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The Transformational Impact of Robotic Process Automation: An Input to Enhanced BPO Operations Workflow in the City of Taguig

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ABSTRACT

Robotic Process Automation (RPA) is widely regarded as a cost-effective solution by many organizations. It is a software solution that facilitates the automation of rule-based business processes and duties by means of software bots. Through an exploration of RPA's adoption, this research aims to assess end-user satisfaction levels in BPO environments, focusing on usefulness, ease of use, and operational efficiency. The study employs a quantitative approach, utilizing online surveys distributed to finance and accounting professionals in the BPO industries in the National Capital Region, particularly Taguig City, Philippines. Statistical analyses including weighted mean, Spearman rank correlation coefficient, multiple linear regression, and anova tests is used to evaluate the data. The findings supported the hypothesis that there is a significant relationship between end-user satisfaction and their attributes. The outcomes demonstrates substantial advantages of RPA implementation and end-user satisfaction, providing insights for BPO industry optimization and strategic decision-making.

Keywords: Robotic Process Automation, end-user satisfaction, operational workflow, decision-making, BPO industry, accounting, finance

INTRODUCTION

1.1 Background of the Study

Robotic Process Automation (RPA) is widely regarded as a cost-effective solution by many organizations, as it not only mitigates compliance risk but also saves valuable time. For many, this notion may bear resemblance to physical robots meandering within office spaces, carrying out tasks typically assigned to humans and, consequently, leading to job displacement. It is a software solution that facilitates the automation of rule-based business processes and duties by means of software bots (Kregel et al 2021; Kokina & Blanchette, 2019). These bots' function by emulating the actions of an employee within one or multiple systems. They replicate the actions that humans would undertake when inputting or manipulating data using a computer. The implementation of this virtual workforce to automate and streamline structured, manual, high-volume, repetitive, and routine tasks culminate in human workers assigning their monotonous routine tasks to a digital worker, thereby enabling them to concentrate on more demanding responsibilities (Hartley & Sawaya, 2019). The implementation of process automation offers numerous benefits, such as heightened efficiency, decreased process costs, minimal error rates, and improved customer satisfaction. Moreover, it alleviates employees' stress levels and fosters talent retention through their engagement in diverse activities (Mohamed et al., 2022).

1.2 Statement of the Problem

This study will explore the transformational impact of RPA on enhancing end-user satisfaction towards an improved workflow. Therefore, As a result, this research plans to answer the following questions:

1. What is the level of satisfaction with RPA implementation in BPO environments as to:

1.1 Usefulness
1.1.1 User involvement;
1.1.2 Job relevance;
1.2 Ease of use
1.2.1 Innovation joy;
1.2.2 Computer self-efficacy;
1.3 Operational efficiency
1.3.1 Process optimization; and
1.3.2 Data accessibility?

2. Is there significant relationship between the level of end-user satisfaction with RPA implementation in BPO environment as to:

2.1 Usefulness
2.1.1 User involvement;
2.1.2 Job relevance;
2.2 Ease of use
2.2.1 Innovation joy;
2.2.2 Computer self-efficacy;
2.3 Operational efficiency
2.3.1 Process optimization; and
2.3.2 Data accessibility?

3. What proposed solution can be developed to address operation workflow?

1.3 Hypothesis

There is no significant relationship between the level of end-user satisfaction with RPA implementation in BPO environment.

1.4 Significance of the Study

The primary objective of this research is to assess the impact of RPA technology on the satisfaction levels of finance and accounting professionals (referred to as end-user satisfaction). It emphasizes that RPA primarily streamlines specific aspects of processes in the Business Process Outsourcing (BPO) industry. The paper acknowledges the absence of cognitive capabilities in RPA, which necessitates a combination of automation and human intervention in the workplace. Given the importance of this collaboration between humans and autonomous machines, understanding the satisfaction levels of knowledge workers becomes crucial for the successful implementation and operation of RPA.

Finance and Banking. The integration of Robotic Process Automation (RPA) within the financial industry is of paramount importance in the optimization of transaction processing, guaranteeing the precision of data, and augmenting regulatory adherence, consequently culminating in a more fortified and effective financial environment.

Human Resources. The study's relevance in the human resources sector is underscored by the implementation of Robotic Process Automation (RPA), which streamlines routine HR processes, enhances employee experience, and allows HR professionals to focus on strategic tasks.

Customer Service and Retail. The study in the customer service and retail sector lies in deploying Robotic Process Automation (RPA) to automate responses, order processing, and inventory management, thereby improving customer satisfaction, reducing response times, and optimizing retail operations.

Information Technology. In the IT sector, the study is essential for implementing Robotic Process Automation (RPA) to accelerate software development cycles, minimize errors, and enhance overall operational efficiency, contributing to faster and more reliable software delivery.

Student. Provide an understanding RPA enhances career prospects and knowledge in automation, a skill highly sought after in various industries, potentially leading to better job opportunities.

Future Researcher. Studying RPA offers insight into evolving technology and its impact on business processes, paving the way for more advanced automation systems and further innovation.

