationship between variables. Yet, cross-sectional data can provide significant insights into the existing state of affairs and fulfil the research objectives well for the specific research issue of RPA adoption in an Indian bank with an emphasis on worker satisfaction and cost savings. Cross-sectional data was chosen because of their capacity to represent the current state of the research issue, their efficiency and economy in data collection, and their ability to provide a more holistic view of the entire ramifications of RPA adoption in the bank (Ivančić et al., 2019).

3.7 Data Collection

Data collection is the systematic gathering of data for research. It entails choosing methods, instruments, and strategies to collect data that answers research questions or achieves study goals. Data collection definitions vary per author. Hollweck (2016), defines data collection as

systematic data collection to answer research questions, while Creswell (2014), defines it as acquiring information from participants or sources through interviews, observations, surveys, or questionnaires. H R and Aithal (2022), stresses the importance of data gathering methods and instruments for study reliability and validity.

In order to analyse and gather numerous thoughts about the drawbacks to meet all of their business challenges and to clearly establish the research objectives, the researcher might benefit from identifying the data collection methods they will use. Both primary and secondary data collection methods are widely available and can be selected depending on the specific research process at hand. According to Lobe et al. (2020), the majority of researchers plan to use a single data gathering technique to ensure they acquire accurate results for their research article. However, applying significant methods of employing a mixed approach of the data collecting may be useful for generating better results in explaining various types of ideas regarding the importance of using the social media influencer to undertake promotional activities for a particular brand. Applying main approaches can help the researcher manage the data collection process as a whole and incorporate more realistic data. Both qualitative and quantitative data collection techniques are being employed in the primary data collection approach to elicit a range of information from the study's participants. Several hypotheses on how businesses can benefit from social media influencer marketing have been gathered through the use of the secondary data collection technique. However, surveys have been utilised by researchers to acquire a quantitative sense about the study process and to ensure that their conclusions are accurate (Michra and Alok, 2017). On the flip side, surveys are a crucial tool for researchers to gain insight and improve their findings.

A survey questionnaire is used for the RPA implementation study in an Indian bank that focuses on worker happiness and cost reduction. Several considerations support this choice. First,

survey questionnaires give an organised way to collect data from a large sample size of bank personnel. Second, survey questionnaires ensure consistent and comparable responses, which can assist get trustworthy and valid data for analysis. Thirdly, survey questionnaires capture qualitative and quantitative data to measure employee views, attitudes, and actions regarding RPA deployment, worker satisfaction, and cost reduction. Finally, survey questions can be administered at a specific period, making them useful for cross-sectional data gathering on worker satisfaction and cost savings related to RPA adoption in the bank (Lobe et al., 2020).

Previous research has justified survey questions as data collection methods. Surveys have been used to study employee happiness, technology adoption, and organisational change (Meyer et al., 2017). Survey surveys have been used to analyse the impact of RPA on job satisfaction (Soltani et al., 2020) and identify RPA adoption hurdles (Lacity et al., 2019). In summary, survey questionnaires were chosen for the study on RPA implementation in an Indian bank due to its efficacy, efficiency, homogeneity, and ability to capture cross-sectional data.

3.8 Sampling technique & Sample size

The sample is essential to the research process because it is hard for researchers to collect data from every single person; nonetheless, the researcher is required to select a sample in order to simplify the method (Etikan and Bala, 2017). Sampling is the process of selecting members of a population from which inferences about the population as a whole can be drawn. Both probability and non-probability sampling methods are used in research. Sampling, the process of selecting a subset of a population to represent the total population, is an essential part of any research study. To draw statistical conclusions about a population, it is necessary to pick a sample that accurately represents that group. There is a wide variety of sampling methods, each with its own advantages and disadvantages.

Non-probability sampling is used here because it best fits the needs of the study. In non-probability sampling, the researcher does not have access to a list of the population and so has no say over which individuals are chosen to participate. Instead, the sample is selected at random or based on other subjective criteria, which might distort statistical results. Participants in Convenience non-probability sampling are selected based on the researcher's availability, interest, or hunch. The study's specific objectives necessitate the use of Convenience sampling. Non-probability sampling is a good option for research investigations when the population of interest is limited or inaccessible. Non-probability sampling is also a viable option when time and money are at a premium for a study. 80 people were selected for quantitative analysis. Several criteria, including the nature of the research question, the required degree of precision, and the desired degree of confidence, all play a role in determining the sample size. For a number of reasons, a sample size of 80 is satisfactory here. To begin with, it has sufficient statistical power to identify gaps between categories and measures. Second, 80 participants can be recruited and data collected within the allocated time and budget. Third, an 80-person sample size is sufficient to provide some degree of population-wide accuracy.

To sum up, Convenience non-probability sampling is an appropriate method for investigations involving a small or inaccessible population. It saves money, time, and effort, and it's quite handy. In addition, there is sufficient statistical power and representation with a sample size of 80 individuals for quantitative analysis. Researchers should give careful consideration to potential bias and lack of generalizability when choosing a sample technique, both of which are issues with non-probability sampling.

3.9 Data Analysis

Graphs and pie charts will be used in the analysis of the data obtained from the survey questionnaire. The data will be summarised and presented in a style that is simple to

comprehend with the assistance of these graphical representations. (Midway, 2020) The information will be presented through the use of graphical representations such as pie charts and graphs. The percentage of respondents who are loyal to a specific brand or the percentage of respondents who base their purchasing decisions on personal values can both be displayed using pie charts. According to Slutsky (2014), graphs can be utilized to demonstrate the relationship between customer loyalty to a brand and other elements such as marketing messaging or price.

The use of graphical representations is acceptable for this study because it enables easy visualisation of the data and can quickly explain the primary findings of the investigation (Midway, 2020). This makes the use of graphical representations relevant for this study. In addition, numerical analysis may not instantly reveal any patterns or trends in the data that may be seen in graphical representations of the data. This might make it difficult to draw conclusions from the data. According to Slutsky (2014), the utilisation of graphical representations will, in general, improve the understanding as well as the interpretation of the data that was acquired from the respondents.

3.10 Ethical Consideration

There are a number of ethical considerations that will be made as this study progresses. Everyone who takes part in the study will be informed of its purpose, as well as their rights and responsibilities as a participant, including the fact that they are free to withdraw at any time without incurring any penalties. According to Manti & Licari (2018), in order for anyone to be able to complete the survey, they must first provide their informed consent. In addition, no personally identifying information will be included in either the analysis or the publication of the results; this will ensure that the data obtained are both confidential and unidentifiable. The study team will be the only ones with access to the data, which will be securely stored to prevent

unauthorised access or breaches of confidentiality, and will be kept in an easily accessible format. In addition to this, the research team will make certain that no one is made to feel uneasy by participating in the study or that they sustain any kind of injury as a result of it, and that everyone included provides their informed permission. The phrasing of the survey will be carefully crafted to avoid raising any concerns that could be construed as offensive or sensitive, and respondents will be given the opportunity to skip through any questions that make them feel uneasy (Kaiser, 2009).The research will be conducted in accordance with all rules and ethical requirements set forth by the relevant institutional review boards and regulatory agencies. Research in this project will be conducted with these ethical considerations in mind, with a focus on protecting the privacy and autonomy of participants while yet achieving scientific rigour (Manti & Licari, 2018).

