

## **Implementation of Artificial Intelligence in Business Process Automation**

Tanya Aggarwal  
Assistant Professor, Lloyd Business School  
Greater Noida  
tanyaaggarwal37@gmail.com

### **ABSTRACT**

Business Process Automation (BPA) is a revolution of artificial intelligence (AI), that helps to improve efficiency and productivity of a business products. AI helps BPA to combines robotic process automation, natural language processing, and machine learning to increase the accuracy, and helps in decision making AI application is used in businesses to enter the data by doing data entry fraud detection, predictive analytics with the workflow optimization. Operational efficiency is further increased via AI-powered chat bots, virtual assistants, and intelligent process automation (IPA). It is seen that in every platform or sites artificial intelligence is used to predict the message or the content in the same way it helps in business process automation. In business BPA is used to examine the efficiency and increase it by using the various algorithm and strategies.

**Keywords:** *Efficiency, Productivity, Automation, Accuracy, Decision-making*

### **I. INTRODUCTION**

All the businesses are using artificial intelligence (AI) to automate procedures, boost productivity, and improve decision-making in the changing technology. AI is essential to the advancement of business process automation (BPA), which helps to carry out repetitive operations. Machine learning, natural language processing, and robotic process automation (RPA) are all combined in AI-powered BPA increase accuracy, save costs, and expedite processes. AI-driven automation, from chatbots for customer service to intelligent data processing and predictive analytics, revolutionizes sectors by boosting output and facilitating more intelligent decision-making. The integration of artificial intelligence (AI) into business process automation is examined in this study, along with the main technologies involved, its advantages, and the difficulties that firms encounter when putting it into practice. Organizations may improve customer experiences, increase operational efficiency, and obtain a competitive edge in a world that is becoming more and more digital by utilizing AI-driven automation.

### **II. REVIEW OF LITERATURE**

Researchers extensively examined that the incorporation of Artificial Intelligence (AI) into Business Process Automation (BPA). With an emphasis on important technologies, applications, advantages, and difficulties, this section examines the body of research on AI-driven BPA.

#### **1. Business Process Automation with AI Technologies**

Various research emphasize how AI technologies contribute to automation. Van dar Aalst (2018) asserts that by automating rule-based tasks and facilitating intelligent decision-making, robotic process automation (RPA) and artificial intelligence (AI) improve corporate productivity. Similarly, Bryn Jolfsson and McAfee (2017) talk about how ML works permit systems to evolve and adapt over time, resulting in increasingly complex automation solutions.

## 2. AI Applications for BPA

Two categories are used by Davenport & Ronanki (2018) to classify AI applications in BPA:

- **Process Automation:** AI-powered RPA lessens the need for human labor in repetitive processes like document processing and data entry.
- **Cognitive Insights:** Analytics driven by AI enhance risk assessment, fraud detection, and forecasting.

<b>BASED ON PARAMETER</b>	<b>BPA</b>	<b>AI</b>	<b>SIMILARITY</b>
<b>Concentrate on accomplishing company goals</b>	Aims to reduce costs and improve operational efficiency by automating	Manages intricate processes including thought, learning, and decision-making, going beyond straightforward automation.	The goals of both technologies are to improve organizational competitiveness, optimize operations, and boost company performance.
<b>Automation as a fundamental idea</b>	Follows preset guidelines to automate structured and routine tasks.	Extends automation to encompass intricate tasks that necessitate learning and flexible thinking.	They both emphasize automation as a means of promoting overall efficiency, but varying at degrees of complexity.
<b>Reliance on Data</b>	Uses data to carry out predefined actions and procedures.	AI uses data to learn, adapt, and make decisions on its own.	Both depend on data to function; AI uses it for ongoing learning, whereas BPA uses it for process execution.
<b>Functionality</b>	It can be integrated into existing systems to increase functionality without requiring a significant change.	Provides comparable integration opportunities while adjusting to current technological environments.	Both can be easily incorporated into existing systems to improve usefulness and efficiency.
<b>Scalability for expanding businesses</b>	By using automated procedures to manage growing workloads, it makes it simple to scale operations.	This equally scalable technology can handle increasing needs without significantly cutting back on human resources.	By enabling operational scalability, both technologies aid in the expansion of organizations.

<b>Dedication to ongoing development</b>	Able to continuously improve and optimize in response to user input	Designed from the ground up to become increasingly intelligent	Despite using distinct methods, AI and BPA are dedicated to various development activities.
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### 3. Advantages of AI in BPA

Advantages of AI in automation are highlighted in a number of research. According to Willcocks (2020), AI-driven BPA improves scalability, boosts accuracy, and drastically lowers operating expenses. According to McKinsey (2019), companies that use AI automation get up to 40% increases in productivity and better decision-making.

### Difficulties and Restrictions

AI-driven BPA has a number of drawbacks despite its benefits. Major obstacles include worker opposition, implementation complexity, and data privacy concerns. Furthermore, research by Frank et al. (2021) emphasizes the necessity of ongoing control and monitoring to guarantee the ethical application of AI in automation.

