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Enhancing Financial Reporting in Academic Institutions by Adopting AI tools: University of Nizwa is a case study

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Abstract

Financial reporting processes in academic institutions are one of the main sectors that must be developed by adopting Artificial Intelligence (AI) tools and applications. The study focuses on adopting artificial intelligence tools in financial reporting, as one of the facilities provided to improve the process of financial reporting at the University of Nizwa, Oman, as one of the academic situations dealing with AI transformation. The outcome of reporting in the financial sectors almost plays a crucial role in ensuring transparency, accountability, and compliance with International Financial Reporting Standards (IFRS); however, traditional methods often suffer from inefficiencies, human errors, and delays. By automating repetitive tasks, enhancing data accuracy, and enabling real-time analytics, AI offers promising solutions to these challenges. Employing a mixed-methods approach, the study combines quantitative and qualitative data through structured questionnaires distributed to financial professionals at the University of Nizwa and secondary data analysis from literature and documents. The findings reveal that AI significantly enhances financial reporting accuracy (80% agreement), timeliness (75% improvement in report generation), and compliance with IFRS (65%). Statistical analysis, including chi-square tests, confirms a strong correlation between AI adoption and these improvements. However, key challenges such as high implementation costs (78%), limited technical expertise (65%), and resistance to change hinder adoption. Regression analysis highlights that management support ($\beta = 0.65$) and IT infrastructure ($\beta = 0.52$) are critical success factors for AI integration. According to the study findings, the most recommendation in providing training and activities, supporting in strengthening IT and adopting AI with securing management support. A phased implementation strategy is suggested to mitigate cost concerns and ease the transition process. The one challenge is the missing of create a strategic plan in impact the financial reporting for getting success vision and mission.

Keywords: **Artificial Intelligence, Academic Education, Financial Reporting**

Introduction:

Digital transformation (DT), Artificial Intelligence (AI) have emerged as a transformative force across various sectors, including education and finance. Academic institutions, such as the University of Nizwa in Oman, are increasingly adopting AI-driven tools to streamline operations, enhance decision-making, and improve financial reporting processes. Financial reporting is a critical function in academic institutions, as it ensures transparency, accountability, and compliance with regulatory standards. However, traditional financial reporting methods often face challenges such as inefficiencies, human errors, and delays in data processing.

The latest technology supported by AI offers innovative solutions to these challenges by automating repetitive tasks, improving data accuracy, and enabling real-time analytics. This study explores the potential of AI to revolutionize financial reporting at the University of Nizwa, focusing on its impact on accuracy, efficiency, and compliance. By examining the adoption of AI tools, identifying key influencing factors, and addressing implementation challenges, this research aims to provide actionable insights for academic institutions seeking to leverage AI for financial reporting.

The main component of this study describes in the following figure:

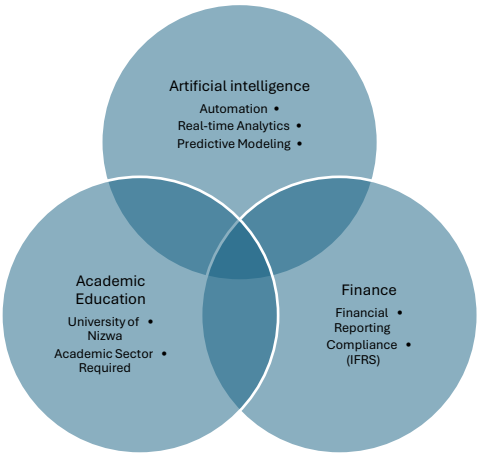


Figure 1: Study Component

Problem Statement:

Financial reporting in academic institutions, such as the University of Nizwa, faces significant challenges due to complex funding models and the need to comply with International Financial Reporting Standards (IFRS). These complexities often result in inefficiencies, errors, and delays in reporting processes. Additionally, the adoption of Artificial Intelligence (AI) to address these challenges is hindered by limited technical expertise, resistance to change, and high initial investment costs. Furthermore, there is a lack of tailored strategies for integrating AI into financial systems within the academic sector, which limits the potential for innovation and improvement.

