Robotic Process Automation (RPA); a revolution in the Accounting industry,

A study on Deposit Money Banks, Nigeria.

Research dissertation presented in partial fulfilment of the requirements for the degree of

MSC in Accounting and Finance Management

Griffith college Dublin.

Dissertation Supervisor: Des Mclaughlin

Student Name: Gabriel Abu Iyere

28th August 2020

CANDIDATE DECLARATION

Candidate Name: Gabriel Abu Iyere

I certify that the dissertation entitled:

Robotics Process Automation; A revolution in the Accounting industry, a study on deposit money banks Nigeria.

Submitted for the degree of: **MSC in Accounting and finance management** is the result of my own work and that reference were made in acknowledgements as accorded to the scholars.

Candidate Signature:

Date:

Supervisor Name: **Des Mclaughlin**

Supervisor Signature:

Date:

DEDICATION

This project is dedicated to my parents who supported me financially to be here this day, to my siblings for love and concern, to my friends and most especially to God that has seen me through this course from beginning to the end.

ACKNOWLEDGEMENT

I acknowledge my Supervisor Mr. Des Mclaughlin, for his guidance and suggestions during the choice of topics, in the dissertation process. And my Mother, who took part in distributed physical copies of the survey. To my interviewee, and all my respondents in the making of this research, you made it possible for me.

ABSTRACT

Robotic Process Automation; A revolution in Accounting industry; A study on deposit money Banks, Nigeria

Gabriel Abu Iyere

Robotic Process Automation is an Era of Technology utilization, where every sector in every industry may experience software or hardware bots (automation), making monotonous, tedious and mundane tasks easier to handle by simple codes and configurations to give desired results. RPA, in Accounting is a new Technology relative to UTAUT, it has a few researcher examining its depths in the field, whereas, in this research, the researcher examined its entrance into the Nigerian Banks, its usefulness, its risk and ideologies on future research in the field.

A non- random technique of staffs in the banking sector of Accounting, a large percentage were Accountants, a number of 129 respondents were surveyed, in Kaduna, Nigeria. With the aid of correlation analysis, descriptive statistics. There were key findings as such; (1) There was a significant relationship between RAP and record keeping (2) There was a significant relationship between RAP and receipt and payments (3) There is a significant relationship between RAP and cost reduction.

The outcomes remain constant in its positive variables, that indeed RAP has earned more rather than incurring expenses and eliminating errors in its accountability of receipts and tellers. A wholesome recommendation on adaptability of RAP is presented in the study.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABREVIATIONS

RPA-   ROBOTIC PROCESS AUTOMATION

UTAUT-   UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY

TAM-   TECHNOLOGY ACCEPTANCE MODEL

MPCU-   MODEL OF PERSONAL COMPUTER USE

TRA-   THEORY OF REASONED ACTION

ERS-   ENTERPRISE RESOURCE SYSTEM

1.1 INTRODUCTION

Evolution in accounting has been in existence dating from the 1494, "the Suma de Arithmetica, geometria, proportion et proportionalita" was discovered, it is still in today's practise a fundamental aspect of accounting, during that same period records were kept by bookkeepers, who were considered relevant personnel's for the rich. Evolution in Accounting became prominent as businesses emerged, records keeping became complex and then the need for reviews arose, over the span of time depending on the complexities and approaches.

When Accounting is mentioned, the term ledger is not neglected, because ledgers are books of account, used for record-keeping entries of balance sheet and income statement transactions. The popularly known Accounting ledger journal entries can include accounts like cash receivables, investments loans customer deposits and accrued expenses. This is a centralised platform, a form of repository for all data's in varying subledgers, for any financial institute to function at its optimum. More so, these data's or records that are classified under financial statements such as income statement, cash flow statement and balance sheets, for any organizations have systems of records. Sage intacct, (2020)

There was the need to leverage on rising technologies for accounting to remain a relevant field in this current era, and this has immensely changed accounting today. Bookkeeping is now automated bookkeepers began utilization of the adding machine (1890), in calculating receipts and tellers. The need for efficiency and accuracy, was on demand and in (1952), when IBM, revealed their computers, Accountants were able to access its resources, in more recent times, there are numerable amount of Accounting software's that aids bookkeeping records and one of such is "QuickBooks". This in turn, has made the jibs of accountants easier.

"As our knowledge of technology increases, so also the accountant's ability to analyse statistical values. Technological endeavours have not only enhanced but fine tone, the accountant's ability to interpret data efficiently and effectively. Ann A., (2011)."

The accounting professionals use technology, giving room for clients to have access to a portion of the accounting firm's intranet of importing and exporting files to and fro. The connectivity electronically increases efficiency and limits travel cots indelibly reducing operational costs. Laudon, (2006).

Furthermore, the professionals are sharing time and space with clients over the web technology; especially in manipulating spreadsheets, emails and other documents, across the globe irrespective of their locations, the information is readily available to an accountant and his clients at the click of a mouse. It has greatly changed the sphere of an accountant's work. Where diversified networking, services and opportunities are explored, business owners, entrepreneurs, and banks organizations, look to professional accountants for technological advice. These are scenarios were accountants were becoming the IT staff and trusted advisors.

Leslie Wilcock's, a professor at the London school of economics clearly stated RPA as a software, which has similarities to the human skills and attributes whilst performing tasks that requires repetitions. Leslie's definition of robotics process automation is in fulfilling a process without the need of human efforts, but mere supervisions. Robots operates in bots, "bots use programable or automated software's, with specific instructions that acts in place of a physical being, in the absence of one.

The need for speed, accuracy and minimal to zero errors, rise as the demands on services increases, influxes of customer and clients statement reports. RPA, came to eliminate the length of duration in performing multiple tasks, it also reduces mundane repetitions for professionals providing free time to advice than compute records. Many beliefs that RPA's existence, poses

as threats to jobs replacements with robots' software's, is best interpreted as changing roles of human workers sparing free hours for more interpersonal bond with client's customer services.

Technology, over the years have changed and shaped the way businesses and organizations operate and run their businesses. Organizations no longer conduct manual record-keeping, receipt, payment and customer service, many organizations now adopt the use of machine learning, artificial intelligence, enterprise resource systems (ERS), cloud computing, big data blockchain, robotic automation process, etc. (Katorba, et al (2018)   Development and advancement in Information and Communication Technology (ICT) such as Robotic Process Automation has revolutionized the ways businesses and organizations function and operate to a great extent. Virtually all aspects of organizational tasks and activities that are routine and monotonous in nature have been automated and handled by machines in the form of robots. Although it is believed to have replaced humans and accountants who used to perform such tasks, it is assumed to have also improve operational and business efficiency, reduced cost, improve decision making and also eliminate operational errors and wastage, increase service speed, increased customer satisfaction, as well as improve organizational performance and productivity among others (Mann, et al (2019)

It is also believed that technological advancement such as robotic automation process in the accounting industry has enable accountants to deliver reliable, cleaner, accurate and cheaper data, facilitate efficient problem-solving, strategy development and implementation among other current and contemporary issues affecting their performance in the accounting industry (Mann, 2019). This is usually attained when accountants actually see the need to develop themselves in order to meet up with the ever-changing needs and demands for better service delivery in pursuit of attaining competitive advantage in the market place (Jedrzeika, 2019. Development in robotic automation process has contributed tremendously to the growth and development of the Accounting industry; it has helped accountants to eliminate tedious,

nebulous and cumbersome tasks that involves a large sum of data Simon, (2018). According to Roberts et al. (2020) about 80% of businesses have not still adopt the application of artificial intelligence in automating task in the workforce due to the uncertainty of return in investment on the business environment.

Although, robotic process automation and other aspect of development in Information and Communication Technology have endless possibilities of application, it is important to note that not every task or responsibility can be manipulated using ICT, as such only tasks that are repetitive in nature can be executed Mann, (2019). However, it is believed that advancement in technology has disrupted accepted practices in accounting Crookes, Conway and Marshall (2018). In order to meet up the ever-increasing and changing needs that comes with advancement in technology organizations constantly and consistently develop employees skills and abilities such as soft, technological and data skills that will enable them to meet their ever-changing and dynamic needs of the organization and its customers (Jedrzejka, 2019).

Some researchers are of the view that many accountants reject the advancement of automating some tasks in the Accounting Industry due to the fear of being replaced by them. This means that there is a high level of uncertainty as to the future of accountants in the accounting and finance industry ((Manjoo, et al (2017). Frey and Osborne (2017) are of the view that many employees particularly in the accounting and Finance industry are at the risk of losing their jobs due to the level of automation in the industry. However, it is shown that technological advancement such as Robotic Process Automation does not seek to replace accountants but rather to improve their skills and abilities in managing accounting related tasks and responsibilities Simon, (2018). According to Twentyman, (2017) artificial intelligence through the aid of robotic process automation can be integrated and used to replace humans by taking over the jobs and duties of accountants and call centre agents that are basically repetitive in nature. Whatever it may be, it is important to note that innovations in the Finance and

Accounting industry will result in improvement in service delivery, customer service, payments and receipts, data processing and storage as well as cost reduction such as reduction in time wastage, reduction in staff strength particularly those performing repetitive or routine tasks. Tual (2017) on the other hand opined that artificial intelligence and robotic automation process can actually do more that as International Business Machines (IBM's) artificial intelligence can actually replace tasks previously performed by human intelligence due to the ability of the software to answer any question asked by a human in natural language, orally or in writing, in eight different languages (Simon, 2018). This simply implies that the role of robotic process automation does not only entails revolutionising and improving service delivery in the accounting industry but also causing the retrenchment of employees in the industry that are performing routine and monotonous tasks.

1.2 Statement of the Problem

With the recent advancement in technology and its application in businesses and organizations, it is believed that many jobs performed by human intelligence will be automated due to their routine nature and also lost to robots and artificial intelligence. In the Finance and Accounting industry with a high level of tasks and activities that are autonomous in nature, there is a high tendency that robots will replace accountants thereby rendering them jobless unless their skills and ability levels are developed to operate and man the machines effectively and efficiently (Simon, 2018). According to Seek (2017) 40% of works that are transaction-related in the Finance and Accounting industry will be automated. This therefore makes the jobs of accountants sceptical in the near future as they could be replaced by machines (Association of Chartered Certified Accountants, 2017). There exist a literal and empirical gap as to the true nature of the impact of technology such as Robotic Process Automation in the Accounting industry; whether it will improve data procession and storage, receipt and payment, increase efficiency, customer satisfaction, as well as reduce cost such as reduce time wastage and

replacement of accountants with robots among others in the industry performing routine or repeated tasks. It is against this background that this study is conducted in order to investigate Robotic Process Automation: A revolution in the accounting Industry with particular reference to Deposit Money Banks in Kaduna State Nigeria (Galarza, 2017) (Simon, 2018).

1.3   Research Questions

The following research questions are developed to guide the study:

i.   To what extent does Robotic Process Automation influences data processing and storage in the Finance and Accounting industry in Deposit Money Banks in Kaduna State, Nigeria?

ii.   To what extent does RPA influences payment and receipt in the Finance and Accounting industry in Deposit Money Banks in Kaduna State, Nigeria?

iii.   To what extent does RPA influences cost reduction in the Finance and Accounting industry in Deposit Money Banks in Kaduna State, Nigeria?

iv.   To what extent does RPA influences service delivery in the Finance and Accounting industry in Deposit Money Banks in Kaduna State, Nigeria?

1.4   Research Objectives

The primary aim of this study is to investigate Robotic Process Automation: A Revolution in the Accounting industry. The specific objectives of the study include:

i.   To examine the influence of Robotic Process Automation on data processing and storage in the Accounting industry in Kaduna State, Nigeria.

ii.   To determine the influence of Robotic Process Automation on receipt and payment in the Accounting industry in Kaduna State, Nigeria.

iii.   To investigate the influence of Robotic Process Automation on service delivery in the Accounting industry in Kaduna State, Nigeria.

iv.   To what extent does Robotic Process Automation influences cost reduction in the Finance and Accounting industry in Deposit Money Banks

1.5   Research hypotheses

The following research hypotheses are developed in null forms to guide the study:

HO₁: There is no significant relationship between Robotic Process Automation and data processing and storage in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

HO₂: There is no significant relationship between Robotic Process Automation and receipts and payments in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

HO₃: There is no significant relationship between Robotic Process Automation and service delivery in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

1.6   Significance of the Study

The successful completion of this study would be of immense benefit to the Deposit Money Banks under study, policymakers and the Nigerian Accounting Industry, individuals, academicians and researchers who want to appreciate the study area. The successful completion of the study would also benefit the Nigerian economy at large in the following ways:

Upon completion, the study would enable the Nigerian accounting industry and policymakers to appreciate the role and contribution of technology such as those relating to the automation of routine and monotonous tasks in the accounting industry. It will also enable policymakers and the accounting industry in Nigeria encourage the acceptance and application of

technological devices that will contribute to the effectiveness and efficiency of the accounting industry, as well as encourage themselves to meet the ever-changing needs of the profession. The successful completion of the study also encourages policymakers in the accounting industry to incorporate the appreciation, adoption and utilization of advanced technological devices that will better their organizational performance and the accounting industry in general.

