

AUTOMATA AND CYBORGS: TRENDING TRAILBLAZERS IN DIGITAL BANKING

Mr. Madhukar Nayat*

ABSTRACT

In the modern tech world, business organisations are chasing technology to achieve their goals by dint of rendering goods and services efficiently and effectively. However, not all the functions of business organisations have embraced and endorsed the usage of technology. As an instance, accounting and auditing functions are paper-based in most organisations. Such functions require laborious human efforts, time, energy and cost because they involve repetitive pen-pushing, making it impossible to obtain an apt and fair degree of accuracy and precision in the output. Moreover, conventional methods of accounting and auditing continue to face a variety of problems and challenges such as time-consuming work (paper-based), difficulty in maintaining the books of accounts, checklist method of verification of business and financial transactions etc. The accounting and auditing functions are the prime leading areas for implementing Robotic Process Automation (RPA). In addition to other technologies, RPA is an essential engine for the digitalisation of accounting. The potential to automate accounting processes with RPA is towering, and robots are prophesied to replace accountants for a significant portion of their duties. This core driver could entail the elimination of entry-level accounting positions and, contemporaneously, the creation of new accounting job roles and functions. The future responsibilities of accountants will outstretch and outstrip bookkeeping and financial reporting to provide business advisory services and levelly lead the RPA transformation.

Keywords: RPA, Digitalisation of Accounting, Automate Accounting Process, Transformation.

Introduction

In today's transforming world, Digitalisation makes the use of technology more fruitful. The idea of the 4th Industrial Revolution is under constant scrutiny and discussion. It prepares a platform where businesses can be fully digitalised, make use of Robotics and use Artificial Intelligence in accounting and auditing. Audit firms have to assimilate Artificial learning for providing measures of risk aversion and cost savings to their clients. This new evolution can be called AI facilitated audit. This has changed the style of accounting from paperwork into a computerised format. To put forward simply, AI has made the processing of mammoth size data more accessible and faster. It definitely beats human capacity in this case. It reduces efforts made in accounting works like the review of journal entries, readings of contracts, making legality of financial accounts in a given manner. It also provides a mechanism for comprehending ledgers; recognise wrong statements and any risk related reports. The 'Association of Chartered Certified Accountants' shows how machine learning techniques have challenged the progress report of deskilling of accountant operations.

Motive of the Study

To study the importance of artificial learning in accounting and auditing areas and measure the degree of forthcoming regarding artificial intelligence in accounting.

Therefore, the paper is intended to interpret and analyse the application of robotics in the auditing and accounting of business and financial information.

* Student, St Xavier's College, Jaipur, Rajasthan, India.

Digitalization of Technology in the Field of Accounting

Accounting is going through vast digital transformations in many organisations today, and Robotic Process Automation (RPA) is at the heart of those efforts. Along with other digitalisation tools at

accountants' disposal, such as tools for data - extraction, transformation, and loading (ETL), and data analytics and visualisation, RPA is viewed as a foundation for future use of more advanced cognitive computing. *While the concept of traditional or classical RPA has been around for a longer time now, especially the usage of concepts, methods and techniques from the field of artificial intelligence (AI) take the possibilities of RPA to a higher level and enable so-called cognitive RPA applications and, based on this, so-called cognitive services.*¹ Application of technologies like Intelligent Process Automation (IPA), have expanded the use of digital technologies from the field of artificial intelligence. As a result, *IPA mimics activities carried out by humans and, over time, learns to do them even better.*² RPA combined with an intelligent OCR engine³ to scan, read and learn to correctly interpret data from invoice documents for generating an automated booking is one such example.

Concerning the adoption of RPA, a survey of the top 25 global RPA service providers revealed that: *finance and accounting were the leading areas of RPA implementation, constituting 36 per cent of all RPA use cases.*⁴ Furthermore, a recent PwC study reported that *within accounting areas, processes most suitable for RPA are those in accounts receivable (72%), accounts payable (51%), and monthly closing (28%).*⁵

RPA and the Nature of Accounting Processes

Generally, companies consider RPA to be best suited for automating processes that are repetitive, mature, rule-based, have high volume, and operate in digital form with multiple systems. Therefore, in order to analyse the applicability of RPA for accounting processes, we must examine the nature of accounting tasks. While there are many structured frameworks to characterise tasks,

*Perrow's framework*⁶ characterises tasks by their degree of routineness, which reflects the task's uncertainty. Brownell and Dunk constitute that [...] *the underpinnings of virtually all conceptualisations of task uncertainty in the literature relate to the work of Perrow.*⁷ Perrow's framework has been widely adopted in the academic literature like - Brownell and Dunk 1991; Fry and Slocum 1984; Sicotte and Langley 2000; Ylinen and Gullkvist 2011; Williams and Seaman 2002.

