Research Article

Driving Operational Excellence: Implementing Robotic Process Automation (RPA) in Credit Card Automation

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A B S T R A C T

Robotic Process Information has been brought about by the rise in technology in the financial industry. This paper delves deeper into the impact of this technology on Finance institutions. It analyzes the benefits and challenges of RPA, its applications, and the strategies put in place to implement it. This paper also looks into case studies where RPA systems have been implemented in the finance sector. Finally, this paper looks into lessons learned and future work that can be done to improve this technology.

Keywords: Robotic Process Automation (RPA)

1. Introduction

Cutting-edge technology comes with innovative solutions to enhance existing operations' performance. The financial services industry was in deep pursuit of ensuring seamless operations in credit card automation, which led to the development of Robotic Process Automation (RPA). This technology will benefit the financial industry by improving the customer experience and reducing the cost of running operations and the systems set in the financial sector. Operations involving the use of credit cards are imperative in the financial industry because they are repetitive operations that human mistakes and are mainly composed of ule-based activities. Such tasks mostly occur in application processing, customer care, transaction monitoring, etc. Such areas usually work with large volumes of data; therefore, they need innovative solutions to process these operations accurately.

There is a need for efficient credit card management in the financial services industry; thus, the need for cutting-edge solutions grew, which led to the development of RPA. This software technology uses robots that perform the same tasks as humans, although more accurately and efficiently. Previously, operations were done manually, which was time-consuming due

to erroneous mistakes. RPA systems are more accurate because they use algorithms that process credit card operations faster and more accurately. These systems are very flexible and highly scalable, allowing them to be used in areas that experience massive credit card operations.

RPA systems will benefit the financial services industry because they will perform repetitive tasks, save a lot of time, reduce erroneous mistakes, and reduce the cost of human labor, therefore minimizing the cost of operations. RPA systems can be scaled up or down depending on the volume of data that needs to be processed, so this system can be used in any industry that requires credit card automation. RPA systems are also used by the regulatory and compliance body to ensure that the users of credit cards adhere to the set regulations[1]. They help conduct accurate audit trails and flag operations that do not adhere to the rules and regulations.

This paper highlights the potential challenges faced when implementing an RPA system, including high initial cost, technical hiccups when integrating the RPA system with the existing system, and resistance from the existing employees in the affected companies. Security is also a significant concern

because of the sensitivity of the information the system processes. This paper offers a comprehensive explanation of the implementation process of this technology while highlighting all key factors[2]. The paper also focuses on case studies where this technology has been used, looking into the strategies put in place for the implementation and the benefits and challenges faced. Lastly, this paper highlights the plans that should be implemented in the financial industry to improve the scope and performance of RPA technology.

2. Literature Review

2.1. RPA systems in financial institutions

RPA systems are commonly used in the financial services industry because of the benefits they offer, which serve the needs of the industry. One of the benefits of RPA systems is that they process large volumes of repetitive data with minimal errors, saving time. Implementing RPA systems has led to efficiency in the loan application process regarding accuracy and timeliness. The application method was significantly reduced by 80%, while human labor was reduced by 70%, which reduced operation costs[3]. Research has shown that the RPA systems are flexible and can be used in any sector that requires credit card automation. The system is also highly scalable; therefore, it can process data while maintaining high performance.

Figure 1: shows improvement in Automation after the implementation of RPA.

2.2. RPA systems vs. traditional systems

1. **Efficiency**: RPA systems are more efficient because they can process large amounts of data accurately and quickly. Traditional methods were time-consuming and prone to human errors, making them inefficient[4].

2. **Accuracy**: RPA systems are more accurate because they use rule-based algorithms, leading to higher accuracy. Traditional systems experienced many errors because the processes were done manually, leading to low accuracy.

3. **Cost**: RPA systems have a high initial cost, but the return investment outweighs the initial cost because they minimize labor costs, leading to lower operational costs. In traditional systems, the cost of operations is usually high because of the high labor costs[4].

4. **Scalability and performance**: RPA systems can be easily scaled up or down depending on how much data needs to be processed while maintaining performance. In traditional systems, it took a lot of work to scale up the volumes of data processed because the operations were manual, and that would mean increasing the labor, which would, therefore, increase the operation costs.