1.5 Scope and Limitations

The research will be undertaken solely in the Philippines' National Capital Region, specifically in Taguig City, focusing on the BPO industry such as TELUS International, Teleperformance and TalkUs, etc, under the finance and accounting department. The researcher is aiming to do the study within four to six months. Data gathering and analysis will be restricted to BPO employees in Taguig capital. The main variables under consideration are usefulness, ease of use and operational efficiency leading to end-user satisfaction. Data is gathered to determine the relationship between these variables and to investigate potential impact of RPA on end-user satisfaction, particularly in diverse organizational contexts and user groups.

1.6 Definition of Terms

The following words are defined operationally to better understand the context of this study.

Computer self-efficacy is an individual's belief in their capability to perform specific computer-related tasks.

Data accessibility refers to the ability for data to be easily retrieved and used.

End-user satisfaction is the overall affective evaluation an end-user has regarding their experience related with an information system.

Ease of use is the degree to which a person believes that using a particular system would be free of effort.

Innovation joy refers to the positive emotions and feelings associated with the process of innovation. Innovation can bring joy and happiness to individuals and organizations.

Job relevance is the degree to which a system or task aligns with an individual's job goals. It's about matching people with the right jobs.

Operational efficiency is the ratio of input/output in services or production, indicating the performance of operations.

Process optimization refers to the improvement of business processes to boost efficiency and productivity.

Transformational impact means that software robots make work much faster and more accurate, freeing people from boring, repetitive tasks.

Usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance.

User involvement User involvement is a subjective psychological state reflecting the importance and personal relevance of a system to the user.

1.7 Literature Review

1.7.1 Impacts of Robotic Process Automation on Global Accounting Services. In this study, RPA is defined as a system used in an organization that involves the automation configuration of a process and work to facilitate and increase the productivity of the work. According to a study conducted by legal experts Robert Half Financial Services, 54% of traditional financial services firms such as banks and investment firms are planning to increase their spending on automotive or RPA technology over the next 12 months . This shows that RPA is increasingly gaining attention by large organizations, especially those involved in the GAS sector. This is because RPA offers the ability to increase the productivity of the organization, reducing costs, improving the accuracy and speed of a work process, reducing human negligence and improving the competitiveness of the organization. The success of the new technology depends on the organization's management support and planning. Support from top management and information technology units, as well as system suppliers, are important to enable the system users to gain sufficient knowledge and information. A well-planned and complete management plan should be available to support the adoption of the new system and to tailor the workforce to the newly reorganized task.

1.7.2 The Trends and Roles of Robotic Process Automation Technology in Digital Transformation. Robotic Process Automation, as defined by the Institute of Electrical and Electronics Engineers (IEEE), refers to a software that is preconfigured and utilizes business rules and predefined activity choreography to autonomously execute processes, activities, transactions, and tasks in one or more unrelated software systems. This automation aims to deliver a result or service while effectively managing human exceptions within an enterprise or organization's existing IT infrastructure. Notably, compared to previous digital transformation technologies, Robotic Process Automation can be implemented swiftly. There are three distinct models of RPA, namely, attended, unintended, and hybrid models, as outlined by Axmann and Harmoko (2020). The attended model employs RPA as a personal assistant to individual workers, functioning based on commands received from the worker. Conversely, the unintended model utilizes RPA to automate processes across multiple workers without human interventions. the hybrid model emerges as an intermediate solution among the various models. This model possesses the capability to execute certain processes automatically, while also accommodating user interven

1.7.3 Robotic Process Automation (RPA). RPA refers to a type of software that carries out ordinary process tasks by following uncomplicated rules. Its wide range of capabilities encompasses activities such as data entry, basic calculations, data extraction from Enterprise Resource Planning (ERP) systems, form completion, email responses, opening attachments, application logins, file or folder movements, web data scraping, information extraction from pdf files or images, and others. In the case of physical documents, both optical character recognition (OCR) and natural language processing (NLP) can be employed to extract information for subsequent processing. The utilization of this digital workforce in automating and streamlining structured, manual, high-volume, repetitive, and routine tasks allow human workers to assign their monotonous routine tasks to a digital worker, thereby enabling them to concentrate on more challenging tasks.

1.7.4 Robotic Process Automation (RPA) in Business Services. The term Robotic Process Automation (RPA) does not pertain to a physical robot; rather, it encompasses a technology that emulates human-computer interactions for the purpose of accomplishing rule-based tasks. These tasks include sending

emails, opening attachments, logging into business applications, moving files or folders, filling out forms, extracting data from websites, and obtaining structured data from PDF documents (Axmann and Harmoko, 2020). Unlike traditional automation, RPA employs software known as bots or robots to meticulously record and subsequently execute user actions on a computer, which are defined by well-established rules (Figueiredo and Pinto, 2021). Scholars identify Shared Service Centers (SSC), Business Process Outsourcing (BPO) companies, telecommunications services, and banking operations, such as employee payment and relationship data management, as typical domains for the integration of RPA tools.

