Accelerating Innovation through the Fusion of RPA and Low-Code Development

Preeti Tupsakhare

Engineer Lead - Medical Benefit Management Information Technology, Elevance Health.
pymuley@gmail.com

Abstract

As organizations confront increasing demands to streamline operations, cut costs, and drive innovation, Robotic Process Automation (RPA) and low-code platforms have emerged as essential technologies for digital transformation. Individually, these tools offer distinct advantages: RPA automates repetitive, rule-based tasks traditionally carried out by humans, boosting efficiency and accuracy, while low-code platforms empower non-technical users to build sophisticated applications through intuitive visual development environments. Their combined use creates a powerful synergy, enabling businesses to rapidly automate complex workflows, integrate disparate legacy systems, and deliver tangible value with unprecedented speed and scalability [1],[3].

This white paper explores the strategic benefits and technical integration of RPA and low-code platforms. We outline how their convergence tackles common enterprise challenges, enhances organizational agility, and democratizes the innovation process, allowing more employees to participate in and contribute to technological advancements. By examining real-world use cases, we highlight how these solutions address various industry-specific issues, from streamlining supply chain logistics to enhancing customer service experiences[3].

Furthermore, this paper offers best practices for implementing these technologies together, suggesting methods for seamless integration into existing IT ecosystems. We provide insights into optimizing resources and deploying these tools in a way that maximizes return on investment. By drawing on success stories from leading organizations, we illustrate how leveraging this powerful combination can achieve a sustainable competitive advantage, driving transformation across every facet of an organization's operations. Ultimately, this white paper aims to serve as a comprehensive guide for organizations seeking to harness the full potential of RPA and low-code platforms in today's fast-paced digital landscape.

Keywords: RPA, Digital Transformation, Robotic Process Automation, Automation, Low-Code platforms.

I. INTRODUCTION

In today's fast-growing economy, being the first to market with your latest ideas is crucial for success. This urgency leaves organizations with no choice but to embrace digital transformation quickly. However, many face setbacks, such as outdated legacy systems, a workforce more comfortable with routine manual tasks than with adopting new technologies, talent shortages, and IT backlogs that hinder development and automation efforts.

In this context, Robotic Process Automation (RPA) and low-code platforms have emerged as ideal solutions to address these routine challenges faced by organizations.

RPA, or Robotic Process Automation, involves using software bots to replicate human interactions with digital systems. These bots carry out tasks that are repetitive and rule-based, such as data entry, invoice processing, and system reconciliation, often operating across multiple platforms. Leading RPA solutions like UiPath, Automation Anywhere, and Blue Prism enable organizations to automate legacy processes without altering existing systems.

Conversely, low-code platforms facilitate rapid application development with intuitive drag-and-drop interfaces and prebuilt components. Platforms like Appian, Microsoft Power Apps, Mendix, and OutSystems empower business users, often referred to as "citizen developers," to build functional applications with minimal coding effort, thereby reducing reliance on traditional development teams.

Each technology offers significant benefits on its own, but true transformation happens when they are used together. RPA bridges the automation gap in environments that rely on legacy systems or lack APIs, while low-code platforms provide adaptable user interfaces and orchestration layers that can quickly adjust to evolving business requirements. Together, they form an ecosystem where processes are not only automated but also easily maintained and scalable**.**

II. WHAT IS THE BUSINESS VALUE OF RAP+ LOWCODE SYNERGY

The synergy between RPA and Low Code not just enhances productivity, drives innovation and saves resources, it also allows organizations to maintain control over process integrity and compliance.

Faster Results with Less Hassle: By blending the power of RPA (Robotic Process Automation) with the flexibility of low-code platforms, businesses can roll out fully functional solutions in a fraction of the time it used to take. What once required months of traditional development can now be accomplished in weeks—or even days. Automating repetitive tasks cuts down on manual work, while low-code tools make it easy to build user interfaces and iterate quickly. The result? Faster time-to-value and more room to focus on what really matters [3].

