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Assessing Business Process Automation tools by using UiPath and Microsoft Power Automate for Intelligent Automation Solutions for Business Students

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ABSTRACT

The world of business is becoming ever more dependent on Robotic Process Automation (RPA).RPA has increasingly gained relevance in digital transformation and practice in industry over the last several years, with a number of universities starting to incorporate it into business and IT programs (Ng, 2023). Many RPA tools available in digital world (or market), nevertheless, little academic advice is available with regards to systematically comparing these platforms. The paper fills this gap by using the examples of UiPa th and Microsoft Power Automate (Power Automate) to compare the two, enabling business students to learn how to evaluate tools that may evolve or become outdated over time but keeping in mind that the fundamentals and properties of automation are the same and can give long-term benefits.

This paper will assist business students in having strategic understanding of RPA by comparing UiPath with power automate. It adopts a well-organized framework, and has five types of automation, which are further divided into specific subcategories and capabilities. This analysis is also combined with analyzing the use case, indicating that where more complex automation needs can be worth investing in the more robust platform, cost-effectiveness is the determiner when the two tools provide the necessary functions.

This paper used the weighted scoring model benchmark UiPath and Power Automate based on five automation categories; each divided again into subcategories that reflect major functional dimensions. The weighted scoring model was selected because it is among the most popular multi-criteria decision-making techniques used to rate the alternatives based on specific criteria (Kumar & Singh, 2023). Every feature was rated on availability (fully supported to not supported) and multiplied with the weight of importance of that feature. The ranking was also informed using prototype level project implementation with enterprise versions of the tools, which gave meaningful practical understanding of the research. The overall points offered well-organized groundwork of deep, realistic comparison of the importance to both education and businesses.

The research revealed that UiPath dominated Power Automate in all five categories of automation, which has enabled business students to see the strengths of UiPath through extensive feature analysis. When budgets are small, Power Automate can be used as well to handle simple requirements. Students can use these findings to select tools depending on the level of their complexity and budget worth. These results build upon the weighted scoring model by offering a systematic point of reference concerning future comparative analyses of automation tools.

The comparison demonstrates that UiPath is the more complete tool of RPA in all of the discussed categories and thus it is fit to address complex automation tasks. It contributes to the existing informal comparisons as it provides business students with a systematic, evidence-based framework of choosing the tools depending on the complexity of the project and cost.

KEYWORDS

Assessment, design, industry and community engagement, student experience

Introduction

The global impact of the COVID-19 pandemic has left a lasting mark on society. One of the most noticeable changes has been in the realm of work. The widespread adoption of video conferencing, online collaboration tools, and remote work practices has transformed the way we conduct business. In addition, despite the presence of RPA tools prior to this time, there has been a significant rise in the implementation of RPA in various industries during this period. RPA involves using software to automate routine tasks on a computer, mimicking human actions such as using the screen, keyboard, and mouse. This technology has been instrumental in enabling organizations to adapt and thrive during these challenging times. The market size of robotic process automation on a global scale reached USD 2,942.7 million in 2023 and is anticipated to experience a compound annual growth rate (CAGR) of 39.9% from 2023 to 2030. The COVID-19 pandemic compelled businesses across the globe to adopt automated business workflows, thereby facilitating the rapid expansion of key players in the robotic process automation market between 2023 and 2030 (Grand View Research, 2024).

Current businesses adopt automation technologies to increase operational effectiveness and maintain their market position. According to IT leaders surveyed (98%), process automation remains essential for achieving business success (Dilmegani, 2025). The repetitive manual computer work that occupies 10–25% of employees' time can be automated to redirect their work towards valuable high-level activities (Dilmegani, 2025). The deployment of RPA within businesses creates higher productivity alongside lower costs and fewer errors across all departmental roles (Casey, 2019). The global rise of RPA adoption has become evident because more than half of organizations have already implemented RPA alongside another 19% planning to do so during the following two years. Given this landscape, Business students should acquire knowledge about process automation technologies (Dilmegani, 2025). The acquisition of RPA skills results in enhanced process efficiency capabilities along with future-readiness for a workplace that demands automation thus making individuals valuable future professionals.