1.8 Synthesis

Robotic Process Automation (RPA) is recognized for its cost-effectiveness and time-saving benefits, offering organizations a solution to mitigate compliance risks and enhance operational efficiency. By automating rule-based business processes through software bots, RPA allows human workers to focus on more complex tasks, leading to increased efficiency, reduced costs, lower error rates, and improved customer satisfaction. The shift towards digital data exchange has made RPA adoption essential for organizations seeking to optimize productivity, cut expenses, and elevate service quality. The anticipated surge in productivity, quality improvement, and cost reduction associated with RPA implementation has positioned robotics as a key focus for various sectors, including banking, where it has been prioritized by a significant percentage of institutions globally (Kregel et al., 2021; Kokina & Blanchette, 2019; Hartley & Sawaya, 2019; Mohamed et al., 2022; Denagama Vitharanage et al., 2020; Harmoko et al., 2021; Wojciechowska-Filipek, 2019; Elsevier B.V, 2021).

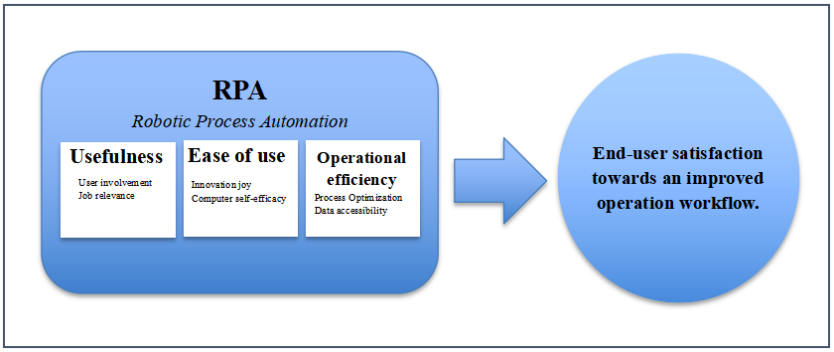
1.9 Theoretical framework

Resource Dependence Theory examines the shift in organizational dependency from human labor towards technological resources, particularly the adoption of RPA. This theory delves into the dynamics of resource allocation and control, highlighting how RPA reduces reliance on specific human skills and alters the power structures within an organization. By elucidating the shift in resource allocation and its impact on efficiency and decision-making processes, Resource Dependence Theory offers a lens through which to understand the transformative effects of RPA on organizational functioning and strategic decision-making. Additionally, it underlines the redefined interdependencies among various resources, shedding light on how RPA impacts an organization's strategic maneuvering and competitive positioning (Janse, B. (2020).

1.10 Conceptual framework

The variables presented in this study are derived from the esteemed research paper authored by Wewerka, Dax & Reichert (2020) and Blagoev (2021). However, it is imperative to note that the inclusion of the Operational efficiency variable is a novel addition. This variable holds immense significance in the evaluation of end-user satisfaction regarding RPA implementation within the BPO industry. Thus, it is crucial to acknowledge the pivotal role these variables play in the assessment process.

Figure 1 Robotic Process Automation (RPA) end-user satisfaction



METHODS

2.1 Research Design

Online surveys were selected as the preferred method of data collection in this research study. The decision was based on several compelling reasons. Firstly, online surveys offer many advantages over traditional paper questionnaires, including faster delivery, cost-effectiveness, and higher accuracy in data collection. These benefits alone make online surveys a superior choice. Secondly, participants find it much more convenient to complete an online questionnaire at their own leisure and in the comfort of their own time. This flexibility enhances the user experience and leads to higher response rates. Lastly, the nature of the BPO industries, which often do not have a work-from-home setup, makes it difficult to conduct face-to-face meetings with respondents. Online surveys eliminate this obstacle and save valuable time. Additionally, researchers benefit from the ease of use of online surveys, as the data is readily available for immediate analysis.

2.2 Data management

The questionnaire will be distributed via google form. This will save the researcher a lot of time and resources. On the part of the resondents, it will be more convenient for them since the questionnaire can be completed via mobile phone or computer. Prior to data collection, the researcher will secure consent from the respondents providing them with the purpose and nature of the study. After the data collection, an appreciation note will be sent to the respondents.

2.3 Sampling design

The researcher will employ a convenient sampling technique. Using Cochran's formula it will determine the sample size needed which is the minimum is 385 respondents however, in this study the target respondents is 400 for three or more companies. Convenience sampling is a non-probability sampling method in which data is obtained from a group of people exclusively who are working in the finance and accounting department and who are easily accessible and available. Individuals in the sample are chosen not because they are the most representative of the overall population, but because they are the easiest for the researcher to reach (Simkus, 2022). The researcher will determine respondents who are easily accessible geographically within NCR, Taguig City.

2.3.1 Respondents

The respondents of the study will be Filipino BPO workers under Finance and Accounting department based in the National Capital Region, specifically Taguig City. The respondents will be determined using

these inclusion criteria: living within the Taguig City, working in the BPO either work-from-home set up or onsite.

