Research Article

Corporate Accounting Practice on the Horizon: Exploring the New Frontiers and Evolving Trends of Artificial Intelligence and Machine Learning

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Abstract

Corporate managers are grappling with dysfunctional accounting practices that are ill-equipped to manage the disruptive environment of growing artificial intelligence and other emerging trends. The field of accounting is experiencing rapid transformation due to a plethora of emerging trends that are reshaping the traditional practices. These trends are aimed at leveraging on good governance and technological advancements to promote sustainability of businesses. The paper applies institutional theory, customer relationship management theory, and Christensen's disruptions theory to examines the emerging shift in the practice of accounting by exploring interdisciplinary streams of literature. An integrative review methodology was used to identify emerging constructs relating to accounting practice in modern corporate sector. This paper identifies and discusses these trends and their implications for the accounting profession. Results revealed that technological advancements, automation of services, artificial intelligence, and blockchains are revolutionizing accounting processes, enhancing efficiency, accuracy, and transparency. The integration of artificial intelligence and machine learning into accounting processes through algorithms are revolutionizing traditional accounting functions by automating data analysis, detecting patterns, and identifying anomalies. These can enhance the accuracy and efficiency of financial reporting, risk management, and fraud detection, leaving accountants to focus on value-added tasks. Cloud technology also offers numerous benefits such as improved accessibility, real-time data updates, and enhanced collaboration, among stakeholders. This can enable firms to streamline their financial operations, automate repetitive tasks, and focus on strategic decision-making processes. Sustainability accounting and integrated reporting are gaining prominence as firms recognize importance of incorporating environmental, social, and governance (ESG) issues into financial practices. As firms recognize the importance of sustainable practices and stakeholder engagement, the demand for transparent and standardized ESG reporting has been rising. Accountants are also playing a crucial role in developing frameworks to measure and report on ESG impact, enabling firms to align their financial goals with sustainability objectives. Data analytics and predictive modeling are empowering accountants to extract valuable insights from large volumes of data, enabling proactive decision-making. The shift towards value-based pricing emphasizes the need for accountants to understand customer perceptions and deliver unique value propositions. The paper concludes that accountants must upskill and adapt to the emerging technologies. Firms and professionals will have to navigate the evolving accounting landscape and unlock new opportunities for success. To achieve sustainability gains to firms, accountants must grab opportunities these trends present and leverage technology and embrace sustainable practices to drive firm success in a dynamic, complex environment.

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1. Introduction

Accounting is an essential aspect of every business, and its importance has been growing with the advent of new technologies and the increasing complexity of financial transactions. In recent years, there have been several emerging trends in accounting that have reshaped the industry. This includes the use of cloud technology, the rise of artificial intelligence, automation of accounting skills, forensic accounting big data among others [41]. The field of accounting is continuously evolving, influenced by advancements in technology, changes in regulatory frameworks, and evolving business practices. Staying abreast of emerging trends is crucial for accountants, auditors, and financial professionals to adapt, provide accurate financial information, and add value to their organizations [52].

The emergence of new accounting technologies continues to reduce the work of accountants and improve better decision making. This is achieved through the automated processing systems by proving the data quality. Beyond this, the new accounting technology also provides data visualization and eliminate unnecessary data through data cleaning and data profiling task [37]. The objective of this paper was therefore to identify the main trending issues in accounting, discuss the opportunities created by the trending issues, discuss the challenges brought about by the issues, and explain how the current accountant can adapt to the changes brought about by the trends.

2. Theoretical Premising

A theoretical framing is usually needed for identifying potential impact of emerging issues and corporate response mechanisms in a business sector, that provides a rationale, design for strategic choices to create, deliver and capture value [45] by enumerating the structural elements and technology to address the unmet needs of clients [56]. Hence, theory of disruptive innovation (service innovation technology), customer relationship management (customer needs) and institutions (strategic decision-making) provide the grounding for this study.

Firstly, disruptive innovation theory, championed by [12], describe the manner in which new entrants in a market place can disrupt established firms. The theory presents some intriguing implications on how emerging issues can disrupt the old practices and industry cultures [14]. Based on the theoretical postulates, when an innovation emerged that improve performance on dimensions that customers historically valued, incumbents tended to lead commercialization and to maintain their market position [13]. However, when an innovation emerge that does not improve performance along a customer-preference trajectory but introduce a unique constellation of attributes, new entrants lead development while incumbents languish or failed. This pattern has been observed consistently across multiple technological generations and product lifecycles, and accountants have not been left behind.

