



Bachelor Degree Program in Business Administration

Course of Managerial Accounting, Planning & Control

The Role of Digitalization for the Finance and Control Function

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1. INTRODUCTION

In an era marked by continuous technological advancements, accounting practice evolution has become inevitable.

It was essential to understand how newer digital tools advances are shaping the accounting role in organizations, particularly efficiency, transparency and strategic impact, that made the decision to craft this thesis on digitalization necessary.

The general hypothesis guiding this study is that emerging digital instruments do not simply expand existing accounting functions but transform them at a strategic and organizational level. To explore these dynamics, the research adopts a dual-method strategy that combines theoretical and empirical approaches: in the first part it is conducted a literature-based analysis on the main aspects of digital accounting technologies such as the background, trends, impact on firms, ... while in the second half it is examined through quantitative and qualitative data, an empirical case study of a multinational company, in order to incorporate the evaluation of IT professionals.

Ultimately, this study offers greater understanding on how digital technologies are changing the accounting profession and actionable insights into how organizations can manage this ongoing transformation.

1.1 Background of Digital Accounting

According to the Cambridge Dictionary, “Accounting” is the skill or activity of keeping records of the money a person or organization earns and spends.

Historically, this economic field has been characterized by a low degree of digital innovation: this viewpoint emphasizes how technology in the mid-20th century had a crucial role in determining the development of Digital Accounting (DA), that relies on Accounting Information Systems (AIS) - computerized systems that collect, transfer, manage and store financial data in an electronic format through the integration of advanced technologies.

This shift became fundamental for procedures that are repetitive and time-consuming like accounts payable/receivable, monthly/quarterly close process, document signing, ...to enhance the accuracy, efficiency and transparency. (*Oana, 2025*)

To understand the relevance of today's technologies, firstly it is important to observe how Digital Accounting changed through the years.

Following it is provided an anticipation showing the evolutionary steps:

Table 1: The progress of Digital Accounting

ERA	TECHNOLOGICAL DEVELOPMENT	IMPACT ON ACCOUNTING
1950s	IBM model 650	Transition from Mechanical to Electronic Data Processing
1960s - 1970s	2nd, 3rd and 4th generation of mainframe computers	Automated ledger entries, payroll processing
1980s	Personal computers	Spreadsheet-based accounting (ex. VisiCalc)
1990s	ERP Systems (SAP and Oracle)	Integrated financial management
2000s	Cloud computing	Remote access to financial data, real-time updates
2010s - Present	AI, Blockchain, RPA, ...	Predictive analytics, fraud detection, smart contracts

The computerization of accounting started in the 50s because of prior advancements in computing technology, in fact the first generation of commercially available computers was released in this period and the most widely used was the IBM Model 650 (1954). It symbolizes a significant turning point in the history of business since it was the first computer to be mass-produced and to make a profit as it soon gained popularity (with nearly 2,000 units installed globally). Internal reorganization at IBM was the driving force behind its development.

By creating a specialized product planning department in 1952, Thomas J. Watson Jr. (firm's president) streamlined the company's transition from punched card technology to digital computing and redesigned its innovation approach. Under the direction of engineer Frank E. Hamilton, who had previously worked on prior IBM calculator projects, the 650 was developed with assistance and increased resources in response to pressure from the competition. Up to 20,000 digits could be stored in the machine's magnetic drum memory, which was eventually increased to 40,000. The drum was rotated at 12,500 rpm to retrieve the data, with an average access time of 2.4 milliseconds: this continuous processing enabled real-time choices like credit

approvals and inventory updates, which significantly enhanced customer service and business operations.

Subsequently, between the 60s and 70s there was the development of new generations of computers. Transistor technology, which was introduced in the second generation of computers, greatly increased the speed and efficiency of electronic data processing (EDP) in comparison to previous mechanical and punched card systems. These computers were first used by accounting departments, mostly for cost-cutting tasks like payroll, accounts receivable/payable and billing. During this period, early computer systems concentrated on automating accounting processes, carrying on the tradition of mechanized systems with increased speed and precision.

With IBM's System/360 (1964), the third generation got underway, signalling a significant shift in technology. The introduction of minicomputers, computer terminals and disk storage during this period made it possible to integrate computer applications more widely across company operations. The database management system (DBMS) was a crucial invention that supported both quantitative and qualitative data management by allowing data to be maintained separately from applications. Journal entries and ledger posts were much more efficient as accounting systems progressed from transaction processing to integrated applications that could capture and update records in real-time. Third-generation systems made it possible to automate processes in areas other than accounting, including marketing, production and human resources. In the 1960s, the idea of Management Information Systems (MIS) also surfaced, with the goal of using a federation of subsystems to assist managerial decision-making. Initial MIS projects represented a paradigm change from simple data processing to strategic information management, despite cost overruns and unsatisfactory outcomes. Additionally, this changed the job of IT staff members from technicians to managers of information systems.

The advent of the microcomputer and the usage of large-scale integrated circuits characterized the fourth generation, which began in the early 1970s. Microcomputers, which began as hobbyist kits, quickly evolved into reasonably priced devices with mainframe-like capabilities that were managed directly by end users as opposed to a centralized IT team. Users were able to take control of data processing and application creation because of the democratization of computers. Local Area Networks (LANs), which were powered by microcomputers, enabled decentralized computers to connect to centralized databases and exchange information and resources. This made it possible for centralized data storage using DBMS to coexist with

decentralized data processing. Users could thus engage with company systems in a more flexible and direct manner.

The term "spreadsheet" had acquired a specific connotation in the accounting community by the 1970s. Spreadsheet paper, which is big sheets of paper ruled into grids, was used by accountants to manually record and evaluate financial data but, with the release of IBM PC in August 1981 was established the first standard personal computer platform. Over time, several widely used spreadsheets resulted from this standardization.

Dan Bricklin (a Harvard MBA student at the time), who co-worked with Bob Frankston, motivated to design a simpler solution was credited with creating the contemporary computerized spreadsheet VisiCalc - visible calculator. As the first "killer app" that fuelled the use of personal computers in commercial settings, not only transformed financial modelling by enabling "what-if" analysis - a method of testing various scenarios by altering spreadsheet values and immediately observing how those changes impact the outcomes - but also played a crucial part in the personal computer boom.

Despite the brief domination and the lower price (\$249 VS \$495) of VisiCalc, Lotus 1-2-3 swiftly surpassed it due to several benefits like combined database and graphic features, three times faster than VisiCalc in terms of performance and a better user interface. The moniker "1-2-3" comes from Lotus 1-2-3's integration of three essential elements into a single program: spreadsheet functions, graphing/charting tools and basic database capabilities. Compared to its predecessor, it was more user-friendly, adaptable and faster, for this reason it remained the industry leader until the early 1990s when, due to the rise of the Windows operating system, it was eventually overtaken by Microsoft Excel. The latter, which was made to facilitate the changeover by supporting Lotus file formats and providing Lotus users with discounts, jumped at the chance and quickly took control. It is interesting to note that although Excel had been around since 1987, it did not really take off until Windows became the dominant platform. This emphasizes how crucial platform changes are to changing the market power of software. (*Kee, 1993*)

In the 90s organizations were under growing pressure to improve departmental information management. Enterprise Resource Planning (ERP) systems - platforms that integrate accounting, finance, human resources, procurement, inventory and manufacturing into a single, cohesive system - became a ground-breaking answer to this problem. These technologies greatly increased data reliability, precision and efficiency from a financial standpoint. General ledger entries, billing, payroll and accounts reconciliation were among the manual processes

that were automated and standardized. ERP systems also made it possible to generate performance analytics and financial reports in real time, which improved internal control and strategic decision-making.

Among the most significant solutions were SAP R/3 and Oracle Applications, which were essential in helping businesses integrate their operational and financial operations.

In particular, SAP R/3 was introduced in 1992, and its client-server architecture and real-time data processing capabilities completely changed the ERP market. *(Iteanz Technologies, 2024)*

Among its salient characteristics were: 1. Modular Design: created with a number of modules that could be used separately or in tandem to enable enterprises to customize the system to meet their unique requirements; 2. Real-Time Processing: allowed for real-time data processing, giving decision-makers access to the most recent information; 3. Integration: made it easy to integrate various corporate operations, guaranteeing data consistency and boosting overall operational effectiveness.

On the other hand, Oracle, by creating and distributing the “Oracle Applications Suite” (also called the Oracle E-Business Suite), considerably increased its market share in the ERP space in the 1990s. It was particularly useful thanks to: 1. ERP Driven by Databases: its database technology was its main advantage over SAP. Oracle enhanced data processing, reporting and business intelligence capabilities by integrating its robust relational database with ERP systems. Better audit trails, compliance and data integrity were made possible by this, which revolutionized accounting; 2. Compliance and Financial Management: with sophisticated modules like General Ledger, Fixed Assets, Cash Management and Financial Consolidation, Oracle Applications were especially preferred for financial processes. For big businesses that needed strong internal controls and regulatory compliance, these qualities were crucial; 3. E-commerce and Web Capabilities: Oracle had started adding web-based features to its ERP systems by the late 1990s, predicting the growth of e-commerce and digital business. As a result, financial processes became more dynamic, advancing the goal of digital accounting. *(Campbell-Kelly et al., 2004)*

Cloud Computing, which was first mentioned in 2007, has quickly become a game-changer in both the academic and professional spheres. This technology is frequently referred to as the "fifth utility" along with gas, electricity, water and telephone, and makes computing resources widely accessible, creating a plethora of options for new services and business models. By offering scalable, on-demand access to digital infrastructure, the cloud has the potential to completely transform how businesses function, much like the ubiquitous availability of

electricity transformed the manufacturing sector. The function of cloud computing in business process outsourcing (BPO), specifically in the field of expert business-to-business (B2B) services like accounting, human resources and legal services, is one of the newest fields of study. In this regard, it allows for service providers and client businesses to share a digital environment. In contrast to traditional outsourcing arrangements, when tasks are carried out within the provider's internal systems and the client has no insight into the ongoing processes, this open space improves real-time collaboration, data transparency and process auditability. For small and medium-sized businesses - SMEs - this change is extremely pertinent, notably in the accounting industry. One of the business operations that SMEs outsource the most is accounting, which provides a rich backdrop for researching the implications of cloud computing. Furthermore, the increasing use of cloud-based Accounting Information Systems (AIS) has opened useful avenues for data collection and study. These types of firms can take advantage of enhanced decision-making skills, collaborative processes and centralized data management using these technologies. *(Prasetianingrum & Sonjaya, 2024)*

1.2 Problem statement

Even while digital accounting has advanced significantly over the years, every new technology development has brought with it both great prospects and formidable obstacles.

The shift from mechanical to digital computing was highlighted by the launch of the IBM Model 650, a revolutionary device of the 1950s; however, its exorbitant cost, complicated maintenance and limited functionality meant that it was available to very few people.

The introduction of management information systems (MIS) and database management systems (DBMS) during the 1960s and 1970s improved data processing capability but created issues like system fragmentation, failed implementations and lack of ease-of-use interfaces. In the 1980s, spreadsheet packages such as VisiCalc and Lotus 1-2-3 gave end users direct access to accounting activities; however, they were not integrated so subject to human error and had a minimal level of automation. ERP offerings like SAP R/3 and Oracle Applications offered total solutions during the 1990s but were risky in their implementation, extremely costly and demanded technical know-how. Though the sector has evolved due to cloud computing, data security, privacy, standards and adoption variances continue to persist.

The past and current challenges mirror an age-old trend: operational complexity and implementation constraints tend to bump up against innovative potential. Accordingly, an examination of the latest advances in digital accounting technology is necessary, not just to

discover their potential but also to ascertain whether they merely enhance or ultimately resolve earlier issues.