Chapter IV: Data Analysis

4.1 Introduction

Key accounting duties, such as collecting receipts and translating bills into financial statements, have been automated with the introduction of AI and virtual reality technologies. Implementing automation in accounting is a great way for operations to save time and boost productivity by 25,000 hours per year. Businesses may benefit from this, but accountants' jobs are in jeopardy as a result.

4.2. Findings

The key descriptive statistics is as follows:-

Statistics

		Age	Gender	Familiar	Implementation	Satisfaction
N	Valid	70	70	70	70	70
	Missing	0	0	0	0	0
Median		2.0000	1.0000	1.0000	1.0000	1.0000
Skewness		.167	1.321	.852	.908	2.922
Std. Error of Skewness		.287	.287	.287	.287	.287
Kurtosis		-1.227	-.263	-.776	-.647	8.857
Std. Error of Kurtosis		.566	.566	.566	.566	.566

Table 1: Descriptive Statistics

Frequency Table

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-31	19	27.1	27.1	27.1
	31-40	20	28.6	28.6	55.7
	41-50	18	25.7	25.7	81.4
	50and above	13	18.6	18.6	100.0
	Total	70	100.0	100.0	

Table 2: Frequency table

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	54	77.1	77.1	77.1
	Female	16	22.9	22.9	100.0
	Total	70	100.0	100.0	

Table 3: Gender wise analysis

Familiar

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very familiar	41	58.6	58.6	58.6
	Moderately familiar	8	11.4	11.4	70.0
	Slightly familiar	16	22.9	22.9	92.9
	Not familiar at all	5	7.1	7.1	100.0
	Total	70	100.0	100.0	

Table 4: Familiarity Analysis

Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, extensively	42	60.0	60.0	60.0
	Yes, to a moderate extent	9	12.9	12.9	72.9
	Yes, to a limited exten	16	22.9	22.9	95.7
	Yes, to a limited exten	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

Table 5: Implementation Analysis

Satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly satisfied	56	80.0	80.0	80.0
	Moderately satisfied	11	15.7	15.7	95.7
	Not satisfied	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

Table 6: Satisfaction Analysis

Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant improvement in turnaround time	39	48.8	48.8	48.8
	Moderate improvement in turnaround time	21	26.3	26.3	75.0
	Negligible improvement in turnaround time	13	16.3	16.3	91.3
	RPA not implemented	7	8.8	8.8	100.0
	Total	80	100.0	100.0	

Table 7: Improvement Analysis

Perception

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased job satisfaction	38	47.5	47.5	47.5
	Decreased job satisfaction	21	26.3	26.3	73.8
	No noticeable impact on job satisfaction	13	16.3	16.3	90.0
	RPA not implemented	8	10.0	10.0	100.0
	Total	80	100.0	100.0	

Table 8: Perception Analysis

Errors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, frequently	38	47.5	47.5	47.5
	Yes, occasionally	22	27.5	27.5	75.0
	Rarely	14	17.5	17.5	92.5
	No, no errors or failures encountered	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Table 9: Accuracy Analysis

Effective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very effective	38	47.5	47.5	47.5
	Moderately effective	22	27.5	27.5	75.0
	Somewhat ineffective	14	17.5	17.5	92.5
	Very ineffective	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Table 10: Effectiveness Analysis

UsageinBanking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Helps to track such accounts	40	50.0	50.0	50.0
	Send automated notifications	27	33.8	33.8	83.8
	c) Schedule calls for the required document submissions.	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

Table 11: Use in Banking Analysis

Regression

Notes

Output Created		08-FEB-2024 15:07:11
Comments		
Input	Data	C:\Users\TINA\Downloads\FS.sav
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	70
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.

Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT Implementation /METHOD=ENTER Satisfaction.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.04
	Memory Required	2528 bytes
	Additional Memory Required for Residual Plots	0 bytes

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Satisfaction[b]	.	Enter

a. Dependent Variable: Implementation

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.477[a]	.227	.216	.85476

a. Predictors: (Constant), Satisfaction

Table 12: Regression Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.604	1	14.604	19.989	.000[b]
	Residual	49.681	68	.731		
	Total	64.286	69			

a. Dependent Variable: Implementation

b. Predictors: (Constant), Satisfaction

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.850	.219		3.884	.000
	Satisfaction	.673	.150	.477	4.471	.000

a. Dependent Variable: Implementation

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Implementation	80	1.00	4.00	1.8500	.11124	.99492	-.432
Perception	80	1.00	4.00	1.8875	.11390	1.01873	-.546
Errors	80	1.00	4.00	1.8500	.10835	.96914	-.446
Effective	80	1.00	4.00	1.8500	.10835	.96914	-.446
UsageinBanking	80	1.00	3.00	1.6625	.08333	.74534	-.920
Valid N (listwise)	80						

Descriptive Statistics

	Kurtosis
	Std. Error
Implementation	.532
Perception	.532
Errors	.532
Effective	.532
UsageinBanking	.532
Valid N (listwise)	

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Implementation[b]	.	Enter

a. Dependent Variable: UsageinBanking

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733[a]	.538	.532	.51013

a. Predictors: (Constant), Implementation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.590	1	23.590	90.649	.000[b]
	Residual	20.298	78	.260		
	Total	43.888	79			

a. Dependent Variable: UsageinBanking

b. Predictors: (Constant), Implementation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.646	.121		5.342	.000
	Implementation	.549	.058	.733	9.521	.000

a. Dependent Variable: UsageinBanking

FREQUENCIES VARIABLES=Implementation Perception Errors Effective UsageinBanking

/ORDER=ANALYSIS.

Frequencies

Statistics

		Implementation	Perception	Errors	Effective	UsageinBanking
N	Valid	80	80	80	80	80
	Missing	0	0	0	0	0

Frequency Table

Implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant improvement in turnaround time	39	48.8	48.8	48.8
	Moderate improvement in turnaround time	21	26.3	26.3	75.0
	Negligible improvement in turnaround time	13	16.3	16.3	91.3
	RPA not implemented	7	8.8	8.8	100.0
	Total	80	100.0	100.0	

Perception

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increased job satisfaction	38	47.5	47.5	47.5
	Decreased job satisfaction	21	26.3	26.3	73.8
	No noticeable impact on job satisfaction	13	16.3	16.3	90.0
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Errors

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	No, no errors or failures encountered	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

Effective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very effective	38	47.5	47.5	47.5
	Moderately effective	22	27.5	27.5	75.0
	Somewhat ineffective	14	17.5	17.5	92.5
	Very ineffective	6	7.5	7.5	100.0
	Total	80	100.0	100.0	

UsageinBanking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Helps to track such accounts	40	50.0	50.0	50.0
	Send automated notifications	27	33.8	33.8	83.8
	c) Schedule calls for the required document submissions.	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

Table 13: ANOVA

T-Test

The T-test analysis is as follows:-

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Implementation	80	1.8500	.99492	.11124
Perception	80	1.8875	1.01873	.11390
Errors	80	1.8500	.96914	.10835
Effective	80	1.8500	.96914	.10835
UsageinBanking	80	1.6625	.74534	.08333

One-Sample Test

	Test Value = 0				
					95% Confidence Interval of the Difference
	t	df	Sig. (2-tailed)	Mean Difference	Lower
Implementation	16.631	79	.000	1.85000	1.6286
Perception	16.572	79	.000	1.88750	1.6608
Errors	17.074	79	.000	1.85000	1.6343

Effective	17.074	79	.000	1.85000	1.6343
UsageinBanking	19.950	79	.000	1.66250	1.4966

One-Sample Test

	Test Value = 0
	95% Confidence Interval of the Difference
	Upper
Implementation	2.0714
Perception	2.1142
Errors	2.0657
Effective	2.0657
UsageinBanking	1.8284

Table 14: T-Test

4.3 Analysis

The findings reflect that the RPA process has increased as per 80 responses of the survey. The accounting profession has been given the challenge of providing virtual accounting services in light of the current social norms of isolation and isolationism. Virtual client meetings and remote assignment of tasks are now necessities for the accounting industry. Accounting businesses that haven't digitised their processes in recent years are feeling the wrath of online accounting services.

