Benefits and Challenges in Robotic Process Automation: A Case Study in DHL Global Forwarding (M) Sdn Bhd Malaysia

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DECLARATION OF ORIGINAL WORK

I hereby declare that all the work of this thesis entitled "Benefit and Challenges in Robotic Process Automation: A Case Study in DHL Sdn Bhd Malaysia" is original done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

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DEDICATION

I'd want to express gratitude to the members of my family who took the time and effort to see to it that I got a good education and stayed motivated to keep going to college. Inaddition, I would like to thank Dr. Amiruddin Bin Ahamat, my professor and the supervisor for my senior capstone project, and all my other classmates and friends. Throughout this investigation, they have been there for me, offering guidance and assistance at every turn. The timely completion of this study is dependent on their approval and support.

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ABSTRACT

An examination of the literature that has come before on the same topic is offered here. Robotic process automation (RPA) is a method for completing repetitive business processes without the need for human intervention. Researchers have also published previous papers proposing solutions to help the logistics and supply chain industries deal with the challenges brought by RPA. In this research, there were three things that have been figured out: The benefits of implementation of RPA, Challenges of RPA, and technology acceptance among DHL Global forwarding (M) Sdn Bhd Malaysia employees. The goals of this study were attained by the development and testing of enlarged research questions. DHL Global Forwarding (M) Sdn Bhd Malaysia. Bhd. undertook a review of the framework which is Technology Acceptance Model (TAM) to evaluate the qualitative methods to deal with the benefits and drawbacks of their current situation. Three workers of DHL Global Forwarding (M) Sdn Bhd in Malaysia were interviewed to provide the bulk of the study's main data. This study employs a qualitative approach to research. Using the descriptive approach as a study design, the researcher crafts questions for respondents to answer in an interview. The researcher founded the benefits of implementation RPA which are to increase better customer experience, increase in productivity, increase efficiency, reduced errors, and better data analytic and for the challenges are lack of knowledge and experiences, technical support, and computer anxiety. Lastly, the researcher believes that robotic process automation brings positive impact towards DHL Global Forwarding (M) Sdn Bhd Malaysia.

Keywords: Robotic Process Automation (RPA), Technology Acceptance Model (TAM), Benefits, Challenges

ABSTRAK

Pemeriksaan kesusasteraan yang telah datang sebelum topik yang sama ditawarkan di sini. Automasi proses robotik (RPA) adalah kaedah untuk menyelesaikan proses perniagaan berulang tanpa memerlukan campur tangan manusia. Penyelidik juga telah menerbitkan kertas kerja sebelumnya yang mencadangkan penyelesaian untuk membantu industri logistik dan rantaian bekalan menangani cabaran yang dibawa oleh RPA. Dalam penyelidikan ini, terdapat tiga perkara yang telah difikirkan: Manfaat pelaksanaan RPA, Cabaran RPA, dan penerimaan teknologi di kalangan kakitangan DHL Global forwarding (M) Sdn Bhd Malaysia. Matlamat kajian ini dicapai dengan pembangunan dan ujian soalan penyelidikan yang diperbesarkan. DHL Global Forwarding (M) Sdn Bhd Malaysia. Bhd. telah menjalankan kajian semula rangka kerja tersebut iaitu Model Penerimaan Teknologi (TAM) untuk menilai kaedah kualitatif bagi menangani faedah dan kekurangan keadaan semasa mereka. Tiga pekerja DHL Global Forwarding (M) Sdn Bhd di Malaysia telah ditemuramah untuk menyediakan sebahagian besar data utama kajian. Kajian ini menggunakan pendekatan kualitatif untuk penyelidikan. Menggunakan pendekatan deskriptif sebagai reka bentuk kajian, penyelidik membuat soalan untuk responden menjawab dalam temu bual. Penyelidik mengasaskan manfaat pelaksanaan RPA iaitu untuk meningkatkan pengalaman pelanggan yang lebih baik, meningkatkan produktiviti, meningkatkan kecekapan, mengurangkan kesilapan, dan analisis data yang lebih baik dan untuk cabaran adalah kekurangan pengetahuan dan pengalaman, sokongan teknikal, dan kebimbangan komputer. Akhir sekali, penyelidik percaya bahawa automasi proses robotik membawa impak positif kepada DHL Global Forwarding (M) Sdn Bhd Malaysia.