1.3 Objectives of the study

The general aim of this study is to analyse the development and the contemporary influence of digital technologies on accounting, focusing specifically on the latest advancements and their general implications on business processes. In detail, the research seeks to explore the subsequent points that are going to be deepened:

- How the latest digital technologies - namely Artificial Intelligence (AI), Robotic Process Automation (RPA), Blockchain, Cloud Computing, Big Data Analytics and ERP Systems- are currently shaping accounting functions such as data processing, financial reporting, fraud detection, compliance and real-time analysis;
- Examination and evaluation of recent trends in the adoption and diffusion of digital accounting technologies. This task entails the critical review of usage adoption rates for each emerging technology, and ascertaining trends;
- Benefits and challenges associated with adopting these tools, including improved accuracy, cost and time reduction, data security, but also concerns like implementation complexity, user resistance, regulatory uncertainty and cybersecurity risks;
- Analysis of the use and implementation of these technologies employing existing theory models. These include the Technology Acceptance Model (TAM), where the focus is on the impact of perceived ease of use and usefulness on user acceptance. (*Wienand, 2024*)

Besides, the findings also consider the role played by the regulatory system, such as the General Data Protection Regulation (GDPR), in shaping the way firms adopt and implement digital technologies and ensure legal compliance and data protection;

- The influence of these technologies on organizational performance and decision-making, particularly in terms of transparency, operational efficiency and strategic planning.

Accounting is transforming into an interactive, data-driven instrument for strategic choice rather than a secondary utility function as companies strive to survive in the digital age.

The results are crucial in highlighting to what extent digital accounting has advanced and how far it still must reach. With today's comprehension, the research proves to be of use to researchers, accountants, computer specialists and decision-makers interested in understanding

or optimizing digital integration in finance sections. In addition, inclusion of a descriptive case study, a questionnaire to part of Oniverse personnel, delivers its value by illustrating how such technologies work and influence real environments.

2. LITERATURE REVIEW

The landscape of digital accounting has been revolutionized in recent times with the emergence of a new wave of disruptive technologies, which bring with them distinct capabilities beyond conventional data processing. Along with improving core accounting obligations, the software is bringing forth new heights of transparency, collaboration and strategic vision. People must make themselves aware of the role and implications of these technologies as businesses become more data-centric and networked. In-depth explanations of the features, applications, advantages and drawbacks, trends and regulations of these new technologies in digital accounting will be discussed in the following sections.

2.1 Emerging technologies in accounting

- **Artificial Intelligence (AI)**

The increasing application of Artificial Intelligence (AI) in business processes, particularly in monitoring and the management of staff activities, is a significant shift in the evolving economic landscape. This technology is profoundly impacting control systems and management accounting, revolutionizing data processing, decision-making and activity execution.

AI enables traditional information systems to analyse and become smart systems - systems characterized by the ability to learn from data and improve autonomously over time without explicit human intervention, primarily through Machine Learning (ML) techniques.

Compared to static conventional information systems, AI-driven systems are enabled to possess abilities above those of traditional ones by such qualities as learning, reasoning and decision-making, making them able to act in a manner that copies human cognitive abilities. Therefore, they are much more sophisticated and capable than accounting information systems have been at any point in the past.

Over the next decade, it is forecasted that AI-based technology is going to revolutionize accounting professional jobs: routine and repetitive tasks like data input, reconciliations, assets and liabilities valuations, and output of financial reports are more and more expected to be automated. But while AI will assume these operational responsibilities, it will unlikely eliminate the requirement for human involvement entirely: certain accounting procedures, particularly those with ethical judgment, close analysis and strategic decision-making, will nonetheless involve know-how that can only be provided by humans.

AI is as much a decision-support tool as an automation tool. By applying advanced data analytics, predictive functionality and pattern detection, this technology can give strategic suggestions based on thorough analysis of huge datasets. Although forecasting AI systems are now still in their infancy and yet to receive extensive adoption, the ability of AI systems to enhance the accuracy of forecasting and facilitate strategic planning is accepted all over the professional and academic community. (*Bichachi, 2025*)

Nevertheless, the current boundaries of AI - namely that it cannot exactly replicate human judgment and react to uncertain or highly complex situations - underscore the ongoing necessity for human oversight.

The transition to AI-enabled accounting careers will require profound upskilling. Accountants will have to gain advanced technical capabilities, including proficiency in digital technologies, data analysis and AI systems management. At the same time, human oversight remains critical, including in the initial installation of AI systems and continuous learning. Effective implementation of Artificial Intelligence in accounting relies on scrupulous training protocols and continued human collaboration to ensure that AI technology supports organizational goals and regulatory requirements.

Finally, the future of accounting is to be envisioned as a collaborative coexistence of human beings and AI machines: the former will contribute precious contextual knowledge, ethical sense and strategic vision, while the latter will provide efficiency, scalability and continuous learning. This coevolutionary process will reconfigure the nature of accounting work, transforming accountants into strategic advisors and innovation drivers within firms. (*Tiron-Tudor et al., 2022*)

- Robotic Process Automation (RPA)

Robot Process Automation evolved as a game-changing technology in accounting, revolutionizing traditional methods and representing a turning point for digital accounting procedures. With the increasing urge among organizations to digitize and optimize financial processes, the implementation of RPA - particularly in the financial services sector - is now a high-profile area of academic study and practical usage.

The primary function of RPA is to automate repetitive, high-volume and rule-based activities that are typically labour-intensive and time-consuming. Rather than positioning itself as a replacement for human labour, RPA aims to augment human effort, freeing accounting professionals from routine operations and enabling them to focus on more valuable, strategic work. This perspective is shared by Watai (2021), who argues that RPA aims to elevate human

workers to jobs requiring greater analytical and decision-making skills, thereby enhancing overall labour productivity. Hazar and Toplu (2023) also foresee RPA as a "digital employee" - an affordable and very productive resource that can carry out repetitive work with consistency and precision, allowing businesses to keep up with increasing workloads without the same increases in human resources.

Significantly, the effect of RPA extends beyond task automation to a redefinition of the nature and form of accounting work. It is not only automating human contribution in transactional activities but simultaneously creating new opportunities in fields such as data analysis, business advisory services and strategic management. Consequently, the skill sets required of accounting professionals are evolving. The next generation of accountants are not just expected to possess traditional accounting knowledge but also demonstrate expertise in technology tools, process improvement and e-strategy.

The successful deployment and success of RPA are dependent upon a range of interrelated factors, these include the technical suitability of RPA systems with the intended accounting processes, professionals' readiness and inclination to shift towards redefined job tasks, and overall economic and organizational contexts that affect implementation strategies. Organizations are therefore required to consider technical as well as human factors while embracing RPA to fully achieve its potential.

Finally, RPA possesses tremendous potential to transform the career of accounting by enhancing efficiency, accuracy, and redefining professional work and career paths. Its continuous evolution and growing capabilities call for further academic research, particularly on its future impact on job design, ethics and strategic management in accounting.

To tap the maximum potential of RPA, organizations will need to invest in technology infrastructure, change management initiatives and constant skill development programs. This will allow for optimal alignment of RPA integration that enhances organizational performance along with professional growth of accounting personnel. (*Oyeniya et al., 2024*)

- Blockchain

Blockchain technology, a peer-to-peer, internet-based framework secured through cryptographic techniques, has emerged as a disruptive technology in the accounting and auditing sector. It facilitates distributed control and enables instant and simultaneous sharing, recording and verification of transactions by all the stakeholders on the network. Unlike traditional databases - where data entries can be altered or deleted - blockchain causes all the participants to possess an immutable copy of the ledger, which mirrors a history of all

transactions since the inception of the system. The immutability and decentralized nature eliminate the need for intermediaries to reconcile records or authenticate ownership, effectively revolutionizing the traditional mechanisms of trust and verification in accounting.

Blockchain platforms can possess varying architectures, including public or private, centralized or decentralized, peer-to-peer or cloud-based models. The choice of architecture is a primary strategic issue for accounting firms looking to leverage blockchain for audit and assurance services. The alignment of the blockchain model with specific operational demands is needed to maximize its benefits while minimizing potential technological and regulatory risks.

By dramatically enhancing the transparency of accounting information, blockchain technology can strengthen market confidence and trust. It reduces information asymmetry between firms and external stakeholders and improves the quality of external financial reporting. Through the provision of highly reliable real-time accounting information, blockchain alleviates the risks of data manipulation and fraudulent reporting. Furthermore, routine accounting tasks can be automated through direct access to blockchain records, which enables auditors to redirect their focus to more complex activities, such as evaluating internal controls and auditing higher-order risk factors. As noted by Carlin (2019), this innovation can lead to the replacement of the traditional, decentralized audit model with technologically centralized audit hubs at the regional or even international level.

It is necessary, however, to mention that blockchain does not substitute the role of the auditor. Although blockchain technology might confirm that a transaction has been posted to the system, it does not independently confirm the underlying authenticity, legality or authorization of the transaction. Illegal, unauthorized or fraudulent actions might still be recorded on a blockchain, demonstrating the continued need for auditors to exercise professional judgment. The role of the auditor remains important in verifying that blockchain data reflects legitimate economic events and is aligned with regulatory and ethical standards. Auditors need to audit the trustworthiness, completeness and legality of transactions on the blockchain, and not confuse the existence of a blockchain record with substantive validity in the physical world.

In conclusion, blockchain technology has enormous potential to transform accounting and auditing practices by way of increased transparency, improved data integrity and automation of processes. On the other hand, its successful implementation demands careful consideration of governance, integration of technology and the evolving role of assurance professionals. *(Tiron-Tudor et al., 2022)*

- Cloud Accounting

Cloud accounting is one of the most significant innovations in information technology, radically changing the operational dynamics of professional service firms and accounting organizations. Increasingly, such organizations are adopting cloud-accounting systems as a move towards making their service delivery more cost-effective, flexible and efficient in operations. Despite the recognized potential and widespread marketing efforts, market analyses establish that adoption of cloud accounting remains far below earlier projections.

Several determinant factors influence intention to use and actual usage of cloud accounting systems: the most salient determinants are perceived usefulness, perceived ease of use, system and service quality, organizational competency and top management support. In addition to influencing the intentions of businesses to adopt, the factors have direct impacts on the extent of effective integration and extended use. In essence, businesses are more likely to adopt cloud accounting solutions in their operations when they perceive the technology as practical, accessible, reliable, and backed by sound technical and organizational support. (*Kluwer, 2024*) Additionally, if cloud-based auditing and accounting services are to gain broad confidence and client satisfaction, service providers must place higher emphasis on improvements in system availability, data confidentiality and privacy as well as processing integrity. These elements are crucial to attaining and sustaining client confidence, especially considering the sensitive nature of financial information being processed through cloud platforms.

Organizations contemplating the use of cloud accounting must also closely examine internal operational factors such as firm size, workload volume, number of staff and the degree of complexity within existing accounting systems. Cloud systems will best work when paired with the specific organizational environment and local market situation. In comparison to traditional, on-premises systems, cloud systems typically offer greater flexibility, scalability and cost for money if properly selected and implemented.

Small and medium enterprises (SMEs) particularly will be in a position to avail themselves of cloud accounting technology. SMEs tend to have barriers to installing sophisticated IT systems primarily due to financial constraints: the prohibitive costs of running their own servers, purchasing licensed software and making investments in specialist IT infrastructure will be otherwise a significant strain on limited SME funds. Also, surprise expenditures such as those arising from equipment failures or system downtime place strain on resources. Traditional accounting software options are not scalable and economically inappropriate for small companies, given their low scalability.