The successful completion of the study would also encourage Deposit Money Banks to appreciate and adopt the use of modern technological devices that will enable them to improve their employees' performance and that of the organization at large. This will enable the organizations in avoiding business failure, bankruptcy, and possible liquidation.

Individuals, researchers and academicians would also benefit from the successful completion of the study by increasing their understanding and appreciation of the variables of the study. This will facilitate their decision-making process in relevant process. The successful completion of the study would also provide a pool of literatures that will broaden the knowledge and understanding of its stakeholders when the need arises.

The Nigerian economy at large would also benefit from the successful completion of the study through the aid of a healthy and progressing financial system that will ensure socio-economic, political and technological growth and development in various sectors of the economy for the good of all concerned.

1.7   Scope of the Study

The study is basically concerned with investigating Robotic Automation Process: A Revolution of the Accounting Industry with particular reference to the Deposit Money Banks in Kaduna State Metropolis which are currently existing as at the time the study is been conducted (2020). The rationale behind this adoption is to ensure that all the banks in the study area are adequately

captured and represented. The independent variables of the study comprise the key areas of accounting such as data processing and storage, receipt and payment, cost reduction as well as service delivery, while the dependent variable of the study involves robotic automation process.

1.8   Operational Definition of Terms

Accounting: This refers to the art and process of keeping of the financial records, money and valuables of depositors in a bank for safe keeping.

Artificial Intelligence: This refers to the application of computer system devices to perform tasks that previously require human intelligence. These tasks are usually repetitive in nature.

Deposit Money Banks: This refers to organizations that are involved in the safe keeping of money and other valuables of their depositors for a particular fee or charge.

Robotic Process Automation: This refers to a technological solution that allows organizations to configure software robots to utilise existing instructions and applications to perform transactions, manipulate data and communicate with other systems. It simply means the act and process of using robots to perform tasks ordinarily been performed by humans for the purpose of achieving efficiency.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1   Introduction

This chapter is basically concerned with examining the two major concepts of the study, i.e. Robotic Process Automation and Accounting. Other relevant concepts are provided in the operational definition of terms. Other aspects reviewed in this chapter include the roles Robotic Automation Process, Processes in Robotic Process Automation Process, its impact, influence, the future of accountants in Robotic Process Automation, Benefits and challenges of Robotic Process Automation (RPA) in Nigerian Banking Industry, Risks involved in Implementing Robotic Process Automation, relationship between Robotic Automation Process (RPA) and the Accounting Industry, reviews of literatures relating to the study, as well as the theory used in underpinning it.

There is no one best generally acceptable definition of accounting, however for the purpose of this study some definitions of the concept shall be reviewed before a working definition is provided.

According to Khan, et al (2018), accounting is the art of recording, classifying and summarizing in a significant manner and in terms of currency, dealings and procedures which are, in part at least, of monetary nature, and infer the outcome thereof. To them, accounting can also be acknowledged as an information system that gauges, develops and converses fiscal inside story about an economic entity. Handoko, Warganegara, and Ariyanto (2018), on the other hand sees accounting as an information system that measures business activity, processes and concerts data into a report, and communicates its results to decision and policy makers

made by accountants. From the definition above, accounting helps organizations to perform better data processing, analysis and decision making among others.

Accounting, particularly record keeping consumes quite a lot of time and resources particularly when it is performed manually. Accounting firms that perform their tasks manually tend to find it difficult to process and analyse large sum of invoices which have to be examined individually in order to avoid human errors. However, with the aid of advanced technological facilities organizations are now able to process large sum of data within a couple of minutes. This helps to reduce organizational inefficiency, costs, waste and increase service delivery and productivity. Accounting can also be seen as the art of recording, classifying and summarizing in a significant manner and in terms of currency, dealings and procedures which are, in part at least, of monetary nature, and infer the outcome there of, Accounting can also be acknowledged as an information system that gauges, develops and converses fiscal inside story about an economic entity (Zande, 2018)

For the purpose of this study, accounting is defined as the art and process of keeping of the financial records, money and valuables of depositors in a bank for safe - keeping.

2.2 Concept of Robotic Automation Process (RAP)

It is important to note that there is no one single generally accepted definition of Robotic Process Automation (RPA) otherwise called Robotic Automation Process (RAP). Both terms simply mean the same thing unless otherwise stated as such, thus, they may be used concisely in the course of this work.

According to Martins (2018) Robotic Automation Process (RPA) is an emerging form of process automation in organizations whereas one or more software robots perform the exact

same procedure as a human would do. To him, the robotic part in the phenomenon only emphasises the idea of a machine being utilised in place of human. Zander (2018), on the other hand, the Institute for Robotic Process Automation and Artificial intelligence (2018), view the concept as the application of technology that configures a robot that captures and interpret existing applications to process a transaction through the aid of Artificial Intelligence, to manipulate data or to communicate with other digital systems. To the institute, Robotic Process Automation differs from other traditional types of automation in three basic ways: In the first place it uses existing Information Systems to automate processes Van der Zande, 2018). Rather than replacing or aligning with the existing systems, it interacts with these existing systems (Van Der Aalst et al., 2018). Secondly, it can adapt to changes within these underlying Information Systems, which makes it possible to handle exceptions (Aguirre, Rodriguez, 2017). Thirdly, traditional automation aims to enhance the workforce, while RPA focuses on virtualising the workforce (Fung, 2013). The RPA market is growing fast (Le Clair, Cullen, King, 2017).

Supporting this argument, Institute for Robotic Process Automation, (2015) observes that RPA basically "deals with smart software to do high volume, repeatable tasks that usually take humans an unbearable length of time to accomplish and which they typically find mundane to perform". To the institute, RPA helps organizations in dealing with large volume repetitive and time-consuming tasks that humans find difficult and challenging to perform.

Willcocks and Lacity, (2016) on the other hand posit that Robotic Process Automation (RPA) refers to software, tools and platforms used to create software robots that automate a business service that deals with structured data, rules-based processes, and deterministic outcomes (Zeila, 2017). Fung (2014), viewing RPA as Information Technology Process Automation, define it as "Information Technology capabilities that automate systems and network operational processes while interacting with elements like applications, databases and

hardware infrastructure.". In the same way, Baranauskas (2018) summarised RPA as "An Information Technology-based imitation of human daily work where a limited number of autonomous decisions are needed and, in most cases, great numbers in quantity should be done in a short period of time". From the above definitions, it can be seen that Robotic Process Automation are robots simply defined to perform repetitive tasks ordinarily performed by humans.

In a broader dimension, Devanney, Quilliam and DuVal, (2016) theorise RPA to be part of a bigger and long-lasting life cycle of automation called Professional Service Automation. Robotic software involved in the automation of tasks and activities in organizations can be classified into three:

i. **Task Bot:** This software is considered suitable for repetitive, structured tasks in multiple different processes in an organization.

ii. **Meta Bot**: Meta bot are generally considered suitable for complex processes that require multiple skills and can learn from self-experience.

iii. **Intelligent Quotient Bot:** IQ bot on the other hand is believed to be suitable for processes that involves unstructured data that requires learning through self-experience and can predict from what is learned.

Asatiani and Penttinen (2016) providing framework for the potential automation of tasks posit that divide Robotic Process Automation under routine tasks, Cognitive Intelligence under non-routine tasks. This simply means that all routine tasks will be championed by RPA (i.e. robots), while non-routine tasks will be championed by Cognitive Intelligence under human influence. In agreement, Zeiler (2017) defined Robotic Process Automation as "Task bots that operate on the presentation layer to fully automate a task performed by humans." To him, RPA is basically task-oriented that addresses routine and repetitive activities. Bataller, Jacquot and Torres

(2017) defines RPA as a method, system, and tool, including computer programs coded into computer storage, to automate manual processes. Method, system, and tool include measures to identify processes manually executed by users who interact with computers and automate the process by a robot that is configured to interact with other computers.

Generally speaking, Robotic Process Automation as a process whereby simple tasks that were primarily performed by humans are automated by employing 'software bots' to do the task.

Software bots, according to deloitte's 2015 survey of global business leaders, is a top priority. (Deloitte Uk 2015). Top officials had notions that automation could deliver intrinsic value for clerical and spreadsheet processes that are rules base and repetitive; so much of data manipulations, transactional processes, and data analysis tasks could also be automated.

In order to automate a particular task or activity, such a task or activity must be a rule-based business or operational process, this is to enable the user to spend more quality time on other more valuable and innovative or strategic work (Boulton, 2017) (Goris, 2019). Basically, processes that can be automated using RPA are usually structured, rule-based tasks such as copying information from one form to another or processing transactions (Lacity, Willcocks, 2018). However, some researchers claim that RPA goes beyond and might out-perform knowledgeable tasks that could formerly only be performed by knowledge workers (Institute for Robotic Process Automation, (Kirchmer, 2017). But for the purpose of this study, Robotic Process Automation will be defined as the use of technological gadgets and facilities to perform task that were formally performed by humans in a better, faster, easier and efficient manner. These tasks by their nature are usually monotonous, repetitive, time and cost consuming, as well as tedious.

Robotic Process Automation software and technology generally utilises the same interface as a human user would use for executing a business process. This, by implication simply means

that business and operational processes remain the same, even though they are not performed by humans anymore, but by robotic software (Goris, 2019; Agaton, Swedberg, 2016; Juntunen, 2018; Lacity, Willcocks, 2018; Lacity et al., 2015). Robotic Process Automation can be applied totally or partially to an operational process. It is believed that barriers involved when implementing RPA are generally low due to its ability to be involved in small tasks and processes while still maintaining the existing organizational business process (Willcocks and Craig, 2015) (Goris, 2019). There are two kinds of software robots that can be developed using RPA technology. These are categorised as unattended and attended RPA.

Unattended software bots by their programmes are designed to stand alone and automatically execute tasks in the background. Due to the inability of organizations to adequately estimate the complexity involved in implementing unattended RPA, the time taken to completely integrate and automate tasks is usually longer (Goris, 2019). Unattended robotic software are usually considered risky in organizational operational processes because they usually become part and parcel of the stack of apps that can be hard to keep track off (Trefler, 2018) (Goris, 2019).

Attended RPA software bot on the other hand comprises of a technological setup designed to run alongside a human controller. In this category of RPA, some tasks in a process are performed by the RPA software robot, while the more complex tasks are performed by a human employee or controller. This is a way of preventing over complex RPA projects, while still being able to improve business processes and increase employee satisfaction and organizational productivity (Trefler, 2018), (Goris, 2019). Attended robotic software seems to be favourable to operational processes over unattended software bots, due to little risks involved in its adoption and implementation (CapGemini Consulting, 2016).

According to Deloitte Survey, 91% of executives anticipates that accounts payable transaction will be automated, followed by 55% for travel and expenses, 30% for fixed assets, 27% for general ledger, 18% for financial reporting and 9% for payroll and payment cards.

2.3 Processes in Robotic Process Automation Process

For an effective and efficient automation of tasks and activities in organizations, particularly in accounting firms, there are a number of processes or models developed by Anagnoste (2018). This model helps to provide a guide to automating tedious and repetitive tasks in accounting firms that tend to cost them quite a lot of money and time. The processes include (Anagnoste and Martins, 2018):

i.   Process Identification

ii.   Process Assessment

iii.   Process Reengineering

iv.   Process Detailed Study

v.   Process Automation; and

vi.   User-acceptance Testing.

2.3.1 Process Identification

This is the first step employed by organizations in their attempt to automate tasks and activities. This stage involves examining the task or activity in order to determine if it is automation worthy. In order to automate, the task must not only be proper but also suitable and compatible with the software (robots). In order to automate, an organization must be able to ascertain if the tasks are consistent, i.e. if the task basically requires the same repeated steps to perform. It is also important to make sure that the task is template driven, in other words data are entered

are usually entered through specific fields in a repetitive manner. It is also controlled by a set of rules that flows to alter it dynamically. And also, it must be raw-based, that is, it must not require human judgement or action alone to be performed. However, if it does, whenever it comes to the human judgement or action part, there must be someone to deliver it.

2.3.2   Process Assessment

This is another important stage of the Robotic Process Automation. It involves analysing the potential automation process in order to choose the one that gives the most benefit and automate it using Robotic Process Automation. Having fully assessed the task, if the benefits of automation to the organization, its employees and clients surpasses the investment cost, then the task is automated for the benefit of all concerned. The successful completion of this stage is necessary before developing mechanisms and platforms to accommodate the automation process.

2.3.3   Process Reengineering

At this stage, developers and analysts get to put their ideas to test by examining it in practical action. This process not only helps them to test the idea but also to identify possible challenges that they may face in the future. By doing this they tend to develop a working step by step guide towards implementing the programme. One of the primary goals of this stage is also to provide a high-level analysis of the process solution, the automation efficiency and estimation of effort. It is important to note that it is necessary to acquire the approval of the organization's stakeholders before forging ahead with the programme.

2.3.4   Process Detailed Study

Having acquired approval from the respective stakeholders, a detailed study where developers get in detail with the person or group of persons responsible for the successful implementation

of the chosen process begins. This is the stage where errors and exceptions in the workflow prior to the automation are detected and addressed. At this stage, the need for human intervention is determined. In other words, humans may or may not be needed in the process. An in-depth analysis at this stage showcases a quick checklist of details such as workload, alerts, and operating hours among others. The final aspect of this stage is where the architectural solution for the programme is developed and the project plan is complete.