Process automation comes in a variety of models for automating business activities. As per the Gartner Magic Quadrant which was released on August 7, 2023, UiPath, Automation Anywhere, Blue Prism and Power Automate are leading tools for enterprise suppliers (Ray & Velu, 2023). This research selects UiPath and Power Automate for this research because UiPath has been a leader in process automation tools for the past five years (UiPath, 2024). On the other hand, Microsoft has integrated its generative AI component, Microsoft 365 Copilot, into Power Automate. Because of its closeness to other parts of the Power Platform and Microsoft 365 ecosystem, Power Automate seems accessible and simple to use for current Microsoft customers (UiPath, 2024).

The first section of the study paper thoroughly explains the basic elements of process automation. It goes into a review of certain well-known process automation solutions, emphasizing their features. Then this paper showcases detailed comparison analysis between UiPath and Power Automate Desktop to identify the unique characteristics of these instruments. Lastly, the study concludes with suggestions about which technologies are appropriate for which domains or automation kinds.

Basic Elements of Process Automation

System Automation

End-to-end automation facilitates management of business processes at system level that synchronizes work activities across software systems without human involvement. It uses workflow intelligence, event-based triggers, and error detection systems to automate workflows that result in unattended execution across applications. Bots at this level can adjust directly into enterprise systems, including ERP-based, and can do their work through experimentally clicked and typed keystrokes (Alberth & Mattern, 2017). Such workflows not only reduce people doing repetitive work but also impose uniformity and high velocity on online processes. According to a study conducted by Arora and Soni (2021), system-level RPA increased the speed of processing by 35**%** and operational costs decreased by 25**%** across organizations (Arora & Soni, 2021).

Cloud Technologies

Cloud computing offers flexibility, cost-effectiveness and high availability that is needed to execute RPA in dynamic environments to undertake big-data processing workloads (Nayyar, 2024). One study observation is that cloud-based deployment provides scale, flexibility and accessibility of successful deployment of RPA in distributed environments thus enabling organizations to expand automation efforts without regard to limitations on infrastructure (Nayyar, 2024). This relationship produces real gains: one study indicated an 88% increase in data accuracy and reliability through the incorporation of RPA with data workflows in the cloud (Nayyar, 2024). DevOps CI/CD practices can occur in cloud environments, which allows RPA lifecycles to be accelerated in terms of deployment, scale, and iteration (Nayyar, 2024). Such benefits enable companies to concentrate on innovation and strategic projects instead of the on-premises infrastructure management.

Streamlined Automation: Customization and Incorporation

Modern RPA platforms have a wide selection of resources like standardized frameworks, reusable templates, modular plugins, and centralized marketplaces to automate the development. These tools help business users and software developers to rapidly develop bots, implement best practices and have maintainable projects. Frameworks and templates have the benefit of promoting consistency and scalability, and plugins and marketplaces provide flexibility of extensible and shareable components. Their incorporation into RPA systems has also demonstrated the ability to enhance the efficiency of operations and allow enterprise-wide use in all enterprise functions, such as the internal audit (Ng Li Xin, 2022).

Automation Architecture

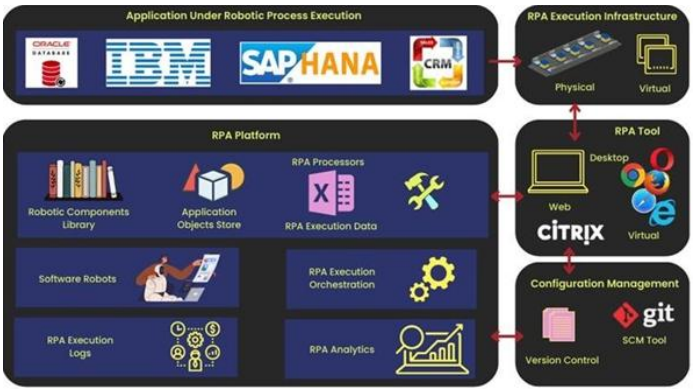

Figure 1 : RPA Architecture source

RPA framework is normally implemented as a multi-layered architecture consisting of workflow design, execution, and orchestration (Bhardwaj & Kumar, 2025). Workflow design allows analysts to specify the task flows, and the execution layer enables the bots to imitate human activities on desktop or virtual machines. The orchestration layer takes care of bot scheduling, monitoring and control flow centrally. Bots can be used through the user interfaces or APIs to communicate with the applications and can be integrated with older or newer systems. A powerful RPA framework in one study decreased the processing time by 93 per cent (taking ~10 seconds to process each task), stating how scalable architecture components can facilitate systematic (and reliable) bot implementations over complex business processes (Abdellaif, Nader, & Hamdi, 2024).

