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Optimizing Business Processes: Harnessing Robotic Process Automation in Chinese Enterprises

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Abstract: With the continuous development of science and technology, the study of digital technology in China has become increasingly in-depth. As an effective means for enterprises to achieve automated management and standardized operations, Robotic Process Automation (RPA) has attracted widespread attention. RPA process automation technology can improve the efficiency of financial management and ensure the quality of work while meeting enterprise development needs. This study explores the multifaceted applications and impact of RPA in the financial shared services sector. By utilizing RPA, companies can streamline processes, reduce costs and increase overall operational flexibility. The study delves into the theoretical underpinnings of RPA adoption, drawing on concepts such as economies of scale, process reengineering and information processing theory. In addition, the paper illuminates the transformative impact of RPA on business operations through field case studies, including the pioneering efforts of Sinochem International. By providing a comprehensive analysis of the pros and cons of RPA implementation, this paper provides valuable insights for Chinese companies seeking to optimize their business processes and embrace the era of intelligent automation.

Keywords: Robotic Process Automation (RPA), Financial Shared Service Centers, Workflow Management, Artificial Intelligence (AI)

1. Introduction

With the continuous development of science and technology, the study of digital technology in China has become more and more in-depth. Robotic Process Automation (RPA) has attracted widespread attention as an effective means for enterprises to realize automated management and standardized operation of processes [1, 2]. RPA process automation technology can improve financial management efficiency and ensure work quality while meeting enterprise development needs [3, 4]. In the process of cross-system data collection, RPA process automation technology can realize the automation of enterprise processes at low cost without changing the original system architecture, improve the efficiency of enterprise business processing, and reduce the cost of enterprise manpower [5]. RPA process automation technology can perform repetitive and rule-based tasks in the enterprise workflow, improve data accuracy, optimize the financial and organizational structure, and enhance the enterprise's competitiveness [6]. Business process automation is an important part of the financial technology (FinTech) field, which aims to improve business efficiency, accuracy and security by

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introducing various automation technologies and tools. Business process automation has become possible with the rapid development of information technology, especially with the advancement of technologies such as the Internet, big data, artificial intelligence (AI), machine learning (ML), and natural language processing (NLP). These technologies provide the ability to process large amounts of data, analyze complex patterns, and automate decision-making, thus enabling companies to provide services at lower costs and with greater efficiency. Secondly, at the same time, modern customers are expecting more and more from financial services. They want fast, convenient and personalized services. Automation technology can help banks meet these needs by providing 24/7 customer service through chatbots or speeding up loan disbursement through automated credit approval processes. Third, Competitive pressures are increasing; with the rise of fintech companies and other non-traditional financial institutions, traditional banks face fierce market competition. Firms need to improve operational efficiency, reduce costs, and innovate service models through automation to remain competitive.

China Development Bank recognized the above problems earlier, and according to the IT planning and layout of the bank, it introduced a professional testing team to be responsible for part of the testing work in 2012, which was the initial exploration and attempt to improve the overall testing quality of the bank's software products. With the continuous refinement of the internal management of the enterprise and the increasing standardization of testing quality, the testing team has established a testing category covering functional testing, performance testing, third-party testing, etc., and has undertaken performance testing and third-party testing for almost all projects under construction. In recent years, the testing team has performed more than 2,000 testing tasks annually, playing an important role in the stable operation of the Bank's information system.

This study takes economies of scale, process reengineering, shared services, and information processing theory as the entry point, summarizes the application effects and optimization measures of introducing RPA under the financial sharing mode to provide a reference for the development and innovation of China's corporate financial sharing mode, the research framework of RPA technology, and the promotion of RPA in the field of finance, and to provide a powerful development of RPA through the promotion of the process of financial operation intelligence. Promoting the process of financial operation intelligence provides strong theoretical support and improvement mechanisms for developing RPA.

As the first central enterprise to introduce RPA, Sinochem International is undoubtedly a pioneer in this field, and the study of the application effect of RPA process automation in Sinochem International is of unique significance to the development of China's financial shared service center. By sorting out the mechanism of RPA in the development process of Sinochem International's financial sharing model, analyzing the application effect of RPA on enterprises and proposing optimization strategies, this study aims to provide inspiration and reference for the financial intelligence of Chinese enterprises.

