World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

THE INFLUENCE OF ARTIFICIAL INTELLIGENCE (AI) AND CLOUD COMPUTING TECHNIQUES ON COST MANAGEMENT IN THE FIELD OF SMART MANUFACTURING: AN INNOVATIVE METHOD IN MANAGEMENT ACCOUNTING IN IRAQ

Rasha Jasim Ahmed Ebraheem Alobaidy
Lecturer Dr. / College of Islamic Sciences / Department of Islamic Banking and Finance / University of al Iraqia
E-mail: rasha.ahmed@aliraqia.edu.iq

Article history:

Received: 21th May 2025
Accepted: 20th May 2025

Abstract:

This study investigates the impact of cloud computing and artificial intelligence (AI) technologies on cost management practices in smart manufacturing within Iraq, focusing on two primary objectives. First, it identifies how these technologies transform traditional cost management approaches, emphasizing real-time data access and enhanced decision-making capabilities. Second, the research assesses new management accounting techniques that can be integrated with cloud and AI technologies to improve operational efficiency. Utilizing a quantitative methodology, the study surveyed 65 professionals and managers from smart manufacturing companies that employ these technologies. A questionnaire of 10 items developed and judged by a panel of doctors and experts from the same major (**See appendix A at the end of this study)**. These ten items cover the research questions and are answered by the professionals and managers of the manufacturing sector in Iraq. The findings reveal that cloud computing and AI significantly enhance cost management practices by providing timely financial and operational insights, ultimately leading to improved efficiency and competitiveness in the Iraqi manufacturing sector.

Keywords: *cloud computing, cost management, decision-making*

تأثير تقنيات الذكاء الاصطناعي والحوسبة السحابية على إدارة التكاليف في مجال التصنيع الذكي: أسلوب مبتكر في المحاسبة الإدارية في العراق.

المستخلص

تبحث هذه الدراسة في تأثير تقنيات الحوسبة السحابية والذكاء الاصطناعي على ممارسات إدارة التكلفة في التصنيع الذكي داخل العراق، مع التركيز على هدفين رئيسيين: أولاً، تحدد هذه الدراسة كيفية عمل هذه التقنيات تحويل أساليب إدارة التكاليف التقليدية، مع التركيز على الوصول إلى البيانات في الوقت الفعلي وتعزيز قدرات اتخاذ القرار. ثانيًا، يقوم البحث بتقييم تقنيات المحاسبة الإدارية الجديدة التي يمكن دمجها مع تقنيات السحابة والذكاء الاصطناعي لتحسين الكفاءة التشغيلية. وباستخدام المنهجية الكمية، استطلعت الدراسة آراء 65 متخصصًا ومديرًا من شركات التصنيع الذكية التي تستخدم هذه التقنيات. تم تطويراستبيان مكون من 10 فقرات وتحكيمه من قبل لجنة من المدراء والخبراء من نفس التخصص (انظر الملحق أ في نهاية هذه الدراسة). تغطي هذه الفقرات العشرة أسئلة البحث ويتم الإجابة عليها من قبل المتخصصين ومديري قطاع التصنيع في العراق. تكشف النتائج أن الحوسبة السحابية والذكاء الاصطناعي يعززان بشكل كبير ممارسات إدارة التكلفة من خلال توفيررؤى مالية وتشغيلية في الوقت المناسب، مما يؤدي في النهاية إلى تحسين الكفاءة والقدرة التنافسية في قطاع التصنيع.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

الكلمات المفتاحية: *الحوسبة السحابية، إدارة التكاليف، اتخاذ القرار .*

INTRODUCTION

Merging cloud computing with artificial intelligence technologies is further changing the dimensions of smart manufacturing, especially in countries as newly developing as Iraq. According to Kumari (2022), industries are continually in search of methods to improve efficiency and reduce operational costs, thereby offering disruptive technologies that bring revolutions in traditional manufacturing processes. On-demand use of resources with real-time data analytics empowered by cloud computing helps the manufacturing sector to make better decisions and become operationally agile. According to Hung (2019), the application of AI technologies optimizes production scheduling, improves quality control, and early detects machinery failures, resulting in substantial cost savings with increased productivity. In this light, the current research is intended to analyze how newly emerging technologies can impact the process of cost management in smart manufacturing in Iraq.

In Iraq, the changing face of the manufacturing sector requires that the implications of cloud computing and AI for cost management be very clearly understood in the context of nurturing sustainable development. According to Gill et al. (2019), the adoption of such AI technologies brings in efficiencies and paves the way for new paradigms in management accounting that are capable of supporting strategic decision-making. The research will try to show a review of these developments in the practice of cost management, especially for those in the Industry. These findings are expected to contribute toward the realization of a resilient and competitive manufacturing sector in Iraq- by putting it in the right place to meet both local and international market challenges. Hung (2019) argues that cloud technology is a formidable force that is disrupting the status quo in manufacturing by empowering businesses to change, evolve, and most essentially remain competitive in this fast-evolving market. Generally, with more and more end products digitized and interconnected, manufacturers are adopting more cloud-based solutions to drive efficiency compared with traditional internal data centers. In the manufacturing sector, cloud computing involves the use of internet-based computing systems to handle and improve operations without complete reliance on physical infrastructure.

