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The impact of digital transformation on accounting information systems: Evidence from the aviation industry of the United Arab Emirates

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A B S T R A C T

In 2023, the United Arab Emirates (UAE) Digital Government Strategy 2025 required government entities and companies to participate in transforming the country into a smart nation. The first phase named "digital transformation" focuses on digitizing all operations. As such, accounting information systems (AISs)—which collect, organize, and report financial data—must evolve in alignment with this vision. This study explores how professionals in the UAE's government-owned aviation industry view AIS adaptation to meet national digital transformation goals. Data were gathered through semi-structured interviews with 17 AIS experts, each with at least two years of experience in both AIS and digital transitions. The responses were then open-coded into themes centered around the objectives, benefits, challenges, and organizational impacts of AIS transformation. The findings reveal that a variety of new technologies are being used. For example, blockchain is being applied to supply chains to enhance partner traceability. AI is being used to analyze large data sets, automate repetitive tasks, and integrate non-financial data, such as for fair value assessments, to support IFRS compliance. AI is also helping to improve GDPR compliance by identifying data vulnerabilities and triggering automated safeguards. Cloud computing is also being adopted to reduce idle capacity and offer scalable flexibility. Nevertheless, some challenges were noted, such as limited employee competence and resistance to adopting new systems.

1. Introduction

Digitalization is affecting aviation, financing, and accounting by streamlining financial reporting, mitigating risks, and optimizing procedures. Accounting information systems (AISs) are embracing increased digitalization through software tools like enterprise resource planning systems (ERPS) and AI-driven financial analytics; process automation, such as for real-time financial reporting and the use of blockchain for safe transactions; and regulatory policies, such as adhering to international digital standards (Suebsuwong, 2023). The airline industry is characterized by strong regulation, a large volume of cross-jurisdictional financial transactions, and requirements for real-time data integration to ensure operational efficiency and safety, making it especially relevant for digitalization. Moreover, digitalization in this sector is driven by the industry's exposure to cyber threats and the need for timely and accurate financial data to inform decision-making (Suebsuwong, 2023). To improve efficiency and compliance, top airlines in the UAE, such as Etihad Airways and Emirates Airlines, have led the way in implementing cloud accounting, blockchain-based transactions, and AI-driven financial analytics. Nevertheless, there are challenges to such developments. For instance, integrating blockchain technology with legacy accounting systems can be problematic and expensive, and deploying AI-powered analytics requires a large financial commitment and qualified staff.

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Furthermore, the industry needs to constantly react to evolving cybersecurity threats to protect sensitive financial data from breaches. Overall, digitalization has transformative potential for AISs in the aviation industry, but this is not without its issues.

The digital revolution has consequences for various aspects of the airline industry. For instance, Molchanova (2020) highlighted how various digital technologies could streamline airlines' operations, support predictive analytics, and improve the security of transactions. Nevertheless, studies on actual implementations of these technologies have revealed that airlines are still at the formative adoption stages (Lopes et al., 2021). Thus, what drives organizations to adopt them and the impacts these technologies have are not well understood. More specifically, in the context of the UAE, no study has evaluated how the digital revolution has led to the transformation of AISs in the aviation industry. Despite this, the UAE's digital vision positions AIS transformation as part of its aim for the country to lead the way in cybersecurity and AI infrastructure within the region (UAE, 2025). Furthermore, the aviation industry is one of the sectors that the UAE has emphasized as a means for diversifying the traditionally oil-reliant economy (UAE, 2025).

It is therefore crucial to research how the digital revolution is affecting AISs in this fast-paced, heavily regulated sector. Some challenges include difficulties in using new technologies alongside legacy systems, the high cost of adopting blockchain and artificial intelligence, the need for qualified personnel to oversee a sophisticated AIS, and the shifting cybersecurity threats that can jeopardize the integrity of financial data (Alzarooni et al., 2025). To guarantee that digitally transforming aviation accounting will result in safe and sustainable financial management, a study must first analyze the drivers of digital transformation, the challenges of adopting various technologies, and the impacts of these technologies.

This paper explores how accounting and finance professionals in the UAE's aviation sector navigate the digital transformation of their accounting information systems (AISs), as well as how the related changes affect responsibilities, budgeting, decision-making, and regulatory compliance. It investigates how digital tools—particularly AI, cloud computing, and blockchain—can enhance financial reporting accuracy, AIS efficiency, and timeliness. For example, the UAE's aviation companies can better control costs and improve compliance by integrating AI-driven real-time analytics with a cloud-based AIS. Blockchain can also improve transaction security and transparency, with AI helping to detect fraud. Seamless system upgrades and innovations can be supported by adopting best practices like collaborations with tech partners and ongoing employee training (Airportshow, 2024). Such strategies can ultimately enhance productivity, reduce financial risk, and promote data-driven decision-making, thus aligning with the UAE's vision of becoming a global leader in digital transformation.

This study fills a gap in the literature because few studies have focused on AIS digitalization in the aviation sector. Prior research, such as that of Lopes et al. (2023), has primarily examined digital impacts on the aviation industry in Western contexts, with there being no focus on AISs. In contrast, this study assesses how digital tools can support financial operations in line with the UAE Centennial 2071 plan (ITA, 2024) and contribute to economic goals through improved IFRS compliance, thus attracting greater foreign investment. Despite the clear benefits, digital transformation has its challenges. Many companies face obstacles such as legacy AIS infrastructure, costly past investments, interoperability issues, and resistance from employees (Paris & UAE, 2018). Understanding these barriers can therefore help other organizations undergoing similar transitions.

This paper proceeds as follows: Section 2 reviews the relevant literature and formulates the research questions. Section 3 then describes the data and methods used to derive answers to the research questions. Sections 4 and 5 present the results and discuss them, respectively, while Section 6 supplies some conclusions, limitations, and directions for future research.