According to this theory, disruptive innovation is the process in which a smaller company, usually with fewer resources, is able to challenge an established business - often called an incumbent – by entering at the bottom of the market and continuing to move up-market [13]. This process usually happens over a number of steps in which: incumbent businesses innovate and develop their products or services in order to appeal to their most demanding and/or profitable customers, ignoring the needs of those down-market; entrants then target this ignored market segment and gain traction by meeting their needs at a reduced cost compared to what is offered by the incumbent; the incumbents do not respond to the new entrant, continuing to focus on their more profitable segments; entrants eventually move upmarket by offering solutions that appeal to the incumbent's mainstream customers; and once the new entrant has begun to attract the incumbent business's mainstream customers en-masse, disruption has occurred. The implication for mainstream accounting and audit firms is that they must be able to adapt to the emerging innovations and other issues, if they are to continue being in the market and serve their clients efficiently.

Secondly, the institutional theory provides a multifaceted business outlook on normative pressures from external and internal sources that influence organizational decision-making, and it determines conventional rules and assumptions [43], whereby conformance to these norms is compensated through improved legitimacy, resources and survival capabilities [50]. Institutions provide social structures, rules and resources that are important to the service sector. Adopting artificial intelligence in the service sector differentiates the fourth industrial revolution from the third [49], which triggers adaptive structural processes that progressively change the organization's social interaction rules and resources that determine decision efficiency outcomes [15]. In the knowledge economy [48] contends that greater reliance is placed on the intellectual capabilities of intangible resources as opposed to physical resources for decision-efficiency outcomes. Extrapolating this theory to the

fourth industrial revolution, it is apparent that there are challenges that organizations face to conform to the normative pressures of digital disruption that depend upon each company's specific circumstances.

Finally, the underlying postulation of customer relationship management is premised in understanding customer needs and leveraging that knowledge to increase a firm's long-term profitability [53]. In the digital age, technology may be leveraged to be customer focused to understand customer needs better. For instance, probing large data sets - big data – may inform customer relationship management strategies [26]. Customer data is a rich source of unstructured, voluminous and ambiguous data for further processing through analytics. Data analytics are recommended for managerial strategic decision-making, since it is grounded in evidence rather than perception [40], of accounting discipline falls in. Knowledge gained from data analytics is essential for building close customer relationships for service differentiation, customer loyalty and value creation by accounting firms.

3. Methodology

An integrative review provides a broader summary of the literature and includes findings from a range of research designs since it gathers and synthesizes both empirical and theoretical evidence relevant to a clearly defined problem. It includes not only case studies, observational studies, and meta-analyses, but also practice applications, theory, and guidelines [36]. The method has been found to be the only approach that allows for the combination of diverse methodologies as it focuses on developing a holistic understanding of the topic, present the state of the science and contribute to theory development, thus has been advocated as important for evidence-based practice initiatives in many fields [25].

Such reviews are popular in fields that use diverse data sources to investigate the complexity of their professional practice. It addresses the current state of the evidence, the quality of the available evidence, identifies gaps in the literature and suggests future directions for research and practice. The critical question (s) of an integrative review is broader than that of a systematic review, yet should be clearly stated and well-defined. As with a systematic review, an integrative review requires a transparent and rigorous systematic approach [57].

Theoretically, these reviews synthesize research data from various research designs to reach comprehensive and reliable conclusions, thereby helping to develop a comprehensive understanding of the topic by synthesizing all forms of available evidence [17]. In essence, they allow researchers to use all available evidence from both qualitative and quantitative research to provide a more holistic understanding of the topic, which can then be applied to their practice. Sampling for an integrative review may thus include experimental and non-experimental (empirical) and theoretical literature [57].

Once a topic of study has been selected a problem is clearly

identified from an existing gap in the literature. Indeed, [17] have identified an integrative review process in which a researcher needs to identify a theoretical framework to help place the results of the integrative review into the larger body of professional knowledge. Conduct literature search using multiple types of sources and studies, including electronic databases and/or sources of grey literature and hand-searching the literature. From here, [25] have proposed an evaluation of the data to assess both quality and relevance of the selected studies to the research topic, using a critical methodological quality appraisal mechanism.

This should then be followed, according to [44], with an analysis and synthesis of the information by clustering, comparison, and contrasting of the information sources. This is aimed at assessing how well each data source answers the research question. It also helps to identify patterns, themes and relationships among the data sources. This is achieved through a narrative analysis, documentation and integration of large amount of existing data to generate a new perspective on the research topic. Lastly, a researcher then summarizes the findings and formulate conclusions, while making sure that he/she addresses how the review contributes to the larger body of literature related to the topic, and probably generate and suggest new research questions [60].

Based on the above conceptual and theoretical guide, this paper employed a systematic means of assembling and synthesizing previous research [55] through an integrative review process of research with theoretical and empirical data [60]. The paper adopted a concept-centric rather than a chronological or author-centric approach [59] due to the inclusion of ten streams of literature: artificial intelligence, blockchain technology, sustainability reporting, forensic accounting, big data analytics, automation of accounting skills, value-based pricing, software security, and pandemics such as the recent pandemic outbreaks.

