



Research on the Application of Robotic Process Automation (RPA) in the Auditing Industry-Take the Bank Letter Procedure as An Example

Yue Zhu

School of Accounting, Guangdong University of Finance & Economics, Guangzhou, China
22250204248@student.gdufe.edu.cn

Abstract. With the advent of the digital economy era, various AI technologies are emerging endlessly and are widely used in various industries, and most industries have been caught up in these technological innovations. With the explosive growth of global data, auditors, who need to process and analyze large amounts of corporate financial data and other information, are struggling to cope with the surge in corporate data. Because the traditional manual operation process of audit can no longer meet the current audit needs, it is necessary to apply RPA and other technologies to audit and other work. This paper mainly takes the bank confirmation procedure as an example to analyze the current application of RPA technology in the audit process and the possible challenges in the application, aiming to play a certain reference role for the smooth development of relevant research on the application of Robotic Process Automation in the audit industry.

Keywords: Robotic Process Automation, Audit, AI.

1 Introduction

With the development of the data economy, people have new expectations and requirements for constantly emerging new technologies. Many new technologies have begun to be gradually applied in various fields of the economy. Robotization and automation are entering new economic fields such as business services [1]. IDC projects that by 2025 the global datasphere will expand to 163 zettabytes (that is a trillion gigabytes), which is ten times the 16.1ZB of data generated in 2016 [2]. Facing the explosive increase of all kinds of data of enterprise, the traditional audit process, the process of manual operation and handling, has become difficult to meet the audit demand of the new generation. Though utilizing RPA technology, the time for data capturing and data manipulation can be shortened, and the auditing results can be directly presented by visualization methods to improve auditing efficiency. This is precisely the current research trend at all auditing stages. Auditing stands as a vital activity across numerous industries to assure compliance, transparency, and operating effectiveness. In the realm of business, the auditor conducts a systematic and independent analysis of trading records, processes and financial statements of an organization, with the main objective of ensuring them compliance with accounting principles and laws and regulations to build

up among stakeholders. RPA involves process automation through software robots, and auditing in this context aims to ensure accuracy, compliance with privacy and security regulations, and optimization of operational efficiency [3].

The “big four” accounting firms have made positive attempts in the field of AI auditing, such as “Deloitte financial service robot” and the audit intelligence platform “Avenir” launched by Deloitte, the “GL.ai system” launched by PwC and the “Robotic Process Automation (RPA)” system launched by Ernst & Young [4]. At the “big four” accounting firms, there is a comprehensive upgrade from automatic data processing to complex risk identification through AI technology. Its core values are reflected in enhanced efficiency, precise risk management and the release of employees' capabilities.

This paper chooses the bank confirmation process as the object of study, aiming to utilize the universality of this case to bring theoretical and practical inspirations to researchers and auditors. Taking the bank confirmation process as an example to study the application of RPA in the auditing industry not only has important theoretical significance but also has significant practical significance. It can enrich the theoretical system of intelligent auditing, expand the research category of RPA technology application, and explore a new audit model of human-machine collaboration. Moreover, it can enhance the efficiency and quality of auditing, reduce costs to increase benefit, and strengthen the ability to control audit risk. It will promote the digital transformation of the audit industry.

2 Theoretical Basis

2.1 Concept of RPA

RPA (Robotic Process Automation) is a type of application that takes advantage of and comprehends the enterprise's existing user page [5]. In accordance with pre-established business processing rules and operational behaviors, it is intelligent software that effectively realizes the integration of human, business, and information systems, automates a number of specific workflow tasks, and expands, improves, and simulates the interactive process between users and computer systems. To put it another way, it uses a combination of interconnected technologies, including autonomous systems, machine learning, artificial intelligence, and robotics, to replicate the tasks performed by the current workforce. This is done by using both core applications and specially developed applications to access websites and manipulate spreadsheets, documents, and emails to accomplish both simple and complex tasks. In essence, RPA is the use of software robots to replicate human operations. Simple jobs are typically automated by RPA, while human experts perform complex tasks requiring interpretation [6].