2. Literature Review and Research Questions

2.1. AISs, Digital Transformation, and the Aviation Industry

Traditional AISs often struggle with scalability and real-time reporting, limiting their ability to handle complex financial data. Digital AIS tools offer a solution to such limitations, thus enabling aviation firms to process large transaction volumes, meet regulatory demands, and enhance their decision-making (La et al., 2021). To remain competitive and comply with international standards, aviation firms in the UAE must adopt these modern AISs with their improved data collection and reporting capabilities. Integrating such technologies can pose challenges, however. For example, interoperability issues can arise when AI and blockchain tools need to interact with legacy systems, often necessitating costly customization and lengthy implementation. Migrating data to cloud or blockchain platforms is also not without risk, with there being potential for data loss, corruption, or inconsistency. Additionally, cybersecurity threats, such as hacking and insider breaches, can complicate AIS adoption given the sensitive nature of financial data (Suebsuwong, 2023). Data integrity is also critical, as errors or unauthorized changes can result in financial misstatements and compliance violations. AIS adoption can also be hindered by costly retraining requirements (ITA, 2024). While AI and blockchain can improve data analysis and transparency, they also introduce risks. For example, AI may reveal sensitive patterns if the data is not suitably anonymized, and biased training data can compromise decisions (van Bekkum & Borgesius, 2023). Blockchain's transparency, meanwhile, could expose private data, and network disruptions may limit access to data (Battilana & Casciaro, 2013). Although cloud-based AISs are cost-

effective, remote hosting introduces the risk of breaches and GDPR non-compliance (Alouffi et al., 2021). It is therefore essential to implement strong security measures—such as encryption, real-time monitoring, and multi-factor authentication—but this may delay the transformation (ITA, 2024). Modern systems support real-time processing, predictive modeling, automated decision-making, and enhanced visualization, leading to significantly improved strategic planning and operational efficiency (Trigo et al., 2016). When we talk about digital transformation here, we refer to e-accounting and the use of cloud, AI, and blockchain technologies in AISs. As illustrated in Fig. 1 from the work of (Yoon, 2020), cloud-based AISs have shifted client–accountant interactions from manual exchanges (e.g., email, FTP, travel) to seamless, real-time collaborations. Clients now access dashboards and operational tools, while accountants manage financial functions. This improves efficiency and communication thanks to instantaneous data access and reduced reliance on manual processes.

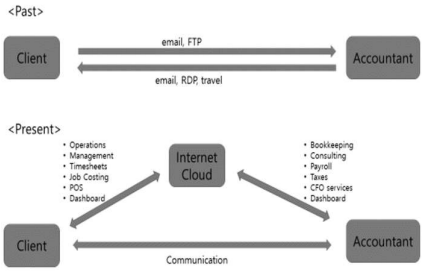

Fig. 1. Comparison of communication processes in traditional AISs versus cloud-based AISs (Yoon, 2020).

Thus, a cloud-based AIS facilitates real-time communication between accountants and clients, unlike a traditional AIS that relies on email, FTP, and even face-to-face meetings (Yoon, 2020). Such systems support collaboration and centralize financial data, allowing for faster reporting, better decision-making, and improved regulatory compliance. For instance, Emirates uses a cloud-based accounting system to manage financial transactions across its global operations in real time (La et al., 2021). Integrating AI into an AIS reduces the scope for human error, automates complex processes, and enables predictive analytics. For example, AI can help detect financial discrepancies, conduct real-time data analysis, and suggest proactive decisions for budgeting and cost control (Hashem & Alqatamin, 2021). Furthermore, predictive AI can inform fuel procurement and currency risk management, with Etihad Airways using such forecasting tools to mitigate cost fluctuations. Aviation firms can therefore use AI to better position themselves to changes in market conditions and enhance both their short- and long-term planning (Berdiyeva et al., 2021). Blockchain contributes to financial data integrity by ensuring that transactions are immutable and transparent. This simplifies audits, reduces opportunities for fraud, and accelerates compliance reporting (Xu et al., 2022). Studies by Dai and Vasarhelyi (2017), Schmitz and Leoni (2019), and Kokina et al. (2017) have highlighted how blockchain supports audit trails and enables real-time, tamper-proof data verification. Smart contracts can also automate payments for aviation fuel, inventory, and services, thus streamlining a firm's financial operations (Javaid et al., 2021). Nevertheless, challenges exist to implementing a digital AIS system, such as data-migration risks, system integration, cybersecurity, and resistance from employees who are unfamiliar with these new technologies (Paris & UAE, 2018; Pereira et al., 2022). A successful digital transformation requires a combination of robust IT infrastructure, employee training, and strategies for managing change. Cross-functional training can also boost staff confidence and promote a culture of innovation. Regulatory compliance, such as with the GDPR, is critical in aviation to avoid legal risks and reputational damage. A cloud-based AIS must therefore be secure and support jurisdiction-specific financial reporting, so auditing of cloud service providers is needed to ensure data protection (Nilson, 2023). Nevertheless, when aligned with IFRS, GDPR, and local regulations, digital AIS solutions enhance the accuracy, timeliness, and operational efficiency of financial reporting. Blockchain reduces fraud and compliance costs through transparent records (Battilana & Casciaro, 2013), while AI identifies anomalies and predicts risks before they manifest (Paris & UAE, 2018). Cloud systems, meanwhile, enable distributed data access and reporting, which is critical for global players like Emirates and Etihad.

Despite the complexity of integrating them, digital AISs have demonstrably improved financial transparency and compliance in the UAE's aviation sector. They support rapid decision-making, cost efficiency, and competitiveness in a highly regulated and dynamic sector (Kamel, 2021; Airportshow, 2024).

2.2 The UAE Context

Given the central position of trade and tourism, the UAE's aviation industry plays a significant role in the nation's economy, which is characterized by rapid growth, strategic innovation, and global connectivity. With flagship carriers like Emirates Airlines and Etihad Airways being supplemented by budget airlines like Air Arabia and Fly Dubai, the UAE has become a major international aviation hub linking East with West through its state-of-the-art airports and extensive global networks. The industry also benefits from strong government support, substantial investment in infrastructure, and a business-friendly regulatory environment, all of which have helped foster a competitive and resilient aviation ecosystem. In addition to passenger transport, the UAE's aviation sector also includes cargo logistics, aircraft maintenance, and aviation services, thus contributing significantly to employment, tourism, and trade in the country (UAE, 2025).

