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Application of Computer Aided Operation in Financial Business

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Abstract: *At present, there are a large number of scenarios in the process of financial business processing in China, such as manual entry, data cleaning, data aggregation, multi system operation, etc. the process is cumbersome, the operation efficiency is low, and it is unable to quickly respond to business changes and expansion. The pressure on the annual festival and monthly settlement has increased sharply, resulting in a shortage of manpower. Repetitive, unbalanced, timely, waiting, and data handling process operations can be automated to allow procedures to replace artificial, reduce the waste of human resources, improve business processing efficiency, ensure the timely completion of daily work, reduce costs and increase efficiency for enterprises, and promote their digital transformation. This paper introduces the application of computer automation RPA in financial business, the operation principle and development of automation system, and looks forward to the future development direction.*

Keywords: *Computer automation, Financial business, RPA, Technical principle, Application advantages*

1. Application of RPA in financial business

From the development of the financial field, it can be seen that the financial requirements for informatization are almost rigid. From the abacus to the calculator, to the computer, almost every evolution of computing tools must first act on the financial field. The most basic work of financial accounting is the recording and calculation of numbers, and the computer system is their best helper.

1.1. Financial status analysis

With the promotion of ERP system in the 1990s, SAP, Oracle in the world, UFIDA and Kingdee in China are all providing technical solutions for the financial field. But today, finance teams still spend a lot of time preparing financial statements, scrutinizing forms for possible errors, fetching data from multiple systems, and searching for some number-related documents. Even the old information system will become cumbersome, and there will be problems such as data irrelevance, information asymmetry, lack of functions and process loopholes. The upgrade of the old system or the technical integration of several systems is not only time-consuming and laborious, but also difficult to achieve business goals, and even bring new business risks. At the same time, the corporate leadership has also put forward higher requirements for the financial department, requiring real-time financial data and decision-making in financial reports. Most financial personnel have to carry heavy low-value labor and work long hours into the night. The precise requirements for numbers make them highly nervous, and if they are not careful, there may be serious consequences.

1.2. RPA

RPA (Robotic Process Automation) is a set of software systems [1], mainly used to perform work tasks based on established rules, also known as "digital employees". Through the combined application of various technologies, make scripts, simulate mouse and keyboard operations, let programs replace hands, and use computers to realize all-weather uninterrupted automatic business operations, not only limited to the operation of desktop client programs, but also by modifying page code. Realize the acquisition and submission of web page data. Seamlessly connect across systems.

The process is not limited to the use of programming languages for complete process program development, and can also be used for secondary development based on the developed platform. It has the characteristics of fast construction, high execution efficiency, automatic execution, and no need to

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change the original system functions, saving resources. , and can generate benefits in the short term. RPA can be applied to various scenarios of enterprise financial business, and can reduce costs and increase efficiency for enterprises. [2-3]

1.3. Application scenarios

1.3.1. Repetitive business

Many of the common enterprises that have a high degree of standardization and a large amount of business are all repetitive processes. Everyday, as long as you perform fixed click, input, confirmation and other operations in the system according to the operating specifications, RPA can set rules according to the business requirements of different enterprises, schedule robots regularly every day, simulate manual operations, and even perform human-computer interaction. Pass real-time data parameters to RPA to adjust business rules in time.

1.3.2. Unbalanced business

In many financial services, the distribution of business volume is uneven, or even very different, in monthly, quarterly or different time periods. For example, the sales company's centralized billing and report issuance at the end of the month. Manual processing of this kind of business will cause a large amount of manpower to be supplemented in a specific time period, and the problem of excess manpower will be caused in ordinary time periods. Using RPA to replace manual operations can quickly make up for the shortage of personnel and reduce employee stress.

1.3.3. Timely business

Timely business often needs to be processed at the first time, so as not to affect subsequent business processes, and timely processing can improve customer experience. Under manual operation, it is difficult to ensure round-the-clock on-call processing. On the other hand, RPA can run online 24 hours a day, 24 hours a day, all year round, and monitor the processing of the business as soon as it occurs, which improves the timely rate of business processing and ensures the smooth progress of the follow-up process.

1.3.4. Waiting business

Waiting business is due to system operation or calculation. It requires a relatively long waiting time between one business operation and the next business operation, and the waiting time is often uncertain. Manual operation not only wastes time but also cannot perform other operations. RPA robots can wait online or perform operations during non-working hours, eliminating the need for manual waiting. At the same time, they can use technologies such as virtual desktops to run robots, saving computer terminal resources.

1.3.5. Data handling business

Because the construction period of financial information systems is generally relatively long, problems such as incomplete functions and lack of data interfaces are often encountered. Financial personnel often need to fetch data from multiple systems when making reports and comparing data, which is very inconvenient. Carrying out system modifications can also cost a lot of time and money. RPA can act as a bridge between multiple systems, taking data out of one system and filling it into another system, or summarizing data from multiple systems to generate reports [4].

