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From Historical Reporting To Predictive Intelligence In Management Accounting Systems

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Abstract

This study examines the transformation of Management Accounting Systems (MAS) from historical reporting toward predictive intelligence through a Systematic Literature Review (SLR). It synthesizes research on the evolution of management accounting, digital technologies, data analytics, managerial decision-making, organizational performance, and implementation challenges. The review explores how predictive capabilities enable organizations to move beyond retrospective financial information toward more forward-looking insights for planning, control, and strategic decisions. Drawing on Contingency Theory, this study emphasizes that the effectiveness of predictive management accounting depends on alignment between technological capabilities, organizational characteristics, environmental uncertainty, and managerial information needs. The synthesis highlights the importance of data integration, analytical capabilities, and organizational readiness in supporting this transformation. It also identifies challenges related to implementation, information quality, and the adaptation of management accounting practices. This review contributes to the literature by consolidating key developments, explaining the contextual nature of predictive systems, and identifying directions for future research and practical implementation.

Keywords: Management Accounting Systems, Predictive Intelligence, Historical Reporting, Data Analytics, Contingency Theory.

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INTRODUCTION

Changes in digital technology have pushed management accounting systems to evolve from historical reporting to the use of information to support predictions and strategic decision-making. Organizations face a dynamic business environment, characterized by competition, uncertainty, and an increasing need for relevant information. In this context, management accounting systems are no longer just presenting past data, but are beginning to be geared towards generating prospective insights. The development of artificial intelligence is reinforcing these transformations through data analysis and managerial decision support (Abbas, 2026; Gonçalves & Gaio, 2021; Goretzki & Mahlendorf, 2026).

Organizations need fast and accurate information to coordinate operational activities, control costs, and evaluate performance. Reliance on historical reports can limit management's ability to respond to changing demands, supply chain disruptions, and inventory dynamics. Therefore, the integration of analytics technology in management accounting systems is becoming increasingly relevant for forecasting operational needs and identifying risks early. The use of deep learning in inventory management demonstrates the potential of technology in supporting data-driven decisions (Gonçalves & Gaio, 2021; Abbas, 2026; Liu et al., 2026).

The transformation towards predictive intelligence also changes the competencies required by the management accounting profession. Accountants are not only required to understand cost recording and report preparation, but also to be able to interpret analytical results and relate them to organizational decisions. Digitalization presents both opportunities and challenges related to the division of responsibilities, professional expertise, and the use of technology in accounting work. The use of generative artificial intelligence has also opened up new approaches in qualitative research in management accounting, although its application still requires critical consideration and human supervision (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Monteiro et al., 2024).

In various organizational environments, the ability to predict risks is becoming increasingly important as managerial decisions are affected by changes in financial conditions, regulations, and operational uncertainty. Organizations need systems that can link accounting information with risk indicators to strengthen planning and control. Information on possible defaults, for example, can provide additional perspective on financial risk management. In addition, the use of checklists in risk management and capital management strategies due to

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accounting standards demonstrates the importance of control tools in dealing with uncertainty (Ringgaard et al., 2026; Reilley & Klein, 2026; Anani et al., 2026).

The development of information systems also affects the quality, security, and reliability of data used in decision-making. Organizations that manage transactions and information on a large scale need internal controls to maintain information integrity and ensure adequate separation of duties. Audit regulations and the application of blockchain technology are also related to the quality of accounting information and investor decisions. However, the availability of digital data does not automatically guarantee accurate predictive capabilities. Organizations still need governance, information validation, and oversight mechanisms for technology to support responsible managerial decisions (Kim et al., 2025; Chen et al., 2024; Cheng et al., 2026).

The use of digital technology in performance measurement provides an opportunity for organizations to connect financial and operational indicators in a more integrated manner. This information can help management evaluate the achievement of targets while recognizing patterns that have the potential to influence future performance. Nonetheless, the success of transformation is not only determined by the sophistication of the system, but also by organizational readiness, information quality, and leadership involvement. Changes in management accounting practices need to be understood as a process that combines technological, professional, and organizational aspects in order for the information generated to truly support strategic decisions (de Araujo Wanderley & Horton, 2026; Calandra et al., 2025; Monteiro et al., 2024).

Based on these developments, the study of the shift from historical reporting to predictive intelligence in management accounting systems is important to understand the direction of transformation in this field. The literature shows the development of analytical technologies, changes in professional roles, and adjustments in control practices, but the relationship between these themes still needs to be systematically mapped. Systematic literature review (SLR) can identify the approaches used, reported benefits, and gaps in research that are still open. Thus, this study is directed to synthesize these developments and assess their implications for contemporary management accounting practices (Abbas, 2026; Goretzki & Mahlendorf, 2026; Pedroso & Gomes, 2024).

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LITERATURE REVIEW

Contingency Theory

Contingency Theory explains that the effectiveness of a management accounting system depends on the suitability between the information provided and the conditions of the organization, including environmental uncertainty, strategy, and operational complexity. In this study, the theory is used to understand why companies switch from historical reporting to predictive information when decision needs change. An effective system is not a uniform system, but a system that meets business demands. This perspective is in line with the study of management and strategy accounting systems (Gonçalves & Gaio, 2021; Abbas, 2026; Pedroso & Gomes, 2024).

The application of Contingency Theory helps to explain that the benefits of analytics technology are not always the same for every company. Organizations with dynamic environments may need rapid prediction of demand and risk, while stable organizations may rely more on periodic reports. Therefore, the relationship between technology, information needs, and decisions needs to be examined based on the organizational context. Studies of the digitalization of the accounting profession and artificial intelligence show changes in practices and the need for adaptation in organizations (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Abbas, 2026).