2.3.2 Research Instrument

The researcher will utilize two standardized and validated questionnaires using Likert scale and also used by Boyan Blagoev (2021)" End-user satisfaction as a result of RPA - a finance and accounting perspective" and with different source on "A User Acceptance Model for Robotic Process Automation" Judith, Wewerka., Sebastian, Dax., Manfred, Reichert. (2020) except for the added variable the operational efficiency, questionnaire is lifted based on the related literature review in RPA digital transformation. The survey questionnaire has been thoughtfully separated into two distinct sections, each serving a unique purpose. The initial section is dedicated to capturing the valuable demographic profile of the respondent, enabling us to gain a comprehensive understanding of their background. Meanwhile, the subsequent section focuses on evaluating the BPO workers' assessment on the variables in question. This meticulous approach ensures that we gather the most accurate and insightful data.

Cronbach's Alpha. The researchers will use Cronbach's alpha for the pre-test to determine the survey's reliability in the study. This is to ensure that each question on the questionnaire is clear and comprehensible to respondents. 2.5 Decision Criteria – the evaluation result is tested using the 0.08 level of significance. This will be one of the bases whether to accept or to reject the null hypothesis.

Results of Reliability Test

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.968	0.968	44

Table presents the results of the reliability test on the survey questionnaire using Cronbach's Alpha. Cronbach's Alpha is a reliability test used to measure the internal consistency of the items in a questionnaire. According to George & Mallery (2003), an alpha level of greater than or equal 0.80 exhibits an excellent value of internal consistency within the questionnaire. Consequently, the result of the test renders a value of α=0.968, which indicates a high level of internal consistency.

2.5 Ethical Considerations

The researcher will uphold the rights of each participant during the whole study and will ensure to follow the guidelines provided by the UERC. The safety and welfare of every participant will always be guaranteed by maintaining the highest ethical standards throughout the duration of the study.

2.5.1 Conflict of Interest

The researcher will not gain any personal benefit from this study. Conflict of interest shall not be present throughout this research.

2.5.2 Privacy and Confidentiality

All gathered data will be used solely for this study. Data such as personal information will be protected by the Data Privacy Act and will remain confidential.

2.5.3 Informed Consent Process

The informed consent form will be given together with the survey questionnaire. Respondents will be able to review and agree with the consent form before proceeding with the survey questions.

2.5.4 Vulnerability

Respondents are working individuals that have experience in RPA implementation from different finance and accounting departments who are at legal age, literate and can express their consent to participate to

the study.

2.5.5 Recruitment

The invitation to participate will be sent to the company's human resource email address or directly to the employee via google form survey. The criteria for respondents will be the following:

a.) Employees from BPO industry in within Taguig City.

b.) Has experience in RPA implementation.

2.5.6 Assent

The researcher will conduct and distribute survey questionnaires to companies that are willing to be a part of the study. The researcher will ensure that the management will agree before distributing the questionnaire to its employees.

2.5.7 Possible Risks, Discomforts, and Inconveniences

There will be no risk, discomfort, or inconvenience to the respondents during the study.

2.5.8 Benefits

The participation of the respondents is of greatest help to the researcher's academic endeavor. On the other hand, the study aims to find out the critical success factors in ERP implementation. This will serve as a guide to companies or organizations during their ERP implementation.

2.5.9 Incentives or Compensation

The respondents will not receive any compensation or incentives in participating to the survey.

2.5.10 Community Consideration

The researcher will ensure no harm or discomfort will be encountered during the survey.

RESULTS

This section outlines the procedures for data acquisition and processing executed by the researcher following the receipt of the initial approval from UERC. These include the statistical tests such as Spearman's rank correlation coefficient and multiple regression analysis.

Significant relationship between End-User Satisfaction and other Attributes

Table 2.1 Spearman Rank Correlation between the End-User Satisfaction and other attributes

Measure	Attributes	r_s	p-value	Interpretation	Decision
End-User Satisfaction	Job Relevance	0.574	<0.000	Moderate Positive Correlation	Reject H0
	User Involvement	0.605	<0.000	Moderate Positive Correlation	Reject H0
	Usefulness	0.611	<0.000	Moderate Positive Correlation	Reject H0
	Computer Self-Efficacy	0.499	<0.000	Low Positive Correlation	Reject H0
	Innovation Joy	0.557	<0.000	Moderate Positive Correlation	Reject H0
	Ease of Use	0.612	<0.000	Moderate Positive Correlation	Reject H0
	Operational Efficiency	0.542	<0.000	Moderate Positive Correlation	Reject H0

	Process Optimization	0.604	<0.000	Moderate Positive Correlation	Reject H0
	Data Accessibility	0.553	<0.000	Moderate Positive Correlation	Reject H0