Kata kunci: Automasi Proses Robotik (RPA), Model Penerimaan Teknologi (TAM), Faedah, Cabaran

TABLE OF CONTENT

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
RPA	Robotic Process Automation
HITL	Human-In-The-Loop
AI	Artificial Intelligence
OCR	Optical Character Recognition
TRA	Theory Reasoned Action
TAM	Technology Acceptance Model

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter will include the background of the study, problem statement, research questions and objectives, scope of study, research limitations and significance of the study.

1.2 Background of Study

During the last several years, a growing number of businesses have shifted their focus to digital systems. It is very uncommon for broad adoption of such technologies to lead to significant changes in the operations of existing businesses, the birth of new business models, and even the introduction of whole new sectors (Berman, 2012). The process through which these adjustments are made is called "digital transformation" (Suryono, R, 2015). Another frequent definition of digital transformation is "the act of making something better by causing it to change significantly in keyways by making extensive use of digital information, computing, communication, and connection technologies" (Vial, G., 2016).

Numerous studies have shown that this method of transforming organizations improves organizational resilience, which is defined as "the firm's ability to effectively absorb,develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival" (Zhang et al., 2021). In the future, "digital technology will be an increasingly vital part of corporate resilience," with data analytics, digital tools, and automation becoming essential for all businesses (El-Shahawy et al., 2022).

More and more organizations are turning to IT solutions, chief among which are software robots, to automate operations, laying the groundwork for digital transformation.Even more intriguing is Swan's emphasis on the rise of an automation economy, which centers its analysis of economic functioning on scenarios in which robotic technology is used to supplement or replace the majority of human work (Swan, 2017).

The phrase "software robot" has close ties to the idea of Robotic Process Automation (RPA). There are two schools of thought on the topic in academic literature. From a more restricted perspective, RPA is only the program that allows developers to create software robots that can do human jobs (Willcocks, 2016). From what we can see, RPA solutions are the most rapidly expanding subset of digital transformation technologies in the present IT market (Wadhawani, 2020). In a larger sense, RPA implementation is not equivalent to software implementation; rather, it should be seen in the context of the execution of a seriesof business changes and the outcomes of those changes (Willcocks, 2016).

With robotic process automation, specific technologies are applied to automate mundane, routine, standardized tasks, leading to increased productivity and value for a decreased cost. This is accomplished by letting a computer program, or "software bot," capture and interpret applications for processes that involve data manipulation, transaction execution, triggering responses, and communicating with other digital systems within the domain (Sobczak, 2022).

Due to the high frequency of transactions and the substantial advantages that may be achieved in a very short amount of time, this method is quickly gaining favour, particularly in the banking and financial industries. When manual processing bottlenecks are addressed, automation's advantages grow in proportion to the degree of the enhancements made. The RPA platform gives companies the scalability it needs to execute at a high level and remain there (Sobczak, 2022).

1.3 Problem Statement

According to Elizabeth Mixson (2021) RPA "bots" aren't always compatible with other programs. Automation leaders may get beyond these hurdles by expanding their use of robotic process automation (RPA) and creating a company-wide strategy for using RPA that is intrinsically tied to their digital transformation initiatives. Pascal Bornet's recent book, "INTELLIGENT AUTOMATION," includes a case study in which a bank improved its resolution of fraud by 30 percent after using a single RPA tool. More than 70 percent more fraud cases were resolved and $100 million was saved when the bank used the tool throughout an end-to-end process and integrated it with several digital technologies.