Historical Reporting

Historical reporting is the presentation of information about transactions, costs, revenues, and performance that have occurred during a certain period. This information helps management evaluate achievements, identify irregularities, and account for the use of resources. However, historical reports mainly describe past conditions so they are not always sufficient to respond to market changes or forecast future risks. Management accounting systems still need historical data as the basis for analysis, while developing their use for broader decision-making needs (Gonçalves & Gaio, 2021; Monteiro et al., 2024; Abbas, 2026).

In international companies, historical reporting provides a basis for comparing performance across units, countries, and periods, but delays in information can reduce its usefulness when conditions change rapidly. Past data remains important for recognizing patterns, measuring actual differences to budgets, and informing the forecasting process. Therefore, the shift towards predictive intelligence does not mean eliminating historical reporting, but rather

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integrating it with forward-oriented analysis. The accounting system and performance measurement literature provides context for this development (Gonçalves & Gaio, 2021; Calandra et al., 2025; Monteiro et al., 2024).

Predictive Intelligence

Predictive intelligence refers to the use of data, analytical methods, and computing technology to identify patterns and forecast future conditions or outcomes. In management accounting, this approach has the potential to support cost, demand, inventory, financial flow, and risk forecasting. Predictive outcomes are not certainties, but rather input for managerial considerations that need to be interpreted along with the business context and data quality. The study of artificial intelligence and deep learning shows the relevance of analytics to expand information support in decisions (Abbas, 2026; Liu et al., 2026; Ringgaard et al., 2026).

The value of predictive intelligence lies in its ability to help management recognize risks early and compare scenarios before assigning actions. Inventory prediction can support operational planning, while risk information strengthens financial evaluations. However, the accuracy of results depends on data quality, analytical assumptions, and human supervision; inappropriate models can lead to misleading conclusions. Therefore, studies need to distinguish the application of tested predictions from general discussions of technology (Liu et al., 2026; Ringgaard et al., 2026; Goretzki & Mahlendorf, 2026).

Management Accounting Systems

A management accounting system is a series of processes and practices for collecting, processing, and delivering information that helps planning, controlling, evaluating performance, and internal decision-making. This system connects financial and non-financial information with the needs of managers at various levels of the organization. Its development is influenced by strategy, structure, technology, and coordination needs. In the context of this study, the management accounting system becomes a space where historical reporting and predictive analysis can be combined to increase the relevance of information to decisions (Gonçalves & Gaio, 2021; Pedroso & Gomes, 2024; Monteiro et al., 2024).

The integration of predictive analytics into management accounting systems can extend the information function from the evaluation of past results to support planning and anticipatory actions. Such implementation requires reliable data processes, clear professional roles, and

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management involvement to ensure that the results of the analysis are used appropriately. These changes can also affect performance measurement and risk control, so they are not enough to be understood as software updates alone. The literature on digitization and performance measurement provides a basis for examining the transformation of systems at an organizational level (de Araujo Wanderley & Horton, 2026; Calandra et al., 2025; Abbas, 2026).

METHOD

This study applies the Systematic Literature Review (SLR) method guided by the standard Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) to identify, select, and analyze relevant research regarding the transformation of management accounting systems from historical reporting to predictive intelligence. The literature sources are focused on scientific articles indexed in Scopus and Web of Science (WoS), with coverage in the fields of management accounting, accounting information systems, artificial intelligence, business analytics, and managerial decision-making.

In line with the research focus, the literature analyzed includes empirical research and conceptual studies on management accounting systems, historical reporting, predictive analytics, artificial intelligence, machine learning, business forecasting, performance measurement, and risk management. The articles reviewed also consider digital transformation, information quality, organizational readiness, and changes in the role of accounting professionals.

To obtain articles that are relevant to the focus of the study, the literature selection process is carried out through several stages as follows:

1. Literature search using a combination of keywords related to:
   a. Management accounting systems, historical reporting, and management accounting information.
   b. Predictive analytics, predictive intelligence, artificial intelligence, and machine learning.
   c. Business forecasting, management decision-making, performance measurement, and risk management.
2. The initial screening of articles based on titles, abstracts, keywords, year of publication, and the relevance of the discussion to the transformation of the management accounting system from historical reporting to the use of predictive information.
3. A complete text check to assess the suitability of the article with inclusion criteria, especially the relevance of the topic, the clarity of the research method, the relevance of the findings,

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and the contribution of the article to the understanding of the application of analytical technology in managerial processes.

This study determined 50 journal articles for the period 2021–2026 as the final sample analyzed. To describe the selection flow based on PRISMA, a simulation of 624 initial publication records from the Scopus and Web of Science searches was used. After the 118 duplicate records were deleted, 506 articles entered the title and abstract screening stage. At this stage, 356 articles were removed because they did not match the focus of the study, so 150 articles were checked through the full text. Furthermore, 100 articles were removed because they did not meet the inclusion criteria, and 50 articles were designated as the final sample.