Ramamoorthi (2023) argues that advanced technologies like automation and AI when inflicted into cloud solutions enable manufacturers to drive more efficiency, meet cost objectives, and stimulate wiser decisions. It is applied in various applications which include supply chain management, product lifecycle management, and predictive maintenance. The combination of cloud systems would provide a connection between different portions of the operations run by manufacturers. This gives them ample scope for real-time collaboration and boosted innovation speeds with added agility to meet industry needs. Cloud computing gives a new impetus to the manufacturing domain, handling and bettering operations without 100% dependency on physical infrastructure. Adamson et al. (2017) state that cloud computing means using web-based computing to manage and improve operations without wholly depending on physical infrastructure. Next-generation technologies such as automation, AI, and ML, where imposed on cloud solutions, help manufacturers drive more efficiency, meet cost objectives, and make wiser decisions. It is used in several applications, from supply chain management to product lifecycle management to predictive maintenance. The integration of cloud systems will provide a connection between the various portions of operations run by manufacturers. It gives them a lot of real-time collaboration and enhanced innovation speeds with additional agility to cater to industry needs.

Cost Management in Smart Manufacturing plays a crucial role in business intelligence. Hansen et al. (1997) state that manufacturing cost management bears important value to the financial health of the manufacturer since it gives an analysis of how to reduce production costs and yet comes up with the best pricing strategies for maximum profitability. Nicolaou (2003) notes that visibility achieved through effective manufacturing cost management contributes to informed business decisions and, in turn, the bottom line in such key ways as arguably one of the most pertinent elements of manufacturer financial well-being, analyzing and driving down the costs to produce manufactured goods. This visibility into a profitable pricing strategy from strong manufacturing cost management is essential in making the best business decisions and better bottom-line performance; the discipline of continually improving process efficiency and sourcing practices begets this visibility. Tiwari et al. (2007) state that manufacturing costs are any costs required to bring a product to completion. Normally, these costs are subsumed into three primary entities:

. Direct materials are raw material costs that are traceable to the unit of product.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

. Direct labor represents the cash payroll for those employees associated with direct production or direct production supervision on the factory floor.
. Manufacturing overhead constitutes an indirect cost of production support and includes everything from back office, and indirect labor expenses to equipment depreciation

One of the limitations of this study is that most studies focus on a special area, thereby limiting the extrapolation of the results to other regions and industries under different technological and economic settings. Xu (2012) argues that much of the emphasis on cloud computing and AI technologies might lead to the oversight of their intrinsic challenges, including but not limited to concerns regarding data privacy, connectivity, and possible loss of resource control, which can cast a shadow over their effectiveness in managing costs within a smart manufacturing setting.

The theory more dominant in this research is the Resource-Based View (RBV) theory introduced by Barney in 1991. He introduces the concept of resource base view to improve the weaknesses in environmental models of competitive advantages and tries to relate the heterogeneous resources possessed by a firm, with the movements of these resources in that particular industry and the strategic or competitive advantages firms have. The firm resources represent what the firm uses to put in place strategies that are meant to drive general efficiency and organizational performance and such may be very broad (Taher, 2012). According to Barney (2000), these resources can be divided into three categories:

. The physical capital resource includes the organizational physical resources such as plant and equipment, technology, location, and raw material access.
. Human capital resources refers to the training, experience, judgment, intelligence, and insight of managers and workers.

The RBV theory focuses on resources. Madhani (2010) states that an argument often put forward is that the RBV demands dominance in unique resources while enhancing operational efficiency and cost management in the context of smart manufacturing. This directly fits with what the study tries to bring out in the optimization of costs within manufacturing processes through these technologies. The theory posits that firms will sustain competitive advantage with the use of resources that are valuable, rare, inimitable, and non-substitutable. With smart manufacturing, the adoption of cloud computing and AI brings about very substantial benefits. Improved data analytics and flexibility in operations are just a few. The same is true in making a substitute or a resource inimitable. On the other hand, this is made by companies for the perpetuation of innovation with the view of perpetuating their competitive advantage. This forms the core that has been left untapped within the market, being more important due to continuous developments within technology and the market environment. Therefore, applying the Resource-Based View theory can in detail explain how cloud computing and AI can be strategic resources to improve cost management in smart manufacturing. It helps comprehend the strategic use of these technologies to enhance performance and competitiveness within the industry.