2.3.5 Process Automation and User Acceptance Testing

Having developed a complete functional documentation of the project, the robot that will champion the task or tasks is then built. Most times simulation data are used to test the application and effectiveness of the plan and robot. This then gives a step by step process for testing the project using real data and also observing it in a real environment. It is very important that the result meet all requirements and its performance must be satisfactory according to initially composed plan. In a situation whereby any of the step does not satisfy its initial objective, it is then remodified to suit the purpose. For instance, if the performance of the robot does not satisfy the proposed developed plan, it is then re-examined and worked on to attain its core purpose. Test and retest methods are used to ensure that all programmes and processes confirms to original plan. RPA handles a few of the listed below.

- Running batches Automatically

- Following rules and if/then decisions automatically

- Collecting and analysing data automatically

- Filling in forms automatically

- Connecting, reading and writing to databases automatically

- Automation of customer complaint

2.4 Influence of Robotic Process Automation (RPA) in Nigerian Banking Industry

Robotic Process Automation (RPA) play a crucial and fundamental in the bank industry, it has drastically changed the ways of doing business. It has caused businesses to change from the traditional ways of doing things to a more sophisticated computer and technological one. This has increased operational effectiveness and efficiency in organizations, service delivery, transparency, accountability, audibility, performance as well as productivity among others. It has also reduced cost, errors and fraudulent activities in organizations. With the advancement and development in the ways of conducting businesses, there is no evidence that the revolution in the accounting industry is going to slow down in any time soon, as such firms in the industry are compelled to either adopt its accompanying technologies or lose their customer base, productivity and efficiency among others.

Automation proponents agree that increased automation destroys some jobs but, argue at the same time that job automation creates new, more challenging jobs. Overall, the automation proponents believe that the development of robotics will positively affect the workforce (Fung, 2013). Automation opponents, on the other hand, expect that 45-57% of the jobs in the United States will be threatened by robotics (Frey, Osborne, 2017). Whatever it may be it is important to note that Robotic Process Automation and Artificial Intelligence will ever replace humans in organizations as human intelligence are always needed to perform and run technological facilities effectively and efficiently. Accountants are needed to make meaning of the analysis and output of Robots and Artificial Intelligence for effective decision making without which the output is baseless. This simply means that rather than replacing humans, Robotic Process Automation is design to better their tasks and activities in a more technologically sophisticated manner (Crookes, et. al. 2018; Govil, 2020; Lindholm, 2019). The usefulness of this technology is in its accessibility and easy to adapt nature, there has been growing fears of people both low skilled and high skilled about losing their jobs, in place of robots. This, however, is based on

19

recent technological innovations and adoptions in industries, firms and companies, it nonetheless makes up for the informational knowledge that need to be known concerning their operations with or without the human influences. If RPA were fully automated, the banking sector, especially the customer service unit, will experience a query and solution bot software per customer complaint, due to contactless safety policies and this is rather intensified in this year 2020, due to the corona virus pandemic. There are now automated emails, with immediate responds to customers request or complaints, and updates on new banking policies. The banks RPA system has other relevance's, one of which is the data collections and dispatch of monthly customer account statements, after making cash deposits or withdrawals or wired transfers.

Furthermore, despite RPA's recent emergence in the industry (banks), it is versatile and spanning across mega-tech firms, Accounting, Tax and Auditing fields, some of RPA applications in the accounting world are; financial reporting, inventory management, financial statement closing, Tax planning.

RPA uses software peculiar to automations for companies, industries and firms created/offered by UiPath or Blue prism to mention a few, the software's are implemented to transform manual handlings into system thinking intervention. To quote a statement of the CEO, union bank Emeka Emuwa, He said.

"we are quite pleased to be the first in the banking industry in Nigeria to introduce robotics into our processes. The provision of simpler, smarter banking services to our valued customers is at the core of our business and RPA helps us achieve this objective by leveraging cutting edge technology and innovative partnerships. I commend the hard work and dedication of our union bank teams for the effective execution of this project." Accessed 28th, May 2018.

The statement in this research is used to mark its very first influence in the Nigerian banking industry and to theorise its usefulness in the bank.

Robotic Process Automation basically influences the accounting (bank) industry in the following ways:

    i.   Record keeping

    ii.   Payroll (Receipt and Payment)

    iii.   Cost Management

    iv.   Audit

2.4.1   Record Keeping

Record keeping or invoice processing comprise one of the most time and cost consuming jobs done manually by firms particularly accounting ones. It costs them millions of naira on a daily and monthly basis due necessity nature. Before the advent of artificial intelligence and robotic process automation, millions, if not billions worth of invoice are being processed manually on a regular basis in the accounting industry. One needs to examine every email, download invoices, verify, and extract their data manually before finally proceeding to make payments. These processes by their nature waste a lot of time thereby consuming organizational valuable time and resources. The automation of these tasks saves the accounting industry a great deal time and money among others. In other words, Robotic Process Automation has improved accounting to a great extent, increase productivity, reduce errors in data processing, and help to maintain vendor relationships (Mann, and Vordenbaeumen, 2019).

The automation of mundane, monotonous and repetitive tedious tasks performed by accountants have been made fast, easy and simply through the aid of Artificial Intelligence via the automation of processes. The imputation, categorisation, organization, extraction, and manipulation of data, particularly large ones which accountants tend to find difficult or

impossible are easily done through the aid of Robotic Process Automation (Mann and Vordenbaeumen, 2019).

2.4.2 Payroll (Receipt and Payment)

These constitute one of the most common and repetitive tasks of the accountants. Day in day out they are involved in either the receipt or payment of funds from one person or organization to another. These tasks require quite a number of people to execute manually, thereby costing accounting firms both money and time, however, with the introduction of RPA via the aid of Artificial Intelligence organizations can now perform same task easier, faster and more cost efficient. This therefore leads to increase in operational efficiency, cost and error reduction, increase in organizational performance and productivity among others. Aside the above-mentioned benefits, Robotic Process Automation enables an organization to provide its clients with an instantaneous account balance, statements, credit bills, as well as account status among others (Mann and Lindholm, 2019) (Rana and Martins, 2018).

2.4.3 Cost Management

RPA, can create a 25-50% cost savings; it enables 24 x 7 x 365 execution and can work error-free and is relatively expensive when compared to staff workforce. A software robot can cost as little as $1/3^{rd}$ of the price of a full-time offshore employee (FTE) and as little as $1/5^{th}$ the price of an onshore FTE (Petersen and Rohith 2017, p.74)

Cost management, particularly cost reduction is one of the most fundamental benefit of automating tasks and activities in the accounting industry. Robotic Process Automation helps to take over tedious, time and cost consuming tasks manually performed by accountants thereby saving time, cost, and organizational resources. This therefore increase organizational efficiency, performance and productivity (Martins, 2018). With the aid of Artificial

Intelligence, Robotic Process Automation will be able to management all routine and some non-routine tasks of firms in the accounting industry, it can read all receipts, payments, audit costs, and also alert the organization whenever there is a breach in the system (Mann, 2019; Rana, 2018).

2.4.4   Audit

Auditing as one of the most fundamental tasks performed in the accounting industry is greatly influenced by robotic process automation. This it has done by providing auditors with a real time financial analysis and stance of an organization's dealings. It helps to track and analyse both routine and non-routine transactions of an organization thereby making it audit ready without delay. Robotic Process Automation through the aid of Artificial Intelligence helps to analyse data 100% without requiring human intervention thereby making it a highly self-dependent tool in the hands of auditors and organizations for risk assessment and subsequent decision (Martins, 2018).

Digitization of the audit process in the accounting industry has improved and enhanced the level of security in the industry. Digitization of accounting facilitates the ability of organizations and auditors to track transactions and files accessed anywhere in the world using a digital tracker. Robotic Process Automation through the aid of Artificial Intelligence helps to record all the transactions of organizations thereby increasing the efficiency of auditors, as well as performance and productivity of organizations (Martins, 2018).

2.5 The Future of Accountants in Robotic Process Automation

With the rate of development and advancement in technology, accountants are likely to perform two basic roles in the accounting industry. These roles will help them to remain relevant in the industry, particularly when they develop their soft skills and expertise such as problem-solving,

advising, strategy developing, and leading (Mann, 2019). The workspace of accountants will be automated significantly changing the role of Accountants, In time-consumption, this will be replaced with robots and technologies, giving chance for analysis and other strategies of innovation (Axson 2015). It is also predictable that this event will eliminate about 40% of transactions executed by traditional Accounting before the year end 2020. The major roles accountants will play in the face of automation of their respective tasks and activities involves:

    i.   Advisory roles

    ii.   Consultative roles

2.5.1   Advisory Roles

This role basically involves the process whereby the accountant studies market trends and results of trades and businesses so as to advice managers and organizations on the part to take. This they usually do by giving professional opinions about market trends and situations. However, in order for an accountant to attain such mastery, he or she must first of all develop their soft skills. The soft skills basically entail ….

Forbes further buttress this assertion by emphasising that by year 2020, all accounting tasks such as tax, payrolls, audits, and banking will be wholly and completely automated with the aid of Artificial Intelligence. This simply means that accountants either develop themselves or lose their relevance and value in the accounting. There is a distinct difference between advisory and consultative roles, where advisory role entails the supplementing role in a company's finance function and ascertain certain advice to queries as it concerns US GAAP, IFRS, (PWC, Accounting Advisory Group 2020). In essence, the advisory services, keen interest is to aid their clients in utilizing available procedures of automatable records, the configuration of bots and reading outputs. All these services are peculiar to their products and services and or specifications, these attributes make it possible for a variety of business processes to exist in

RPA, for Advisory clients. These processes include finance processes, like accounts payable, bank reconciliation, expense processing, credit assessment. Then operational processes, like inventory tracking the human resources processes like timesheet administration and lastly the procurement processes like supplier and purchase order validations (receipts). These above only confirms that there are yet many more opportunities to incorporate RPA into Advisory roles.

2.5.2   Consultative Roles

The introduction of Robotic Process Automation through the aid of Artificial Intelligence, accountants are enjoined to focus more on analysing data, providing actionable insight and advising organizations and business on the best investment decisions and way forwards. This simply means that accountants will be versed in their knowledge about the operations and strategies of improving organization efficiency and productivity from the results presented by RPA thereby acting as consultants for effective and efficient operations and investments decision making in organizations. Thus, in order to perform at their best in this era, accountants must develop their soft skills in the best possible way. Such skills include problem-solving, advising, innovation, strategy developing, and leading (Mann, 2019). In some of the Big 4's, the consultants are always searching for means of automation of client's biddings, thereby enabling, the consultative Services in Rpa implementation, to function more.

2.6 Benefits of Robotic Process Automation (RPA) in Nigerian Banking Industry

Robotic Process Automation plays very important and fundamental roles in organizations. It has helped and improved them in varying dimensions. Some of the benefits of Robotic Process Automation includes the following:

i. It has improved data collection process, cleansing and analysis across information systems so as to improve decision making in organizations (Fung, 2014) (Holder et. al. 2016).

ii. RPA allows organizations to align robotic software to their tasks and operations thereby making them fast, easy and simple (Slaby, 2012).

iii. It has also improved general product and service, as well as control (Vedder and Guynes, 2016).

iv. It has improved Information Technology repeatability, predictability and risk reduction (Fung, 2014).

v. Robotic Process Automation helps organizations to increase their focus on servicing customers and markets, thereby increasing customer satisfaction and lowering rate of turnover (Devanney et al., 2016).

Zeiler (2017); Fung (2014); Goris, (2019); Institute for Robotic Process Automation, (2015); Lamberton and Brigo, (2017); Tarquini, (2018); CapGemini Consulting, (2016) and Asatiani and Penttinen, (2016) further expressed that other benefits of Robotic Process Automation involves:

i. Increasing quality, value, innovation and consistency: This involves the elimination of human errors and consistent application of process rules and procedures. By focusing and automating simple, mundane and repetitive tasks, employees in the accounting industry are given more time to focus on value-adding activities that involves personal interaction and problem solving and decision making. As employees are freed from boring work, they have more time to focus on creative, value adding, and innovative tasks.

ii. Robotic Process Automation is essentially easy to implement in organizational processes particularly when compared to traditional Information Technology

automation solutions. RPAs are usually kept simple by providing easy configuration with a simple/intuitive interface for its users thereby making it user friendly for installation and implementation. The process of automation using RPA does not require extensive knowledge of programming thereby making it easy and simple for employees to learn how to automate processes independently using RPA software provider.

iii. Greater compliance and auditability: Providing a full audit trial, with consistently applied process rules. The implementation of RPA in the right processes and tasks helps organizations to reduce human errors and increase its accuracy by 100%.

iv. Increased productivity: Handling times are reduced, and processes can operate all day and night. RPA enables organizations to acquire statistics and analytical results within a very short period of time to facilitate effective and efficient decision making. Aside the quality of output, RPA helps to increase the speed at which tasks and activities are performed. As part of their benefits, RPA can work all day and night in serving organizations thereby providing reliability and continuity of service.

v. Increased agility: Demand variation and peaks can be handled by scaling the virtual workforce up or down. The machine never gets tired of fatigued.

vi. Competitive advantage: Enabling an operational excellence capability and productivity.

vii. Employee satisfaction: Eliminate monotonous, boring tasks, allowing individuals to focus on more important tasks. For instance, accountants can now focus on more important tasks such as making sense of the results of analysed data.

viii. Operational cost reduction: Reduction of operational costs. This can be headcount reduction, or growth without having to hire fresh staff. If properly implemented,

RPA can greatly reduce organizational costs particularly manual and repetitive tasks by being more effective and efficient in its implementation.