Automation Opportunity Discovery

Process mining and task mining are critical technologies that will help facilitate data-driven automation by picking the right candidates to automate using RPA. Process mining can be used to extract event logs of systems such as ERP and CRM and identify inefficiencies and rule-based work, whereas task mining can be used to capture user interactions, such as clicks and keypresses, to see undocumented repetitive work. A combination of these techniques will accuracy in automation and an incremental process improvement by focusing on the appropriate tasks. Indeed, 32 studies

published since 2018 show that this integration still results in improved automation results and in the lower likelihood of automating defective processes (Syed et al., 2020).

RPA Tools in Market

RPA tools are software programs that use human movement patterns to automate rule-based, repetitive processes in digital systems. These technologies eliminate the need for complicated coding by using bots to complete activities like data entry, data extraction, and workflow processing across many apps. They are crucial because they increase operational effectiveness, lower error rates, and free up human labor for higher-value duties, all of which help businesses save money and become more productive. Among the well-known examples of these tools that are on the market are UiPath, Power Automate and Automation Anywhere.

Define A whole range of hyper-automation solutions, including low-code app development, process and task mining, AI, NLP, API automation, process orchestration, application testing, and RPA, are available with the UiPath Business Automation Platform. Future-focused, UiPath's product roadmap calls for a native generative AI co-pilot that uses natural language cues to make app and automation building easier (UiPath, 2025).

Microsoft's worldwide operations cater to a wide range of clients, including SMBs and major corporations. Microsoft has planned to incorporate reusable UI element collectors as parts of the Microsoft Power Automate designer studio in their RPA product roadmap. Furthermore, the business wants to improve the user experience by adding more cloud connectivity to the desktop flow designer and allowing attended automation to execute picture-in-picture, acting as a desktop virtual assistant (Microsoft, 2025).

Assessment Scale for Criticality and Weightage.

The study will involve the weighted scoring model of compared tools (Kitchenham, 1996; Triantaphyllou, 2000). All parameters are assigned a rating scale of between 5 (fully supported) and 1 (not supported), and criticality weight of between 4 (high) and 1 (least). The parameter score was then multiplied by the criticality weight that the parameter has to show relative importance. These weighted scores were added up in each automation element to give a total score. The findings show the tool that is more successful in the automation aspect in terms of overall score. (Kitchenham, 1996; Triantaphyllou, 2000).

Table 1: PARAMETER RATING

Parameter Ratings	Score
Not Supported	1
Major work around	2
Moderate work around	3
Minor work around	4
Fully Supported	5

Table 2: CRITICALITY RANKING

Criticality	Weightage
Least	1
Moderate	2
Medium	3
High	4

Feature Analysis of UiPath and Power Automate

This section carries out the comparison between the chosen tools on the basis of five main aspects, as presented in “Basic Elements of Process Automation” section. Each of the elements is also divided into commonly used categories and features, which are scored on the basis of weighted scoring model discussed under Section “Assessment Scale for Criticality and Weightage”. In this paper, US refers to the UiPath score which from “Table 1 PARAMETER RATING”, PS refers to the Power Automate score which from which from Table 1 PARAMETER RATING, and W is the given weight according to the UiPath feature criticality and it is from Table 2 CRITICALITY RANKING. The total scores obtained are UT = US x W, PT = PS x W where UT refers to UiPath total and PT indicates that of Power Automate in this paper. This will provide a well-defined and balanced comparison both in terms of the supportability of features, as well as criticality.

Table 3 Features for System Automation

Category	Attribute - Features	US	PS	W	UT	PT
Workflow Logic & Execution Control	Checkpoint - Check False, Check True	5	1	3	15	3
	Control - Assign, Loop, Parallel, Sequence, Return	5	4	4	20	16
	Invoke - Job Info, Invoke Code, Parallel Process	5	5	2	10	10
	Control Flow - State Machine, Flow Chart	5	2	2	10	4
	Others - Try Catch, Throw, Rethrow, Invoke	5	4	4	20	16
UI Interaction & Application Automation	UI - Applications, Browers, Windows	5	5	4	20	20
	Email - POP3 / SMTP / IMAP, Outlook	5	5	4	20	20
	App - SAP, Citrix	5	3	2	10	6
	Perception- OCR, Recorder, Computer Vision	5	3	4	20	12
	Object Repository	5	1	2	10	2
User Event-Based Automation	Event - Block User, Get Source, Replay User	5	2	4	20	8
	Trigger - Image, System	5	2	3	15	6
Data & Collection Handling	Collection - Append, Filter, Merge, Remove	5	5	4	20	20
	Data	5	5	4	20	20
	Programming - Data Table, Debug, Execute	5	4	4	20	16
Text & Data Formatting	String Formatting	5	5	4	20	20
	Date Formatting	5	5	4	20	20
Total					290	219