1.4. Application advantages

The wide application of RPA can bring many benefits to enterprises. First, it can improve the work efficiency of employees. The execution speed of RPA is ten or even dozens of times that of manual operations, which can free the hands of employees and enable them to focus on more important tasks. The second is to ensure that the operation is reliable, RPA is performed according to the established rules, so there is no wear and tear, no fatigue, no operational errors, and no rework of the process. The third is to save resources. The same machine can run multiple RPA robots at the same time without interfering with each other, and the digital storage and exchange of information reduces the waste of paper documents. The fourth is to enhance the data connectivity between various departments, and build a communication bridge between departments through RPA, so that data transmission is more timely and smooth. The fifth is to improve customer satisfaction. Efficient, timely and 24/7 RPA is more able to provide customers with more convenient, faster and higher quality services.

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2. Technical principle

The computer automatic auxiliary operation program completes the automatic processing work for the desktop application by obtaining the handle of the desktop application, operates the page elements through the element path in the page, or obtains the message from the server side by simulating the client request. It is not just an automation software, it is a complete framework, which includes three parts: designer, control platform and robot. It is open and extensible, and is easy to develop and manage.

2.1. Automation

The application can access the information of the corresponding object through the handle. By obtaining the handle of each window, you can use the auxiliary application to input the specified content in the specified window. The acquisition of handles can rely on existing mature tools, such as Microsoft SPY++, JAB (java access bridge), etc. Such tools will obtain the handles of all application windows in the current screen, and the application software can be automatically operated through the handles, but Some handles change dynamically. At this time, you need to find the law of handle change and obtain the parent handle to operate.

There are many ways to achieve web page automation, the most commonly used is the selenium automation tool, which can support the automation of all mainstream browsers on the market by using Webdriver, which can automatically control browser instances and simulate and browser users. interaction, allowing to simulate common activities performed by end users, such as entering text fields, selecting drop-down values and check boxes, clicking actions, etc. In addition, it is also possible to simulate the client to send a request to the server by means of a crawler, and the server returns a data response to the client after obtaining the request. After obtaining the source code of the web page, the data needs to be parsed from the source code before proceeding to the next step.

2.2. RPA framework

2.2.1. Designer

A set of graphical development tools designed to make it easier for business personnel to develop independently. It provides convenient methods and interfaces. It is possible to write detailed work instructions for the robot in the designer. As the tasks performed by the robot, advanced users can directly pass Write the code for embedding, and publish the command to the control platform after the command is written.

2.2.2. Control Platform

The control platform is the scheduling control center, which is responsible for managing the operation of all robots, receiving the work tasks designed by the designer, and assigning work tasks to the robots for execution, and supervising, managing and controlling the work process of the robots.

2.2.3. Robots

Robots are client programs deployed in computer terminals, which can be physical machines or virtualized environments. They receive work tasks issued by the control platform and execute specific tasks in a planned way according to the time and steps set by the control platform. Task. The robot completely simulates human operation and can perform work tasks of multiple different business departments in batches.

3. Direction of development

The future development direction of RPA must be inseparable from artificial intelligence. Through the combination with artificial intelligence technology, it can play an important role in the business fields that require more thinking and change, such as financial bill identification and file auditing. From RPA to IPA (Intelligent Process Automation) transformation.

3.1. RPA+OCR

OCR (Optical Character Recognition) is optical character recognition technology, which can automatically extract the key information on the picture through the algorithm according to the image.

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When an enterprise conducts financial management, it includes many financial operations, such as general ledger management, production financial statements, operating status statistics, cash flow statements, profit statistics, etc. Invoice management is an important proof of commodity sales and operating income of business units. How to efficiently handle a large number of paper invoices has become a breakthrough to improve the work efficiency of the financial department. The combination of RPA and OCR technology [5] enables the robot to simulate the artificial brain, and in the process of financial publication and processing, it can extract, review and file the face information, thereby effectively improving the efficiency of business processing [6].

3.2. RPA + Data analysis

RPA extracts and processes a large amount of business data every day. For enterprises, these financial data have potential information and high utilization value, but simple data stacking and data display cannot make full use of this information. Data analysis technology can use various machine learning models to make the most correct inferences and predictions through the training of the models, so as to improve enterprise risk management and control, business decision-making and management science [7].

3.3. RPA+NLP

NLP (Natural Language Processing) is a technology that enables machines to understand human language. It parses human language through syntactic analysis and semantic analysis. Combining RPA technology with NLP technology can parse text semantics in various scenarios [8], such as contract information extraction, which can automatically extract important, structured information from these unstructured languages.

4. Conclusion

Starting from the problems existing in financial business, this paper summarizes the various applications of RPA in the financial field, and explores the implementation method and platform construction of RPA. Finally, it looks forward to the future development direction of RPA. There is a place for RPA.

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