Moreover, Elizabeth Mixson also states that it is simple and inexpensive to automate between 70 and 80 percent of a process. But at that point, the price of technology tends to explode. A study found that although full automation is ideal, it might be five times more costly than automating only 80% of a process. This is because automating the last 20% wouldneed far more complex automation code than was needed for the first 80%. Many businesses instead choose a human-in-the-loop (HITL) method, also known as Attended Robotic Process Automation (RPA). To fulfil its task, attended RPA must engage with a human in some way. To illustrate, suppose an anomaly or mistake is encountered by the RPA bot. Instead of continuing as normal, the bot will alert a human to double-check the data. Over half of all RPA processes (57% as of early 2018) involve human interaction, and attended RPA has a more developed adoption maturity and bigger installed base in terms of license quantities than unattended RPA (no human intervention necessary).

According to Jason Dzamba (2022) due to a lack of adaptability in RPA, it is difficult to test various processes. Businesses that decide to engage in RPA must often front hefty startup expenditures to get their automations up and running. When the bot is up and running, there is not much money left over to improve its performance or add new features. The robots has experience with all the main RPA systems, including UiPath and Automation Anywhere. Typical RPA providers have high initial costs and ongoing license fees for each bot automaton. Traditional RPA suppliers' insistence on costly bot licensing undermines the promise of digital transformation. A company should use iterative testing to determine which kind of automation will be most beneficial. It is important to have licensing and implementation flexibility when determining which processes may be automated using RPA. The creation of an RPA goes through cycles of development. While bots may seem easy to create in theory, integrating them into an organization's current framework is a complex task that is frequently disregarded. Leaders may choose the next steps for the automation pipeline if they make educated choices about the return on investment and effect of their RPA.

1.4 Research Questions

The researcher determined two research questions in this study:

i-   How could RPA benefits in DHL Global Forwarding (M) Sdn Bhd Malaysia?

 ii- What are the challenges of RPA in DHL Global Forwarding (M) Sdn Bhd Malaysia?

 iii- What are the perceptions of technology acceptance of RPA among DHL Global Forwarding (M) Sdn Bhd Malaysia employees?

1.5 Research Objectives

In this research, there are two research objectives to be figured out:

 i- To determine the benefits of Robotic Process Automation (RPA) in DHL Global Forwarding (M) Sdn Bhd Malaysia.

 ii- To investigate the challenges of adopting Robotic Process Automation in DHL Global Forwarding (M) Sdn Bhd Malaysia.

 iii- To investigate technology acceptance of RPA in DHL Global Forwarding (M) Sdn Bhd Malaysia.

1.6 Scope of the Study

 The research is focuses on in DHL Sdn Bhd Malaysia which aims to determine the benefits and challenges of Robotic Process Automation. The data collection will be collected from DHL employees. The research would be done through the utilization of interview questions during interview session and other references. Thus, with the results that gain from them, the researcher can profile the benefits and challenges of Robotic Process Automation in in DHL Sdn Bhd Malaysia.

1.7 Significant of Study

 The logistics and supply chain sectors stand to gain from this study by learning how robotic process automation might improve their operations. Next, this study will aid the logistics and supply chain sectors in overcoming the obstacles presented by RPA. Finally, future researchers would benefit from this study because they would have access to additional material that may be useful to them in their own investigations and, perhaps, have some of their own questions addressed.

1.8 Definition of Terms

    I.   Robotic Process Automation (RPA)

Robotic process automation (RPA) is a technique for carrying out routine corporate tasks by computerizing the ways in which humans now accomplish those tasks, whether it via a single application interface or a combination of interfaces, analytics, and rules-based decision making (Deloitte, 2017)

    II.   Digital Transformation

To adapt to changing business and market needs, organizations are increasingly turning to digital transformation, which entails reimagining or redesigning core elements such as procedures, organizational culture, and customer interactions. Digital transformation refers to this process of rethinking company practices for the Internet Age (SalesForce,2020).