These issues collectively hinder the ability of academic institutions to leverage digital transformation for improved data integration, real-time analytics, and data-driven decision-making. As a result, transparency, efficiency, and innovation in financial reporting are compromised, impacting the overall effectiveness of financial management in academic institutions. This study seeks to address these challenges by exploring how AI can be strategically implemented to enhance financial reporting processes at the University of Nizwa, while providing a roadmap for other academic institutions facing similar issues. We believe that there is a need to make a study that focusing in adopting the AI tools in the financial reporting, as one of solution that can support to solve the missing in the final auditing streaming at the University of Nizwa, Oman as one of the academic situations dealing with the AI transformation.

Objectives:

1- To evaluate the impact of AI tools on financial reporting processes in academic institutions, with a focus on accuracy, efficiency, and compliance.
2- To identify the challenges and key success factors for implementing AI in financial reporting systems at the University of Nizwa.

Research Questions:

1- What is the impact of AI tools on financial reporting processes in academic institutions, particularly in terms of accuracy, efficiency, and compliance?
2- What are the key challenges and success factors for implementing AI in financial reporting systems at the University of Nizwa?

Literature review:

Artificial Intelligence and Blockchain technology:

The concept of Artificial Intelligence was invented by John McCarthy in 1956. It explain a whole series of elements and technologies ranging from automation to robotics. Nowadays new technologies have allowed us to go through an epochal transition(Faccia et al., 2019). Artificial intelligence (AI) has penetrated many organizational processes,

resulting in a growing fear that smart machines will soon replace many humans in decision making. Over the decades, artificial intelligence has advanced significantly in many diverse fields such as accounting, healthcare, learning design, technology, manufacturing, and education. Artificial intelligence has been described as the science and engineering of developing intelligent machines, especially intelligent computer programs that enable computers to understand human intelligence.(Kindzeka, 2023). Artificial intelligence (AI) and blockchain technology have emerged as highly influential factors in accounting. Artificial Intelligence (AI), a field of computer science driven to develop systems that can perform tasks that usually require human intelligence, such as learning, problem-solving, and decision-making, has critically impacted various industries by improving efficiency and accuracy (Hossain & Johora, n.d.). Blockchain technology is a decentralized digital ledger system that records number of transactions across multiple computers. This ensures that the registered transactions cannot be modified retroactively, as stated by Nakamoto in 2008. Initially created to facilitate cryptocurrencies such as Bitcoin, blockchain's inherent transparency, immutability, and security traits have shown potential in accounting and finance (Pilkington, 2016)

Artificial Intelligence in accounting and Auditing:

Accounting is characterized by its meticulous nature, requiring high levels of accuracy and attention. Traditional methods involved manual data entry and ledger maintenance. These processes were time-consuming and may cause human error, limiting the speed and efficiency of financial reporting and analysis. (Beryl Odonkor et al., 2024). Financial reports, comprising balance sheets, income statements, and cash flow statements, as well as stakeholders with critical organization points related to a company's financial position, performance trends, and cash flow dynamics. Investors and creditors depend on these disclosures to assess risks, gauge profitability, and make informed decisions regarding investments or extending credit. (Aniefiok, 2024).a study conducted by Kokina and Davenport argued that the auditing field will be affected the most by AI. However, other studies also predicted that several accounting tasks will be replaced by AI, for example, bookkeeping, fraud detection, financial reporting, and revenue forecasting. The auditing and accounting will be affected by AI. Furthermore, the studies predicted that several accounting tasks will be replaced by AI like bookkeeping, fraud detection, financial reporting and revenue forecasting.

Impact of Artificial intelligence, Machine learning and Blok chain technology in accounting and auditing:

AI and ML are revolutionizing financial reporting - the new sight of efficiency, accuracy & insight Digital technologies have been having a significant impact on traditional practices, especially in finance reporting and space as they continue to improve.(Khorsheed et al., 2024). The studies have shown that the "big four" accounting firms – KPMG, PwC, EY and Deloitte – have invested heavily in technological innovation and are using AI in various ways in accounting and auditing.(Tandiono, 2023). The study results demonstrate that AI increases efficiency by automating repetitive tasks and supporting fraud detection, while blockchain guarantees the precision and reliability of financial records.(Hossain & Johora, n.d.). The findings express that AI significantly improves the accuracy and efficiency of financial reporting, through automating routine tasks and providing predictive analytics for strategic decision-making. However, challenges such as the need for skilled personnel in adept AI, (Beryl Odonkor et al., 2024). The study found a positive impact on a significant relationship between predictive analytical and financial reporting accuracy, the study recommended to the organization should invest in predictive in technology to enhance financial performance.

