Robotic Process Automation Implementation for Streamlining Repetitive Administrative Tasks in Synergy with Artificial Intelligence

Aneta Trajkovska (✉) and Kostandina Veljanovska (✉)

University "St. Kliment Ohridski" – Bitola, Faculty of Information and Communication Technologies, Partizanska bb, 7000 Bitola,
North Macedonia
aneta.trajkovska@uklo.edu.mk
kostandina.veljanovska@uklo.edu.mk

Abstract. This paper outlines an innovative approach for automating processes by utilization of the power of diverse technologies and analyzing input data with sophisticated efficiency. The continuous progress of technology opens new avenues for advancement and opportunities, providing a refined and highly accurate alternative for crafting solutions that seamlessly integrate with artificial intelligence, thereby optimizing their performance. From an analytical standpoint, organizations and engineers alike want to automate a lot of repetitive operations and streamline and minimize their workloads. We will show in this article how the Power Automate platform's Robotic Process Automation (RPA) procedures may be used to accomplish this objective. Beyond automation, the integration of AI has yielded remarkable accomplishments, showcasing the boundless potential of this technology. Our results underscore the notion that the power of AI knows no bounds, rather, it is only constrained by human ingenuity. At this point, it is crucial that we utilize these developments to propel more improvements and innovations in our everyday repetitive tasks at work and accomplishment of activities without manual interventions.

Keywords: RPA (Robotic process automation), Azure services, PA (Power Automate), AI (Artificial intelligence), Intelligent systems.

1 Introduction

In today's rapidly evolving technological landscape, people crave opportunities for continuous learning and skill enhancement. However, in environments like large corporations, universities, governments, banks or hospitals, administrative burdens and repetitive tasks often dominate the workday, consuming valuable time. To prioritize learning and skill improvement amidst such demands, individuals can leverage Robotic Process Automation (RPA) systems to streamline routine tasks [1], [2], [3]. By doing so, they can carve out more time for personal development, staying ahead in their skill-

sets and adapting to emerging technologies. The benefits of RPA systems extend beyond personal growth; they also enhance organizational efficiency, enabling businesses to stay competitive in the market and capitalize on new opportunities. Embracing RPA technology is not just about personal development; it's about gaining a strategic advantage in today's dynamic landscape and eliminating the chance for errors, see [2], [3] for more details.

Integrating intelligence into business systems using RPA systems not only enhances strategic approaches but also unlocks plenty of opportunities. Systems engineered with the prowess of machine learning algorithms prove invaluable in predicting operations and distilling insights from past experiences. Why is this so important and useful for organizations?

The significance of this integration cannot be overstated. Artificial intelligence, while currently enjoying widespread attention, has been shaping industries for many years. Its ability to analyze huge datasets, predict trends, and adapt to changing environments underscores its importance in modern business strategies. Within the realm of digital transformation, AI and RPA conjure opportunities from complexity, reshaping industries and propelling businesses towards unparalleled growth and innovation [4],[18].

Within this article, we aim to provide a comprehensive overview of multiple features inherent in the RPA Power Automate platform in Azure. Subsequently, we delve into the underlying design and engineering decisions that shape the implementation and development of RPA bots and integration with AI models. Finally, we explore a range of innovative applications to showcase the flexibility and utilization of these bots and also how much enhancement we have with utilization of RPA bots and the parameters of how much we have better performance with usage of AI models in the whole solution.

2 Assessing the impact and level of enhancement enabled by utilizing RPA systems

RPA seamlessly replicates and streamlines business operations, mimicking human actions such as logging into applications, data entry, email correspondence and other repetitive tasks. It integrates automation deeply into its processes, empowering both everyday users and RPA specialists with powerful automation tools. RPA software develops robots, known as 'bots', which learn, mimic, and carry out rule-based business processes. These bots are trained by observing human digital actions and replicating them to efficiently complete tasks [5]. These tools are pre-integrated software that enables you to design, build, and run intelligent applications, digital workforces, and automation services. One of the cloud platforms that supports RPA systems is Microsoft Power Automate.

