Perception of Potential Employees on The Use of Artificial Intelligence in Robotic Process Automation

Tazkia Fatima
Research Scholar, Department of Management & Commerce, Jayoti Vidyapeeth Women's University, Jaipur.

Dr. Mini Amit Arrawatia
Professor, Department of Management & Commerce, Jayoti Vidyapeeth Women's University, Jaipur.

ABSTRACT

Robotic Process Automation (RPA) has drastically changed the way company operations are performed by automating repetitive tasks, minimizing human errors and improving efficiency. However, traditional RPA systems may utilize rule-based logic, limiting their flexibility in the ever-changing business context. The use of artificial intelligence (AI) in robotic process automation (RPA) enables cognitive automation, predictive analytics, and real-time data processing, thus enhancing decision-making capabilities. This research studies the influence of artificial intelligence-driven robotic process automation (RPA) on business intelligence, e.g. offering a better comprehension, enhancing processes, and allowing autonomous decision-making. Key accomplishments studied include machine learning, natural language processing and artificial intelligence-based analytics, with particular emphasis on the impact such advances have had on operational efficiency and making strategic choices. The paper also flags problems such as the complexity of implementation and data security, but also the promise of AI-powered robotic process automation to influence the future of intelligent business automation.

Keywords: *Robotic Process Automation, Decision-Making.*

INTRODUCTION

With the rapid advancement of technology, AI (artificial intelligence) has gained popularity in recent years. Artificial intelligence (AI) is the study of programming computers to execute tasks that need intelligence when performed by humans such as learning, problem solving and decision-making. One of the benefits of AI is that it is capable of analyzing huge quantities of information rapidly and effectively, allowing more accurate predictions and insights. It's made things more efficient, and resulted in better results, changing the way things are done in industries like healthcare, finance, and transportation. On the other side, worries about AI concentrate upon ethics and the possibility of losing jobs. Many workers fear that computers will become so proficient that many jobs will no longer be needed.

The rapid pace of technological progress in recent years has resulted in digital revolutions in companies all around the world. These changes are changing the way, the work and the competition of firms. Advancement of automation technology is revolutionizing business and competition by integration, one of the new eras known as Industry 4.0. This change is being driven by deep learning and robotic process automation. These two technologies complement each other and have huge untapped potential for improving company operations, increasing productivity and reducing operational costs."

One of the new technologies that can help to automate such rule-based and people-intensive occupations is robotic process automation (RPA). Such job involves data entry, file transfers and other mindless back-office tasks. RPA bots enable humans to do repetitive, tedious tasks at a fraction of the time it would take a human to do the same task manually, with significantly less margin of error and far greater output. They are cognitively inept compared to AI. They blindly obey a set of pre-defined instructions to do jobs that need little or no human judgment. According to a Grand View Research, the RPA business is estimated to reach $25 billion by 2027, with a compound annual growth rate (CAGR) of over 40% [1]. This means that different company concerns will adopt it more, because it can save expenses, eliminate errors and improve business operations.

AI and RPA Relevance

Machine Learning (ML) is critical in enhancing RPA by enabling smart decision-making through data-driven insights. Unlike traditional RPA, which is based on preprogrammed rules, ML allows bots to learn from data, recognize patterns and respond to changing business environments. By combining ML and RPA, it is possible to automate complex decision-making processes such as demand forecasting, consumer segmentation, and fraud detection. Also, AI-powered data analytics enable firms to extract crucial insights from both structured and unstructured data to boost operational efficiency and strategic planning.

Natural Language Processing (NLP) helps bots interpret and analyze human language, enhancing RPA and enabling automation of operations that need unstructured text, emails, chats, and voice commands. RPA with natural language processing can be used in intelligent document processing, sentiment analysis, and customer service automation. AI-driven bots can improve their decision making, extract meaningful information from text and respond dynamically by understanding the context and intent of the input. This link will be a big boon for industries that rely significantly on text data, such as banking, healthcare and customer service.