As the airline industry embraces digital transformation and sustainability initiatives, it also plays a pivotal role in the UAE's wider economic diversification and global outreach strategies. The UAE's 2031 Vision and Digital Government Strategy 2025 highlight the country's commitment to digital transformation by emphasizing smart services, AI, blockchain, cybersecurity, and public–private partnerships (UAE, 2025). Such initiatives have driven investments in digital infrastructure, encouraging businesses, particularly in aviation, to adopt advanced AISs. Moreover, policies like the Dubai Paperless Strategy and the Digital Government Strategy have accelerated the shift to cloud-based AISs, thus enhancing compliance and real-time reporting (UAE Digital Government Strategy, 2025). Aviation firms are also increasingly using AI to streamline their financial management and automate auditing. Digitalization is therefore transforming financial reporting, auditing, and forecasting in aviation. Given the sector's complexity and data intensity, AI, cloud, and blockchain technologies can radically improve reporting accuracy and timeliness. A YouGov survey revealed that 67% of UAE businesses have moved to cloud-based systems, while 38% use AI for finance tasks (Zawya, 2024). Etihad Airways, for instance, uses AI in its safety management system to analyze data, enhance operational efficiency, and indirectly improve financial reporting accuracy (CoinGeek, 2024). In the aviation sector, daily financial data—such as ticket sales, maintenance, inventory, fuel, and payroll—needs to be precise to ensure compliance and inform strategic decisions. In contrast, errors can lead to financial loss, legal exposure, or poor decisions (Hashem & Alqatamin, 2021). To align with the UAE's digital ambitions, aviation firms like Emirates and Etihad are upgrading their AISs to remain globally competitive (ITA, 2024). AI, blockchain, and cloud computing have improved efficiency, enabled real-time reporting, and improved decision-making (Manasa & Leo Joseph, 2023). Furthermore, AI has automated routine tasks like payroll, reconciliation, and data entry, allowing finance teams to focus on more strategic tasks (Hashem & Alqatamin, 2021). For example, Emirates has enhanced its data accuracy and reduced its financial closing times through AI-driven reconciliation, while a cloud-based AIS offers flexibility and scalability for large-scale transactions (La et al., 2021). This shift underscores how digital transformation is reshaping financial processes in the UAE's aviation sector and offers insights into the challenges and benefits when adopting a modern AIS. Furthermore, Etihad Airways has centralized its financial data, with departments and regions communicating through AIS cloud technology. The airline leverages real-time financial data to adapt and enhance operations, while predictive analytics improve efficiency by providing financial planning and budgeting data. Airlines can also use past data to forecast financial patterns, assess cash flow, and improve resource allocation through AI-driven analytics (Berdiyeva et al., 2021).

The UAE aviation sector is undergoing a significant digital transformation, with AISs increasingly embracing advanced technologies like AI, blockchain, and cloud computing. This shift has revolutionized financial operations by enhancing reporting accuracy, streamlining processes, and enabling more strategic decision-making. Cloud-based AIS platforms, as adopted by Emirates Airlines and Etihad Airways, have centralized financial data, facilitated real-time access, and improved collaboration across departments and regions (La et al., 2021). Such systems enable finance teams to handle large-scale financial transactions efficiently, even among geographically dispersed teams. The automation of repetitive tasks—such as payroll, reconciliation, and data entry—has also improved data accuracy and accelerated financial close cycles (Hashem & Alqatamin, 2021). Predictive analytics have also emerged as valuable tools for financial planning and risk mitigation. By leveraging historical data, aviation companies can forecast trends, assess their cash flow, and optimize how they allocate resources. This is particularly useful in a sector that is sensitive to movements in fuel prices and currency exchange rates (Berdiyeva et al., 2021). Moreover, AI-powered dashboards provide a real-time window into revenues and expenses, thus supporting faster and better-informed financial decisions (Pereira et al., 2022). Integrating AISs with other enterprise systems, such as CRMs and ERPs, has also helped improve financial performance. For instance, Emirates Airlines enhanced its cost control and revenue recognition by linking operational and financial data, which in turn eliminates data silos and supports accurate, timely reporting (Kamel, 2021). Blockchain technology has further strengthened AIS capabilities in the aviation industry because its decentralized structure offers a secure and transparent way to record transactions, thus minimizing the need for manual reconciliation and third-party audits (Alotaibi et al., 2025). Smart contracts on blockchain platforms can also accelerate payments, while an immutable audit trail simplifies compliance and enhances data integrity. Despite these substantial benefits, however, some challenges persist. Many aviation companies still operate outdated AIS frameworks, complicating efforts to accommodate new digital technologies (Paris & UAE, 2018). For example, migrating legacy data can pose risks in terms of security, time, and data integrity. What is more, robust cybersecurity is crucial because cloud-based and blockchain systems can be vulnerable to hacking, data breaches, and unauthorized access (Nhamo et al., 2020). Effective cybersecurity therefore needs encryption, access controls, and continuous monitoring.

Implementing a digital AIS also involves a significant investment in IT infrastructure, ongoing maintenance, and workforce training. Indeed, financial professionals must be familiarized with digital tools through continuous learning and institutional support (Suebsuwong, 2023). To justify the investment, companies usually evaluate the expected return on investment to ensure that the efficiency gains will justify the deployment costs. In brief, the digital transformation of AISs has empowered the UAE's aviation companies to manage financial data more effectively, reduce costs, and remain agile in a highly competitive sector. Automation, real-time data access, and predictive analytics have improved the accuracy and timeliness of financial statements, while integrating AI, blockchain, and cloud computing has supported strategic financial planning and compliance while addressing the operational complexities of the aviation industry (Airportshow, 2024; Manasa & Leo Joseph, 2023). Although legacy integration and cybersecurity remain ongoing concerns, the benefits of adopting digital AIS technologies are clear. Through their continued innovation and investment, UAE aviation companies are well-positioned to improve their financial performance and grow sustainably in a digitally driven future.