2.2 Concept of Bank Confirmation

Confirmation is an auditing procedure. To obtain information affecting financial statements or the identification items of related disclosure, certified public accountants use the process of confirmation, which involves obtaining and evaluating audit evidence through statements directly from third parties regarding pertinent information and cur-

rent conditions. Bank confirmation is a process of confirmation when the object of confirmation is bank deposits, loans and other important information dealing with financial institutions. Because the audit evidence obtained through the confirmation comes from an external independent third party and is personally obtained by certified public accountants, the audit evidence obtained through the confirmation is of high quality. Therefore, the confirmation is a highly valued and widely used audit procedure. Generally, wherever certification can be used, certified public accountants will consider using it [7].

3 Advantages

Compared with the traditional auditing process, the application of RPA technology has brought many advantages to auditing work. It can replace auditors to complete the part of repetitive and cumbersome process and can even work for the whole day if you want it to, freeing auditors from the above-mentioned tasks to enable them to take on more challenging tasks. At the same time, reducing the costs of human resources and time to improve work efficiency and economic effectiveness. It is not difficult for auditors to install and use it. And auditors can modify the program according to the specific work content because of its low code development. It operates basically in accordance with the set program, greatly ensuring accuracy of audit results and reducing audit risks.

3.1 Cost Reduction and Efficiency Improvement

Compared with the performance of traditional audit tasks, the application of RPA technology has added new productivity to audit work. Its task processing time is shorter, meaning it can handle more tasks in a unit of time, saving a significant amount of time [8]. Take the bank confirmation process as an example. The main task in the bank confirmation process is to obtain information from multiple sources and verify it. The whole process is cumbersome and repetitive, but it is a very important auditing procedure that must be carried out. Using traditional auditing methods, that is, purely manual execution, not only takes a lot of time and effort, but also easily wears down the enthusiasm of auditors, and there is a problem of low efficiency. Auditors can do this more efficiently with the help of RPA technology. At the same time, it frees auditors from tedious and repetitive work to more complex and challenging tasks. It not only boosts auditors' enthusiasm but also boosts their efficiency.

3.2 Accuracy Improvement and Risk Reduction

Since these tasks are now carried out by software, consistency increases, the same way is performed each time, and precision increases. Since human errors are eliminated in the process, errors caused by the fatigue of the operating system over a long period of time can be avoided, and the human operational risk of malicious tampering and data leakage by relevant personnel can also be eliminated.

The RPA audit robot can record every step of the audit business process to prevent human error and provide complete and transparent information for compliance management data to better meet compliance control requirements. At the same time, risk and compliance departments can also use RPA to help them check, thereby reducing

their daily workload and improving regulatory efficiency. It can also make it easy to track by constantly recording work logs and work video data for emergencies.

3.3 Continuous Operation

RPA audit robots are a type of software that can be deployed on a computer. They can be used anytime and anywhere, are not affected by regions, and location does not impact cost-benefit analysis. Once the RPA audit robot goes online, it can maintain the same rules and work steadily around the clock without human intervention [5]. That is to say, as long as the auditor sets up its operation process according to the manual operation process, it will work in accordance with the established process like a human. The bank confirmation process is the most important and labor-intensive process in the entire audit process. During the process, auditors will face the same type of forms and documents for long periods of time, constantly checking, confirming and filling in the information. This is a process that doesn't require much professional judgment, so auditors can easily lose their enthusiasm in the process. Cumbersome, boring and highly repetitive work can be automated by RPA technology and completed with higher efficiency than humans, enabling workers to devote more time to more intricate and innovative work and boosting their enthusiasm.

3.4 Code Development and Scalability

Regarding the applicability of RPA technology in an organization's existing technological structure, this technology highlights two benefits. One is the low technical entry threshold, which does not require a high level of skill in the field to configure RPA robots, nor does it require an advanced technical structure to host such tools. Secondly, it is regarded as a non-intrusive technology since its deployment doesn't necessitate alterations to the organization's current software infrastructure or systems or interruptions to services already provided [8]. RPA audit robot development uses illustrative steps, low-code development, and many simple audit automation processes can be configured by recording and applying without complex programming skills. Auditors with little programming experience can manipulate it and automate complex processes, but keeping the processes running and perfecting them requires design skills [5].