There is still a great deal of rivalry within the financial services industry. As was previously mentioned, consumers are looking for more individualised care. They would also like to see more user-friendly digital solutions used. A sizable portion of the market would be available to schools that provide any of these options. These days, consumers don't place as much value on identifying with certain brands. It's all about them. Clients will remain loyal to businesses that provide these amenities.

For businesses in the financial sector, big data presents both opportunities and challenges. The proliferation of "big data" can be attributed to the proliferation of data itself. Due to the mixed nature of the incoming data, these antiquated data structures are overwhelmed. When a banking company decides to implement Robotic Process Automation (RPA), they have a number of essential expectations, the most important of which are the improvement of quality and the increase in cost effectiveness. In addition, it would appear that robotic process automation (RPA), which represents the most effective strategy for achieving a rapid return on investment (ROI) of 80% within a timeframe ranging from three to six months, is the way to go about achieving this goal. The decreased amount of work that needs to be done has the ability to lower the levels of stress that are experienced by a team. This indicates that workers may effectively exploit their experience and competences, which in turn results in increased levels of worker satisfaction. However, it is essential for financial institutions to take into consideration the possibility that robotic process automation (RPA) is not always the most time- and resource-effective option. As a result of being forced to adhere to a large number of stringent standards, banking institutions have issues when it comes to the acquisition of information about their customers. If the organisation were to gain additional client information, they would be in a position to utilise this data throughout the entire programming phase of the robot, which would result in an improvement in the quality of the service that was provided. In addition, a sizeable number of financial organisations, including financial

institutions, continue to ignore the deployment of proper automation techniques, which results in major cost constraints. There is a widespread tendency among banking institutions to view robotic process automation (RPA) as a basic instrument. However, it is essential for them to recognise that moving from a proof of concept to a fully operational business calls for a significant investment of both time and financial resources. This is a requirement that cannot be avoided. One more essential aspect to take into account is the fact that Robotic Process Automation (RPA) is not the only type of solution that can be found on the market. Artificial Intelligence (AI) and Machine Learning (ML) are two technology technologies that offer improved capabilities in the domain of process automation. Both of these acronyms stand for artificial intelligence and machine learning. These instruments have the capacity to experience evolution and learning in a manner comparable to that of a human being, which contributes to an increased level of confidence in the processes. The majority of financial institutions believe that there is tremendous potential for the future of the banking industry in the combination of Robotic Process Automation (RPA) with Artificial Intelligence (AI) or Machine Learning (ML). Despite the fact that the discipline of robotic process automation (RPA) is now experiencing enormous growth and is generally recognised as having substantial untapped potential, many financial institutions view pure robotics as a fleeting phenomenon. The current employment of robots can be seen as a transitional period, as stated by the representative from BNP Paribas Fortis. This is according to the information provided. In a perfect world, the architecture of the financial systems would be such that they would enable straight-through processing and automate all of the tasks that are related with it. It has been hypothesised that pure Robotic Process Automation (RPA) would, at some point in the not-too-distant future, become obsolete. This is due to the fact that there will soon be a demand for adaptive technologies that are capable of effective adaptation and exhibit cognitive capacities comparable to those of human cognition. In the future, financial institutions will be expected

to actively seek out tools that make use of sophisticated forms of statistical reasoning and artificial intelligence. The financial services industry is under the impression that the combination of robotic process automation with artificial intelligence or machine learning has tremendous promise for the businesses that fall under this sector in the future. Due to the fact that just three units that implemented RPA in XYZ bank participated in the interviews, the scope of the study is severely constrained. It's possible that different conclusions could be drawn from an investigation of broader scope that uses a bigger sample size. In addition, because the banking industry places a high value on privacy, it is possible that certain participants have decided not to answer to particular requests in order to protect the confidentiality of personal information. As a direct result of this restriction, a number of questions have not been satisfactorily answered, and essential information could not be appropriately incorporated within the scope of this thesis. Given the identified limitations and the responses provided by the participants, it would be beneficial for future investigations to employ a more extensive sample size and investigate not only Robotic Process Automation (RPA) in isolation, but also its integration with other technologies such as artificial intelligence (AI), for example. This would be advantageous because it would allow for a deeper understanding of the potential benefits and drawbacks of RPA.

An EMC research predicts that by 2021, there will be 44 zettabytes of data in the digital realm. That's equal to 44 quadrillion (or 441018) megabytes. It is a challenge for businesses providing financial services to go through their data and choose what should be used.

The field of accounting is currently confronted with the challenge of providing virtual accounting services as a means of responding to the prevalent societal norms of isolation and isolationism. At this time, the bookkeeping business is dependent on important practices such as online customer meetings and the delegation of responsibilities to remote workers.

Accounting businesses that have not incorporated digitalization into their day-to-day operations in the past few years are beginning to feel the negative effects of competition from online accounting services. According to the findings, the adoption of digital procurement appears to be dependent on the level of preparation and maturity displayed by firms. As more experience is gained, the application domains of Robotic Process Automation (RPA) extend to embrace a wider variety of operations. These operations can range from transactional and operational tasks within the procure-to-pay process to a more strategic usage in sourcing and supply relationship management. The possible benefits largely include easing the burden on employees, lowering costs, and improving both the efficiency and quality of operational processes. In the course of this research, a number of obstacles have been uncovered. These obstacles cover a wide range of topics, including technological, organisational, and environmental variables. The IT infrastructure and human resources, internal communication, financial resources, support from senior management, organisational structures, concerns connected to suppliers, and legislation enacted by the government are all examples of these types of impediments. In addition, the application of robotic process automation (RPA) in the public and private sectors is found to differ in a number of important ways, according to the findings of our research. In the following discussion, we will outline the implications that the recent research on Robotic Process Automation (RPA) has, as well as the critical paths that organisations must take in order to put RPA into practise. This technology enables a novel way to improving business operations by facilitating the automated execution of repetitive actions that adhere to preset criteria. This technology presents an innovative method to improving business operations. As a direct result of this, staff are able to redirect their efforts towards tasks that produce a higher return on investment. In addition, Robotic Process Automation (RPA) has a large impact across a wide range of industries, including financial services, information technology, and a variety of other fields. The purpose of this article is to investigate

the potential influence that Robotic Process Automation (RPA) could have on businesses operating in a variety of sectors, with the goal of elaborating on RPA's capacity to improve operational efficiency and encourage corporate expansion.