    III.   Artificial intelligence (AI)

This 2004 article (PDF, 106 KB) by John McCarthy provides a definition as he sees it "The study and development of intelligent devices, in particular software that can think for itself. The goal of utilizing computers to study human intelligence is similar, but AI is not limited to approaches that can be seen in living organisms."

1.9 Summary

In conclusion, this chapter discusses the overview of the study. It discussed the background of the study, problem statement, research questions, research objectives, scope and limitation of the study, and significance of the study. In the coming chapter, the researcher will carry out the literature review of the study. The information will be broader and more understandable.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher will discuss some of the debates and studies that have come before on this same issue. The researcher will present a thorough review and improvement on the research done on the benefits and challenges of RPA in DHL Malaysia. The research framework will be considered while chapter 2 is being written.

2.2 Definition of Robotic Process Automation (RPA)

Robotic process automation (RPA) is a technique for carrying out routine corporate tasks by computerizing the ways in which humans now accomplish those tasks, whether it via a single application interface or a combination of interfaces, analytics, and rules-based decision making (Deloitte, 2017). Robotic process automation (RPA) is the automated execution of processes, activities, transactions, and tasks across many software systems, with human exception handling (IEEE Corporate Advisory Group, 2017). Repetitive process automation (RPA) may automate operations that employees must consistently execute to improve processes, and RPA solutions are intended to lessen the load of basic, repetitive jobs on workers (Aguirre & Rodriguez, 2017). Therefore, RPA is comparable to other conventional forms of automation, such as the use of assembly-line technology (Moffitt, Rozario, & Vasarhelyi, 2018). Thus, RPA automates portions of the process by exchanging current human processes with automated ones at the presentation layer only, as opposed to developing new systems or reengineering old ones (IRPA, 2016). Therefore, RPA maystreamline corporate processes and boost efficiency by substituting human labour with digitallabor.

Robotic process automation (RPA) is quickly becoming an integral part of modern businesses. Payroll, hiring and onboarding new employees, managing finances, issuing invoices, keeping track of stock, generating reports, migrating data, and other fundamental business activities may all benefit from automation. In addition, RPA may be used in many

other sectors, including the healthcare and pharmaceuticals industry, the financial services sector, outsourcing, the retail sector, the energy and utilities sector, real estate, and the fast-moving consumer goods sector (Madakam, Holmukhe, & Jaiswal, 2019). The RPA, for instance, may be employed as an autonomous overlays of current IT systems to carry out consolidated audit activities or analysis across disparate software platforms (Huang & Vasarhelyi, 2019). Naver introduced a cardbot in September 2015; it provides purchasers with a number of different choice practices based on one of the most commonly requested queries (Heo & Lee, 2018). Financial organisations increasingly utilise smart spreadsheets to provide automated financial services, tablet banking, and virtual contracting processes (Chang & Park, 2018). In the realm of artificial intelligence for recruitment, integratedsolutions can quickly assess data from vast pools of candidates via document inspections, personality tests, interview screening, and judgement suggestions (Son, Lee, & Chang, 2019).Firms looking to deploy RPA should weigh the projected operational improvement from RPAagainst the price of hardware/software investment/implementation and related change management expenses.

2.2.1 History of RPA

Numerous sectors have expanded their investment in software automation in response to the rising popularity of automated processes. Automation technology was utilised by companies like IBM, Oracle, and others in the 1990s to push the automation of administrative tasks. Early screen scraping tools, industrial process software, and even Microsoft Office's "Macro" feature all contributed to the evolution of robotic process automation. To convert the information shown on a computer screen into a format that can be stored in a database, there is a tool called a screen capture tool. Banks, travel agencies, airlines, and other businesses now regularly use the practise of screen scraping. Software designed to automate operations that are traditionally carried out manually inside an organisation, such as approvals, changes, and data entry, have numerous potential uses.

