THE IMPACT OF INTELLIGENT PROCESS AUTOMATION ON AUDIT AND ON JUNIOR AUDITOR'S SKILLS

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Intelligent Process Automation (IPA) has emerged as a transformative force, building on the foundation laid by earlier robotic process automation (RPA) systems. IPA uses advanced technologies such as artificial intelligence, machine learning and cognitive computing to automate more complex processes that are beyond the capabilities of RPA. Implementing IPA requires detailed strategies and training programs for selected employees who will be responsible for this technology. Nevertheless, this does not fully address the fundamental concerns that are causing possible resistance in the audit industry. The dilemma is whether the integration of IPA into day-to-day audit tasks diminishes the professional value and expertise of junior auditors and newcomers to the field. Automation limits junior auditors' exposure to core auditing tasks, leading to skill and experience gaps in risk assessment, data analysis and analytical insights. This dissatisfaction may lead some junior auditors to leave the profession for roles that offer greater skill development and opportunities for professional growth.

DOI
https://doi.org/10.18690/um.epf.5.2025.15

ISBN
978-961-286-984-7

Keywords:
intelligent process automation,
IPA,
robotic process automation,
RPA,
auditing,
junior auditors,
auditor's skills

JEL:
M42,
M40,
M29

University of Maribor Press

1 Introduction

Robotic process automation (RPA) emerged as a significant assistive tool in the business sphere in 2012, with its potential to automate rules-based processes that were previously performed manually (that is a simple definition of RPA). The RPA was primarily designed to automate repetitive, rule-based tasks such as data extraction, data entry, and transaction processing. RPA aims to improve operational efficiency by reducing manual effort, minimizing human error, and speeding up task completion (Huang & Vasarhelyi, 2019). By mimicking human interactions with digital systems, RPA enabled businesses to streamline workflows, improve accuracy, and reallocate human resources to more strategic, value-added activities (Gotthardt, Koivulaakso, Paksoy, Saramo, Martikainen & Lehner, 2020). However, RPA developments went beyond their original scope, resulting in the birth of Intelligent Process Automation (IPA). IPA uses advanced technologies such as artificial intelligence (AI), machine learning and cognitive computing to automate more complex processes that were previously beyond the capabilities of traditional RPA (Nunes, Leite & Pedrosa, 2020). RPA is a component of IPA and is used for repetitive activities, whereas IPA is utilized for complicated end-to-end workflows. RPA is rules-based, meaning it uses human-set rules to do activities such as email answering. IPA, on the other hand, combines AI technology, enabling it to handle jobs requiring judgment and analysis without human interaction. It can handle errors and constantly learn from data patterns to enhance efficiency. RPA can only process structured data, but IPA can handle unstructured data (Vanner, 2021).

Advances in technology, especially in the area of process automation, have contributed significantly to the evolution of the corporate world. These technological advances have enabled organizations to increase their productivity and efficiency, resulting in increased profitability and competitive advantage (Gotthardt, Koivulaakso, Paksoy, Saramo, Martikainen & Lehner, 2020). Among these advances, IPA has emerged as a transformative force. The innovative services offered by IPA are cognitive data processing, automated decision-making, process orchestration, etc. (Zhang, 2019). Thus, as a successor (IPA) to its predecessor (RPA), IPA is beneficial for companies. Auditors' analyses and reporting procedures are predominantly based on historical data, specifically financial records and transactions from the preceding business year. Given the substantial volume of data that must be processed throughout the audit process, there is a significant delay in

the timeliness of reporting. This lag can impede the ability to identify risks and inefficiencies in a proactive manner (Lombardi, Bloch & Vasarhelyi, 2014). To address these challenges, IPA plays a crucial role by enhancing data processing efficiency, improving accuracy, and enabling real-time analysis. By integrating automation with advanced analytics, IPA facilitates a more responsive and dynamic auditing process, thereby mitigating the limitations associated with traditional methods (Zhang, 2019). That is why sustainable management that focuses on balancing economic growth, environmental responsibility, and social well-being is needed to ensure long-term success. Such sustainable management is offered by artificial intelligence, which is a key part of the IPA toolkit (Mendelsohn, 2024). Organisation's sustainable management practice must provide employees with an answer to the following dilemma: on the one hand, employees are expected to adapt to this technological transition; on the other hand, they may face certain consequences, including potential dismissal. But what if they adapt? Do they risk becoming devalued as workers, which will eventually turn them into becoming a technical surplus in a society where technology increasingly replaces human roles, or will it make them a necessary asset of the organisation because only they can manage that advanced type of technology? Therefore, the research question for this paper is: Will the integration of IPA into day-to-day audit operations diminish the professional value and expertise of junior auditors and newcomers to the field? In our paper, we use an analytical approach as we analyse previous studies by other authors in search of an answer to our research question. We briefly highlight some concepts that are key to understanding the content of the IPA and auditing.