The business of providing financial services is one that consistently features high levels of both competition and rivalry. As was said earlier, there is a rising demand for individualized service among consumers. In addition, there is a desire for the introduction of digital solutions that are less complicated and more straightforward for users. Any of these educational possibilities will allow a school to have access to a sizeable portion of the market. Customers place less importance than they once did on developing a sense of affiliation with certain brands in today's market. They are the primary subjects of attention at this point. When a customer receives benefits from a certain company, they are more inclined to remain loyal to that company.

Employees are able to devote more of their time and energy to work that requires creative thinking and critical reasoning when repetitive tasks in their professions are automated through the use of various forms of technological assistance. This change in emphasis ultimately leads to improved levels of job satisfaction as well as increased levels of productivity. Robotic Process Automation (RPA), on the other hand, has the potential to assist businesses in keeping up with ever-changing company requirements and rules. This is due to the fact that software robots have the ability to quickly adjust their behavior in accordance with newly implemented policies and standards.

In spite of this, careful planning and preparation for the implementation of robotic process automation (RPA) is essential because RPA has a tendency to disturb both the existing procedures and the duties of the workforce. In light of the conditions, it is of the utmost importance to conduct an exhaustive investigation of the processes that are already in place and identify the most fruitful chances for the application of Robotic Process Automation

(RPA). In order to improve scalability and efficiency, the banking industry is gradually incorporating robots and softbots inside strategically relevant business divisions. This is being done for a number of reasons. The term "digital transformation" refers to a phenomena that is widely practiced and is mostly witnessed in the business sector. However, the scope of its impact extends far beyond the confines of this sphere, taking in a wide variety of organizations such as states, departments of the government, and institutions. These organizations make use of both established and developing technologies in their efforts to address societal issues such as pollution and the repercussions of an aging population.

The purpose of this research is to offer some new perspectives on the application of robotic process automation (RPA) in the banking industry in India. Specifically, the research will focus on the state of the RPA industry in India. The use of these methodological techniques by researchers has helped to contribute to the formation of a body of knowledge that is more comprehensive and cohesive. In addition, these approaches have provided researchers with advice and emphasis for future studies on robotic process automation (RPA). The analysis of RPA was the primary focus of the research; however, its linkages to a variety of other research fields and technological fields were also investigated.

The process of responding to the digital revolution necessitates the inclusion of recently developed technology into all elements of a company's activity. This results in substantial implications for both the work processes and the provision of helpful services to customers. This shift in perspective also necessitates that firms adjust to regular assessments, evaluations, and expressions of unhappiness in order to remain competitive. Service-oriented businesses are currently going through a process that is being referred to as "digital transformation," which involves the reorganization of the operations carried out within the businesses. Businesses of any size face a variety of issues as a result of digital transformation.

The following is a list of some of the financial services industry's automated processes:

Fabrication of Reports Mechanically

Generating compliance reports of fraudulent activities in the form of a suspicious activity report (SAR) is a regular requirement of a bank. These SARs must be reviewed by compliance officers, who must then read each report individually and manually fill in the details. However, if we integrate it with natural language generating capacity, the full process may be finished in record time, saving both time and money. This is because it can read through the procedure and extract the necessary information for filling in SAR.

Acquiring New Customers

The manual verification of multiple papers is a major reason of the length and difficulty of the customer onboarding process. Using its features, the customer's information can be compared with the information extracted from the KYC using optical character recognition (OCR). If no problems are found, the information will be entered into the client management portal mechanically. This not only eliminates the possibility of error but also reduces the amount of work required from staff.

A change that is automating routine chores in our daily lives is robotic process automation. Adapted from: Best RPA Use-Cases in Industries: Know Your Customer and AML

Both operations, such as detecting fraudulent banking transactions and automating laborious processes, are data-intensive, making them ideal candidates for RPA. It's easy to adopt, thus it saves us time and money compared to more conventional options.

Opening an Account

As a result of its deployment, opening a new account is now considerably simpler, faster, and more precise. Errors that could otherwise exist between the core banking system and the new account opening request are wiped out by automation. This improves the system's overall data quality.

Finance of Mortgages

Mortgage lending is a tedious process that might benefit greatly from computerization. Loan origination, document processing, quality control, and other time-consuming but essential steps in the mortgage lending process can all be automated with this solution. As a result, the procedure can be wrapped up more quickly, much to the delight of the company's clientele. It also helps workers focus on what really matters by relieving them of routine manual labour.

There is a high risk of fraud when using a credit card, debit card, or online banking as a payment method. Although banks have automated the loan-processing procedure to a certain extent, it is still widely regarded as a very time-consuming task; nevertheless, additional automation will reduce this time to a record 10–15 minutes. The result will be happier customers and less work for the staff. It is challenging for the employees to provide quick responses to the many often asked questions from customers. Using its resources, they can automate routine rule-based processes to better respond to enquiries in real time and decrease response times.

Accepting Credit Cards

Due to the rigorous validation checks required for credit card processing, it is one of the most time-consuming and laborious procedures. However, with the RPA strategy in place, we can use a rule-based system to quickly decide whether or not to approve an application.

Account Deletion and Closure

The bank receives a high volume of requests to close customer accounts each month largely as a result of customers' failure to follow the bank's policies and procedures. It can help with this problem by keeping tabs on these consumers and automatically notifying and reminding them to submit the necessary paperwork.

RPA To do with money and banking

It was implemented to great success at a large, multinational insurance company that does business across all lines. Previously, it had to check through all 26 sites four times a month to guarantee that payments were being issued against claims. Its deployment resulted in a decrease from 4 days to 2 hours for this particular work, saving thousands of FTE hours annually while also cutting down on errors. OCBC, a Singaporean bank, has used this technology to drastically cut down the time it takes to re-price house loans from 45 minutes to a mere 1 minute. The customer's eligibility is examined by the bot as well. Recommends re-pricing alternatives and can even write recommendation emails for clients looking to refinance their debts.

At this time, Robotic Process Automation (RPA) is being utilized extensively across a variety of industries, including banking, manufacturing, accounting, retail, and supply chains, with the intention of improving both operational efficiency and time management. Despite this, the application of Robotic Process Automation (RPA) in the financial services industry remains uncommon. This thesis conducts an in-depth investigation of Robotic Process Automation (RPA) technology and provides useful suggestions for the application of RPA in banking environments. The ideas, characteristics, and current situation of the Robotic Process Automation (RPA) industry are presented and analyzed in this paper. In addition to this, a case study is presented that delves into how RPA was implemented in a financial organization. The case study specifically quantifies the monetary savings and operational improvements that were accomplished by the bank as a result of the use of RPA. In addition, the research not only

investigates the potential benefits that may be connected to the application of Robotic Process Automation (RPA) technology, but it also sheds light on the risks and challenges that are related with its utilization. In addition to this, the study provides recommendations for efficient solutions that can be used to lessen these risks and difficulties. This study presents a 5-Step RPA Application Model and proposes three sourcing strategies for the adoption of Robotic Process Automation (RPA) in the banking industry. These findings are based on a thorough examination and detailed evaluation of the available literature in the field. In conclusion, this study provides possible directions for further research that could be pursued.