Table 2.1 demonstrates the relationship between end-user satisfaction with RPA implementation and various workflow attributes in a BPO environment using Spearman's Rank Correlation Coefficient. The analysis reveals significant positive correlations between end-user satisfaction and several key attributes, including Job Relevance ($r_s = 0.574$, $p < 0.000$), User Involvement ($r_s = 0.605$, $p < 0.000$), Usefulness ($r_s = 0.611$, $p < 0.000$), Innovation Joy ($r_s = 0.557$, $p < 0.000$), Ease of Use ($r_s = 0.612$, $p < 0.000$), Operational Efficiency ($r_s = 0.542$, $p < 0.000$), Process Optimization ($r_s = 0.604$, $p < 0.000$), and Data Accessibility ($r_s = 0.553$, $p < 0.000$). Additionally, a low but significant positive correlation is observed with Computer Self-Efficacy ($r_s = 0.499$, $p < 0.000$). These correlations indicate that as these attributes improve, so does end-user satisfaction with RPA implementation, reinforcing the importance of optimizing these factors to enhance overall user experience.

Recent literature corroborates these findings, emphasizing the crucial role of these attributes in influencing user satisfaction. For instance, Aguirre and Rodriguez (2018) highlight that job relevance and user involvement are critical for successful RPA adoption, as they ensure that the technology aligns with employees' tasks and engages them in the implementation process, thereby increasing satisfaction. Similarly, Willcocks, Lacity, and Craig (2018) discuss how the perceived usefulness and ease of use of RPA systems significantly impact user satisfaction, as these factors reduce complexity and enhance efficiency. Furthermore, Syed et al. (2020) emphasize the importance of innovation joy and computer self-efficacy, noting that employees who feel confident and enjoy using new technologies are more likely to be satisfied with RPA implementations.

Table 2.2

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df2	Sig. F Change	
1	.713[a]	.509	.505	.05736	.509	136.804	3	396	<.001	1.828
a. Predictors: (Constant), Usefulness, Operational Efficiency, Ease of Use										
b. Dependent Variable: End-User Satisfcation										

Table 2.3

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.350	3	.450	136.804	<.001[b]
	Residual	1.303	396	.003		
	Total	2.653	399			
a. Dependent Variable: End-User Satisfcation						

b. Predictors: (Constant), Usefulness, Operational Efficiency, Ease of Use

Table 2.4

Coefficients[a]											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.431	.177		2.438	.015					
	Ease of Use	.378	.060	.326	6.330	<.001	.647	.303	.223	.466	2.145
	Operational Efficiency	.218	.058	.186	3.788	<.001	.584	.187	.133	.516	1.939
	Usefulness	.291	.050	.297	5.810	<.001	.636	.280	.205	.473	2.114
a. Dependent Variable: End-User Satisfcation											

The regression analysis is presented in the table is aimed at comprehending the correlation between end-user satisfaction (considered as the dependent variable) and three autonomous variables: usefulness, operational efficiency, and ease of use. The summary of the model reveals an R value of .713, indicating a robust positive relationship between the predictors and end-user satisfaction. The R Square value of .509 implies that around 50.9% of the fluctuation in end-user satisfaction is accountable by the three predictors. The Adjusted R Square, being .505, suggests a minor modification for the quantity of predictors in the model, validating the model's appropriateness. The standard error of the estimate, .05736, gauges the mean deviation of the observed values from the regression line. The Durbin-Watson statistic, at 1.828, signifies no autocorrelation in the residuals.

The importance of each predictor is emphasized by their t-values and p-values (all below 0.001), signifying robust individual impacts. The Variance Inflation Factor (VIF) metrics for Ease of Use (2.145), Operational Efficiency (1.939), and Usefulness (2.114) all fall comfortably under the threshold of 10, indicating an absence of problematic multicollinearity. The Durbin-Watson statistic of 1.828 implies no notable autocorrelation in the residuals. These results are in harmony with recent scholarly works, such as those by Alalwan et al. (2020) and Ali et al. (2018), which underscore the pivotal role of system attributes like ease of use and usefulness in enhancing user satisfaction. These contemporary studies reaffirm the critical functions these factors fulfill in the effectiveness and adoption of information systems, underscoring their pertinence and practical implications.

In this case, since we already predict the value, the model can be derived by this formula $Y=B0+B1X1+B2X2+\ldots..+B_nX_n$. Example for this is every time there is an increase of 1 unit for each variable so as the end-user increases.

Proposed Solutions to Address Operation Workflow

To optimize operational processes within Business Process Outsourcing (BPO) settings, the incorporation of Robotic Process Automation (RPA) holds significant importance. Chapter III highlights the substantial benefits of RPA, such as improved operational efficiency, process optimization, data availability, user

interaction, and overall efficacy. Building on these findings, the proposed resolution emphasizes a holistic approach to further refine operational workflows through advanced RPA deployment, continuous enhancement methodologies, and enriched user participation.

