"AI+RPA" and the Intelligent Development of Enterprise Financial Shared Service Centers

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Abstract: With the rapid development of science and technology, enterprises are further promoting intelligent transformation to adapt to the needs of social development. Technologies such as artificial intelligence are widely used in financial management and other aspects of enterprises, injecting new development momentum into enterprises. RPA financial robots have had an important impact on the digital transformation of corporate finance. With the in-depth development of AI technology, enterprises have higher and higher demands for intelligence. Based on RPA, the application of IPA (Intelligent Process Automation), which incorporates the complexity of AI, will be more popular. In enterprises, the financial system serves as a hub connecting the enterprise's production, operation, sales and other business activities. Many enterprises choose to build financial shared service centers to centralize some businesses to improve efficiency and reduce costs. Combining financial skills and work with new technologies such as RPA and AI to improve the service quality of financial shared service centers. The use of RPA financial robots, combined with the powerful deep learning capabilities of AI, can enable the financial field to apply AI technology to independently collect and analyze information like humans do, and make business decisions on behalf of humans, responding to customer needs faster and ensuring service quality. This paper explains how "AI+RPA" promotes the intelligent development of enterprise financial shared service centers from the connotation, advantages and application of "AI+RPA" in enterprise financial shared service centers.

1. Introduction

1.1. Background

With the expansion of various new businesses of enterprises, the establishment of branches and subsidiaries may cause a large amount of repetitive and homogeneous financial work in the accounting process, increasing the costs related to corporate financial accounting. The "Work Standards for Enterprise Accounting Informatization" and the "Guiding Opinions of the Ministry of Finance on Comprehensively Promoting the Construction of Management Accounting Systems"

issued by Ministry of Finance of the People's Republic of China advocate that "enterprises with many branches and wide distribution should actively explore the use of information technology to promote the centralization of accounting work. By successively building financial shared service centers, the work functions of accounting practitioners will shift from accounting to management decision-making. The future development and transformation direction of financial management of group companies will be to build financial shared service centers."

However, with the development of financial shared services, some problems have gradually emerged, such as slow financial business processing, increased information management and information system maintenance costs, and increased related labor costs. As the application of intelligent technologies such as cloud computing, big data, artificial intelligence, and middle-end technology in the financial field gradually matures, intelligent finance has become the forefront of financial development. In 2017, Deloitte applied process automation technology to the financial field to achieve efficient management of financial work. This means that RPA-related technologies have practical application scenarios in the financial field, and enterprises can use new information technologies to promote the transformation and change of financial management models. The characteristics of RPA financial robots are similar to the functions of the financial shared service centers, but RPA financial robots lack the ability to judge and can only perform operations such as preset data processing. The organic combination of AI and RPA financial robots will further provide automation and support for the company's financial issues. Intelligent solutions will help corporate financial shared service centers develop in an intelligent direction.

1.2. Literature Review

Regarding financial shared service centers, Gunn et al. (1993) believe that shared services are a new organizational and management model that integrates original highly repetitive and standardized business operation processes into shared service centers to help enterprises integrate resources from all parties and reduce costs [1]. This improves effectiveness. At the same time, by flattening the corporate organizational structure, we can improve the execution efficiency of corporate high-level strategic decisions. Moller (1997) believes that enterprises need to build financial shared service centers to provide professional financial services to each subsidiary or other external customers [2]. Regarding the role of the financial shared service centers, Yin (2021) pointed out that the financial sharing institution is mainly responsible for managing the daily activities of different business units, and will also centrally manage enterprises with a large number of economic entities within the group [3]. To realize sharing, enterprises must continuously integrate resources to make their services more professional, standardized, and unified, so as to reduce costs, improve efficiency, and create greater value space. In terms of the optimization of financial shared services, Huang F et al. (2021) stated that more and more companies are also adopting the financial shared service model, trying to use big data analysis and information integration to improve the level of corporate investment decision-making and improve corporate management efficiency. However, financial shared services have problems such as scattered platforms, scattered information, and insufficient professional capabilities of personnel [4]. The business processes of financial shared service centers should be transformed by integrating new information technologies [5].