There has been a worldwide uptick in cost-cutting strategies for manufacturing since the turn of the century. These strategies include the Lean Six Sigma management model, process optimization, business software enhancement, and outsourcing of workers. Many businesses nowadays turn to RPA because of the money it may save them in this area.

Currently, they have used RPA across a wide range of repetitive business processes in an effort to boost productivity and enhance the quality of their offerings to customers.

Everest Group on the Evolution of RPA states that there are three distinct phases of RPA development.

One, it uses a logical and organised framework for handling massive amounts of data. For instance, it may get rule information from emails, enter it into a spreadsheet, save the spreadsheet to a database, and then send out emails to clients and staff.

Second, it's built on complicated tasks and unstructured data. Optical character recognition (OCR) technologies are used to enter non-standard data into various systems, while chatbots and voice recognition technology are used extensively to provide instantaneous support to customers.

Thirdly, AI is integrated into the system to handle complex mental workloads. At this point, RPA uses well-crafted algorithms to suggest the best course of action and offer an advisory choice. For instance, a robot may utilise machine learning to analyse loans and expert algorithms to approve insurance policies, as well as offer the best items to clients. The future of cognitive automation is AI integration with RPA.

2.2.2 Capabilities of RPA

Here are a few ways in which RPA stands apart from other automation methods:

i.   Since RPA may be deployed on top of already infrastructure and have access to pre-existing platforms through the presentation layer, no new underlying systems programming logic is required (Enríquez et al., 2020).

ii.   Robotic process automation (RPA) is a piece of computer code designed to do tasks in a manner like a person. It's simple to use; simply move and drop symbolsaround and connect them to make new things (Yucun Wang, 2021).

iii.   There is no requirement for a database, as there would be with a Business Process Management system, since RPA does not generate a new application or store the transactional data (Enríquez et al., 2020).

2.2.3 Benefits of RPA

Since RPA increases both worker output and overall workflow efficiency, it presents significant new possibilities for businesses. Automation aids in the control of routine tasks and the establishment of uniform procedures. The most notable gains from using RPA are:

i.   Spend less money on manufacturing without sacrificing quality, since "RPA adoption permits cost savings of 25% to 75% by enhancing the performance metrics of the applied functions" (Willcocks & Lacity, 2016). Real estate consultant Jones Lang Lasalle predicts that as a result of banking process automation, the number of bank branches could drop by as much as 20% within the next five years, and the average bank branch could shrink in size from 5,000 square feet to 3,000 square feet,saving as much as USD 8.3 billion per year according to Sylwia Wojciechowska- Filipek (2019).

ii. Increase output since people are no longer wasted on low-value tasks thanks to robotic process automation. RPA will increase overall system efficiency by promoting the new team division method of "machine Plus human." Robots can conduct routine tasks like data entry, report generation, and account management, while humans can focus on more nuanced tasks like report analysis and routine quality control (Yucun Wang, 2021). Unlike human employees, RPA is available around the clock to tackle international issues.

iii. Errors at work are minimised, and data is secure and trustworthy, provided the logic settings are applied correctly. Repetitive process automation (RPA) is useful for lowering the rate of mistakes made by humans while doing routine operations(Yucun Wang, 2021).

iv. Instead using techniques that expose sensitive data (like outsourcing businesses), RPA may retain everything under internal control (Yucun Wang, 2021).

v.   This RPA system can accommodate a wide variety of tasks and system designs (Yucun Wang, 2021). Concurrently, the RPA system may be deployed in a variety of ways and scales quite well.

vi. Speed up the time it takes for a business to respond to a customer inquiry by using robotic process automation (RPA) to deliver consistent answers to frequently asked questions, boost the quality of interactions with customers, and scale up the quantity and quality of service provided to many users simultaneously (Yucun Wang, 2021).