

The Impact of Robotic Process Automation and Artificial Intelligence on Employees in the Accounting Profession

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Abstract

The article discusses data and information based on selected research and definitions drawn from the professional literature related to robotic process automation (RPA) and artificial intelligence (AI) and their impact on employment in the accounting profession. The article incorporates a review of the literature on the given topic. This article serves companies as a basis for further research, deeper processing of the given topic and as a scholarly basis for creating the research component. The issue addressed in the article is presented in the introductory part. The first part of the article deals with the collection of RPA definitions and the benefits of implementing RPA in companies. The next part of the article discusses the relationship between RPA and AI. The third part of the article summarizes the results of research previously conducted. In the selected studies, of primary interest was whether and to what extent the jobs of accountants are threatened by automation and whether AI helps accountants. The following part of the article is devoted to the discussion. Here, individual authors' views on job loss due to RPA and whether human labour is irreplaceable in accounting jobs are presented and discussed. The final part of the article is devoted to the findings.

Key Words

Robotic process automation, artificial intelligence, robot, software, the accounting profession

JEL Classification: C21, R13

Introduction

Terms such as robotics, automation, and AI are associated with Industry 4.0. This industrial revolution refers to the current trend of digitization and the related automation of business processes. Even though automation in production has been going on for a long time, RPA has only recently come to the fore. Industry 4.0 includes advanced technologies and automation tools in businesses.

Thanks to the covid-19 pandemic and the transition of many employees to Home office, the pace of introducing automation technologies has accelerated even more (Pláteník, 2021).

According to Kršková (2020), implementing robotization in companies creates new jobs for other employees, such as managing and controlling robots. If robots are incorporated sensitively and efficiently, their introduction will increase employee productivity, as they can focus on non-routine tasks. After the appropriate introduction of robots, the efficiency of the entire company can subsequently increase.

According to Pláteník (2021), up to 85 million jobs may disappear by 2025 due to automation. On the other hand, 58 million more new jobs will be created due to increased

robot deployment. Companies are already seeking new employees who are specialists in 2 artificial intelligence, machine learning and big data. According to Bartoš (2023), professions whose activities could be largely automated include accountants and other jobs that require working with large amounts of numerical data.

This article aims to conduct a detailed literature review on the impact of robotic proces automation and artificial intelligence on employees in the accounting profession.

The aim of this article is to provide a comprehensive overview of the current state of research on the impact of robotic proces automation and artificial intelligence on the accounting profession. You will want to get a comprehensive view of the key trends, questions and challenges that you will follow accounting professionals in the era of increasing digitization and automation.

The following research questions were formulated for the topic of this article: Are employees in accounting positions concerned about the full replacement of jobs by artificial intelligence? Do employees in the accounting profession perceive artificial intelligence as a threat or an opportunity to eliminate routine (boring) activities? What new jobs can be created as a result of the implementation of automation?

1. Methodology

Most of the resources are published within the last 5 years, taking into account the rapidly developing technologies and trends in the field of automation and artificial intelligence.

Sources come from scholarly articles, books, and articles from experts in the fields of accounting, artificial intelligence, and robotic automation. When selecting literature, priority was given to literature that presents empirical evidence, results of studies or analyzes of real situations.

The literature for this article was selected according to the following procedure:

Identification of Basic Keywords - Based on the topic of this article, the following keywords were identified: Robotic Process Automation, Artificial Intelligence, Robot, Software, Accounting Profession.

Literature search - For the literature search, an online database of scientific articles, libraries and Internet article searches, which are associated with defined keywords, were used.

Selection and evaluation of resources - The resources found were evaluated using the following criteria: relevance, actuality and expertise.

Compilation of the bibliography - After evaluating the found sources, the sources were modified according to the given standard and a bibliography was compiled.

2. What is RPA, and what are its benefits?

BDO (2020), an international company providing accounting, tax and advisory services, stated that RPA could be defined as robotizing processes with AI elements. Lowe et al. (2021) argue that RPA is a business process automation technology that is based on the concept of software robots. According to Mahey (2020), the role of RPA is the automation of human activities on computers. These activities are high-volume, repetitive, and lengthy. Such tasks drain the joy of work from employees. Brooks (2020) explains that RPA enables businesses to engage in activities and projects that are more inspiring than routine tasks. RPA can also help alleviate the stress that is typically associated with complex tasks and can help improve employee productivity and creativity.

According to Mahey (2020), with RPA it is possible to open emails and attachments, log into web/enterprise applications, read and write to databases, copy and paste, fill in forms, move files and folders, follow "if/then" decisions /rules, collect social media statistics, extract structured data from documents, make calculations, connect to system APIs and scrape data from the web.