According to Perrow (1970), tasks can be described as 'non-routine', when established techniques for handling tasks do not exist, or when substantial variety or novelty in the tasks is encountered (high number of exceptions). Conversely, when tasks are analysable with few exceptions, they are described as 'routine'. Some examples of specific accounting tasks that organisations have widely used to automate processes in the following financial accounting areas are as:

Order-to-Cash

- **Customer Master File:** new customer record creation, customer data maintenance, customer credit limit approval, loan and bank account applications.
- **Invoicing:** customer order entry, invoice preparation, invoice exception handling, and re-invoicing.
- **Cash Receipts:** identification of duplicate payments and cash application.
- **Resolution Process:** customer follow up, issue identification and support, and client communication.

Procure-to-pay

- **Vendor Master file Information:** vendor creation.
- **Purchase Order Activity:** purchase order creation and modification and open purchase order management.
- **Invoice Processing:** incomplete invoice information identification, audit and review of travel invoices, preparation of procure-to-pay reports, unpaid invoice issue resolution.
- **Cash Disbursements:** payment processing and requesting payment date for invoices.

Record-to-Report

- **Journal Entries:** data entry and account classification, journal entry preparation and entry.
- **Reconciliation and Analysis:** extraction of account activity from a bank website, uploading and validation of bank statement activity.
- **Account Analysis:** accruals creation, calculation of warranties, commissions, and rebates.
- **Closing Process:** export and data consolidation, reconciliation process.

In these automations, RPA was most often used to open, read, and create emails, log in to enterprise apps, copy/paste and fill in forms, read or write into the database, follow decision rules, extract data from documents, and obtain human input via emails/workflow. RPA functionality such as moving files and folders, collecting statistics, making calculations, and pulling data from the internet were used less frequently. Transferring this line of argumentation to the applicability of RPA for accounting, financial accounting, in general, seems to be more suitable for RPA than management accounting processes. Indeed, empirical studies and publicly available reports of companies like *Merck*⁸, *Daimler*⁹, *KION Group* or *ProSieben Media*¹⁰ indicate that the introduction of RPA in the accounting field is mainly driven by financial accounting processes.

RPA as an Engine for New Roles in Accounting

Advances in information technology often serve as a driver for reducing the traditional role of accountants, which have been transaction processing and financial report preparation while supporting a shift towards the role of a business partner. By the partial or complete taking over of accounting processes, RPA is a technology with a direct and indirect effect on the tasks and competencies – and therefore on the role – of the accountants. In order to understand the impact coming from RPA better, we first take a look at the traditional or conventional role of accounting. Traditionally, accounting has been fulfilling a variety of different roles in a company. Usually, an accountant is responsible for a series of defined tasks for which certain competencies are needed. Both financial and management accountants have traditionally played the key role of a scorekeeper and information provider for decision-makers and stakeholders. In this role, both financial and management accountants execute standard (transactional) activities – financial accountants, for example, perform invoice processing and bookkeeping, wherein, management accountants, for example, undertake cost allocations & performance measurement and generate the resulting information (e.g., accounting statements and management reports).

However, the performance of transactional activities and the simple provision of numbers and standard reports generate only limited added value in many companies today. *Due to the ongoing adoption of ERP systems and Business Intelligence systems which began more than two decades ago, transactional activities have been continuously automated, and decision-makers either automatically receive current financial performance information from a system or can create such reports via self-service at any time.*¹¹ For this reason, accountants are expected to switch their focus towards enriched tasks such as those focused on being business partners, acting as a proactive source of ideas and as consultants. As a business partner, for example, financial and management accountants should actively advise on balance sheet policy and tax optimisation, independently keep an eye on achieving the objectives while monitoring and coordinating countermeasures that have been initiated.

RPA – Related Changes in Accountants' Roles

The increasing spread of digitalised technologies such as: big data, analytics, and RPA, change the skills, tasks and competencies of financial and management accounting professionals. RPA, as an automation technology, aims at efficiency gains by carrying out transactional activities with standardised and repetitive patterns. Consequently, the traditional role of the accountant as information provider and scorekeeper performing mainly transactional tasks will probably be largely or in fact completely substituted in the future by robots. Meanwhile, the importance of the accountant's role as a business partner will increase. Supporting this view, El-Sayed and Youssef conclude their literature review stating that: *the change of [...] the role of accountants from a traditional bookkeeper to more of a business partner... is likely to occur in the near future.*¹²

Lawson similarly notes that: *the new role of finance and accounting professionals will include [...] providing business insight and serving as strategically oriented business partners.*¹³ Moreover, to serve as business partners, accountants will need a robust understanding of the business model, analytical and communicative strength, as well as a problem-solving-oriented and critical mindset, paired with coordination skills. However, in corporate world practice, research also shows that accountants still focus on traditional tasks today. Pietrzak and Wnuk-Pel conclude their research study on management accountants by stating that: *accountants [...] still focus on traditional areas of costing and financial analysis, like performance measurement, operational budgeting and cost control.*¹⁴

Culminating the Research Objectives

RPA is leading the digital transformation of accounting in many organisations today. Looking upon the nature of accounting processes, especially financial accounting processes with their routine nature such as accounts payable, accounts receivable or monthly closing, are aptly suitable for RPA.