Table 4 Features for Cloud Technologies

Category	Attribute - Features	US	PS	W	UT	PT
Microsoft Ecosystem (Azure)	Scope, Key Vault, Storage, Resource, Group, Networking, Security	3	5	3	9	15
AWS	Scope, IAM, EC2, S3	5	5	3	15	15
Google	Workspace, Scope, Compute, Engine, IAM, Map	5	5	3	15	15

Enterprise Applications	Oracle Cloud & EBS, SAP, Salesforce, Workday	5	2	3	15	6
Total					54	51

Table 5 Features for Streamlined Automation

Category	Attribute - Features	US	PS	W	UT	PT
Frameworks	REFramework, Attended Automation, Background, Mobile and SAP Testing, Orchestration, Transactional	5	1	3	15	3
Templates	Reusable Automation Blueprint – Structure variants, Error handling, Config, Queue, Extensibility	5	5	3	15	15
Plugins	Types - Email, PDF, Excel, SAP, Outlook, FTP, AI/ML	5	5	2	10	10
Marketplace	Asset - Bots, templates, workflows, libraries, connector	5	5	2	10	10
Total					50	38

Table 6 Features for Automation Architecture

Category	Attribute - Features	US	PS	W	UT	PT
System Automation & Execution	Robots - Attend, Unattended	5	5	4	20	20
	Machines - Template, Cloud Robot. Serverless	5	3	4	20	12
	Triggers -Time, Queue, Event, API	5	3	4	20	12
	Folders - My Workspace, Shared	5	5	2	10	10
Resource & Process Management	Assets - Text, Bool, Integer, Credential, Secret	5	3	4	20	12
	Queues, Reference, Auto Retry, SLA, Trigger	5	2	4	20	8
	Packages - Libraries, Agentic, Processes, Agents	5	4	2	10	8
	Business Rules - Decision Table, Expression, Rule	5	4	2	10	8
	Storage Bucket - Ui, Orchestrator, Azure, AWS S3	5	4	2	10	8
Lifecycle & DevOps	Solution - Package, Deployment, Projects	5	5	4	20	20
	Code Migration - Orchestration, CI/CD, Versioning	5	5	2	10	10
	CI/CD - Azure Devops, Jenkins, GitHub	5	5	2	10	10
Monitoring, Audit & Governance	Monitoring - Machines, SLA, Queues, Agents, Unattended/ Attened/ User, Session, Job History	5	3	3	15	9
	Audit - Audit, Test Automation	5	3	2	10	6
	Alerts, Robot, Disconnected, Queue Issues, License, Warnings, Process, Deployment, Assets Change	5	4	2	10	8
	Access Control - Users, Roles, Licenses	5	5	2	10	10
	Platform Governance - Settings, Tenants, Webhooks	5	3	2	10	6
Total					235	177

Table 7 Features for Automation Opportunity Discovery

Category	Attribute - Features	US	PS	W	UT	PT

Task Mining	Export & Integration - Agent, Export in .xaml,.csv,. pdd, Framework	5	2	3	15	6
	Workflow Design - Selectors, Variables, Modular Approach, Action Center, API	5	3	3	15	9
	Traceability & Logging, Log Message, Inline Comment	5	3	3	15	9
	Exception Handling & Testing - Try-Catch, Throw, Rethrow, Debug, Build Test Case, Review recorded Steps	5	2	3	15	6
Process Mining	Data Ingestion - Connectors, SAP, Salesforce, Oracle, ServiceNow connectors, Data Transformation Interface	5	4	2	10	8
	Process Visualization & Modelling - Automatic process map (BPMN-style), Variant Explorer, Trace View	5	3	3	15	9
	Performance & Bottleneck Analysis - Case analytics, Activity delay analysis, Bottleneck finder	5	4	4	20	16
	Compliance & Conformance Checking - Conformance, Checker, Case timeline, Compliance deviation	5	2	4	20	8
Total					125	71