According to Kršková (2020), RPA represents software robots. These robots appear in digital form as programs, so they are not physical machines. With the help of these software robots, individual actions are simulated on the computer as if they were performed physically by a person. According to Horton (2015), RPA is an option for automating repetitive and often rule-based processes. These processes are usually located in a shared services center or another part of the back office. More robots represent a virtual workforce, i.e., a back-office processing center without human resources. According to Dumitrica (2018), RPA brings companies not only accuracy, speed, and increasing productivity, but also reduces costs and saves the time accountants would have to spend manually transcribing, moving, sending, and collating data between systems.

Naqvi (2020) describes in his book that an RPA bot can be considered a simple agent that works as it is told. Irpaai (2023) specifies that employees in companies can use RPA to set up computer software (robots) to record and interpret existing IT applications to process transactions, manipulate data and communicate with other digital systems.

According to Kršková (2020), the advantages of implementing RPA in companies are that they are more accurate, faster, and can work continuously compared to people. Since repetitive, rule-based activities are best suited for robotics, they can relieve people of the routine activities they must perform on a computer. Employees who are relieved of routine manual tasks will gain time and energy for more demanding and essential work activities. Also, Weis (2020) explains that RPA removes repetitive and manually intensive work, such as manual data entry. It thus gives employees space to focus on more critical activities. Employees are thus more creative and productive.

According to Mahey (2020), RPA is more advantageous than traditional automation because it does not require any modifications in the current IT infrastructure, has lower implementation costs, can make improvements instantly, and eliminate the need to change the current processes in the system.

The advantages and disadvantages of using RPA are shown in the table below (see Table 1).

Tab. 1: Advantages and disadvantages of using RPA

Advantages	Disadvantages
performs routine, repetitive tasks	it is difficult to determine whether the error that occurs is caused by people or the system itself
improves productivity and creativity	requiring regular maintenance, updating and monitoring
it is accurate, fast	requires specialist knowledge
reduces costs and saves time	with complex processes and unstructured data, it can be difficult to achieve effective automation
more advantageous than traditional automation - requires no adjustments in IT	

Source: author's processing

3. The relationship between RPS and AI

According to BDO (2020), RPA incorporates elements of robotics and AI. Robotics is a field concerned with designing and building robots. Robots are machines programmed to perform various activities essentially or entirely autonomously. However, it is always a defined sequence of movements. AI acts as a tool to enable even more outstanding performance optimization as it uses algorithms to develop computer programs to complete tasks. These tasks would otherwise require human intelligence without AI intervention.

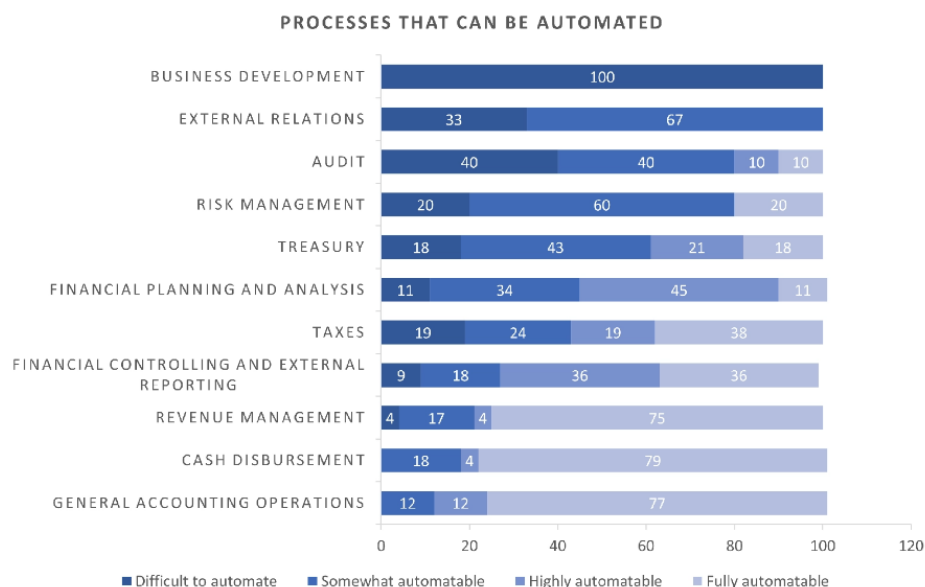
Lawton (2020) mentions in his article that robots are often equipped with AI technology, such as machine learning and optical character recognition that captures text from documents. Thanks to this, robots can help people, for example, with routine tasks. The BDO Company (2020) also claims that robots are not AI and, therefore, robots cannot independently make cognitive decisions.

