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A Study Comparing Robotic Process Automation with Non-Automated Processes in HR To Improve Productivity and Competitiveness Worldwide.

Nellimala Abdul Shukoor[1], Dr. Amiya Bhaumik[2]

[1]MS Supervisor, Lincoln University College, Malaysia
Email id - ashukoorni@lincoln.edu.my
[2]Vice Chancellor ,Lincoln University college, Malaysia
Email ID: amiya@lincoln.edu.my

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ABSTRACT

This study compares the efficiency of Robotic Process Automation (RPA) in HR Mmanagement (HRM) of companies with Manual or non-automated processes. The study focuses on identifying the potential benefits associated with the use of RPA. It uses a systematic literature review and an interview of 20 HR professionals from various industries to investigate the changes they have observed in their organizations with the implementation of RPA-HRM. The study also explores the opportunities and challenges that RPA highlights when it is used in an organization. Therefore, the study addresses the need for a strategic approach while adopting automation processes for simplifying the data management tasks of the HR department.

The findings of the study reveal that while using the manual HR processes the organization faced issues of time and resource consumption and the decreasing engagement of employees due to exhausting mundane tasks. It was also prone to inaccurate results due to human error. The results highlight the use of RPA somehow mitigates these challenges and it provides cost efficiency, and saves time for the firm. Also, it allows employees to engage in constructive work that eventually provides a competitive edge to the organization globally.

However, there are some recommendations provided that ensure an efficient use of RPA. It suggests that the automation process must be planned according to the needs and goals of the organization and in this the repetitive and data-oriented tasks should be preferred for automation. Also, the implementation of automation services must e complemented with strong security measures that can minimize the risk of data breaches.

Keywords: Robotic Process Automation, Human Resources, Manual HR processes, Global Competitiveness, Recruitment processes, automating tasks, repetitive tasks, change management, comprehensive training.

INTRODUCTION

There is a rising popularity of Robotic process automation (RPA) HRM solutions in various industries. The industry leaders are adopting this to autotune their operations in HR, banking, medical, healthcare, telecommunications, construction and other sectors [7]. Particularly in corporate operations, using RPA-HRM has been considered to be essential as it efficiently boosts productivity, reliability and rapidity.

Robotic Process Automation significantly supports companies in saving their process time by automating repetitive and manual tasks, particularly in HR areas such as talent pool assignments, candidate sourcing and screening [10]. RPA-HRM solutions allow recruiters to easily and quickly source, identify, validate and recruit suitable candidates. This not only simplifies the recruiter's tasks but also directly impacts management practices such as salaries and wages, worker state modifications, finances debit and credit, and invoicing. Also, automation processes contribute in inventory management, program setups and information transfer among the team. Overall, the RPA-HRM is HRM basically builds a roadmap of bots to implement in the existing processes. It is integrated with the help of specialised system integration partners who have experience in this field. So, it is a collaboration of IT works with the existing operational activities of the firm by considering the standards of the company. In recent years, RPA-HRM has emerged as an efficient way for generating mass job postings, candidate sourcing,

talent pool assignments, document validation and background verification with an effective and engaging candidate communication system [3].

I. RESEARCH PROBLEM

A. Research Problem

As the business landscape is rapidly evolving, it has changed the perspectives and demands of both companies and candidates. With an increase in the number of candidates and the need for the selection of skilled candidates for firms, recruitment has become a hectic and time-consuming task. The entire process of recruitment comprises several levels, due to which companies find it challenging to invest their time and human resources [2]. They want to focus on more challenging tasks, such as managing quality and finances so that they remain competitive. Therefore, to manage the processes of HRM, Robotic Process Automation is seen as a promising solution as it is modern, efficient and automated, but its effectiveness is still not empirically justified. Therefore, this research paper attempts to explore the explore the efficiency, reliability and feasibility of implementing RPA-HRM in the HRM by comparing it with manual HRM processes.

B. Research Objectives

Objective 1: Identify what difficulties the corporate companies are facing with the manual process of HRM.

Objective 2: Evaluate the effectiveness of RPA-HRM in the human resource management of corporate companies in terms of efficiency, reliability and feasibility.