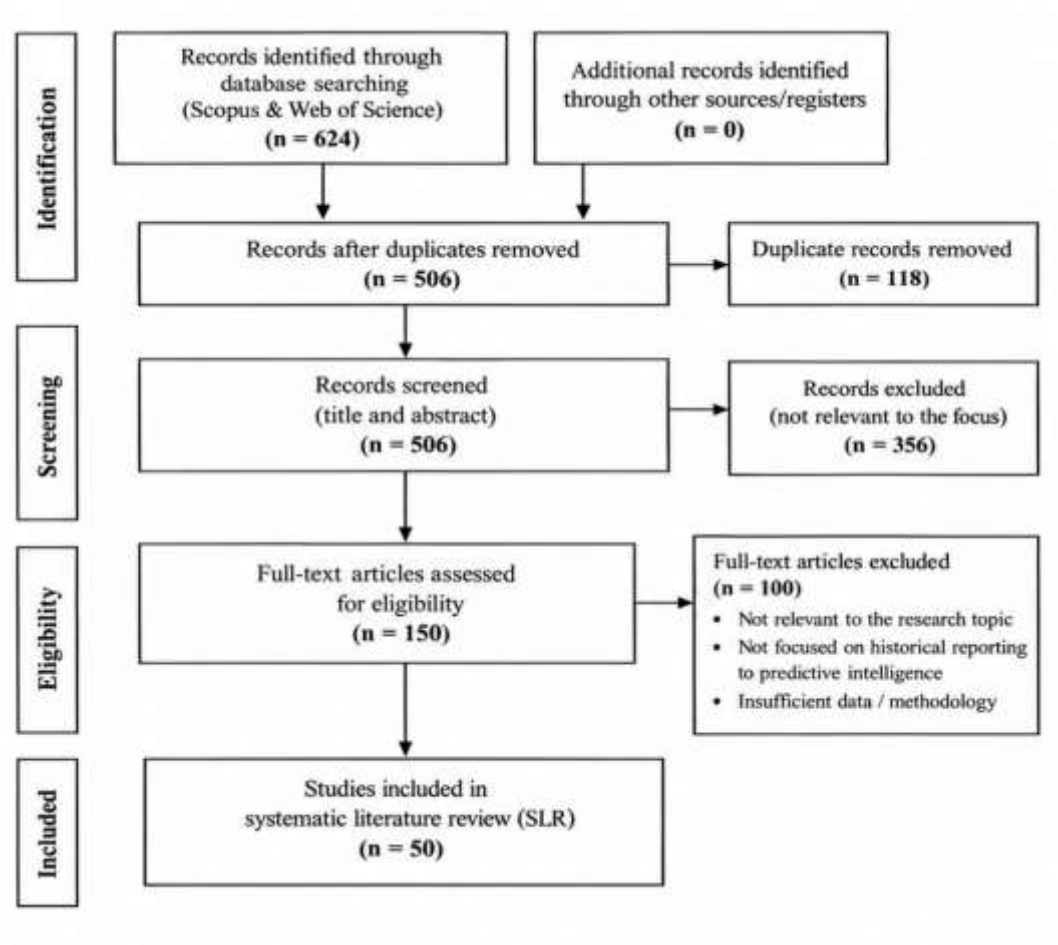


Figure 1. PRISMA Flow Diagram

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The fifty articles in this study are grouped based on the characteristics of the journal, research theory, research country, and industry sector. The grouping aims to explain the development of studies on changes in the function of management accounting systems, from recording and reporting historical information to the use of predictive analytics to support managerial decisions. The analysis is carried out by paying attention to the diversity of theoretical foundations, geographical contexts, and information needs in various business sectors. Through this mapping, research developments can be examined in a more structured manner, especially in understanding the factors that affect the use of predictive technology in the organizational environment.

Table 1. Journal Index Distribution

Journal Index	Number of Articles	Percentage
Scopus Q1	17	34,0%
Scopus Q2	14	28,0%
Scopus Q3	12	24,0%
Scopus Q4	7	14,0%
Total	**50**	**100%**

Source : Data processed, 2026

Based on Table 1, Q1 journals occupy the highest position with 17 articles (34%), followed by Q2 with 14 articles (28%), Q3 with 12 articles (24%), and Q4 with 7 articles (14%). Overall, Q1 and Q2 journals account for 62% of the total publications. This distribution illustrates the distribution of articles in various quartile groups in the study of management accounting systems, especially research on the use of historical information, digital information systems, and predictive analytics to support organizational decisions.

The composition provides an overview of the characteristics of the publications on which the study is based, but the journal quartile cannot be used as the only indicator of research quality. The relevance of the article to the topic, the accuracy of the method, the quality of the data, and the strength of the findings still need to be considered. In the context of this study, the assessment of the article is directed at its contribution in explaining the changes in the function of the management accounting system, from recording past performance to the use of information for forecasting, planning, control, and managerial decision-making.

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Table 2. Distribution of Research Theories

Theories Used	Number of Articles	Percentage
Contingency Theory	12	24%
Organizational Information Processing Theory	7	14%
Dynamic Capabilities Theory	6	12%
Technology Acceptance Model	5	10%
Agency Theory	5	10%
Institutional Theory	4	8%
Diffusion of Innovations Theory	3	6%
Socio-Technical Systems Theory	3	6%
Knowledge-Based View	3	6%
Upper Echelons Theory	2	4%
Total	**50**	**100%**

Source : Data processed, 2026

Based on Table 2, Contingency Theory is the most widely used theory, with 12 articles (24%), followed by Organizational Information Processing Theory with 7 articles (14%) and Dynamic Capabilities Theory with 6 articles (12%). The dominance of Contingency Theory is relevant to the research focus because the effectiveness of management accounting systems depends on the suitability between information needs, organizational characteristics, strategies, and environmental conditions. Meanwhile, information processing theory and dynamic capabilities help explain data processing needs and organizational ability to adapt to changes in technology and business environment.

Other theories include Technology Acceptance Model and Agency Theory, as many as 5 articles (10%), Institutional Theory as many as 4 articles (8%), and Diffusion of Innovations Theory, Socio-Technical Systems Theory, and Knowledge-Based View, as many as 3 articles each (6%). Upper Echelons Theory includes 2 articles (4%). The diversity of these theories shows that the transformation towards predictive intelligence can be examined through aspects of system suitability, technology acceptance, control, innovation, knowledge, and the role of leaders. Therefore, Contingency Theory is used as the main foundation, while other theories enrich explanations of the factors that influence the use of management accounting systems.