Following [51], the research process started with a protocol development to create a defined body of literature for the theoretical analysis of a responsive business innovation adaptability. The protocol had three phases, in which phase one mitigated the incompleteness risk of the literature review by systematically identifying and reviewing existing databases (Web of Science, Scopus, Google Scholar), resulting in 57 articles identified through searching these databases. Whereas phase two remedied the overlap from different databases by filtering for duplicate articles resulting in 37 articles screened by titles and abstracts selected, the last phase created a consistent structure among all patterns, in which there was rigorous screening and appraisal of each article to assess whether its content was fundamentally relevant to the themes of this study.

From a total of 37 papers, a final sample of 21 high-quality relevant articles was selected to build the theoretical constructs for the study. Other articles published by innovations, technology or accounting firms in this paper's literature review and findings section were also used to establish current

market practices. The suppositions of the integrative review, according to [60], could be reported in tabular form. Since this study intended to develop a nuanced conceptual discussion, a thematic analysis was used to consolidate further and conceptualize higher levels of themes, constructs, patterns and descriptions from articles associated with artificial intelligence, blockchain technology, sustainability reporting, forensic accounting, big data analytics, automated accounting skills, value-based pricing, software security, and disruptive pandemics.

4. Findings From the Integrative Review

There are various emerging trends in corporate accounting which emerged this study's integrative review process. These trends continue to reshape the accounting profession and accounting as well as audit firms are responding to them in various ways. These trends are identified and discussed below.

4.1. Cloud Technology

Emergence of cloud technology is one of the most significant emerging trends in accounting in recent years. It has transformed the way accountants handle financial data by allowing them to access it from anywhere in the world with an internet connection [41]. Cloud technology has also made it easier for accountants to collaborate with clients and other colleagues, as well as streamline their workflow by automating repetitive tasks. The technology has transformed the way accounting data is stored, processed, and accessed. Cloud-based accounting software provides scalability, flexibility, and enhanced collaboration capabilities Due to the current environmental conditions and market, there is a move towards adoption of virtual accounting services for their finances as opposed to traditional in-person accounting [41]. This leaves accounting firms that have not adopted cloud-based technology tools to aid their business left behind with fewer prospects. Calculations and accounting are now available on personal computers using applications like Sage, Microsoft Excel, quicken, and QuickBooks [1].

According to a survey conducted by the American Institute of Certified Public Accountants (AICPA), about 74 percent of accounting firms in the United States use cloud technology in some form, with approximately 56 percent using it for data storage and 44 percent for accounting software [5]. This trend is expected to continue in the future, as more accounting firms embrace the advantages of cloud technology, such as cost savings, increased security, and improved accessibility [29]. The adoption of cloud technology in accounting is expected to continue to grow in the coming years. According to a report by Intuit, the use of cloud technology in accounting is projected to grow by 85 percent by 2024 [28]. The report also noted that the use of cloud technology in accounting has been driven by several factors, including cost savings, improved

security, and increased accessibility. As more accounting firms embrace cloud technology, it is likely that the industry will become more efficient, effective, and sustainable.

The benefits of cloud technology in accounting are numerous. One significant advantage is cost savings, as it eliminates the need for on-premise servers and other hardware, reducing the need for IT staff and related expenses. Additionally, cloud technology provides increased security, as data is stored in remote servers that are backed up regularly and protected by state-of-the-art security measures. Cloud technology also allows for greater accessibility, as accountants become capable of accessing financial data from anywhere with an internet connection, making it easier for them to work remotely or collaborate with colleagues in different locations [PwC, 2021].

Despite the numerous benefits, cloud computing faces some challenges. According to [31], the use of cloud computing requires specialized skills, which has proved to be a challenge to accountants. The overreliance on the service providers leads to data security risk as the clients have no control over their data the use of the internet has also proved to be a risk to cloud computing exercise in that in the event of disruptions on the internet, the accountants are not able to access the data. Data confidentiality integrity and availability is thus compromised by the use of cloud computing [31]. It is therefore prudent that governments should pass legislation and other legislation establishing legally-binding requirements for service providers to ensure the quality, security, and accountability of services provided in the event of a business-impacting occurrence. To provide security, confidentiality and integrity to data, data encryption, authentication and classification are recommended as security solutions for unauthorized access [39].

4.2. Artificial Intelligence

Artificial intelligence is the second emerging trend in accounting that can perform a variety of accounting tasks. It is revolutionizing the way financial decisions are made, forecasting future trends, and preparing for a future with increased automation [9]. Among the key expectations that artificial intelligence has achieved in the accounting profession include data entry, reconciliations, and even financial analysis. Automated data entry and processing powered technologies have revolutionized data entry and processing in accounting through optical character recognition systems. These systems, capable of extracting data from physical documents and converting them into digital formats, automate the cumbersome task of manual data entry. This eliminates the need for accountants to spend hours manually inputting data, reducing errors and increasing efficiency. According to a study by [16], optical character recognition technology can achieve accuracy rates of up to 99 percent, significantly improving data quality and reliability.