4 Challenges and Countermeasures

The application of RPA technology has brought many benefits to the audit work. However, the research on the in-depth integration between AI and auditing practices is still in its infancy stage [4]. The application of RPA technology in audit work will face many challenges, which are mainly divided into two aspects: social and humanity. Firstly, the issue of society's trust in RPA: whether it is robust and reliable; Is there privacy. Secondly, the issue of the relationship between humans and RPA technology: On the one hand, people are afraid of being replaced by it and have repellent psychology. On the other hand, people are worried about auditors over reliance after adaptation [8-9].

4.1 Robustness and Reliability

RPA audit robots that follow set rules will be unable to identify non-compliant situations and will require manual intervention in the event of anomalous events once the complexity and differences of the current process are overestimated. RPA technology is still in its exploratory stage and is not yet widely used. Additionally, there aren't enough training partners or development peers. From the point of view of technical personnel, it is difficult to achieve a high level of robustness and reliability. The problems in the application of RPA technology need to be fed back through practice. Therefore, the auditors and technologists need to join hands to gradually improve their robustness and reliability in practical applications [9-10].

4.2 Data Privacy and Security

Clients are concerned about providing the auditors with access to vast quantities of their data in fear of privacy [9]. So, clients may be reluctant to provide auditors with all of their data. RPA audit robots may have problems with poor management of personnel authorities and sensitive data in unencrypted systems, which may lead to the company's losses [10]. Auditors are required by law and regulation to ensure the privacy and security of customer data, use it in accordance with professional standards, but do not disclose it to the public. Under the requirements of laws and regulations, auditors need to ensure the privacy and security of clients' data. Professional norms allow them to use it, but they are not allowed to share it [9]. At the same time, it is necessary to emphasize the design of data security and encryption systems to ensure the maximum extent of the privacy and security of clients' data.

4.3 Distrust

People's distrust in new technology is a common problem in the early stage of the application of new technologies. The emergence of RPA, a kind of automated technology, generates people's concerns and anxieties of losing jobs, intensifies the relationship between them, and develops a sense of rejection from people. Therefore, managers need to be concerned about controlling this fear within the company, stressing the value of communication, addressing the historical mistrust in implementing a new system, and accurately defining the roles of all process participants [8].

The reason why auditors do not fit in RPA is inconsistency in data formats across clients [9]. RPA is particularly suitable for processes dealing with high trading volumes and digital format information. For audit clients who are relatively backward with technology or have low trading volumes, auditors using RPA technology for auditing work will increase the operational difficulty. Some audit clients still provide paper documents [9, 11]. Since RPA assumes that there has been prior digitization, its implementation may result in significant organizational changes with regard to the governance paradigm and business model [8]. The management model needs to shift from a traditional to a more sophisticated, potentially digital technical one because failure to adopt RPA will become more likely if this doesn't happen [8].

4.4 Overreliance

There may be instances where auditors rely too much on technology as their expertise with the tool's increases [9]. However, RPA technology often operates within rule-based procedures and finds it difficult to adjust to increasingly dynamic and flexible situations [8]. Therefore, when an auditor's overreliance on RPA technology, errors may occur in audit work due to lack of professional judgment. In terms of the use of RPA technology, firms are required to train the auditors and provide guides or in-app guidance. Make sure auditors understand that even with these tools, they should still exercise professional judgment and skepticism. RPA technology can only serve as auxiliary tools [9].

5 Conclusion

This paper takes the bank confirmation procedure as an example to analyze the advantages and challenges of RPA technology in audit applications. The application of RPA technology can help auditors to efficiently complete highly repetitive, heavy workload, fussy, rule-based work in the confirmation procedure. And it marks abnormal conditions which are convenient for auditors to carry out further audit procedures, reducing audit risks and confirmation costs and improving the efficiency and quality of the confirmation. Although there are some social and human problems in the application of RPA technology in audit work, it still has good application prospects in general. It is hoped that this paper can play a certain reference role for the smooth development of relevant research on the application of Robotic Process Automation in the audit industry.

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