Under such a scenario, cloud accounting offers a more desirable alternative. By outsourcing management of infrastructure to a third party, SMEs can enjoy the benefits of advanced-level accounting technology without incurring the full cost and complexity of in-house IT management. Cloud technologies enable firms to reduce capital outlay, minimize risks of system operation and enhance technological progress without necessarily needing extensive in-house know-how. Therefore, cloud accounting systems are particularly appropriate for SMEs and facilitate technology upgrading and competitiveness in scenarios where resources are limited. (*Asatiani, 2016*)

In summary, cloud computing will increasingly become the core of the accounting practice digital revolution. For maximum gains, firms must strategically evaluate their readiness for adoption, invest in system and data security, and secure organizational sponsorship and competency development. Subsequent research should attempt to continue exploring the long-term impact of cloud computing on accounting procedures, with specific focus given to cybersecurity, compliance with regulations and how the role of accounting professionals evolves in a cloud-focused environment. (*Tiron-Tudor et al., 2022*)

- Big Data Analytics (BDA)

The increasing relevance of Big Data Analytics is closely connected to the rapid advancements in Internet, telecommunication and computer technologies. These developments have given rise to an explosive growth in the volume, velocity, and diversity of data generated from a multitude of sources, including digital platforms, social media and environmental sensors. In this context, BDA is the systematic process of acquiring, cleansing, analysing, and interpreting huge amounts of structured and unstructured data to establish patterns, predict results and support data-driven decision-making.

Within the accounting and audit contexts, big data are derived from internal and external sources. Internally, organizations generate large volumes of data through automated transaction processing systems. However, the classification of data as internal or external can vary depending on organizational perspectives, particularly within interconnected supply chains. Recognizing the challenges generated by data complexity, big enterprise software providers such as SAP and Oracle have developed purpose-specific software to facilitate effective management of data and value realization from these enormous datasets.

Accounting practitioners are well-positioned in welcoming and adopting BDA within organizations. Their command of organized financial information, coupled with their detailed understanding of financial concepts and business processes, positions them as ideal

collaborators with data scientists. Accountants are not displaced by big data technologies but rather can apply their fundamental skills to data analytics capabilities, leading to a deeper strategic insight. The analytical rigor inherent in the profession and the public trust that comes with it also increase the ability to direct big data initiatives.

Academic literature identifies that accountants' understanding of financial and cost data models' construction and interpretation allows them to develop, implement and interpret advanced analytical models. Through BDA tools, accountants can go beyond traditional cost control tasks to undertake more strategic analyses, enhancing organizational decision-making. Moreover, with the establishment of patterns and related insights with organizational performance, employees can provide a more cohesive and forward-looking contribution to strategic planning.

In accounting, big data is a powerful solution in which traditional audit evidence sources may be weak. Merging internal records with external big data sources enables auditors to draw on new categories of relevant evidence, improving the quality and depth of audit conclusions. Although initial costs of processing big data can be steep, long-term benefits - reduced cognitive bias, automation of routine audit procedures and re-allocation of auditor effort to vital review and judgment - are significant. Predictive and prescriptive analytics powered by big data allow auditors to move beyond descriptive approaches, yielding predictive insights into risk profiles and organisational performance.

Yet, regulatory impediments continue to limit the full potential of BDA in auditing. Existing worldwide auditing standards only partially address capabilities and implications of BDA now, creating an area of uncertainty. While several auditors have seen this gap as an opportunity for innovation and innovative application of analytics, there are others who remain not willing to endorse BDA instruments fully without clearly stated guidance of standard-setting entities. Thus, the adoption of BDA within auditing is still uneven across the profession, and what is needed is reformed regulatory environments that both embrace existing technological advancements and guarantee adequate procedural standards.

Lastly, Big Data Analytics has the potential to revolutionize how accounting and auditing are conducted. Through the implementation of evidence-based methods, accountants and auditors can increase the quality level of insights, improve processes and contribute greater strategic value to their organizations. On the other hand, for the profession to gain optimum benefit from the available rewards of BDA, current regulatory uncertainties need to be resolved, and technical and analytical capabilities must be enhanced. (*Tiron-Tudor et al., 2022*)

- ERP Systems with integrated accounting modules

Enterprise Resource Planning systems are among the most groundbreaking developments in modern accounting and business administration. These comprehensive computer platforms are essentially designed to automate and streamline a wide variety of basic organizational processes, including inventory management, purchasing, human resources and financial management. The centrepiece of an ERP system is its integrated accounting module, which acts as the central processor for financial data, offering real-time synchronization, improved decision-making support and cross-departmental consistency.

The background of ERP systems traces its origin to early Accounting Information Systems (AIS), which had their primary concerns as automating recurring financial functions like journal recording, ledger maintenance, payroll and compliance reporting. Whereas such traditional AIS systems gave bookkeeping functions order and tidiness, they used to be housed in separate silos and needed manual data copying between departments - an exercise that all too frequently meant delays, errors and redundant effort. ERP systems, by contrast, consolidated all organizational information into one database, enhancing the visibility, traceability, and integrity of financial information and making interdepartmental communication smooth. (*Faccia & Petratos, 2021*)

ERP solutions, such as SAP S/4HANA, Oracle NetSuite, Microsoft Dynamics 365 and Odoo, tend to possess robust accounting modules that take care of significant areas such as the general ledger, accounts payable and accounts receivable, fixed asset management, financial reporting, bank and cash management, and budgeting. (*Truong, 2024*)

These modules allow companies to produce prompt financial reports, comply with legal and regulatory requirements effectively, and monitor financial performance at record pace and accuracy. Additionally, connecting financial management activities to other business functions - such as inventory control, purchasing and customer relationship management - fosters an integrated view of organizational activities and enhances strategic planning capabilities.

From an organizational perspective, ERP system implementation is a step towards further process standardization and data-driven business management. With less reliance on manual spreadsheets and data entry, ERP solutions minimize the risk of human errors, improve auditability and strengthen operational resilience. ERP systems also assist with compliance to global accounting standards such as the International Financial Reporting Standards (IFRS) and Generally Accepted Accounting Principles (GAAP) by integrating regulatory requirements into system workflows.

One trend that is particularly noteworthy is the increasing convergence of ERP systems with newer technologies such as cloud computing, blockchain and artificial intelligence (AI). Contemporary ERP solutions are tending to embrace cloud-based deployment modes to leverage greater reach, scalability and security. Blockchain technology is being investigated to advance traceability and immutability of transaction history, while analytics empowered by AI are enabling predictive financial modelling and real-time decision-making support. Such technological synergies are transforming ERP systems from mere transaction processing systems to strategy digital transformation drivers, giving businesses the capacity to achieve greater operational flexibility, intelligence in data and competitiveness.

After all, ERP systems have transformed the accounting and organizational management sector through promoting integration, standardization and digital innovation. As these platforms evolve further, their role in fostering strategic initiatives and dynamic business environments is destined to become more prominent. (*Monk, 2012*)

To conclude this section, below it is provided a summary:

Table 2: Outline of the different accounting tools

TECHNOLOGY	DEFINITION	MAIN APPLICATIONS
AI (& Machine Learning)	Systems that simulate human intelligent processes like reasoning, learning and self-correction (<i>Fofanova, 2016</i>)	Automation of repetitive tasks, predictive analytics, enhanced decision-making support
RPA	Software bots that automate high-volume, rule-based, repetitive tasks without human intervention	Data entry, reconciliations, report generation, transaction processing
Blockchain	Distributed ledger technology ensuring secure, immutable and transparent transaction recording	Real-time auditing, transaction validation, fraud reduction, enhanced reporting quality
Cloud Accounting	Delivery of accounting services and software over the internet ("the cloud") instead of local servers	Cloud-based accounting systems, real-time access to financial data, remote audits

Big Data Analytics	Analysis of large, diverse datasets to uncover patterns, correlations and insights	Predictive audit analytics, strategic decision support, fraud detection
ERP Systems	Integrated systems that manage and automate core business and financial processes	End-to-end financial management, real-time reporting, compliance facilitation

2.2 Trends during the years

In recent years, the accounting industry has undergone a profound transformation propelled by the rapid evolution and acceptance of digital technologies like Artificial Intelligence (AI), Robotic Process Automation (RPA), Blockchain, Cloud Computing, Big Data Analytics (BDA) and Enterprise Resource Planning (ERP) systems - previously listed - that have increasingly transform traditional accounting practices, opening new avenues for efficiency, accuracy and strategic decision-making. As these technologies have developed, their adoption rates in organizations have accelerated significantly, but at varying paces according to industry sector, organizational size and geographic location. Current trends point not only to growing reliance on digital technologies to automate routine tasks, but also to an emerging shift toward data-informed, predictive and strategic accounting functions. This chapter synthesizes available statistical facts: levels of adoption and market analysis to elaborate on how digital accounting technologies have evolved. It is important to learn about these trends to put into perspective the revolutionary impact of digital innovations and to project the future landscape of the accounting profession.

The bar graph on the right presents an overview of the most widely used emerging technologies in digital accounting derived from recent industry research and surveys conducted between 2023 and 2025. It illustrates which tools are gaining the most traction across the industry,

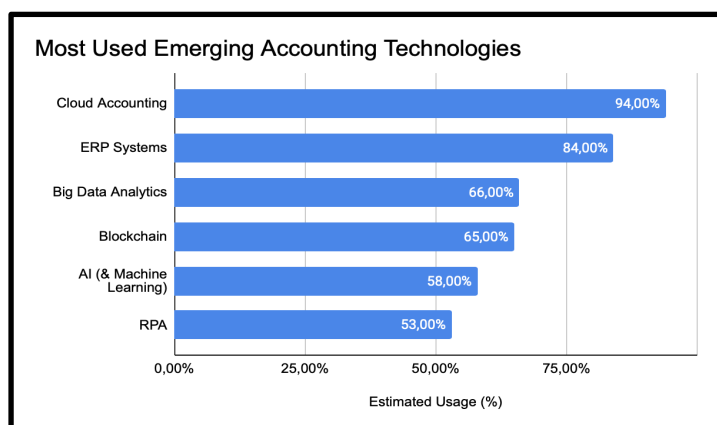


Figure 1: Most Used Emerging Accounting Technologies

particularly in medium to large enterprises, offering a snapshot of practical trends that reflect both technological maturity and organizational readiness for digital transformation.

More in depth:

- Cloud Accounting (94%) → Cloud-based software is the most sought-after technology in the accounting industry. Over 94% of companies have moved to cloud platforms due to benefits such as real-time access, support for remote working and reduced IT infrastructure costs. The COVID-19 pandemic also accelerated this trend, and now cloud accounting is the new standard in companies of all sizes; *(Team, 2025)*
- ERP Systems (84%) → A vast majority of corporations - a massive 84% - use ERP systems like SAP, Oracle and Microsoft Dynamics to bring financial, operational, and accounting data into a unified environment. ERP systems are the need of the hour for enterprise reporting, internal controls and compliance at the corporate level because they offer an unparalleled level of integration and real-time data visibility; *(Luther, 2025)*
- Big Data Analytics (66%) → Approximately two-thirds of organizations are using big data analytics to improve budgeting, forecasting and performance monitoring. As companies focus on improving strategic insights and competitiveness, big data has become an important enabler for transforming financial planning and decision-making processes; *(Team, 2025)*
- Blockchain (65%) → Blockchain technology has picked up steadily, with 65% of organizations reporting some level of adoption. Despite initial hesitation brought about by regulatory ambiguity and integration complexity, interest has increased in use cases such as secure transaction processing, smart contracts, and continuous auditing; *(McCain, 2023)*
- Artificial Intelligence (58%) → Accounting is increasingly utilizing AI technologies, particularly for predictive analytics, fraud detection, and data classification activities. More than half of the professionals now leverage AI-based tools to reduce manual effort and derive more accurate, actionable insights from financial data; *(Kennedy, 2024)*
- Robotic Process Automation (53%) → RPA is picking up steam, with 53% of organizations automating rule-based and repetitive tasks like reconciliations, invoice processing and data entry. These tools are automating operations and enabling finance teams to devote time to more value-added analytical tasks. *(Pangarkar, 2025)*

In addition, the table below gives a more descriptive explanation of the most significant emerging technologies in digital accounting to supplement the statistical analysis discussed in the graph and text above. The table shows the adoption rate and growth of each technology. This approach provides a deeper appreciation of the changing digital accounting landscape and the role each technology is playing in shaping change in the profession by exploring both adoption trends and actual-world consequences.