Tools and ROI: Use Case Analysis

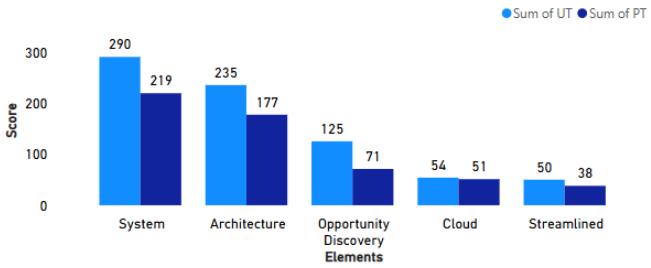

Figure 2 UiPath Total vs Power Automate Total

According to the bar chart, UiPath is superior to Power Automate in all elements except that of Cloud and Streamlined automation where both are almost equal. This will make the students aware of the fact that Power Automate is an appropriate option when it comes to basic, Microsoft cloud tasks. In more complicated, high-frequency, or application-based automation, students will obviously see that UiPath is a more preferable choice.

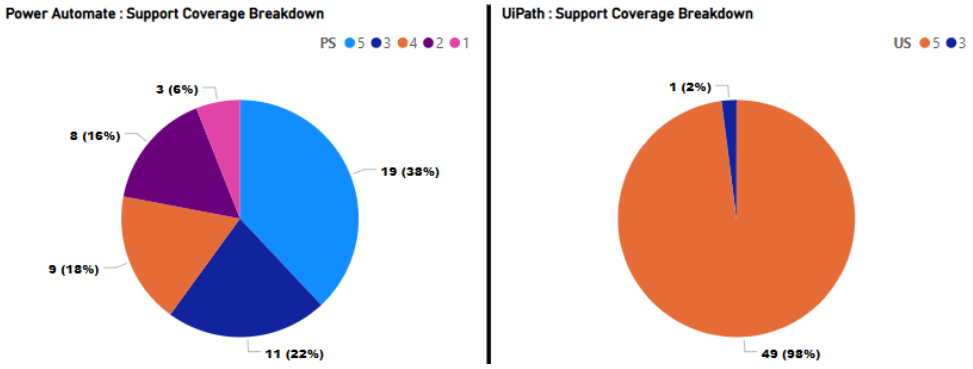

Figure 3 Support Coverage Breakdown

The pie charts demonstrate that very nearly all the 50 automation features presented in this paper are more than completely supported within UiPath, which indicates a wide scope of its functionality.

Conversely, there are 19 of these features that Power Automate supports fully and 11 are feature that can be easily worked around. This comparison will assist the students to have a clear understanding of which of the tools best suits their automation needs based on the features set that were assessed in this research.

The matrix assists students to know that UiPath is more advantageous in addressing high-weight automation requirements in element architecture, opportunity discovery and system like app, browser, and desktop automation. In case of less complicated cloud or Excel/database cases, both tools can be used, but students will learn about and appreciate Power Automate as a more cost-effective tool since UiPath Pro costs $1380 (UiPath, 2025), whereas Power Automate Process is only $224.50 (Microsoft, 2025).

Table 8 Weightage Breakdown

Element	W	Sum of UT	Sum of PT
Architecture	2	100	84
Architecture	3	15	9
Architecture	4	120	84
Cloud	3	54	51
Opportunity Discovery	2	10	8
Opportunity Discovery	3	75	39
Opportunity Discovery	4	40	24
Streamlined	2	20	20
Streamlined	3	30	18
System	2	40	22
System	3	30	9
System	4	220	188
Total		754	556

CONCLUSION

The comparative analysis of two leading RPA systems in the paper UiPath and Power Automate was aimed to make business students realize the characteristics of the tools in terms of main aspects of automation. The research presented the primary types of automation and compared the features of tools in an organized and concise ranking method. The study allows students approaching business to select automation tools that match their operational requirements and financial constraints while meeting specific business needs. The insights allow business students to realise that Power Automate fits better in Microsoft-based settings, whereas UiPath can be more comprehensive in its scope of automation capabilities and applications. On the whole, the paper offers business students a systematic guideline to consider the capabilities of RPA tools and choose the most appropriate platform to implement in various automation situations.

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