2. Types of Business Process Automation

Workflow Management (Workflow Management) is an important management tool in a business or organization that manages, monitors and optimizes business processes through automation or semi-automation. The core objectives of Workflow Management are to improve efficiency, reduce human error, and ensure consistency and compliance of business processes. First of all, automation can define the business process for the enterprise to clarify the steps in the business process, including tasks, decision points, participants, etc. At the same time, workflow modeling language (such as BPMN) is used to design and simulate business processes. The execution of business processes can also be monitored in real-time during the work period to track the progress of tasks. Workflow management automation automates business processes through software tools, reducing manual

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intervention. Such automation also involves three advantages: When business process anomalies occur, they can be detected and acted upon promptly; Based on monitoring and feedback information, business processes are continuously optimized to improve efficiency; and Ensure that business processes comply with relevant laws, regulations and industry standards. This allows both business process participants to participate easily, such as submitting tasks and approvals. Reports can also be generated to analyze the efficiency and effectiveness of the business process and support decision-making.

Robot Customer Service and Artificial Intelligence: Compared to the view that artificial intelligence is completely regarded as a tool for enterprise value creation, Li Hao believes that the current artificial intelligence can be dynamic, creative and at the same time can interact with the organization's employees, which is in line with the requirements of the main body of the actors defined in the actor-network theory, and can help the organization to make decisions, and become one of the main bodies of the enterprise value creation. Artificial intelligence's data collection and storage capacity can effectively provide data and technical support for employee decision-making. At the same time, the autonomous decision-making ability and analysis ability of artificial intelligence can also enhance the decision-making ability of employees and make the enterprise's decision-making principle from satisfaction to the optimal transition. Artificial intelligence can extract big data, and through the analysis of historical data, machine learning models can predict customer behavioral patterns, such as the tendency to buy, churn risk, etc. In the financial industry, machine learning models can help assess the credit risk of loan applicants or predict market risk. Technology can process and understand human language for chatbots, speech recognition, machine translation, etc. AI technology is also able to be applied to robot customer service. This way, robot customer service can greatly reduce labor costs while considering the customer's product experience. At the same time, enterprises will have no limitations in the scope of service time, and robot customer service can achieve automatic answers to customer inquiries and provide 24/7 customer support.

Intelligent identification technology - front-end system data capture acquisition In enterprise financial management, financial management personnel needs to identify and process a large amount of financial data. If only manual collection and processing were used, it would be very easy for data omissions, etc., to improve the completeness of data collection, and accuracy has become an important goal of the construction of the informatization of enterprise financial management. Therefore, improving the completeness and accuracy of data collection has become an important goal of enterprise financial management informationization construction. As an important component of artificial intelligence technology, intelligent recognition technology, including voice recognition and visual recognition, can intelligently perceive financial data and operating environment and integrate and analyze financial data based on a data warehouse, greatly reducing the possibility of data omission.

3. Advantages of Automation

Automation in the business and financial aspects of the enterprise also plays a great role in helping enterprises. For example, it can help enterprises automatically supervise and analyze financial risks. Compared with manual accounting, automation not only saves time but also eliminates the cost of labor. More importantly, automation can monitor the company's asset flow situation in real time and constantly optimize and adjust to achieve the maximum utilization of funds, minimize the deficit and reduce the debt ratio. Minimize losses and reduce debt ratios. The following compares Sinochem International and Yuntianhua data based on evaluating the application effect of Sinochem International's financial robot and its optimization strategy in the research.

Yu Kejia concludes that the working capital of Sinochem International dropped significantly or even became negative from 2013 to 2016. Since the introduction of RPA process automation in 2017 and its gradual improvement, the working capital of Sinochem International has continued to maintain

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a better status. Since the implementation of financial sharing in 2016, the number of current assets of Sinochem International has shown a substantial increase. In 2017, Sinochem International publicly listed all the equity interests of Sinochem International Logistics Co., Ltd. in a public listing. The formalities for the settlement of the equity interests had yet to be completed at the end of that year. The closing book value of the assets classified as assets held for sale was 9.1 billion yuan, which led to an abnormal surge in the current assets in FY17. In the past three years, current assets have slightly declined but maintained a good level. From 2016 to 2020, the working capital of Sinochem International was as high as 552.43%, much higher than the growth rate of current assets of 11.04% and the growth rate of current liabilities of -5.28% [7]. Current liabilities remain stable and slightly decrease from 2016-2020 compared to current liabilities growth of 138.51% from 2013-2016.

