Guest editorial: The future of financial reporting and accounting in the metaverse

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1. Introduction

Digital transformation, although affecting all industries, is impacting differently organizations with a high degree of technological orientation such as finance, accounting and auditing firms. The emergence of the Metaverse and Industry 5.0 is catalysed by technologies such as artificial intelligence (AI), big data, blockchain, Internet of Things (IoT), extended reality and 5G (Musleh Al-Sartawi *et al.*, 2022). These technologies are quickly maturing and advancing for mainstream use fuelled by the COVID-19 pandemic. Thus, the digitalization of accounting and auditing practices represents one of the major paradigm shifts that have distinguished the past years (AL-Hawamleh *et al.*, 2024).

It is not a choice for accountants and auditors to immerse themselves in technology anymore because of its disruptive impact on organizations (Kayed and Al-Sartawi, 2024). "The metaverse is here to stay. Within five years everyone is likely to be using it in some shape or form," EY's Global Leader Blockchain Tax Services, Dennis Post (April 2022). As such, it is high time that researchers and academics explore and examine the metaverse and this Special Issue (SI) provides a discourse platform for scholars and experts to discuss these issues.

The Big 4 have published several articles on their websites exploring the metaverse. For example: "The metaverse—accounting considerations related to nonfungible tokens" (Deloitte, 2022a, June 21). The number of website articles on this topic has been steadily increasing in 2022 (Deloitte, 2022b April; Deloitte, 2022a June; EY, 2022a, 2022b February). Whereas professionals have started to examine novel ideas about the metaverse, academics and researchers are severely lagging (Chukwuani, 2022). Accordingly, there is a need for research in the field of accounting to provide new insights and assess the pitfalls of the metaverse.

This SI thus aims to bridge the gap that currently exists in the literature in terms of the important issue of the future of accounting and financial reporting in the metaverse. The Big 4 have raised some interesting points on the issue of accounting in the metaverse. Accounting firms, such as PwC, have started buying land in the metaverse. All these are signalling change to accounting. This SI is the first of its kind to offer a starting point for researchers to discuss opportunities and offer solutions to pitfalls that might face accounting in the metaverse. Therefore, the reason for selecting this topic for the SI is an important one. Our proficiency as scholars and editors has compelled us to select the current topic in a dynamic environment. Therefore, we offered this SI to researchers as a platform to shine new light on these topical issues. This SI is structured as a comprehensive reference covering theoretical and practical aspects related to digital transformation, the metaverse and the future of accounting and financial reporting. We hope that our SI will encourage further research into the opportunities and challenges of disruptive technologies with limited to no long-term threats to the sustainable development goals and the sustainability of the accounting profession. Moreover, future research could examine the need for metaverse regulations and governance systems.

The rest of the Editorial is structured as follows. Section 2 reviews the current changes in the accounting profession because digital transformation and technological advancements. Finally, Section 3 presents the main papers in this SI and their contribution.

2. Metaverse and accounting

With the explosion of technological development in the digital era, the metaverse is rapidly emerging, and issues such as virtual environments, non-fungible token (NFTs), digital twins, metaverse commerce and cybersecurity are becoming realities in the field of financial reporting, accounting and auditing (Al-Sartawi, 2020). The metaverse has reconceptualized the way data is accessed, visualized and managed, thus, helping in better decision-making (Araiqat and Al-Sartawi, 2023; Akkus *et al.*, 2022; Al-Gnbri, 2022). The metaverse is a game changer for industries and economies where they need to rethink their physical presence in the market. It helps in sustaining the profession of accounting without disruption.