RPA can automate document processing, evaluate visual data and extract crucial information from scanned documents, handwritten forms and photos using computer vision. Robots driven by artificial intelligence can recognize objects, classify photographs and read text with deep learning and Optical Character Recognition (OCR). If you don’t have that ability, you can’t automate things like processing invoices or confirming IDs or completing compliance checks. Computer vision-enhanced RPA benefits businesses such as healthcare, shipping and finance by decreasing manual intervention, increasing accuracy and accelerating processing times, among others.

RPA Drives AI-Powered BI Improvements Real-Time Data Processing and Insights: Faster, more Accurate Decision Making

AI-enabled RPA, in contrast, offers companies the ability to process data in real time, providing them with up-to-the-minute information to make smarter decisions. AI-enabled automation is not like typical RPA systems that run on predefined timetables. Instead, the AI-enabled automation can evaluate streaming data, find outliers and trigger critical actions without any human intervention. This expertise is particularly useful in fast-paced industries such as eCommerce, healthcare and finance. AI-powered RPA automates the collection, cleansing and analysis of data, giving organizations real-time, high-quality insights they can trust.

Advantages and Applications of AI-Powered RPA

AI-driven RPA can be used for automation of fraud detection, compliance monitoring and risk assessment that boosts security and productivity in the accounting and finance industries. Machine learning algorithms can examine transaction patterns in real time and identify anomalies and questionable conduct. A use case is the deployment of AI-based RPA by financial institutions to monitor credit card transactions and identify unusual activity that could signal fraud. Financial institutions may also apply automated risk assessment algorithms to judge the creditworthiness of a borrower, enabling swifter loan approvals with fewer human errors. Accuracy, compliance risk minimization, and financial decision-making are all areas that can benefit from organizations integrating AI with RPA.

Helping Customers: Automated Conversations and Emotion Analysis Driven by AI Chatbots, virtual assistants, and sentiment analysis tools made feasible by RPA driven by AI are changing customer service. These bots can relieve the pressure on human agents, still answering client inquiries in real-time and giving the right answers. Chatbots powered by artificial intelligence can interpret user intent, answer requests, and even forward tough situations to human agents when necessary thanks to Natural Language Processing (NLP). By evaluating customer comments, social media interactions, and support difficulties, sentiment analysis allows firms to understand client feelings. This permits proactive interaction and ultimately leads to improved customer satisfaction. From online marketplaces to telecom providers, several firms are leveraging AI-powered RPA to better serve their customers.

Role of Intelligent Inventory and Demand Forecasting in Supply Chain Management

AI-powered RPA automates inventory tracking, demand forecasting, and logistics coordination to optimize supply chain management. Machine learning algorithms take into account factors like historical sales data, current market trends, and weather conditions to estimate demand changes. This allows firms to reduce costs by eliminating expensive stockouts and increase efficiency by having the appropriate stock levels. Other benefits include increased real-time shipment visibility, automated supplier communications and simplified order processing. Increasingly, companies in retail, manufacturing and logistics are turning to AI-powered RPA to increase supply chain efficiencies, minimize operating costs and raise overall business agility.

Artificial Intelligence

Artificial intelligence (AI) is the technology that is used to train robots to be intelligent like humans are, i.e. to collect information, process information, make decisions and perform other processes similar to humans. There are many examples of artificial intelligence solutions that have made it into everyday life. For example, the algorithms and software that make things are a complex assemblage.

Artificial intelligence, especially computer systems, can simulate the workings of human intelligence. Artificial Intelligence applications include expert systems, machine learning, natural language processing, speech recognition, and machine vision. As interest in AI continues to rise, artificial intelligence is often just a subset of AI, such as machine learning. Artificial intelligence requires the use of particular hardware and software for the development and improvement of machine learning algorithms. Artificial intelligence (AI) systems are generally data hungry, requiring large quantities of

labeled training data. These systems analyze the data for correlations and patterns, and then they use those patterns to produce predictions about what will happen in the future. You can teach visual recognition software to recognize and describe items in photographs by feeding it millions of instances, and you can teach chatbots to actually hold conversations with people by feeding them text chat samples as a teaching aid. The three key areas of focus in artificial intelligence programming are learning, reasoning and self-correction.