Problem Statement

This study reflects the problems of traditional cost management in the manufacturing sector of Iraq. Ensuring how an appropriate understanding and application of innovations will enhance manufacturing cost efficiency and operational effectiveness is more topical than ever before. The sector offers immense opportunities that this paper specifically investigates from a transformation angle, concerning process efficiency and cost reduction with decision-making empowered through real-time data analytics. The eventual paper goal is to discover how combining cloud and AI may grant Iraqi manufacturers sustainable competitive advantages in quickly changing market environments.

This study aims to investigate the following two **objectives**:

. To identify the specific manners in which cloud computing and artificial intelligence technologies change traditional cost management practices in the Iraqi smart manufacturing setup.
. To assess and identify new management accounting techniques that can be merged with cloud and AI technologies to enhance smart manufacturing efficiency.

The above two objectives aim at providing a comprehensive understanding of the relationship between technology adoption in manufacturing advancements in management accounting practices and cost management.

This study's research questions are as follows:

1. What is the impact of cloud computing and artificial intelligence on cost management practices of smart manufacturing?
2. What new approaches can be used in the integration of management accounting to improve efficiency and decision-making?

The above two questions address the central themes of this research by centering on what the specified technologies mean for cost management and, at the same time, surfacing the innovative dimensions of management accounting in this context.

LITERATURE REVIEW: It includes theoretical framework and empirical studies.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

Theoretical Framework

The level of cloud computing and artificial intelligence in smart manufacturing concerning the cost management practice is explained using a frame related to the principles of optimal resource and data-driven decision-making. The study by Qi and Tao (2019) asserts that cloud computing develops the pay-as-you-go model, reducing substantial upfront investments in IT infrastructure by manufacturers. Flexibility, therefore, permits businesses to allocate resources in a manner that is more responsive to fluctuations in demand and aligns resource costs with actual usage, avoiding unwarranted costs associated with little-used assets. According to Mistry et al. (2024), integrating AI technologies enriches this framework with advanced capabilities for real-time monitoring and predictive maintenance to minimize operational costs and improve efficiencies further. As explained by Ramamoorthi (2023), with big data analytics from various sources, companies will optimize their productions and also have proper controls for quality to bring down their cost and keep their competitiveness in the dynamic market environment.

Management accounting innovation would help employees accomplish their work in organizations and support decision-making. The use of solutions enabled by AI and the cloud provides real-time access to data and advanced analytics in management accounting, an important precedent toward decision-making, as described by Umar and Rana (2024). As a result, routine accounting processing is very much automated, and management accounts could therefore pay more attention to strategic analysis, other than entering data manually. Agility in the market is made possible through operational efficiencies when organizations are leveraging such new cloud technologies in management accounting. Referring to the work of Ooi et al. (2018), it can be noted that cloud computing fosters collaboration where teams can share intelligence and forecasts across the globe in line with the culture of continuous enhancement and agility. The Market Research Future analysis pointed out that the global cloud manufacturing market is expected to grow to USD 63.1 billion by 2023. It further noted that this market is likely to reach a value of USD 211.7 billion by the year 2032 CAGR of 14.4%. Such growth represents how far the industry has come in the adaptation and use of cloud technologies to optimize supply chains, product development, and reduce costs. Impact of Cloud Computing on the Manufacturing Industry The blog helps elaborate on how much effects cloud computing has in manufacturing. This would show off its advantages and provide examples reflecting its implementation drove success in efficiency, innovation, and connectivity in the field (Hossain, 2023). Such new ways are going to let organizations improve how they ready themselves for the response to the market, which should eventually end in better financial performance and strategic alignment.

Empirical Studies

The following empirical studies aim to clarify the impact of cloud computing and artificial intelligence technologies on cost management in smart manufacturing: an innovative approach in management accounting in Iraq. Bala et al. (2024) conducted a study about the impact of cloud accounting computing on firm performance. It is set to investigate how much impact cloud computing in accounting information may have on firm performance in Erbil holding companies. This is attributed to the fact that currently there is no research available regarding the impact of cloud computing on firm performance in the place of the industry of Erbil. Thus the study tries to achieve its objectives of adopting cloud computing. For this research, a questionnaire research design will be used as the study technique. The research population includes personnel in the companies of Erbil-holding. The researchers distributed (300) questionnaires from which (266) were received back duly filled. The data were analyzed using SPSS Version 26 and PLS-SEM by conducting all tests about data reliability and validity. Results from the analysis showed that trust in cloud computing in accounting information, usefulness of cloud computing in accounting information, and ease of use of cloud computing in accounting information are related dimensions and have a positive significant effect on firm performance. Further research could be done to reexamine the impact of cloud accounting on other parts of the company like internal control systems, financial reporting quality, and fraud detection. This study can be useful in understanding how technological developments in cloud-based accounting systems have the potential to enhance business competitiveness and increase efficiency in firms. It may also contribute to clarifying problems and preconditions for the introduction of cloud computing in accounting processes.