The biggest advantage of using the RPA bots is that they can interact with any application or systems identical to the way people perform and the opportunity to complete

all the manual repetitive tasks that employes are having in fully automated manner, check [6], [7] for more details. Here are some other important benefits that comes with using the RPA automation:

- **Increased efficiency**: RPA streamlines workflows by automating repetitive tasks, leading to faster task completion and increased productivity.
- **Cost savings**: by reducing manual effort and human error, RPA lowers operational costs associated with labor and improves accuracy, leading to significant cost savings over time.
- **Improved accuracy**: executes tasks with precision and consistency, minimizing errors often associated with manual data entry and processing.
- **Scalability**: can easily scale to handle fluctuating workloads, allowing organizations to adapt to changing business needs without additional resources.
- **Enhanced compliance**: RPA ensures adherence to regulations and standards by consistently following predefined rules and procedures, reducing the risk of non-compliance.
- **Improved customer experience**: With faster response times and fewer errors, RPA contributes to a smoother customer journey, resulting in higher satisfaction rates.
- **Intelligent data-driven decisions**: RPA generates valuable insights by collecting and analyzing data from automated processes, enabling informed decision-making and strategic planning.
- **Agility and innovation**: by automating routine tasks, RPA enables organizations to reallocate resources towards innovation and growth initiatives, fostering agility and competitive advantage.

3 Core Technology

One of the cloud platforms that supports RPA systems is Microsoft Power Automate. PA is a Microsoft product that provides a low-code platform for automating workflows across various applications and services. It is enabled by default in all Office 365 applications and comes with more than 150 standard connectors that can be utilized and create various automations on the processes. The tool offers an equal number of premium connectors available for purchase to increase automation capabilities. With its user-friendly interface and extensive library of pre-built templates, Power Automate empowers organizations to increase productivity, efficiency, and collaboration by automating routine tasks and processes [8], (Fig. 1).

It offers different automatization as:

- Automate applications without APIs.
- Build and scale business processes with virtual machines in Azure.
- Manage workflows and approvals on the go.
- Accelerate productivity with low-code automation

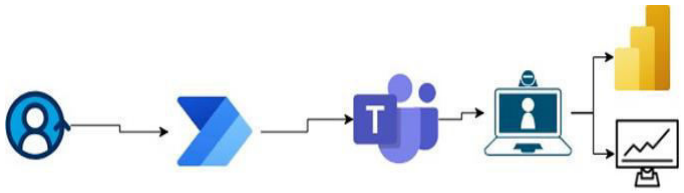

Fig. 1. Robotic process automation example workflow in which the repetitive task from the individual person is automated trough PA and the results are transferred to Microsoft Teams application and there the results are fully representable for the person with utilization of Power BI or excel tool.

During our technology selection process, we discovered several platforms offering capabilities like Microsoft Power Automate. Among these alternatives are UiPath, Nintex, Automate.io, Zapier, and others, read more on [9].

4 The synergy between Power Automate and AI for Enhanced Bot Functionality

Artificial intelligence has expanded its reach, tackling challenges across every sphere of industry and life [10],[19]. With the exponential growth and positive feedback of the usage the AI is integrated in almost every system and application to give an opportunity for better usage of the products. That is the case also with the Microsoft products, Microsoft also developed its own AI bot as Copilot for enhanced and optimized usage by the users [11]. Besides that, it is expected that PA, as a Microsoft product, will seamlessly integrate with AI models. Within Power Automate, the Copilot studio is accessible during bot development, aiding in debugging flow failures and providing guidance for optimizing platform usage. PA has its own AI Builder as a capability that enables intelligence to be added on the automated processes, predict outcomes, and help to improve business performance. AI Builder brings the power of AI and it is directly integrated into PA [12]. Based on the needs in PA users can utilize prebuild AI models, which are ready to use without training, or custom AI models which require building, training, and publishing to meet specific requirements.

The prebuild AI models that can be used in PA are the following:

- **Business card reader model** - extracts key details, including name, job title, address, email, company, and phone numbers, from business card images.
- **Category classification model** - it is designed to categorize text for specific business scenarios, with an initial focus on customer feedback.
- **Entity extraction model** - identifies and categorizes key data from text, transforming unstructured information into machine-readable format. It is ready to use, with customization options available for specific needs.