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Table 3. Distribution of Research Countries

Country/Region	Number of Articles	Percentage
United States	4	8%
China	4	8%
United Kingdom	3	6%
Australia	3	6%
Indonesia	3	6%
India	3	6%
Germany	3	6%
Italy	3	6%
Malaysia	3	6%
Spain	3	6%
Brazil	3	6%
South Korea	3	6%
Canada	2	4%
Saudi Arabia	2	4%
Cross-Country Studies	11	22%
Total	**50**	**100%**

Source : Data processed, 2026

Based on Table 3, the United States and China each covered 4 articles (8%). The United Kingdom, Australia, Indonesia, India, Germany, Italy, Malaysia, Spain, Brazil, and South Korea each covered 3 articles (6%), while Canada and Saudi Arabia each covered 2 articles (4%). In addition, the cross-country research included 11 articles (22%). The distribution shows a diverse geographical scope to examine the development of management accounting systems and the use of predictive analytics in different organizational contexts.

Geographic differences can relate to digital infrastructure, data availability, workforce capabilities, regulations, and business environment characteristics. Cross-country studies have the potential to provide a comparative understanding of how these factors affect the use of predictive information in decision-making. However, the location of the study does not directly indicate the level of technological maturity of a country. Interpretation still needs to take into

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account the characteristics of the company, the systems used, and the results reported in each study so that conclusions reflect the available evidence.

Table 4. Distribution of Research Sectors/Industries

Industrial Sector	Number of Articles	Percentage
Manufacturing and production control	9	18%
Banking and financial services	7	14%
Information technology and digital enterprises	6	12%
Retail, trading, and inventory management	6	12%
Energy and utilities	5	10%
Transport and supply chain	4	8%
Construction and project management	4	8%
Health and medical services	3	6%
Agriculture and food industry	3	6%
Multi-sector organizations and other sectors	3	6%
Total	**50**	**100%**

Source : Data processed, 2026

Based on Table 4, manufacturing and production control ranked first with 9 articles (18%), followed by banking and financial services with 7 articles (14%). Information technology and digital enterprises as well as retail, trade, and inventory management accounted for 6 articles (12%) each. These sectors are relevant because they have data processing needs for cost planning, operational control, demand forecasting, risk management, and performance evaluation. Historical data in these areas can be an input for predictive analysis to support managerial decisions.

Energy and utilities comprise 5 articles (10%), transportation and supply chain, and construction and project management as many as 4 articles each (8%), while health and medical services, agriculture and the food industry, and multi-sector organizations and other sectors each

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comprise 3 articles (6%). The distribution shows that the need for predictive analytics can differ according to business processes and operational characteristics. Public and private companies can also leverage management accounting systems to support decisions, although their reporting and control needs can differ. Therefore, sectoral analysis needs to consider the purpose of using the information, not just the type of industry.

DISCUSSION

1. The Development of Management Accounting Systems from Historical Reporting to Predictive Intelligence

A management accounting system is a system of providing financial and non-financial information that is used to support organizational planning, control, and decision-making. In the 2000s, the development of information systems strengthened data integration and the use of information for performance evaluation. Entering the 2010s, data analytics increasingly supported managerial information processing, while in the 2020s, artificial intelligence began to expand analytical and predictive capabilities. These changes show a shift in the function of management accounting systems from historical reporting to more future-oriented decision support (Gonçalves & Gaio, 2021; Hadid & Al-Sayed, 2021; Chotia et al., 2025).

The development of management accounting systems is influenced by the suitability between organizational needs, information systems, and the business environment. In this context, management accounting systems need to adapt information characteristics to organizational strategies and conditions in order to support effective decision-making. The development of digital technology also encourages changes in the use of managerial information, especially when organizations face increasingly complex analytical needs. Thus, system changes are not only related to the use of technology, but also to the adjustment of management accounting processes and roles in organizations (Pedroso & Gomes, 2024; Ammar, 2025; Abbas, 2026).

In the 2010s to 2020s, the development of data analytics and artificial intelligence expanded the opportunities for the use of accounting information to support decisions. The technology allows organizations to process large amounts of data, recognize patterns, and generate information that can be used to forecast possible future conditions. In management accounting systems, these capabilities have the potential to strengthen planning, risk management, and performance evaluation. However, its use still requires professional

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consideration so that the results of the analysis can be interpreted according to the needs and context of the organization's decisions (Johri et al., 2025; Prior & Marcos-Cuevas, 2025; Ringgaard et al., 2026).

Digitalization also affects the competencies and responsibilities of management accountants. In recent developments, the use of digital systems and artificial intelligence encourages accountants to not only compile reports, but also evaluate information, interpret analysis results, and support strategic decisions. These changes require technological capabilities, business understanding, and critical assessment of the information generated by the system. In addition, technology integration needs to be accompanied by attention to data governance and information security so that the use of digital systems continues to support organizational goals (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Alabdouli & Ta'amaneh, 2026).

Overall, the development of management accounting systems from the 2000s to the 2020s shows a shift from presenting historical information to supporting analysis and prediction. These changes are driven by the integration of information systems, the digitization of business processes, and the use of artificial intelligence. Management accounting systems are increasingly playing a role in helping organizations evaluate performance, identify risks, and consider various possible outcomes before making decisions. However, the effectiveness of technology implementation is still influenced by organizational readiness, information quality, and the ability of human resources to appropriately utilize the results of analysis (Calandra et al., 2025; Shi et al., 2025; Huy & Phuc, 2026).

2. The Role of Digital Technology and Data Analytics in the Transformation of Management Accounting Systems

Digital technology is a means that allows management accounting systems to integrate, process, and present information to support organizational decision-making. This transformation transforms the function of accounting information from simply explaining past performance to the basis for evaluating current conditions and forecasting possible future results. The integration of information systems also strengthens the relationship between financial data, operational activities, and organizational strategy. Thus, the role of technology lies not only in the automation of work, but also in increasing the relevance of information to managerial needs (Gonçalves & Gaio, 2021; Hadid & Al-Sayed, 2021; Chotia et al., 2025).