Table 3: Future prospects of the different accounting tools

TECHNOLOGY	ADOPTION RATE AND GROWTH
Cloud Accounting	The market for cloud accounting software was estimated to be worth \$3.5 billion in 2023 and is expected to expand at a compound annual growth rate (CAGR) of 7.8% to reach \$7.0 billion by 2032 (<i>Llp, 2024</i>)
ERP Systems	Global size of ERP software market was estimated at \$64.83 billion in 2024 and is anticipated to grow at a CAGR of 11.7% from 2025 to 2030 (<i>ERP Software Market Size & Share Industry Report</i>)
Big Data Analytics	BDA market size grows at 13.5% CAGR, to reach \$725.93 Billion by 2031 (<i>Partners, 2025</i>)
Blockchain	The market size of the global blockchain technology in 2024 was approximated to be \$26.91 billion and is expected to expand from \$41.15 billion in 2025 to approximately \$1,879.30 billion by the year 2034 with a CAGR of 52.9% between the years 2025 and 2034 (<i>Zoting, 2025</i>)
AI (& Machine Learning)	Global artificial intelligence market size in 2024 was \$638.23 billion, which is estimated to reach approximately \$3,680.47 billion by 2034 at a CAGR of 19.20% during 2025-2034 (<i>Zoting, 2025</i>)
RPA	Size's market of the worldwide robotic process automation was \$22.79 billion in 2024 and is expected to grow at a CAGR of 43.9% from 2025 to 2030 (<i>Pokora, 2025</i>)

2.3 Benefits and Challenges

A new age of financial management has started with the adoption of cutting-edge digital technology in accounting. Real-time reporting, predictive analytics and process automation are now possible due to these developments, which have radically improved the accuracy, speed and strategic value of accounting processes. Their implementation is not simplistic, though. Companies must deal with new complications as they increasingly depend on computer technologies, such as data protection issues, costs of installation, lack of human skills and legacy system integration issues. To take full advantage of the revolutionary, although not always seamless, impact of new technologies on the accounting profession, one must be aware of benefits and limitations. These aspects are discussed in the section to come and offer an equitable evaluation of the merits and demerits typical of contemporary digital accounting.

Benefits:

- Increased efficiency and automation

Automation of routine and repetitive tasks is one of the best benefits of new technology in digital accounting. To this end, technologies like artificial intelligence and robotic process automation have a part to play. Tasks that used to take a lot of time and were prone to human error, such as invoice entry, bank reconciliations and journal posts, can now be automatically handled by RPA. AI-driven systems can process transactions, recommend entries and even identify anomalies as they learn and evolve over time from the data. Accounting professionals are now free to concentrate on more analytical and advisory tasks rather than data processing because of this degree of automation. Businesses using AI, for instance, can create dashboards that track financial KPIs in real time, enabling decision-makers to act promptly to shifts in the business environment. A more agile and effective financial function that can underpin quicker and more informed decisions is the outcome; (*Hunter, 2023*)

- Enhanced accuracy and reduced human error

Manual accounting procedures are sure to be subject to human mistake, particularly where high volumes of data are concerned. Missed transactions, mis postings and incorrectly coded expenses are usual complaints. Such errors are much less likely with digital accounting systems, particularly AI-powered, RPA-based and cloud-accounting systems. (*Luther, 2021*) Computer systems ensure accounting double-entry rules are adhered to the dot, verify inputs and alert to irregularities. AI, for instance, can quickly recognize mismatches that would take a person hours to detect by cross-referencing against purchase orders, supplier invoices and

receiving records. Higher data integrity is thereby guaranteed, vital in auditing, tax returns and financial reports; (*Hunter, 2023*)

- Real-time access and collaboration

Users can access financial data at any point, anywhere with cloud-based accounting solutions like Oracle NetSuite, QuickBooks Online and Xero. This is more critical in today's remote or hybrid work environments. Cloud Accounting platforms function by synchronizing financial data among users real-time, as opposed to traditional on-premises accounting solutions which need local server access. (*Tential, 2024*)

In addition to enabling cooperation among managers, auditors and accountants within the organization more, this ability enables communication with external stakeholders like clients or regulators. For example, the CFO who is located elsewhere can simultaneously analyse and comment on an in-the-moment cash flow report generated by the company accountant;

- Improved decision-making

Technologies today understand information, in addition to processing it. Financial accountants and account managers can make decisions for the future based on predictions from big data analysis and artificial intelligence platforms. By analysing historical information, these systems can detect patterns, relationships and outliers' human analysts would not see.

Predictive analytics, for instance, can predict seasonality in sales or consumer payment patterns so that companies can better manage their inventory control or cash flow policy. The solutions can power financial dashboards with scenario simulations to enable managers to prepare for various company scenarios. The strategic worth of the accounting function is greatly boosted by this shift from descriptive to predictive and even prescriptive accounting;

- Greater transparency and compliance

The recording and auditing of transactions are being completely overhauled with blockchain. Information, once entered, cannot be changed without consensus since it is a decentralized and immutable ledger. (*Thomson Reuters, 2025*)

This minimizes the possibility of fraud or manipulation drastically. The use of blockchain technology in accounting gives rise to a culture of absolute auditability and traceability: every transaction is time-stamped and attached to a distinctive digital signature that can be verified independently by regulators or auditors. This is especially helpful when confronting compliance with regulations like IFRS, SOX or GDPR, where evidence of data integrity is the most important aspect.

Besides, audit records can be automatically generated using real-time reporting solutions built into blockchain, which decreases the expense and time involved with conventional audits;

- Scalability and integration

Accounting, finance, procurement, human resources and inventory are some of the functions of business that can be merged into one single platform by adopting contemporary-day enterprise resource planning systems like SAP S/4HANA and Microsoft Dynamics, which can expand with the company. (*Torii et al., 2023*)

Such consolidation avoids redundancy and version control concerns and maintains data consistency across departments. For instance, if levels of inventory vary, the cost of goods sold in the accounting module is automatically updated, impacting profit and loss and balance sheet. Such consolidated reporting is easily made quickly and correctly by this smooth flow of data, particularly for organizations that operate in more than one entity or geography;

- Cost savings over time

The long-term advantages of new accounting technology tend to lead to huge savings in costs, although their installation could be expensive. Organizations save time and money by reducing errors that could lead to high fines, lessening the need for manual labour and faster reporting deadlines.

Cloud-based subscription models provide SMEs with elastic access to high-end accounting software at a fraction of the cost of investing in IT infrastructure. These efficiencies translate into reduced operating expenses and enhanced profitability. (*Tential, 2024*)

Challenges:

- High implementation and maintenance costs:

Most of the modern accounting technologies like ERP systems, Blockchain platforms and AI-based applications need a huge up-front investment even though they yield long-term payoffs. Software licenses, platform customization, employee training and IT infrastructure upgrading could be astronomically expensive, especially for small and medium-sized enterprises (SMEs). Implementing a full ERP system, such as SAP S/4HANA or Oracle Fusion Cloud, can come with expenses of consultants, data migration and ongoing technical support in addition to the system itself. Underestimating the implementation scope can sometimes result in cost overruns or a delayed return on investment for businesses. The pace of digital transformation can be slowed down by these financial barriers, particularly in areas or industries where capital is scarce; (*Caldwell, 2023*)

- Cybersecurity and data privacy risks

Accounting functions are more susceptible to cybersecurity attacks as they get more computerized. There is a vast repository of individuals' financial data on blockchain networks and cloud-hosted accounting applications (*Tential, 2024*), which become ideal targets for ransomware, data leaks and hacking. Particularly, in jurisdictions where data protection laws like the California Consumer Privacy Act (CCPA) or European Union's General Data Protection Regulation (GDPR) apply, failure to keep sensitive information can result in serious legal and financial repercussions. Moreover, if well-established encryption, authentication and disaster recovery processes are not followed, cloud providers or third-party software providers can add new risks. This problem is aggravated by the fact that most accounting practitioners are not educated in cybersecurity best practices, and thus the "human factor" becomes the primary cause of failure;

- Integration with legacy systems

The challenge of integrating new technology with legacy, usually outdated accounting systems is one of the oldest problems in digital transformation. Most companies continue to use Excel-based workflows or legacy systems that aren't integrated with newer technologies like RPA bots, AI analytics engines and API (Application Programming Interface)-based dashboards. Therefore, a grand system redesign, standardization of data and even a complete rebuild of internal processes may be necessary to make the shift to a single digital space possible. Such complexity carries the danger of error, downtime, or resistance from employees who are used to old systems, causing business disruption throughout the transition period; (*Campbell, 2023*)

- Skill gaps and resistance to change

The accounting sector of today is plagued with a severe skills deficit because of the rapid rate of technological innovation. Many professionals are not equipped with digital knowledge of ERP implementation, AI platforms and data visualization software. As a result, businesses must upskill current workers and recruit talent who are digitally competent.

Another key aspect is resistance to change. Workers may have difficulty in accommodating changing work processes or worry that technology will replace them. Digital projects may be ineffective if they are not supported by management, training programs and good change management techniques.

One of the best underestimations of obstacles to digitization of accounting is the human element, especially for those firms whose manual processes are well entrenched; (*Caldwell, 2023*)

- Regulatory and ethical uncertainty

Blockchain and artificial intelligence are a few of the new technologies that are emerging faster than the law that governs them. Accounting firms and finance departments can be impacted by uncertainty because of this absence of clear legal regulations.

For instance, where decisions are taken using secret algorithms, or "black-box AI," decision-making software using AI can raise ethical issues of transparency and responsibility. Likewise, blockchain's decentralized architecture makes it raise the issue of accountability in the event of a data conflict or error.

Businesses will be slow to implement these technologies in their entirety without clear regulatory guidelines for fear of potential non-compliance or loss of reputation;

- Dependence on technology providers

Whether they are cloud-based platforms, RPA tools or ERP software suites, third-party vendors create and host the majority of digital accounting solutions. With this dependence comes a chain of risks such as ownership over data, interruptions in services, vendor lock-in and increasing subscription fees.

An example in case, client firms can be deprived of access to key financial data in the event of a system crash or security intrusion at a cloud accounting provider. Furthermore, switching platforms tends to involve exorbitant fees and business disruption, something that may deter organizations from embracing better options in the future.

Thus, due diligence and good vendor management are key to minimize these risks, but not every company has the resources or expertise to achieve this.

2.4 Theoretical and Regulatory frameworks

Examining the theoretical concepts that explain user and organizational behaviour as well as the legal frameworks that influence their practical application is crucial for comprehending the acceptance, integration and ramifications of the newest technology in digital accounting. The purpose of this part is to examine important theories that serve as a basis to understand how and why accounting companies and professionals use new tools. However, the analysis of regulatory factors gives details of the ethical and legal limits under which such technologies operate. Together, these perspectives provide a richer understanding of the push and pull forces on the digital transformation in the accounting profession.

2.4.1 Theoretical models

Starting from the theoretical framework, one of the widely used conceptual ideas to explain how people accept and utilize technology is the Technology Acceptance Model (TAM). Developed by Davis in 1989, TAM suggests that a user's attitude toward using a new system is greatly influenced by two dimensions: "Perceived Usefulness" (PU) and "Perceived Ease Of Use" (PEOU). These two variables then, in turn, affect the behavioural intention and actual usage of the user. *(Baayel, 2023)*

TAM is particularly useful in explaining how accountants and other finance professionals perceive the usability and usefulness of systems such as cloud-based ERP systems and AI-based financial analysis in digital accounting.