- **ID reader model** - extracts key details like name, date of birth, and gender from passports, social security cards and green cards. Document images are deleted after processing.
- **Key phrase extraction model** - identifies main points in a text, extracting key phrases like 'customer support' and 'product quality' from unstructured documents.
- **Language detection model** – it checks the provided text and identifies the predominant language of a text, returning the language script (e.g., 'en' for English) and a confidence score. If undetectable, it returns 'unknown.
- **Receipt processing model** – this model uses state-of-the-art optical character recognition (OCR) to detect printed and handwritten text and extract key information from receipts.
- **Sentiment analysis model** - detects positive or negative sentiment in text data. You can use it to analyze social media, customer reviews, or any text data you're interested in. Sentiment analysis evaluates text input and gives scores and labels at a sentence and document level. The scores and labels can be positive, negative, or neutral. At the document level, there can also be a "mixed" sentiment label, which has no score. The sentiment of the document is determined by aggregating the sentence scores.
- **Text recognition model** - extracts words from documents and images into machine-readable character streams. It uses optical character recognition (OCR) to detect printed and handwritten text in images. This model processes images and document files to extract lines of printed or handwritten text.
  - **Text translation model -** provides real-time translation of text data across over 60 languages, facilitating the removal of language barriers at an organizational level.

Custom AI models that user can build and train in PA are the following:

- **Category classification model** - organizations are overwhelmed by growing text data from emails, documents, and social media. Category classification, a crucial natural language processing (NLP) task, tags text for uses like sentiment analysis and spam detection. AI Builder in Power Automate and Power Apps automates this process, helping classify unstructured data and enabling efficient insights from Microsoft Dataverse.
- **Entity extraction model** - identify and categorize specific data in text according to business needs, converting unstructured data into machine-readable formats for further processing.
- **Document processing model** - automates the extraction and organization of information from standard documents like invoices or tax forms. The model can be trained with just a few form documents, it provides accurate results with minimal manual effort. Once the model is trained and published, it can be utilized in Power Automate flows.

- **Object detection model** - enhances business processes by automating tasks such as inventory management in retail and repair procedures in manufacturing. It enables organizations to integrate custom object detection into their apps, improving efficiency and focus.
- **Prediction model** - forecast outcomes based on historical data, aiding decision-making across various business functions. In finance, they can predict market trends; in healthcare, they forecast patient outcomes and future care.

PA platform offers the flexibility to utilize various connectors, enabling users to make HTTP requests to APIs. This functionality extends to invoking diverse APIs, including those tailored for content search, and interfacing with other bots such as ChatGPT, Lama, Gemini and more check the [13], [14].

5 Comparative Analysis: Creating and Evaluating the Performance of distinct RPA bots

In this section, we will explore practical examples of implemented RPA bots. We will accompany these examples with comparative analytics, illustrating the performance improvements achieved through bot implementation compared to manual task execution. The analysis will provide valuable insights into the effectiveness and advantages of RPA across various contexts.

5.1 First RPA bot: cloud flow streamlining repetitive task execution time

Our initial workflow aims to automate and streamline the tasks of professors in universities or educational institutions, particularly focusing on the process of logging and organizing student homework submissions. The workflow reduces the professor's involvement to the final step of reviewing the homework. The bot automates the repetitive tasks traditionally handled manually by professors, such as collecting submission data, organizing files, and verifying which students have submitted their work. For example, when a professor is responsible for multiple subjects with hundreds of students, sorting through numerous emails, downloading files and organizing them can be time-consuming. This workflow is specifically designed to minimize these tasks, enabling professors to efficiently access and review student submissions, thereby saving valuable time. (Fig.3.).