Smoother Operations, Lower Costs: RPA is great at handling high-volume, rule-based tasks—think pulling data, generating reports, or syncing systems. When those bots are paired with low-code applications, the entire process becomes more streamlined and user-friendly. This one-two punch not only improves operational efficiency but also cuts down on costly errors and reduces overhead—freeing up your team for more meaningful work.

Giving Power to the People: Low-code platforms open the door for business users—often called “citizen developers”—to build solutions without needing deep coding skills. Add RPA into the mix, and suddenly these users can embed smart automation into their apps, too. This shift breaks down traditional IT bottlenecks and sparks innovation across departments, allowing teams closest to the problems to help create the solutions.

Built-in Compliance and Consistency: RPA bots are sticklers for rules—they follow processes exactly as designed. Combine that with low-code tools that offer built-in validation and governance, and you get systems that are not only efficient but also compliant. This approach minimizes human error and ensures consistency, especially important for industries with strict regulatory requirements [3] [4].

Better Experiences All Around: When employees aren’t bogged down by repetitive tasks, they can focus on higher-value work. And when digital tools are easy to build and improve, customer-facing services become more responsive and intuitive. Together, RPA and low-code help create smoother, faster, and more enjoyable experiences—for both the teams inside the company and the people they serve [2].

III. HOW THEY WORK TOGETHER

Architecture Overview: Unified Layers of Automation RPA and low-code platforms function at different architectural layers:

- **RPA Bots**: Automate rule-based, repetitive tasks at the UI level such as copying data across systems or extracting information from unstructured documents.
- **Low-Code Platforms**: Handle workflow orchestration, data management, and user interfaces [2].

Example: A financial services app built on a low-code platform may trigger an RPA bot to fetch credit data from a legacy mainframe and return it to the app user in real time.

The Fig 1: depicts very high level architecture of how Low code and RPA can work together and extract the information needed from other systems without actually integrating with those systems.

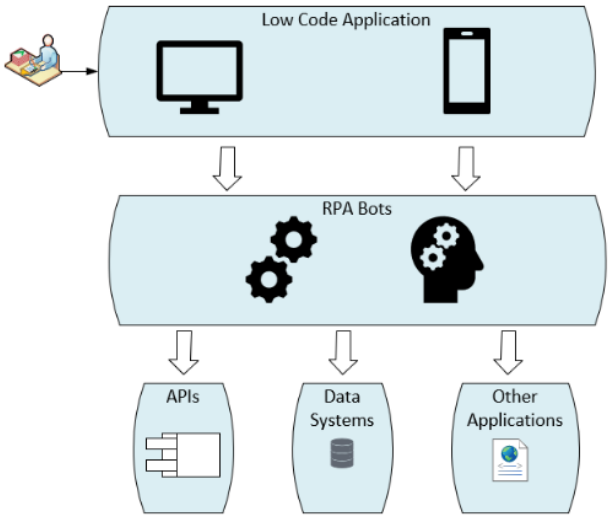

Fig 1: High level Architecture of RPA and Low Code use

Trigger Mechanisms and Orchestration Integration allows dynamic process control:

- **From Low-Code to RPA**:
  - APIs, embedded bot connectors, or message queues trigger bots.
  - Users initiate bot actions from dashboards or forms [2].
- **From RPA to Low-Code**:
  - Bots invoke decision-making logic or database operations handled by low-code services.

This bi-directional interaction ensures smooth transitions between automation layers and enables centralized monitoring and error handling.

Hypothetical Use Cases

Microsoft Power Platform Integration: Microsoft's Power Platform exemplifies successful RPA-low-code integration:

- **Power Apps**: Builds business applications.
- **Power Automate**: Executes RPA and API flows.
- **AI Builder**: Extracts data using machine learning models.

Scenario: A procurement app built in Power Apps can launch an RPA bot via Power Automate to gather quotes from vendor websites and apply AI Builder to extract pricing details [3][4].

Healthcare Claims Processing: A health insurance provider uses a low-code platform to build a member service portal. When a member submits a claim inquiry, the portal triggers RPA bots to:

- Log into multiple legacy systems
- Retrieve claim details and status
- Return consolidated results to the member in seconds This eliminates manual lookup time and improves the member experience.