Alqahtani et al. (2024) carried out a study of the impact of cloud computing and AI technologies on firm performance at Saudi Arabia Islamic Bank. This work attempts to analyze how technological advancement within Saudi Arabian Islamic banks, particularly regarding the capabilities of cloud computing and Artificial Intelligence, impact the operational efficiency, customer engagement, and competitive positioning that finally affect the overall firm performance of those banks. It further explores the mediation of digital innovation in the relationship between technological capabilities and performance outcomes and the moderating role of digital capabilities and IT flexibility in this relationship. An attempt has been made to bridge this research–by setting AI capabilities as pertinent determinants of firm performance which provide vast opportunities for

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

process optimization, service innovation, and market differentiation–through the establishment of a mediating effect of digital innovation for Islamic banks to fully realize the benefits associated with these technologies. The findings also bring out the immense importance of building strong digital capabilities and flexible IT ecosystems to extract the maximum value of technological advancements and facilitate an ingrained ability to adapt to technological change and foster continuous innovation. The literature on technology management and banking performance provides useful insights into the strategic value of technological capabilities. Digital innovation in Islamic banking is expected to be a valuable contribution to the extant body of knowledge and managers, particularly banking executives and policymakers in Saudi Arabia. The study calls for a holistic approach to the adoption of technology, managing innovation, and building capabilities to realize superior firm performance in the digital era.

Coman's (2024) study is on digitalization in accounting within the scope of cost management. There is no doubt that digital technologies have permeated managerial accounting and have huge potential for the transformation of this profession. New digital technologies like AI, blockchain, IoT, big data, and cloud computing, if implemented, could play a catalytic role in ushering in a paradigm shift in the accounting management of transport organizations. It aimed to find the perception of Romanian accountants regarding the implementation of digital technologies in the accounting management of transport organizations. The researchers have determined the influence of the cost accounting tools developed under digital transformation on the performance of the transport organization. From it, we may conclude that a developed tool is much more powerful than a traditional tool for cost calculation. The developed model can provide the manager within a transport organization with information concerning the most effective methods of operating within digital transformation.

Ahmed et al. (2022) studied the role of artificial intelligence technologies in enhancing the performance of the management accountant. This study purposed to identify the influence of artificial intelligence techniques on the development of the role of management accountants while also seeking to ascertain the level to which management accountants are cognizant of the significance of artificial intelligence techniques, and an establishment of a result set was made from the study, whereby the most crucial finding was that expert systems make it possible for management accountants to store and interpret human experience and use it in providing advice and advice to management accountants and help reach appropriate decisions in the light of the evidence provided to the expert systems and data analytics enable the management accountant to detect patterns New relationships in large amounts of data to reach a lot of conclusions that benefit decision-makers in companies, neural networks enable the solution of complex problems in the fields of engine, market prediction, complex systems, evolution of systems, processes, nonlinear systems, analysis of finance and economics. The study further advocated that governments should aggressively support the use of artificial intelligence systems in the accounting profession by corporate managers provided they give enough attention to the use of intelligent systems Artificial with better quality accounting curricula and programs in Universities.

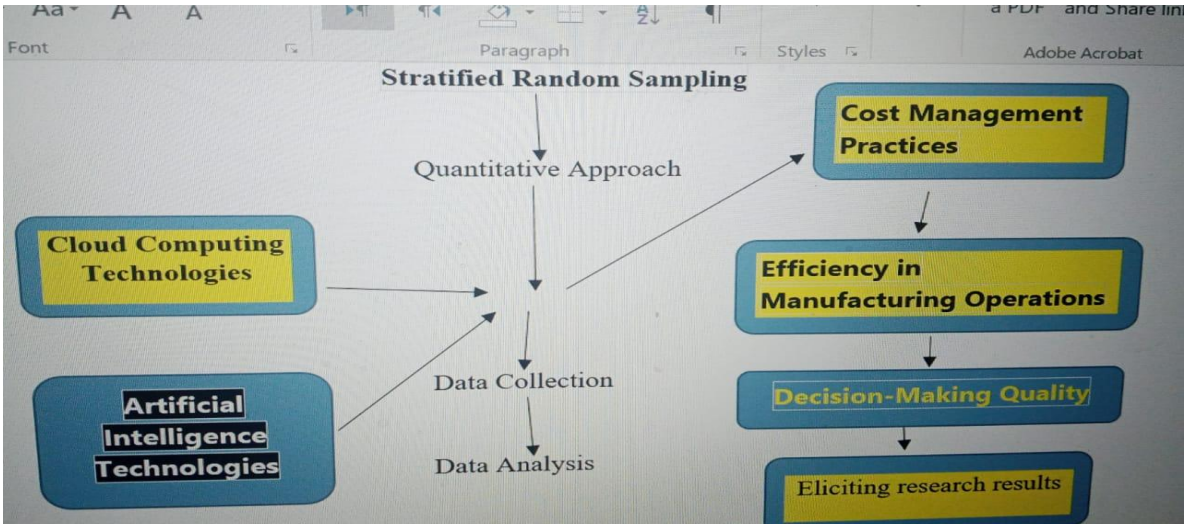
Consequently, empirical studies prove that the mergers of cloud computing with AI technologies empower cost management practices in smart manufacturing with improved resource allocations by providing analytics and data in real time. As a result, the two technologies simplify operations and open up new avenues with which management accountants can devise methods for improved decision-making and strategic financial planning. Therefore, the results highlight the potential for these innovations to bring competitive advantage and operational excellence into the manufacturing sector in Iraq.

