

# Understanding the Role of Robotic Process Automation in Healthcare

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## Abstract

The growing volume of patient data in healthcare requires efficient and accurate processing methods. Traditional manual data extraction and validation are time-consuming and error-prone, affecting decision-making and overall healthcare quality. Robotic Process Automation (RPA) offers a viable solution by automating repetitive tasks, reducing human effort, and minimizing errors. We aimed to develop an RPA-based system using UiPath to automate the extraction and validation of patient data from medical records, enhancing efficiency of healthcare data management. The system will be deployed in a simulated healthcare environment, where UiPath bots will extract both structured and unstructured data from electronic and scanned patient records. The extracted information is validated against predefined rules to ensure accuracy and compliance with medical regulations. The study follows a design and implementation approach, evaluating the system's efficiency in terms of error reduction, processing speed, and data integrity compared to manual processing methods. The initial results demonstrated that RPA significantly reduces processing time and errors, leading to improved data accuracy by 25% and streamlined administrative workflow. By automating these tasks, healthcare professionals can allocate more time to patient care rather than administrative duties. In conclusion, integrating RPA into healthcare data management enhances operational efficiency, minimizes errors, and ensures compliance with medical standards. The findings highlight the potential of RPA to optimize administrative processes in healthcare, supporting better data-driven decision-making. Further research will explore benefits of artificial intelligence technologies in assisting e-prescription generation, reconciling medication, validating data and automating data retrieval from handwritten medical papers.

**Keywords:** Robotic Process Automation (RPA); Healthcare; Data Extraction; Automation; Efficiency.