This research paper presents findings from an examination into the use of robotic process automation (RPA) in the financial services industry. The investigation that was carried out centered on an investigation into the concepts, characteristics, advantages, and potential risks that are connected to RPA. The key benefits of implementing Robotic Process Automation (RPA), which have been empirically shown, include a reduction in costs, an increase in productivity, and a reduction in the number of mistakes made. The investigation of the case study has shown that the implementation of Robotic Process Automation (RPA) can lead to significant cost reductions as well as improvements in operational efficiency. Robotic systems that have been used within the credit card processing business have shown that they are capable of authenticating and authorizing applications in a mere seven minutes. This is in sharp contrast to the fifty minutes that are taken by human staff to accomplish the same procedure. The implementation of these productivity improvements has the potential to result in annual cost reductions for the bank of $36 million. In spite of this, it is absolutely necessary for financial institutions to do a thorough risk assessment before beginning the deployment of robotic process automation (RPA). These risks include a variety of issues, including the financial implications, such as the costs of development and maintenance, as well as concerns linked to the security of operational procedures and the confidentiality of information. When doing an

examination of the characteristics of RPA technology, it is recommended that owners of businesses give attention to business processes that demonstrate decreased development costs and increased outputs. This is because these processes are more likely to be automated. The purpose of this research is to investigate and assess how the use of Robotic Process Automation (RPA) technology influences the level of productivity achieved by front-office bank employees. The successful installation and progress of RPA-based technology requires careful planning and monitoring to guarantee that end-users properly employ the available technology throughout the initial phases of adoption. This is necessary to ensure that the implementation and advancement of the technology is successful. Therefore, in order to address the practical effects, it is recommended to build the necessary auxiliary units and training initiatives in order to promote the quick adaptation of end-users and enable effective monitoring of usage rates following the implementation. This will allow for the most effective monitoring of usage rates following the implementation. When the three key daily routine jobs that were transferred to Robotic Process Automation (RPA) bots were analyzed, it was discovered that there was no discernible difference in the average amount of time necessary to complete these tasks when comparing manual execution to execution by RPA bots. This was one of the primary reasons why these jobs were transferred to RPA bots. Nevertheless, it is essential to bring to your attention that the current execution of this activity is still in the planning stages at this point. To be more specific, the use of RPA bots by front-office bank employees in retail banking branches has been operational for an average period of three months.

As a result, the firm is able to produce more with fewer workers while saving money. Given that RPA is a server-based technology and an automated model with a constant presence, work must be completed without interruption or regard to weekends or holidays. RPA can be scaled, which is another advantage it has. When RPA is used, scalability is greatly enhanced since the system can expand or contract in response to fluctuating workload demands

RPA can also optimize IT infrastructure through improved administration, monitoring, and reporting of devices, increasing IT workers' productivity. Due to the numerous computer systems and software programmes used by businesses, one computer will produce hundreds of logs. When logs are inspected for each programme, there will be delays. It is possible to train workers on RPA in a matter of weeks, and the system can be coupled with already existing systems after a fast configuration process that calls for no coding knowledge. This technology has allowed HR personnel to focus on more nuanced issues and make more informed decisions, leading to increased efficiency and reduced errors. RPA can also be used in the hiring process, where it can sort through resumes and send messages to unsuccessful candidates. This integration has resulted in optimized and cost-effective recruiting, leading to an increase in the caliber of hires. It stays on top so that the business may ease into the product's introduction without having to make major adjustments to how they operate. The RPA is the ability to recognise and respond to circumstances that are different from the norm when it comes to IT automation. Data can be controlled, replies provided, new activities initiated, and autonomous interaction with other systems achieved through the use of RPA software if such software is able to monitor and analyse the behaviour of existing software applications for various tasks.

Other benefits include increased employee morale, shorter cycle times compared to manual processes, greater productivity, fewer technical obstacles as no programming skills are required, and greater consistency by reducing the likelihood of human error. In addition to the benefits mentioned, another advantage of using RPA is that it can help reduce errors caused by human intervention, resulting in increased accuracy and reliability. By automating repetitive tasks, employees can focus on higher-value work that requires creativity and critical thinking, leading to improved job satisfaction and productivity. RPA can also help companies keep up with ever-changing business requirements and regulations, as software robots can quickly adapt to new processes and rules.

However, due to the potential disruption to both established procedures and established personnel responsibilities, RPA implementation necessitates meticulous preparation. In light of this, it is essential to conduct an in-depth analysis of the current processes and to identify the greatest chances for RPA adoption. In order to address scale and efficiency, the banking sector is increasingly turning to robotics and softbots in strategically important business segments. Although digital transformation is most commonly applied to businesses, the impact is also felt when other organisations, such as states, government departments, and institutions, use one or more of the current and developing technologies to address societal issues like pollution and ageing populations. Adapting to the digital revolution necessitates integrating newly developed technology into every facet of a company's operations, which has a profound impact on how one works and how they deliver valuable services to customers. This shift in attitude also necessitates that businesses learn to deal with ongoing evaluations, assessments, and expressions of dissatisfaction. Service-based businesses are undergoing what is known as "digital transformation," a process of reorganising their company operations. Different problems arise during digital transformation for businesses of different sizes. However, the academic literature does not provide a thorough and theoretical investigation of Robotic Process Automation (RPA). In response to the need for more information that was made by Van derAalst et al. (2018), the purpose of this research is to offer some new perspectives on the application of robotic process automation (RPA) in the banking industry in India. Specifically, the research will focus on the state of the industry in 2018.Researchers have been using these methodological approaches, which has resulted in the formation of a body of knowledge that is more comprehensive and cohesive. These methodological approaches have also provided researchers with direction and an emphasis for future study on robotic process automation (RPA). The analysis of RPA was the primary focus of the research; however, its linkages to a variety of other research fields and technological fields were also investigated.

There is a growing body of evidence that suggests robotic process automation (RPA) will almost certainly deliver significant benefits to businesses. For instance, it has been hypothesized that RPA will improve the accuracy of business operations, expand the capabilities of monitoring and analytics, and make it possible to expand processing infrastructure while simultaneously reducing operational costs. There have been various reports that analyze the level of success achieved through the utilization of RPA.

They went about things in a methodical manner to reduce the likelihood of upsetting their customers and disrupting their commercial operations. According to the outputs of the RPA strategy, the executives of the bank came to the conclusion that the institution lacked the requisite competences to select a trustworthy provider for robotic process automation (RPA). In addition to this, they required aid in selecting appropriate individuals for potential business procedures. They decided to hire the help of a consultant who had a track record of successfully guiding customers through the process of implementing robotic process automation (RPA) so that they could overcome this challenge. However, management was aware of the inherent dangers that were associated with the process of implementation and the low likelihood of accomplishing a "seamless integration." The role of the consultant encompasses two very separate facets. On the one hand, the consultant offered executives advice and subject matter expertise regarding the relevant topics. On the other hand, it was the consultant's job to set up the RPA system by setting and monitoring the operational bots. The consultant was responsible for a variety of tasks, including improving the efficiency of business processes and offering day-to-day operational support.