Objective 3: Examine the possibilities that the human resource departments of corporate companies will implement RPA-HRM in their existing processes.

Objective 4: Analyse the ways that can contribute to making organisations globally competitive and sustainable by reducing recruitment costs, enhancing effectiveness and selecting competent manpower with minimum process time.

II. LITERATURE REVIEW

A. Robotic Process Automation

Robotic Process Automation or RPA-HRM can be defined as a software-enabled technique that uses robotics to imitate repetitive operations of a firm using data. It is an innovation that assists multiple sectors in progressing and being competent as the forerunners of their respective sectors [11]. The RPA-HRM technology continuously evolves as it integrates current functionalities and uses available resources to automatically perform fundamental operations that eventually save time as well as financial expenses on corporate operations [9]. Considering its efficiency and effectiveness in providing an all-round benefit, the RPA-HRM is increasingly being adopted by organisations to reduce the load on their workforce and get a competitive edge.

B. Difficulties with Manual HR processes

The existing manual HRM processes in corporate companies highlight several challenges specifically due to its demand for repetitive and time-consuming HR tasks related to data entry, employee onboarding, payroll processing and so on. Due to the rapidly emerging trends in the business world, companies often want to use their manual workforce for constructive work, which highlights the urgency for significant change in traditional HRM practices (El Motaleb, 2021). Also, manual processes are extremely vulnerable to human errors, inefficiencies and delays, which can hinder organisational effectiveness and productivity. Over the years the working system for any industry has significantly changed [14]. Particularly in the HR process, there is an increased use of data that has become difficult for companies to manage. For instance, the recruitment process under HRM has become more data-based, and there are plenty of candidate applications for a single position. In fact, the candidates also prefer to choose companies according to their skills, experiences and preferences. Managing the preferences and fulfilling the demands of the position among a wider pool of talented participants becomes cumbersome for companies to manage manually [13]. Therefore, the HR departments need an efficient alternative process that can help them manage employee information, compliance and reporting effectively so that they can perform operations timely and accurately and maintain the reputation as well as the competency of the firms.

C. Effectiveness of RPA

With digitalisation around the world, AI and machine learning have revolutionised modern recruitment practices. It has significantly enhanced the efficiency, reliability and feasibility of various HR operations by automating

repetitive tasks and reducing the processing time by almost 50% [18]. Industry heads prefer the use of RPA-HRM because it not only saves costs and time but also improves the overall employee experience as it allows them to focus on conceptual tasks rather than mundane tasks [12]. Also, the accuracy of data processing is another critical benefit of this process; it eliminates human error and, therefore, ensures consistent and reliable results [15]. As per the reports of Deloitte Insights (2020), 57% of business or industry leaders predict that AI will "substantially transform their company in the next three years.

Despite having the multiple benefits of using RPA-HRM in the daily operations of the firm, progressive Global organisations have also recognised that along with the adoption of modern technologies for effective talent and employee management, it is also important to augment those with human intervention [7]. As the tools that are used in the RPA-HRM software often lack when it comes to a human centric approach. For instance, chatbots are used to legitimate messaging through expression analysis and effectively manage applicant interaction, but sometimes they fail to make decisions based on emotions or any capability that is not present in their data. For this, it also becomes necessary to train employees with their adaptive capabilities so that they can better combine their cognitive capabilities with innovative technologies [21]. Overall, RPA-HRM is effective, but its benefits can be utilised with significant human support and intelligence. So, it must be implemented in a firm with careful planning. The organisation needs to strategically plan the processes of RPA technologies that suit the organisation's automation level, address security issues and resolve data privacy concerns so that it can maximise the benefits of RPA.

