

**CA. Mohit Jindal**

Member of the Institute

**Dr. Garima Bansal**

Academician

Introduction

Traditionally, accounting and auditing functions were more reliant on manual methods and human expertise. However, with the advent of technology and Artificial Intelligence (AI), these tasks have witnessed a paradigm shift. Acknowledging the significance of the AI revolution, accountants and other professionals have shifted their attention towards enhancing accounting and auditing practices through digital technologies which resulted in greater effectiveness, timely audit of financial statements, improvement in accounting & audit department performance, reduction in audit task burden, improvement in productivity of accountants and

Accounting Theories in the Digital Era: Progress and Paradigm Shifts

Digital accounting has revolutionised the accounting profession by integrating emerging technologies such as artificial intelligence, cloud computing and blockchain technology. This transformation has enhanced the accuracy, speed, communication and transparency of financial reporting. The article analyses how emerging technologies support and modify major accounting theories—stakeholders, legitimacy, signalling, and user satisfaction theories—by improving communication, transparency, reporting quality and decision-making, while also raising concerns about privacy, security and bias.

auditors, risk evaluation and fraud identification and improvement in audit report quality. However, the adoption of digital technologies in the accounting and auditing profession also has various complexities and challenges.

Al Wael et al.'s (2023) study explained resource limitations, organisational resistance, insufficient understanding of digital technologies and ethical & regulatory concerns as barriers to the adoption of digital technologies. In addition, security issues in cloud environment, compatibility with existing standards, trust issues & data privacy are other challenges highlighted in previous research. These risks can reduce stakeholder confidence, disrupt organisations and violate regulatory directives.

In light of economic, regulatory and technological developments, accounting theories have also witnessed a paradigm shift. The relationship between modern technology and accounting theories is significant. Emerging tools like AI, blockchain, and big data help in developing new accounting theories. These new emerging accounting theories better address today's complex environment and mark

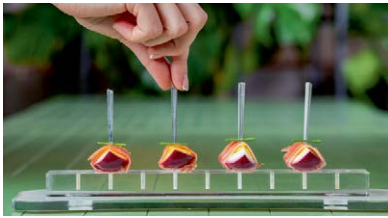
the beginning of a new era of digital accounting.

The Digital Accounting and Assurance Board (DAAB) is an important part of the Institute of Chartered Accountants of India's (ICAI) mission to integrate emerging technologies into accounting and auditing practices. DAAB provides technical guidance and conducts webinars to help professionals in directing digital assurance and auditing complexities. These initiatives aim to improve audit efficiency by guiding professionals about the use of digital audit evidence and related information.

Building on this context of technological transformation, emerging accounting theories, and associated challenges, the following objectives are formulated to guide the exploration of digital accounting and auditing practices.

Objectives

1. To understand the evolution and concept of digital accounting.
2. To explore the development of accounting principles and practices in the digital era.
3. To explain the role of technology in the development of modern accounting theories



4. To propose new accounting theories suitable for the digital era.
5. To examine challenges faced by accountants in adopting emerging technologies.

Evolution and Concept of Digital Accounting

To remain competitive in today's digitalised world, accountants must adopt digital accounting. Deshmukh (2006) described digital accounting as "a computer system and/or software already designed and programmed that can be customized to keep a record of transactions to generate financial statements for further analysis". Lehner et al. (2019) regarded it as a "common language among accounting professionals". Ahmed et al. (2019) define it as "the utilisation of digital technologies and information systems for recording, analysing and reporting financial transactions within organisations".

i. Conceptual Model of Digitalisation in Accounting (DIA)

Zhang et al. (2022) proposed a conceptual model of DIA as shown in Figure 2. The model includes four components, i.e.

a) Firm Characteristics:

Firms face pressures such as cost control, demand for higher transparency, work efficiency and competitive advantage. To remain efficient and competitive, firms are increasingly compelled to adopt digital technologies.

b) Executive Characteristics:

Leaders and managers' aspiration level, strategic intent play a significant role in digital transformation. If they see the value in digitalisation, the firm is more likely to successfully transform.

c) Organisational Capabilities:

It consists of two types:

- **Ordinary Capabilities:** These help firms control costs and maintain technical business efficiency.