RESEARCH METHODOLOGY

The research methodology presents the following steps: research design, research tools, data collection, and data analysis. Therefore, this work aims to evaluate the influence of cloud computing and artificial intelligence technologies on cost management in smart manufacturing: a new vision for management accounting in Iraq. The methodology in this paper will be performed using the descriptive analytical method by applying an analytical case study. According to Kas et al. (2019). the quantitative approach is more objective with a deductive nature and based on numerical quantification in generalizing results. It is a kind of methodology used to collect data for understanding a specific topic. It is how information is collected to learn a specific thing, using any calculations, statistical, or mathematical techniques. Quantitative methodologies are techniques that apply mathematics to the analysis of data with numbers collected by researchers to answer their research questions (Warfield, 2010). In the research methodology section, particular attention is paid to measurements and quantitative analyses that generally test many of the hypotheses and many of the theories. Emphasis is also laid on collecting information wherein numerical values are derived, the kind of statistics employed in examining the values for patterns as well as relationships (Long, 2014). The diagram below illustrates the research design:

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

The population of this study consists of all professionals and managers in Iraq's smart manufacturing companies using cloud computing and AI technologies. This could span several sectors including automotive, electronics, textiles, food processing, and other pertinent



manufacturing industries. The sample of this study consists of 65 respondents working in smart manufacturing companies in Iraq, which use cloud computing and AI technologies. The sample size selected for the study is adequate to ensure statistical validity and reliability. Employing the Stratified Random Sampling Method ensures some representation across types of manufacturing sectors and organizational sizes. Thus stratification helps capture diverse perspectives on the impacts of cloud computing and AI on cost management. After developing and validating the scale, it was administered to the sample through filling on a social media platform, especially WhatsApp, and Zoom. Then the data collected was analyzed using the software package SPSS. It needed several statistical tests like The Mean, Standard Deviation, 2-tailed Significance Test, One-Sample T-Test, and others were needed to answer the research questions. After eliciting the results, an analysis was done to get the final results. A few recommendations were made after drawing a comparison between California State and Jordan on this subject.

RESEARCH TOOL

In the present study, the researcher constructed the questionnaire. It contains two independent variables (technologies of cloud computing and artificial intelligence) and three dependent variables (practicing cost management, efficiency in manufacturing operations, and quality of decision-making). A questionnaire of 10 items developed from these two research questions was judged by a panel of doctors and experts from the same major (see Appendix A at the end of this study). It

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

focuses predominantly on the influence of cloud computing and artificial intelligence technologies on cost management in smart manufacturing: a managerial accounting innovation in Iraq. The questionnaire items for this research are filled by participants. Their responses are further tabulated and analyzed statistically. Likert's three-point scale frames their responses as: agree, neutral, and disagree. Batterton and Hale (2017) in simple words, a Likert scale is a rating system used to measure opinions, attitudes, or behaviors. Usually, a statement or question is presented, followed by a set of three or five response options.

RESEARCH RESULTS

The first research question is: What is the impact of cloud computing and artificial intelligence on cost management practices of smart manufacturing? Answering this question requires discussing, analyzing, and comparing the participants' responses to the first 5 items of this questionnaire (**See Appendix A at the end of this study)**. The following tables clarify the participants' perspectives about the impact of cloud computing and artificial intelligence on cost management practices of smart manufacturing. To investigate the participants' responses, a Descriptive Statistic Test is required to be conducted:

Table 1: Descriptive Statistic Test

No. of items	No. of participants	The Mean	Standard Deviation (SD)	Frequency (00.0 %)	Range
1.	65	2.8615	0.4855	89.2 %	2
2.	65	2.8000	0.4017	81.5 %	2
3.	65	2.8154	0.4662	86.2 %	2
4.	65	2.8308	0.41718	84.6 %	2
5.	65	2.8406	0.4732	84.5 %	2