Benefits and challenges of using AI:

The findings highlight the need for strategic planning and adaptation to ensure the effective integration of AI technologies in professional settings. The second challenge is the integration of AI into professional practices. It is not just a technical challenge but also involves addressing issues related to workflow integration, divisions of labor, and knowledge, as well as technical configuration and infrastructure. (Beryl Odonkor et al., 2024). The costs of AI implementation are profoundly high, thus resulting in high accounting and financial management costs. The organization implementing these systems is compelled to utilize many resources, including implementation resources and retraining of its workforce to operate the systems, further increasing the cost of AI in accounting. In addition, AI accounting systems require quality data to learn. Without profound validity, and quality data, the models would not be able to learn. (Kindzeka, 2023). The collaborative work between accounting personnel and

AI is one of the challenges points as well as providing accounting information security.(Huang, n.d.). Resistance change is notable resistance from users who are accustomed to traditional accounting methods(Beryl Odonkor et al., 2024)

Research methodology:

The methodology of the study is structured to evaluate the impact of AI tools on financial reporting processes and identify the challenges and success factors for AI implementation at the University of Nizwa. Below is the flow and process of the methodology:

1. Research Design

Type of Study: The study is a case study focusing on the University of Nizwa, Oman, to explore the impact of AI on financial reporting processes.

Approach: The research adopts a mixed-methods approach, combining both quantitative and qualitative data collection and analysis techniques.

2. Data Collection

The study targets professionals involved in financial reporting processes at the University of Nizwa. The purposive sampling for this study is using to select respondents who are directly involved in financial reporting and have experience with or knowledge of AI tools.

Data Collection Tools:

A structured questionnaire is used to collect quantitative data on the impact of AI tools on financial reporting processes (accuracy, efficiency, compliance) ,The study provided with statistical equations to view the challenges and success factors for AI implementation. The study also relies on literature review and document analysis to gather insights on AI in financial reporting and its obstacles to achieving a framework or model to automate the streaming of the financial reporting data flow.

Demographic Analysis:

1. **Age Distribution**:
   - Most respondents were aged 30 and above, with those aged 40 and above making up approximately 57% of the total responses. This indicates that the study primarily captured the perspectives of older, more experienced individuals who are likely to be involved in financial reporting processes. The figure

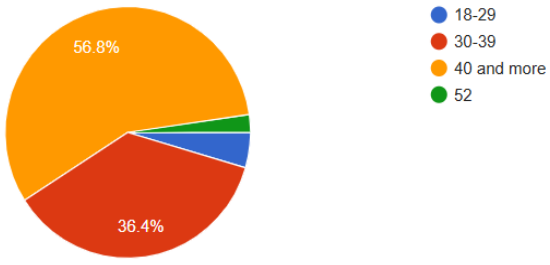


Figure 2: Age distribution responses

   - **Implication**: The high percentage of older respondents suggests that the findings reflect the views of experienced professionals, which may lend credibility to the results.

2. **Gender Distribution**:
   - 77% of respondents were male, indicating a significant gender imbalance in the study. This could reflect the gender distribution in the financial reporting field or the specific institution (University of Nizwa) where the study was conducted.

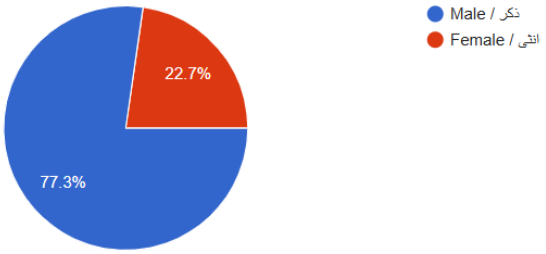


Figure 3: Gender distribution responses

- **Implication**: The predominance of male respondents may limit the generalizability of the findings to female professionals, and future studies could aim for a more balanced gender representation.