2.7 Challenges of Robotic Automation (RPA) in Banking Industry

Despite the beneficial contributions and benefits of Robotic Process Automation, it is also important to note that there are some accompanying challenges that come with its implementation. Fung (2014) assert that some of the challenges of RPA include job loses, mandatory requirement to retrain employees, lack of human involvement in service delivery, increased unawareness of potential danger, costly employment challenges. Some of the other challenges of implementing RPA include:

i.   The lack of intuitive nature of Robotic Process Automation makes it difficult and most times impossible to make autonomous decision that will benefit the organization without human influence. For instance, If the datasets inputted into these RPA models are incomplete, insufficient or riddled with their own biases, the result of such analysis will also contain such biases. This therefore reduces the degree of confidence in the system.

ii.   Although the potentials of adopting and implementing RPA is endless, the inability of the system to run non-routine tasks simply means that not every organizational or operational tasks is appropriate for automation.

iii. The output of RPA is generally predictive and suggestive in nature, this simply means that human interference is still needed to run the system.

iv.   Over-reliance on RPA and AI can reduce the relevance and contribution of accountants to the industry thereby resulting to a brain-drain in the industry.

2.8   Risks involved in Implementing RPA

It is important to note that not all Robotic Process Automation become successful at the end of the day, as such, it is essential to understand why they usually fail when they do so as to prevent it from happening in the first place. Thus, developing the right RPA, picking the right process and creating the right atmosphere for its successful implementation is essential for the benefit of the organization. As such, it is extremely important to address the following before RPA can be successful:

    i.   Unrealistic expectations

    ii.   Picking the wrong processes

    iii.   Getting employees on board

2.8.1   Unrealistic Expectations

Robotic Process Automation is essentially a new phenomenon in organizations, as such, having a very high unrealistic expectations of its results can significantly influence its performance. Organizations particularly accounting firms should not excessively accept the ideas of RPA created by advertising and marketing agents or vendors without proper and adequate research. The inability of organizations to conduct adequate researches before adopting and implementing Robotic Process Automation in their operations can be disastrous and detriment to the attainment of organizational aims, goals and objectives (Goris, 2019) (Trefler, 2018) Lacity and Willcocks, (2018).

2.8.2   Picking the wrong Processes

This is another important issue organization; particularly accounting firms must address before implementing Robotic Process Automation in their operations. The inability of organizations

to choose and automate the right task in a production or operational process can act contrary to the attainment of organizational goals and objectives. This simply means that task and activities to be automated must be carefully identified, reviewed, and adopted for the purpose of attaining organizational aims, goals, and objectives. Accounting firms that believe RPA can all their business and operational problems and challenges are basically lying to themselves and driving themselves towards failure (Goris, 2019). The inability of organizations to properly select and implement the right RPA programme in the right activity will result to the inability of the robotic software to work properly and deliver its best. As such, it is advised that organizations should start implementing RPA in small and easy tasks so as to ensure proper monitoring and success (Institute for Robotic Process Automation, (2015) Goris, 2019). This helps organizations to become more familiar with RPA technological facilities for ultimate or total implementation where necessary.

2.8.3 Getting Employees on board

The fear of being replace by Robotic Process Automation or technology generally compels employees in organizations to act contrary to the success of the programme. This is usually the reason why some Robotic Process Automation do fail in organizations. Their adamant and resistance to change makes it difficult if not impossible for RPA to exist successfully particularly if the possibility and threat of been replaced by it is high. Thus, in order to ensure the successful implementation of RPA in organizations, the organizations must ensure that their employees are carried along in the development, implementation and possible potential benefit and impact of the software on the ways of doing things in the organization. This simply means that communication with employees is key to a successful Robotic Process Automation in organizations (Goris, 2019). Once the above-mentioned issues are fully addressed, the possibilities and benefits of Robotic Process Automation in organizations, particularly accounting firms is endless.

2.9   RAP and the Accounting Industry (Bank)

Technological advancement such as Artificial Intelligence (AI) that brought about the automation of repeated task has introduced a tremendous change in the bank industry. It has reshaped the ways of doing things in the industry. Virtually all the menial repeated tasks are being automated and handled by robots thereby leaving the accountants to perform advisory and consultative roles that will facilitate efficiency in business decision making. This development in technology has made work easier for organizations and their employees thus encouraging many of them to adopt it. Organizations that adopt the revolution and changes that comes with the adoption of Artificial Intelligence and automation of processes are able to advance in their business by gaining competitive advantage, reduce cost, increase efficiency, productivity, profitability and growth among others while those that fail to adopt it face the fear of being illiquid, bankrupt and possibly out of business. Robotic Process Automation through the aid of Artificial Intelligence helps to eliminate tedious tasks performed by accountants thereby giving them free time to conduct higher level and more lucrative analysis and counselling for their clients and organizations (Mann, 2019; Rana, 2018; Govil, 2020; Martins, 2018).

Although some researchers are afraid that the automation of tasks and activities in the accounting industry simply means that those accountants tasked with the responsibility of championing such tasks will be replaced by it, many other researchers are of the view that AI and RPA does not replace accountants but rather it enhances their tasks and activities by relieving them of menial administrative tasks that are repetitive in nature.

Whatever it may be, the decision to automate and reduce cost in accounting firms by using machines (robots) to perform tasks originally performed by humans, managers of accounting firms must come to confront the question whether to adopt the use of robots and replace humans

or to develop humans to perform consultative and advisory roles on the activities championed by the machines. This simply means that rather that replacing accountants, Robotic Process Automation induces accountants to develop themselves by learning new skills and abilities, an expertise for handling technological facilities in the industry through which they can improve their performance and productivity of their organization (Martins, 2018; Lindholm, 2019).

It is important to note that the automation of tasks and activities in the accounting industry has brought about a tremendous change in the ways of doing things which will bring about greater opportunities in the industry, it is also important to note that such great opportunities will be accompanied by a corresponding challenges that will shake the accounting industry unlike what has ever been experienced before over the years (Mehta, 2018). Automating tasks and activities in the accounting industry possesses some underlying benefits to organizations that adopt it; it can bring about speed and ease in service delivery, better accuracy, increase in performance and productivity, as well as cost and error reduction among others (Mann, 2019; Rana, and Martins, 2018).

2.10 Review of Empirical Studies

Robotic Process Automation simply refers to the use of technological gadgets and facilities to perform task that were formally performed by humans in a better, faster, easier, and efficient manner. These tasks by their nature are usually monotonous, repetitive, time and cost consuming, as well as tedious. As such, organizations usually implement them in order to address the various underlying bottlenecks militating against the attainment of efficiency in its business operations and service delivery. RPA is playing a crucial and fundamental role in business dealings and operations in today's modern organizations. It has changed and improved the ways of doing things particularly in the accounting industry (Cohn, and Goris, 2019).

According to Cooper, et. al. (2019) accounting firms usually utilise Robotic Process Automation software or technologies when attempting to automate the input, processing, and output of data across computer applications in order to streamline repetitive and mundane business operations or processes. The study revealed that RPA performs a significant role in task such as tax services, advisory services, as well as insurance services. The also opined that the successful implementation of RPA in their operations has improved quality and efficiency in their business operations. To them, RPA has improved data processing by 70 to 80% and a reduction of over one million human work hours in 2017. They however concluded despite its efficiency; RPA has not resulted in the replacement of workforce in the organizations under their study. But has rather decreased offshoring and increase employees' job satisfaction and upward career mobility. However, they concluded that in order to remain relevant in the industry, employees must develop themselves in order to possess the necessary skills needed for the successful implementation of Robotic Process Automations in organizations. Supporting this assertion, Met, Kabukcu, et. al. (2019) opined that aside the above-mentioned benefits, Robotic Process Automation also drives fundamental change in our daily lives and ways of doing businesses. To them, this business transformation and advancement calls for the automating of business processes using Artificial Intelligence so as to acquire its underlying benefits. They further suggest that organizations should provide the platform by preparing their employees to welcome such development by perceiving it as an opportunity rather than as a threat. In the same way, Cho, Vasarhelyi and Zhang (2019) assert that advancement in Information and Communication Technology (ICT) improved and fasten data management. It has facilitated easier access to exogenous data thereby increasing business automation and productivity. To them, automation has complemented human activities and has increased their operational efficiency and organizational productivity. Konina and Davenport (2017) on the

other hand declare that organizations will reap the benefits of AI and RPA the biases associated with their implementation are properly addressed for a better future.

According to Cohn (2019), Robotic Process Automation plays a significant role in accounting firms particularly when it comes to saving costs as well as improving organizational operational efficiency. To him, helping organizations to reduce or manage costs while improving its operational efficiency is one of the most fundamental roles of RPA. Zhang (2019) support this view when she assert that the adoption of Robotic Process Automation among other advanced technological facilities can be of fundamental benefits to accounting firms particularly in terms of auditing itself or other firms, thereby managing, reducing and eliminating errors and fraudulent activities as the case may be.

Alles (2019) in his study revealed that unlike Business Process Reengineering (BPR) which by default aims to replace employees in organizations, Robotic Process Automation aims at complementing and improving human effectiveness and efficiency. He further suggests that by recognising the relative significance of automating tasks using Artificial Intelligence, accounting firms can acquire its underlying benefits. To him, task automation helps to create new accounting job roles, thereby increasing employment rather than retrenching employees. Robotic Process Automation should be implemented in organizations where necessary. Frey and Osborne (2017) and Nagarajah, (2016) supporting this idea assert that a large number of job titles are at the risk of being replaced as a result of automation.

On the contrary, Alles and Gray (2019) opined that by automating auditing and accounting, there is a 94% probability that Robotic Automation Process will replace both accountants and auditors. Fernandez and Aman (2018) speaking contrary to Alles (2019) opined that although Robotic Automation Process do influences organizations significantly, it has also resulted in the replacement of workforce in the organizations. Thereby reducing operational tasks and

costs. Willcocks, Lacity, and Craig (2015) also support the assertion that RPA helps organizations to replace their employees with robots. Simon (2019) clarifying the idea of whether or not humans will be replaced by robots in the accounting industry assert that Robotic Process Automation will only affect routine tasks, rather than replacing humans, while tasks that require critical thinking and creativity which are difficult to be automated will be handled by humans. According to Spanicciati, (2016), RPA, is not replacing accountants, it demands their involvements giving space for focus on additional values where possible, despite the direct relieves RPA is creating for staff on automatically entering data a few accounting staff will be on board for monitoring paperwork. In other words, RPA is here to complement human intelligence and not replace it,

2.11   Literature Gaps

RPA, was first used in 2012 by Blue prisms MD Marketing Director Patrick Geary, whereas European patent office (EPO), recognizes Cyrille Bataller and Adrien Jacquot as inventory of RPA. Whereas it entered Nigeria in 2018.

In their own words RPA is a technology that enables the automation of manually and repetitive intensive activities. Gartner says "RPA is a tool, a productive one (which are sold as software's) giving clients licences to configure one to many scripts normally called bots. This is sometimes flawed whereby RPA utilization is thought to require an expert (programmer) to handle, in most cases a Non-IT employee can simply run the basics of monitoring, unless in complex situations. The gap in the literatures are in as time tarries, researchers may need to step away from traditional models of expertise development and reconsider what expertise is in an artificial intelligence world. The human is not going to win the race against AI, so the solution is to alter the race from a competition into a collaboration. As more work becomes automated

as is predicted in the accounting profession (Frey and Osborne 2013; CEDA 2015), practitioners will require an augmented skillset to work effectively with AI- enabled system".

The race against machines, is a fight against humanity itself, because machines are made by human, and subject to humans instructions, that is why the need for collaboration is increasingly demanding, at nearly all levels, similar to the creation of computer and the general slogan of "garbage in, garbage out", the input and output language, this invention however, made traditional typists and clerks to lose jobs and seek skill enhancements, it was both a threat and opportunity to those who lacked the skill and those who prepared for the computer literate descriptions. In this scenario, RPA is more of an unsupervised machine technology that is configured to collect, sum, analyse and produce data, this in turn may have relieved certain people from their jobs and yet created an opportunity for some who have secured to themselves the required set of skills. In my opinion the slogan for RPA bots should look like "switch on, switch off", to get results, it is nonetheless, deeper than this. Artificial intelligence has been increasingly on the rise in all sectors, for speed, accuracy, timeliness, and efficiency, with the inclusions of human personnel as "supervisory".

From the examinations of the above literatures it can be seen that there is a paucity of empirical literatures investigating the revolution of Robotic Process Automation in the accounting industry in Nigeria. It is against this background that this study is conducted in order to investigate Robotic Process Automation: A revolution in the accounting Industry with particular reference to Deposit Money Banks in Kaduna State Nigeria.

2.12 Theoretical Framework

Two basic theories are adopted to underpin the study for better understanding and clarity. The Unified Theory of Acceptance and Use of Technology (UTAUT) was adopted as the primary

theory used in underpinning the study, while Contingency Theory is also used as the supporting theory of the study.