Aguirre (2017) proposed that robotic process automation will be an important technology to promote the reform and innovation of financial shared service centers, and intelligent financial sharing of operations and interactions between cross-systems can be completed through pre-set script programs [6]. The introduction of new information technology such as artificial intelligence into the financial shared service centers can help the system handle the entire process system and

repetitive work from business to financial statements, reducing manpower to a great extent and communication costs [7]. Sorin (2018) believes that with the maturity of robotic process automation technology, it can perform routine tasks consisting of binary decisions that do not require intelligence, and realize multiple systems to work autonomously [8]. In the future, RPA will gradually evolve into intelligent automation (IA). After RPA financial robots are combined with high-tech technologies such as optical character recognition (OCR) and machine learning, it will have autonomous cognitive and learning capabilities and be able to perform non-routine tasks involving judgment based on unstructured data, thus Promote the realization of full automation of some semi-automated business processes [9].

2. The Connotation and Advantages of "AI+RPA"

RPA refers to robotic process automation technology. The system uses a pre-set computer script language to replace humans with robots to perform highly repetitive and regular work. When RPA was proposed, it was generally considered to be a technology that replicates human behavior and lacks real intelligence characteristics, and should not be included in the category of artificial intelligence (AI) technology, said Banwari Agarwal, global market leader of intelligent process automation at Cognizant: "RPA is purely machine-based in nature and does not require intelligence to operate." Therefore, this technology is ideal for well-defined and rules-based processes. The integration of "AI+RPA" aims to develop intelligent business processes and workflows that have self-thinking, knowledge reserves and adaptability, and can make judgments and choices. At present, the domestic RPA market is in a "blue ocean" and there is still a lot of room for growth. For enterprises, the combination of RPA financial robots and AI will bring them new automated processing capabilities.

RPA financial robots adopt a rigid form based on "if-then" preset rules and is only suitable for processes that can be clearly defined and have discrete steps. From a technical perspective, RPA financial robots themselves do not have much technical content, but the combination with AI can create unlimited space for automating all unstructured data that is tedious, complex, and difficult to process. The addition of AI injects intelligent decision-making and prediction capabilities into RPA financial robots. By parsing structured and unstructured data, AI provides enterprises with precise insights and decision support, allowing RPA financial robots to handle more complex tasks and optimize business processes. At present, China's representative RPA manufacturers such as INTELLIGENCE INDEED Company, as an AI quasi-unicorn and a leading hyper-automation company, INTELLIGENCE INDEED's self-developed vertical large model TARS ranks at the top of various domestic large model lists, with "available effects, Cost controllable, customized training, privatized deployment" and other differentiated advantages. The industry's first AI Agent intelligent product that can "generate digital employees in one sentence" is not only an AI assistant for individual users, but also an office for government and enterprise employees Assistant, realize "what you tell PC to do, what you say is what you get".

"AI+RPA" has the following advantages:

First, improve accuracy. "AI+RPA" can make data processing more accurate and minimize errors. The problem with RPA financial robots is that if the program executes a business process that has problems in itself, the execution of its intelligent machinery cannot be improved. With the support of AI, defects can be improved during the execution process, further improving efficiency.

Second, save costs. "AI+RPA" can judge and process complex tasks without manual intervention, thereby saving more labor costs. Operating costs can be significantly reduced and resources can be allocated more rationally. In addition, due to high accuracy, "AI+RPA" can reduce the cost of errors. Integrating RPA financial robots with legacy systems can be complex and costly.

Third, scalability. Intelligent automation solutions can adapt to changing workloads faster than RPA financial robots, allowing companies to effectively expand their automated operations. Traditional RPA financial robots are mainly good at handling tasks with clear rules and high repetitiveness. The introduction of AI enables RPA financial robots to handle more complex and changeable tasks.

Fourth, more efficient. "AI+RPA" can complete tasks faster, shorten response time to a large extent, and improve customer satisfaction. At the same time, it frees financial personnel from regular work, stimulates their creativity, and completes more valuable work.