In summary, the aviation industry has seen considerable transformation in recent years through the rapid adoption of digital technologies like AI, blockchain, and cloud computing, which have in turn reshaped operational processes and decision-making frameworks. Tools like AI can improve data processing, reporting, and financial management, which is reflected in the superior information provided by AISs. For academics and practitioners alike, it is therefore crucial to understand the implications of these developments within the UAE's aviation industry, particularly in areas like financial reporting, regulatory compliance, and data-driven decision-making. The following research questions were formulated to probe the impacts of digital transformation within the specific context of the UAE's aviation sector:

1. How does AIS digital transformation within the UAE's aviation industry help achieve increased financial efficiency, compliance with international standards, and data-driven decision-making, as envisaged in the UAE's digital strategy?
2. What are the primary organizational and technical challenges faced by the UAE's aviation firms in terms of implementing consistent data formats, enhancing interoperability between systems, aligning financial data with regulatory requirements, and integrating digital technologies into AIS platforms?
3. How do the UAE's aviation firms address organizational resistance to AIS transformation, particularly among staff who are accustomed to traditional systems? What role does training and support play in facilitating this transition and how effective are these efforts?
4. What specific effects does AIS digital transformation have on financial reporting accuracy, regulatory compliance, and operational efficiency for state-owned aviation firms in the UAE?

3. Methodology

3.1 The Qualitative Research Method

The digital transformation of AISs is difficult to quantify, so a qualitative study was employed to analyze how people viewed it. Indeed, qualitative research helps explain complex issues like technology adoption for individuals or organizations (Emiliussen et al., 2021). More specifically, this study evaluated the transition to digital AISs in the UAE's aviation industry and the operational benefits of doing so. Semi-structured interviews and narrative analysis were employed to glean insights from experts' opinions about the AIS transition in the UAE's aviation sector. The qualitative approach was justified by the need to understand the organizational context in which the UAE's aviation firms adopt new AISs. As Islam and Aldaihani (2022) observed, qualitative research helps researchers to understand phenomena, contexts, and experiences by answering "how" and "why" questions that cannot be adequately addressed through quantitative research. For example, difficulties arise in addressing such questions when a phenomenon is not well understood according to current theories (Islam & Aldaihani, 2022). Adopting qualitative research therefore enables the development of hypotheses that can be validated through subsequent quantitative research. No previous studies, to the best of our knowledge, have discussed organizational experiences of digitally transforming management or accounting information systems in the UAE context. As such, a qualitative approach allowed us to understand the nuances of the UAE context, which may not apply to developed countries where most of the existing organizational transformation research has been conducted.

3.2. Data Collection

The data used to address the research questions derived from semi-structured interviews that allowed open-ended participation through discourse. Kvale and Brinkmann (2015) recommended semi-structured interviews for qualitative research because they empower participants to express themselves, leading to rich data. The interviewees included 17 accounting and finance practitioners in the UAE's aviation industry. Per the recommendation of Kavanagh and Drennan (2008), all participants had two years of legacy AIS and digital-transfer experience. This followed the example of prior literature in highlighting the value of industry-specific knowledge when studying digital transformation and accounting processes, because such people have a greater comprehension of relevant procedures, laws, and challenges, so they can offer better insights. The participants described changes to their AIS and discussed the merits and disadvantages of adopting AI, blockchain, and cloud computing. The interviews lasted 45–60 minutes and were conducted in person or via video conferencing, depending on availability. After obtaining approval to do so, the interviews were recorded and later transcribed for analysis. The interview guide covered key questions and follow-ups based on a participant's responses to the initial interview questions. This strategy helped in exploring the participants' opinions in depth, so the research questions could be addressed.

The participants were asked to share how their organizations' digital AIS transformation had affected their jobs and how the new system differed from the existing AIS. For the AIS transition, the interviewees were asked about technical (e.g., system integration, data migration) and organizational (e.g., resistance to change, lack of training) issues that arose during the transition process. The final part investigated the implications of the new AIS for financial operations by questioning the interviewees about whether the new AIS had revolutionized efficiency, accuracy, and decision-making. In addition, the interviewees were asked about how the digital transformation had affected compliance with IFRS and GDPR, with follow-up questions inviting them to offer example areas where such effects were noted. Other issues discussed during the interviews included the effects of AI, blockchain, and cloud computing on the AIS's role in financial reporting and decision-making, as well as organizational support, such as training and system adaptation, offered to smooth the transition to the new AIS.

This research focuses on AISs, so the aim was to explore how AIS impacts an organization in terms of decision-making, efficiency, and financial reporting. The interview approach was designed to capture insights from professionals currently working in the aviation field, so we developed the interview questions presented in Table 1.

Table 1
Questions asked in the interviews

Number	Question	Relevant research question
1	How did the UAE's Digital Vision 2031 influence the adoption and transformation of AIS within your organization?	RQ1
2	What specific factors or events led to changes in the AIS at your company?	RQ1
3	Which challenges accompanied the switch to a digital AIS?	RQ2
4	What specific technological advancements, regulatory changes, or internal business needs prompted your company to modify its AIS?	RQ1
5	Have new AIS platforms improved IFRS/GDPR compliance and financial reporting? How so?	RQ4, RQ1
6	How has AI impacted efficiency, automation, and decision-making processes within your company's AIS?	RQ4
7	How has blockchain technology improved the security, transparency, and reliability of transactions in your company's AIS?	RQ4
8	How has cloud computing influenced the accessibility, scalability, and cost-efficiency of your company's AIS?	RQ4
9	How has the transformation to digital AIS affected departmental decisions and stakeholders?	RQ4
10	What training and resources did your organization provide to convert to the new AIS system?	RQ3
11	What specific changes or advancements are expected in aviation AIS with the adoption of emerging technologies?	RQ4

3.3 Sample

Purposeful sampling was used to find eligible participants. According to Patton (2015), targeted sampling helps researchers to focus on relevant experiences, so 17 finance and accounting professionals in the UAE's aviation sector were selected for interviews. A mixture of male and female participants aged 24–55 years old ultimately participated in the interviews. All had a minimum of two years of experience and were familiar with AIS transition readiness as part of the selection process. This purposive sampling approach ensured the study only included interviewees who were familiar with their organization's transition to a new AIS, ensuring that the collected data suited the study's objectives. The sample size of 17 was informed by prior studies that have suggested that 12 to 15 participants are sufficient for qualitative studies of this nature (Guest et al., 2016), with the number being higher in preparation of some of the initially identified participants being potentially unavailable. The interviews were conducted between December 27, 2024, and March 2, 2025. Most participants worked in a finance department, followed closely by those working in an accounting department. A few participants also worked in their information technology or business technology departments. In terms of the gender mix, 10 participants were male and 7 were female. Most participants were under 40, with just one participant being over 50. Concerning experience, most participants had either 11–15 or 6–10 years of experience in their respective departments, followed by those with 2–5 years of experience.