By automating these tasks, artificial intelligence frees up

accountants to focus on more complex, high-value work, such as advising clients and analyzing financial data [8]. This offers significant benefits in terms of efficiency, accuracy, and decision-making. Robotic process automation is being utilized for repetitive tasks, such as data entry, reconciliation, and report generation, allowing accountants to focus on more strategic activities. AI-powered systems, including machine learning algorithms, are employed for predictive analytics, fraud detection, and financial forecasting [6]. These technologies streamline processes and enable accountants to provide real-time insights, contributing to improved decision-making and efficiency [30]. In Fraud detection, artificial intelligence-powered software can analyze financial data in real time and identify patterns and anomalies that may indicate fraudulent activity (Roberts, 2019). This is particularly important in the current climate, where fraudsters are becoming increasingly sophisticated in their methods. Streamlining operations not only saves time but also reduces the risk of errors, as artificial intelligence-powered software is more accurate than manual methods. Additionally, artificial intelligence can be used to analyze large volumes of financial data quickly, which is particularly useful for auditing purposes [47].

However, there are challenges associated with the use of artificial intelligence in accounting. One significant challenge is the need to ensure that AI-powered systems are accurate and reliable. This requires careful testing and validation to ensure that the results produced by artificial intelligence are accurate and that the software is not biased. Additionally, there is a concern that the use of artificial intelligence in accounting may lead to job losses, as the technology can automate many tasks that were previously performed by humans [16].

Despite these challenges, the use of artificial intelligence in accounting is expected to continue to grow in the coming years. According to the report by [27], artificial intelligence in the Accounting industry is projected to grow 30 percent year on year from 2023-2027. As accounting firms continue to adopt artificial intelligence-powered systems, it is likely that the industry will become more efficient, effective, and sustainable.

4.3. Sustainability Reporting

Sustainability reporting is the disclosure of information related to a company's environmental, social, and governance (ESG) performance, as revealed by the [22]. It has become an increasingly important aspect of accounting in recent years, as companies face increasing pressure from stakeholders to disclose their environmental, social, and governance (ESG) performance [42]. Sustainability reporting involves measuring and disclosing a company's ESG performance, including its impact on the environment, society, and governance [32]. Accountants are increasingly involved in measuring and reporting non-financial performance indicators related to ESG

factors [62]. Integrated reporting frameworks, such as the GRI and Sustainability Accounting Standards Board (SASB), provide guidance for organizations to disclose their sustainability efforts. Incorporating ESG factors into financial reporting contributes to a comprehensive assessment of an organization's long-term value creation.

Sustainability reporting is closely linked to the accounting theory as it involves the measurement and reporting of non-financial performance indicators. In the past, accounting has primarily focused on financial performance indicators, such as revenue, profits, and expenses. However, sustainability reporting expands this focus to include non-financial indicators, such as carbon emissions, employee diversity, and community engagement. According to a survey by the AICPA, about 80 percent of companies in the United States are now producing sustainability reports, with 73 percent reporting on their carbon emissions [5]. This trend is expected to continue, as investors and other stakeholders increasingly demand greater transparency around companies' ESG performance. Sustainability reporting is becoming increasingly important in the accounting industry. As companies recognize the importance of sustainability, they are seeking ways to measure and report on their sustainability performance.

The GRI is a widely recognized framework for sustainability reporting. The GRI Standards provide guidelines for companies to report on their sustainability performance in a transparent and standardized manner [22]. The GRI Standards cover a wide range of sustainability issues, including environmental impacts, labor practices, human rights, and anti-corruption measures. By adopting the GRI Standards, companies can ensure that their sustainability reporting is consistent and comparable across industries and regions. Sustainability reporting can provide a number of benefits to companies. By reporting on their sustainability performance, companies can enhance their reputation and credibility with stakeholders, including investors, customers, and employees [63]. Sustainability reporting can also help companies identify areas where they can improve their sustainability performance, which can lead to cost savings and operational efficiencies [22]. Additionally, sustainability reporting can help companies comply with regulations and standards related to sustainability reporting, such as the EU non-financial reporting directive [18].

However, there are challenges associated with sustainability reporting. One significant challenge is the need to ensure that the information reported is accurate and reliable. This requires robust data collection and verification processes, which can be time-consuming and resource-intensive [19]. Additionally, there is a concern that companies may engage in *greenwashing*, where they report on their sustainability performance in a misleading or exaggerated manner [63]. Despite these challenges, sustainability reporting is becoming increasingly important in the accounting industry. As investors and stakeholders demand more transparency and accountability from companies, sustainability reporting is likely

to become a standard practice in the coming years.