The Diffusion of Innovation Theory (DOI) - pioneered by Everett Rogers back in 1962 - explores the process of how, why and at what rate new technologies diffuse throughout a community or organization. Besides showing the importance of social systems, channels of communication and innovative characteristics in the process of adoption, it identifies five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. *(Wang & Zhu, 2025)*

Regarding digital accounting systems, where adoption rates differ greatly throughout organizations, this idea is quite relevant. Large international corporations, for instance, frequently adopt blockchain or RPA first, whereas smaller businesses may lag because of uncertainties or resource limitations. DOI aids in forecasting future uptake and placing these adoption trends in context. *(Benhayoun & Zejjari, 2022)*

Disruptive Innovation Theory, introduced by Clayton Christensen in 1997, describes how easier, less expensive or more accessible innovations might upend established sectors. Disruptive innovations are first embraced by underserved or specialized markets, but as they gain scale and quality, they eventually surpass dominant solutions.

Even at larger organizations, technologies such as cloud-based accounting solutions are replacing traditional on-premises systems. These systems were initially appealing to SMEs due to their affordability and simplicity. In the same vein, through offering more efficient and scalable alternatives, AI and RPA are disrupting traditional manual processes in audit, reporting and compliance.

Developed by Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) combines components from eight previous theories, such as TAM and

DOI. Effort and Performance Expectancy, Facilitating Conditions and Social Influence are the four main components it suggests, and they all have an impact on user intention and behaviour. (Baayel, 2023)

This theory is particularly relevant in the business context, where peer behaviour, managerial support, training facilities and infrastructure all influence the adoption of digital accounting alongside individual attitude. (A Taiwo & G. Downe, 2013)

The study of Institutional Theory examines the ways in which society expectations, legal requirements and professional conventions influence organizational behaviour. The adoption of new technology in the accounting context is frequently influenced by institutional factors, such as industry best practices, auditor expectations or adherence to International Financial Reporting Standards (IFRS).

According to this hypothesis, some businesses use digital tools to comply with perceived legitimacy standards in their market or industry rather than primarily for efficiency.

The firm's Resource-Based View (RBV) affirms that strategic deployment and ownership of valuable, rare, inimitable and non-substitutable (VRIN) resources are the sources of sustainable competitive advantage. (Barney, 1991)

In line with this approach, sophisticated digital accounting tools can be regarded as strategic assets if they improve client services, lower costs or facilitate data-driven decision-making.

RBV supports the idea that the use of effective technology can be determined by how these tools are integrated into the company's capabilities and culture instead of just having access to them.

Interconnectedness between technical systems (hardware, software and processes) and social systems (people, culture and structure) is brought out by the Sociotechnical Systems (STS) Theory. When assessing obstacles to technology adoption, such as staff reluctance, inadequate training or a mismatch between organizational requirements and technology design, STS is useful, in fact it offers a comprehensive viewpoint that takes into consideration both technological and human aspects in digital accounting, where the move toward automation and AI has the potential to drastically change professional roles and processes. (Appelbaum, 1997)

2.4.2 Regulatory models

Keeping up with the regulatory body, one of the most extensive and significant privacy laws in the world is the General Data Protection Regulation (GDPR), enforced by the European Union since 2018. Its extraterritorial application has made it a "de facto" worldwide benchmark

for data processing, even in accounting procedures, though originally aimed at protecting EU citizens' personal data.

Accounting data is being stored and processed worldwide at a high volume because of the widespread use of cloud computing, AI-powered analytics and automated financial reporting tools. GDPR has a direct influence on the way that companies must gather, process, store and share this data.

Its compliance within computerized accounting environments entails the adoption of "privacy by design", where all systems, from cloud storage to accounting software, have strict data security measures. Data management systems must be agile and transparent to address the fundamental rights granted to data subjects, including the right to access, rectify and erase personal data. *(Wolford, 2024)*

The International Accounting Standards Board (IASB) created the International Financial Reporting Standards (IFRS), which provides a worldwide foundation for preparing and presenting financial statements. *(Gök, 2024)*

IFRS is quasi-regulatory in providing a uniform model that shapes the development and use of computerized accounting technology worldwide but is not legally regulatory. To provide comparability and consistency of financial data across jurisdictions, IFRS adoption is required as businesses are increasingly deploying cloud-based and artificial intelligence-based financial reporting platforms.

IFRS-compliant financial reports tend to be created by contemporary accounting systems. This involves inscribing intricate accounting procedures in the logic of digital systems, such as revenue recognition and fair value calculation.

Besides, new technologies like blockchain bring both opportunity and challenges to the convergence of IFRS, especially in real-time financial auditing and accounting for digital assets. As such, IFRS is both a reporting specification as well as a model for the development of digital accounting solutions. *(Palmer, 2024)*

The European Securities and Markets Authority (ESMA) has mandated the European Single Electronic Format (ESEF), a major step towards financial reporting digitalization in the EU. *(Tarca, 2020)*

With the amended EU Transparency Directive which rendered its adoption mandatory in 2020, ESEF has served as a technological and regulatory standard for EU-listed companies' annual financial report production. Its fundamental requirement is that issuers publish their annual reports in XHTML format, with consolidated financial statements tagged according to the IFRS

taxonomy in Inline XBRL technology. For regulators, investors and other interested parties, this step improves accessibility, comparability and transparency by requiring machine-readable, structured information. The technical implementation and operation of electronic bookkeeping systems are straight away impacted by ESEF compliance; these systems now need to have automated facilities for tagging financial data, validating and submitting electronically.

In addition, it requires technical taxonomies to be aligned with financial reports and requires the use of iXBRL in reporting processes. Apart from guaranteeing compliance with the regulator, ESEF allows data standards, opening the door for automated auditing, AI-based analytics and integration of data with other digital platforms. Consequently, it serves both as a regulatory driver of innovation in financial data processing and more general digitization of corporate reporting as well as a reporting requirement. (*Electronic Reporting, 2024*)

Besides the regulations listed above, other tools are applicable to digital accounting practice: the eIDAS Regulation (EU) regulates digital signatures and other electronic identity and trust services needed to secure and verifiable digital accounting transactions throughout the EU; PCI-DSS, the Payment Card Industry Data Security Standard, requires encryption, access control and frequent security audit and is required for accounting systems processing credit card payments despite not being a regulation; Digitalizing Taxation (UK), introduced by HMRC (His Majesty's Revenue & Customs), speeds up the roll-out of digital accounting solutions by requiring companies to keep digital records and using compliant software to report tax (*Customs, 2025*) and eventually ISO/IEC 27001, an international information security management standard, that is frequently utilized by cloud services providers to certify the accuracy and security of the processing and storage of fiscal data. (*Calder & Williams, 2015*)

3. METHODOLOGY

This section discusses the research strategy employed to examine the transformation impacts of digital technology on the accounting sector.

To provide a comprehensive view of the topic, the methodology consists of two interconnected parts that integrate theoretical analysis and an empirical study.

The central purpose of the first part is to investigate the broader impact of digital technology on firms. This theoretical question, seeking to position the influence of such technologies on firms across sectors, is first warranted by a specific article.

The following is a case study analysis of Oniverse, formerly Calzedonia Group, a multinational corporation chosen for its relevance and immediate applicability to the study. The case report draws from experiential knowledge acquired through an internship in the firm's "Accounts Payable" office, which falls under the financial department, and includes primary data obtained through the administration of a structured questionnaire, which was distributed to employees in the "IT Finance" department. The survey sought to determine perceived significant attributes of digital accounting technology implemented within the organization.

The coupling of both qualitative and quantitative methods enables the empirical examination of the thesis subject, providing valuable information on the dynamics of digital transformation as it unfolds in organizations.

3.1 Impact that Digital Accounting has on firms

A study conducted by Chen and Srinivasan (2023) discusses how digital accounting technologies affect organizational performance and delivers compelling evidence of value-enhancing potential associated with digital transformation. The research investigates the utilization of digital terms within the yearly 10-K reports of non-technology companies listed in the United States from 2010 to 2020, thereby analysing the relationship between digital technology usage and firm performance. The authors present a data-driven and scalable approach to measure the adoption of digital technologies, and particularly those relevant to accounting, such as the ones previously mentioned, with their application of text-based analysis to develop a proxy for digital involvement in a large sample of firms.

The analysis identifies a robust positive correlation between digital technology adoption and firm valuation: firms that have digital-oriented disclosures have superior market-to-book ratios and perform better than their counterparts in stock return metrics over short- as well as long-term horizons. Further, the examination demonstrates that digital strategy usage is associated

with measurable improvement in productivity metrics, including return on assets and asset turnover. Whereas the sales growth has mixed results, the findings show that the role of digital technologies in boosting efficiency is greater compared to revenue in the short term.

Particularly, it is found that companies that embrace digital technologies tend to be larger, younger and more research-intensive. These results show that involvement with technology is typically part of innovation policy, rather than an adjustment that is merely strategic. These companies demonstrate a sustained commitment to digital transformation across the years, suggesting that the uptake of digital technologies - like cloud-enabled accounting software, AI-driven financial analysis and automated reporting tools - is linked to a broader evolution of organizational competencies and business models.

In the context of this thesis, the evidence underscores the necessity of viewing digital accounting technologies as strategic assets with the potential to enhance firm value and redefine competitive positioning, as opposed to viewing them as tools to attain greater operational efficiency. The methodological framework underlying the empirical case study employed in the next section of this part serves to justify its development, in addition to providing the foundation for assessing the impact of technology and the level of digital maturity of organizations.

3.2 Case study: Oniverse

Oniverse was selected as a case study for methodological and strategic reasons.

Previously called the Calzedonia Group, Oniverse is a worldwide corporation with approximately 45,000 workers operating in more than 57 countries. Recently, it has experienced great digital transformation, especially in its finance and accounting departments. As a result of this, it was a prime candidate to study the influence of digital accounting tools on the firm.

The first-hand experience - participation in various operating processes including cataloguing, reconciliation, invoicing recording and internal stakeholder communication, specifically with the “IT Finance” department - through an internship during Summer 2024 with Oniverse's financial division “Accounts Payable” further validates the choice. This circumstance gave some precious insights about how digital instruments like ERP systems are incorporated into regular accounting operations and how the Finance and IT departments cooperate to implement digital solutions. All these factors enabled an overall and real-case study, complemented by both pragmatic observation and primary data collection.

Oniverse, founded in 1986 by Sandro Veronesi, is a diversified multinational holding company with a group of fashion, food and wine, and yachting brands like Calzedonia, Signorvino, Pardo Yachts and many more. In December 2023, the Oniverse group changed name to better describe its extensive presence in different industries, particularly the company maintains international operations with a transnational organizational structure that balances central coordination and local responsiveness.

The strategic hub located in Verona serves as the centre of financial control, innovation, design and global decision-making. The company employs advanced IT and finance infrastructure in its subsidiaries, making use of technology like SAP ERP for live inventory, accounting and procurement processes. Its logistics terminals employ live tracking systems, and retailing functions are enabled by digital infrastructure to enable day-to-day restocking and automated financial reporting. With high emphasis placed on innovation and operational efficiency, Oniverse has become a digitally integrated and future-focused business. These characteristics make it particularly relevant to a study on the adoption and awareness of digital accounting technologies.



Figure 2 from "Il Sole 24 Ore"

To explore the perception of advanced digitalization within the organization, a case study research approach was followed with qualitative-quantitative design. The data were collected from a questionnaire completed by a targeted sample of employees from the “IT Finance” office. This division was selected as it has a principal role in implementing and overseeing accounting software, digital workflows and interconnectivity between financial and technological systems.

The survey was electronically mailed to eight workers, and it was designed to obtain responses regarding their awareness and attitude towards accounting solutions in the digital form, including ERP packages, automation software, data analytics software and cloud applications.

The chosen approach enabled to collect focused, experience-based judgments of professionals who deal with the implementation and maintenance of accounting technologies.

The questionnaire had multiple-choice and open-ended questions, giving an equal mix of structured data and personal reflection.