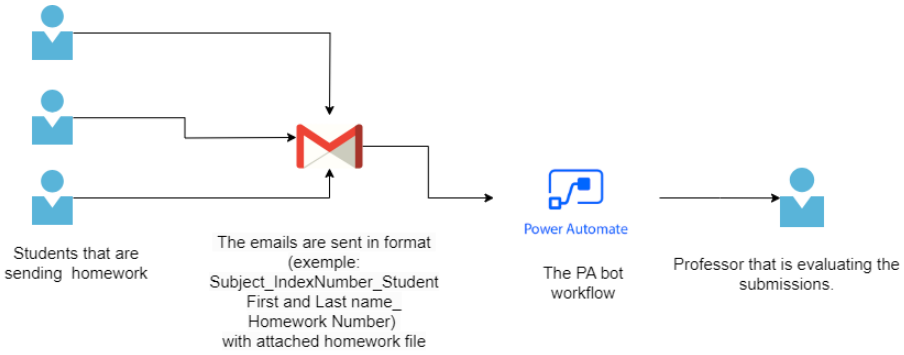

Fig.3. Overview of the workflow process

To address this challenge and reduce the administrative workload of professors, we have developed a workflow utilizing RPA bots. When a professor receives an email from a student submitting homework, the bot automatically sorts and categorizes the emails according to the relevant subject. At the conclusion of the workflow, the professor is presented with an organized list, streamlining the process and minimizing the risk of overlooked emails. This system also ensures timely feedback to students, confirming the receipt of their homework. The professor can easily access a designated folder containing all the submitted files for the assigned task. To implement the logic for creating the RPA bot, we utilized the Power Automate platform. Extensive testing was conducted on various functionalities to ensure that the bot performs as intended, achieving the desired outcomes. The complete workflow of the bot is depicted in the following figure (Fig. 4).

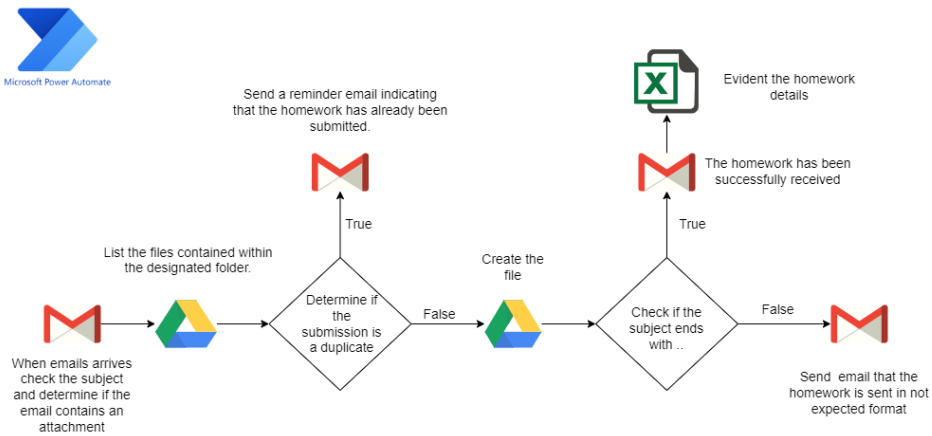

Fig.4. High-level overview of the PA bot design.

The professor instructs students on how to submit homework via email, specifying that the subject line should follow the format: Subject_IndexNumber_StudentFirst-Name_LastName_HomeworkNumber. The PA bot activates upon receiving an email with the correct subject format. It first checks for duplicates by comparing the email subject with existing folders in Google Drive. If a duplicate is found, the bot sends an email to the student indicating a repeat submission and then terminates. If no duplicate is detected, the bot creates a new document in the specified path for the attached homework. The bot then verifies the homework number in the subject (e.g., Homework 1) and sends a confirmation email to the student. It updates an Excel workbook in Google Drive with the student's details, subject, index, homework number, date, and PowerAppsID. If the subject does not include the homework number, the bot sends an email to the student requesting a resubmission in the correct format and deletes the incorrectly submitted folder.

In addition to the comprehensive analysis, we aim to highlight the substantial time savings achieved through the implementation of our RPA bot compared to manual operations. To illustrate the statistical and probabilistic improvements in task execution, we will calculate the time saved per student when organizing homework using both manual and bot-assisted methods.

Statistics of the testing the timings per student:

Based on the measured values for this scenario, we calculated the time saved per student by the professor as shown in (Table 1). This calculation involves subtracting the time required for manual operations from the time taken by the automated execution of the RPA bot.

Table 1. Results from the analysis from one student.

Number of students	Manual operation time	RPA operation time	Time Saved	Percentage improvement
1	4 min = 240 sec	9 sec	231 sec	96.25 %

The results indicate that the professor will save approximately 231 seconds, or about 3.85 minutes, per student when performing checks using the RPA bot compared to manual operations. The percentage improvement in time will be around 96.25%.

Results from the analysis if the professor is teaching two subjects in the semester

The statistics for a professor teaching two subjects are presented as follows: the first subject is attended by 70 students, while the second subject is attended by 150 students. The results are detailed in the table below (Table 2).

Table 2. Results from the analysis of the total saved time to the professor.