4.4. Blockchain Technology

Blockchain technology deals with transferring asset ownership and maintaining a ledger containing accurate financial information and efficiency. This is a disruptive technology that has dramatically changed the business models and market structures of many industries [10]. Blockchain technology is a decentralized ledger that records transactions in a secure and transparent manner, making it an ideal tool for accounting [35]. It is a technology for storing and verifying transactional records that works by adding *blocks* of data to a peer-to-peer ledger [11]. Blockchain technology has the potential to revolutionize accounting processes, particularly in areas such as financial transactions, auditing, and supply chain management [58].

Smart contracts, enabled by blockchain, automate and streamline financial transactions, reducing the need for intermediaries [61]. Additionally, the emergence of cryptocurrencies, such as Bitcoin and Ethereum, presents new challenges and opportunities for accountants regarding financial reporting, taxation, and fraud prevention [38]. Understanding blockchain technology and its implications is crucial for accountants in this digital era. Transactions are verified by a network of computers rather than a single central authority, making it virtually impossible to alter or manipulate transaction records. This technology offers a number of potential benefits for the accounting industry, including increased transparency, reduced fraud, and improved efficiency [46].

Blockchain technology continues to gain popularity in several areas in accounting such as supply chain, audit and assurance. In supply chain management, blockchain helps companies track products and materials as they move through the supply chain, improving transparency and reducing the risk of fraud and increasing efficiency [34]. Studies have proven that the technology can also provide a means of verifying the authenticity of products and materials, reducing the risk of counterfeiting. According to a report by PwC, approximately 77 percent of companies expect to adopt blockchain technology by 2022 [47]. In the area of audit and assurance, blockchain technology provides a secure and transparent means of recording and verifying financial transactions, making it easier for auditors to perform their duties. Additionally, blockchain could potentially reduce the need for manual intervention in the audit process, increasing efficiency and reducing costs [16]. Blockchain technology also has the potential to improve the accuracy and efficiency of financial reporting. Blockchain provides a secure and transparent means of recording financial transactions, reducing the risk of errors and improving the accuracy of financial reporting [46]. Additionally, blockchain can therefore reduce the need for manual intervention in the financial reporting process, increasing efficiency and reducing costs.

Despite the potential benefits of blockchain technology, there are challenges associated with its implementation in the accounting industry. One significant challenge is the need for standardization of blockchain technology. In order for blockchain to be widely adopted in the accounting industry, there needs to be a common set of standards and protocols to ensure interoperability and compatibility between different blockchain networks [64]. Another challenge is the need for adequate cybersecurity measures to protect against cyber-attacks and data breaches [6]. The decentralized nature of blockchain makes it difficult to hack or manipulate transaction records, but the technology is still vulnerable to other forms of cyber-attacks, such as denial-of-service attacks and phishing [19].

Despite these challenges, blockchain technology is likely to become an increasingly important tool in the accounting industry in the coming years. As companies seek to improve transparency, reduce fraud, and improve efficiency, blockchain technology offers a secure and transparent means of recording and verifying financial transactions.

4.5. Forensic Accounting

Forensic accounting is another emerging trend in accounting brought about by the growing complexity of financial transactions and the increasing sophistication of financial criminals [54]. According to a report by the Association of Certified Fraud Examiners (ACFE), businesses lose an estimated 5 percent of their annual revenues to fraud, highlighting the need for trained forensic accountants to identify instances of financial crime [4]. As financial transactions become more complex, it becomes more difficult to detect instances of fraud and other financial crimes, making forensic accountants an essential resource. Services provided by forensic accountants to organizations include to design strategies to prevent and detect commercial crimes, obtain and review financial documents to uncover inaccuracies or discrepancies, quantify revenue losses and damages done by contract breaches, design and implement fraud risk management programs. Additionally, forensic accountants conduct interviews with suspects and witnesses involved in financial scams. provide litigation support and present findings that an attorney can use as trial evidence in a court of law [52].

The rise of technology in financial transactions has also created new opportunities for financial criminals to engage in fraudulent activity. Cybercrime and other forms of digital fraud are becoming increasingly common, and forensic accountants are trained to identify instances of digital fraud and other forms of financial crime. By analyzing digital data and financial records, forensic accountants can detect anomalies and inconsistencies that may indicate fraudulent activity [65]. In addition to detecting and preventing financial crime, forensic accountants may also provide expert testimony in legal proceedings related to financial crimes. This can involve providing analysis of financial records and data to support legal cases against individuals or organizations accused of

financial crimes.

One potential challenge facing the field of forensic accounting is the shortage of qualified professionals. According to a report by the American Institute of CPAs (AICPA), there is a growing need for forensic accounting services, but there is a shortage of qualified professionals to meet this demand. This shortage highlights the need for greater investment in education and training programs for forensic accountants [5].