Table 1 shows that the average Mean of the five items **(See Appendix A at the end of this research)** is 2.8290 with an average Standard Deviation (SD) of 0.4731. The Mean is considered high. Besides, the average percentage of the above five items is 85.2 %. The average Range of these items is 2. According to the participants' responses, cloud computing and artificial intelligence positively influence the cost management practices of smart manufacturing. Cloud computing enables access to financial and operational data in real time; this is how cost management is greatly enhanced in smart manufacturing. In particular, artificial intelligence technologies enable predictive analytics, which raises the accuracy of forecasting further and makes visible new areas for saving costs within manufacturing processes. Better resource allocation and optimization in the integration of cloud and AI technologies result in reduced operational costs in smart manufacturing environments. The mechanism of AI and cloud computing helps in a more effective tracking and management of expense monitoring on the manufacturing operation side. Adopting AI-based insights through cloud-based systems massively improves the decision-making process on cost management strategies in smart manufacturing.

To conclude the last result of the first research question, One Sample T-Test is necessary to be conducted. Table (2) clarifies this:

Table 2: One Sample T-Test

	No. of participants	T	Average Mean	Average Std. Devia-Tion	Sig. (2-tailed)	Average percentage
Items: 1-5	65	23. 743	2.8290	0.4731	0.000	85.2 %
Total	65					

Since the average Mean is high (2.8290) and the Significance (2-Tailed) is 0.000, it means that the impact of cloud computing and artificial intelligence on cost management practices of smart manufacturing is positive. When Alpha is equal or less than 0.05 %, it means that the influence is significant. (Alpha = Significance 2-Tailed).

The integration of cloud computing and artificial intelligence technologies into smart manufacturing in Iraq impacts cost management practices in a way of improves operating efficiency and financial flexibility. The evidence of this study posits that cloud computing eradicates the large upfront investment in hardware and enables manufacturers to embrace a pay-

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

as-you-go model that optimizes spending based on usage, eventually resulting in huge cost savings. In line with this study, this finding was supported in the research work adopted by Ahmed (2022), who explored the role of artificial intelligence technologies in improving the effectiveness of the management accountant. The study made a case that there has to be the greatest support from governments for increased use of AI systems within the profession by corporate managers.
In addition to all this, AI makes predictive maintenance analysis through real-time data, reducing downtime and repairs hence the cost of repair to make the plant more productive. This is in line with what Alqahtani et al., (2024) said when calling for the holistic approach of technology adoption, innovation management, and capability building for better firm performance realization in the digital era. This finding corresponds to the Resource-Based View (RBV) theory since it is argued that using valuable resources, in this case, applications of advanced technology, maybe a source of competitive advantage and enhancement of cost management.
The second research question is: What new approaches can be used in the integration of management accounting to improve efficiency and decision-making? Answering this question requires discussing and analyzing the participants' responses to the items from 6 to 10 of this questionnaire (**See Appendix A at the end of this study)**. The following two tables clarify the participants' perspectives about the content of the above research question. To investigate the participants' responses, a Descriptive Statistic Test is required to be conducted:

Table 3: Descriptive Statistic Test

No. of items	No. of participants	The Mean	Standard Deviation (SD)	Frequency (00.0 %)	Range
6.	65	2.8000	0.44017	81.5 %	2
7.	65	2.6615	0.61940	73.8 %	2
8.	65	2.6462	0.57093	69.2 %	2
9.	65	2.6619	0.61949	73.9 %	2
10.	65	2.6923	0.58425	75.4 %	2

Table 3 shows that the average Mean of the items **(See Appendix A at the end of this research)** is 2.7247 with an average Standard Deviation (SD) of 0.4534. The Mean is considered high. Besides, the average percentage of the above five items is 74.8 %. The average Range of these items is 2. According to the participants' responses, the new approaches in the integration of management accounting improve efficiency and decision-making. It means that the application of advanced data visualization tools in management accounting practice brings more clarity to financial information and facilitates the process of decision-making at all levels. The adoption of real-time reporting systems provides a good impetus for allowing management accountants access to current data on a timely basis, which enhances the tracking of performance and decision timelines. Predictive analytics helps organizations better predict future financial circumstances, hence improving strategic planning and resource allocation. Adopting cloud-based collaboration platforms for seamless communication and information sharing amongst the accounting team regarding basic input data may tend to improve overall efficiency as well as decision-making processes. The use of AI tools for cost analysis would help identify drivers and inefficiencies much more quickly and hence allow much better strategic decisions in management accounting.
To conclude the last result of the second research question, One Sample T-Test is necessary to be conducted. Table (4) clarifies this:

Table 4: One Sample T-Test

	No. of participants	T-Test	Average Mean	Average Std. Devia-Tion	Sig. (2-tailed)	Average percentage
Items: 6-10	65	38. 412	2.7247	0.4534	0.000	74.8 %
Total	65					