The instrument was set within three general thematic dimensions:

- Technological Characteristics: determining what digital accounting software is used, the level of their integration and the experience of employees with them;
- Perceived Benefits and Challenges: weighing benefits like time saved, data accuracy, transparency and strategic value against challenges like training needs, system rigidity or integration problems;
- Organizational Effects and Future Perspective: gaining an understanding of how digital technologies are adopted, the security and compliance concepts and the overall improvements and expectations of the organization.

The selection of the case study design is driven by the need to intensively examine a real organizational setup where digital accounting technologies are being applied on a large scale. The choice is consistent with Yin's (2014) description of research as a method that is suitable for exploring complex phenomena in its "naturalistic" environment.

Furthermore, the mix-methods approach possesses several strengths: (1) it combines the objectivity and comparability of quantitative data with the richness and depth of qualitative results (*Stroud et al., 2020*); (2) it allows for triangulation of findings - refers to the use of multiple ways for studying a single topic or phenomenon - thereby increasing the validity and reliability of conclusions (*Denzin, 2017*) and (3) it bridges the gap between scholarly theory and real-world practice, offering applicability to both stakeholders in schools and industry.

The survey results comprise the empirical core of the case study and are analysed in the following chapter to ascertain the main aspects of digital accounting technologies at Oniverse.

4. FINDINGS AND CONCLUSION

This final chapter provides a general overview of the research findings and presents primary conclusions from the analysis conducted throughout the thesis. The section has two parts, the first one is an explanation of the primary data collected using the questionnaire, inspired by an article from Al-Hattami and Almaqtari of 2023 and a survey from Rightworks of 2024, completed by employees. Through their responses, it was possible to examine the reported features, benefits and limitations of digital accounting technology adoption in the business. In the analysis, the aim is to relate the empirical findings with established theoretical framework and trends of earlier chapters and determine the practical implications of technologies within a corporate accounting setting.

The second part of the chapter is the critical synthesis of the entire study: it encapsulates the research's main contributions in terms of how digital technologies are transforming accounting practices, professional roles and organizational performance. The part further offers field guidelines to firms facing digital transformation in the accounting function as well as postulates for future research. Through this dual approach, the conclusion is set to cement the research's scholarly contribution and utility, at the same time providing both a conclusion to the thesis and an insight into the future of the evolving face of digital accounting.

4.1 Analysis and Findings

The questionnaire is divided in the successive parts:

- Demographic variables

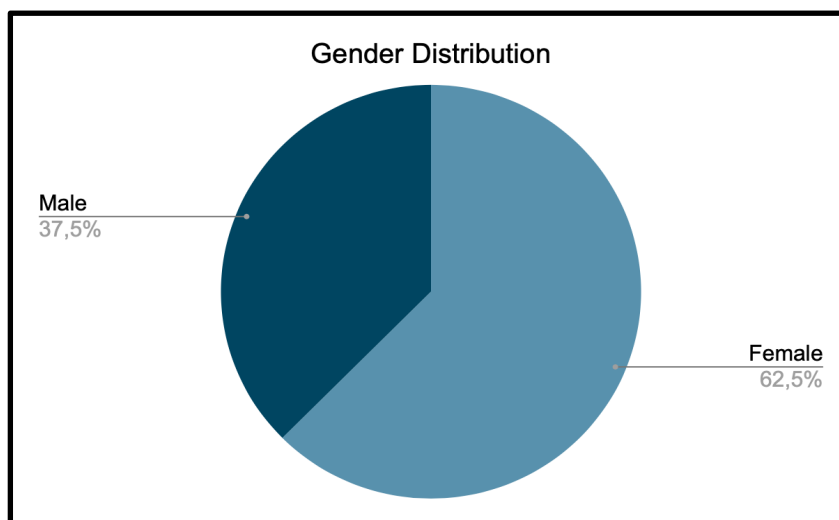


Figure 3: Gender Distribution

Demographically, the sample is female-dominant, with 62.5% being female (5 out of 8 respondents) and the remaining 37.5% male (3 out of 8 respondents). This small gender imbalance can most likely explain general tendencies across the department or firm regarding labour distribution.

Age split is highly disproportionate between genders. The male subject participants are also much younger, aged 25, 26, and 28, indicating that young professionals are coming into the finance-technology sector, perhaps with more experience of digital tools from an earlier stage of their careers. The female interviewees, in contrast, span a wider and more mature age range, such as 33, 35, 39, 40, and 55. This may reflect a more established presence of women in the department, possibly with greater experience of traditional and evolving accounting practice.

This demographic context shapes the understanding of perceptions of digital technology adoption. For example, younger male employees can be more willing or used to new technology, while older female personnel can provide experience from long-term accounting practice. Together, they offer a balanced view for digital transformation in accounting, coupling innovation with institutional memory. (*Choudhary et al., 2024*)

- Various technologies used

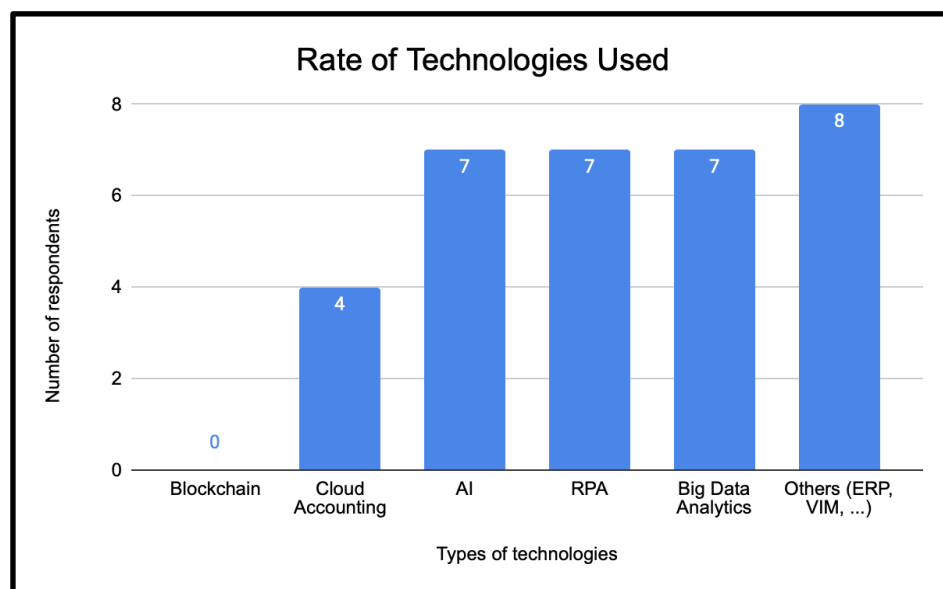


Figure 4: Rate of Technologies Used

It is possible to note a widespread use of several advanced digital accounting technologies by the “IT Finance” department. The most used tools, listed by all 8 respondents (100%), fell under "Others", and these are ERP systems (such as SAP FI/CO), Vendor Invoice Management (VIM) and other integrated platforms. This confirms the prevalence of ERP systems as the

central point of financial process management and suggests the department's emphasis on integrated digital infrastructure.

Among the new-age technologies, Artificial Intelligence (AI), Robotic Process Automation (RPA) and Big Data Analytics (BDA) were the areas that 7 out of 8 respondents (87.5%) mentioned, indicating high penetration. These technologies are used more and more to automate processes, detect anomalies and extract actionable facts from finance data. This spread in mass terms suggests that the division is actively embracing innovation to maximize efficiency and precision in making decisions.

Cloud accounting solutions were used by 4 respondents (50%), with a moderate level of adoption: it may represent transition processes underway or selective usage in certain functions, like remote access or real-time collaboration.

Blockchain technology was not referenced by any respondent (0%), which may depict little usage across current finance operations or cautious adoption due to regulatory, technical or practical constraints.

This bifurcation of use of the technology tools reflects a strongly digitized environment grounded in traditional ERP systems while rapidly incorporating AI-based platforms and automation technologies, with cloud computing being in stages of incremental adoption and blockchain still to be incorporated into significant use.

- Rating of the tool's characteristics (from 1=low perception, to 5=high perception)

a)

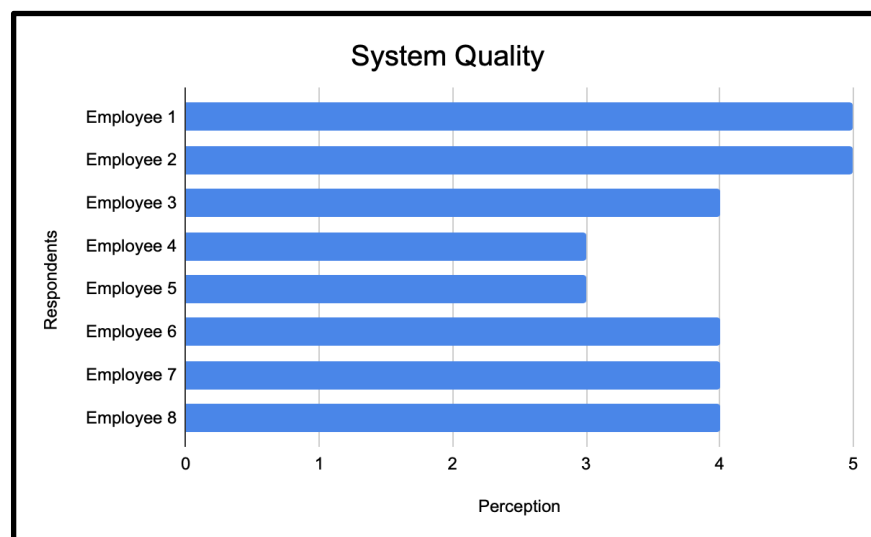


Figure 5: System Quality

The overall quality of the system was rated very high at 4.0 on average, indicating a positive general view by the respondents. Most of them gave the system a high score regarding its reliability and performance, and this suggests that the IT tools currently in use, such as the ERP systems SAP FI/CO and VIM, are considered technically competent and functionally reliable. Having some of the lower ratings (precisely 3s) could be seen as a sign of periodic inefficiencies or technical optimization potential in specific areas.

b)

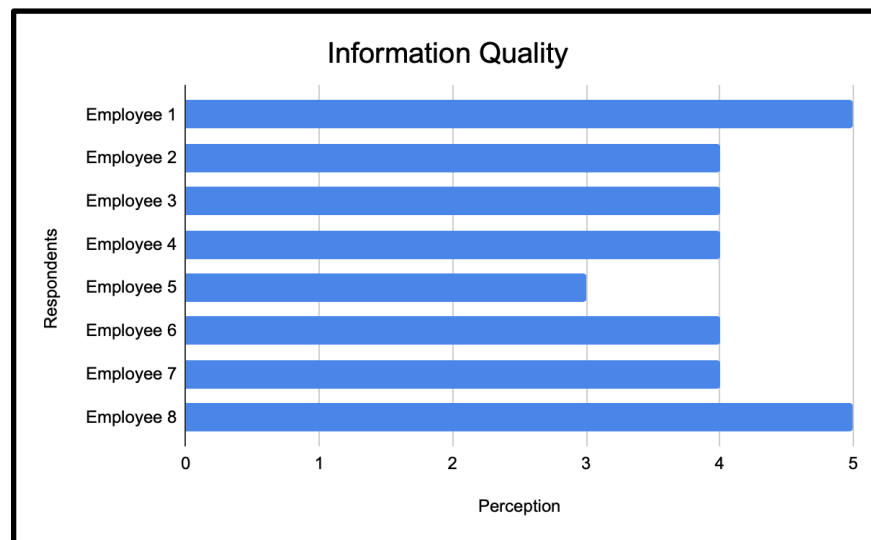


Figure 6: Information Quality

The quality of information was also ranked high at 4.125, reflecting much confidence in the correctness, completeness and appropriateness of information generated by the digital accounting systems. This observation underscores the value of such integrated technologies as AI and Big Data Analytics to enhance data quality. The consistency of responses in the 4-5 range confirms that users find the information produced by these systems to be useful and credible for decision-making.