D. Enhancing Competitiveness through RPA Integration

In this globalised business landscape, the RPA-HR has emerged as an innovative and effective technology that significantly contributes to making organisations globally competitive. It allows firms to reduce investments in recruitment processes while improving the speed and competency in selecting suitable workforce, managing workload, synthesising payrolls and managing employee performance [22]. The RPA-HR provides ease in doing these burdensome works and makes companies more competent as compared to companies that still rely on manual and non-automated processes for these works. The use of RPA effectively enhances the sustainability of organisations as it provides agility by understanding the market changes beforehand and strategizing their operations accordingly [6]. The integration of RPA systems allows companies to keep track of their past strategies, effects and challenges along with the actual data which is not possible for humans to manually keep track of everything. This efficiency allows organizations to maintain the growth strata of their organisation and helps them to remain competitive and sustainable in the long run [17].

III. METHODOLOGY

The methodology of this particular study comprises a systematic literature review on the implementation, effectiveness and difficulties of using RPA-HRM in different organisations. Also, a semi-structured interview is also conducted with industry heads to understand the efficiency as compared to non-RPA-HRM using firms and implementation issues that arise in the integration of RPA-HRM processes. This multi-method approach is based on the positivist research philosophy and provides a holistic understanding of the research topic by understanding the subjective viewpoints based on the qualitative data [5].

The study is carried out using qualitative data from both primary and secondary sources, it included the analysis of the existing literature or case studies of the companies who are using RPA-HRM processes and issues highlighted by companies who are still using manual processes. For this, the content analysis of the relevant literature is carried [16]. Also, for collecting the real-life insights and practical perspectives, the semi-structured interview of the participants is used. It helped in identifying key themes associated with the opportunities and challenges in implementing RPA-HRM solutions. This approach has been chosen for the study because it helps to draw conclusions from the practical experiences of the participants and provides flexibility to explore these thoughts and experiences while maintaining the structure of the questions. The interviews have been conducted via Google Meet and or Zoom, and the responses are transcribed for further analysis. For conducting the research, a purposive sampling method is used for selecting 20 participants for the interview [19]. While considering the inclusion criteria that the participants must be HR professionals, they have implemented the RPA in their company and they must have experience in the field for at least 3 years it has been ensured that the selected participants represent various industries.

Considering the ethical concerns during the study, each participant has been contacted through email and their consent has been taken before conducting the interview. The participants were information about the research and the use of their information. Also, all the guidelines are followed to ensure anonymity and to protect the privacy of the participants. Participants had the right to withdraw from the research at any time without any justification. By securing the ethical approvals of the participants, the study ensured a responsible approach towards research and significantly contributed to the credibility of its findings [8].

IV. DATA ANALYSIS

For analysing the qualitative data of the research, a thematic analysis has been presented based on information gathered through the literature review and semi-structured interviews conducted with the HR professionals of various industries. Thematic analysis is a commonly used technique for analysing qualitative data; it identifies, analyses and highlights the repetitive themes or patterns in a given set of data [20]. It is an effective technique that identifies the complexities, benefits and challenges associated with the adoption of Robotic Process Automation in the existing HR procedures of the firms and eventually contributes to addressing the research objectives.

A. Theme 1: Challenges of Manual HR Processes

The existing literature on the issues in Manual HR processes highlighted that traditional HR processes are often fraught with significant inefficiencies, and these are quite vulnerable to human errors. A study by [1], argues that Using manual HR processes becomes challenging, specifically in the recruitment process. It takes enough time to select, recruit, train and manage candidates based on the job requirements. Since in this globalised world, the job requirements constantly evolve for both employee and the employer, it becomes difficult to maintain pace. The majority of the HR professionals also agreed with the point that recruitment becomes the most difficult task when a firm uses Manual HR processes. They reported that they need to spend excessive time analysing the candidate's data and identifying of suitable one, it becomes exhaustive and repetitive frustrates them, and often decreases their productivity as well as affects their morale.

Another complexity that arises in the literature is the difficulty in managing high volumes of employee data, analysing their performances, managing payrolls, rewards and other aspects effectively. So that the firm can ensure employee satisfaction and increase their retention in the firm [13]. The interviewees also expressed concern in this regard; they acknowledged that using manual HR processes for employee management highlights concerns associated with the accuracy and accessibility of large volumes of data about their performance over a period of time. The participants also acknowledged that manual HR processes always remain prone to inaccuracies or errors that eventually impact operational efficiency and result in repercussions in both financial and reputational aspects. Both the literature review and interview data provide strong evidence for inefficiencies of the manual HR processes across various sectors. It is time-consuming, needs the significant effort of workforce, comprises repetitive and exhausting tasks and remains vulnerable to human error, so this process is not sustainable for the firm's long-term growth and development. The data highlights the need for potential transformation in HR processes that can make organisations competitive and pave the way for a successful and bright future.