3.4 Data Analysis

The qualitative research method involved examining the semi-structured interview data as personal narratives. In narrative analysis, researchers look at how respondents react to situations (Riessman, 2015), and in our case, this could reveal how the accounting and finance professionals dealt with the transition to a digital AIS within their organizations. To uncover themes and tendencies, the interview transcripts were reviewed to identify how the interviewees perceived their organization's adoption of a new AIS, the associated challenges and benefits, and the role that organizational support played in alleviating these challenges.

The narrative analysis began with transcribing the semi-structured interviews to reveal trends related to AIS transformation, financial procedures, and regulatory compliance. These transcripts were then analyzed using QualCoder version 3.6 to help the researchers understand how the participants regarded the digital transformation within their organizations. Open coding then grouped similar responses into thematic categories based on shared meanings. The analysis focused on identifying key participant narratives, particularly any emotional reactions to AIS modernization, perceptions of technical outcomes, and views on operational improvements. The researchers examined whether the participants viewed the transition positively, negatively, or with mixed feelings. The themes were refined through repeated coding to ensure consistency and reliability, with them ultimately offering insights into how the financial specialists experienced and regarded the impacts of AIS modernization on aviation finance.

4. Results

Fig. 2 charts the themes that emerged during the data analysis process, based on the 10 questions used to guide the interviews. This sunburst chart shows the thematic structure based on the frequency that each theme was mentioned during the interviews. The themes were first classified into seven categories: the impacts of digital technologies, the influence of the UAE's digital vision, compliance effects, drivers of change, challenges to change, organizational support for change, and future expectations about the new AIS. Concerning the effect of the UAE's digital vision on the adoption of modern AISs in the aviation industry,

two themes emerged, as shown in Fig. 3. All 17 interviewees appreciated the role of the UAE 2031 vision in developing the infrastructure to support AISs with enhanced data capabilities. An example of this is evident in the comment below, with the participant believing that the UAE 2031 vision embodied a commitment to building the digital infrastructure to support systems with enhanced data-analysis capabilities without frequent service disruptions. As Participant 7 stated: *"The UAE's digital vision has offered assurance that we can get the infrastructure needed to optimize our organization's AIS."*

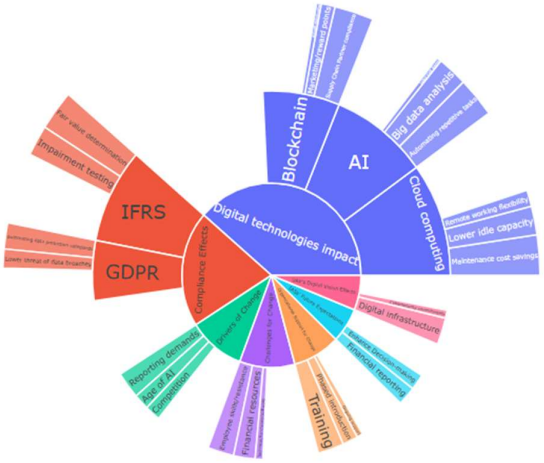

Fig. 2. Sunburst chart for the themes that emerged from the research.

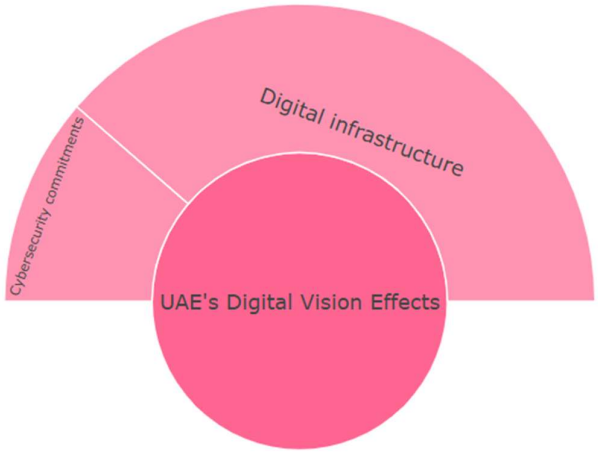

Fig. 3. Perceived impacts of the UAE 2031 digital vision on organizational decisions to transform an AIS.

The other theme emerging involved cybersecurity efforts under the UAE's digital strategy. Per the UAE 2031 vision (UAE, 2025), the government sees cybersecurity as a core pillar of its digital transformation, as evidenced by references to creating an "advanced cyber fortress" that ensures the security of digital systems. Nevertheless, this theme emerged less commonly in the responses of the interviewees, with only 5 of the 17 participants' mentioning "security," "cybersecurity," or another related term when asked about the effect of the UAE 2031 digital vision. Three themes emerged related to the drivers of change. All 17 participants cited reporting demands—such as the need to report sustainability information in environmental, social, and governance (ESG) sections of integrated reports, meaning the AIS must be able to process and analyze non-financial information and large volumes of data. This is exemplified by one participant's reply quoted below, where the participant perceived the traditional ERP systems as lacking the capabilities needed for an integrated reporting regime. Aside from reporting demands, 10 of the 17 interviewees cited intense competition in the industry as influencing their adoption of a new AIS, since a modern system would enable faster analyses of large volumes of data and thereby inform competitive choices in areas like ticket pricing. Moreover, it was also evident in the responses of 10 of the 17 interviewees that organizations are recognizing the dawn of the AI age, and this was driving the adoption of AISs with AI capabilities to avoid being disadvantaged by an outdated AIS. The responses classified into this theme included references to AI as a "game changer" and comments highlighting AI as a specific technology driving the change to a new AIS.

Trends such as integrated reporting need tracking of far greater information than the legacy ERP systems can handle.