Forensic accounting is an emerging trend in accounting that is likely to become increasingly important in the coming years. As financial transactions become more complex and financial criminals become more sophisticated, the need for trained forensic accountants will only continue to grow. By detecting and preventing financial crime, forensic accountants play a critical role in ensuring the integrity of financial reporting and maintaining the trust of investors and other stakeholders.

4.6. Big Data Analytics

In recent years, big data has emerged as a major trend in the accounting industry [16]. With the increasing amount of data being generated by companies, accountants are realizing the potential benefits of analyzing this data to inform business decisions, optimize financial operations, and enhance risk management. Big data accounting is of benefit to organizations in that it has led to improved financial reporting. With big data accounting, accountants are able to identify patterns and trends in financial data, allowing for more accurate and timely financial reporting [47]. This can help businesses to make better decisions and improve their overall financial performance. Secondly, big data has led to enhanced risk management in businesses. By analyzing large datasets, accountants can identify potential risks and vulnerabilities in a company's financial operations. This can help to mitigate risks and prevent fraud or other financial crimes [16]. In addition, evidence has shown that big data has led to better business insights. Big data analytics can provide valuable insights into a company's operations, allowing accountants to make better business decisions. Such analysis of customer data can help businesses to identify patterns in customer behavior and tailor their products or services accordingly.

While big data has the potential to transform the accounting industry, there are some challenges that come with implementing a big data strategy, among them is the data quality. In order to obtain accurate insights from big data analytics, the quality of the data being analyzed is critical. This can be a challenge as data is often stored in disparate systems and may not be easily accessible [46]. Secondly is data security. With the increasing amount of data being generated and stored, data security is a major concern. Accountants must ensure that they have robust security measures in place to protect sensitive financial data [16]. Another notable challenge is the skills gap where implementing a big data strategy requires specialized skills, including data science and analytics. Accounting firms may need to invest in training or hiring professionals with

these skills.

4.7. Automation of Accounting Skills

The accounting industry is undergoing a transformation with the rise of automation, which is disrupting the practice of accounting. Advancements in technology have made it possible for accountants to automate routine tasks such as data entry and reconciliation, freeing up time for more strategic tasks. Automation of accounting skills has led to increased efficiency. According to ACCA research, more than half of C-level accounting executives expect automated accounting solutions across many businesses. Furthermore, 70% of businesses have experienced significant ROI after implementing automation in their accounting procedures [2]. By automating routine tasks, accountants can save time and reduce errors, allowing them to focus on more strategic tasks (EY, 2021). This has led to improved overall efficiency in financial reporting and other accounting functions. Notably is the improved accuracy.

Automation has also helped to reduce errors in financial reporting, as machines are less prone to errors than humans [33]. This has led to improved quality of financial reporting and reduced the risk of regulatory compliance issues. Large-scale enterprises opt for Enterprise Resource Planning (ERP) systems instead of standalone accounting software. Such systems, according to [52], can provide enterprises with numerous features in addition to an accounting module such as procurement, order Management, supply chain management, inventory management, logistics, as well as human resource management.

Moreover, according to [23], the accuracy of financial data will improve and technology can be used to easily solve the above problems. The same amount of financial data can be viewed much faster than traditional methods. Therefore, AI can be used to detect large numbers of transactions in a short period of time or errors and anomalies such as accounts payable credit balances. Finally, is the cost savings aspect whereby by automation there is a reduction in the costs associated with routine accounting tasks, as machines can perform these tasks more quickly and accurately than humans [19]. This can help to reduce overhead costs and improve the profitability of accounting firms.

While automation has the potential to transform the accounting industry, there are some challenges that come with implementing an automation strategy. Data access is one of the biggest challenges for companies looking to apply automation to many areas. Automated devices require hundreds of thousands of times more information than humans to understand concepts and perceive functions [7]. Small and medium enterprises and start-ups may not have sufficient data collection capabilities to drive automated processes. Data quality is affected when in order to obtain accurate insights from automated systems, the quality of the data being analyzed is critical. This can be a challenge as data is often stored in

disparate systems and may not be easily accessible [33]. Additionally, while implementing an automation strategy requires specialized skills, including programming and data analysis. There has been a notable gap in the skills required to operate. Accounting firms may need to invest in training or hiring professionals with these skills [18]. With the increasing amount of data being generated and stored, according to [34], data security is a major concern. Accounting firms must therefore ensure that they have robust security measures in place to protect sensitive financial data.