Due to the inclusion of both exceptions in operational processes, operations personnel were obliged to participate in manual tasks that they had previously been responsible for completing. For example, the process of entering data fields now requires the examination of exceptions in

the required sources, in addition to the repair of information and data. This is the case because of recent advancements in technology. There are two main ways in which the work performance of operations professionals has been harmed by exceptions that were generated by bots. In the beginning, it is essential to conduct a root-cause analysis and work in conjunction with the development team to rebuild the system in order to stop the occurrence of exceptions in the future. Because of these initiatives, the employees working in operations were expected to participate in some form of professional development in order to broaden their skill sets and assume new responsibilities, such as duties as managers of process improvement. During this time, the members of the operations team were growing demoralized as a result of the difficult nature of controlling exceptions. This essay utilizes the Design Science Research methodology in order to support its argument that the current use of RPA is inefficient because it does not fully capitalize on the potential offered by the technology. This potential can be achieved by first putting into place methods for the improvement of processes, and only then putting in place automation. This paper outlines an innovative approach to putting RPA into practice by using Lean methodologies. In this article, we take a look at two of the most prominent participants in the Robotic Process Automation (RPA) industry. This suggests a structured set of actions for businesses that are investing in RPA and looking to use the existing capabilities supplied by this technology. These activities are proposed as part of this document. The demonstration plan was mostly carried out within the confines of a Portuguese private bank and consisted of three separate stages. Its assessment in the field or through simulations was mixed depending on the particular circumstances, but on the whole, the results were favorable.

In order to ensure that end-users make optimal use of the available technology during the early stages of adoption, thorough strategic planning and vigilant oversight are required for the successful installation and advancement of Robotic Process Automation (RPA) technology.

This is especially true during the early phases of adoption. It is of the utmost importance to make certain that the technology is developed and implemented correctly. Therefore, in order to successfully offset the practical repercussions, it is recommended to develop the necessary auxiliary facilities and to establish training programmes that assist the fast acclimatisation of end-users. Both of these measures should be taken as soon as possible. Following the implementation of the change, this would make it much easier to conduct effective monitoring of utilisation rates. Following the deployment of this solution, accurate monitoring of usage rates will be made possible as a result of this. When the three principal daily routine tasks that were allocated to Robotic Process Automation (RPA) bots were analysed, it was found that there was no discernible difference in the average amount of time necessary to complete these tasks when comparing manual execution to execution by RPA bots. This was the conclusion that was reached after examining the tasks that were delegated to RPA bots. The aforementioned reason was one of the primary considerations that contributed to the decision to shift these jobs to robots that are controlled by RPA. Having said so, it is of the utmost importance to stress the fact that the current implementation of this initiative is only in the earliest stages at this point in time. In the interest of providing additional clarification, it should be noted that the use of robotic process automation (RPA) bots by front-office workers in retail banking branches has been adopted for an average duration of three months.

It is to be predicted that in the future, financial institutions would actively pursue the acquisition of instruments that make use of more advanced types of artificial intelligence and statistical reasoning. The industry of financial services is under the impression that the combination of robotic process automation and artificial intelligence (AI) or machine learning (ML) contains a large amount of potential for the future financial success of businesses that operate within this sector. Due to the fact that just three different financial institutions participated in the interviews, the breadth of the study has been severely constrained as a result. If the research

was conducted with a larger sample size and a broader perspective, then it's possible that the findings would lead to different conclusions. In addition, since the banking industry places a considerable focus on privacy, it is possible that certain participants have decided not to answer particular questions in order to protect the privacy of personally identifiable information. This is because the banking business places such an emphasis on privacy. Because of this constraint, several questions have not been adequately answered, and essential particulars could not be appropriately incorporated within the framework of this thesis' parameters. In light of the limitations that were found and the comments that were made by the participants, it has been suggested that future investigations make use of a larger sample size and investigate the possibility of integrating Robotic Process Automation (RPA) with other technologies, such as artificial intelligence (AI), rather than focusing solely on RPA by itself. This recommendation is based on the findings that were made and the responses that were given. This would be useful since it would make it easier to gain a more in-depth understanding of the potential benefits and drawbacks related with RPA.

Chapter V: Conclusion and Recommendations

5.1 Conclusion

Alluring as it may be to give priority to sensationalist headlines that state automation either reduces workforce or leads to widespread job loss, this is precisely the point at which fear begins to set in. The existence of fear can severely hamper the progress and success of an RPA attempt, as it has the ability to establish emotional barriers and potentially lead to the endeavor's demise. This is because fear has the ability to generate emotional barriers and potentially lead to the endeavor's demise. A vast majority of the companies that were polled, 82%, put a considerable emphasis on change management as a prominent obstacle, particularly in respect to cultural matters. This indicates that this is a problem that has to be addressed. The issuance

of credit cards has become quicker as a result of the expansion of digital financial services; nonetheless, this process is still dependent on the assistance of humans. The vast majority of the time, an RPA bot has the capacity to independently authorise credit card applications. This results in a significant acceleration of the process, which in turn boosts customer satisfaction levels. An RPA bot has the capability to access a wide variety of systems, which allows it to verify the identities of applicants, carry out background checks, and make choices regarding acceptance, disapproval, or, in rare cases, the referral of clients to a human worker. According to the information obtained from 80 different responses to the survey, the findings suggest that there has been an increase in the utilisation of the RPA method. The accounting profession is tasked with the responsibility of offering virtual accounting services in response to the prevailing social norms of isolation and isolationism. The accounting profession has evolved to the point where it now demands remote task assignments and virtual client encounters. Accounting businesses that have not incorporated digitalization into their day-to-day operations in the past few years are beginning to feel the negative effects of competition from online accounting services.

There is still a significant amount of competition across the whole financial services industry. As previously said, consumers are seeking more personalized care. In addition, they want the installation of digital solutions that are simpler and more intuitive to use. Any of these educational possibilities will allow a school to have access to a sizable portion of the market. Consumers today do not place as much importance on developing a sense of affiliation with certain brands as they did in the past. They are the exclusive subject of attention at this point. Customers will continue to support companies who go the extra mile to meet their needs when it comes to convenience.

For companies doing business in the financial sector, big data presents a number of opportunities as well as challenges. The ubiquitous existence of data in and of itself can be used to explain the existence of vast volumes of data in general circulation. These antiquated data structures are unable to manage the heterogeneous characteristics of the data that are being input, which leads to them becoming overwhelmed. When a banking institution opts to use Robotic Process Automation (RPA), they have several crucial expectations, with the primary focus being on enhancing quality and achieving greater cost efficiency. Furthermore, it seems that adopting robotic process automation (RPA) is the most efficient approach to get a quick return on investment (ROI) of 80% within a timeframe of three to six months. To successfully complete the mission at hand, it is recommended that you use this approach. The decreased amount of work that needs to be done has the ability to lower the stress that the team is under. This would imply that workers may effectively put their knowledge and abilities to use, which would result in increased levels of worker satisfaction. In terms of the effectiveness of their use of time and resources, financial institutions have a duty to investigate the potential consequences of depending solely on robotic process automation (RPA). The implementation of a large number of stringent laws has made it difficult for financial institutions to collect customer information. The gathering of additional client information would make it possible for the corporation to successfully incorporate this data throughout the entirety of the robot's programming process, which would ultimately result in an improvement in the level of service that is provided. In addition, a sizable fraction of financial organisations, most notably financial institutions, continue to ignore the use of efficient automation methods, which results in severe financial restrictions. This is one of the primary causes of the problem. When conducting an analysis of the features of RPA technology, it is recommended that owners of businesses concentrate their attention on the business processes that demonstrate decreased development expenses and improved outputs. This is as a result of the increased potential for