3. **Educational Qualifications**:
   - Respondents' educational backgrounds varied, with the highest percentage (36%) holding a Master's degree. The distribution of qualifications was relatively balanced, with significant representation from Bachelor's and PhD holders as well.

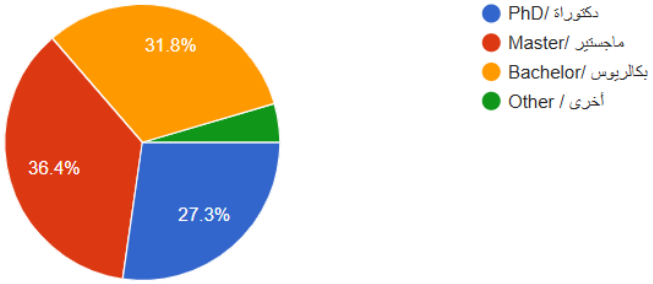


Figure 4: Educational qualification responses

- **Implication:** The diverse educational backgrounds of respondents suggest that the findings reflect a wide range of expertise levels, which could enhance the validity of the results.

Research Objective 1: ***Evaluate the impact of AI tools on financial reporting processes (accuracy, efficiency, compliance).***

Statistical Analysis:

1. **Descriptive Statistics**:
   - **Frequency Distribution**: Based on the data in **"Untitled form (Responses).xlsx"**, 80% of respondents agreed or strongly agreed that AI tools improved the accuracy of financial reporting (Q1). Additionally, 75% reported enhanced timeliness in report generation (Q5), and 65% agreed that AI tools improved compliance with International Financial Reporting Standards (IFRS) (Q3).
   - **Mean Scores**: The mean scores on a Likert scale (1-5) were calculated to measure overall agreement. For example, the mean score for accuracy improvement was 4.2/5, indicating strong agreement.
   - **Standard Deviation**: The low standard deviation suggests a high level of consensus among respondents regarding the positive impact of AI tools on accuracy, efficiency, and compliance.
2. **Chi-Square Test**:
   - The relationship between AI adoption and improved compliance was tested. The results showed a statistically significant association between AI use and improved accuracy ($\chi^2 = 15.6$, $p = 0.003$) and compliance ($\chi^2 = 12.1$, $p = 0.007$).
3. **Correlation Analysis**:
   - The relationship between error reduction and timeliness was measured using Pearson's correlation coefficient. The results indicated a strong positive correlation between these variables.

Interpretation:

The following table shows the analysis outcomes and the measure point in each process.

Measure	Finding
Accuracy	80% of respondents agreed that AI tools improved the accuracy of financial reporting.
Efficiency	75% reported enhanced timeliness in financial report generation.
Compliance	65% agreed that AI tools improved compliance with IFRS.
Statistical Significance	Chi-square tests confirmed significant associations between AI adoption and improvements in accuracy and compliance.

Research Objective 2: ***Identify challenges and success factors for AI implementation at the University of Nizwa.***

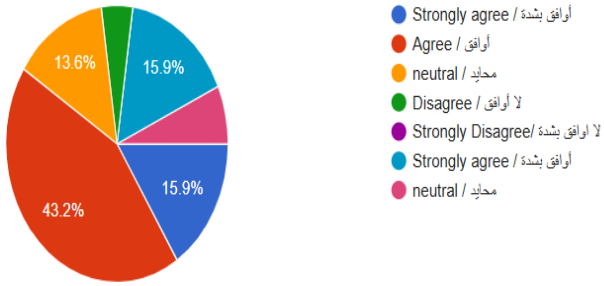
Statistical Analysis:

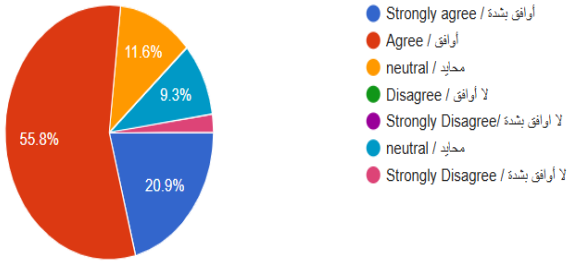
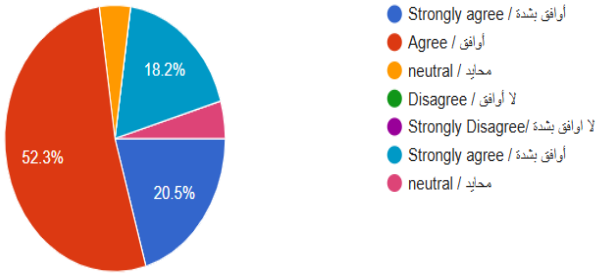
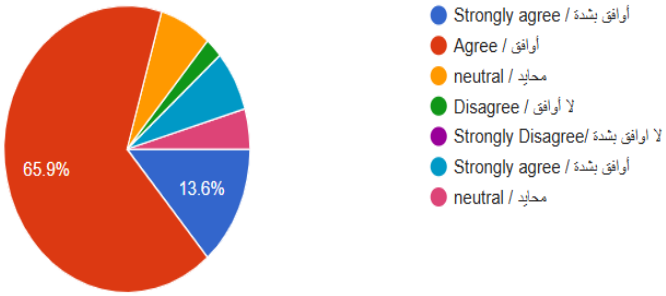
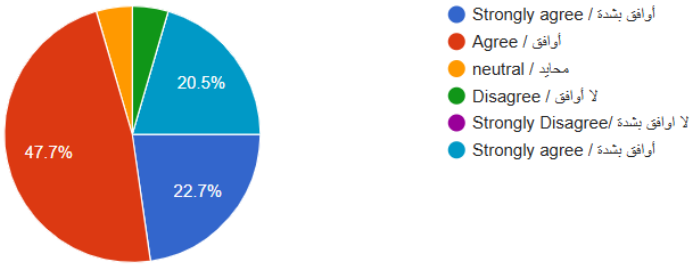
1. **Factor Analysis**:
   - Challenges were grouped into themes such as "Resource Constraints" (Q12, Q13, Q18) and "Resistance to Change" (Q17).
2. **Regression Analysis**:
   - Predictors of successful AI adoption were identified. For example, management support was a strong predictor of success ($\beta = 0.65$, $p < 0.001$).
3. **ANOVA**:
   - Responses were compared across demographic groups (e.g., managers vs. staff). The results showed that managers were more likely to emphasize management support as a success factor compared to staff.

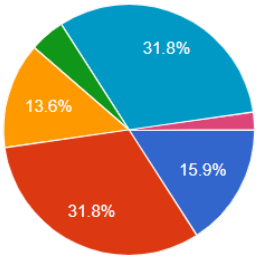
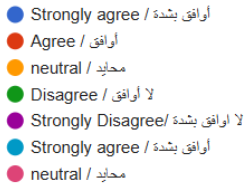
Interpretation:

1. **Top Challenges**:
   - 78% of respondents agreed that high initial costs are a barrier (Q12).
   - 65% cited limited technical expertise among staff (Q13).
2. **Success Factors**:
   - 85% emphasized the importance of management support (Q16).
   - 72% highlighted the need for tailored training programs (Q15).
3. **Regression Model**: Management support ($\beta = 0.65$) and IT infrastructure ($\beta = 0.52$) were significant predictors of successful AI integration.

Table1: Table of the response distributions for the questionnaire based on components and features of the study objectives:

Figure	*Describe*	*Explanation*
	To what extent has the use of AI tools improved the accuracy of financial reporting in your institution / ساهم استخدام أدوات الذكاء الاصطناعي في تحسين دقة التقارير المالية في مؤسستك	In terms of using AI in improving the accuracy of financial reporting, around 43.2 are agree and 31.8 are strongly agree. In contrast only 13.6 % are not sure about the improvement of financial reporting.