This paper aims to provide a comprehensive overview of IPA in relation to auditing and auditors. It examines the key contributions of IPA. Furthermore, the analysis delves into the potential challenges and constraints that businesses may encounter in implementing IPA. We discuss the issues related to the use of IPA in auditing and its impact on the workforce.

2 A brief literature review

IPA is the use of several technologies to automate larger, end-to-end business processes. It is the extension of simple, rules-based task automation to the management and automation of complete business processes comprised of several tasks. At its foundation, IPA combines RPA, AI, and machine learning to automate

bigger decision-based business processes that previously required an individual to intervene and execute (Kospompoulos, 2021). IPA mimics human behaviours and, with time, learns to do them even better. Advances in deep learning and cognitive technologies have enhanced traditional rule-based automation mechanisms with decision-making capabilities (Berruti, 2017).

One of the biggest reasons why organizations are warming to IPA is its combination of AI and RPA. Additionally, the benefits it offers are far more advanced than either the use of RPA or AI alone. The results of such a unique combination are as follows. (1) By incorporating advanced technologies such as machine learning and AI, IPA can handle more complex and cognitive tasks that RPA cannot. This enables businesses to automate a broader range of processes, resulting in deeper cost reductions across multiple operational areas (Kospompoulos, 2021). (2) By leveraging AI, IPA systems can learn from data, make decisions, and even predict outcomes, reducing errors and inconsistencies in process outputs (Polner, Wright, Schaefer & Thopalli, 2022). (3) IPA enhances efficiency by automating both routine and complex processes, streamlining workflows across various departments (Kospompoulos, 2021). (4) By automating a wider range of tasks, IPA enables employees to focus less on routine, repetitive activities and more on high-value, strategic projects (Polner, Wright, Schaefer & Thopalli, 2022).

The benefits that many different industries have experienced are the following: the automation of 50-70% of tasks translating into 25-35% annual run-rate cost efficiencies; a 50-60% reduction in straight-through process time; and return on investments in the triple-digit percentages (Kospompoulos, 2021).

While IPA offers a range of transformative benefits to the business landscape, these advantages come with their own set of challenges. The following outlines some of the most critical challenges organizations encounter as they strive to harness the full capabilities of IPA (Hardware Secrets, n.d.):

1. Integration with legacy systems. The term "legacy systems" describes outdated technology that businesses continue to use for essential operations. It is difficult and takes careful planning to integrate IPA into existing systems. In order to minimize disruptions and maximize the benefits of automation, particularly for organizations with older

technologies and established processes, IPA tools and existing software must communicate seamlessly.

2. Data security and compliance. Data security is complicated and involves discussions about government regulation, law enforcement's access to data, and what data businesses may gather. Strong security measures are required to guard against any breaches or illegal access.
3. Employee resistance. Presenting IPA employee opposition to automation may stem from concerns about job instability. Companies could address these issues by communicating clearly, implementing training programs, and stressing that technology complements human skills rather than takes their place.

Addressing this type of challenges is complex and requires a nuanced approach. Simply implementing communication strategies or training programs for selected employees does not fully resolve the underlying concerns that drive resistance. Employees often express apprehension and uncertainty due to a fundamental fear that IPA may render their roles redundant. This concern is compounded by a perception that company leadership views IPA primarily as a means to reduce operational costs, potentially through workforce reductions (Szwed, 2023).

3 Auditing workforce

Junior auditors are entry-level employees who are essential to the auditing and accounting industries. They often assist in a variety of auditing tasks in auditing firms while working under the direction of senior auditors. Their efforts are seen to be crucial in order to guarantee that audit procedures are comprehensive and meet the necessary requirements (Chan, n.d.). They are usually in charge of carrying out the preliminary audit procedures, which involve obtaining and assessing financial data, verifying the correctness of documents, and making sure that pertinent pronouncements are being followed. This practical work is essential for spotting anomalies and possible risk areas. They often evaluate financial accounts and do substantial testing as part of their daily tasks. These tasks need a systematic approach to problem-solving and acute attention to detail (AccountingInsights Team, 2024).

According to projections by the U.S. Bureau of Labor Statistics, employment for accountants and auditors is expected to increase by 4% between 2022 and 2032, potentially creating 126,500 job vacancies per year. However, jobs involving repetitive duties, like data entry and bookkeeping, might decline by more than 20% (Thomson Reuters's team, n.d.). On the other hand, a significant challenge currently faced by audit firms is the shortage of skilled professionals, with vacancy rates reaching as high as 58% (Thomson Reuters's team, n.d.). The other challenge faced by audit firms is recruiting new auditors, which is up by 27%. The dynamic regulatory environment requires continuous adaptation and upskilling, placing additional burdens on both aspiring and existing auditors. This complexity further exacerbates the shortage of qualified professionals in the field, making it increasingly difficult for firms to attract and retain new talent (Thomson Reuters's team, n.d.). Another problem for audit firms is also a low 41% employee retention rate. One of the key factors impacting recruitment is the integration of new technologies into existing work systems, accounting for 27% of the challenges firms face when hiring new audit professionals. Adopting advanced digital tools and automation requires auditors to develop new technical skills, further complicating the hiring process by requiring technological skills and limiting the pool of qualified candidates available to meet industry demands (Thomson Reuters's team, n.d.).