Since the average Mean is high (2.7247) and the Significance (2-Tailed) is 0.000, it means that the new approaches in the integration of management accounting improve efficiency and decision-making.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

This study has significantly indicated the integration of management accounting with new ways. One of the results is increased effectiveness and decision-making by organizations. One significant approach is through the implementation of an integrated accounting system that merges both management and financial accounting to ensure all-round analysis in decision-making thereby enhancing resource optimization and risk assessment. The work by Coman (2024) argues that the tools of cost accounting developed with the help of digital transformation have a positive influence on the operation of the transport organization. This, according to Bala et al. (2024), would further improve riskier and less efficient investments in companies. One possibility is that the findings of this study strongly complement the Resource-Based View theory, which argues that heterogeneity in resources like integrated accounting systems can help explain a competitive advantage in terms of enhanced organizational skills and market orientation. On the other hand, big data analytics technologies empower strategic insights by the alignment of goals at the organizational level for professional accountants to analyze diverse sources of information. This will mean that management accountants have access to strategic insights garnered from diverse sources and better alignment of goals at the organizational level.

CONCLUSION

This is to assert that the implementation of these technologies in the Iraqi manufacturing sector amounts to a significant impetus for improving cost management practices. With the vast capability of real-time access to data, both financial and operational, cloud computing plus AI makes it possible for firms to take decisions to judiciously allocate resources and eliminate wastage. In this way, the study brings out how new management accounting techniques might further enhance the efficiency of decision-making in smart manufacturing settings. That, according to the findings, the adoption of such technological means results in great cost economies and enhanced competitiveness for manufacturers within Iraq. Such results do assert that the modern technologies should be further implemented in enhancing effectiveness.

RECOMMENDATIONS

In the light of this study, it is highly recommended that smart manufacturing companies in Iraq should make huge investments in training programs for their professionals and managers to bring out the maximum benefit of cloud computing and AI technologies in cost management practices. Organizations can, therefore, develop strategic partnerships with technologies providers to continuously be aligned with the available advancing technologies and have a good competitive edge in the market.

REFERENCES

Adamson, G., Wang, L., Holm, M., & Moore, P. (2017). Cloud manufacturing–a critical review of recent development and future trends. *International Journal of Computer Integrated Manufacturing*, *30*(4-5), 347-380.

Ahmed, A., Albaz, M. M., & Metwaly, A. Z. (2022). The Role of Artificial Intelligence Technologies in Improving the Performance of the Management Accountant considering the Egyptian State's Trend Toward Digital Transformation. *World Research of Business Administration Journal*, *2*(3), 167-182.

Alqahtani, M. M. M., Singh, H., Haddadi, E. A. A., Al-Shibli, F. S. R., & Al-balushi, H. A. A. (2024). Impact of Internet of Things, Cloud Computing, Artificial Intelligence, Digital Capabilities, Digital Innovation, IT Flexibility on Firm Performance in Saudi Arabia Islamic Bank. *Advances in Social Sciences Research Journal*, *11*(7).

Bala, H., Zomaya, A. R., Omar, R., Al-Absy, M. S. M., Ya'u, A., Sani, A. U. A., & Khatoon, G. (2024). Effect of Cloud Accounting Computing on Firm Performance. In *Harnessing AI, Machine Learning, and IoT for Intelligent Business: Volume 2* (pp. 593-609). Cham: Springer Nature Switzerland.

Batterton, K. A., and Hale, K. N. (2017). The Likert scale what it is and how to use it. *Phalanx*, *50*(2), 32-39.

Barney, J. B. (2000). Firm resources and sustained competitive advantage. In *Economics meets sociology in strategic management* (pp. 203-227). Emerald Group Publishing Limited.

Coman, E. L. (2024). Digitalization of accounting within the concept of cost management. *Available at SSRN 4979637*.

Gill, S. S., Tuli, S., Xu, M., Singh, I., Singh, K. V., Lindsay, D., ... & Garraghan, P. (2019). Transformative effects of IoT, Blockchain and Artificial Intelligence on cloud computing: Evolution, vision, trends and open challenges. *Internet of Things*, *8*, 100118.