- AI programming is about learning techniques for collecting data and developing rules to convert data into usable information. An algorithm is a collection of rules that instruct a computer how to perform a specific activity, one step at a time.
- Reasoning processes, a subfield of artificial intelligence, concerns the problem of selecting the most effective algorithm to accomplish a given goal.
- Self-correction techniques are one of the categories of artificial intelligence programming that aims at the ongoing improvement of algorithms and their ability to give the most accurate results feasible.

The potential of artificial intelligence is that it can deliver operational insights that have not yet been uncovered by enterprises and in some instances, it can outperform humans in specific tasks. In many circumstances, artificial intelligence systems can do tasks fast and accurately. This is especially true for repeated, detail-oriented work like reviewing huge numbers of legal documents to ensure that key fields have been filled out properly. Today's most successful and biggest firms are leveraging artificial intelligence (AI) to improve their operations and acquire a strategic advantage.

Artificial Intelligence Impacts Human Resources Processes

The advent of Artificial Intelligence (AI) into Human Resources (HR) processes has signaled the beginning of a new age. This combination has led to the rise of new prospects and the transformation of existing procedures.

The impact of artificial intelligence has been enormous in talent acquisition and recruiting, two of the most essential sectors. Talent acquisition and recruitment are some of the most significant topics. Chatbots for the initial interview, artificial intelligence to match prospects and automated resume screening have all contributed to making the hiring process more efficient.

Artificial intelligence helps newly hired employees to settle into their new responsibilities more easily by offering tailored onboarding experiences and automating tasks such as document processing. Chatbots and virtual assistants can answer questions and help staff members quickly navigate through the onboarding process. This offers a satisfactory initial impression to the buyer.

Performance Management: AI-generated insights are valuable for goal setting, performance reviews, and feedback analysis. This allows for better identification of growth opportunities, more accurate assessments and the creation of development programs designed to meet the needs of individual workers.

Training and Development: Artificial intelligence has made it feasible to create flexible and personalized training programs within the field of learning and development. Artificial intelligence may evaluate performance data as well as individual learning preferences to create customized learning routes. This keeps training relevant and effective for staff.

Review of Literature

Karan Hiren Bhalgat (2019) "An exploration of how Artificial Intelligence is impacting the Recruitment and Selection process". The purpose of this research was to assess the impact of AI-based software on the job of recruiters and recognize its role in the process of hiring the most brilliant people in the sector. There was also discussion on additional problems and concerns in regard to the use of AI in recruitment process.

Javed and Juthika Kabir Brishti (2020) on "The viability of AI-based recruitment process". The goal of the study was to indicate the opportunities available for both the candidates and the recruiters and to point out the basic hurdles that would have to be handled. It also allows readers the chance to see how practical and effective artificial intelligence is in the process of hiring new personnel.

Mina Son, Hyeonju Lee and Hyejung Chang (2019) did the research project "Artificial Intelligence Based Business Communication: Application for Recruitment and Selection". The aim of this study was to examine how artificial intelligence technology can enable new communication channels in the workplace.

Dennisi Arli, J. Stewart Black, and Patrick van Esch (2020) Job seekers' reactions to AI-Enabled job application processes. The research was performed by means of in AIR, which is an online system for managing the recruiting process. The study looked into the attitudes of job seekers toward AI-driven job application systems and their inclination to apply for AI-enabled jobs.

Objective of The Study

1. To investigate on decisions underlying RPA adoption in HRM.
2. To applications of RPA in recruitment, onboarding, employee engagement and retention.

Hypothesis of The Study

1. Employees have a positive attitude to application of Artificial Intelligence.
2. Employees are adaptive to application of Artificial Intelligence.