Advanced RPA implementation involves designing automated workflows by identifying repetitive and rule-based activities suitable for automation. Employing process mining tools to scrutinize workflows helps pinpoint inefficiencies. Customized RPA solutions should align with specific workflow requirements, enabling bots to manage complex processes like multi-step data input, validation, and report creation. Seamless integration with existing systems, such as Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) platforms, ensures smooth data transfer, minimizing manual intervention and errors. Additionally, utilizing Application Programming Interfaces (APIs) enhances interoperability and data precision. Deploying cloud-based RPA solutions offers scalability and adaptability, while integrating Artificial Intelligence (AI) and Machine Learning (ML) capabilities empowers bots to handle intricate decision-making processes. Continuous improvement practices, including performance monitoring, user feedback mechanisms, ongoing training, process standardization, and enhanced user engagement, are crucial for maintaining efficiency and effectiveness over time.

DISCUSSION

Conclusion

The analysis emphasizes the significant impact of Robotic Process Automation (RPA) on Business Process Outsourcing (BPO) environments. RPA integration has notably enhanced operational efficiency, as evidenced by positive satisfaction ratings across various metrics. Employees view RPA as a valuable tool that alleviates the burden of repetitive tasks, allowing them to focus on more strategic and fulfilling work. The importance of user involvement in the effective deployment of technological solutions like RPA underscores the need to engage end-users in the early phases of system design and execution. This approach enhances satisfaction levels and ensures better alignment with user needs. Additionally, involving users in identifying information needs and creating workflows ensures that RPA solutions are customized to actual work processes, boosting user satisfaction and system efficacy.

Emphasizing the role of computer self-efficacy in successful technology adoption, individuals with high computer self-efficacy are better equipped to manage the complexities of new technologies such as RPA, thus enhancing their overall job performance and satisfaction. Innovative organizations that foster a culture of innovation and endorse the integration of new technologies like RPA often experience improved employee morale. Ease of use is a crucial element in the acceptance and effective implementation of new technologies, including RPA, as simplicity and user-friendliness significantly improve user satisfaction and reduce resistance to adoption. RPA streamlines processes, minimizes errors, and increases speed, leading to notable operational enhancements in BPO environments. Automating repetitive tasks allows employees to concentrate on more strategic tasks, thereby improving overall efficiency. Adequate training and assistance are essential to maximize the benefits of RPA, ensuring employees are well-prepared to utilize the new tools effectively. RPA also streamlines data retrieval processes, facilitating efficient access to relevant information, which enhances performance outcomes and user satisfaction. The importance of data accessibility and secure data management is highlighted as crucial for user satisfaction in automated environments. These findings underscore the critical roles of system attributes such as ease of use and usefulness in the efficiency and adoption of information systems.

Recommendation

The integration of Robotic Process Automation (RPA) across various sectors offers substantial benefits by automating repetitive and time-consuming tasks. In the Finance and Banking sector, RPA can enhance operational efficiency and reduce errors in transaction processing, compliance monitoring, and customer service. By automating activities such as payment processing, account reconciliation, fraud detection, and compliance reporting, financial institutions can achieve quicker transaction times, lower operational costs, and improved accuracy. This not only enhances productivity and customer satisfaction but also allows compliance teams to focus on strategic tasks. Additionally, RPA can manage customer inquiries efficiently, provide real-time insights for better financial planning, and ensure adherence to regulatory standards like AML and KYC.

In Human Resources, RPA can streamline administrative tasks, allowing HR professionals to focus on strategic activities. Automating recruitment processes, payroll processing, and onboarding can significantly reduce errors, ensure timely payments, and enhance the candidate and new employee experience. In the customer service and retail sectors, RPA can manage high volumes of customer interactions and optimize inventory management, leading to improved service delivery and operational efficiency. The IT sector can leverage RPA to enhance operational workflows by automating IT support services, network management, and software development tasks, thereby improving service efficiency and reliability. For students and researchers, RPA can automate routine academic tasks, study planning, data collection, and research documentation, allowing them to focus on intellectual pursuits and achieve higher quality outcomes. By integrating RPA, various sectors can improve efficiency, accuracy, and user satisfaction, ultimately driving better performance and innovation.

Implication of the Study

The evaluation of Robotic Process Automation (RPA) in Business Process Outsourcing (BPO) contexts has unveiled its significant impact, as demonstrated by notable enhancements in operational efficiency, user contentment, and overall effectiveness. By conducting a thorough assessment, the research pinpointed specific areas where the introduction of RPA resulted in considerable advantages. Findings from surveys highlighted improved time management and cost-effectiveness, corroborating recent studies emphasizing the efficiency gains from automation. This validation underscores the tangible benefits of implementing RPA in BPO environments, where streamlined processes lead directly to concrete improvements.