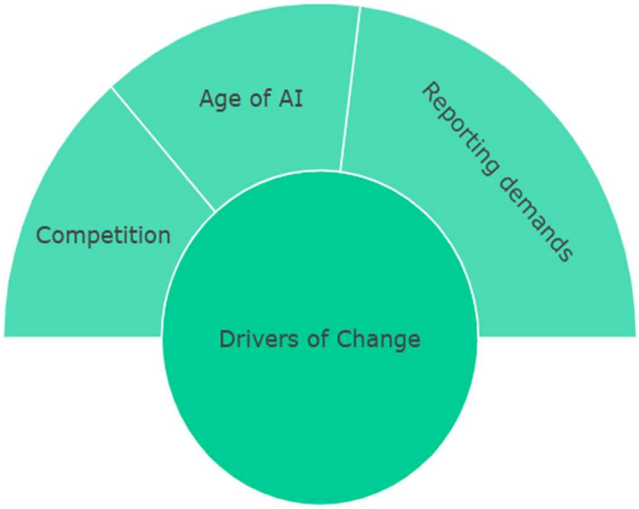

Fig. 4. Factors that respondents commonly cited as driving their organizations' adoption of a modern AIS.

The observed effects of various digital technologies on AIS adoption are illustrated in Fig. 5. For AI, the most frequently cited impact was the automation of repetitive tasks, with it being noted in responses by all 17 interviewees (see Table 3). The other themes that emerged in relation to AI's impact were big data analysis (13 respondents) and savings on labor costs (two respondents). As such, even if automating repetitive tasks ultimately led to a reduction in the required workforce size, most (15 out of 17) interviewees did not identify reduced labor costs as an effect of integrating AI into an AIS. Further to these effects of AI, a new AIS can also improve revenue, as demonstrated recently by Dubai Airport. The organization's implementation of a new AIS helped increase its revenue by automating its billing systems, thus improving the experience of customers at the airport. The use of systems that support data analytics also, for instance, helped Dubai Airport to automate various employee functions, thereby aiding the employees' decision-making and enabling them to solve customers' issues more effectively (Tableau, n.d.). Thus, adopting a modern AIS can help aviation companies to raise their revenues through enhanced customer experience after automating some processes that were previously performed manually.

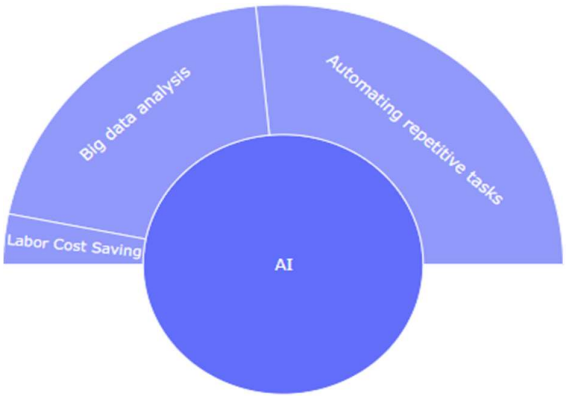

Fig. 5. The impacts of AI cited by participants during the interviews.

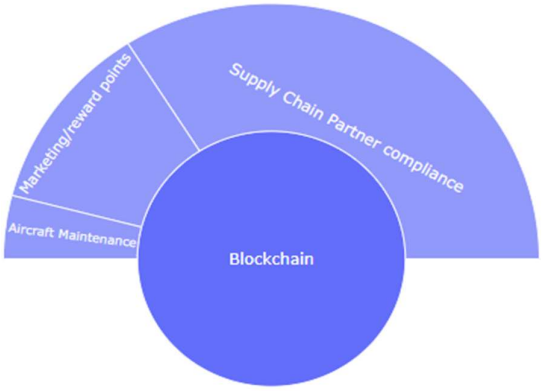

Fig. 6. The effects of blockchain technology on UAE airlines, as cited by the participants.

For blockchain technology, as Fig. 6 shows, tracking the compliance and performance of supply chain partners for aspects like ESG, which airlines often report on, was cited as an effect of blockchain by all interviewees. Six of the 17 interviewees also cited the use of blockchain marketing activities, such as tracking the use of reward points by marketing partners to avoid fraudulent claims. Two participants also cited its use in ensuring accurate records on aircraft maintenance. For cloud computing, the most cited impact was saving money that would have otherwise been incurred in installing and maintaining legacy software and hardware, as illustrated in Figure 7. Reducing idle capacity was highlighted by 12 interviewees, while support for flexible, remote working was recognized by seven interviewees.

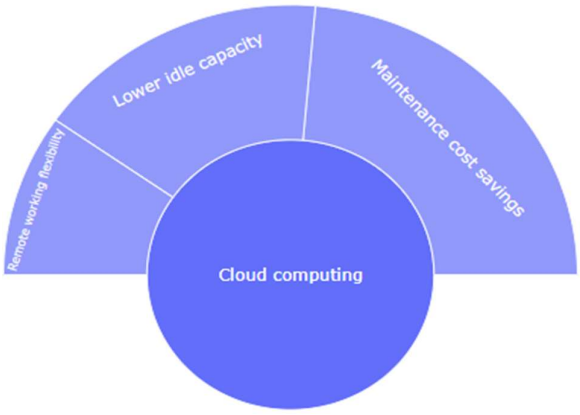

Fig. 7. Areas where cloud computing was deemed most impactful for UAE airlines.

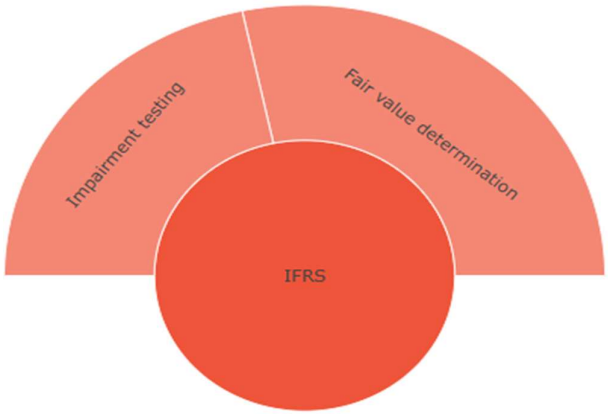

Fig. 8. Areas of IFRS compliance where the new AIS helped, per the interviewees' responses.