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

The Unified theory of acceptance and use of technology (UTAUT) is basically an Information Communication Technology theory that is concerned with the introduction, adoption and utilization of technologies for the good and betterment of organizations. UTAUT as a technology acceptance model was formulated by Venkatesh and others in "User acceptance of information technology: Toward a unified view". The theory aims to explain user intentions to use a prevailing technological system and subsequently their usage behaviour. The UTAUT theory was adopted by the study in order to illustrate acceptance and utilization of technological gadgets and facilities in business dealings and operations by firms in the accounting industry, particularly in the Deposit Money Banks in Nigeria.

The theory holds four key constructs in its application: performance expectancy, effort expectancy, social influence, by citizen and facilitating ideal conditions; i.e. the system tools. The first three being direct determinants of usage intentions and behaviour, and the fourth a direct determinant of use behaviour (Charles, 2015). These simply mean that the helps in influencing both the intension to adopt a technology and the subsequent behaviour that comes with its usage. This theory was adopted by the study because it helps the study, as well as its various stakeholders to understand and appreciate the potential benefits of fully implementing Robotic Process Automation in accounting firms. (Banks)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was also adopted by the study because they are considered more suitable and applicable for an effective and efficient attainment of the core objectives of the study. The theory was also adopted because it helps the

study to clarify that not operations or organizational processes needs to be automated as it may work contrary to the attainment of organizational aims, goals and objectives.
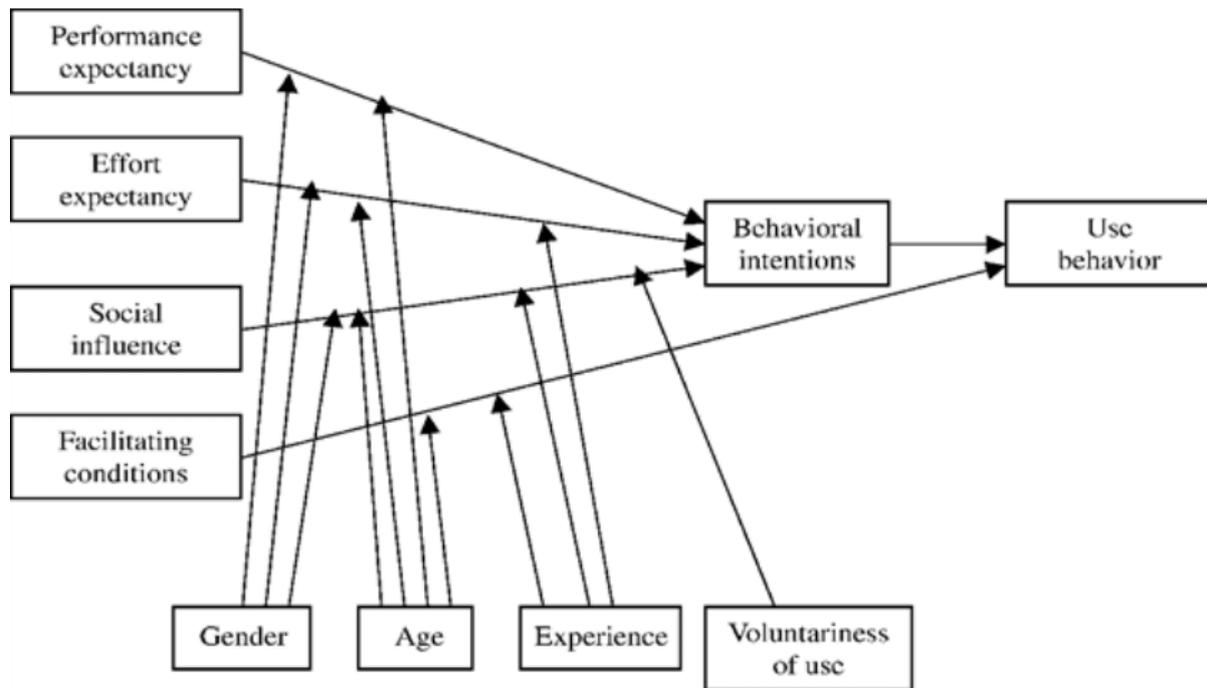
Fig1: UAUT Model

Performance expectancy is the degree to which an individual believes that utilising the system may assist an individual achieve gains in job performance (Venkatesh et al. 2003, p. 447). It has its linking to (1) perceived usefulness (2) extrinsic motivation (3) the job fit (4) relative advantage and (5) outcome expectations.

Perceived usefulness normally is deduced from the TAM and is described as the degree too which an individual utilising a certain system will obtain an enhancement in their job performance (Venkatesh et.al 2003). Extrinsic motivation is a motivation model, where users perception on performance in an activity proper, based on its medium of attaining valued outcome that are mostly separate from the activity proper, such as pay, promotions, modified job performance, (Venkatesh et al 2003). Job fit is a derivative of MPCU and is descried as how the enablement's of a system do enhance, he or her job performance (Venkatesh et al,

2003). While relative advantage is defined by its degree of innovation over its precursors (Venkatesh et al, 2003). Outcome expectation is a deduction from the cognitive theory in parts of performance and personal outcomes. The former deals with Job-related outcomes, the later deals with individual esteem, coupled with a sense of accomplishment. According to UTAUT model proposes that gender and age moderate the relationship between performance expectancy and behavioural intentions.

Efforts expectancy is described in terms of its degree of ease associated with the use of the system, (Venkatesh et al. 2003, p.450). its base constructs are (1) perceive ease of use (2) complexity, and (3) ease of use.

Perceived ease of use is a derivative of TAM, where an individual believes he or she is free of efforts while using a technology or system. Complexity is a derivative of MPCU, where a new system is termed as difficult to use and understand. Ease of use is a derivative from "innovative diffusion theory" where it is perceived as being difficult to use. The UTAUT model suggests that gender, age and experience moderate relationship between effort expectancy and behavioural 'intentions.

Social influences are described where an individual perceives that an essential other believes he or she should use the new system. (Venkatesh et al. 2003 p. 451), its base constructs are (1) subjective norms (2) social factors (3) the image. Subjective norms is a major phase in UTAUT model theories (Fishbein and Azjen 1975, Davies et al. 1989). This is described as a relationship between persons of importance views of relevance in terms of performance in behaviour in question. Social factors are drawn from the MPCU, image comes from the innovation diffusion theory which is described as the degree of enhancement to one's image through innovation as a perspective. facilitating conditions, these are effects of a variable, that are interpreted to have effects on systems utilization. Its described as a belief of an individual

that technical and organizational infrastructure, are present to support use of the system (Venkatesh et al. 2003, p.453).

According to William et.al. (2001), it shows that external variables are applied to attain an outcome, when using the UTAUT, in certain areas of studies. This theoretical aspect of the research is the use of these models to support, a theory on RPA adoptions and utilization. Some studies only explained the use of its construct that most suit the scope of research in question.

"a small stream of research in accounting has begun to examine approaches to improve decision making by using systems thinking interventions (O'Donnell 2005; Brewster 2011).

This is also much relevant to perception of use, and its external factors effecting its decision to implement systems of information technology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is basically concerned with the methodology adopted for the successful completion of the study. It discusses on the research design, population of the study as well as its sample size, sampling technique, research data collection instruments, and method of data analysis and concludes by justifying why the particular methodology was adopted.

3.2 Research philosophy and approach

The design of this research reflects specifics about the philosophy and its approach, using pre-existing knowledge. "A system of beliefs and assumptions on account of development of knowledge." (Saunders et, al. 2019 p.130). The discovery of knowledge and its use is relative to its usefulness and that is why knowledge by definition relative to this research is a "derivative from information, due to its scientific verification. Collins and Hussey, 2003, p.44). it is interpretivism inductive by approach, but a mix in general.

3.3 Research Design

For the of attaining the predetermined objective of this study, the Survey Research Design, otherwise known as the Quasi Experimental Design, was adopted. This design was adopted to enable the researcher collect valid and factual data from the actual population under study. This will in turn help in increasing the validity and credibility of the study and give it a basis for a reliable conclusion and generalization on the general population. The design was also adopted because it is simple and commonly used and suitable for intensive study and analysis for a meaningful generalisation (Mohamed, 2015) (Issa, 2004) (Jinjiri, 2014).

3.4 Collection of Data

The collection of data, is the distribution of paper questionnaire in Nigerian banks, which is also referred to as Quasi- experimental designed, the researcher, convey an online survey here in Ireland, for an overview and comparison, it will not however be recorded in this research, because of the scope of the research.

3.4.1 Access and ethical issues

A confidentiality statement was given briefly to assure the respondents, that all information's given were anonymous and were not to be disclosed to a third party, but used strictly for this research purpose, the respondents were given the freewill to continue or discontinue with the questions at any stage and the disclosure was not for public consumption.

3.4.2 Nature of data

The research questions, where carried out both in quantitative and part- qualitative data- in conducting an informal interview via a third party's relative. And quantitative – such as profession, years of experience, were sex, age and marital status were deemed irrelevant. A written response was collected from the interview to gather more insights on staff personal experience.

3.4.3 Population of the Study

Population of a study generally refers to the total number of elements or people under study. According to Sekaran (2001), a population simply refers to the entire group of people, events or things of interest that the researcher wishes to investigate .Thus, the population of this study comprises of the various employees of each Deposit Money Banks in Zaria Metropolis as depicted in the table below:

S/NO	Name of Bank	Total Population
1	Access Bank	26
2	Eco Bank	25
3	Fidelity Bank Plc	25
4	First Bank of Nigeria Plc	42
5	First City Monument Bank	20
6	Guaranty Trust Bank	25
7	Jaiz Bank	10
8	Keystone	14
9	Polaris Bank	13
10	Stanbic IBTC	38
11	Sterling Bank	33
12	Union Bank	20
13	United Bank for Africa	21
14	Unity Bank	14
15	Zenith Bank	15
	Total	**341**

3.4.4 Sample Size and Sampling Techniques

A sample size refers to the proportion of a particular population under study from which data can be collected, analysed and generalisation made (Jinjiri, 2014) (Muhammed, 2015). For the purpose of ensuring that virtually all the population are adequately captured and represented by the study, the Census Sampling Technique was adopted by the study. This will ensure that a large proportion of the total population of the study, if not all, are highly and ably represented in the study, this will in the same way increase the ability and capacity of the study to generalise its findings and conclusions on the entire population as a whole (Jinjiri, 2014) (Osuala, 2005).

Thus, the sample size of the study comprises of three hundred and forty-one (341) employees of all Deposit Money Banks in Zaria Metropolis who are currently working in their respective organizations as at the time the study was been conducted. This will facilitate the ability of the study capture existing accountants who are currently working in the accounting industry thereby increasing the capacity of the study to generalise.

A sampling technique refers to the method that a research can employ in the selection of its population sample from which data can be collected, analysed and generalisations made. Thus, the Census Sampling Technique was adopted by the study. This method was adopted because it gives every members of the population an equal chance of been selected and participated in the study. The method was also selected because it enables the study to collect actual, factual and reliable data from a large number of the actual population under study, but ultimately, it gives every members of a given population an equal chance of being selected for the study (Jinjiri, 2014) (Osuala, 2005)…

3.4.5 Methods and Sources of Data Collection

Due to the desire of the study to collect accurate, factual and reliable data from the actual population under study, the researcher consulted a research assistant, a relative based in Nigeria and at the actual State and Local Government (i.e. Kaduna State) where the study is to be conducted to facilitate the effectiveness of the process of data collection. In other words, the questionnaire of the study were administered to all the Deposit Money Banks in Zaria Metropolis by the research assistant resident in Nigeria on behalf of the researcher due to distance and inability of the researcher to access the population as a result of the Covid-19 lockdown.

The primary data needed for the success of the study were collected through the aid of a well-structured questionnaire by the researcher through the aid of a research assistant residing in Nigeria due to distance of the researcher to access the population as a result of the Covid-19 lockdown. The tool of data collection, i.e. questionnaire was divided into two sections; Section A reflects questions on the demographics of the respondents, while the Section B reflects questions relating to the hypotheses and variables of the study and are closed ended questions. This is to ensure that the respondents and the study are adequately represented (Muhammed, 2015).

3.9 Justification for the Technique Adopted

The study adopted the use of a structured closed ended questionnaire because it helps in reaching a wide variety of respondents in a study, it also helps a study to design congruency in respondents' responses. The questionnaire is also considered to be most suitable for collecting data from a large number of respondents in a study (Issa, 2004) (Muhammed, 2015).

3.10 Method of Data Analysis

The essence of every data collection is to transform raw data into a meaningful form for easy analysis and understanding which will serve as a basis of drawing conclusion and generalisation. Thus, Multiple Regression through the aid of Statistical Package for Social Sciences (SPSS) Version 20 was adopted for the analysis of the hypotheses of the study. The method was adopted due to the multiplicity of variables in the study. Thus, Multiple Regression was adopted in other to ensure that all the variables of the study are adequately captured and represented in the study (Issa, 2004; Osuala, 2005; Jinjiri, 2014; and Muhammed, 2015). While Mean and Standard Deviation will be used to analyse and interpret the descriptive data of the study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1   Introduction

This chapter covers the presentation, analysis and interpretation of data collected from primary sources, i.e. questionnaire. The data collected with the aid of a well-structured questionnaire were analyzed with the aid of Statistical Package for Social Sciences (SPSS) version 20 after which the results were interpreted. The demographic data of the respondents of the study were analyzed through the aid of frequency table and simple percentage. The test of hypotheses was conducted using the Multiple Regression and appropriate interpretation/discussions were made based on the tested result.