4.8. Value-Based Pricing in Accounting

Value-based pricing is an emerging trend in the accounting industry, representing a shift away from traditional pricing models that are based on time and effort. It is the practice of setting the price of a product or service at its perceived value to the customer [21]. Accounting firms have traditionally charged clients based on the amount of time and effort required to complete the work. However, this approach has been criticized for failing to consider the value that the services provided by the accounting firm bring to the client's business. Value-based pricing is a new pricing model that seeks to address this issue by charging clients based on the value of the services provided. Value-based pricing has several potential benefits for both accounting firms and their clients. For accounting firms, value-based pricing can increase profitability by allowing them to charge higher fees for more valuable services [21]. It can also improve client satisfaction by providing more customized and strategic services that better align with the client's business goals [20]. Therefore, value-based pricing can incentivize accounting firms to focus on delivering high-quality services rather than just completing tasks.

This technology has implications for the Accounting Industry in different ways. Value-based pricing represents a significant shift in the accounting industry, as it moves away from a focus on completing tasks and towards a focus on providing strategic, high-value services to clients. This shift has the potential to transform the accounting industry by encouraging more customized and personalized services that better meet the needs of clients. However, the implementation of value-based pricing will require accounting firms to invest in training and education to develop the necessary skills and expertise [20].

However, the technology faces some challenges. Implementing value-based pricing can be challenging for accounting firms, as it requires a deep understanding of the client's business and the value that the accounting firm can provide [20]. It may also require a shift in mindset for both the accounting firm and the client, as traditional pricing models based on time and effort are deeply ingrained in the accounting industry. Determining the value of the services provided can be difficult, as it requires a clear understanding of the client's business objectives and the potential impact of the

accounting services on those objectives. Accurately assessing customer perceptions poses a challenge. Determining what customers are willing to pay for a product or service relies on understanding their preferences, needs, and willingness to pay. Conducting market research, gathering customer feedback, and leveraging data analytics can help in gaining insights into customer perceptions. However, accurately quantifying and interpreting these perceptions can be a complex task [24]. Identifying appropriate metrics to measure the value offered by a product or service poses a challenge. Value metrics provide a basis for pricing decisions by quantifying the benefits delivered to customers. These metrics can vary across industries and products, making it crucial to develop reliable and consistent methods for assessing value. Challenges can arise when attempting to assign a monetary value to intangible factors such as brand reputation or customer experience.

Furthermore, value-based pricing heavily relies on data collection and analysis to understand customer behavior, market dynamics, and competitors' offerings. Collecting relevant data and ensuring its accuracy and reliability can be a resource-intensive task. Additionally, analyzing the data to derive meaningful insights requires expertise in data analytics and interpretation. Companies thus need to invest in robust data collection systems and skilled personnel to handle the complexities of data analysis.

Moreover, value-based pricing often involves dynamic pricing strategies that adapt prices in response to market changes or customer preferences. While dynamic pricing can enhance revenue optimization, it introduces challenges related to price discrimination, transparency, and customer trust. Implementing dynamic pricing strategies requires careful consideration of legal and ethical implications to avoid discriminatory practices or negative customer perceptions [66]. Finally implementing value-based pricing requires alignment across various functions within an organization, including sales, marketing, finance, and operations. Achieving this alignment can be challenging, as different departments may have different priorities and objectives. Resistance to change, lack of communication, and a siloed organizational culture, according to [67], can hinder the successful implementation of value-based pricing strategies in corporate accounting environment.

4.9. Accounting Software Security

Accounting software security is an emerging trend in accounting that has become increasingly important in recent years. As businesses move towards digital platforms and cloud-based accounting solutions, the security of financial data is a growing concern (PwC, 2021). Cyberattacks on accounting systems can have serious consequences, including financial losses and damage to a company's reputation. Therefore, it is essential for accounting software providers to enhance the security of their products, and for accounting firms to educate their staff and clients about cybersecurity

risks [16].

To address these concerns, accounting software providers are implementing various measures to enhance the security of their products. These measures include two-factor authentication, encryption, and regular software updates to patch vulnerabilities [46]. Two-factor authentication involves requiring a user to provide two forms of identification, such as a password and a verification code sent to their phone, to access their account. This method can greatly reduce the risk of unauthorized access to sensitive financial data. Encryption involves converting data into a coded language that can only be accessed with a specific decryption key. This method can protect financial data from being intercepted and read by unauthorized users.

Further, software providers are implementing regular software updates to patch vulnerabilities and improve system security [47]. These updates can include bug fixes, security enhancements, and new features to help prevent cyberattacks. By regularly updating software, accounting software providers can stay ahead of emerging threats and provide their clients with the most secure and up-to-date software possible.

In addition to these measures, accounting firms are taking steps to educate their staff and clients about cybersecurity risks [3]. This includes training on safe password practices, email phishing scams, and other common attack methods. By educating their staff and clients about cybersecurity risks, accounting firms can help prevent cyberattacks and protect their client's financial data.

4.10. COVID-19 Disruption

The recent COVID-19 pandemic has had a significant impact on the accounting profession, making it an emerging trend in accounting. The pandemic has caused disruption and uncertainty in the global economy, which has resulted in a shift in the priorities of the accounting profession [19]. The accounting profession has therefore been forced to adapt quickly to the changing environment, and new challenges have emerged as a result.