The compliance effects of a new AIS, with respect to IFRS and GDPR, were also evaluated. Concerning IFRS, as illustrated in Fig. 8, 17 interviewees mentioned the use of new technologies like AI to enable information to be analyzed to enhance fair value determinations, especially for assets that are not traded in public markets. Using such information to indicate when assets may be due for impairment testing also featured among the IFRS compliance effects, as noted by 13 of the 17 respondents. For GDPR compliance, as Fig. 9 shows, most respondents (11) viewed the automation of data protection safeguards as one way in which the new AISs had helped compliance with GDPR by enabling the organization to identify and isolate sensitive information for subsequent protection from unauthorized disclosure. In addition, 8 of the 17 respondents

also said the new AIS lowered the risk of data breaches. The responses under this theme attributed it to lower risk of data breaches to AI's ability to identify vulnerabilities and blockchain's ability to avoid a single point of failure due to its decentralized way of storing files.

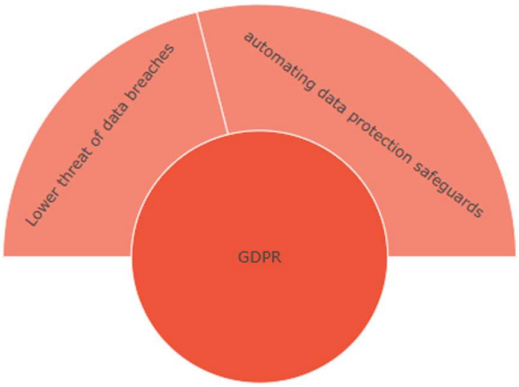

Fig. 9. The impact of a new AIS on GDPR compliance based on the responses of the interviewees.

Fig. 10. The most common challenges faced by UAE airlines in transitioning to a new AIS.

Interviewees were also questioned about the challenges they faced in transitioning to the new AIS, the training resources they used to facilitate the change, and their expectations about modern technologies' effects on the new AIS. Concerning the challenges, as Fig. 10 shows, the most commonly occurring theme was employee resistance due to a lack of skills and/or a fear of being replaced by the new system. Indeed, this challenge was identified by all 17 interviewees. Furthermore, 14 of the 17 interviewees noted that the new system required a huge financial outlay that had to be approved at the governance level of the organization, thus delaying the implementation process. Only a minority (5) of interviewees reported technical challenges during the transition period, such as a lack of interoperability between legacy and new systems and outdated hardware that could not support the new AIS's analytic capabilities. Organizational support for addressing the challenges was also evaluated. As Figure 11 shows, employee training was the most frequently cited approach for addressing challenges. This approach was used by all the participants' organizations, with the benefits cited being increased staff competence and confidence in using the new AIS. Training interventions included workshops, manuals, and software use policies, with the main aspects covered in training being as follows: the functionality of the new AISs, the risks arising from using cloud computing for remote access, and the prohibition of disclosures to unauthorized individuals, especially when working remotely. In addition, 10 interviewees said their organizations initially introduced the new AIS in a pilot phase to lower the learning curve, while four interviewees noted ongoing technical support for employees as a key component for transitioning smoothly to the new AIS.

Fig. 11. How organizations supported the adoption process to address challenges.

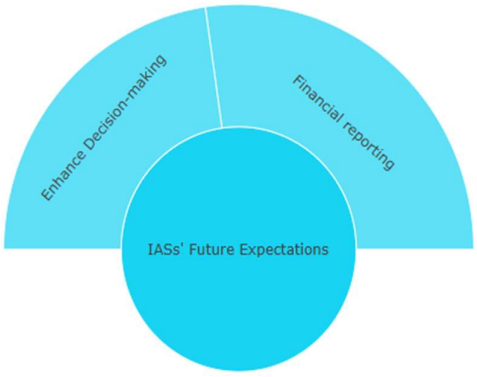

Fig. 12. Expected potential benefits of the new AIS after adoption.

Concerning future expectations about the adoption of the new technologies, two themes emerged from the interviews, as Fig. 12 shows. The most common theme was that the new technologies would enhance financial reporting, as cited by 12 of the 17 interviewees. These respondents said they expected the AIS to enable richer ESG disclosures due to its ability to better process the non-financial information used for such disclosures. The second theme involved the expectation that the new AIS would improve decision-making, with 10 of the 17 respondents citing it. These expectations arose from perceptions that the analytic capabilities of the new AIS would enable faster and more accurate insights into aspects like cost-of-service provision, which in turn could inform decisions in areas like ticket pricing.

5. Discussion

The first research question sought to assess whether a new AIS contributes to achieving the objectives of the UAE's digital vision, which envisages increasing efficiency and enhancing compliance with international financial and data standards. For instance, the UAE 2031 vision (UAE, 2025) and the UAE Digital Government Strategy 2025 targets improved compliance with international standards in order to attract foreign investment that will help diversify the country's economy beyond oil exports. The UAE 2031 vision also recognizes the role of the digital economy in the future ecosystem, suggesting that adopting advanced digital technologies will support the growth of non-oil activities in the economy (UAE, 2025). Furthermore, the UAE's National Program for Artificial Intelligence (2018) recognizes AI as a technology that will help the country achieve its digital strategy. This study's results illustrate that the UAE 2031 vision is facilitating the adoption of modern AISs that incorporate AI, cloud computing, and blockchain technologies. As the participants noted, the UAE 2031's commitment to establishing infrastructure to support systems with advanced analytic capabilities influenced the organizational decision to adopt a new AIS. Moreover, the vision's emphasis on secure digital systems contributed to the participants' belief that an AIS based on technologies like cloud computing could be operated within the country without becoming more susceptible to data breaches. The themes found in all of the interview responses are summarized in Table 2. Such results support the notion that the UAE 2031 vision and associated policies to enhance digitalization have supported the transformation of AISs.