The rise of disruptive technology such as AI and blockchain technology in accounting for virtual assets is opening up unimagined prospects for business innovation and cooperation (AL-Hawamleh *et al.*, 2024). Hence, it is necessary to understand the roots of accounting and to imagine alternative scenarios that would help us to understand how the profession can overcome any challenges associated with disruptions from digital transformation. Sunder (2011) saw that accounting is the result of human imagination and is in the same vein of mathematics. He added that if imagination is the source of the discipline of accounting and all human progress, it may be crucial to examine the state of imagination in the current and future of the accounting profession. He asks a thought-provoking question: "Why not imagine alternative scenarios rather than just waiting for changes to happen or imposing them on us?" (Sunder, 2011; Chauhan and Tekta, 2020; Al-Gnbri, 2022; Gogia and Chakraborty, 2022). We further pose a question: "How can imaginative world like the metaverse add value to the accounting discipline without compromising its standards and principles?". Therefore, strategically rationalizing about possible alternatives for the current accounting and auditing firms is fundamental during the back-to-back industrial revolutions, and examining potential consequences of these alternatives is vital if such changes are inevitable.

We believe the accounting profession still has a chance to adapt to the changes brought on by the metaverse and NFTs because the technologies are still niche, and the majority of the public does not have access to and knowledge about them. Moreover, it is essential to carefully study and consider the risks and challenges arising because inadequate government regulations regarding NFTs and metaverse technologies (Prasanna, 2024). Metaverse technology is decentralized which basically means that there is no centralized authority to regulate transactions thus leading to security and fraud issues (Abu-AlSondos *et al.*, 2024). These hurdles can be mitigated and prevented by developing new accounting standards, norms, regulations and rules for virtual assets in the metaverse (AL-Hawamleh *et al.*, 2024).

The one important notion to consider is although the metaverse is at its infancy, the industry is a dynamic one and is consistently changing with the advancement of other disruptive technologies such as AI, big data analytics, IoT and blockchain which will cumulatively form the metaverse (Al-Sartawi *et al.*, 2024). Like using our imagination to develop accounting, it is time to work on sustaining the profession. Therefore, starting small, raising awareness, developing robust risk management plans, upskilling and reskilling of accountants is crucial for the sustainability of the accounting profession.

3. Outline of articles in the Special Issue

This SI showcases multiple papers which aim to address some of the issues emphasized in this Guest Editorial. The contributions published in the SI used a variety of methodologies, including systematic literature reviews, index approaches, surveys and content analysis. Moreover, it is worthy to note that because the holistic nature and novelty of the SI, the

contributions cover multidisciplines, including accounting, financial reporting, economics, education, information technology and systems, computer science and engineering. It furthermore provides recommendations and solutions for disruptive technologies and the sustainability of accounting in the current age of a dynamic digital economy. Each contribution complements the other, as they are all focused on the future of financial reporting and accounting in the era of digital transformation.

The paper "Accounting meets metaverse: navigating the intersection between the real and virtual worlds" (Pandey and Gilmour, 2023) aims to highlight and rationalize the lack of regulatory framework and multiplicity of jurisdictions on metaverse transactions. This paper addresses some of the complications with respect to accounting and taxation in virtual environments. This paper adds original contributions to extant literature of the metaverse and advances ongoing debates into the accounting and taxation issues pertinent to the metaverse and decentralized finance.

The paper "Identifying the limitations associated with machine learning techniques in performing accounting tasks" (Smith and Lamprecht, 2024) explored the various limitations of disruptive technologies mainly machine learning on performing accounting tasks.

Another paper "Investor response to financial news in the digital transformation era: the impact of accounting disclosures and herding behavior as indirect effect" (Hussain and Alaya, 2023) attempts to investigate investors' reactions to bad financial news based on complex financial accounting disclosures as well as how investors' herding behaviour influences investor reactions in United Arab Emirates (UAE) project-based organizations. The data which was collected through surveys were analysed using structural equation modelling, moderation analysis, multiple regression simulations and path analysis. The study found that investors' relations, board and management structure, transparency disclosure and other disclosure channels have a direct influence on investor's reactions to bad financial news.

The paper "Exploring the factors affecting accounting students' misuse of ChatGPT to cheat in their assignments: an application of the fraud triangle theory" (Alshurafat *et al.*, 2023) used the fraud triangle theory to explore the factors that contribute to student academic dishonesty through an examination of the misuse of AI language models. Data was acquired from accounting students in Jordanian public universities through previously tested and validated questionnaires. The study showed that all of the fraud triangle factors are significant determinants of student academic dishonesty and student misuse of ChatGPT. Hence, these results can be used to guide the development of technology-based countermeasures.