Research Methodology

The research uses a mixed technique to explore the application and impact of Robotic Process Automation (RPA) in Human Resources, particularly in recruitment and retention strategies. The methodology has both quantitative and qualitative dimensions, aiming to provide a holistic knowledge of RPA adoption and its effects on HR practices. Quantitative Data Gathering, The questionnaire was issued to HR professionals in firms that had deployed RPA for at least one HR function. The survey was designed to obtain information on: How widely is RPA being adopted across various HR functions (recruitment, payroll, performance management, employee engagement)? The expected benefits of RPA are time savings, cost reduction, error reduction, and improved employee experience. Challenges of RPA adoption including employee opposition, technology integration problems, and training requirements. RPA's effect on the pace of recruiting, the candidate experience, and employee retention. The survey was sent to 150 HR professionals across sectors, with a 60% response rate (90 completed surveys). Descriptive statistics were used to evaluate the data and determine trends in RPA adoption and its influence on HR operations. Qualitative Data Collection Besides the survey, we performed in-depth interviews with 15 HR leaders who had deployed RPA in their firms. The interviews were conducted to get qualitative information about:

Table 1: Advantages of RPA for HR Processes

HR Process	Benefits of RPA	% of Respondents Reporting Positive Impact
Resume Screening	Faster candidate screening, improved shortlisting accuracy	75%
Interview Scheduling	Automates scheduling, reduces conflicts and errors	80%
Payroll Processing	Reduces payroll errors, improves processing speed	85%
Employee Onboarding	Personalized automation, faster document processing	70%
Performance Management	Timely feedback delivery, consistency across performance reviews	60%
Employee Recognition	Automated recognition messages, increased morale	55%

Effect on Employee Engagement and Retention: New employees felt more at home and engaged with the organization on the first day due to the timely and tailored onboarding emails they received. RPA was used to automate personalized interactions around feedback and professional development possibilities, to make sure employees feel valued and supported during their tenure. Automation of employee experience procedures (such as onboarding and career development) led to improved overall employee satisfaction, which is often a precursor to enhanced retention. Accenture didn't see a quick boost in retention metrics but it helped.

RPA's Application in IBM's Human Resources Department

IBM has leveraged robotic process automation (RPA) in its human resources functions, especially around employee recruiting and engagement. RPA has automated many recruitment procedures such as resume screening, interview scheduling and applicant contact. This has resulted in a 30% reduction in time-to-hire and an improved candidate experience with faster responses and clearer updates. RPA enabled IBM to automate performance assessments, feedback and recognition, resulting in increased employee engagement and retention, a recognition culture and improved morale. Along with RPA, IBM launched a comprehensive training campaign to dispel fears about job loss and to free up HR staff to work on more strategic initiatives. To summarize, RPA has enabled IBM's HR staff to engage in more personal, human interactions, resulting in higher operational efficiency, an enriched employee experience and a positive impact on retention.

Table 2: Improving Employee Engagement with RPA, Information Derived from Surveys and Interviews Conducted by IBM and Accenture

Engagement Strategy	Before RPA	After RPA Implementation	Impact
Frequency of Performance Reviews	Quarterly	Monthly	Increased feedback frequency
Timeliness of Feedback	10-15 days	1-2 days	90% faster feedback delivery
Employee Recognition	Manual, Ad-hoc	Automated, consistent	Improved recognition rates
Personalized Career Development	Infrequent	Automated, personalized	Higher engagement with career opportunities

Results

The research shows that RPA is most frequently used in payroll and recruitment processes, but is also increasingly used in performance review and worker engagement. RPA Adoption in HR: 65% of respondents claimed RPA is used in their organization for HR tasks. The most preferred areas for adoption were Payroll (40%), benefits administration (35%) and recruitment (45%).

Recruitment Impact: 70% of respondents report RPA reduced time-to-hire by automating procedures like resume screening and interview scheduling. Half of respondents said the candidate experience improved with better communication and speedier responses.

Keeping Employees: 58% of participants said automated performance reviews, feedback and recognition was a positive effect of RPA on employee engagement. RPA did boost operational efficiency, but 37% of respondents indicated it had not yet had a substantial impact on retention. Human resources executives say RPA implementation is part of a bigger digital transformation strategy, designed to boost efficiency and allow HR staff to focus on other vital functions such as employee development and retention.

The largest cited obstacle was the pushback from the HR professionals, with 40% of respondents stating that workers were initially afraid about their jobs. Furthermore, the need of expert training to enable RPA adoption was underlined by one third of respondents.