4.2   Questionnaire Administration

This section shows the administration of questionnaires in the sampled accounting firms in Zaria metropolis under study. The rate of return is shown in table 4.1 below.

Table 4.1   Questionnaire Rate of Return

Response Rate of Questionnaire	Frequency	Percentage (%)
Number of questionnaires distributed	197	100%
Returned questionnaires	129	65.48%
Unreturned questionnaires	68	32.45%

Source: Field work, 2019

Table 4.1 shows the questionnaire's rate of return. 197 questionnaires representing 100% were distributed, while 129 questionnaires representing 65.48% were properly filled and returned. The study therefore considers the rate of return adequate for analysis and representation

4.3   Presentation of Demographics

Table 4.2: Gender Distribution of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	74	57.4	57.4	57.4
Valid	Female	55	42.6	42.6	100.0
	Total	129	100.0	100.0	

Source: Field Survey (2020)

Table 4.2 depict the gender distribution of the listed Deposit Money Banks in Zaria metropolis under study. It can be seen from the table that 74 respondents representing 57.4% were males, while the remaining 55 respondents representing 42.6% were females. This simply indicate that there are more males than females in the listed Deposit Money Banks under study. It is important to note, however, that the females were also ably represented (42.6%).

Table 4.3 Age Distribution of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
	21-30 years	38	29.5	29.5	29.5
	31-40 years	51	39.5	39.5	69.0
Valid	41-50 years	26	20.2	20.2	89.1
	51 years & above	14	10.9	10.9	100.0
	Total	129	100.0	100.0	

Source: Field Survey (2020)

From the table above, it can be seen that 38 respondents representing 29.5% fall within the age group of 21 to 30years, 51 respondents representing 39.5% fall within 31years to 40, another 26 respondents representing 20.2% fall within 41years to 50, while the remaining 14

respondents representing 10.9% fall within the age grade of 51years and above. This simply means that majority of the respondents under study fall within the age grade of 31 to 40years.

Table 4.4 Marital Status of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
	Married	78	60.5	60.5	60.5
Valid	Single	51	39.5	39.5	100.0
	Total	129	100.0	100.0	

Source: Field Survey (2020)

Table 4.4 above shows the marital status of respondents. The table shows that 78 respondents representing 60.5% were married, while the remaining 51 respondents representing 39.5% were singles. This simply means that there are as much married individuals as there are singles in the accounting firms under study.

 Table 4.5 Working **Experiencing**

		Frequency	Percent	Valid Percent	Cumulative Percent
	Less than 5 years	26	20.2	20.2	20.2
	5-10 years	84	65.1	65.1	85.3
Valid	11-15 years	10	7.8	7.8	93.0
	16 years & above	9	7.0	7.0	100.0
	Total	129	100.0	100.0	

Source: Field Survey (2020)

Table 4.5 above depict the working experience of the various respondents under study. The table shows that 26 respondents representing 20.2% possess less than 5years working experience on the job, 84 respondents representing 65.1% indicated that they possess a working experience between 5 to 10years, 10 respondents representing 7.8% indicated that they possess a working experience of between 11 to 16 years, while the remaining 9 respondents

representing 7% possess a working experience of 16years and above. This simply means that majority of the respondents under study possess a working experience of an average 5 to 10years.

4.4   Reliability Test of the Variables of the Study

The data collected from the respondents in the accounting firms under study were subjected to Crombach Alpha test reliability test in order to test the consistency of the instrument used in collecting the data. The reliability of the responses on each variable was tested using the reliability scale of Cronbach's alpha. The alpha values for each variable are shown in table 4.7 below.

Table 4.6   Reliability Statistics

Responses	No of items	Alpha
Record Keeping	4	0.812
Receipt and Payment	4	0.840
Cost Reduction	4	0.872
Robotic Process Automation	4	0.740

Source: Field Survey (2020)

A total of 4 questions on each variable (record keeping; receipt and payment; cost reduction and Robotic Process Automation) were administered to the sampled population of the study.

The Cronbach's Alpha coefficient of the variables of the study shows 0.812, 0.840, 0.872 and 0.720 respectively. According to Spiegel (1992); Stevens, (1986), and Olayiwola, (2010), an instrument is considered reliable if it's reliability coefficient lies between 0 and 1, and that the closer the calculated reliability coefficient is to zero, the instrument is less reliable, while the closer the calculated reliability co-efficient is to 1, the more reliable the instrument. This therefore confirms that the reliability of the data collection instrument used as reliable and fit for the study.

4.5   Normality Distribution of Variables

Table 4.7 Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RKmean	129	4.4264	.55057	-1.370	.213	3.417	.423
RPmean	129	4.4225	.59028	-.891	.213	.400	.423
CRmean	129	4.1047	.78106	-.814	.213	.651	.423
RPAmean	129	4.3527	.52627	-1.205	.213	3.642	.423
Valid N (listwise)	129						

Source: Field Survey (2020)

The descriptive statics of the various variables under study are presented in table 4.7 in order to assess the normality of their data distribution. On a general note, a data is considered to be normally distributed when the skewness value is less than +3 or - 3.0, while the kurtosis value is less than +10 or – 10. From the examination of the table above, it can be seen that the skewness value of all the variables is less than -3, while the value of the kurtosis for all variables is also less than +10. It is important to note that a large population sample size of 129 accountants was collected in order to generate a stable mean and standard deviation for all variables to complement the values of both the skewness and kurtosis (Piovesana and Senior, 2018).. Thus, all variables in the study have attained an acceptable statistical value.

4.6   Multiple Regression Analysis

To test the formulated hypotheses in this study, Multiple Regressions was used to multiple relationship between the independent variable (Robotic Process Automation) and the

dependent variables (record keeping, receipt and payment, and cost reduction). The preliminary

analysis to the multiple regression is discussed below:

Table 4.8 Analysis of Variance **(ANOVA[a])**

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	21.086	3	7.029	61.161	.000[b]
1	Residual	14.365	125	.115		
	Total	35.452	128			

a. Dependent Variable: RPAmean

b. Predictors: (Constant), CRmean, RKmean, RPmean

Source: Field Survey (2020)

In Table 4.8 above, the results from the Multiple Regression analysis which tests the effects of

the independent variables; record keeping, receipt and payment; and cost reduction on the

dependent variable, Robotic Process Automation in listed Deposit Money Banks in Nigeria.

The F-statistic which measures the adequacy and fitness of the model used in the study stood

at 61.161 with a p-value of 0.000[b] which is significant at 5%; this shows that the model is fit

for the study.

Table 4.9 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.771[a]	.595	.585	.33900

a. Predictors: (Constant), CRmean, RKmean, RPmean

Source: Field Survey (2020)

Table 4.9 above shows the model summary of the Multiple Regression analysis. The empirical

findings show that R, the Multiple Correlation Coefficient stood at 0.771 which indicates a

high correlation between RPA, record keeping, receipt and payment, and cost reduction. R^2, the Multiple Coefficient of Determination of the variables stood at 0.59.5 indicating that 59.5% of the total variation in the dependent variables (record keeping, receipt and payment; and cost reduction) is influenced by the adoption and utilization of RPA in the Nigerian accounting bank industry. The adjusted R^2 being 0.585 also indicates that the independent variable of the study will still explain 58.5% of the variations in the dependent variables even if other variables were added to the study.

Table 4.10 Correlation Coefficients (**Coefficients[a]**)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.918	.267		3.431	.001
	RKmean	.453	.066	.474	6.845	.000
	RPmean	.169	.072	.190	2.340	.021
	CRmean	.166	.052	.246	3.166	.002

a. Dependent Variable: RPAmean

Source: Field Survey (2020)

Table 4.10 shows the outcome of the independent variable (Robotic Process Automation) on the respective dependent variables (record keeping, receipt and payment; and cost reduction) in the Nigerian accounting bank sector. These are further discussed under the test of hypotheses section. However, we present the test for the assumptions of linear regression.

4.7 Testing of Hypotheses

Upon the fulfilment of the assumptions of Linear Regression analysis, Multiple Regression analysis is considered suitable in testing the research hypotheses. From Table 4.10 the respective hypotheses are discussed as follows:

4.7.1 Hypothesis I

HO₁: There is no significant relationship between Robotic Automation Process and record keeping in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

The coefficient of record keeping (RKmean) stood at 0.453 which is positive. This simply means that an increase in RPA by 45.3% will lead to a corresponding increase in efficiency in record keeping in the Nigerian accounting industry. However, the significance of this can be judged from the t-statistics and its probability value (p-value).

The t-statistics of record keeping stood at 6.845 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analyses, the study fails to accept the null hypothesis **HO₁:** which state that there is no significant relationship between Robotic Automation Process and record keeping in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria; and accepts its alternate hypothesis **HI₁:** which states that there is a significant relationship between Robotic Automation Process and record keeping in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. Thus, there is a positive and significant relationship between RPA and record keeping. In other words, effective and efficient utilization of RPA in accounting firms can help to improve their record keeping (data processing and storage).

4.7.2   Hypothesis II

HO₂: There is no significant relationship between Robotic Automation Process and receipt and payment in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

The coefficient of receipt and payment (RPmean) stood at 0.169 which is positive. This simply means that an increase in RPA by 16.9% will lead to a corresponding increase in efficiency in receipt and payment in the Nigerian accounting industry. However, the significance of this can be judged from the t-statistics and its probability value (p-value).

The t-statistics of receipt and payment stood at 2.340 with a p-value of 0.021. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analyses, the study fails to accept the null hypothesis **HO₂:** which state that there is no significant relationship between Robotic Automation Process and receipt and payment in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria; and accepts its alternate hypothesis **HI₂:** which states that there is a significant relationship between Robotic Automation Process and receipt and payment in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. Thus, there is a positive and significant relationship between RPA and receipt and payment. In other words, the adoption and utilization of RPA helps accounting firms to achieve effectiveness and efficiency in their receipt and payment of invoices.

4.7.3   Hypothesis III

HO₃: There is no significant relationship between Robotic Automation Process and cost reduction in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria.

The coefficient of cost reduction (CRmean) stood at 0.166 which is positive. This simply means that an increase in RPA by 16.6% will lead to a corresponding increase in efficiency in cost reduction in the Nigerian accounting industry. However, the significance of this can be judged from the t-statistics and its probability value (p-value).

The t-statistics of cost reduction stood at 3.166 with a p-value of 0.002. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analyses, the study fails to accept the null hypothesis **HO3:** which state that there is no significant relationship between Robotic Automation Process and cost reduction in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria; and accepts its alternate hypothesis **HI3:** which states that there is a significant relationship between Robotic Automation Process and cost reduction in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. Thus, there is a positive and significant relationship between RPA and cost reduction. In other words, RPA helps to increase efficiency in the use of organizational resources.

4.8   Discussion of Findings

Based on the analyses of the data collected, the study found out that:

i.   There is a significant relationship between Robotic Automation Process and record keeping in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. This is in agreement with the findings of Cooper, Holderness and Sorensen, (2019) and Wood, Cohn and Goris (2019); Katorba (2018); Moll and Yigitbasioglu

(2019); Reinventing Business, (2019); Jedrzejka, (2019) who opined that the successful adoption and utilization of RPA can result to the ability of accounting firms to perform their tasks better, easier, faster and more efficient. Mann (2019); Crookies and Conway (2018); Marshall and Lambert, (2018) on the other hand posit that the successful implementation of RPA in accounting firms can facilitate operational and organizational (business) efficiency by eliminating errors and wastes thereby increasing speed and customer satisfaction. Cho, Vasarhelyi and Zhang (2019) in the same way revealed that a successful utilization of RPA will enhance data management in the organization. It was also found by the study that.

ii. There is a significant relationship between Robotic Automation Process and invoice receipt and payment in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. This validates the studies of Konina and Davenport (2017) who opined that accounting firms will reap tremendous operational and organizational benefits by automating repetitive, time consuming tasks through the aid of AI. Cho, Vasarhelyi and Zhang (2019) further express that the adoption of advanced technological innovations such as AI and RPA can not only lead to better data management but also facilitate fast and easier access and processing of data such as receipts and payments of invoices. It was further revealed by the study that.

iii. There is a significant relationship between Robotic Automation Process and cost reduction in the Accounting industry in Deposit Money Banks in Kaduna State, Nigeria. This corroborates the study of Zhang (2019) who found that the adoption of RPA as well as other advanced technological facilities can be of fundamental benefits to accounting firm which can help it to manage, reduce and also eliminate errors, unnecessary costs, and fraudulent activities among others. Cohn (2019) in also supports this assertion when he posits that RPA helps organizations to save

cost and also improve operational efficiency. Alles (2019) in the same way agrees with the above when he expresses that automating tedious, repetitive, time consuming and monotonous tasks in the accounting firms through the aid of AI can help to increase their effectiveness and efficiency thereby reducing avoidable organizational and operational costs. Contrary to the above, Frey and Osborne (2017); Alles and Gray (2019); Fernandez and Aman (2018); and Nagarajah, (2016) opined that many accountants will lose their jobs as a result of tasks automation, while Alles (2019) further added that when this occurs, new job roles and titles will be created. On the basis of this disparity whether RPA will replace accountants or their jobs, Simon (2019) opined that RPA in accounting firms will only affect routine tasks, rather than replacing humans. He, however furthered that task that require critical thinking and creativity which are difficult to be automated will be handled by humans. This simply means humans will not be replaced when new jobs or tasks are created as a result of RPA.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1   Summary

The automating of tasks and activities in the accounting sector plays a crucial and fundamental role in the economies of the world, Nigeria inclusive. It has helped in easing tedious, monotonous, and repetitive tasks of bank industries. Today, with the aid of RPA, bank industries can easily process, store, and manipulate data without delay or error. It has also improved the receipt and payment of invoices. Through the aid of RPA, bank firms have now devised the strategy of adopting the use of robots through the aid of Artificial Intelligence thereby replacing certain jobs performed by staff to be performed by the robots. However, there exist a paucity of empirical evidence investigating the revolution of Robotic Process Automation in the banking industry in Nigeria. It is against this background that this study is conducted in order to investigate Robotic Process Automation: A revolution in the accounting bank Industry with particular reference to the Nigerian banks industry. In this regard, three hypotheses were developed to address each of the identified problems by the study. As such the following research objectives were formulated to examine the influence of Robotic Automation Process on record keeping in the bank industries in Nigeria; to determine the influence of Robotic Automation Process on receipt and payment in the bank industry in Nigeria, as well as; to assess the influence of Robotic Automation Process on cost reduction in the bank industry in Nigeria. Previous studies suggest that there is a relationship between the variables of the study in other countries of the world. As such, this study aims to tests this assertion by way of empirical and statistical analysis through the aid of its formulated hypotheses.