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The transformation analysis of the management accounting system can be explained through Contingency Theory, which views the effectiveness of the system as the result of the conformity between the characteristics of the system and the condition of the organization. This perspective shows that digital technology cannot be applied with a uniform approach because each organization has different strategies, structures, information needs, and operational environments. Therefore, the use of data analytics needs to be adjusted to the control objectives and decisions faced by management. This conformity is important so that technology truly improves the quality of information, not just adds to the complexity of the system (Pedroso & Gomes, 2024; Ammar, 2025; Abbas, 2026).

Data analytics extends the ability of management accounting systems to identify patterns, explain performance deviations, and support the preparation of predictions. An important change lies in the use of data as a basis for considering various possibilities before decisions are made. However, analytical capabilities do not automatically lead to better decisions when the data is inaccurate or the results of processing do not match the business context. Organizations need to ensure that the output of analytics can be interpreted, tested, and linked to real managerial problems. Thus, data analytics serves as a link between operational information and strategic decisions (Johri et al., 2025; Prior & Marcos-Cuevas, 2025; Ringgaard et al., 2026).

The use of digital technology and artificial intelligence has also changed the responsibilities of management accountants in organizations. While some information processing processes can be automated, professional contributions increasingly depend on the ability to interpret the results of analysis, assess risks, and explain the implications of decisions to management. These changes also pose challenges related to digital competencies, division of responsibilities, and trust in system outputs. Therefore, transformation is not enough to be done through the procurement of technology, but needs to be accompanied by competency development and work process structuring. The role of humans remains important to ensure that analytical results are used critically and responsibly (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Alabdouli & Ta'amaneh, 2026).

Overall, digital technologies and data analytics are transforming management accounting systems through changes in the way organizations acquire, process, and use information. System excellence is determined not only by the speed of processing or the

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sophistication of algorithms, but also by the suitability of technology to organizational needs and management's ability to translate analysis into action. Integrated systems can strengthen performance evaluation and risk management, while inappropriate implementation has the potential to result in less useful information. Therefore, digital transformation needs to be understood as a change in information systems as well as a change in organizational decision-making processes (Calandra et al., 2025; Shi et al., 2025; Huy & Phuc, 2026).

3. Implications of Predictive Intelligence on Managerial Decision Making and Organizational Performance

Predictive intelligence is the ability of a system to utilize data and analysis to forecast possible conditions in the future. In a management accounting system, this ability helps managers not only evaluate the results of previous activities, but also consider risks, opportunities, and alternative actions before decisions are made. The change expands the function of accounting information from performance reporting to support for forward-oriented decisions. Thus, the value of predictive intelligence lies in its ability to connect historical information with organizational planning and control needs (Abbas, 2026; Ringgaard et al., 2026; Gonçalves & Gaio, 2021).

The implications of predictive intelligence on managerial decisions can be analyzed through Contingency Theory, which explains that the effectiveness of a system depends on its suitability to the conditions of the organization. Predictions generated by technology do not always provide uniform benefits as each organization faces different levels of uncertainty, data availability, and decision needs. Therefore, the application of predictive intelligence needs to consider the characteristics of the business environment, strategy, and organizational control structure. Such suitability determines whether predictive information can actually be used to improve decisions or instead adds to the complexity of the managerial process (Hadid & Al-Sayed, 2021; Pedroso & Gomes, 2024; Chotia et al., 2025).

In decision-making, predictive intelligence has the potential to help managers identify deviations, estimate risks, and compare alternative actions based on available information. This advantage allows decisions to be made more anticipatory than approaches that rely solely on historical evaluation. However, predictions still contain uncertainty and cannot be treated as an accurate picture of the future. Managers need to evaluate the assumptions, data quality, and relevance of the analysis results before assigning actions. Thus, the effectiveness of predictive intelligence is determined by a combination of technological

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capabilities and professional considerations in the decision-making process (Prior & Marcos-Cuevas, 2025; Johri et al., 2025; Ammar, 2025).

The impact of predictive intelligence on organizational performance arises when the results of analysis are translated into actions that are appropriate to operational and strategic needs. Predictive information can help organizations improve planning, allocate resources, and anticipate risks that could potentially hinder the achievement of goals. However, the use of technology does not automatically improve performance because the results are also influenced by organizational readiness, user competence, and the ability to implement recommendations. Organizations need to assess the benefits of technology based on its contribution to processes and work outcomes, not just on the level of automation or sophistication of the systems used (Calandra et al., 2025; Shi et al., 2025; Huy & Phuc, 2026).

Overall, predictive intelligence expands the role of management accounting systems in linking information analysis to future-oriented decisions. Its contribution to organizational performance depends on management's ability to use predictions critically, adapt them to organizational conditions, and translate them into measurable actions. In addition, technological changes require management accountants to develop analytical abilities while maintaining a professional assessment of system outputs. Therefore, predictive intelligence should be viewed as a supporter of managerial decisions whose effectiveness is determined by the integration of technology, people, and organizational needs (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Alabdouli & Ta'amaneh, 2026).

4. Challenges and Future Research Directions in the Development of Predictive Management Accounting Systems

Predictive management accounting systems are the development of managerial information systems that utilize data analytics and artificial intelligence to estimate business conditions and support organizational decisions. Its development faces challenges in integrating technology with the needs of control, strategy, and work processes. The availability of technology does not always guarantee the quality of predictions or performance improvements because its benefits depend on the relevance of data and the organization's ability to use it. Therefore, research needs to examine how the integration of digital technology changes the function of management accounting and produces information that is useful for strategic decisions (Abbas, 2026; Chotia et al., 2025; Calandra et al., 2025).