Banking Compliance Automation: A bank uses low-code dashboards to monitor transactions. Suspicious activities trigger RPA bots to:

- Extract account details
- Generate audit reports
- Populate regulatory compliance forms This process, previously done manually by compliance officers, is now automated and audit-ready.

Retail Order Fulfillment: A retailer combines a low-code order management app with RPA bots to[4]:

- Scrape stock levels from supplier websites
- Compare costs
- Automatically create purchase orders in backend systems This reduces delays and human error in inventory management.

Public Sector Document Digitization: A government agency uses a low-code platform for internal approvals and citizen services. RPA bots:

- Extract data from handwritten or scanned forms
- Enter it into structured government databases
- Trigger approvals and notifications This drastically improves processing time and record accuracy.

IV. REAL-WORLD CASE STUDIES: SUCCESS AT THE INTERSECTION OF RPA AND LOW-CODE

UiPath and Microsoft Power Apps Streamline Financial Onboarding

A global financial services firm implemented a combination of UiPath RPA and Microsoft Power Apps to streamline its client onboarding process. UiPath's automation solutions were utilized to extract and validate client data from multiple systems, while Power Apps provided an intuitive interface for relationship managers to track progress and manage exceptions. This integration significantly reduced onboarding time and enhanced client satisfaction [5][8].

Meharry Medical College Enhances Claims Processing

Meharry Medical College's School of Dentistry leveraged Automation Anywhere to automate its insurance claims process. RPA bots captured and validated claim data from scanned documents and integrated it with internal systems. This automation led to timely filing of a high volume of insurance claims, improving efficiency and compliance [6].

Department for Work and Pensions (DWP) Modernizes Citizen Services

The UK's Department for Work and Pensions utilized Blue Prism RPA and OutSystems to create digital services for citizens applying for housing benefits. RPA bots automated document verification and

eligibility checks, while the low-code application enabled self-service portals accessible via mobile devices. This modernization resulted in faster service delivery, reduced backlogs, and higher citizen engagement [7].

Schneider Electric Achieves End-to-End Supply Chain Automation

Schneider Electric deployed RPA bots to automate inventory updates, order management, and shipment tracking. A Power Apps interface enabled real-time status checks and exception handling across departments. The combined solution led to a significant improvement in operational efficiency and helped the company adapt swiftly to supply chain disruptions [8].

V. CHALLENGES AND CONSIDERATIONS.

Technical and Architectural Challenges:

- **Integration Complexity**: Middleware or custom connectors may be required for seamless integration. RPA bots can break with UI changes, disrupting low-code processes.
- **Scalability Bottlenecks**: RPA may not scale as effectively under heavy loads compared to API-driven automation.
- **Error Propagation**: Failures in bot execution can impact user-facing applications if error-handling isn't robust.

Governance and Security:

- **Data Access Risks**: Bots often require broad access privileges, which can pose data security and compliance risks.
- **Change Control**: Frequent UI or business logic updates require careful versioning and testing to avoid inconsistencies.

Organizational and Skill-Set Gaps:

- **Citizen Developer Overreach**: Without proper training and governance, users may create fragile or non-compliant workflows [2].
- **Debugging Complexity**: Cross-platform errors can be difficult to diagnose, especially with limited technical expertise.

Cost and Licensing:

- **Tool Redundancy**: Organizations may struggle to justify investment in both RPA and low-code without clear ROI.
- **Licensing Overheads**: Per-bot or per-minute licensing models for RPA can accumulate significant costs on a scale [2][4].

VI. BEST PRACTICES TO FOLLOW

To address the challenges of integrating RPA with low-code platforms, organizations should adopt the following strategies:

1. Strengthen Collaboration Between Teams

- Establish cross-functional teams comprising RPA developers, low-code engineers, and business analysts [1].
- Use shared documentation, integrated DevOps pipelines, and frequent joint reviews to

ensure alignment.