Subject	Number of students	Manual operation time	RPA operation time	Time Saved	Percentage improvement
First Sub.	70	280 min = 16800 sec	630 sec	16170 sec	96.25 %
Second Sub.	150	600 min = 36000 sec	1350 sec	34650 sec	97.26%
Total Saved Time:	**847 min = ~14,16 hours**				

The table above demonstrates that the utilization of the RPA bot results in a total time savings of approximately 14 to 15 hours for the professor.

5.2 Second RPA bot: Business process flow for credit application in banks

A second RPA bot has been designed to automate and optimize repetitive tasks within the banking sector. The manual processing of credit applications typically encompasses a series of labor-intensive steps, including the verification of creditworthiness, the assessment of application completeness, and the formulation of approval decisions. This traditional approach involves significant human effort and is prone to delays and inconsistencies. The verification of creditworthiness requires a thorough review of the applicant's financial history, including credit scores and other pertinent data. Ensuring the completeness of applications involves scrutinizing submitted documents and information for accuracy and sufficiency. The decision-making process, which determines whether an application is approved or denied, often relies on subjective judgment and manual interpretation of data.

Automation with RPA and AI models facilitates the rapid extraction and analysis of applicant data, enabling more consistent and objective evaluations. It also reduces the administrative burden on human staff, allowing them to focus on more complex tasks that require higher-level cognitive skills (Fig.5). Consequently, the integration of automated solutions into the credit application workflow not only improves accuracy and efficiency but also fosters a more agile and responsive operational environment. The implementation of the bot yields a substantial improvement in operational efficiency, with notable percentage increases observed in various performance metrics as (process speed 70-80%, error reduction 95%, cost savings 30-50%, productivity improvement 65-75%).

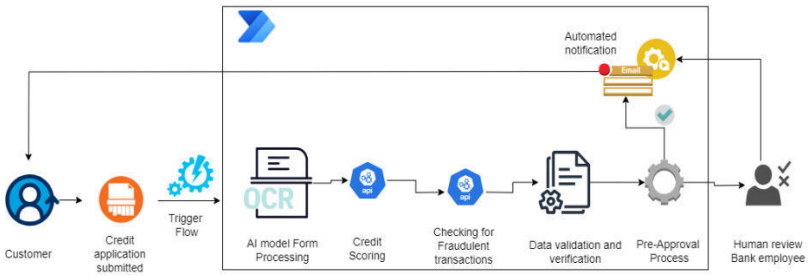

Fig.5. Automated solution for credit application workflow in banks

The automated credit application workflow from (Fig.5.), operates as follows:

- Upon the submission of a credit application by a customer, a predefined workflow is initiated. The first step involves the application of an AI model to detect and extract key details from the form, including the applicant's first name, last name, address, identification number, and transaction code. This data extraction is performed with high precision to ensure the accuracy of subsequent processes.
- Following data extraction, the system employs APIs to assess the applicant's credit score and to detect any potentially fraudulent transactions. This phase includes a series of validation and verification checks, wherein the system applies predefined conditions to determine the legitimacy of the application. Any anomalies or issues are flagged for further examination.
- In the pre-approval stage, the system utilizes AI to make real-time decisions based on the flagged data, credit score, income, and other relevant factors. Applications that meet the specified criteria are automatically approved. Conversely, applications with borderline credit scores or identified discrepancies are flagged for manual review by a bank employee.
- Finally, notifications regarding the approval or rejection of the application are generated and sent to the customer automatically, ensuring timely and efficient communication of the application status.

5.3 Third RPA bot: cloud flow analyzing student satisfaction results

Our third workflow focuses on sentiment analysis, utilizing advanced AI algorithms. Given that human interpretation of content can vary significantly in semantic meaning, this bot explores the profound impact and effectiveness of language within textual contexts. To assess its efficacy, we conducted an experiment involving multiple languages and collected feedback via email. By leveraging an AI connector, we accurately identify the language of the sender's text, as illustrated in (Fig.6.).

In this case, we used the bot to elicit feedback on presentations attended by students. Analyzing the written responses, we gauged the presentation's quality through the capabilities of our AI developed bot.