The methodology of the study involves the use of Survey Research Design to collect primary data from the respondents of the study through the aid of a well-structured questionnaire after

which the data collected were analysed via the Multiple Regression analysis with the aid of the Statistical Package for Social Sciences (SPSS) Version 20 after which necessary interpretations were made. The result of the analysis showed that there is a positive and significant relationship between the independent variable (Robotic Process Automation) and the dependent variables (record keeping, receipt and payment of invoices, as well as cost reduction) of the study. Thus, conclusions and recommendations were made on this basis.

5.2 Conclusion

Based on the analysis and findings of the study, the following conclusions were made:

i. There is a significant relationship between Robotic Automation Process and record keeping in the Accounting Banking industry in Nigeria. It indicates that an increase in RPA will result to a corresponding significant positive increase in the ability of firms in the Nigerian accounting bank industry to perform the task of record keeping effectively and efficiently in their organization by 45.3%. the study also concluded that.

ii. There is a significant relationship between Robotic Automation Process and invoice receipt and payment in the accounting banking industry in Nigeria. This simply means that an increase in RPA by 16.9% in the Nigerian Banking industry will result to a corresponding significant positive increase tending to the invoice of receipt and payments of individuals and groups. It was also concluded by the study that.

iii. There is a significant relationship between Robotic Automation Process and cost reduction in the accounting banking industry in Nigeria. This also implies that an increase in the adoption and utilization of RPA in the Nigerian bank industry by

16.6% will lead to a corresponding significant positive increase in cost reduction in the organizations.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

i. The stakeholders of the Nigerian bank industry should endeavour to create an awareness campaign that will familiarize individuals, particularly accounting with the importance and benefits of adopting and utilizing RPA not just for the benefit of the organization involve but for its various stakeholders. This will help to ensure that the various stakeholders of the organization are satisfied. The study also recommended that.

ii. Organizations and individuals should be able to provide themselves with the necessary facilities and platforms that will enable employees to train and develop themselves in other non-automated aspects of their tasks and responsibilities such as soft skills (e.g. creative and innovative thinking, leadership and managerial thinking and decision making, etc.) so as to remain relevant in the industry. This will help to ensure that no accountant is replaced but rather job roles and titles are. The study further recommended that.

iii. The Nigerian accounting bank industry should create adequate new job roles and titles that will efficiently absorb the new tasks created as a result of the adoption and utilization of RPA in the industry.

5.4 Suggestions for Further Study

The study suggests that further studies should:

i. Endeavour to capture other variables such as tax, audit and organizational competitive advantage not captured by the study. It was also suggested that.

ii. Further studies should be carried in line with the adoption of mixed method so as to gather facts that will give diverse views of the study. In the same way.

iii. Further studies should ensure to cover more scope as was limited to this study due to the Convid-19 lockdown around the world, particularly in the area of study, Nigeria.

5.5 Limitations of the Study

The study is limited to the respondents in the Nigerian Banking industry, as such, not many of the international community were captured in the analysis of the study, although an online survey was conducted in brevity, for certain comparisons. In the same way, due to the international lockdown resulting from the Covid-19, the study could not access the public libraries for hard cover books, journals and could not access more population than was captured in the study. The study was also limited in scope as only variables such as RPA, record keeping, receipt and payment of invoice, as well as cost reduction were captured by the study.

There may not be enough peer-reviewed relevant literature reviews on RPA in banks in Nigeria, due to its very recent arrival in May 2018, Although there was just an adequate sum to explain its usefulness and further create a base for future research.

References

ACC, and CA ANZ Report (2017), *Embracing Robotic Automation During the Evolution of Finance*

ACCA (2013), *Technology trends: their impact on the global accountancy profession.*

Akpata U. (2019), *Adopting to Change: How Accounting Practice is Adapting to Adoption of Disruptive Technologies*. ICAN maiden Accounting Technology Summit.

A.A.A, (2019), 'Technological Disruption in Accounting and Auditing'. *A.A.A Editorial, Published in Journal of Emerging Technologies in Accounting* Vol. 15, No. 2 pp. 1–10.

Anagnoste S. (2017), *Robotic Automation Process - The Next Major Revolution in Terms of Back Office Operations Improvement.* The Bucharest University of Economic Studies, Bucharest, Romania.

Anagnoste S. (2018), *Robotic Automation Process – The operating system for the digital enterprise*. The Bucharest University of Economic Studies, Bucharest, Romania.

Bier et. al. (2017), *ICT Literature Review. Agenda Item 4 – 2. International Accounting Education Standard Board,* New York. < www.iaesb.org. >

Blackwell L (2018), *Audit and AI: Can Artificial Intelligence Restore Public Trust*? Liberty University.

Brooks C., Gherhes C. and Vorley T. (2020), 'Artificial Intelligence in the Legal Sector: Pressures and Challenges of Transformation'. *Cambridge Journal of Regions, Economy and Society*, 13, 135–152.

C. P. A, (2019), *Robotics Process Automation and Beyond.* Published by Chattered Professional Accountants, Canada.

Cooper L. A., Holderness K. D., Sorensen T. L. and Wood D. A. (2018), *Robotic Process Automation in Public Accounting*. SSRN-id3193222

Dalebout W. (2018), '*Exploring the Impact of Robotic Process Automation: The effects of Robotic Process Automation on FTE Effort and the Design of the Jobs Involved'*. Faculty of Economics and Business University of Amsterdam.

Desley v. Z (2018), *Robotic Process Automation: An Employees' Perspective: An exploratory case study on the perception towards Robotic Process Automation among employees.* University of Amsterdam – Faculty of Economics and Business

Dollah S., Abduh A., and Rosmaladewi (2017), '*Benefits and Drawbacks of NVivo QSR Application. Journal of Advances in Social Science'*, *Education and Humanities Research (ASSEHR),* volume 149 Presented at 2nd International Conference on Education, Science, and Technology ICEST.

Duong D. C., Fledsberg K. (2019), '*The influence of digitalization on the Accountants' Role and their Self-Understanding' – An Exploratory Study Based on 13 Norwegian Accounting Firms*. Faculty of Business and Law Department of Economics and Finance, Department of Agedaer.

Ernst & Young Accountants LLP (2016), *Robotic process automation in the Finance function of the future*. © 2016 Ernst & Young Accountants LLP (ey.com). All Right Reserve.

Fernandez D. and Aman A. (2018), Impacts of Robotic Process Automation on Global Accounting Services. *Asian Journal of Accounting and Governance* 9: 123–131. ISSN 2180-3838 <http://dx.doi.org/10.17576/AJAG-2018-09-11>

Giles K. M. (2019), How Artificial Intelligence and Machine Learning Will Change the Future of Financial Auditing*: An Analysis of The University of Tennessee's Accounting Graduate Curriculum. Trace*: Tennessee Research and Creative Exchange, University of Tennessee, Knoxville. Retrieved form <https://trace.tennessee.edu/utk_chanhonoproj?utm_source=trace.tennessee.edu%2Futk_chanhonoproj%2F2259&utm_medium=PDF&utm_campaign=PDFCoverPages>

Goh et. al. (2019), 'Charting The Future Of Accountancy With AI'. *Published by CPA Australia Ltd*. cpaaustralia.com.au. SBN 978-981-14-2062-7.

Gorris V. (2019), *Robotic Process Automation: An Assessment of Process Discovery Techniques With The Purpose of Finding RPA Eligible Processes*. Department of Information and Computer Sciences, Utrecht University.

Gosen N. (2019), *How Robotic Process Automation (RPA) Influences Firm Financial Performance in the Netherlands*. Faculty of Behavioural Management and Social Sciences, University of Twente.

Gotthardt, et. al. (2019). 'Current State and Challenges in the Implementation of Robotic Process Automation and Artificial Intelligence in Accounting and Auditing'. *ACRN Oxford Journal of Finance and Risk Perspectives,* 8(2019) Special Issue Digital Accounting, 31-46.

Handoko et. al. (2019) 'Facing Industry Revolution 4.0 for Millennial Accountants' *International Journal of Innovative Technology and Exploring Engineering (IJITEE)* ISSN: 2278-3075, Volume-9 Issue-1, November, 2019.

Hoover R. S. and Koerber A. L. (2011), 'Using NVivo to Answer the Challenges of Qualitative Research in Professional Communication': *Benefits and Best Practices Tutorial. IEEE Transactions On Professional Communication,* vol. 54, No. 1, March 2011.

Hornstein A. (1999), 'Growth Accounting with Technological Revolutions'. *Federal Reserve Bank of Richmond Economic Quarterly Volume* 85/3 Summer 1999.

I. A. E. W. (2018), 'Artificial Intelligence and the Future Of Accountancy. Published by Information Technology Faculty Chartered Accountants' *Hall Moorgate Place, London,* EC2R 6EA, UK. ISBN 978-1-78363-816-1.

Ilo N., (2018), 'Robotic Process Automation Implementation In Record-To-Report Process: Case Company X Oy. Hameen Ammattikorkeakoulu,Hame' University of Applied Sciences.

J.S. et. al. (2004), 'Trajectory and Orientation Analysis of the Ironing Process for Robotic Automation'. *International Journal of Clothing Science and Technology Volume 16 Number* 1/2 2004 pp 224 – 226 ISSN 0955-6222

Jędrzejka D. (2019), 'Robotic process automation and its impact on accounting'. *Department of Banking,* ORCI, University of Lodz. Published by Stowarzyszenie Księgowych. ISSN 1641-4381.

Khan A.K, Al Aboud O. A. and Faisal S. M. (2018), 'An Empirical Study of Technological Innovations in the Field of Accounting - Boon or Bane'. Department of Accounting, Faculty of Administrative Sciences, Jazan University, Kingdom of Saudi Arabia. *Journal of Business and Management Studies Vol. 4, No. 1*; March 2018 ISSN: 2374-5916. Published by Redfame Publishing.

Kofax (kofax.com) (2017), *Mind These Nine (9) Finance & Accounting Gaps with Robotic Process Automation. Retrieved from* <https://www.kofax.com/Learn/eBooks/eb_complete-the-productivity-picture-in-finance_en >

Kruskopf, S.et al. (2019). 'Digital Accounting: Opportunities, Threats and the Human Factor'. *ACRN Oxford Journal of Finance and Risk Perspectives, 8(2019) Special Issue Digital Accounting, 1-15.*

Kwafo D. (2019), *The Impacts of Artificial Intelligence on Management Accounting Students*: A Case Study at Oulu Business School, University of Oulu. Department of Accounting, Business School, University of Oulu.

Madakam S., Holmukhe B. M. and Jaiswal D. K. (2019), 'The Future Digital Work Force: Robotic Process Automation (RPA*)'. Journal of Information Systems and Technology Management – Jistem USP Vol. 16, 2019*, e201916001 ISSN online: 1807-1775 DOI: 10.4301/S1807-1775201916001.

Martin F., (2018), 'Changing Technology and Finance: Creating a Vision for the Future Research Emerging Themes'. *Chartered Global Management Accountant (CGMA) and Association of International Certified Professional Accountants (AICPA) Report 2018*, ISBN: 978-1-85971-862-9.

Martins, C.M.G (2018), 'Robotic Process Automation: A Lean Approach to RPA'. Published by Tecnico Lisboa. Thesis to obtain the Master of Science Degree in Information Systems and Computer Engineering

Monique C., (2019*), Robotic process automation and the work identity of accountants.* School of Economics, University of Turku.