### Upcoming-Patterns

AI-driven Intelligent Process Automation (IPA), which combines AI, RPA, and advanced analytics, is predicted to further revolutionize enterprises, according to recent research. According to a Gartner (2023) report, 75% of businesses would use AI-powered BPA by 2025, increasing their flexibility and creativity.

### How do Business Process Automation and Artificial Intelligence Work Together?

Despite having different uses and capacities, business process automation and artificial intelligence share a number of important characteristics. From common objectives in automation and business improvement to data reliance, integration, scalability, ongoing development, and decision-making assistance, these technologies converge at several points. However, it's important to understand their distinct features; for example, BPA's rule-based automation differs from AI's more sophisticated capabilities. But when combined, they can work in concert to maximize creativity and business potential.

## III. AI Applications for Business Automation

Business process automation (BPA) and artificial intelligence (AI) can be used to achieve a number of important use cases in contemporary business. Among these use cases are:

**Development and Research:** In development and research artificial intelligence helps in supporting development of the automation by using various business processes.

**Innovation and idea generation:** AI algorithms are able to produce creative concepts for goods and services by examining customer behavior, market trends, and competitive environments.

**R&D project management:** Project management duties that guarantee effective team collaboration include scheduling, resource allocation, and progress monitoring.

**Competitive analysis and market research:** AI can automate the gathering and examination of competitor data, customer reviews, and market statistics, offering insightful information for strategic decision-making.

**HR and recruitment:** Because of the volume of paperwork and duties involved, HR and recruitment procedures are well suited for automation. Job advertisements, onboarding, compliance checks for new hires, and other HR duties like performance monitoring, timesheet tracking, and exit interviews can all be streamlined with automation. In addition to saving time, this enables HR staff to concentrate on important areas like health initiatives, culture development, and employee training. Here are a few examples of how AI may automate the HR department.

**Resume screening:** By automating resume screening and quickly comparing candidate profiles to job criteria, AI expedites the hiring process. This speeds up the first stage of hiring new employees, guaranteeing a more impartial and effective candidate selection process.

**Predictive analytics:** AI analyzes past employee data to find trends and possible turnover indications. Organizations can proactively implement initiatives to improve work satisfaction, engagement, and overall employee retention by providing insights into the variables that contribute to turnover.

#### **IV. CONCLUSION**

According to the literature, artificial intelligence (AI) greatly improves business process automation through increased productivity, better decision-making, and improved customer relations. To fully utilize AI's promise in automation, companies must handle issues including data security, ethical considerations, and worker adaption. Best practices for integrating AI into business operations and AI governance should be the main topics of future study.

#### **REFERENCES**

Patrício, L., Varela, L., &Silveira, Z. (2024). Integration of Artificial Intelligence and Robotic Process Automation: Literature Review and Proposal for a Sustainable Model. *Applied Sciences*, 14(21), 9648.

Lee, M. C. M., Scheepers, H., Lui, A. K. H., & Ngai, E. W. T. (2023). The implementation of artificial intelligence in organizations: A systematic literature review. *Information & Management*, 60(5), 103816.

Hlatshwayo, Mthokozisi. (2023). The Integration of Artificial Intelligence (AI) Into Business Processes. 10.5281/zenodo.10893971.

Kitsantas, Thomas &Georgoulas, Peter &Chytis, Evangelos. (2024). Integrating Robotic Process Automation with Artificial Intelligence for Business Process Automation: Analysis, Applications, and Limitations. *Journal of System and Management Sciences*. 14. 217-242. 10.33168/JSMS.2024.0712.

Soni, N., Sharma, E. K., Singh, N., & Kapoor, A. (2020). Artificial Intelligence in Business: From Research and Innovation to Market Deployment. *Procedia Computer Science*, 167, 2200–2210.

Pisoni, G., Moloney, M. Responsible AI-Based Business Process Management and Improvement. *DISO 3*, 23 (2024).

Kokala, Abhilash. (2024). Business Process Management: The Synergy of Intelligent Automation and AI-Driven Workflows. *International Research Journal of Modernization in Engineering Technology and Science*. 6. 1586-1591. 10.56726/IRJMETS65186.

Ribeiro, Jorge & Lima, Rui&Eckhardt, Tiago &Paiva, Sara. (2021). Robotic Process Automation and Artificial Intelligence in Industry 4.0 – A Literature review. *Procedia Computer Science*. 181. 51-58. 10.1016/j.procs.2021.01.104.

S. Afrin, S. Roksana and R. Akram, "AI-Enhanced Robotic Process Automation: A Review of Intelligent Automation Innovations," in *IEEE Access*, vol. 13, pp. 173-197, 2025, doi: 10.1109/ACCESS.2024.3513279.

Ghulaxe, Vivek, Robotic Process Automation with ML and Artificial Intelligence: Revolutionizing Business Processes(July 04, 2024).

Ng, Kam K.H. & Chen, Chun-Hsien& Lee, C. & Jiao, Roger & Yang, Zhi-Xin. (2021). A systematic literature review on intelligent automation: Aligning concepts from theory, practice, and future perspectives. *Advanced Engineering Informatics*. 47. 101246. 10.1016/j.aei.2021.101246.