- **Dynamic Capabilities:** These involve adapting quickly to changes, building new routines and innovating based on accumulated knowledge and learning.

Both firm and executive characteristics shape the capabilities an organisation develops and how they are implemented in digital accounting.

d) Digitalisation in Business Processes:

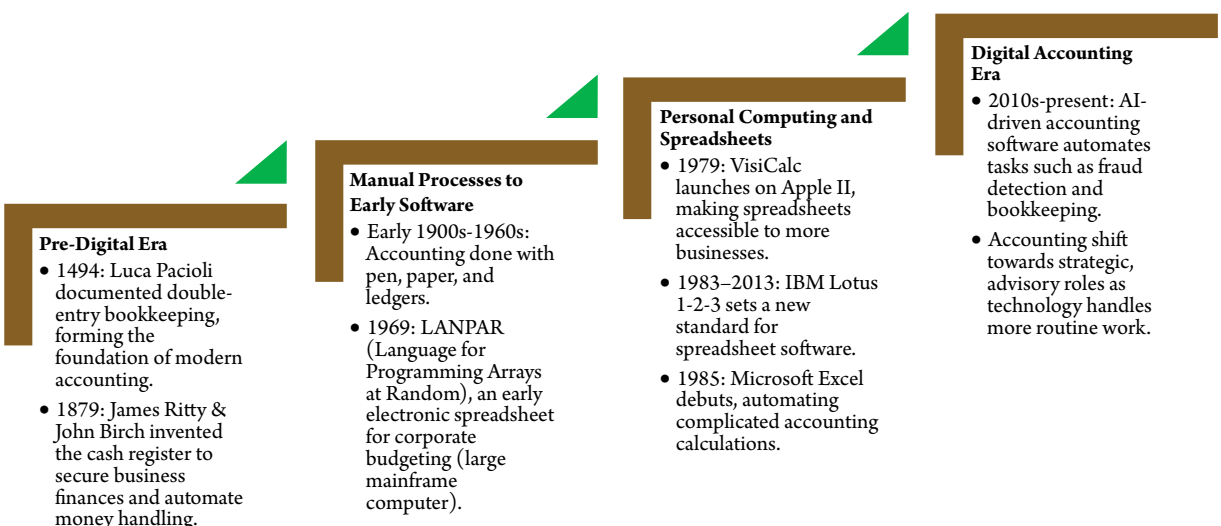
Successful transformation depends on two kinds of digital knowledge:

- **Architectural Knowledge:** Understanding how technology systems fit together as a whole.
- **Component Knowledge:** Being able to use and manage individual technologies (like specific software tools).