automating a variety of processes. The objective of this study is to examine and evaluate the impact of Robotic Process Automation (RPA) technology on the productivity levels of front-office bank personnel. In order to ensure the successful implementation and progression of RPA-based technology, careful strategizing and supervision are required throughout the early phases of adoption. This is done in order to ensure that end-users make optimal use of the technology that is available to them. It is absolutely necessary to ensure that the technology will be successfully installed and continue to advance. Hence, to tackle the practical consequences, it is advisable to construct the essential supplementary facilities and training programmes to facilitate the rapid adjustment of end-users and facilitate efficient monitoring of usage rates subsequent to the implementation. This will enable the optimal monitoring of usage rates subsequent to the implementation. After conducting an investigation into the three principal daily routine jobs that were assigned to Robotic Process Automation (RPA) bots, it was discovered that there was not a discernible difference in the average amount of time needed to complete these tasks, regardless of whether they were carried out manually or by RPA bots. This was one of the findings of the investigation. This was a significant aspect that contributed to the decision to delegate these responsibilities to RPA bots. Having said that, it is essential to bring to your attention that the ongoing execution of this activity is still in the stage of preliminary planning. RPA bots have been used by front-office bank workers at retail banking branches for an average length of three months. To be more specific.

The text entered by the user is blank. As a consequence of this, the company is able to increase its production levels while employing a smaller workforce, which results in cost savings. Due to the fact that RPA runs on a server and performs its activities as an automated system that is constantly operational, it is imperative that tasks be carried out continuously without pauses or

regard for weekends or holidays. One further advantage of RPA is its scalability. The utilisation of RPA results in a considerable improvement in scalability because the system is able to dynamically modify its size to satisfy the requirements of a changing workload.

RPA has the potential to improve IT infrastructure by boosting management, surveillance, and documentation of devices, and as a result, the productivity of IT staff. Because businesses use such a wide variety of computer systems and software applications, even a single computer might produce hundreds of logs. This is because of the complexity of the business environment. When logs are inspected for each programme, there will be delays because of this. Workers may be trained in RPA within a few weeks, and the system can be integrated with current systems in a rapid and easy manner through a configuration method that does not require any experience or prior knowledge of coding. This technology has enabled HR workers to concentrate on more intricate matters and make better-informed judgements, resulting in enhanced productivity and decreased mistakes. The recruiting process is a good candidate for the application of RPA because it can automate the sorting of resumes and the sending of rejection messages to candidates who were not successful. Because of the integration, the recruitment processes have been made more effective, which has resulted to a reduction in expenses while simultaneously improving hire quality. The product continues to be in the lead in order to enable a smooth introduction for the company, hence reducing the need for large operational adjustments. Within the realm of IT automation, the term "RPA" refers to the ability to recognise and respond appropriately to circumstances that depart from the norm. RPA software can exercise control over data, offer replies, initiate novel activities, and engage in independent contact with other systems, provided that it contains the power to monitor and

assess the behaviour of pre-existing software applications across a variety of tasks. RPA software can also engage in independent contact with other systems.

Additional benefits include an improvement in staff morale, a decrease in cycle times in comparison to manual processes, an increase in production, a reduction in technical hurdles as a result of a lack of experience in programming, and an increase in consistency brought about by a reduction in the likelihood that humans will make mistakes. In addition, using RPA has the additional benefit of reducing errors that are caused by human participation, which results in an increase in precision and reliability. Employees are able to devote their focus to more valued work that requires creativity and critical thinking when repetitive tasks are automated. This results in increased job satisfaction as well as increased production. RPA can assist firms in staying abreast of dynamic business requirements and regulations by enabling software robots to swiftly adjust to novel procedures and rules.

It should come as no surprise that achieving these transformations will not be easy and can't be planned for in advance. However, leaders have the capacity to maximise the beneficial psychological effects of robotic process automation (RPA) by putting into action change management initiatives that have been methodically planned, receiving effective training, effectively communicating with one another, and productively collaborating. Prospects for the application of Robotic Process Automation (RPA) services have emerged as a result of the continuous convergence of the retail industries. The introduction of data analytics, logistics, and supply chain management systems has resulted in the requirement for the installation of Robotic Process Automation (RPA), which is designed to facilitate the streamlining of labor-intensive activities. In addition, it is important to highlight that the bots used in Robotic Process Automation (RPA) have the capacity to successfully carry out a variety of tasks. These tasks

include, but are not limited to, the collection of relevant information from the websites of various manufacturers, the completion of month-end reporting, and the facilitation of the procedures involved in credit reporting. The degree to which a company satisfies its customers is an essential factor to consider when assessing its overall success, and this includes financial institutions like banks. The introduction of Robotic Process Automation (RPA) in the banking business can considerably cut the processing time for low-priority client enquiries by automating regular data retrieval operations. This allows for a more positive customer experience overall. This piece of technology has the potential to significantly reduce the amount of human engagement that is required in a variety of different settings. Robotic process automation (RPA) gives a great opportunity for transformation as it pertains to the process of account reconciliation, which entails procedures that are repetitive and boring in nature. Especially for medium-sized and large banks, the process of managing and maintaining their financial statements as well as their assets, liabilities, and expenses across a wide variety of antiquated systems can be a lengthy and error-prone effort. Banks have the capacity to transfer a substantial number of these responsibilities to Robotic Process Automation, which enables automated data collection from various systems, payment validation, loan verification, and general ledger account reconciliation. RPA also enables banks to acquire data automatically from a variety of sources.

The use of automation will, without a doubt, result in a major increase in both the efficiency and effectiveness of staff members performing their various jobs. When an individual possesses the tools and abilities necessary to independently manage their work, they have a greater tendency to attain higher levels of both productivity and happiness with their employment. It is the duty of every manager working within an organisation to assist the manifestation of a visionary and engaged workforce while simultaneously fully utilising the potential of Robotic Process Automation.

5.2 Recommendations

When using RPA, it is often necessary to adopt a change management strategy as part of the implementation process. Employees may have early anxiety on the security of their jobs when automation is introduced into the workplace. These issues can be effectively mitigated and overall employee satisfaction can be raised by facilitating honest communication, providing extensive training, and highlighting the transition towards more strategic responsibility. Robotic process automation (RPA) has the ability to reduce operating expenses by a significant amount. It is possible for automated bots to carry out their tasks in a continuous manner without being disrupted, which leads to increased levels of both productivity and efficiency. When there are fewer errors, there is less need for rework, which leads to lower operational expenses. Nevertheless, it is of the utmost importance to strike a healthy balance between reducing costs as much as possible and making sure that workers are happy in their jobs. The reduction of costs should not be accomplished at the expense of the job security of employees or the general morale of the organization. The use of RPA has the ability to improve the overall satisfaction of workers in a variety of ways. Employees frequently have the impression that repetitive jobs are boring and devoid of any sense of fulfillment. By automating specific aspects of certain occupations, workers may experience less boredom and discomfort on the job, resulting to an overall rise in job satisfaction. In addition, employees have the option to take on extra strategic and creative duties within the company, which contributes to an increased feeling of contribution as well as increased job satisfaction. Even though RPA has the ability to improve worker happiness, it is absolutely necessary to provide possibilities for further education and skill development. As people transition from performing repetitive tasks to supervising RPA processes, they may be required to acquire additional skills, such as monitoring, managing, and troubleshooting difficulties with bots. This may be necessary in order for them to do their jobs effectively. It is possible to boost employee morale and better

prepare them for future job duties by offering them opportunities for training and professional development.