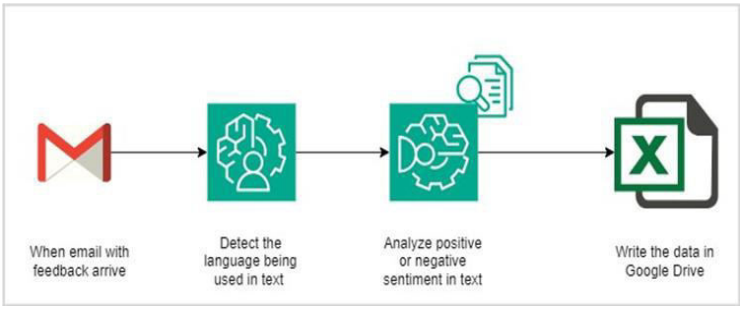

Fig. 6. High-level overview of the bot design.

We tested the bot by sending approximately 71 emails containing diverse feedback from students about presentations they attended in their classes. These emails included feedback in various languages (English, Macedonian, French, and Spanish) and different transcriptions. Sentiment analysis was performed on the text responses in the body of the emails. The results of using the bot and the analysis of the received feedback are illustrated in (Fig. 7.).

Feedback that sent	Language	Satifaction analize
Hello, I didn't like today's presentation from the assistant at all. Regards,	en	Negative
Здраво, Денес презентацијата на асистентот беше одлична. Поздрав,	mk	Positive
Hello , Today the presentation was good but if there were more practical examples included	en	Positive
Bonjour, Superbe présentation! Continuez comme ça. Salutations,	fr	Positive
Hola, Siempre se puede presentar mejor.. Saludos,	es	Positive
Hi, I think that the presentation can be better. Regards,	en	Neutral
Hello, It may be beneficial to incorporate additional examples. Regards,	en	Neutral
Здраво, Презентацијата беше здодевна. Поздрав,	mk	Negative

Fig. 7. Achievement from the RPA and its functionalities.

Our focus while doing testing was more to show how this type of bots can help in better understanding the written messages (emails). With this capability the people helped by AI bots can achieve better results in written communication and overcome the linguistic barrier.

Having the satisfaction results from the students easily, we can calculate the variability of how good the presentation was based of the feedback (Fig. 8.).

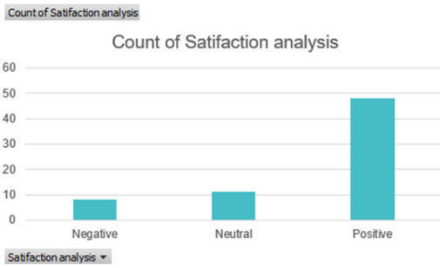

Fig. 8. Satisfaction report based on the negative, positive, or neutral experience from the students.

The probability based on the total number of responses we have calculated separately for each of the experiences from the students (Fig.9).

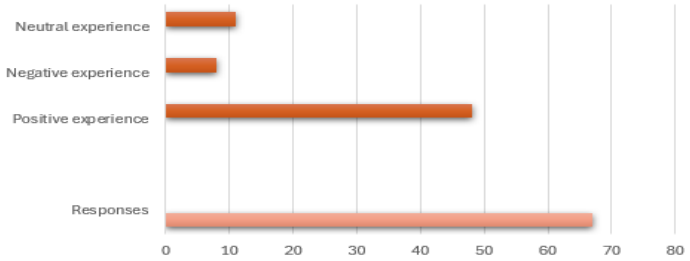

Fig.9. Representation from the responses from students

With a high probability of positive experiences (Table 3), approximately 0.7164, it is evident that the students were notably satisfied with the presentations they attended. This significant probability serves as compelling evidence of the overall satisfaction level among the students, indicating that the presentation effectively met their expectations and requirements.

Table 3: Probability results visualization calculated based on the number of responses per student with total number of responses

Experience type	Number of recived responses by the students	Total number of responses	Probability results
$P_{Negative\ experience}$	8	67	0.1194
$P_{Neutral\ experience}$	11		0.1642
$P_{Positive\ experience}$	48		0.7164

Upon analyzing the probability of the experience results, it is important also to investigate the process's performance through monitoring, we found that out of 71 runs, 69 were successfully executed, while only 2 executions became stuck and required manual intervention to halt. This translates to a success rate of 97.18% in percentage terms. In percent analysis, we have 97.18% successful runs of the flow (Fig. 10.).