A comparison of the two companies found that the use of automation in the size of assets and working capital is better than the industry average, and the company did not adopt automation of Yuntianhua in the size of the working capital, which presents liabilities. This shows that automation is helpful for enterprises in controlling the overall situation.

At the same time, automation can optimize workflow and improve efficiency, thus helping enterprises adapt to the market environment and improve their competitiveness. Automated systems can track inventory levels and logistics status in real-time regarding supply chain management. When the market demand suddenly increases, the enterprise can quickly replenish the goods to avoid stock-outs. As a leading global technology company, Siemens is at the forefront of manufacturing transformation. By deploying RPA robots, Siemens is optimizing its business to seize new opportunities for transformation in manufacturing. With rising labor costs and rapid changes in the external business environment, Siemens and other manufacturing companies are facing similar issues, namely how to improve operational quality and efficiency and reduce operational costs continuously to win a head start in the fierce competition: business challenges, automation out of the trick. Every year, Siemens sets profit growth targets and creates a corresponding cost reduction plan. To this end, Siemens has invested a lot of resources in automation. In addition to mechanical automation, Siemens Global has begun to try to deploy RPA (Robotic Process Automation) in the back-end office systems and business processes.

4. Disadvantages of automation

Technology integration and compatibility issues. Automation technologies need to be seamlessly integrated with existing IT systems and software. As banking systems are often complex and diverse, integrating new technologies may encounter technology compatibility issues, leading to increased integration costs and longer implementation times [8].

Data security and privacy risks. Automated processing involves sensitive data, such as customer information and transaction records. Any security breach may lead to data leakage, increasing the risks banks and customers face. Therefore, ensuring data security and compliance with privacy regulations are important considerations in automation implementation [9].

Employee training and change management. Automation may change the nature of an employee's job or even replace certain positions. This may lead to employee resistance to automation. Banks need effective change management and employee training to ensure that employees can adapt to new working methods.

Artificial intelligence in automation often needs to consider human emotions and human factors when dealing with human resource management issues. It is unable to understand the emotions and personal needs of employees fully. On the one hand, during the recruitment process, the coldness and lack of human touch in the interview process may affect the candidate's experience and the company's image. Therefore, companies should pay more attention to the humanized design of AI technology so that it can better understand and meet employees' emotional and psychological needs. On the other

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hand, AI may not be able to fully understand and cope with complex interpersonal relationships and corporate culture in human information systems engineering 087 experience sharing resource management. To solve this problem, companies provide humanized care for employees outside the AI system to promote a sense of organizational belonging [10].

5. Conclusion

Automation technology, especially intelligent risk control systems, can help banks more accurately identify and predict potential risks, such as credit, market, and operational risks. This helps banks take timely measures to reduce losses and enhance overall risk management capabilities. Therefore, bank automation is very necessary for controlling enterprise capital flow. Control plays a role in control; simultaneously, it saves labor costs and reduces customer process steps, which can also play a big role in the banking enterprise. Automation is an inevitable trend. RPA is of great significance to the business management of China's enterprises. Automation can organize business data and support business decisions. Upgrading and integration of business management, real-time control of various projects, realizing the precise management and sharing of data, funds and information, further improving the internal control capacity, supporting business decisions with data, improving management efficiency and internal control refinement, and promoting the company's firm step towards high-quality and high-precision direction. At the same time, automation at the same time should also pay attention to the drawbacks brought about by automation, for example, in the coordination and collaboration of artificial intelligence and people should pay attention to focus on the value of co-creation of people and artificial intelligence, rather than a unilateral tilt. Enterprise automation is also facing one of the biggest problems in the customer service industry; customer service robots often need help to reach people's needs, which often leads to people needing to recognize the ability of customer service robots and even loathe to communicate with robots. This requires companies in the customer service industry not only to enhance the ability of the machine customer service but at the same time in the process of automation to ease the contradiction between people and robots in values. This can be achieved in the process of enterprise automation to increase the interests of enterprises and prevent the intensification of social conflicts.

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