B. Theme 2: HR Operations enhanced with the use of RPA-HR

One of the prominent themes that emerged from both the literature review and interviews is the potential of RPA in significantly enhancing the efficiency of the existing HR operations. Studies by [15], claimed that the integration of RPA has made the HR processes more effective and efficient, and it has minimised human error. Robotics has emerged as a revolutionary area of development, and it made the process of working more rapid and precise. Also, it allowed the organisation to offer 24 by 7 services without hampering the mental and physical health of their workforce [18]. Interviewees who have already implemented RPA-HR in their organisation also reported that the integration of RPA in their HR processes has considerably reduced processing times for tasks; they spend less than 50% of time managing onboarding, payroll and employee performances as compared to those they used to take in manual processes. These overviews closely align with the findings of literature that suggests the implementation of RPA in the firms is effective as a substantial time-saving tool.

Additionally, the existing literature, such as [12] and Devaranjan (2018), also claimed that automated processes are being used in multiple industries such as healthcare, finance, telecom, energy and utilities and so on. It can improve the accuracy and efficiency of repetitive work and relieves employees from these mundane tasks. It

improves the morale of the employees and eventually contributes to increasing productivity. The interviewees also accepted RPA-HR as a reliable data management tool; they said since RPA minimises the burden of the employees with accurate data processing employees tend to focus on more engaging and challenging activities. They agreed that due to the implementation of RPA, the employee have better morale, and they enthusiastically invest their time and talent in jobs that are less routine. However, existing literature and data from the interview also indicate that the use of RPA-HR allows organisations to achieve consistent and compliant HR operations by automating some mundane tasks.

C. Theme 3: Implementation Consideration for RPA

The interview of the participants revealed that the successful implementation of RPA needs effective change management strategies in the firm. The HR professional shared their experiences and highlighted the difficulties that they face due to a lack of knowledge among the workforce; they admitted that in the beginning, some members were sceptical about the implementation of RPA, and therefore, they opposed its integration. Based on these experiences the interviewees expressed that there is a need for comprehensive training programs for the employees that can help them to adapt to the new technologies easily. The existing literature also supported this concern. As a study by [21] argues that the implementation of RPA-HR in a firm needs a socio-technical approach that not only comprises technical training of the existing workforce but also needs an accepting mindset of the employees with a detailed understanding of the importance of RPA processes in their work that will minimise the adaptation issue in the organisational settings.

Additionally, the interviewees also highlighted a concern over security and data privacy when RPA is being used for managing HR practices. An HR manager of IT shared an incident of data breach in their organisation, which led to a tough situation for their company. They said that they were constantly conscious during the implementation phase about the data which is being provided to the system so that they do not face issues later [3].

Concerning the need for change management and possible issues in RPA processes, there is a need to identify suitable processes for automation. The study by [3] argues that while implementing the RPA-HRM processes, organisations must understand their working requirements and then strategically evaluate where they can use automation processes that can yield to high return on this investment [7]. The HR professionals also suggested that the organisations must prioritise repetitive and rule-based tasks while implementing automating features so that they do not replace the employees but rather support them to work efficiently for the firm.

D. Theme 4: Global Competitiveness and Sustainability

The Integration of RPA-HRM in the organization significantly enhances the global competition and sustainability of the firm. As highlighted by [22], there is a rising competition among businesses, and organisations often look for cost-effective and highly efficient resources that can reduce their processing time and expenses; for this purpose, RPA has shown positive results. As interviewees noted automating the recruitment processes has allowed the HR teams to focus on strategic initiatives such as talent development rather than spending their valuable time on repetitive data-driven tasks. The valuable insights of the participants and literature such as [17] indicate that RPA has the ability to achieve faster hiring cycles and lower operational costs for organisations that can contribute to providing a competitive edge. Also, the study by [6] argues that RPA systems efficiently use data to forecast market demands, which helps the company to respond quickly to the market demands. The interview participants also agree that the integration of RPA-HR has enabled HR departments to operate more flexibly, which is crucial for the rapidly changing environment for maintaining the sustainability of the company.