One of the most significant challenges brought about by the pandemic is the increased need for remote work and virtual communication. Accounting firms have had to quickly transition their operations to a virtual environment, which has required the adoption of new technology and communication tools [16]. This has been particularly challenging for firms that were not previously equipped for remote work, and it has required a significant investment in new technology and infrastructure. Another challenge brought about by the pandemic is the increased demand for advisory services. Clients have been seeking advice on managing the financial impact of the pandemic, including cash flow management, government relief programs, and tax implications [33]. As a result, accounting firms have had to pivot their services to meet the changing needs of their clients.

Furthermore, pandemic has also had an impact on financial reporting and auditing. The pandemic has created significant uncertainty in the global economy, which has made it difficult to assess the real financial health of companies [46]. As a result, accounting firms have had to adapt their auditing procedures to account for the increased uncertainty and risk. In addition, the pandemic has also brought about changes in accounting regulations and standards. Governments have implemented relief programs and stimulus measures to support businesses and individuals during the pandemic, which has created new accounting and reporting requirements [19]. Firms and audit firm have also tried to cope with the trend by organizing online annual general meetings (AGM) for shareholders. Accounting firms have had to stay up-to-date with these changes to ensure compliance with regulatory requirements. The main drawback of online AGMs is challenge of poor attendance and participation by majority of the shareholders, especially retail investors.

Overall, the implications of the major findings are that combining artificial intelligence and other emerging cutting-edge technical advancements with accounting work is essential if we are to effectively increase the caliber and effectiveness of accounting work and support the further growth and development of the accounting industry. In financial reporting, artificial intelligence and other emerging innovative tools can analyze vast amounts of data to find patterns and trends that humans might not be able to see. Accounting professionals may be able to use this to pinpoint areas where financial performance could be enhanced, resulting in better organizational decision-making. However, it is important to keep in mind that these new, innovative technologies and other emerging trends have both positive and negative aspects. They can both enhance accounting work efficiency and meet high standards for management decision-making, but they can also have some negative effects on accounting work, such as the loss of low-end financial practitioners or increased risks of data breaches.

Therefore, it is essential to fully utilize the benefits offered by these new trends when performing actual accounting work and to implement solutions to solve the challenges presented by some of these emerging cutting-edge technology and other trends. These strategies include focusing on the management of financial data security, enhancing the skills of current financial staff, and bringing in high-level financial managers. Lastly, accounting and other financial practitioners should be good at navigating around the challenges these emerging issues have brought into opportunities and promoting further growth and development of the accounting industry and the development of businesses.

5. Conclusion

This paper has espoused on a plethora of the emerging trends which are shaping the modern day accounting landscape. It has argued that the field of accounting is undergoing significant transformations driven by emerging trends

that are reshaping the profession. These trends are revolutionizing the way accounting is practiced, impacting both the processes and the roles of accountants themselves. One of the most prominent trends is the integration of advanced technologies such as artificial intelligence, machine learning, and automation. These technologies are streamlining traditional accounting tasks, reducing the manual workload, and enhancing accuracy and efficiency. Accountants can now leverage sophisticated software and algorithms to handle data analysis, financial reporting, and compliance, freeing up their time to focus on higher-value activities like strategic planning and decision-making. Another noteworthy trend is the growing importance of data analytics and data-driven decision-making. With the vast amount of data available today, accountants have an unprecedented opportunity to extract valuable insights and provide proactive recommendations to drive business growth. By harnessing data analytics tools and techniques, accountants can identify patterns, trends, and potential risks, enabling organizations to make more informed and strategic choices.

Furthermore, sustainability and environmental accounting have gained significant momentum in recent years. As organizations face increasing pressure to address climate change and demonstrate responsible business practices, the role of accountants in measuring and reporting environmental impact is becoming crucial. Accountants are now expected to incorporate sustainability considerations into financial reporting, risk assessment, and performance evaluation, playing a pivotal role in guiding organizations toward a more sustainable future. Additionally, the shift towards cloud computing and digitalization is transforming the way accounting information is stored, accessed, and shared. Cloud-based accounting systems provide real-time access to financial data, facilitate collaboration between stakeholders, and offer scalability and cost-efficiency. This trend allows accountants to work remotely, promotes seamless integration across departments, and enables faster and more accurate decision-making.

Abbreviations

ACCA	Association of Chartered Certified Accountants
ACFE	Association of Certified Fraud Examiners
AI	Artificial Intelligence
AICPA	American Institute of Certified Public Accountants
ESG	Environmental, Social, and Governance
EU	European Union
GRI	GRI Global Reporting
SASB	Sustainability Accounting Standards Board

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Conflicts of Interest

The authors declare no conflicts of interest.

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