3. Methodology

3.1. Analysis and design

It is conducting a literature review about existing companies

that have implemented RPA systems in credit card automation. Reviewing documents, singles, and journals about the topic can be done. Identify the limitations existing in the current systems, especially in credit card automation. Look into the available case studies and research the strategies used to implement RPA in credit card automation in financial institutions. Identify the challenges faced in the implementation process to help the development team evade the same issues. Conduct interviews and surveys on various stakeholders that have been part of the implementation process of RPA systems in financial institutions[5]. Conduct pilot testing of the developed RPA system to evaluate if it is performing the tasks it is intended to do.
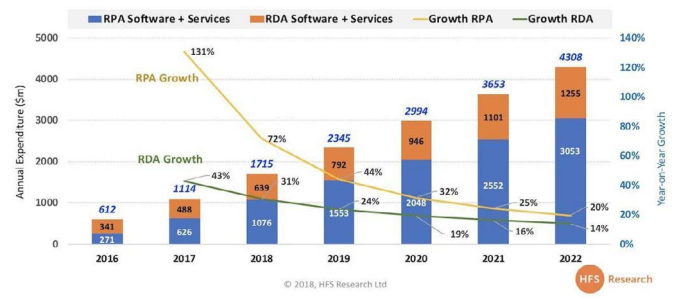

Figure 2: shows an improvement in revenue after the implementation of the RPA.
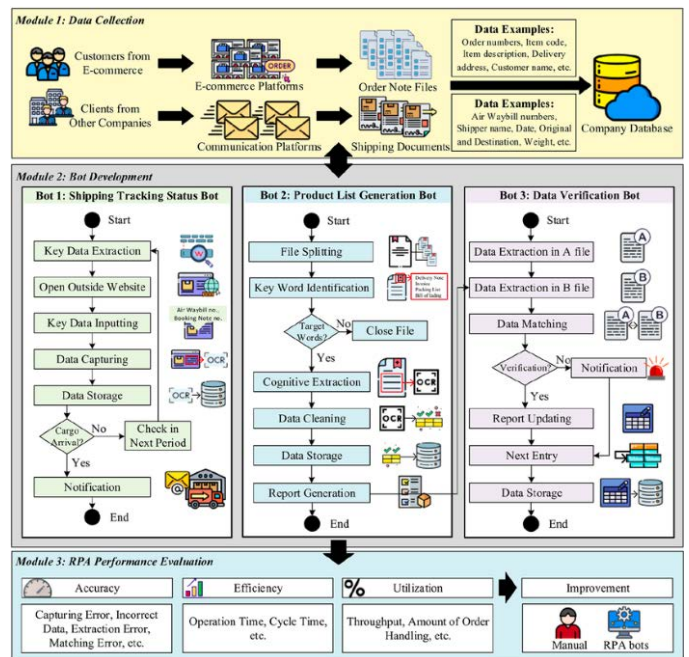

Figure 3: shows the development process of RPA in financial institutions.

3.2. Selection criteria for the implementation of RPA systems

For the RPA system to be implemented, the financial institution must meet a particular criterion.

1. The institution must be experiencing repetitive tasks in its credit card operations. Such processes may include repetitive verification, validation, data entry, and compliance checks on each data entered[6].

2. The operations must adhere to a structured strategy because such decisions are easier to automate. In simple terms, the operations must have a strict way of processing the data.

3. The institution must process large volumes of data, which would be time-consuming and costly if done manually. Because of the initial cost of setting up the RPA system, the volume of data must be high.

4. If the current system is experiencing a lot of human error, it is highly advised that institutions adopt RPA systems.

5. Companies that process large amounts of data manually, which is often time-consuming, must implement RPA, which will save time when performing their operations.

4. Application Areas of RPA Systems in Credit Card Automation

4.1. Credit card applications

RPA software robots can scan credit card application forms because they are embedded with a particular technology called an Optical Character Reader (OCR). This system is embedded in the RPA software to help extract the necessary information[7].

4.2. Customer service

RPA systems gave software that powers chatboxes which are used to offer the customers customer care services such as answering FAQs.

5. Implementation Process of RPA Systems

5.1. Initial evaluation

1. **Need for the system**: Institutions have various needs, including reducing operations costs, saving time, improving customer efficiency, etc. The second step is identifying the processes that need to be automated regarding credit cards; such processes may include credit card applications or loan applications[8]. Each process must be evaluated to get a comprehensive report about its nature and the time required.

2. **Feasibility test**: This test is done on this project to see if it is achievable and will benefit the financial institution in the long term. Technical feasibility should be done to see if the RPA system will be compatible with the existing technical infrastructure. Legal feasibility should be done to check if the system complies with the country's rules and regulations regarding financial institutions. Operational feasibility should be assessed to see if the RPA system meets the financial institution's needs. Scheduling feasibility is done to check if the development of the RPA system will be done within the specified time frame[8]. Finally, economic feasibility will be assessed to check the cost-benefit analysis; this involves checking if the return on investment (ROI) outweighs the initial cost and running cost. Stakeholder involvement: The stakeholders must be involved in determining their views and preferences for the RPA systems. This is because the development team needs to capture the stakeholders' specific requirements to develop a system that meets the users' needs.

