Development of Invoice Making Robot for Catering Chain Enterprises

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Abstract. The billing business of catering chain enterprises is faced with the characteristics of wide distribution and large customer flow. It needs to take into account the cash flow control, responsibility assessment and business performance incentive of each store business, and faces the problems of heavy task and low efficiency. Through RPA, the work efficiency can be greatly improved, work errors and omissions can be reduced, fraud can be prevented to a certain extent, cash flow control can be strengthened, and the effect of performance appraisal can be improved.

Keywords: Financial Robot, Business Process, Integration, Bill, Internal Control

1. Introduction
In recent years, RPA robot has become an important assistant for many enterprises. It greatly improves the efficiency and reduces the cost on the basis of the existing ERP system through plug-in [1]. On the surface, they receive data, sort it, process it and carry out certain actions with them, without changing the IT structure of the company [2], the result of more locations getting access to the network. According to the basic principle of RPA, we designed a billing robot for catering chain enterprises. Its function takes into account the internal control.

Founded in 1999, a catering group is a well-known brand in China's catering industry. The group's business involves six major formats related to catering, and has nearly 100 stores in Beijing, Shanghai, Tianjin, Shenzhen, etc. all over the country. The company has more than 3000 employees and an annual reception of nearly 5-million-person times. The group advocates scientific business philosophy and management mode. After years of continuous efforts and learning, the group has precipitated its own unique management system, which has become a benchmark for the industry to learn and imitate.

Due to the particularity of the industry, the financial staff of the group have a lot of workload and long-term overtime. They use more manpower in the billing process, and their work is complicated and the error rate is high. We know about RPA products through the market. We hope that through the implementation of the RPA project, we can save the manpower of the financial department and improve the work efficiency and accuracy.

The company has some problems in the billing process, such as heavy workload, low efficiency and high error rate: Firstly, then the difference between them will be imported into the system, and the difference between them will be recorded in the system, and make the corresponding adjustment, and then do the invoice processing.
Secondly, it is necessary to log in the order management module manually to export the delivery list and sales volume detailed statistical table in Excel version, and manually check the data of them step by step and word by word. During the whole checking process, the operation of Excel is very complicated, which relies on manual screening, copying and pasting. When sorting out the invoice information table in the specified format, it is also completed through the screening, copying and pasting of Excel. Low efficiency, labor consumption and high error rate.

2. Design of Financial Robot for Catering Chain Enterprises

According to the situation of the catering chain enterprise group, we need to first design the specific objectives of the project, then analyze the specific needs, and finally form a specific path. Its specific objectives not only consider the technical situation [3], but also need to consider the actual situation of the enterprise [4]. This is the working state that can be achieved through RPA under the current external environment and the internal situation of the enterprise. The function of analyzing the specific needs of enterprises is to refine the business situation, data process and other specific conditions of enterprises [5], so as to prepare the basis for the process reengineering.

2.1. Target

Automatically log in to the purchase, sales, inventory and order management module system, and automatically export the excel version of the delivery order and sales detail statistical table, check the data of the two, confirm that there is no difference, automatically sort out the invoice information details in the specified format, and then automatically log in to the invoice system, and import the invoice documents in batch [6]. Manual only need to prepare the invoice, manually put the invoice into the printer's paper inlet, and start printing. To confirm the difference data, it is necessary to generate the sales and delivery difference summary table [7], save it to the designated path and send it to the relevant staff for verification and processing by email.

The specific process is as follows: Automatically check the invoice data and automatically arrange the invoice information list in the specified format [8]; Log in the billing system automatically and import the invoice file in batch [9]. Manual only need to prepare the invoice, manually put the invoice into the printer's paper inlet, and start printing. The difference data is used to generate the sales and delivery difference summary table, which is saved to the specified path and sent to the relevant financial personnel by email for verification and processing.

2.2. Demand sorting

In the demand investigation stage of this project, the customer's financial personnel provide the actual operation screen and operation explanation recording of the billing process. The RPA consultant participates in the demand survey and finally arranges the solution approved by the customer. The process is further optimized in the scheme, such as the format of the "invoice details" and the key fields to be selected. The report template can be designed according to the actual needs of the customer. It can meet the needs of customers to change the format and key fields of invoice details in the future.

Help customers to sort out the whole billing business process in detail, and fully communicate and discuss with the implementation personnel. Various nodes that need to be added with logical judgment and fault tolerance are considered in the implementation plan as far as possible. The specific business nodes to be considered include: If the delivery order can be matched with the sales order, the invoice will be issued; if not, no invoice will be issued; The sales details that can be invoiced are allocated to the company's header form and individual header form according to different payment accounts; The company's header form is subdivided into special ticket and general ticket according to different types of invoice required by each store; The personal title form can be divided into general ticket and no ticket according to whether the store needs invoice or not; Tax code of sales details that can be invoiced, and match the corresponding tax code according to the category; Tax rate of sales details that can be invoiced, and match the corresponding tax rate according to the product name; Import the
data of special ticket and general invoice into the standard form of aerospace invoice, sort and assign serial number.

2.3. Business Process Reengineering Based on RPA

After combing the current situation of business process and pain points, the project team combined with the implementation experience of previous projects [10], issued solutions. RPA can realize the automation of the whole process of billing data integration verification, billing file format sorting and invoice file import. Only in the last step, the invoice needs to be manually put into the printer entrance, and manual verification can be done again before clicking batch printing. The specific business flow chart is as follows figure 1:

![Business Process Reengineering Based on RPA Diagram](image-url)
3. Conclusion
Through the plug-in RPA robot, the group greatly improves the efficiency and reduces the cost. These advantages are as follows. Efficiency improvement: the whole billing process is automated, and a full-time billing staff is released. This person only needs to review once a day, and then put the invoice into the invoice to start printing. Accuracy improvement: the whole billing data sorting and matching are automatically executed by RPA. If the system logic is correct, RPA operation will not have data error. Cost reduction: the investment and maintenance cost of RPA is far lower than that of a full-time staff. Improvement of business timeliness: due to the tedious work of checking and sorting out the data before the invoice, the drawer used to issue the bill once a week, but now it can be issued once a day and at any time. Business security and controllability: the whole billing process is implemented by RPA, and the security of information system and enterprise financial data can be better guaranteed, and the security is controllable.

Of course, RPA as a plug-in program encapsulation robot, at this stage, the advantage is not to increase the system load, has the integration of various business systems, so as to improve the overall work efficiency and reduce costs. With the development of network communication technology and storage technology, RPA may be changed from plug-in to embedded, so as to further improve work efficiency.

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