AI in auditing is extensively utilized for data extraction and entry, enhancing efficiency in the collection and input of large volumes of information. Additionally, automated reporting has emerged. AI can generate reports with minimal human intervention, thereby improving accuracy and reducing the time required for manual report preparation (Thomson Reuters's team, n.d.). AI also plays a crucial role in identifying anomalies and irregularities, thereby enhancing the accuracy of audits by detecting unusual patterns in financial transactions. Furthermore, AI is widely employed for analytical insights, facilitating data-driven decision-making in audit practices. Predictive analytics enables auditors to forecast trends based on historical data (Thomson Reuters's team, n.d.). The integration of AI in audit functions underscores its potential to enhance efficiency, accuracy, and risk management capabilities (Thomson Reuters's team, n.d.).

4 Discussion

Integrating process automation in audit practices presents both opportunities and concerns regarding the roles of junior auditors and new entrants to the field. While automation offers efficiencies by handling repetitive tasks, such as data entry and simple reconciliations, it shifts the skill requirements for junior auditors, making adaptability and analytical skills essential to their roles (AccountingInsights Team, 2024). This trend encourages junior auditors to focus on high-value tasks, such as critical analysis and strategic insights, rather than routine checks, ultimately enhancing their expertise in complex areas of the field.

One of the major reasons why audit firms are facing a shortage of new junior auditors is the implementation of newer technology. In addition to the many advantages that we mentioned above from IPA as a tool that it offers to companies, we cannot ignore the fact that it also replaces human power and causes additional challenges and risks for companies.

One of the major risks is in change management and consequent workforce implications. Change management itself refers to a new structured approach in the organization that is used in order to change the individual, teams, and entire organization from the state in which they are into the desired future state. Change management itself involves initial planning, implementing the plan, and just following it up to see if it is going in the right direction in order to ensure that the organization is effectively adopted and integrated. All of these changes in the organization have implications for employees, i.e. the workforce (O'Sullivan, Raymeent, O'Shannassy & Boland, 2016).

The implementation of IPA can result in a gradual loss of process knowledge among employees, i.e. forgetting the steps of performing an audit. As automated systems take over repetitive, rule-based tasks, human auditors and financial professionals can become less engaged in the detailed execution of these processes. Over time, this can lead to a decline in their understanding of the underlying workflows, dependencies, and decision-making criteria involved in audit procedures. Furthermore, the implementation of IPA can introduce significant control and security challenges if not managed properly. One of the primary security concerns is

that IPA bots often require privileged access to systems and databases to perform their tasks (Eulerich, Waddoups, Wagener & Wood, (2024).

Given all of the potential advantages that the IPA tool itself offers as well as the difficulties that audit firms already have when putting IPA into practice, it is clear that the instrument presents difficulties for both novices and junior auditors. There is a clear danger that it may limit entry-level professionals' access to practical training. Junior auditors have historically developed their skills through manual procedures that call for critical thinking, problem-solving, and a thorough comprehension of financial data. Since IPA manages a large portion of the everyday work, new auditors would not have as many opportunities to hone their core competencies, which might impair their capacity to evaluate intricate transactions, spot anomalies, and utilize professional judgment. This may eventually hinder their ability to advance in their profession as they do not have the breadth of knowledge required to take on more complex auditing duties. However, IPA also provides chances to improve some skills, like junior auditors may concentrate on more analytical, strategic, and value-added responsibilities, including analyzing data trends. Organizations must take a balanced stance to guarantee that IPA integration does not reduce junior auditors' professional worth. Automation initiatives should be supported by mentorship, structured training programs, and active participation in challenging audit tasks.

Based on our brief analysis, we, therefore, believe that the implementation of IPA or any other advanced technologies gradually jeopardizes the auditing industry, particularly by slowly contributing to the development of a workforce with a limited skillset in basic auditing tasks that are usually repetitive but enable junior auditors' growth in skills and experience. The use of IPA in auditing (i.e. in day-to-day operations) is encouraged, but junior auditors must acquire basic knowledge, skills, and experience in auditing. Sole reliance on IPA in auditing is questionable and should be further elaborated.

5 Conclusion

Overall, automation is reshaping the learning landscape for junior auditors by limiting their exposure to core tasks and hands-on practice. As a result, junior auditors may experience skill gaps in data management, risk assessment, and analytical insights—areas critical to their advancement in the field. We are of the

opinion that the value of future auditors is gradually diminishing due to the increased use of technology in auditing (i.e. IPA). Their lack of practical knowledge and reduced practical experience can contribute to dissatisfaction, leading some junior auditors to leave the profession in search of roles that provide greater opportunities for skill development and professional growth.

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