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APPENDIX A

SURVEY COVER LETTER

Title of Thesis: Evaluating the Impact of Robotic Process Automation (RPA) on Service Operations in an Indian Bank

Researcher: Tina Amarjit Arora

Doctorate Candidate, SSBM Geneva

Dear Participant,

I am conducting academic research as part of my Doctorate in Business Administration at the Swiss School of Business and Management (SSBM), Geneva. My study explores how Robotic Process Automation (RPA) is transforming service operations within Indian banking institutions—specifically its impact on operational efficiency, cost, employee experience, and long-term sustainability.

You are invited to participate in this survey based on your experience working in or alongside RPA-implemented functions. The insights you provide will offer valuable input into understanding how automation is reshaping banking operations.

Participation is entirely voluntary, and all responses will be kept strictly confidential and used only for academic purposes. No individual respondent will be identified in the final report or analysis. The survey should take approximately 10–12 minutes to complete.

Your candid responses are crucial in shaping an accurate and meaningful analysis. By contributing to this study, you are helping to inform future strategies around technology deployment, process innovation, and workforce development in banking.

If you have any questions about the study or its objectives, please feel free to contact me directly at:

tina.a.arora@outlook.com

Thank you in advance for your time and support.

Warm regards,

Tina Amarjit Arora

Doctorate Candidate

Swiss School of Business and Management, Geneva

APPENDIX B

INFORMED CONSENT

Title of Study: Evaluating the Impact of Robotic Process Automation (RPA) on Service Operations in an Indian Bank

Researcher:

Tina Amarjit Arora, Doctorate Candidate, SSBM Geneva

Dear Participant,

You are invited to participate in this research study conducted as part of my Doctorate in Business Administration at the Swiss School of Business and Management (SSBM), Geneva. The purpose of this study is to examine how RPA implementation impacts service operations, including cost efficiency, employee satisfaction, and long-term sustainability within the banking sector.

Participation Details:

- Your participation is completely voluntary
- The survey will take approximately 10–12 minutes to complete
- You are free to withdraw at any point without any consequences
- There are no foreseeable physical or psychological risks involved
- All responses will be kept strictly confidential and used solely for academic research purposes

- No personally identifiable information will be collected or published
- Aggregated data will be analysed for inclusion in the final thesis

Consent Statement:

- By participating in this survey, you acknowledge that:
- You have read and understood the purpose of the study.
- You voluntarily agree to take part in the research.
- You understand that your responses will be used for academic purposes only and will remain confidential.

If you have any questions regarding the study, you may contact me directly at:

tina.a.arora@outlook.com

Thank you for your valuable contribution to this research.

Warm regards,

Tina Amarjit Arora

Doctorate Candidate

Swiss School of Business and Management, Geneva

APPENDIX C

INTERVIEW GUIDE

Title of Study: *Evaluating the Impact of Robotic Process Automation (RPA) on Service Operations in an Indian Bank*

Researcher:

Tina Amarjit Arora

Doctorate Candidate, SSBM Geneva

Purpose of the Interview:

To gather in-depth qualitative insights from employees involved in or impacted by RPA implementation within service operations. The goal is to understand perceptions, experiences, challenges, and suggestions related to the effectiveness and sustainability of RPA.

Opening Introduction:

Thank you for agreeing to participate in this interview. The discussion is part of my doctoral research and will focus on your experiences with Robotic Process Automation (RPA) in your area of work. Your insights will remain confidential and will be used solely for academic

purposes. This conversation is voluntary, and you may choose to skip any question or end the interview at any time.

Interview Questions

Question 1: Age

a) 21-31

b) 31-40

c) 41-50

d) 50and above

Question 2: Gender

a) Male

b) Female

Question 3: How familiar are you with Robotic Process Automation (RPA)?

a) Very familiar

b) Moderately familiar

c) Slightly familiar

d) Not familiar at all

Question 4: Has your organization implemented RPA in any department or process?

a) Yes, extensively

b) Yes, to a moderate extent

c) Yes, to a limited extent

d) No, not implemented yet

5. How satisfied are you with the implementation of RPA in your organization?

a) Highly satisfied

b) Moderately satisfied

c) Somewhat satisfied

d) Not satisfied

6. In your opinion, has RPA improved overall process efficiency in your organization?

a) Yes, significantly

b) Yes, to some extent

c) No noticeable improvement

d) RPA not implemented

7. How has RPA implementation impacted your job role and responsibilities?

a) Simplified and automated tasks

b) Increased workload and complexity

c) No significant change

d) RPA not implemented

8. Do you feel that RPA implementation has reduced human error rates in your organization?

a) Yes, significantly

b) Yes, to some extent

c) No noticeable reduction

d) RPA not implemented

9. What is your perception of the impact of RPA on job security for employees?

a) Improved job security

b) Reduced job security

c) No impact on job security

d) RPA not implemented

10. How well has your organization managed the transition to RPA implementation?

a) Very well

b) Moderately well

c) Somewhat poorly

d) Very poorly

11. Has the implementation of RPA resulted in significant cost reductions for your organization?

a) Yes, significant cost savings

b) Yes, some cost savings

c) Negligible cost savings

d) RPA not implemented

12. What are the key challenges faced during the RPA implementation process?

a) Lack of employee training and skills
b) Resistance to change from employees
c) Technical issues and limitations of RPA tools
d) Management support and coordination

13. What are the benefits of implementing RPA?

a) Save cost
b) Improved productivity
c) Reduce work errors
d) Keep information confidential
e) Integrate different systems
f) Reduce business response time

14. What are the risks and challenges of applying RPA in Banking?

a) Design risk
b) Data-security risk
c) Resistance to Adopting Automation
d) Process Standardization and Organizational Difficulties
e) Legal Requirements and Constraints.

15. How has the implementation of RPA affected the turnaround time for processing tasks in your organization?

a) Significant improvement in turnaround time
b) Moderate improvement in turnaround time
c) Negligible improvement in turnaround time
d) RPA not implemented

16. What is your perception of the impact of RPA on employee job satisfaction in your organization?

a) Increased job satisfaction
b) Decreased job satisfaction
c) No noticeable impact on job satisfaction
d) RPA not implemented

17. Have there been any instances of process errors or failures due to RPA implementation?

a) Yes, frequently
b) Yes, occasionally
c) Rarely
d) No, no errors or failures encountered

18. How effective has the organization been in providing support and training for employees during RPA implementation?

a) Very effective
b) Moderately effective

c) Somewhat ineffective

d) Very ineffective

19. Which type of RPA's is implemented in your organization?

a) Customer onboarding.

b) Compliance.

c) Loan processing.

d) Customer service.

e) Accounts payable.

f) Credit card processing.

g) Fraud detection.

h) Know your customer.

20.How robotics is used in banking?

a) Helps to track such accounts

b) Send automated notifications

c) Schedule calls for the required document submissions.

Closing:

Thank you once again for your time and openness. Your insights are incredibly valuable to this research.