AI-Enhanced Robotic Process Automation: A Review of Intelligent Automation Innovations

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Abstract: *The rapid technological growth in recent decades due to the integration of robust technologies and automation have led to the rise of digital services and the emergence of Industry 4.0. This paper explores the concept and potential of AI-powered intelligent automation based on the synergistic use of Robotic Process Automation (RPA) and Artificial Intelligence (AI) to enhance organizational and business processes across various sectors. RPA automates routine, rules-based tasks, thereby allowing human workers to engage in more innovative activities. When integrated with AI, RPA systems gain the capacity to analyze data, identify patterns, classify information and forecast which leads to significant improvement in accuracy and productivity. This literature review investigates the current state of RPA and AI integration while highlighting its applications in different sectors such as manufacturing, agriculture, healthcare, finance, and retail. Along with discussing the drawbacks and restrictions, such as technological issues and moral dilemmas, this paper also discusses the advantages of this integration, which include decreased costs, increased output, and simplified operations. By leveraging AI techniques such as classification, text mining of neural network, RPA technologies optimize business operations and advance Industry 4.0. This study also illustrates the challenges and limitations of this integration such as technical difficulties and ethical considerations. The aim of this review is to provide a comprehensive understanding of the synergistic potential of RPA and AI while offering insights into their contribution in shaping the future of intelligent automation.*

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