Table 3: Adoption of Robotic Process Automation in Human Resources, Derived on a Survey of Ninety HR Experts from Different Sectors

HR Function	Percentage of Organizations Using RPA	Impact of RPA Adoption
Recruitment	45%	Reduced time-to-hire, improved candidate experience
Payroll Processing	40%	Increased accuracy, reduced manual errors
Employee Onboarding	35%	Streamlined onboarding process, faster integration
Performance Management	30%	Enhanced consistency in feedback, faster reviews
Benefits Administration	25%	Simplified benefits management, fewer errors
Employee Engagement	20%	Increased employee satisfaction with automated feedback

Discussion

The findings of this study suggest that RPA has impacted the operations of HRM mainly in the areas of payroll and recruitment. Automating formerly laborious administrative operations has considerably improved operating efficiency and reduced expenses for RPA. HR operations such as resume screening and interview scheduling are automated, improving the candidate experience and reducing time to hire.

The results of RPA on staff retention have been inconsistent. Personalized communication and performance feedback have driven employee engagement using RPA, but the impact on retention rates has been less clear. This may be because, while RPA is good at automating administrative duties, technology cannot replace people in fostering a healthy work atmosphere and strong relationships amongst employees. The paper also highlights a number of barriers to RPA adoption. "A lot of it was the human resources people not wanting to change, and the workers being afraid of losing their jobs. Organizations must engage in upskilling and change management in an effort to solve these difficulties and ensure that RPA enhances HRM, not replaces people.

Table 4: Difficulties in Using RPA for HRM

Challenge	Percentage of Organizations Facing This Challenge	Solutions Implemented
Employee Resistance	45%	Training programs, clear communication on RPA's role
Integration with Legacy Systems	40%	Collaboration with IT for system compatibility
Data Privacy and Security Concerns	35%	Enhanced data encryption, compliance with regulations
Initial Cost of RPA Tools	30%	ROI analysis, gradual scaling of RPA adoption
Lack of RPA Expertise	25%	Upskilling HR staff, hiring external consultants
Automation Accuracy Issues	20%	Continuous monitoring, feedback loops, fine-tuning

Source: Interviews with 15 HR leaders who implemented RPA.

When compared to previous studies, this research not only agrees with the conclusions on the efficiency advantages that RPA provides, but it also contributes to the current discourse about the role RPA plays in the retention of personnel. Future study should consider longitudinal case studies that track the impact of robotic process automation (RPA) on staff retention over time.

Conclusion

Robotic process automation has evolved in the area of human resources, which led to higher efficiency and a reduction in spending. Therefore, the operations have been adjusted in HR. Robotic Process Automation (RPA) deployment in Human Resources has been established to be a game changer as it has facilitated the repetitive administrative chores and enhanced the productivity of HR processes from recruitment to employee retention. Case studies from IBM and Accenture demonstrate that robotic process automation (RPA) reduces time and costs, while improving the experience for both staff and candidates with faster, more consistent communication and feedback. However, there are some challenges that must be addressed to be able to effectively implement RPA in HR, especially in terms of employee resistance and fears of job loss. To guarantee that automation complements rather than substitutes the human elements of human resource management, businesses need to find a careful balance between the technology advantages of robotic process automation (RPA) and human-centered approaches. Going forward, human resource teams should continue to adopt robotic process automation (RPA), reaping its benefits while making sure it supports personalized, meaningful interactions that boost employee engagement and retention in the long run. This research offers insights on the role of robotic process automation (RPA) in defining the future of human resources and the workplace at large.

References

1. Dalsaniya, N. A., & Patel, N. K. (2021). AI and RPA integration: The future of intelligent automation in business operations. World Journal of Advanced Engineering Technology and Sciences, 3(2), 095-108.
2. Dalsaniya, N. A. (2023). Revolutionizing digital marketing with RPA:
3. Automating campaign management and customer engagement. International Journal of Science and Research Archive, 8(2), 724-736.