Hansen, D. R., Mowen, M. M., & Heitger, D. L. (1997). *Cost management* (pp. 300-351). South-Western College Publishing.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

Hossain, M. F. (2023). Ups and Downs of Telecommunication Market Size in Bangladesh and the Service Impacts to Customers. *무역연구*, *19*(6), 1-22.
Hung, Y. H. (2019). Investigating how the cloud computing transforms the development of industries. *IEEE Access*, *7*, 181505-181517.
Kas, M. J., Penninx, B., Sommer, B., Serretti, A., Arango, C., & Marston, H. (2019). Aquantitative approach to neuropsychiatry: the why and the how. *Neuroscience & Biobehavioral Reviews*, *97*, 3-9.
Kumari, S. (2022). Agile Cloud Transformation in Enterprise Systems: Integrating AI for Continuous Improvement, Risk Management, and Scalability. *Australian Journal of Machine Learning Research & Applications*, *2*(1), 416-440.
Long, H. (2014). An empirical review of research methodologies and methods in creativity studies (2003–2012). *Creativity Research Journal*, *26*(4), 427-438.
Madhani, P. M. (2010). Resource based view (RBV) of competitive advantage: an overview. *Resource based view: concepts and practices, Pankaj Madhani, ed*, 3-22.
Mistry, H. K., Mavani, C., Goswami, A., & Patel, R. (2024). The Impact of Cloud Computing and Ai On Industry Dynamics And Competition. *Educational Administration: Theory and Practice*, *30*(7), 797-804.
Nicolaou, A. I. (2003). Manufacturing strategy implementation and cost management systems effectiveness. *European Accounting Review*, *12*(1), 175-199.
Ooi, K. B., Lee, V. H., Tan, G. W. H., Hew, T. S., & Hew, J. J. (2018). Cloud computing in manufacturing: The next industrial revolution in Malaysia?. *Expert Systems with Applications*, *93*, 376-394.
Park, H. S., & Tran, N. H. (2015). Development of a cloud based smart manufacturing system. *Journal of Advanced Mechanical Design, Systems, and Manufacturing*, *9*(3), JAMDSM0030-JAMDSM0030.
Qi, Q., & Tao, F. (2019). A smart manufacturing service system based on edge computing, fog computing, and cloud computing. *IEEE access*, *7*, 86769-86777.
Ramamoorthi, V. (2023). Applications of AI in Cloud Computing: Transforming Industries and Future Opportunities. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, *9*(4), 472-483.
Sun, L., Jiang, X., Ren, H., & Guo, Y. (2020). Edge-cloud computing and artificial intelligence in internet of medical things: architecture, technology and application. *IEEE access*, *8*, 101079-101092.
Taher, M. (2012). Resource-based view theory. *Information Systems Theory: Explaining and Predicting Our Digital Society, Vol. 1*, 151-163.
Tiwari, A., Turner, C., & Sackett, P. (2007). A framework for implementing cost and quality practices within manufacturing. *Journal of Manufacturing Technology Management*, *18*(6), 731-760.
Umar, U. S., & Rana, M. E. (2024, January). Cloud Revolution in Manufacturing: Exploring Benefits, Applications, and Challenges in the Era of Digital Transformation. In *2024 ASU International Conference in Emerging Technologies for Sustainability and Intelligent Systems (ICETSIS)* (pp. 1890-1897). IEEE.
Warfield, D. (2010). Is/It Research: A Research Methodologies Review. *Journal of theoretical & applied information technology*, *13*.
Xu, X. (2012). From cloud computing to cloud manufacturing. *Robotics and computer-integrated manufacturing*, *28*(1), 75-86.

Appendix A

Dear professionals and managers ……

This study investigates the impact of cloud computing and artificial intelligence technologies on cost management in smart manufacturing: an innovative approach in management accounting in Iraq. Please read the following items and indicate your point of view by checking the appropriate box. Your responses are greatly appreciated and crucial for conducting this study.

No.	Item	Agree	Neutral	Disagree
1.	Cloud computing enables access to financial			

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

	and operational data in real-time; this is how cost management is greatly enhanced in smart manufacturing.			
2.	In particular, artificial intelligence technologies enable predictive analytics, which raises the accuracy of forecasting further and makes visible new areas for saving costs within manufacturing processes.			
3.	Better resource allocation and optimization in the integration of cloud and AI technologies result in reduced operational costs in smart manufacturing environments.			
4.	It is the mechanism of AI and cloud computing that helps in a more effective tracking and management of expense monitoring on the manufacturing operation side.			
5.	The adoption of AI-based insights through cloud-based systems massively improves the decision-making process on cost management strategies in smart manufacturing.			
6.	The application of advanced data visualization tools in management accounting practice will bring more clarity to financial information and facilitate the process of decision-making at all levels.			
7.	The adoption of real-time reporting systems provides a good impetus for allowing management accountants access to current data on a timely basis, which enhances the tracking of performance and decision timelines.			
8.	Predictive analytics helps organizations better predict future financial circumstances, hence improving strategic planning and resource allocation by.			
9.	Adopting cloud-based collaboration platforms for seamless communication and information sharing amongst the accounting team regarding basic input data may tend to improve overall efficiency as well as decision-			

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 47, June, 2025
ISSN: 2749-3628,

	making processes.			
10.	The use of AI tools for cost analysis would help identify drivers and inefficiencies much more quickly and hence allow much better strategic decisions in management accounting.			