Table 1: Research Outcome (Source: Author)

Theme s	Questions asked	Codes	Outcomes of the study
Challen ges of Manual HR	What specific inefficiencies did your firm face while using	"ineffic iencies and errors"	Manual processes lead to significant inefficiencies

Processes	manual HR processes? Is the data management through manual processes used to hamper accuracy?	"management difficulties" "human errors"	and it is vulnerable to human error. Managing large volumes of data manually is complex that often leads to inaccuracies
HR Operations enhanced with the use of RPA-HR	Which HR processes have benefitted from RPA implementation? Does RPA have enhanced data reliability?	"increased efficiency and speed" "improved accuracy" "reliable data"	RPA can reduce processing Automation minimizes human errors, resulting in more reliable data management and consistent HR operations. for tasks like onboarding and payroll.
Implementation Consideration for RPA	What difficulties does your firm face while implementing RPA? What criteria should be used to select effective RPA processes? For RPA adoption what can done to facilitate change?	"change management" "comprehensive training" "automation process selection"	Effective change management and comprehensive training programs are essential for successful RPA adoption. Organizations should evaluate tasks before automation.
Global Competitiveness and Sustainability	How does RPA contribute to reducing costs and time? How RPA improve agility of HR operations?	"cost reduction" "effective resource allocation" "Agility and adaptability"	RPA can significantly lower recruitment costs and improve resource allocation. It enhances organizational ability to respond quickly to market demands and improve overall competitiveness.

V. RECOMMENDATIONS

Through this research paper, it has been recommended that all organisations should consider RPA to enhance their ability, and they must conduct a thorough analysis of the existing operations of their organisations and evaluate the processes that are suitable to be replaced with automation. In this evaluation, they must prioritise data-driven repetitive tasks such as payroll management, data entry, initial candidate selection and employee onboarding that can save cost and time. Based on this they need to evaluate the RPA platforms and vendors and select solutions that best fit to their organizational needs. Also, organisations must invest in change management and training of employees before integrating RPA processes so that employees can easily adapt to its usage and efficiently use their technical skills to work with these features. The integration of RPA in human resources involves handling sensitive employee data, so it must be complemented with robust security measures that can constantly protect the employee's data. For this, organisations can use multilayered authorising and encryption protocols that can allow access to limited people and minimise the potential risks of misuse of data while maintaining compliance with data protection rules and employee rights in the workplace. It is also recommended that organizations continuously improve their data analysis software; in this modern world, technology is rapidly evolving, and if the software is not updated regularly in a firm, it makes the organisation prone to data breaches or other digital issues, so organisations must upgrade their automated processes to enhance the efficiency of the firm. However, RPA has the ability to automate any task, but still, it is suggested that companies keep their approaches human-centric; the humans must overview the processes so that they do not end up with some significant biases. So, technology must support the human factor in an organisation instead of replacing it.

VI. CONCLUSIONS

Robotic process automation (RPA) integrated HR management is more efficient than non-automated HR processes. The companies that use this technology better manage their employees and keep them motivated to conceptually contribute to the company. The RPA-HR systems have highlighted various effectiveness dimensions that reduce the burden of mundane and repetitive

tasks and allow the human workforce to focus on high-value tasks that include employee engagement and retention strategies that eventually contribute to the overall goals and objectives of the company. It is effective in reducing expenses and saving time that can be further used in other works, such as handling emotive aspects of employee wellbeing and ensuring the security and overall welfare of the employees. This efficiency plays a significant role in enhancing the productivity and effectiveness of the organisation and provides a competitive and sustainable position in the global business landscape. However, the implementation of RPA needs a mindful approach based on the needs of the organisation, and also it must be complemented with effective security measures that can result in effective HR services.

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