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From the perspective of Contingency Theory, the effectiveness of a predictive management accounting system depends on the suitability of the technology with the characteristics and needs of the organization. An effective system in one organization does not necessarily provide similar results in another organization because there are differences in strategies, structures, resources, and environmental uncertainties. This condition raises the need for research that identifies the contextual factors that determine the success of the application of predictive analytics. Future research can examine how organizational characteristics affect the selection of technology, the use of predictive information, and its relationship to the quality of decisions and the achievement of organizational goals (Gonçalves & Gaio, 2021; Hadid & Al-Sayed, 2021; Pedroso & Gomes, 2024).

The next challenge relates to the reliability of predictions and their use in decision-making. Incomplete data, changing business conditions, and limitations of analytical models can result in estimates that are less in line with reality. In addition, decisions that rely too heavily on algorithmic outputs have the potential to reduce attention to context and professional considerations. Future research needs to evaluate how artificial intelligence is used in risk analysis, planning, and managerial control, while also identifying validation mechanisms that can increase confidence in predictive outcomes. This aspect is important for technological sophistication to be followed by decision quality (Johri et al., 2025; Prior & Marcos-Cuevas, 2025; Ringgaard et al., 2026).

The development of predictive systems also poses challenges to professional competence and technology governance. Management accountants need to understand data, evaluate system outputs, and explain the implications of analysis results to decision-makers. At the same time, organizations must pay attention to the division of responsibility, information security, and oversight of the use of artificial intelligence. Further research can examine changes in management accountant competencies, the relationship between humans and technology, and governance mechanisms that support the responsible use of systems. These studies can clarify how technological changes affect the professional identity and work practices of management accounting (de Araujo Wanderley & Horton, 2026; Goretzki & Mahlendorf, 2026; Alabdouli & Ta'amaneh, 2026).

Overall, future research directions need to go beyond discussions of technology adoption by examining the conditions that determine the success of predictive management accounting systems. The research focus can be directed to the relationship between

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organizational readiness, system integration, user competence, prediction quality, and performance. Empirical research is also needed to find out whether the use of artificial intelligence actually improves the quality of decisions or simply speeds up the information processing process. Thus, knowledge development needs to explain not only the technology used, but also the mechanisms and conditions that enable the technology to produce real managerial benefits (Ammar, 2025; Shi et al., 2025; Huy & Phuc, 2026).

CONCLUSION

Based on the results of the literature synthesis, this study concludes that the management accounting system has undergone a shift from historical reporting to the use of data analytics and predictive intelligence. These changes expand the function of accounting information in supporting planning, control, and managerial decision-making. The system no longer only explains past performance, but also helps organizations forecast future conditions. Thus, predictive intelligence is an important direction in the development of modern management accounting systems that are increasingly oriented towards strategic information needs.

The results of the synthesis also show that digital technology and data analytics strengthen the integration of financial and operational information. The integration helps management identify performance patterns, evaluate deviations, and consider alternative actions. However, the availability of technology does not automatically improve the quality of decisions. The benefits depend on the quality of the data, the suitability of the system with the needs of the organization, and the ability of users to interpret the results of the analysis. Therefore, digital transformation needs to be understood as a change in technology as well as a change in the information management process to support more targeted organizational decisions.

RESEARCH LIMITATIONS

This research has limitations that need to be considered in interpreting the results of the literature synthesis. The mapped articles have differences in focus, research methods, organizational context, and approaches in discussing management accounting systems, digitalization, and artificial intelligence. Not all articles examine the direct relationship between predictive intelligence, decision quality, and organizational performance. Some of the research discusses digital transformation, changes in the accounting profession, or the application of

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information technology. These differences limit direct comparisons between findings and universally applicable conclusions.

Another limitation relates to the empirical evidence regarding the benefits of predictive intelligence in various organizational conditions. The use of artificial intelligence and data analytics can provide different results because data quality, technology readiness, user competence, and business environment are not always the same. In addition, the results of the synthesis cannot ensure that the application of technology directly leads to an improvement in organizational performance. Therefore, the conclusions of the research need to be understood based on the scope of the article being reviewed and it does not mean that any application of a predictive system will necessarily produce positive benefits.

SUGGESTIONS

Further research is recommended to develop an empirical study on the relationship between predictive intelligence, managerial decision-making quality, and organizational performance. Research can examine the influence of data quality, information system integration, digital competence, and organizational readiness on the benefits of predictive analytics. In addition, cross-sector comparisons and organizational size can help explain the variation in the results of technology application. The use of Contingency Theory can be directed to test the conditions that determine the suitability and effectiveness of predictive management accounting systems in supporting organizational needs.

For companies and practitioners, the implementation of a predictive management accounting system should be based on information needs and clear strategic objectives. Organizations need to improve data quality, integrate financial and operational information, and develop the analytical competence of management accountants. Predictive results also need to be evaluated before being used as a basis for decisions, especially in risk management and resource allocation. Thus, technology is not only a means of automation, but can also be used in a targeted manner to strengthen the planning, control, and evaluation of organizational performance.

PRACTICAL AND THEORETICAL IMPLICATIONS

Practically, this study shows that the development of a predictive management accounting system needs to be accompanied by business process adjustments, data quality

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improvement, and human resource competency development. Management can utilize data analytics to estimate risks, evaluate performance, and systematically compare alternative decisions. However, the application of technology needs to be accompanied by supervision of the reliability of the analysis results and their suitability with organizational conditions. Therefore, the integration of technological capabilities, business knowledge, and professional considerations is important in optimizing the use of predictive intelligence.

Theoretically, this study expands the discussion of management accounting systems by placing predictive intelligence as part of the development of organizational information functions. Contingency Theory provides a framework to understand that the effectiveness of technology depends on the suitability of the system with the characteristics of the organization and the business environment. This perspective helps explain why the application of similar technologies can produce different benefits. Thus, future research can examine the relationship between contextual factors, the use of predictive intelligence, the quality of decisions, and organizational performance in a more targeted manner to strengthen the development of management accounting theory.