5.2. Piloting the RPA system

1. **Phases of the piloting program**: the piloting phase mainly involves five phases. The planning phase evaluates the processes that must be automated in the institution. The following process is the design of an RPA system that can perform the tasks of the processes selected automatically. This involves creating a specified infrastructure that the system will follow to automate the tasks. This phase tests the RPA system's pilot version by inputting a specified volume of data into the system to check if it will automate the processes. The system should also be tested to check if it is compatible with the existing technical infrastructure. Next, the system should be tested using software such as Selenium to see if the company's employees can ensure the system is running. The system should then be implemented into the real world to see how it performs[9]. Lastly, documentation should highlight the processes done in the piloting phase.

2. **Key findings**: A report about the software's findings must be made after the system has been piloted for a predefined period. The efficiency of the piloted system needs to be measured in terms of the time that has been reduced in processing tasks. The costs incurred must be measured and compared to the original operations costs. The accuracy of the piloted system needs to be measured and compared to the accuracy gained in the previous method used for running the operations[9]. Lastly, the institution must check for any customer experience improvements.
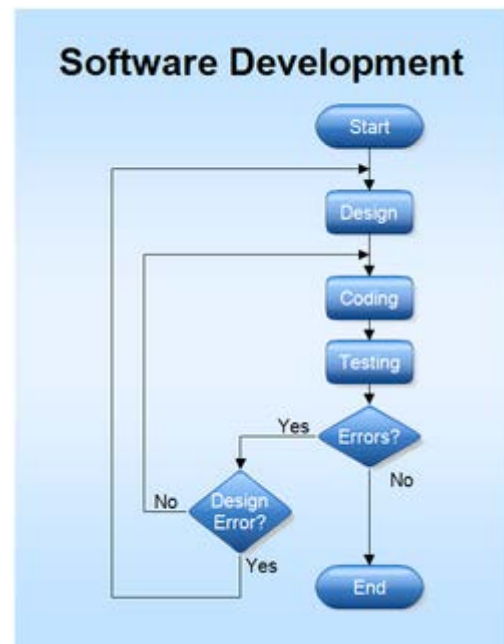

Figure 4: shows the phases of software development.

5.3. Deployment of the RPA system

Implementing the RPA system in the real world is a very delicate process. Therefore, it is advised that the system be gradually implemented. The information obtained during the piloting phase is essential because it will help the development team know the processes performed the most, such as data entry. These processes need to be deployed first into the real world. There also needs to be more resources set for implementing the RPA systems, such as increasing the technical hardware required for implementing the system and training the employees on how to use the system.

To ensure that the RPA system works well with the existing systems, such as the databases, various tools need to be used, such as APIs, which will send data from the databases to the RPA system. Legacy systems such as screen scrapping should be implemented to ensure seamless integration between the RPA system and the existing media[9]. After the implementation phase, the system should be monitored closely to check if any adjustments should be made to ensure the system is running smoothly and as intended.

6. Case Study

6.1. Bank of America

The Bank of America is one of the world's top banks that implemented RPA systems for credit card automation. After implementing the RPA system, significant improvement was seen in the bank's operations. The amount of time used to process all operations involving credit card applications was reduced significantly by 30%. The RPA software was highly scalable; therefore, the system performed as intended when the workload was high. The financial institution saved up to US$5 million in operations costs using the RPA system. Manual labor, previously used by the bank, was costly, leading to high operational costs. The institution marks a 50% reduction in the erroneous mistakes made due to manual labor, thus making the system more reliable[10].

Although using RPA systems improved the financial institution's efficiency, some challenges were faced due to technical incompatibility. The Bank of America already had a system that was running smoothly. However, integrating the RPA system with the existing system proved challenging[10]. The previous system, which needed to be updated, needed modern technology, such as using APIs for integration; therefore, the system had to be upgraded to ensure the RPA system ran smoothly. The company also faced employee resistance because, with the coming of the new system, manual labor was no longer needed; therefore, some people would be laid off. This problem was solved by ensuring employee reassignment to other bank sectors that required manual labor.

7. Future Work

In the future, intelligent Automation should be adopted and integrated into bank RPA systems. The RPA robots should also be capable of performing tasks when faced with unfamiliar tasks. This will help increase the efficiency of the existing systems[10]. The RPA system should be used to improve their workflow in credit card automation and other areas.

8. Conclusion

In conclusion, this paper provides a comprehensive approach to implementing Robotic Process Automation (RPA) in credit card automation to ensure the process runs smoothly. Implementing RPA systems in financial institutions has several benefits, including increased accuracy, reduced operational costs, and improved customer experience. The traditional method has seen challenges such as high operation costs, a high percentage of erroneous mistakes, time-consuming processes, and many more, hence the development of the RPA system. The application areas of the system and the implementation process have been highlighted. The Bank of America has been used as the case study where the benefits and challenges of implementing the RPA system have been analyzed. Lastly, future work has been discussed on how intelligent Automation will be used to improve the workflows of the banking industry.

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