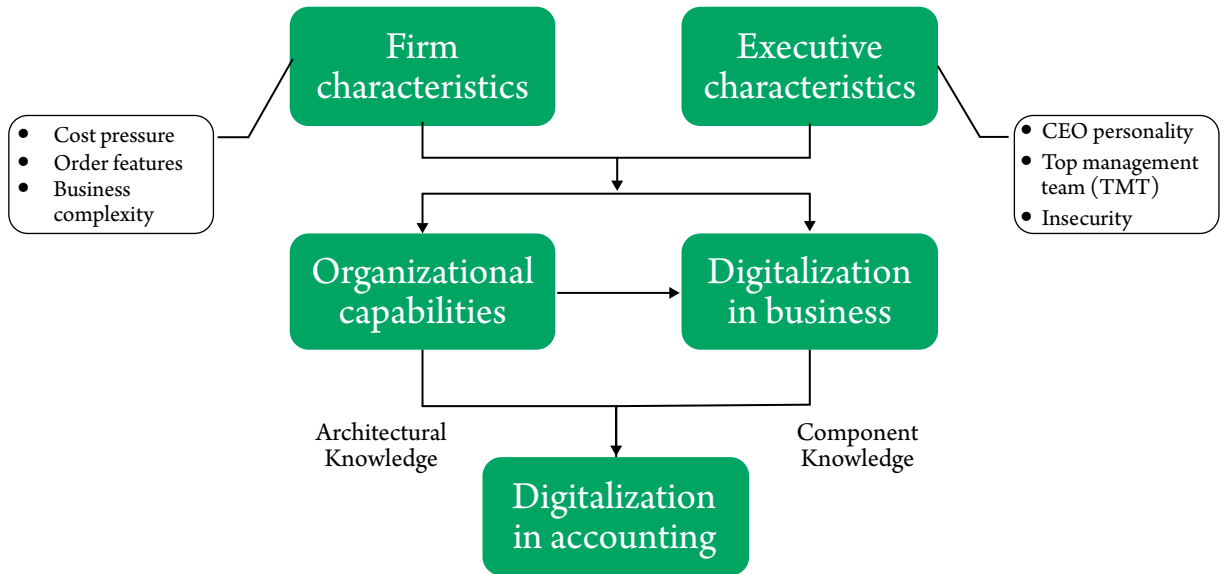
ii. The Digital Competency Maturity Model (DCMM) Version 2.0

The ICAI has released a detailed model to encourage the adoption of emerging technologies, such

Figure 1: Evolution of Digital Accounting from Manual Record Keeping to Automated Accounting



Source: Authors' Work

Figure 2: Conceptual Model of Digitalisation in Accounting (DIA)

Source: Zhang et al. (2022)

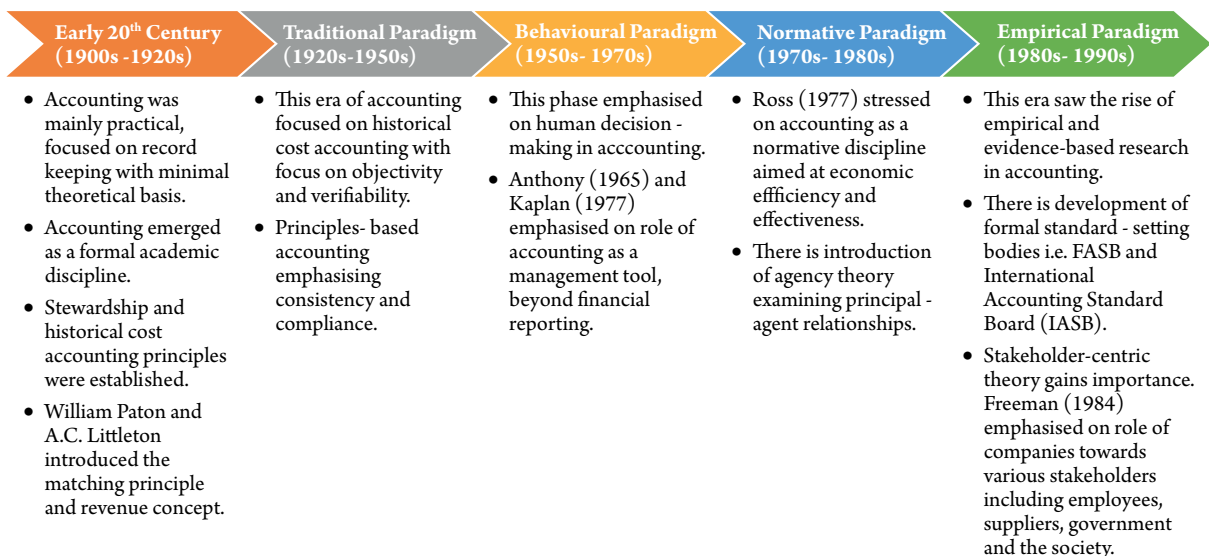
as AI and blockchain, among accounting firms and professionals with implementation guidance.