Fifth, enhanced decision support. "AI+RPA" provides data-driven insights and continuous improvement through AI's deep learning function. It can cope with complex decision-making environments and abnormal situations. It can analyze historical data and combine market, macroeconomic and other information to conduct financial forecasts and risk assessments. Then provide decision-making support to management.

Sixth, reduce risk and become more compliant. In sensitive areas such as finance and taxation, AI can help RPA financial robots better comply with relevant laws and regulations. Through intelligent analysis and early warning functions, AI can ensure that RPA financial robots always meets compliance requirements when processing data.

3. Application of "AI+RPA" in Financial Shared Service Centers

The application of RPA financial robots in financial shared service centers is becoming increasingly mature. The applications in financial shared service centers are shown in Table 1.

Table 1: Application of RPA financial robots in Financial Shared Service Centers

Application scenarios	Application method
Reconciliation and write-off	RPA financial robots automatically downloads transaction information from the internal system before monthly settlement, checks the unit transaction entries, and automatically writes them off in the system.
Reconciliation of accounts receivable	RPA financial robots obtains receivable data and bank receipts or actual receipt data from the corporate financial system, automatically reconciles accounts, payment notes and other information, and marks differences.
Supplier data management	RPA financial robots automatically creates data files based on key information provided by suppliers, then manages and maintains them.
Invoice processing	RPA financial robots uses OCR to automatically read invoice information and process it.
Fixed asset management	RPA financial robots can update asset cards in batches and automatically maintain asset depreciation, transfer, scrap and other information in the system.
Bank reconciliation	RPA financial robots will check the obtained bank flow and bank financial account data and automatically issue a bank balance reconciliation statement.
Bank receipt download	RPA financial robots automatically downloads the electronic version of the bank receipt, splits it by transaction, gives it a standard name, and saves it to a designated folder.
Tax declaration	RPA financial robots can automatically collect tax data in enterprise systems, calculate taxes, generate vouchers, prepare tax filing materials, etc.

The deep integration of AI and RPA can make up for the autonomy shortcomings of RPA

financial robots and improve the intelligent learning capabilities of financial robots. Using RPA financial robots as a platform, it integrates artificial intelligence technologies such as OCR and Natural Language Processing (NLP), and is supplemented by some specific software and hardware technologies such as BI to provide an end-to-end automation solution for the process, maximizing release Reduce human resources, improve business processing efficiency, and reduce operating costs. At present, the combination of RPA and AI is still in its infancy, mainly reflected in scenarios such as computer vision, natural language processing, and predictive models. This paper will propose processes in which AI will help based on the application of RPA in financial shared service centers. Make the business process of the enterprise operate with high efficiency and high quality, and give full play to the value of the financial shared service centers.

3.1. Expense Reimbursement

In the reimbursement application stage, the reimbursement form and original document information need to be completed manually. At present, the original information has not been intelligently collected and classified, and problems such as errors in key information are prone to occur, affecting subsequent processes. To address the problems at this stage, speech recognition, optical character recognition, and natural language processing technologies are introduced to assist employees in filling in reimbursement information. In addition, AI can automatically associate with internal and external systems, associate relevant travel rules, travel standards and other information and embed it into the system so that employees can refer to it when filling in forms to achieve intelligent form filling.

During the reimbursement approval stage, AI is used to separate reimbursements according to importance and urgency. This intelligent diversion can divide a large number of accumulated documents in a timely manner and allocate limited human resources more rationally. AI can track the progress of reimbursement approval in real time and automatically send notifications and reminders to relevant personnel. This helps the approving personnel to understand the approval status in a timely manner and handle it accordingly.

In the reimbursement payment stage, according to the set rating conditions, the AI model is trained to mine valuable information in employee data and intelligently evaluate the credit rating of the behavioral performance of reimbursement applicants, thereby performing classification operations and classifying reimbursement applications with higher credit ratings. After automatic verification by RPA financial robots, payment can be made in real time. For reimbursement applicants with lower ratings, they will be pushed to the relevant approving personnel in the system for confirmation and then the payment will be delayed for an appropriate time. In this way, reimbursement can be standardized and the review pressure can be reduced.