Furthermore, Horton (2015) states that robots are not artificial intelligence or voice recognition and reply software. He also mentions that Robots are not Walking, talking auto-bots or physically existing machines processing paper. In contrast, robots are computer coded software programs that replace humans performing repetitive rulesbased tasks or cross-functional and cross-application macros.

4. Research Results

In his article, Peccarelli (2016) reports that the Boston Consulting Group predicts that by 2025 up to a quarter of jobs will be replaced by either innovative software or robots. A study from the University of Oxford alone suggests that 35% of existing jobs in the UK will be at risk of automation in the next 20 years. Among the 10% of jobs most likely to be automated are tax advisors, loan officers, credit analysts, and accountants.

Fig. 1: Processes that can be automated



Source: (Dilmegani, 2019)

According to Dilmegani (2021), from the performed analysis (see Fig. 1), it is possible to see that around 42% of financial operations can be fully automated. According to the analysis, the accounting operations can be fully automated by 77%.

According to Weis (2020), several studies show that many people find much of their work boring and repetitive. For this reason, they are not very productive. Furthermore, these people tend to leave their jobs within two years, which, according to Weis (2020), leaves businesses seeking more promising talent. If RPA were to replace human activity in performing routine tasks, these jobs could become more attractive for many people, and the employees in these positions would be more productive.

Oberoi et al. (2021) worked on a study where they identified and validated various determinants of AI systems and investigated their impact on the performance of accounting firms. As part of the study, they created a questionnaire that was administered to 176 accountants working in accounting firms in Delhi-NCR. The study shows that AI helps accountants work better and contributes to the delivery of better accounting work by eliminating errors and fraud. This study is one of the few studies that empirically investigated the impact of AI on the performance of accounting firms.

5. Discussion

Boulton (2021) points out that robots are viewed in two ways: as digital employees that take people's jobs or as tools that make people's jobs easier and relieve them of dull activities. Companies perceive robots as assistants rather than competitors that take their employees' jobs.

Nowadays, there are various programs and applications to simplify and automate many tasks and accounting processes. Bartoš (2023) claims that one of these applications is, for example, ChatGPT from Open AI. Owing to its launch, a fundamental milestone in the

development of new technologies and the development of the labour market has been achieved. Bartoš (2023) mentions in his article that, according to research conducted by the creator of ChatGPT, the OpenAI Company and the University of Pennsylvania, who dealt with the impact of large language models on the labour market, jobs with higher incomes are at a higher risk of being replaced by artificial intelligence. Thus, employees who have graduated from college are more at risk of losing their jobs due to AI than those with primary or secondary education. Therefore, employees in accounting positions are more at risk of job loss. In contrast, Svetlana Sicular of Gartner, Inc. stated that job loss due to RPA affects most people without qualifications and those whose jobs have a high potential for automation (Kelemen, 2018).

According to Dilmegani (2021), it is possible to fully automate accounting operations by 77% based on the performed analysis. On the contrary, the Czech bank ČSOB (2023) published an article on its website claiming that human labour is irreplaceable. The involvement of AI in professions such as accounting does not intend to replace the work of humans fully but rather to simplify it and automate routine tasks performed by employees daily. Thanks to this, employees' work will become more efficient, and the quality of work outputs will be improved. Furthermore, cost savings can also occur.

I personally see robotic automation and artificial intelligence as tools that can increase the efficiency and productivity of accounting processes. It can make routine tasks easier and allow accounting staff to focus on a higher level of analysis and strategic decision-making.

Conclusion

Based on the research conducted, it was found that the purpose of integrating RPA and AI in accounting positions is for RPA and AI to facilitate the work of accountants, not to take it over. This implementation intends to facilitate the work of accountants by eliminating the routine tasks they have had to attend to. Some jobs may be automated, which may lead to cost savings for companies and an improvement in the quality of work output. Furthermore, thanks to this implementation, new jobs can be created, as mentioned (Kršková, 2020).

In my opinion, a lot of accounting tasks can be performed by artificial intelligence. However, this activity will only be in the form of providing assistance to accountants, not replacing their job position. I think that human reasoning is irreplaceable in this profession and there will be a need for humans to control and make the final decisions in the given tasks that will be done by artificial intelligence.

I think that due to the application of artificial intelligence and deeper development, many new jobs will be created, for example: development, management, operation and maintenance of robotic systems. With new technology like RPA and AI, people can educate themselves, deepen their knowledge and create new jobs.

Regarding the content of the various studies, doing more profound research on the issue from the employees' point of view would be useful. It could reveal whether employees in accounting positions perceive AI as an assistance that facilitates their jobs or as competition that threatens them.

The results of studies, articles and research answered selected research questions.

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