This model assesses digital competency based on several aspects, including automation of

internal processes (like attendance, documentation, communication and data security), availability of qualified accountants, level of automation in audit, tax, accounting and management consulting services, as well as the integration

of emerging technologies. In the model, a structured questionnaire is provided that firms can use to identify strengths and gaps, enabling them to plan and implement steps for digital adaptation.

Evolution of Accounting Theories

Figure 3: Evolution of Accounting Theories

Source: Authors' Work

“The use of AI and IoT technologies in accounting raises privacy-related challenges like unauthorised access, confidentiality breaches and complex consent agreements. Usage of digital platforms and software by accountants also enables employers to track and monitor their activities.”

Role of Emerging Technologies in the Development of Accounting Theories (1990s-Present)

In today's era, accounting is seen as a social and political construct with a focus on social justice, transparency and sustainability. Barth (2006) emphasised on Fair Value Accounting (FVA) with a focus on market value instead of historical cost. This phase saw the increased role of accounting information systems and technology.

Accounting has changed significantly by integrating traditional theories with modern information systems (IS) and technology. An Accounting Information System (AIS) helps organisations gather, store, manage, process and report financial data. In the words of Romney and Steinbart (2020), an AIS includes six main parts: “people, procedures, data, software, IT infrastructure and internal controls”. Technology like AIS automates routine tasks, improves accuracy and allows for advanced data analysis. Digital accounting uses software and digital tools to handle tasks that used to be manual, such as bookkeeping.

Accounting Information Systems (AIS) have significantly influenced accounting theory by increasing the accuracy, efficiency and timeliness of financial data processing. AIS supports real-time data analysis, encouraging shifts from traditional historical cost to fair value accounting and non-financial

factors like ESG data and stakeholder-centric reporting. While automation improves reporting efficiency, developing economies face adoption challenges due to infrastructure and skill gaps.

Discussion on Proposed Accounting Theories in the Digital Era

■ Digital Signalling Theory

Traditional signalling theory was developed by Spence (1973), which explained how organisations use financial data or reports to send significant information to shareholders and other stakeholders, ultimately reducing information asymmetry between parties. In today's digital age, technologies like cloud computing and big data have made these signals faster, allowing companies to communicate their information more effectively, and this has led to the development of new accounting theory, i.e., digital signalling theory. However, the abundance of signals can sometimes create confusion and the risk of misleading information increases. Despite these complexities, digital technology also improves transparency and accountability by enabling better verification of information, making digital signalling theory relevant in the modern technological era.

■ Digital Stakeholders Engagement Theory

Freeman (1984) explained stakeholder theory and emphasised the role of companies towards various stakeholders, including employees, suppliers, government and society. However, with technological advancements, stakeholders can express their demands speedily through digital platforms, increasing corporate openness, transparency, sustainability and governance. Emerging technologies like big data and AI enable companies to better understand and respond to diverse stakeholder needs and

greater stakeholder involvement in companies' operations.

■ Digital User Satisfaction Theory

DeLone and McLean (2003) Information System Success Model, proposed a user satisfaction theory with focus on user needs such as usability, functionality and relevance. Technologies like AI, blockchain and cloud computing lead to enhancement of users' satisfaction by improving automation, cost reduction and real-time reporting, ultimately increasing efficiency.

■ Digital Legitimacy Theory

Suchman (1995) explained the legitimacy theory that showed how organisations follow society's rules and norms through financial reporting and social responsibility. In the digital era, technology like online platforms has changed this interaction, making communication faster and more transparent. Digital tools allow stakeholders to hold companies accountable in real time, increasing the importance of reputation and ethical behaviour. With the growth of digital reports and social networks, the organisations' responsibilities towards the environment and society have also become possible through immediate interactions and disclosure of information.