REFERENCES

Abbas, K. (2026). Management accounting and artificial intelligence: A comprehensive literature review and recommendations for future research. *The British Accounting Review, 58*, Article 101551. https://doi.org/10.1 016/j.bar.2025.101551

Aguilar, M., Lind, G., & Ramesh, K. (2026). The role of accounting in the informal economy. *Journal of Accounting and Economics*. Advance online publication. https://doi.org/10.1016/j.jacceco.2026.101934

Alabdouli, S. R., & Ta'amaneh, A. (2026). Innovative adoption of AI-empowered electronic records and information management system in the energy sector. International Journal of Innovation Studies. Advance online publication. https://doi.org/10.1016/j.ijis.2026.100230

Ammar, S. F. (2025). Unveiling the rivalry of cloud ERP dialectics, underpinning logics and roles of accounting and information system professionals. International Journal of Accounting Information Systems, 56, Article 100728. https://doi.org/10.1016/j.accinf.2025.100728

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Anani, M., Fan, Y., & Su, L. (2026). Accounting standard-induced regulatory capital management: Evidence from the new lease accounting standard ASC 842. Journal of Accounting and Public Policy, 56, Article 107404. https://doi.org/10.1016/j.jaccpubpol.2026.107404

Boone, J., Hao, J., Linthicum, C., & Pham, V. (2024). Impression management strategy—The relationship between accounting narrative thematic bias and financial graph distortion. The British Accounting Review, 56, article 101389. https://doi.org/10.1016/j.bar.2024.101389

Brooks, C., & Schopohl, L. (2021). Green accounting and finance: Advancing research on environmental disclosure, value impacts and management control systems. The British Accounting Review, 53, Article 100973. https://doi.org/10.1016/j.bar.2020.100973

Calandra, D., Lanzalonga, F., Secinaro, S., & Costa Storti, C. (2025). From traditional to digital: Unravelling performance measurement systems and accounting methods in drug treatment through a systematic review and content analysis. The British Accounting Review, 57, Article 101665. https://doi.org/10.1016/j.bar.2025.101665

Chen, H., Zhuang, W., Wang, Z., & Zhou, A. (2024). Administrative audit regulation and the quality of accounting information: Evidence from China securities regulatory commission's random inspection system. Research in International Business and Finance, 71, Article 102502. https://doi.org/10.10 16/j.ribaf.2024.102502

Chen, W., & Zhang, H. (2026). Digital platforms and regulatory coordination patterns in China: Network evidence from Nanjing's "181" integrated emergency management system. Government Information Quarterly, 43, Article 102170. https://doi.org/10.1016/j.giq.2026.102170

Cheng, X. (J.), Holt, T., Long, J., & Loraas, T. (2026). Blockchain applications: The impact of a firm's choice of financial accounting system on nonprofessional investor judgment and decision-making. Information & Management, 63, Article 104344. https://doi.org/10.1016/j.im.2026.104344

Chiorean, R., Kirschenheiter, M., & Ramakrishnan, R. (2026). Earnings management with cash flow hedge accounting. Journal of Accounting and Public Policy, 55, Article 107385. https://doi.org/10.1016/j.jaccpubpol.20 25.107385

Chotia, V., Khoualdi, K., Broccardo, L., & Yaqub, M. Z. (2025). The role of cyber security and digital transformation in gaining competitive advantage through strategic management accounting. Technology in Society, 81, Article 102851. https://doi.org/10.1016/j.techsoc.2025.102851

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

de Araujo Wanderley, C., & Horton, K. E. (2026). Digitalization tensions in the management accounting profession: Boundary work responses and their consequences. The British Accounting Review, 58, Article 101455. https://doi.org/10.1016/j.bar.2024.101455

Dimitropoulos, P. E. (2025). Principle-based accounting standards and earnings management in private hotel firms: The impact on government subsidies. Advances in Accounting, 68, Article 100812. https://doi.org/10.1016/j.adiac.2 025.100812

Fakhreddin, F., Foroudi, P., & Kooli, K. (2025). The influence of key account management on competitive advantage and firm performance: A dynamic capability approach. Industrial Marketing Management, 124, 266–286. https://doi.org/10.1016/j.indmarman.2024.12. 002

Feste, J., Ivens, B. S., & Pardo, C. (2022). Key account management formalization and effectiveness: A fuzzy-set qualitative comparative analysis. Industrial Marketing Management, 107, 450–465. https://doi.org/10.1016/j.indmar 2022.

Gabriel, D. (2026). Human resource management practices and construction project performance: Evidence from force account projects in Tanzania. Strategic Business Research, 2, Article 100201. https://doi.org/10.1016/j.sbr.20 26.100201

Gómez García, L. D., Zambrano Aranda, G. M., & Toledo Concha, E. J. (2026). Challenges in the accounting practices of a Peruvian corner store owner. Journal of Accounting Education, 73, Article 101009. https://doi.org /10.1016/j.jaccedu.2026.101009

Gonçalves, T., & Gaio, C. (2021). The role of management accounting systems in global value strategies. Journal of Business Research, 124, 603–609. https://doi.org/10.1016/j.jbu sres.2020.10.059

Goretzki, L., & Mahlendorf, M. D. (2026). GenAI for qualitative management accounting research: A commentary. Management Accounting Research, 68, Article 100962. https://doi.org/10.1016/j.mar.2026.100962

Hadid, W., & Al-Sayed, M. (2021). Management accountants and strategic management accounting: The role of organizational culture and information systems. Management Accounting Research, 50, Article 100725. https://doi.org/10.1016/j.mar.2020.100725