Moreover, the paper "Does FinTech adoption increase the diffusion rate of digital financial inclusion? A study of the banking industry sector" (Aloulou *et al.*, 2023) aimed to discuss the UAE's attitude towards the financial sector's digital transformation and the development of FinTech because of the rise of financial technology. The research indicates that adequate FinTech implementation and alignment with technology management directly influence the performance of the UAE's banking sector in difficult times.

The paper "The role of digital accounting transformation in the banking industry sector: an integrated model" (Al-Okaily *et al.*, 2023) aimed to explore the role of digital accounting transformation in improving business performance in the context of the banking industry. Data were collected through a questionnaire from the Jordanian bank sector with a sample of 190 respondents. Partial least squares structural equation modelling was used to analyse the collected data. The findings indicate that the adoption of digital accounting, adoption of FinTech innovation and technological competition are the major drivers for improving business performance.

The paper "Does the adoption of blockchain technology add intangible benefits to the industrial sector? Evidence from Jordan" (Jaradat *et al.*, 2023) examines the feasibility of adopting blockchain technology in Jordan's industrial sector and analyses the influence of factors such as technological, process, cultural and leadership readiness on the willingness of enterprises to adopt blockchain. The study found that blockchain adoption can yield significant intangible benefits for enterprises.

Furthermore, the paper "Eyeballing internal auditors' and the firms' intention to adopt metaverse technologies: case study in Indonesia" (Hatane *et al.*, 2023) aims to give broad insights into what components can significantly influence the adoption of metaverse from the perspective of internal auditors and their firms in Indonesia. This research used primary data from questionnaires distributed to 202 internal auditors in Indonesia. This paper is helpful for practitioners who would like to know what factors are needed to make the internal auditors in Indonesia able to adopt metaverse.

The paper "Intellectual capital and bank's performance: a cross-national approach" (Chinnasamy *et al.*, 2023) aims to identify the impact of intellectual capital (IC) on the bank's performance using a cross-country approach with India and Gulf Cooperation Council (GCC) countries using the Skandia navigator model. The outcome of the research is useful for policymakers in India and GCC countries, as it identifies IC components that have a significant impact on the bank's performance.

On the other hand, the paper "Firms' characteristics, corporate governance, and the adoption of sustainability reporting: evidence from Gulf Cooperation Council countries" (Al-Qudah and Houcine, 2024) aims to investigate the factors that influence the adoption of new sustainability reporting (SDG) and external assurance (EXTA) practices. This study also examines the relationship between sustainability reporting activity and corporate economic performance for a sample of 99 companies in GCC countries. The results can be particularly relevant and timely in helping large GCC companies promote their engagement to sustainable development practices by adopting more sustainable long-term strategies and policies.

The paper "How management accounting practices integrate with big data analytics and its impact on corporate sustainability" (Abdelhalim, 2023) aims to investigate the relationships between big data analytics, management accounting practices and corporate sustainability including the impact of the integration between big data analytics and management accounting on corporate sustainability performance development. Research findings provide good insights about the significant impact of the effective integration between big data analytics and management accounting on corporate sustainability performance development.

The paper "Does XBRL adoption eliminate misclassification of income statement items?" (Sanad, 2023) examines whether forcing companies to adopt XBRL would cause them to prefer misclassifying income statement items as an alternative to more risky earnings management methods. The study sample includes nonfinancial UAE companies listed on Dubai financial market and Abu Dhabi Securities Exchange from 2012 to 2019. Fixed effect and system general method of moments regressions were used to analyse the study data.

Abdalmuttaleb M.A. Musleh Alsartawi
Ahlia University, Manama, Bahrain, and

Khaled Hussainey
University of Portsmouth Business School, Portsmouth, UK

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