2. Invest in Governance and Security Frameworks

- Implement role-based access control (RBAC) and data encryption to protect sensitive data.
- Use version control and automated testing tools to manage changes and updates in both RPA scripts and low-code apps [1] [3].

3. Design for Scalability and Resilience

- Use asynchronous bot triggers and queue-based architectures to prevent blocking and enhance performance.
- Design modular, reusable components with built-in error handling and retry logic.

4. Empower and Educate Citizen Developers Responsibly

- Provide training, templates, and pre-approved components to guide non-technical users [2].
- Monitor and audit citizen-developed workflows to ensure compliance and sustainability.

5. Manage Costs Proactively

- Analyze usage patterns to optimize bot licenses and runtime environments.
- Consolidate overlapping functionality between tools and standardize on platforms that offer native integration to reduce maintenance overhead.

By proactively addressing these areas, organizations can unlock the full potential of integrated RPA and low-code platforms while mitigating risks and ensuring long-term success

VII. CONCLUSION

The integration of RPA with low-code platforms forms a powerful and scalable foundation for enterprise automation. Together, these technologies extend automation capabilities across both legacy systems and modern applications, delivering faster deployment, enhanced user experiences, and reduced operational costs.

While integration brings measurable benefits, it also presents technical, organizational, and governance challenges. Recognizing and proactively addressing these barriers is key. Solutions such as fostering collaboration across teams, designing scalable workflows, and equipping citizen developers with best practices ensure resilient and compliant implementations.

By adopting a holistic strategy that includes robust governance, security, and cost management, organizations can fully capitalize on the complementary strengths of RPA and low-code platforms. The result is not just improved efficiency, but a more agile, responsive, and future-ready enterprise—well-positioned to adapt to evolving market demands and technological advancements.

As more enterprises embrace digital transformation, the convergence of RPA and low-code stands out as a catalyst for continuous innovation and sustained competitive advantage.

REFERENCES

[1] N. Falih, S. H. Supangkat, F. F. Lubis and O. M. Prabowo, "Revolutionizing Process Automation: The Synergy of Low-Code Development Platforms, Robotic Process Automation, and Integrated Smart System Platform," *IEEE Access*, vol. 12, pp. 118694–118706, 2024, doi: 10.1109/ACCESS.2024.3447882.

[2] S. Helzle, *Low-Code Application Development with Appian: The Practitioner's Guide to High-Speed Business Automation at Enterprise Scale Using Appian*. Packt Publishing, 2022.

[3] T. Taulli, *The Robotic Process Automation Handbook*Apress. Berkeley, CAdoi: https://doi.org/10.1007/978-1-4842-5729-6

[4] A. Khang, K. C. Rath, S. K. Satapathy, A. Kumar, and A. Agrawal, "Robotic Process Applications and Tools for Manufacturing Sector," in *Machine Vision and Industrial Robotics in Manufacturing: Approaches, Technologies, and Applications*, 1st ed.: CRC Press, 2024, pp. 252–274, doi: 10.1201/9781003438137-14.

[5] UiPath, "Human-in-the-Loop Automation for Customer Onboarding Using Action Center," *UiPath Community Blog*. [Online]. Available: https://www.uipath.com/community-blog/tutorials/human-in-the-loop-automation0-for-customer-onboarding-using-action-center. [Accessed: 16-May-2025].

[6] Automation Anywhere, "Meharry Medical College Case Study," *Automation Anywhere Case Studies*. [Online]. Available: https://www.yumpu.com/en/document/view/34546130/download-complete-case-study-automation-anywhere. [Accessed: 1-May-2025].

[7] UiPath, "Department for Work and Pensions (DWP) Uses UiPath RPA to Improve Government Services," *UiPath Case Studies*. [Online]. Available: https://www.uipath.com/resources/automation-case-studies/dwp-government. [Accessed: 6-May-2025].

[8] UiPath, "Schneider Electric Streamlines Supply Chain Automation with RPA," *UiPath Manufacturing Case Studies*. [Online]. Available: https://www.uipath.com/resources/automation-case-studies/schneider-electric-manufacturing-rpa. [Accessed: 10-May-2025].