Moudud-Ul-Hud S., (2014), The Role of Artificial Intelligence in the Development of Accounting Systems: A Review. Mawlana Bhashani Science and Technology University.

Nagarajah E., (2016), 'Hi, Robot What does automation mean for the accounting profession'? Published by Accountants Today, July/August 2016.

Noppen P., Beerepoot I., Inge van de Weerd and Reijers H. A., (2020) How to Keep RPA Maintainable?

O'Leary D.E (1991), 'Artificial Intelligence and Expert Systems in Accounting Databases: Survey and Extensions'. University of Southern California, Los Angeles, CA, USA. *Published by Pergamon Press plc.*

Orynbayeva A. (2019), 'A governance model for managing Robotics Process Automation (RPA)'. Faculty of Technology, Policy and Management, Delft University of Technology.

Osmundsen K., Iden J., and Bygstad B. (2019), 'Organizing Robotic Process Automation: Balancing Loose and Tight Coupling'. Proceedings of the 52nd Hawaii International Conference on System Sciences

Padhi N (2018), 'Developing a Testing Approach for Robotic Automation'

Renner M., (2019), 'Software Robot-Based Automation of Financial Administration's Processes.' LUT School of Business and Management.

Richard H. (2015), 'The Robots are Coming'. *A Deloitte Insight Report.* Published by Deloitte LLP, UK. Designed and Produced by the Creative Studio at Delpooitte, London. 44059A.

Simon M. (2018) 'A Future in Accounting Without Human Intervention'. Faculty of Economics and Business Administration. University of Ghent.

Stancheva E., (2018), 'How Artificial Intelligence is Challenging Accounting Profession'. Faculty of Economics and Business Administration, Sofia University "St. Kliment Ohridski", Bulgaria. *Published by Economy & Business Journal of International Scientific Publication*s ISSN 1314-7242, Volume 12, 2018

Tornbohm C., Van Decker J. E (2017) 'When and How to Use Robotic Process Automation in Finance and Accounting' Retrieved from < *https//www.gartner.com.*>

Valgaeren H., (2018),' Robotic Process Automation in Financial and Accounting Processes in the Banking Sector' *Faculty of Economics and Business*

van der Aalst, et. al.. (2018): 'Robotic Process Automation: An Employees' Perspective: An exploratory case study on the perception towards Robotic Process Automation among employees.' Faculty of Economics and Business University of Amsterdam.

van der Aalst, W.M.P., Bichler, M., Heinzl, A. 2018. Robotic Process Automation. Springer. <https://doi.org/10.1007/s12599-018-0542-4> (Accessed 12 May 2018.)

Vasarhelyi, M. A. and Kogan A. (2003) 'Artificial Intelligence in Accounting and Auditing: Towards New Paradigms', *Volume 4. Published by Markus Wiener Publisher 14 Jefferson Road Princeton,* NJ 08540 USA.

Weinsner M and Fraser N. (2019), 'Technology and the Future of the Profession'. CPA Australia. The University of Melbourne, 2019. ISBN 978-0-6482919-2-3.

Zeiler S. (2017), 'How Robotic Process Automation potential can be discovered in IT Infrastructure'. Tilburg School of Economics and Management, Tilburg University. Faculty of Economics and Business: University of Amsterdam

Zhang, C. (2018) 'Intelligent Process Automation in Audit. Working paper, Rutgers,' The State University of New Jersey.

Zhang, L., D. Pei, and M. A. Vasarhelyi. 2017. 'Toward a new business reporting model. Journal of Emerging Technologies in Accounting' 14 (2): 1–15. <https://doi.org/10.2308/jeta-10570>

Lin, P. (2018) 'Adapting to the New Business Environment'. *CPA Journal*, 88(12), pp. 60–63

Yedavalli, V. (2018) 'Are Robots Helping or Hurting the Future Workforce?' *CPA Journal*, 88(3), pp. 16–17.

Sutton, S.G., Arnold, V. and Holt, M. (2018) 'How Much Automation Is Too Much? Keeping the Human Relevant in Knowledge Work'. *Journal of Emerging Technologies in Accounting*, 15(2), pp. 15–25. DOI: 10.2308/jeta-52311.

de Sena Abrahão, R., Moriguchi, S.N. and Andrade, D.F. (2016) 'Intention of Adoption of Mobile Payment: An Analysis in the Light of the Unified Theory of Acceptance and Use of Technology (UTAUT)'. *Revista de Administração e Inovação - RAI*, 13(3), pp. 221–230. DOI: 10.1016/j.rai.2016.06.003.

Gex, C. and Minor, M. (2019) 'Make Your Robotic Process Automation (RPA) Implementation Successful'. *Armed Forces Comptroller*, 64(1), pp. 18–22.

Predicting the Use of Online Information Services Based on a Modified UTAUT...: EBSCOhost. Available at: <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=5&sid=0dd2e820-8d3d-4d26-b3f0-310d5e270ddb%40sdc-v-sessmgr03 > (Accessed: 25 August 2020).

Ng, C. (2020) 'Robotic Process Automation and the Accounting Curriculum'. *Pennsylvania CPA Journal*, 91(1), pp. 4–6.

Cooper, L.A. *et al.* (2019) 'Robotic Process Automation in Public Accounting'. *Accounting Horizons*, 33(4), pp. 15–35. DOI: 10.2308/acch-52466.

Appelbaum, D. and Nehmer, R. (2017) 'The Coming Disruption of Drones, Robots, and Bots: How Will It Affect CPAs and Accounting Practice?' *CPA Journal*, 87(6), pp. 40–44.

The Emergence of Artificial Intelligence: How Automation Is Changing Auditi...: EBSCOhost. Available at: <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=10&sid=b8ab10d8-1187-4e02-ae3d-40eb3feb58ed%40pdc-v-sessmgr04 >(Accessed: 16 June 2020).

Zhang, C., Dai, J. and Vasarhelyi, M.A. (2018) 'The Impact of Disruptive Technologies on Accounting and Auditing Education'. *CPA Journal*, 88(9), pp. 20–26.

Moudud-Ul-Huq, S. (2014) 'The Role of Artificial Intelligence in the Development of Accounting Systems: A Review'. *IUP Journal of Accounting Research & Audit Practices*, 13(2), pp. 7–19.

Crosman, P. (2016) 'Will Bots Save or Create Work for Banks? Yes'. *American Banker*, 181(201), p. 1.

Axson (2015), 'Dealt by digital: Good bye to finance as you know it'? <http://ww2.cfo.com/analysis/2015/10/death-> digital good-bye -finance-know

Peterson, et. al (2017), 'how RPA and AI will change outsourcing', Brussels Mayer brown

Appendix A – Plain Language Statement for Research Participants
Griffith College GBS
APPENDIX A: Plain Language Statement for Research Participants
I. Introduction to the Research Study
• • The research working title is "Perception of Work-life Balance and the Effects on Job Satisfaction and Productivity Among Filipino CPAs".
• • The research is being conducted by Ranielyn Tan Manuel, a MSc student in Accounting and Finance Management in Griffith College Dublin.
• • The researcher can be contacted at ranielyntan.manuel@student.griffith.ie or ranielynmanuel@yahoo.com.

II. Details of what involvement in the Research Study will require
• • Participants will be asked to complete a survey questionnaire form that will take about 15 to 20 minutes to answer.
• • The survey questionnaire will be in both box-ticking and open-ended questions form.

III. Potential risks to participants from involvement in the Research Study (if greater than that encountered in everyday life)
• • There may be professional risks from involvement in the study due to failure to gain permission to conduct study within the organisation. However, it should be noted that this survey will be conducted anonymously, and such results will not be associated to each participant or their employing organisation. Furthermore, as an additional assurance, this study will not be published for several years.

IV. Benefits (direct or indirect) to participants from involvement in the Research Study
• • The outcome of this research study will help highlight issues on human resource management, gain insights on perceived work-life balance status to help future professional accountants to guide their chosen career path.

V. Advice as to arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations
• • The data collected will be analyzed by the researcher alone.
• • Survey will be conducted anonymously thus participants answers will never be identified to each of them/or disclose the company's name in the dissertation.

VI. Advice as to whether or not data is to be destroyed after a minimum period
• • All accomplished survey questionnaire will be destroyed after the completion of the research study.

VII. Statement that involvement in the Research Study is voluntary
• • Participants may withdraw from the Research Study at any point.

VIII. Any other relevant information

•   • All participants must be professional accountants working as internal and external auditors in Metro Manila only regardless of which professional services firms or service lines they belong.

If participants have concerns about this study and wish to contact an independent person.
Please contact:
Dr Garrett Ryan,
Griffith College Research Ethics Committee
South Circular Road, Dublin 8, Ireland
Mail: garrett.ryan@griffith.ie
Tel: +353 1 4163324 D

Appendix B – Informed Consent Form
Griffith College GBS
APPENDIX B: Informed Consent Form
I. Research Study Title
The research study is entitled as ''Perception of Work-life Balance and the Effects on Job Satisfaction and Productivity Among Filipino CPAs' being conducted by Ranielyn Tan Manuel, a MSc student in Accounting and Finance Management at Griffith College Dublin.
II. Clarification of the purpose of the research
The purpose of this study is to examine how commuting stress affects perceived work-life balance (measured by level of burnout tendencies) and its impact on job satisfaction and productivity. This also gives insights on Filipino CPAs' level of stress and burnout levels which may highlight an issue on management of human resources which must be recognized and addressed to sustain the profession. Aside from gaining understanding on the work-life balance status of professional accountants, this study aims to understand further the shift in culture and its impact and the possibility of reshaping the workplace to attract and maintain key talents and ensure job satisfaction and employee productivity. This also aims to provide insights to help guide the career path of future accounting professionals.
III. Confirmation of particular requirements as highlighted in the Plain Language Statement
Participant – please complete the following (Circle Yes or No for each question)
I have read the Plain Language Statement (or had it read to me) Yes/No
I understand the information provided Yes/No
I have had an opportunity to ask questions and discuss this study Yes/No
I have received satisfactory answers to all my questions Yes/No
IV. Confirmation that involvement in the Research Study is voluntary
Participants' involvement in this study is totally voluntary. As such, withdrawal is permitted from this study at any point.
V. Advice as to arrangements to be made to protect confidentiality of data, including that confidentiality of information provided is subject to legal limitations
The data collected will be analyzed by the researcher alone. Survey will be conducted anonymously thus participants answers will never be identified to each of them/company's name in the dissertation.
VII. Signature:
I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project
Participants Signature:
Name in Block Capitals:
Witness:
Date: D

Appendix C – Survey Questionnaire

Robotics Process Automation: A revolution in the Accounting Industry,

A study on deposit money banks.

1. Are you an Accountant

○ Yes

○ No

2. Years in service in the bank?

○ 0-5

○ 6-10

○ 11-15

3. Have you heard of Robotic Process Automation before?

○ Yes

○ No

○ Not sure

4. Are you aware of the unified theory of acceptance and use of technology in your bank?

○ Yes

○ No

○ Not sure

5. The automation of tasks using RPA

SECTION A: Demographic Data

INSTRUCTION: Please you are required to tick (√) as appropriate

1. Sex: Male ( ) Female ( ) other ( )

2. Age: a. 21-30 ( ) b. 31-40 ( ) c. 41-50 ( ) d. 51 and above ( )

3. Marital status: a. Single ( ) b. Married ( ) c. Divorced ( ) d. Widowed ( )

4. which of the following categories best describe your employment status?

() employed, full-time () employed, part-time () not employed, looking for work () not employed, not looking for work () retired () disabled, not able to work

5. Years in service: a. 0-5 years ( ) b. 6-10 years ( ) c. 10-15 years ( ) d. 16 years and above ( )

SECTION B: Variable Questions

INSTRUCTION: Please you are required to tick (√) as appropriate

SECTION BI: Record Keeping

6. The automation of tasks using RPA facilitates fast data collection in Banks

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

7. Through the aid of RPA organizations are able to store data easily without consuming physical space.

8. RPA enables banks to easily prepare data

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

9. RPA helps banks to operate an efficient database for decision making.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

SECTION BII: Receipt and Payment

10. RPA enables banks to process the receipt of large invoices easily.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

11. RPA facilitates the ability of banks to process large amount of invoices at the same time without errors.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

12. By automating receipt and payment, RPA can serve large number of customers than staffs.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

13. RPA enables an organization to provide its clients with an instantaneous financial position for decision making

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

Section III: Cost Reduction

14. Does your bank uses RPA as a strategy for reducing cost.

a. yes ( ) b. no ( ) c not sure ( )

15. By automating tasks using RPA, accountants in the banking industry are been replaced by robots?

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

16. RPA helps banks to reduce the number of personnel needed to process receipt and payment invoices from individuals and organizations.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

17. Does the automation of monotonous, tedious and repetitive tasks helps banks to save money

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

Section D: Robotic Process Automation

18. RPA have improved the ability of banks to improve their service delivery.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

19. Has RPA enable banks to improve their employees' job satisfaction.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

20. Has RPA has improved employees' operational efficiency in the bank industry.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )

21. By delivering better customer service through RPA, banks have gained competitive advantage in the industry.

a. Strongly Disagree ( ) b. Disagree ( ) c. Undecided ( ) d. Agree ( ) e. Strongly Agree ( )