Table 2
The various themes identified in interview responses and the research questions to which they relate

Category and Theme	Number of Respondents	Relevant Research
UAE's Digital Vision Effects		**RO1**
Cybersecurity commitments	5	
Digital infrastructure	17	
Drivers of Change		**RO1**
Age of AI	10	
Competition	10	
Reporting demands	17	
Challenges for Change		**RO2**
Employee skills/resistance	17	
Financial resources	14	
Technical/hardware/software	5	
Compliance Effects		**RO4**
GDPR		
Automating data protection safeguards	11	
Lower threat of data breaches	8	
IFRS		
Fair value determination	17	
Impairment testing	13	
Digital Technologies Impact AI		**RO4**
Automating repetitive tasks	17	
Big data analysis	13	
Labor Cost Saving	2	
Blockchain		
Aircraft Maintenance	2	
Marketing/reward points	6	
Supply Chain Partner compliance	17	
Cloud computing		
Lower idle capacity	12	
Maintenance cost savings	17	
Remote working flexibility	7	
IASS' Future Expectations		**RO4**
Enhance Decision-making	10	
Financial reporting	12	
Organizational Support for Change		**RO3**
Ongoing support	4	
Phased introduction	10	
Training	17	

From a different perspective, RQ1 also sought to evaluate whether new AISs could help the country achieve the UAE 2031 vision's objectives, of which adhering to international standards is the most relevant to AISs (UAE, 2025). Within the accounting context, IFRS exemplifies such international standards, because it offers a principles-based guide for financial reporting that supports comparisons of financial statements across accounting regimes. Within the Gulf Cooperation Council (GCC) region, to which the UAE belongs, studies on the mandatory adoption of IFRS have shown it to lead to greater FDI inflows in the short run (Mameche & Masood, 2021; Siriopoulous et al., 2021), although the findings are not consistent (Elhamma, 2023). Indeed, factors like regulation and conflicts of interest have been found to influence whether IFRS adoption actually leads to greater FDI inflows (Elhamma, 2023). The current study's findings show that AI can contribute to IFRS compliance by enabling the processing of information for use in fair value determination and impairment testing.

The second research question assessed the challenges faced by aviation firms in standardizing datasets and integrating digital AIS platforms. The interview results indicate that the technical challenges are less prominent than the human resource challenges. The cited technical challenges related to ensuring compatibility with existing hardware and organizational systems, but these were not as frequently mentioned as a lack of skill among employees or hesitancy among employees in embracing the new AIS. This finding indicates a need for the country to continue building skills and achieving a larger pool of human resources for realizing the desired digital future. This is supported in prior research, such as in the study of Areepattamannil (2024), which argued for the need for the country to improve its education training to ensure that it meets its desired objectives under the UAE 2031 plan.

The third research question focused on the factors affecting the success of the digital transformation. For managing these challenges, the participants highlighted employee training as being essential for reducing resistance and alleviating fears that the new AIS will take over their jobs. Indeed, the theory suggests that perceived self-efficacy can help lower resistance to change, and organizational support is critical in developing such self-efficacy (Walsh et al., 2021). The results of this present study support such a link, because the participants noted that the most commonly employed interventions for reducing resistance to change were employee training resources, such as workshops and manuals. Such things all help to increase employees' self-efficacy. Thus, the most common approach for overcoming resistance to change involved employee training and communication aimed at improving self-efficacy and assuaging any fears of job losses following the change.

The final research question addressed the impacts that AIS digital transformation has on financial reporting accuracy, regulatory compliance, and operational efficiency. The results revealed that the adoption of a modern AIS has significant effects on all these aspects. For instance, the interviews conveyed how the adoption of AI would enable their organizations to better report non-financial information, such as for issues like emissions and waste reduction, which are core parts of ESG reporting in the aviation industry. Previous studies, like that of Khan et al. (2024), have also shown that AI can improve the quality of integrated reporting. Moreover, the results revealed expectations that modern technology will improve reporting in future, and this is supported in the literature. For instance, Leitner–Hanetseder and Lehner (2023) illustrated how AI can further improve reporting under IFRS by enabling the disclosure of information that would not have been possible a few years ago. Furthermore, the present study's results support the role of AI in improving automation and therefore cost efficiency, as well as compliance with IFRS and GDPR. The results also highlight the value of blockchain in improving the traceability of contracts and preventing the fraudulent use of customer rewards, applications that are also supported in the literature (Ahmad et al., 2021). Cloud computing was also found to be important for cost reduction and the avoidance of idle capacity. In summary, a modern AIS can clearly help improve compliance, efficiency, and reporting in the aviation industry of the UAE.

6. Conclusions, Limitations, and Implications for Future Research

This study explored the factors that facilitate or hinder the adoption of modern AISs in the aviation industry of the UAE against the background of the country's 2031 digital-transformation agenda. The study involved interviewing finance, accounting, and technology leaders working at aviation companies in the UAE to understand the effects of the UAE 2031 digital vision on their adoption of modern AISs. It also examined the effect of adopting a modern AIS on compliance with international standards, challenges to adopting such an AIS, and the benefits that derive from it. The results revealed that the UAE's digital vision offered assurance to aviation companies by making available the necessary infrastructure to support modern digital AISs. The most-cited challenge related to employee resistance due to lack of skill or fear of job losses. In contrast, the noted benefits included improved compliance with IFRS and GDPR, better disclosure due to being able to collect and analyze non-financial information, efficiency improvements by automating repetitive processes, savings from avoiding software and hardware installation and maintenance costs, and traceable activities in the value chain due to adopting blockchain. These findings show that the benefits of adopting a modern AIS within the aviation industry far outweigh the challenges, because such systems can enable better reporting and inform decision-making, which in turn give companies a competitive advantage. Nevertheless, companies seeking to adopt such systems need to train their employees to avoid any resistance that could hinder implementation.

This study took a qualitative approach, so it could not sample more people due to the inherent limitations in accessing financial experts and conducting interviews within a reasonable timeframe. While a sample of 17 people is in line with recommended practice for qualitative studies (Guest et al., 2016), such a small sample size limits the external validity of the study. The study also has limited implications for the non-aviation sectors of the UAE's economy. Some interviewees also only provided brief responses, especially those interviewed through video conferencing, even after the interviewer rephrased the questions and prompted the interviewees to elaborate on their responses.

Given the above limitations, future studies could validate the findings through a quantitative approach that would allow the use of a larger sample. For instance, it would be interesting to establish whether companies that have adopted a modern AIS have better cost efficiencies, as suggested by the cost savings identified in the current study. Future studies could also explore similar effects of adopting a modern AIS within other industries. These could include, for example, the energy and mining industries, which may be more exposed to climate risk. Indeed, climate risk is driving the trend toward sustainability reporting, and such reporting was noted in the current study as driving the adoption of modern AISs, because they can better support

non-financial disclosures. A cross-industry study could therefore highlight which industries may be more receptive to a modern AIS compared to others.

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