c)

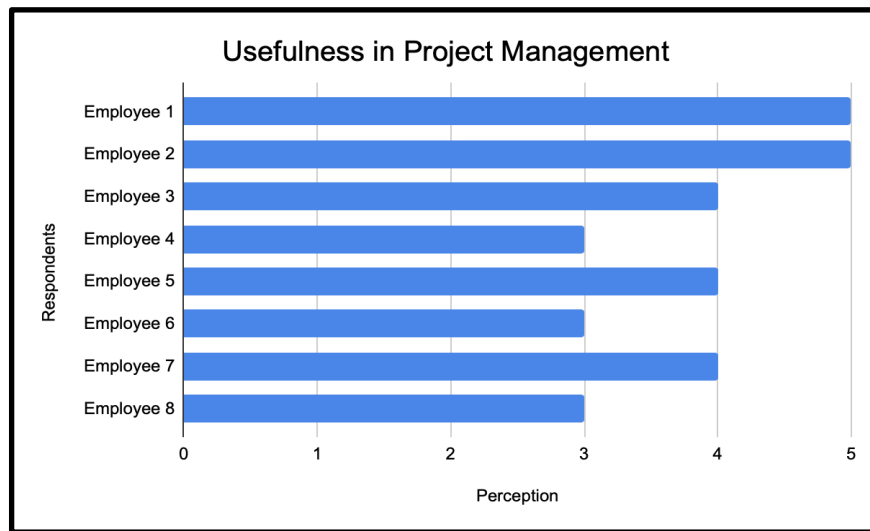


Figure 7: Usefulness in Project Management

The group had a lower, yet positive, mean score of 3.875. While most respondents recognized the utility of technological tools in supporting the activities of project management, the range of responses reveals different levels of familiarity or use of the tools with regular project tasks. The relatively subdued picture may imply that although the tools are beneficial, they are not yet being used to their complete capacity for dedicated project use, or their impact on project workflows is ongoing.

d)

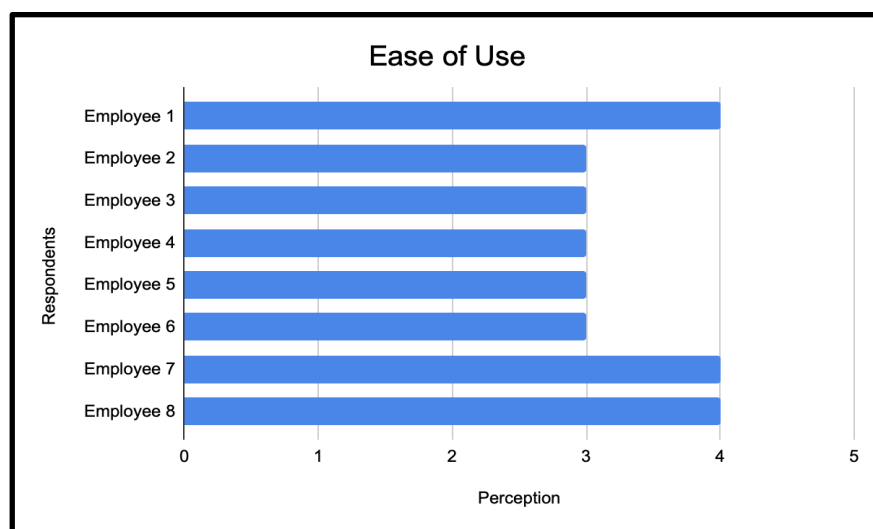


Figure 8: Ease of Use

This attribute had one of the lowest average ratings, at 3.375, reflecting a mixed response to usability. Although some users scored ease of use as high, several respondents gave lower ratings (with several 3s), reflecting a learning curve or user interface problems. This could be

because of the complexity of some platforms or poor user training. The evidence shows that improved onboarding and user interface design would make a significant impact on overall user experience, like Solomon reported in an article of 2023.

e)

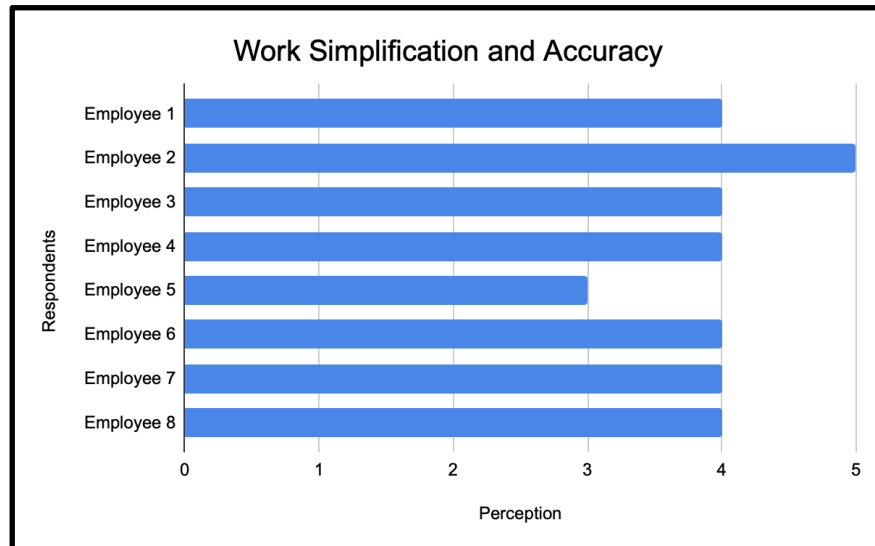


Figure 9: Work Simplification and Accuracy

This metric also got a high 4.0, which suggests digital tools are considered to greatly enhance accuracy and automate accounting work. That is particularly important in a finance setting, where efficiency and precision count. The top score means that automation (using RPA), real-time processing, and digital workflows are meeting user demands for fewer manual errors and complexity in workload.

f)

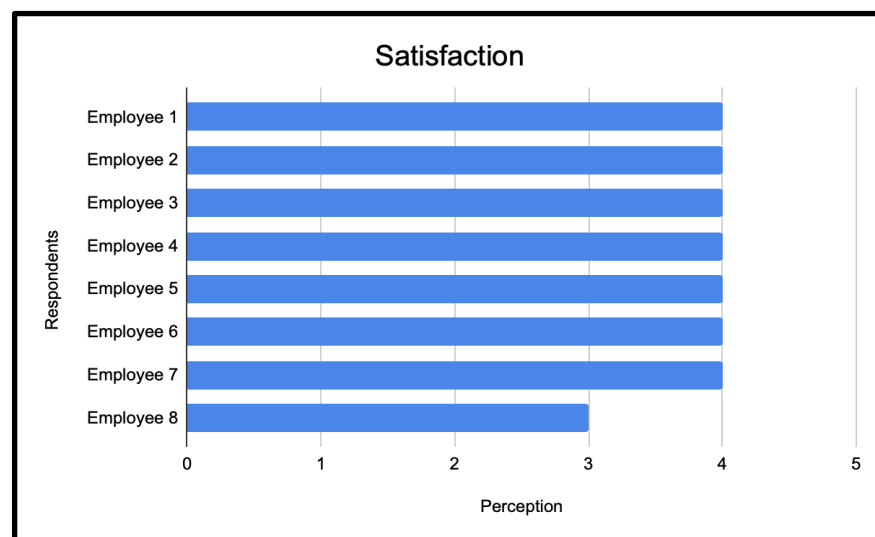


Figure 10: Satisfaction

The average for user satisfaction is 3.875, reflecting a high satisfaction level with the digital systems being utilized. While a great majority of respondents showed satisfaction (particularly those who checked 4), the presence of lower scores (e.g., 3) implies that there is a user who may have unmet expectations or lingering frustrations. The result confirms an observation that, as much as the general digital transformation is effective, there is still room for enhancement and assistance.

g)

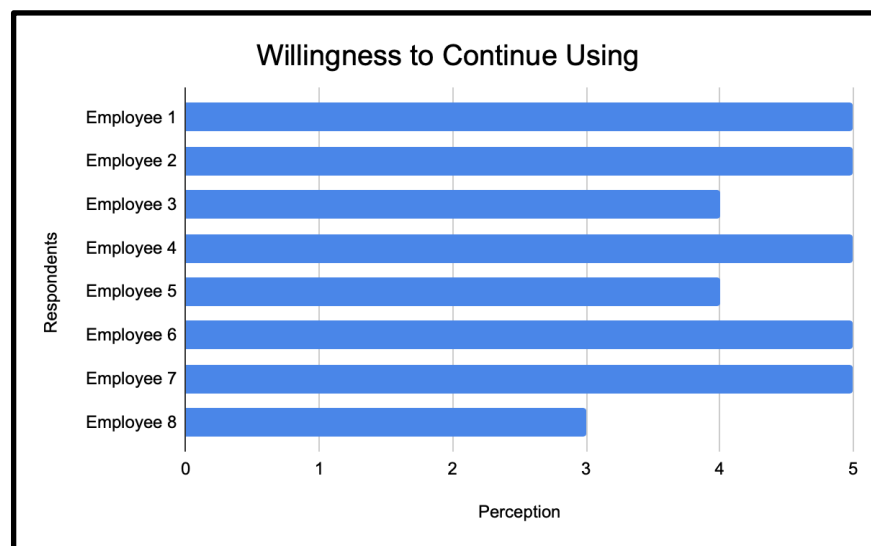


Figure 11: Willingness to Continue Using

With an average of 4.5, this is the highest rated dimension showing overall commitment to continued use of digital accounting technologies. Threatening shows deep acceptance and institutionalization of the digital tools by the department. The evidence that there is a collective desire to continue using the systems is a strong indicator that the systems are not only functional but also valued by users as part of their workflow.

- Advantages and Disadvantages of digital technologies

a)

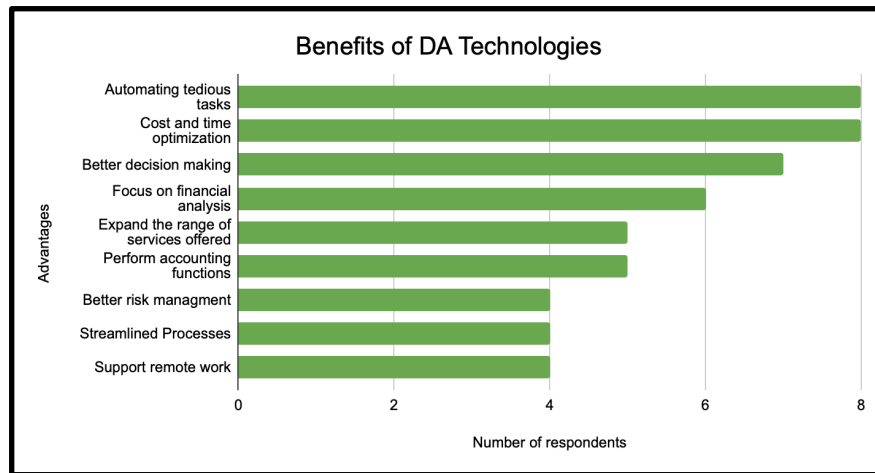


Figure 12: Benefits of DA Technologies

The results show the best-known benefits of digital accounting technologies are cost/time optimization and job automation, both selected by all 8 interview participants. This shows the strong impact of tools like AI and RPA in reducing workload and enhancing efficiency.

Better decision making (7 responses) and greater focus on financial analysis (6 responses) affirm enhanced strategic roles for accounting professionals. Other benefits, such as supporting expanded services, risk management and remote work were recognized as cited by half or more of respondents.