Moreover, the research unveiled the pivotal role of user engagement in the RPA implementation process. Involving users from the beginning emerged as a critical element for success, promoting integration and maximizing the advantages of automation. This user-focused strategy not only ensures smoother adoption but also enhances user satisfaction by empowering individuals and involving them in the process. This entails utilizing sophisticated deployment approaches, continuous improvement efforts, and increased user engagement, all aimed at optimizing the potential of RPA and ensuring enduring success. Across diverse sectors like Finance, Human Resources (HR), Customer Service, Information Technology (IT), and academia, RPA offers tailored solutions to streamline operations, optimize resource utilization, and enhance user interactions. In Finance and Banking, for example, the integration of RPA in transaction handling has been crucial in enhancing efficiency and accuracy. Similarly, in HR departments, RPA streamlines repetitive tasks, allowing HR professionals to concentrate on strategic endeavors. Moving forward, future researchers can utilize RPA to further streamline research workflows, bolster data management capabilities, and expedite scientific discoveries. By integrating automation in research procedures, researchers can save time, enhance the depth of literature reviews, and ensure the precision

and consistency of data analysis. Additionally, initiatives to automate research documentation processes through RPA represent a significant advancement in research efficiency, allowing researchers to focus more on actual research tasks and fostering seamless collaboration among team members.

REFERENCES

1. Aguirre, S., & Rodriguez, A. (2017). Automation in business process management: An RPA perspective. Business Process Management Journal, 23(5), 855-870.
2. Alcover, C.-M., Chambel, M. J., Fernández, J. J., & Rodríguez, F. (2018). Perceived organizational support-burnout-satisfaction relationship in workers with disabilities: The moderation of family support. Scandinavian Journal of Psychology, 59(4), 451– 461. https://doi.org/10.1111/sjop.12448
3. Rossmann, A. Zimmermann, and D. Hertweck, "The impact of chatbots on customer service performance," in International Conference on Applied Human Factors and Ergonomics. Springer, 2020, pp. 237– 243
4. Asatiani, A., & Penttinen, E. (2019). Turning robotic process automation into commercial success – Case OpusCapita. Journal of Information Technology Teaching Cases, 9(2), 68-74.
5. Arkadiusz Januszewski, Jaroslaw Kujawski, Natalia Buchalska-Sugajska Benefits of and Obstacles to RPA Implementation in Accounting Firms. KES 2021: 4672-4680
6. Ashling Partners (2023) RPA's Role Within Organizational Operational Efficiency
7. Bhatt, N. (2019, November 5). Five design principles to help build confidence in RPA implementations. Retrieved June 28, 2021, from Ey.com website: https://www.ey.com/en_bg/consulting/five-designprinciples-to-help-build-confidence-in-rpa-implement
8. B. Blagoev. (2021). End-user satisfaction as a result of RPA - a finance and accounting perspective.
9. Dahlia, Fernandez., Aini, Aman. (2018). Impacts of Robotic Process Automation on Global Accounting Services. doi: 10.17576/AJAG-2018-09-11
10. Dong-Yun, Kim., Mi-Jin, Moon., Joon-Seok, Kim. (2022). A Study on the Acceptance Intention of Robotic Process Automation Using Integrated Technology Acceptance Model. Journal of the Korean Society of Supply Chain Management, doi: 10.25052/kscm.2022.5.22.1.19
11. Dilmegani, C. (2019, January 27). 45 RPA Case Studies. Retrieved June 25, 2021, from AIMultiple website: https://research.aimultiple.com/rpa-casestudies/
12. Fred, D., Davis. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. Management Information Systems Quarterly, 13(3):319-340. doi:10.2307/249008
13. Hartley, Janet L. & Sawaya, William J., 2019. "Tortoise, not the hare: Digital transformation of supply chain business processes," Business Horizons, Elsevier, vol. 62(6), pages 707-715.
14. Hindel, J., Cabrera, L. M., & Stierle, M. (2020, March 9). Robotic Process Automation: Hype or Hope? Retrieved May 18, 2021, from ResearchGate website https://www.researchgate.net/publication/339797825_Robotic_Process_Automation_Hype_or_Hope
15. ISA. (n.d.). What is Automation? Retrieved April 7, 2021, from isa.org website: http://isa.org/aboutisa/what-is-automation
16. Ivančić, L., Suša Vugec, D., & Bosilj Vukšić, V. (2019). Robotic Process Automation: Systematic Literature Review. Business Process Management: Blockchain and Central and Eastern Europe Forum, 280–295. https://doi.org/10.1007/978-3-030-30429- 4_19