3.2. Accounts Receivable

The interbank reconciliation of financial shared service centers require reconciliation personnel to download data from different bank accounts and financial systems and check them one by one. There are many bank accounts and a large amount of transaction data. Manual reconciliation is inefficient and error-prone, and may also lead to financial risks. INTELLIGENCE INDEED Company's RPA obtains bank flow and financial data, and during the process of bank-enterprise reconciliation, it can automatically log in to online banking, third-party payment platforms, financial NC and other systems, correlate data from different sources, and adjust the data after unified verification format, and at the same time downloads the statement regularly and automatically prompts the balance difference. At the same time, through the intelligent capability of USBhub, it can automatically log in through the U-shield of each bank, operate the banking system

safely and reliably, and realize automatic download of statement data.

Similar to the case of reimbursement applicants, AI will rate customers. Currently, the customer access robot can automatically query whether the legal person is untrustworthy and whether the business is in good operating condition based on the business license, legal person ID card, key information on financial statements and other content provided by the customer, business scope, whether there are major risks in related parties, intelligently recommend customers with strong fund payment capabilities and low overdue probability to reduce the risk of bad debts.

Invoicing bots can identify unstructured content in large volumes of invoices, using OCR, ML and NLP to understand the context of invoice documents, enabling them to identify and extract relevant information without having to create templates for each variant. The key order information in the contract is identified and converted into structured information, and then the invoices are exported from the ERP system in the form of planned tasks and provide interfaces for other branch company platforms to enable business personnel to conduct independent invoicing across systems.

In addition, based on the customer's specific situation, customer preferences are analyzed and current activity strategies are intelligently provided to customers. AI's deep learning capabilities can also help financial robots collect information on accounts receivable from past customers, analyze changes in payments and bad debts, predict and summarize possible risk situations in a timely manner, and issue early warnings.

3.3. Accounts Payable

In supplier management, AI can enable RPA financial robots to automatically screen suppliers. After financial shared service centers analyze and determine the production needs of the manufacturing department, IPA automatically logs into the national enterprise credit information disclosure system, national or local tax system, court, Ministry of Agriculture, Ministry of Railways and other systems, obtains and screenshots to save the information, and Identification is performed through AI and converted into structured output data for use by business personnel. Procurement information is then classified and summarized in the shared database based on RPA financial robots. By decomposing purchase orders, data information in past transactions, news information, and financial status, it provides a reference for the selection of suppliers.

In the accounting stage, which involves simple accounting processing, RPA financial robots use preset rule programs for automated processing. For complex accounting processing work, the system will use the trained AI computing engine, and the system will perform business processing by imitating humans. When the accounting account calculation is completed, the system will submit some of the accounts payable accounts to the review post in the sharing center for manual review based on the preset review ratio, reimbursement form amount, supplier credit status and so on to confirm whether the work processed by the system is Compliance with requirements. It will ensure the quality of work to a large extent.

RPA financial robots can also automatically summarize accounts payable data to generate various financial statements and aging tables. AI can quickly and accurately analyze data, dig out potential trends and rules, and help enterprise management better understand the status and payment of accounts payable, which is of great significance for enterprises to make capital plans and optimize supply chain management.

4. Conclusion

The "AI+RPA" model is the direction of financial intelligence. AI enables RPA financial robots to no longer perform predetermined tasks mechanically, but to make judgments, make predictions, and make decisions like real financial personnel. If enterprises want to improve the efficiency of

financial management, it is difficult to achieve it by relying on RPA financial robots alone. They must also integrate intelligent AI algorithms, scientifically introduce decision support system ideas, and improve financial automation processes. The deep integration of AI and RPA is the starting point for enterprise digital transformation. And it is also the general trend of the current intelligent transformation of financial shared service centers and an important measure for innovative applications. The application of "AI+RPA" in financial shared service centers can make financial shared services more intelligent and help large enterprise groups improve efficiency and reduce risks. The combination of AI and RPA has brought significant advantages and changes to enterprises. It will promote the transformation and development of financial shared service centers in the direction of intelligence and automation.

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