Overall, respondents view digital tools as instrumental to process automation, facilitating better accuracy and enhanced productivity in the finance department.

b)

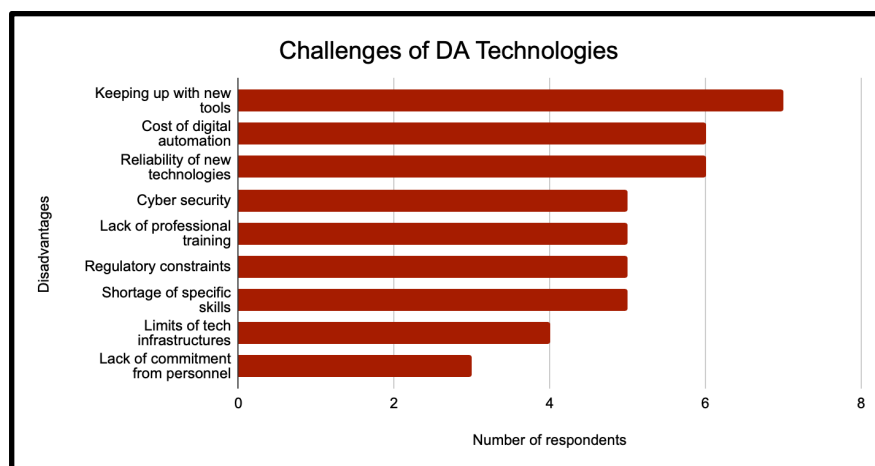


Figure 13: Challenges of DA Technologies

The most common issue that was mentioned was adjusting to new tools, selected by 7 of the respondents, pointing toward structural difficulties in following the quick evolution pace of digital accounting technology. This implies a need for ongoing learning and adaptability in the profession.

Other common issues include the cost of digital automation and reliability of emerging technologies (6 responses each), showing concerns towards financial expenditure and reliability of newer systems.

Mutual causes of concern among them were cybersecurity, professional shortcoming of training, regulatory constraints and shortages in some specific skills were each mentioned by 5 respondents and represent a desire for good IT governance, investment in skills and compliance with standards such as GDPR.

Less frequent but still mentioned, were technical infrastructure restrictions (4) and lack of commitment from staff or senior management (3) and this suggests a measure of resistance to change.

In short, these responses suggest that although computer accounting software has a lot of benefits, its adoption is still thwarted by technology, organization and human factors that must be overcome by companies in advance.

- Specific questions
 - a) Technology adoption and usage

Table 4: Technology adoption and usage – Q&A

QUESTIONS	ANSWERS
What automated tool is most used in the department?	The most used tools include RPA, widely adopted to automate repetitive tasks, and Vendor Invoice Management (VIM) with OCR for processing invoices. SAP FI/CO is the central system for financial postings and accounts payable. Other tools mentioned include custom automation scripts, Excel, Fiori, Tosca for test automation and Serrala for managing e-commerce data

Do you use a particular ERP system for managing “Accounts Payable”?	The accounts payable management ERP used is SAP, that is, SAP S/4HANA platform, which is the group's strategic ERP system and supports core processes in 76 companies. The SAP FI module is periodically used to handle accounts payable operations
Have you received training for using DA tools?	Training was provided in various forms, including formal sessions either by the internal IT department or external consulting firms involved in the rollout. Some employees received in-house SAP training, while others were trained while running the project or through some handover practices. But there were a few respondents (2) who claimed to have had no formal training

b) Perceived efficiency

Table 5: Perceived efficiency – Q&A

QUESTIONS	ANSWERS
Do you think digital tools have improved the speed/time saving of your work?	Computer tools have improved work speed significantly, especially considering the huge volume of information and numerous processes that the company must contend with. The respondents highlighted not just enhanced efficiency but also other benefits such as time and cost savings, and a general positive impact on business processes. Furthermore, it is predicted that with the first five bots implemented, an estimated saving of around 250 MD per year is expected (MD = Man Days)

Has automation reduced human error in your daily tasks?	Automation has generally reduced the extent of human error, especially about transactional data and reporting. Several respondents (5) noted tasks that are now performed automatically with no action on the part of the user and numerous control mechanisms that have been implemented. However, some respondents (3) did make comments regarding only limited individual experience with automation or at least only partial gains, which implies that the impact can vary by role or specific processes
Do you find the current accounting software user-friendly?	Generally, the accounting software is considered quite friendly, at least to users who have experienced it before. Yet, several respondents (4) said it was not good enough and thus could be improved, particularly in terms of guidance for a new user and the graphics interface, to improve navigation and usability. Though some of the system is intuitive with time, others (2) indicate that the person must already know what to do, because the system does not give much guidance. Regular upgrades are expected to make it increasingly user-friendly in the coming future

c) Security and compliance

Table 6: Security and compliance – Q&A

QUESTIONS	ANSWERS
Are there security protocols in place for handling digital invoices?	Robust security procedures exist for handling electronic invoices. These typically involve the in-house Cybersecurity team to ensure all security processes are put in place properly in projects. Functions involve user permissions, audit trails within SAP and strict compliance with security requirements to safeguard the processes
Has digitization made it easier to comply with regulatory requirements?	Digitalization overall has also made it easier to comply with regulatory requirements. The software utilized - primarily SAP - is set up to accommodate local tax compliance and is regularly updated to handle shifting local and international regulations. The respondents indicated improvement in audit readiness, accuracy of financial reporting and completeness. They did emphasize, though, that precision and care in system setup and requirements definition remain critical. Only one respondent was unsure of the impact

d) Improvements and expectations

Table 7: Improvements and expectations – Q&A

QUESTIONS	ANSWERS
Do you believe there is still room for improvement in your department's digital tools?	There is room for digital upgrades in the department, in fact it is planned a big expansion of the use of bots through the rest

	of 2025 and beyond, improving the ERP system by leveraging new software features more effectively and more user-friendly experience through interfaces like SAP Fiori, which also enables AI scenarios. In addition, continuous modernization of control tools, consolidation and reporting is there. Some respondents (2) also referred to the need for more integration with third-party platforms and noted that digital transformation attempts are still in infancy
Would you be open to using AI-based solutions for anomaly detection in invoices?	It is present an overall interest in testing out AI-driven solutions for anomaly detection in invoices. Participants believe it is a compelling solution, pointing out that it has a potential value, especially for non-electronic invoices
Do you think further investment in DA technology is necessary?	More investment in accounting technology is required. Such financing enables the new processes to be controlled, old ones to be optimized and increasing volumes of business to be accommodated. Continuous technological advancement is necessary to remain competitive in today's market environment, which is characterized by rapidness, analytics tools and data as prime considerations. Amplifying tools and technology through continuous investment is widely recognized as crucial

4.2 Recommendations

This thesis concludes by reaffirming that digital transformation in accounting is not merely a technical shift but an overall organizational and professional evolution. Through the critical integration of the research findings - spanning the literature review to theory models, and the empirical case study in Oniverse - it is evident that accounting technologies in cyberspace are transforming radically the way businesses operate. Yet, their full potential can be realized only if their uptake is strategic, people-centric and context-aware. Building on this knowledge, the following recommendations are provided for organizations undergoing digital transformation within finance operations and serve as a road map for upcoming scholarly work.

To begin with, companies must go through a phased and thoughtful journey of technological change, rather than viewing digitalization as an engineering-style implementation project. Most organizations, particularly small and medium-sized ones (SMEs), are bogged down by internal resistance and technology disruptors whenever they attempt to do new tools too quickly. This is why an incremental rollout - starting with core systems such as ERP and moving on incrementally to new-gen tools such as AI or Big Data Analytics - is perhaps a more feasible path. This is especially important in areas such as finance and accounting, where precision and adherence are a necessity.

Oniverse's research indicates that a deeply integrated ERP core is often the foundation upon which to establish an overall digital ecosystem, that automation and AI are brought in incrementally where workflow can be optimized without risking disruption.

Moreover, businesses need to create solid technological and organizational foundations before embarking on the implementation of advanced digital innovations. New technologies like cloud computing and blockchain are promising but are dependent on high data integrity, network security and system compatibility. Without robust cybersecurity defences and integration with current systems, digital technologies will become liabilities rather than assets. The analysed firm's solution to blockchain adoption that is conservative illustrates this: theoretically, its benefits outweigh its use, but it remains underutilized, perhaps due to concerns about the uncertainty of regulation and integration complexity. Digital maturity will therefore need to be gauged not only for tools deployed but also for readiness of the underlying infrastructure and governing models.

Equally significant is the investment in developing changing skills and in transforming management. As this research has shown, digital technology revolutionizes the nature of

accounting work from transaction recording to data interpretation and strategic advising. This requires not just new technical competencies but also a new mind-set. Companies must invest in continuous training programs to create digital competency among finance professionals, especially in the technology of AI platforms, ERP dashboards and analytics software. Training alone is not sufficient, though. Firms must also anticipate and overcome cultural resistance. Based on demographic statistics from the case study, workplace environments and age variations can affect the adoption of technology. Others may view automation as a cause of job insecurity, but others may struggle with using complex systems. Thus, successful digital transformation must be accompanied by effective internal communication, inclusive change initiatives and leadership support.

Another major suggestion is that regulatory and compliance structures must be embedded in digital processes from their origin. Financial activities are highly regulation-sensitive to legal stipulations, for instance, by GDPR, IFRS or local tax authorities. Technologies that process personal data or generate financial reports must ensure legal and ethical compliance. Digital accounting systems must be configured to support transparency, auditability and data privacy by design. As this study has unveiled, cloud and AI systems are typically followed by privacy concerns, especially if they are managed by third-party vendors. Thus, organizations have to think not only of function and speed but also examine whether such systems possess the capacity to facilitate auditable, standardized and regulatory-compliant outputs.

In addition, digital systems must be designed with usability and user experience in consideration. One of the prevailing themes from both the literature and the case study of Oniverse was the ambivalent employee perception of ease-of-use. While some users appreciated the features of the system, others found interfaces to be non-intuitive or workflows to be cumbersome. This type of friction reduces the anticipated value of digital transformation. It is therefore recommendable that firms involve end-users in technology selection and implementation processes. User feedback should guide the tailoring of tools such that systems are aligned with the cognitive workflow and expectations of accounting staff. Such a bottom-up approach enhances user acceptance and reduces the learning curve, especially in firms where digital solutions are relatively novel.

Finally, firms must begin to reposition their finance functions as strategic drivers rather than operational support units. Possibly the most exciting opportunity offered by digital accounting is that of being able to actively contribute towards decision-making. With real-time financial

dashboards, predictive analytics and scenario modelling capabilities, finance professionals are now poised to play a central role in business strategy development, resource allocation and risk management. This change requires a shift in the role of the accountant - from bookkeeper to business advisor. Success is contingent on organizational inclination to redefine processes, realign metrics, and equip finance teams with both mandate and analytical strength.

Looking ahead, several promising directions are available for future academic study. One of the primary directions is longitudinal analysis of the impact of digital adoption on organizational performance, particularly beyond initial implementation phases. Short-term gains are well documented, but the sustainability and long-term transformation outcomes are less clear. (*Vance, 2025*)

Another area of research is the human and behavioural aspect of digital change: how do personal attitudes, professional identity and generational divisions shape the success or failure of digital technologies in practice? Also, the new ethical challenges of technologies like AI - especially in uses like financial prediction and audit judgment - need to be researched more, as they cut across professional norms and regulatory regimes, as previously mentioned. (*Berthod, 2018*)

In summary, this thesis has shown that while digital accounting technologies provide significant benefits in terms of efficiency, transparency and strategic potential, their effective adoption requires careful planning, organizational readiness and continuous learning. The role of the accountant is undergoing a revolutionary shift, and those firms that acknowledge and support the change will be well positioned to thrive in an increasingly data-driven world. (*Lukmanova et al., 2024*)

Simultaneously, researchers need to keep investigating not just the tools themselves but also the larger institutional, social, and ethical environments within which they work. By this two-pronged strategy - practical application and scholarly wisdom - the analysis makes a valuable addition to the future of e-accounting. (*Brown, 2024*)

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