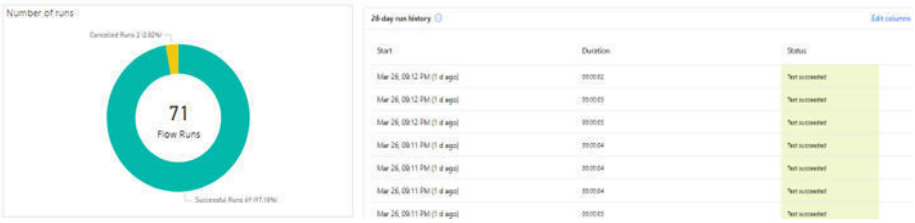

Fig. 10. Monitoring of the RPA bot executions.

What in case if we are not using these AI connectors?

If we are doing the manual analysis will be harder and more time-consuming to detect the right information and the final performance of the operation. We did research and found that people usually understand not more than 2 ~ 3 languages (including their native language). This limitation suggests that when a person is tasked with reviewing responses from a form, a language barrier may impede their ability to effectively evaluate the results. While translation process always is assumption that there can be some misunderstanding since all of us are familiar how much the punctuation signs can change the meaning of the whole sentence. That means we cannot find an expert person that will know all the languages. With utilization of AI trained connectors there are not any problems with translation of the sentences.

6 Limitations while using RPA systems

RPA offers significant benefits in automating repetitive tasks, but it also has limitations. These include challenges with integration, high initial costs, ongoing maintenance needs, and restricted cognitive capabilities. Understanding these limitations is crucial for effective implementation and management of RPA technologies [15]. Below are mentioned some of the limitations:

- **Scalability issues –** scaling RPA systems to handle larger volumes of work or more complex tasks can present challenges, requiring additional resources and adjustments.
- **Dependency on structured data** - RPA systems generally require structured data to operate effectively, which may limit their applicability in environments with unstructured or semi-structured data [16].
- **Limited cognitive abilities –** they are typically limited to rule-based tasks and may struggle with complex decision-making or tasks requiring cognitive skills beyond predefined rules [17].

7 Conclusion

The results obtained from the practical solutions that we have implemented represent just the initial strides in utilization of the full potential of Robotic Process Automation (RPA) systems within organizations. Through these use cases, we have demonstrated the considerable extent to which manual tasks can be automated within modern business processes, leading to enhanced productivity. The time reduced from each operation not only streamlines existing workflows but also presents opportunities for efficiency gains and innovation. The integration of a Power Platform further increases these benefits by facilitating both process digitization and transformative leaps forward through RPA implementation. By leveraging RPA processes within the Power Platform, organizations can unlock new levels of efficiency, agility, and adaptability, paving the way

for sustainable growth and competitive advantage in today's dynamic business landscape.

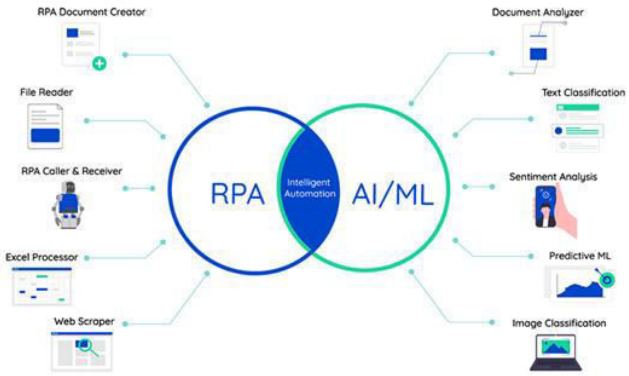

Fig. 9. Synergy between RPA and AI [20].

At the end of this paper, we will conclude that the utilization of RPA solutions offers a multifaceted approach to resolving diverse business challenges, optimizing the processes, and creating a brighter future in the rapid technological transition. The opportunity to integrate AI capabilities and the inclusion of various connectors that support intelligence yield remarkable results and enhance performance across all areas. (Fig. 9.).