■ Momentum Theory of Digitalisation in Accounting (DIA)

Zhang et al. (2022) proposed “The momentum theory of Digitalisation in Accounting (DIA)”. This theory compares digital transformation to water flowing from high hills (representing firm and executive characteristics) through sluice gates (organisational capabilities) into the ocean (DIA), as shown in Figure 4.

Organisations' willingness to distribute resources and their

organisational capabilities determine how successfully they adapt to digitalisation. Digitalisation starts with business processes that support operations and generate cash flow. The outputs or “exits” of this flow are the digital accounting achievements, consolidating data and activities in the finance function.

Challenges faced by Accountants in the Adoption of Emerging Technologies

Traditional accounting ethics are centred on principles such as objectivity, confidentiality, professional competence and due care, but require expansion. The digitisation of accounting transforms core professional responsibilities, introducing new challenges, dilemmas and concerns. Automation used in accounting, transaction processing and forecasting presents dilemmas regarding accountants’ autonomy, transparency, confidentiality, cybersecurity threats, privacy and others. The following are the challenges faced

by accountants in the adoption of emerging technologies.

1. Accountants’ Autonomy:

The use of technology in accounting significantly influences the decisions made by accountants, often limiting their autonomy. Excessive reliance on digital accounting tools reduces their critical thinking and decision-making abilities, which can lead to biased or misleading outcomes. Decisions generated by technologies, such as AI, may restrict the role of accountants, raising concerns regarding accountability and transparency of complex situations.

2. Privacy:

The use of AI and IoT technologies in accounting raises privacy-related challenges like unauthorised access, confidentiality breaches and complex consent agreements. Usage of digital platforms and software by accountants also enables employers to track and monitor their activities.

3. Dehumanisation:

According to Eulerich et al. (2023), “dehumanisation occurs when human professionals are sidelined or replaced by automation or AI systems”. Too much reliance on technology limits interactions among professionals. Decisions made by technology can introduce bias and unfairness, potentially undermining equality in the workplace. Replacement of humans with technology risks losing accountants’ judgement, empathy and accountants’ skills & knowledge. This results in feelings of isolation, dissatisfaction in job and disconnection among professionals.

4. Technological Complexities:

Technological complexity can be defined as “a way in which an individual or organisation can be held back from accomplishing a particular goal when using a technology or system”. Dwivedi et al. (2021) study explains the ‘black box problem’, which refers to “the issue that auditors cannot explain, interpret, or document the decision-making process of some AI tools”. Yang et al.’s (2024) findings reveal three main issues with the adoption of emerging technologies, i.e., ‘black box problem, biases and computability issues’. The growing complexity of accounting and auditing software has made its features increasingly difficult to comprehend, which has, in turn, limited its adoption.

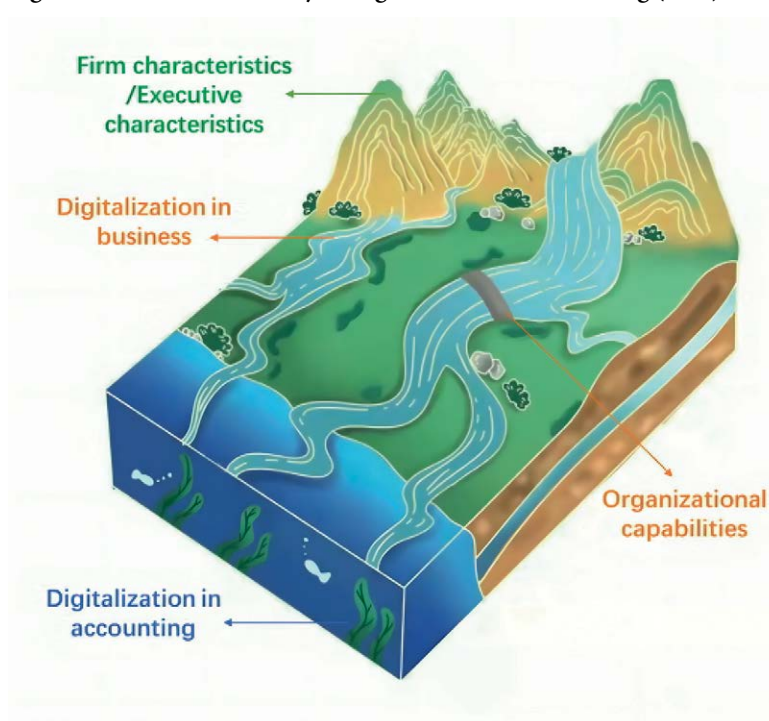
5. Need for Continuous Learning:

In order to keep up with the emerging technologies’ needs, regular training and skill upgradation are required. Lack of willingness or inability to learn new technology may put accountants at a disadvantage, as companies may replace accountants or auditors with data scientists.

6. Cyber Security Threats:

Digital accounting systems are inherently vulnerable to cybersecurity threats that threaten data integrity and availability.

Figure 4: Momentum Theory of Digitalisation in Accounting (DIA)



Source: Zhang et al. (2022)

Common risks include:

- **Breach of data:** Unauthorised access to confidential financial information can result in theft, exposure of confidential client and organisational personal information, causing reputational harm.
- **Ransomware:** Malicious and corrupted software encrypts organisational data, demanding ransom payments, disrupting financial reporting and tax compliance.
- **Phishing:** Attackers manipulate employees to disclose confidential financial information, or they deploy malware in their system.
- **Spoofing:** Attackers create falsely authorised users to get access to data, causing financial harm.

Conclusion

In view of rapid technological advancements, accounting theories have gone through a significant transformation to integrate with the digital world. Digital technologies like AI, blockchain, and cloud computing have transformed accounting theories such as signalling theory, legitimacy theory, stakeholder theory and user satisfaction theory. For example, digital technologies lead to enhancement of stakeholders' and users' satisfaction by reducing cost, real-time reporting and immediate communication, ultimately increasing efficiency, transparency, accountability and openness.

Despite these advantages, digital technologies raise concerns about privacy, autonomy, technological complexities, cybersecurity threats and bias. According to a May 2024 survey-based report by the AI Committee at ICAI, AI adoption is still in its early stages in India and has tremendous growth potential. Diverse adoption levels make it difficult to use AI for auditing, despite considerable investigation into the technology. These discrepancies are partly due to technological disparities between

firms. Firms are cautious about AI investment due to limited success cases and budget constraints, indicating untapped potential. This calls for advanced theories integrating ethics and governance tailored for digital technological complexities.

This article offers valuable inputs for policymakers and stakeholders in designing policies to leverage adoption of emerging technologies in accounting & auditing practices. In India, the Committee for Members in Practice (CMP) under the ICAI has tie-ups with various software and technology providers to offer discounted and facilitated access to audit/accounting-related tools for practising Chartered Accountants. These tools are accessible to members through CMP's programs and partnerships and are meant to support automation, compliance, and efficiency in accounting and audit practice. ICAI has also launched AI certificate courses (AICA Level 1 and 2) to equip members with practical AI tools for their practices. AICA Level 2, an advanced certification for Level 1 completers, covers fundamentals of AI, advanced prompting techniques and practical applications in finance, auditing, compliance, and analytics, providing practical mastery of AI, automation and intelligent analytics for delivering greater client value. Delivered in a 5-day hybrid format with 30 CPE hours, it empowers professionals to apply AI in auditing, compliance and advisory roles, overcoming adoption barriers through hands-on training and ethical, future-ready practices.

Therefore, more workshops, seminars, webinars and awareness programmes should be organised by ICAI to promote acceptance and adoption of emerging technologies and theories in accounting and audit practices.

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Authors may be reached at
garimahgc13@gmail.com and
eboard@icai.in