Within management accounting, especially the core processes, cost-accounting and management reporting are highly suitable for the use of RPA. As a result, the role and competencies of the accountants will shift from the conventional role as information provider towards the direction of more digital and communicative roles such as the business partner or new digitalisation roles like the pathfinder or automation design expert. In the forthcoming years, the ongoing expansion of RPA towards IPA with other digitalisation technologies out of the field of artificial intelligence such as natural language processing (NLP), sentiment analysis, or machine learning algorithms will make robots more intelligent and suitable for more complex tasks. IPA has the power to grasp even more process activities in accounting and therefore speed up the shift of roles and competencies outlined above. Although there is a body of literature, individual reports from corporates and the first empirical studies on the use of RPA within accounting, further research is required in a number of fields.

First, while there are a number of conceptual papers and studies on the suitability of RPA in public accounting and auditing, only very few empirical studies have looked at the implementation of RPA in financial accounting, tax or even management accounting at all. Hence, empirical research on the suitability of RPA for management accounting processes provides a research opportunity. Second, further empirical research could explore the ways in which RPA is changing the role of accountants and their skills and competencies. Finally, future research could look at the long-term effects of RPA on the accounting function itself. The shift of processes towards RPA in an organisation might change the entire organisational set-up including accounting departments. Hence, today's responsibilities and resources of departments in the corporate landscape might fundamentally change with a broad introduction of RPA.

References

1. Berruti, A., G. Nixon, G. Taglioni and R. Whiteman 2017. Intelligent process automation: The engine at the core of the next-generation operating model. Digital McKinsey, March 14.
2. Houy, C., M. Hamberg and P. Fettke. 2019. Robotic Process Automation in Public Administration. In: (M. Räckers, S.)
3. Anagnoste, S. 2018. Robotic Automation Process – The operating system for the digital enterprise. Proceedings of the International Conference on Business Excellence 12 (1): 54–69.
4. Forrester. 2019. The RPA services market will grow to reach \$12 billion by 2023. July 10.
5. PwC. 2020. Robotic Process Automation (RPA) in der DACH-Region. Analyse mit Blick auf finance & accounting. Available at: <https://www.pwc.de/de/rechnungslegung/robotic-process-automation-rpa-in-der-dach-region.pdf>
6. Perrow, C. 1970. Organizational analysis – A sociological view. Brooks/Cole: Belmont, USA.
7. Brownell, P. and A.S. Dunk. 1991. Task uncertainty and its interaction with budgetary participation and budget emphasis: Some methodological issues and empirical investigation. Accounting, Organizations and Society 16 (8): 693–703.
8. Pellegrino, M. and P. Mega 2020. Robotics Process Automation @ Merck. ReThinking Finance (3): 33–42.
9. PwC. 2018. Digitalisierung im Finanz- und Rechnungswesen und was sie für die Abschlussprüfung bedeutet. Available at: <https://www.pwc.de/de/im-fokus/digitale-abschlusspruefung/pwc-digitale-abschlusspruefung-2018.pdf>
10. Beisswenger, A., A. Schlott, G. von Hirschhausen, T. Küster, K. Hamann and C. Leser. 2020. Robotic Process Automation im Accounting – Beispiele von ProSiebenSat.1, KION und PwC. ReThinking Finance (3): 17–26.
11. Sánchez-Rodríguez, C. and G. Spraakman. 2012. ERP systems and management accounting: a multiple case study. Qualitative Research in Accounting & Management 9 (4): 398–414.
12. El-Sayed, H. and M.A.E.-A. Youssef. 2015. "Modes of mediation" for conceptualizing how different roles for accountants are made present. Qualitative Research in Accounting & Management 12 (3): 202–229.
13. Lawson, R. 2019. New competencies for management accountants. The CPA Journal 89 (9): 18–21.
14. Pietrzak, Ż. and T. Wnuk-Pel. 2015. The roles and qualities of management accountants in organizations – evidence from the field. Procedia-Social and Behavioral Sciences. Presented at the 20th International Scientific Conference Economics and Management – 2015 (ICEM-2015): 281–285.