References

1. Surjit Singh Bawa: “Automate Enterprise Resource Planning with Bots”, International Journal of Computer Trends and Technology, https://doi.org/10.14445/22312803/IJCTT-V72I1P114 , (2024/01/31)
2. Microsoft Azure: “Automate processes with Robotic Process Automation and Power Automate for desktop”, https://learn.microsoft.com/en-us/training/paths/work-automation-flow/, last accessed 2024/06/14
3. Al Naqvi and J. Mark Munoz: “Handbook of Artificial Intelligence and Robotic Process Automation Policy and Government Applications”, Cambridge University Press, https://www.cambridge.org/core/books/handbook-of-artificial-intelligence-and-robotic-process-automation/30857EB9D060D2045505D1819E97722F, (2022)
4. Bud Mishra: “AI, Thinking Machines and a Vast Active Living Intelligent System”, International Journal of Artificial Intelligence and Robotics Research, https://www.worldscientific.com/doi/10.1142/S2972335323020015, (2023/11/11)
5. Leslie Willcocks, Mary Lacity and Andrew Craig: “The IT Function and Robotic Process Automation”, https://eprints.lse.ac.uk/64519/1/OUWRPS_15_05_published.pdf , (2015)
6. Peter Hofmann, Caroline Samp and Nils Urbach: “Robotic Process Automation”, Springer, https://link.springer.com/article/10.1007/s12525-019-00365-8, (2019/11/04)
7. Phillip C-Y Sheu: “Robotic Intelligence, World Scientific Encyclopedia with Semantic Computing and Robotic Intelligence”, World Scientific, https://www.worldscientific.com/worldscibooks/10.1142/11361, (2019)

8. Microsoft Azure, “Microsoft Power Automate”, https://azure.microsoft.com/en-us/products/power-automate, last accessed 2024/06/14
9. Sameera Khan, “Comparative analysis of rpa tools-uipath, automation anywhere and blueprism”, International Journal of Computer Science and Mobile Applications, DOI: 10.47760/ijcsma.2020.v08i11.001, (2020/11/11)
10. Abid Haleem, Mohd Javaid, Ibrahim Haleem Khan and Sanjay Mohan: “Significant Applications of Artificial Intelligence Towards Attaining Sustainability”, World Scientific, https://www.worldscientific.com/doi/10.1142/S2424862223500331, (2024/01/10)
11. Japed Spataro: “Introducing Microsoft 365 Copilot – your copilot for work”, Official Microsoft Blog, https://blogs.microsoft.com/blog/2023/03/16/introducing-microsoft-365-copilot-your-copilot-for-work/, (2023/03/16)
12. Microsoft Azure: “AI Builder in Power Automate Overview”, Microsoft Learn, https://learn.microsoft.com/en-us/ai-builder/use-in-flow-overview, (2024/01/10)
13. Hamed Khosravi, Mohammad Reza Shafie, Morteza Hajiabadi, Ahmed Shoyeb Raihan and Imtiaz Ahmed: “ Chatbots and ChatGPT: a bibliometric analysis and systematic review of publications in Web of Science and Scopus databases ”, International Journal of Data Mining, Modelling and Management, https://www.inderscience-online.com/doi/abs/10.1504/IJDMMM.2024.138824, (2024/05/31)
14. Martin Heller: “Low code AI with Power Apps and Power Automate”, InfoWorld, https://www.infoworld.com/article/3703131/low-code-ai-with-power-apps-and-power-automate.html, (2023/08/01)
15. Laila Dahabiyeh and Omar Mowafi: “Challenges of using RPA in auditing: A socio-technical systems approach”, Intelligent Systems in Accounting, Finance and Management, https://doi.org/10.1002/isaf.1537, (2023/05/25)
16. Can Tansel Kaya, Mete Turkyilmaz and Burcu Birol:” Impact of RPA Technologies on Accounting Systems”, Muhasebe ve Finansman Dergisi, ISSN: 2146-3042, DOI: 10.25095/mufad.536083, (2019)
17. Filipa Santos, Rúben Pereira and José Braga Vasconcelos: “Toward robotic process automation implementation: an end-to-end perspective”, Business Process Management Journal, ISSN: 1463-7154, (2019/09/30)
18. Chris Lamberton, Damiano Brigo, Dave Hoy: “Impact of Robotics, RPA and AI on the Insurance Industry: Challenges and Opportunities”, Journal of Financial Perspectives, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3079495, (2017)
19. Hussein A. Abbass: “Social Integration of Artificial Intelligence: Functions, Automation Allocation Logic and Human-Autonomy Trust”, Springer, https://link.springer.com/article/10.1007/s12559-018-9619-0, (2019/01/14)
20. Nagesh Deshmukh: “Revolutionizing Business Efficiency: The Synergy of RPA and AI, 2023”, https://www.linkedin.com/pulse/revolutionizing-business-efficiency-synergy-rpa-ai-nagesh-deshmukh, (2023/05/21)