4. Dalsaniya, A. (2022). Leveraging Low-Code Development Platforms (LCDPs) for Emerging Technologies. World Journal of Advanced Research and Reviews, 13(2), 547-561.
5. Dalsaniya, A., & Patel, K. (2022). Enhancing process automation with AI: The role of intelligent automation in business efficiency. International Journal of Science and Research Archive, 5(2), 322-337.
6. Dalsaniya, N. A. (2022). Cognitive Robotic Process Automation (RPA) for Processing Unstructured Data. International Journal of Science and Research Archive, 7(2), 639-643.
7. Gadhiya, Y. (2024). AI-Based Automation for Employee Screening and Drug Testing. International IT Journal of Research, ISSN: 3007-6706, 2(4), 185-199.
8. Gadhiya, Y., Gangani, C. M., Sakariya, A. B., & Bhavandla, L. K. (2024). Emerging Trends in Sales Automation and Software Development for Global Enterprises. International IT Journal of Research, ISSN: 3007-6706, 2(4), 200-214.
9. Ginu George, Mary Rani Thomas (December 2019), A study on "Integration of Artificial Intelligence in Human Resource".
10. Rahul Chopal, Dr. Usha Garg (July 2021), A research paper on "Artificial-Intelligence, and recruitment: Shift towards automated HR practice"
11. James Wright, Dr. David Atkinson, work "The impact of artificial intelligence within the recruitment industry: Defining a new way of recruiting".
12. Nishad Nawaz (March 2021), A study on "Impact of Artificial Intelligence on Recruitment and Selection of Information Technology Companies".
13. Dr. Ramar Veluchamy, Sanchari Chattaraj, Surbhi Kumari Gupta(March 2021), Researched "Artificial intelligence within recruitment: eliminating biases in human resource management".
14. Ashwani Kumar Upadhyay, Komal Khandelwal (November 2018), Undertook a Research study "Applying artificial intelligence: implications for recruitment".
15. Serap Zel, Elif Kongar (January 2021) Researched "Transforming Digital Employee Experience with Artificial Intelligence".
16. Edward Tristram Albert (October 2019), Undertook a research study" AI in talent acquisition: a review of AI-applications used in recruitment and selection".
17. Soumyadeb Chowdhury, Prasanta Dey, Sian Joel-Edgar, Sudeshna Bhattacharya, Oscar Rodriguez Espindola, Amelie Abadie, Linh Truong (March 2022), A study on "Unlocking the value of artificial intelligence in human resource management through AIcapability framework".
18. Nishad Nawaz (July 2019), Researched "How Far Have We Come with The Study Of Artificial Intelligence For Recruitment Process".
19. K. Vijaya Sekhar Reddy, Dr. D Jagadeesan, T Srinivasa Rao (July 2020), A study on "Artificial Intelligence rewards and recognition and its effectiveness on employees".
20. Karan Hiren Bhalgat (Aug 2019), researched "An exploration of how Artificial Intelligence is impacting Recruitment and Selection process".
21. Ayesha Javed, and Juthika Kabir Brishti (June 2020), studied "the viability of AI-based recruitment process".
22. Mina Son, Hyeonju Lee, Hyejung Chang (July 2019), researched "Artificial Intelligence- Based Business Communication: Application for Recruitment and Selection".
23. OihabAllal-Chérif, Alba Yela Aránega, Rafael Castaño Sánchez (Aug 2021), researched "Intelligent recruitment: How to identify, select, and retain talents from around the world using artificial intelligence".

24. Denni Arli, J. Stewart Black, Patrick van Esch (Nov 2020), researched “Job candidates’ reactions to AIEnabled job application processes”.
25. Agata Mirowska (July 2020), Researched” AI Evaluation in Selection: Effects on Application and Pursuit Intentions”.
26. Siddhi Mehrotra, Akanksha Khanna (Jan 2022), A Study on” Recruitment Through AI in Selected Indian Companies”.
27. Isha Tewari; Mohit Pant (April 2021), A research on “Artificial Intelligence Reshaping Human Resource Management”.
28. Olajide Ore, Martin Sposato (June 2021), An article on “Opportunities and risks of artificial intelligence in recruitment and selection”.