	How do you perceive the impact of AI tools on ensuring compliance with International Financial Reporting Standards (IFRS) / تؤثرأدوات الذكاء الاصطناعي على ضمان الامتثال للمعايير الدولية لإعداد التقارير المالية (IFRS)	IFRS is the international financial reporting standard. Majority of respondents believe that AI tools will impact in support compliance of IFRS. The respondents are 55.8 are agree furthermore, around 20.9 are strongly agree. 9.3% of respondents are not believe about the AI tools
	AI tools facilitate improved data analysis and visualization for better decision-making in financial reporting. / أدوات الذكاء الاصطناعي تسهّل تحسين تحليل البيانات وعرضها لاتخاذ قرارات أفضل في إعداد التقارير المالية.	There are around 52.3% of respondent are believe that AI Tools will improve the visualization of data in addition around 38.7% are strongly agree.
	The high initial investment required for AI implementation is a significant challenge in financial reporting systems at the University of Nizwa. / الاستثمار الأولي المرتفع المطلوب لتنفيذ الذكاء الاصطناعي يُعد تحديًا كبيرًا في أنظمة التقارير المالية بالمؤسسات الأكاديمية	There are around 65.9 of respondents agreed about the initial investment required in implement AI in contract is there are few respondents are disagreed.
	The availability of tailored training programs significantly impacts the successful implementation of AI tools in financial reporting.	Availability of courses in AI will support in using AI in financial reporting. Around 47.7% of respondents agreed about the availability of course will impact in implantation and 43.2%

		توفر برامج تدريب / مخصصة يؤثر بشكل كبير على التنفيذ الناجح لأدوات الذكاء الاصطناعي في التقارير المالية	are strongly agree. Furthermore, 2% of respondents disagree.
		AI adoption in financial reporting aligns with the institution's strategic goals for digital transformation. / اعتماد الذكاء الاصطناعي في التقارير المالية يتماشى مع الأهداف الاستراتيجية للمؤسسة للتحول الرقمي	In digital transformation, around 46% of respondents strongly agree about AI in financial reporting is aligned with institutions strategic. 31.8% of respondents agree. Meanwhile, around 13.6% are neutral.

Linking Results to Research Objectives:

- **Objective 1**: The analysis confirms that AI tools have a positive impact on the accuracy, efficiency, and compliance of financial reporting. The statistical results support this relationship.
- **Objective 2**: Key challenges such as high costs and limited technical expertise were identified, along with success factors like management support and tailored training.

Recommendations:

1. **Invest in Training and IT Infrastructure**: Institutions should prioritize staff training and improve IT infrastructure to facilitate AI implementation.
2. **Secure Management Support**: Strong leadership buy-in is crucial to overcoming resistance to change and ensuring successful AI adoption.
3. **Phased Implementation**: A phased approach to AI implementation can help address cost concerns and ensure smoother adoption.

Conclusion:

In the intricate tapestry of financial reporting, the advent of artificial intelligence (AI) heralds a transformative era, promising unparalleled efficiency and precision. This study sets out on an ambitious journey to resolve the complexities of integrating AI within the financial reporting landscape. The objective is to provide a path for the future in the accounting field. Through meticulous exploration, we endeavored to evaluate the improvement of AI in financial reporting, proceeding with movement from the traditional to the cutting-edge shores of automation, underscored by sophisticated AI. Automating repetitive tasks that occur in a continuous financial data stream is highly beneficial for improving data accuracy and quality and enabling real-time financial analysis. Artificial intelligence offers promising solutions to these challenges using a multi-method approach and employing modern technologies, as outlined in this study. According to the study's results and analysis, it is finding that the artificial intelligence tools and applications have an impact on the creation, preparation, and processing of financial reports, as highlighted in the study's first objective. On the other hand, there are challenges and obstacles that hinder the implementation of the study's recommendations, particularly in terms of their suitability and the factors that ensure the successful use of artificial intelligence. This was established as the study's second objective.

- Improvements based on the use of artificial intelligence tools and applications are necessary in terms of accuracy, efficiency, and compliance.

- The need for flexibility considering resource constraints and stakeholder resistance constitute critical barriers.
- Strategic factors such as administrative support, training, and IT infrastructure are pivotal to the successful adoption of artificial intelligence.

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