17. J. Kiilunen, "Automating project management with RPA," Turku University of Applied Sciences,vol. master's degree Programme in Project Management thesis, pp. 1-86, 2020.
18. J. Kaidalova, K. Sandkuhl, and U. Seigerroth, "How digital transformation affects enterprise architecture management: a case study," International Journal of Information Systems and Project Management, vol. 6, no. 3,pp. 5-18, 2018.
19. Judith, Wewerka., Sebastian, Dax., Manfred, Reichert. (2020). A User Acceptance Model for Robotic Process Automation. doi: 10.1109/EDOC49727.2020.00021
20. Kreger, A., & Zaikovska, L. (2020, January 14). Banking Industry Cuts Millions of Jobs Forced by AI and Digitization in Banking. Retrieved May 25, 2021, from Theuxda.com website: https://www.theuxda.com/blog/banks-will-cutmillions-of-jobs-in-the-next-decade
21. Kirchmer, M. (2017). High Performance Through Business Process Management - Strategy Execution in a Digital World | Mathias Kirchmer | Springer. Retrieved June 28, 2021, from Springer.com website: https://www.springer.com/gp/book/9783319512587
22. Lacity, M. C., & Willcocks, L. P. (2018). Robotic process automation: The next transformation lever for shared services. Journal of Information Technology Teaching Cases, 8(2), 107-115.
23. Madakam, S., Holmukhe, R. M., & Jaiswal, D. K. (2019). The future digital work force: Robotic Process Automation (RPA). Journal of Information Systems and Technology Management, 16.
24. M. Ashfaq, J. Yun, S. Yu, and S. M. C. Loureiro, "I, chatbot: Modeling the determinants of users' satisfaction and continuance intention of aipowered service agents," Telematics and Informatics, vol. 54, p. 101473, 2020.
25. Maan, A. T., Abid, G., Butt, T. H., Ashfaq, F., & Ahmed, S. (2020). Perceived organizational support and job satisfaction: a moderated mediation model of proactive personality and psychological empowerment. Future Business Journal, 6(1). \https://doi.org/10.1186/s43093-020-00027-8
26. Plaschke, F., Seth, I., & Whiteman, R. (2018, January 9). Bots, algorithms, and the future of the finance function. Retrieved May 18, 2021, from McKinsey & Company website: https://www.mckinsey.com/businessfunctions/strategy-and-corporate finance/ourinsights/bots-algorithms-and-the-future-of-thefinance-function#
27. Pritam Barhate (2023) Increasing Operational Efficiency Made Simple with Robotic Process Automation (mobisoftinfotech.com)
28. Raconteur. (2019). Robotics & Automation 2019. Retrieved March 14, 2021, from www.raconteur.net website: https://raconteur.uberflip.com/i/1162686- robotics-automation-2019/0?
29. Rehan Syed, Suriadi Suriadi, Michael Adams, Wasana Bandara, Sander J.J. Leemans, Chun Ouyang, Arthur H.M. ter Hofstede, Inge van de Weerd, Moe Thandar Wynn, Hajo A. Reijers,Robotic Process Automation: Contemporary themes and challenges, Computers in
30. Industry,Volume115,2020,103162,ISSN01663615,https://doi.org/10.1016/j.compind.2019.103162.(https://www.sciencedirect.com/science/article/pii/S0166361519304609)
31. Reshaping the future: unlocking automation's untapped value (2018), Capgemini, https://www.capgemini.com/wp-content/uploads/2018/10/Automation-Use-Cases_Digital1.pdf (accessed 10.04.2019). Robotic process automation (2018), IBM Corporation, https://www.ibm.com/downloads/cas/ VYBGVKGL (accessed 10.04.2019).
32. Robotic Process Automation (RPA) Market Research Report- Forecast 2023 (2019), Market Research Future, https://www.marketresearchfuture.com/reports/robotic-process- automation-market-2209 (accessed 25.03.2019).

33. Santos, F., Pereira, R., & Vasconcelos, J. B. (2019). Towardrobotic process automation implementation. Business Process Management Journal, 3(1). doi: 10.1108/BPMJ-12-2018-0380
34. Servion. (2021). Robotic Process Automation. Retrieved June 26, 2021, from Servion.com website: https://servion.com/robotic-process-automation/
35. Stople, A., Schaufelbühl, A., & Gisel, P. (2019). Simplifying RPA adoption through design thinking. IEEE Engineering Management Review, 47(3), 74-81.
36. Syed, R., Suriadi, S., Adams, M., Bandara, W., Leemans, S. J. J., Ouyang, C., … Reijers, H. A. (2020). Robotic Process Automation: Contemporary themes and challenges. Computers in Industry, 115, 103162. https://doi.org/10.1016/j.compind.2019.103162
37. Syed, R., Shah, A., & Li, M. (2020). RPA: Transforming knowledge work. IEEE IT Professional, 22(4), 56-65.
38. -G. JI and A.-Y. CHA, "The effects of chatbot service quality, trust, and satisfaction on chatbot reuse intention and store reuse intention," The Journal of Industrial Distribution & Business, vol. 11, no. 12, pp. 29–38, 2020.
39. Van der Aalst, W. M., Bichler, M., & Heinzl, A. (2018). Robotic process automation. Business & Information Systems Engineering, 60(4), 269-272.
40. Venkatesh, V., & Davis, F. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. Management Science, 46(2), 186-204. Retrieved April 11, 2021, from http://www.jstor.org/stable/2634758
41. Willcocks, L., Hindle, J., & Lacity, M. (2019). Keys to RPA Success. Retrieved from website: https://www.blueprism.com/uploads/resources/whitepapers/KCP_SummaryExecutive_Research_ Report_Final.pdf
42. Xenith. (2020). Top 4 Reasons for The Failure of Robotic Process Automation (RPA). Retrieved May 22, 2021, from Xenith.co.uk website: https://www.xenith.co.uk/blog/top-4-reasons for-thefailure oroboticprocessautomation#:~:text=Research%20shows%20that%20more%20than,for%20scaleable %20modules%20and %20intelligence.