Hansen, A., Friis, I., & Boe, C. (2026). Performance gift-giving and incentive systems: Conditions and effects of peer helping in a sales team. Management Accounting Research, 69, Article 100979. https://doi.org/10.1016/j.mar.2 026.100979

Huy, P. Q., & Phuc, V. K. (2026). Digital environmental management accounting systems, sustainable energy transition, and carbon neutrality in Vietnamese public-sector

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

organizations: Evidence from a sample predominantly drawn from education and training institutions. Strategic Business Research, 2, Article 100249. https://doi.org/10.1016/j.sbr.2026.100249

Ionescu-Feleagă, L., Dragomir, V. D., Rîndașu, S.-M., Stoica, O.-C., Curea, Ș.-C., Bunea, M., & Barna, L.-E.-L. (2025). Business simulation games from the perspective of accounting and management professors: Implications for sustainability education in universities. The International Journal of Management Education, 23, Article 101147. https://doi.org/10.1016/j. ijme.2025.101147

Johri, A., Singh, R. K., Kushwaha, B. P., Alhumoudi, H., Alakkas, A., & Khoja, M. (2025). Leveraging open innovation for e-commerce success: The contingent role of accounting information systems and artificial intelligence. Journal of Innovation & Knowledge, 10, Article 100737. https://doi.org/10.1016/j.jik.2025.100737

Kim, R., Hedley, T., Gangolly, J., & Ravi, S. S. (2025). Segregation of duties in accounting systems: A framework. International Journal of Accounting Information Systems, 56, Article 100725. https://doi.org/10.1016/j.accinf. 2025.100725

La Rocca, A., Rehme, J., & Tzempelikos, N. (2026). Transformative times for key account management: Disruptive events, digitisation, and sustainability. Industrial Marketing Management, 134, A1–A7. https://doi.org/10.1016/j.indmarman.2026.02.015

Lautenschlager, C., Tzempelikos, N., Kooli, K., & Viglia, G. (2024). Cross-cultural determinants of global account management: Findings from B2B services. Industrial Marketing Management, 123, 358–371. https://doi.org/10.1016/j.i N.D. 2024.10.009.

Li, M., Hada, M., Haumann, T., Dax, M., & Schmitz, C. (2026). Cross-selling in key accounts: Role of key account management approaches. Journal of Business Research, 210, Article 116162. https://doi.org/10.1016/j.jbusres.20 26.116162

Liu, R., Çağatay, I., Xu, J., & Chen, J. (2026). End-to-end deep learning for inventory management in capacitated bike-sharing systems with customer roaming behaviour. Transportation Research Part E: Logistics and Transportation Review, 211, Article 104852. https://doi.org/10.1016/j.tre.20 26.104852

Monteiro, A. P., Vale, J., Leite, E., & Lis, M. (2024). Linking quality of accounting information system and financial reporting to non-financial performance: The role of women managers. International Journal of Accounting Information Systems, 54, Article 100692. https://doi.org/10.1016/j.accinf.2024.100692

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Nakpodia, F., Sakariyahu, R., Fagbemi, T., Adigun, R., & Dosumu, O. (2026). Sustainable development goals, accounting practices and public financial management: A pre and post COVID-19 assessment. The British Accounting Review, 58, Article 101466. https://doi.org/10.1016/j.bar.2024.101466

Olabode, O. E., Nalmpanti, A. D., Essuman, D., Leonidou, C. N., Hultman, M., & Boso, N. (2025). How and when bridging and buffering strategies drive financial performance: Evidence from companies using key account management. Industrial Marketing Management, 131, 137–151. https://doi.org/10.1016/j.indmarman.2025.10.008

Owusu, K., Lien, S., & Tjørve, E. (2026). Comparing innovation capabilities in mountain destinations: An analysis of management systems' properties. Tourism Management Perspectives, 64, Article 101541. https://doi.org/10.10 16/j.tmp.2026.101541

Pedroso, E., & Gomes, C. F. (2024). Disentangling the effects of top management on management accounting systems utilization. International Journal of Accounting Information Systems, 53, Article 100678. https://doi.org/10.1016/j.accinf.2024.100678

Prior, D. D., & Marcos-Cuevas, J. (2025). Transitioning to artificial intelligence-based key account management: A critical assessment. Industrial Marketing Management, 126, 72–84. https://doi.org/10.1016/j.indmarman.2025.02.009

Reilley, J. T., & Klein, V. H., Jr. (2026). Pathways to accounting mediation: A case study on the role of checklists in risk management. Management Accounting Research, 68, Article 100964. https://doi.org/10.1016/j.mar.2026.100964

Ringgaard, A., Bukh, P. N., & Sandalgaard, N. (2026). Accounting for the future: A case study of how Probability of Default mediates between calculative practices in risk management. Management Accounting Research, 69, Article 100965. https://doi.org/10.1016/j.mar.2026.100965

Romero dos Santos, L., Behr, A., & Ramos Duarte, G. (2025). Recognizing accounting as a STEM discipline through professional skills in accounting information systems. Journal of Accounting Education, 72, Article 100970. https://doi.org/10.1016/j.jaccedu.2025.100970

Shi, L., Li, P., Vithana, K., Xue, B., & Al-Sayed, M. (2025). Hospital management accounting systems: Evolving roles, actors, and interactions. The British Accounting Review, 57, Article 101666. https://doi.org/10.1016/j.bar.202 5.101666

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

Shukla, Y., Pandey, J., & Sheikh, R. A. (2026). Does social interaction foster or hinder innovation? The role of AI-based knowledge management systems. Journal of Innovation & Knowledge. Advance online publication. https://doi.org/10.1016/j.jik.2026.101141

Silva, P. M. (2025). Challenges of the digital landscape: An investigation into the influence of technology and information systems on financial performance of B2B key account managers. Industrial Marketing Management, 129, 117–133. https://doi.org/10.1016/j.indmarman.2025.07.008

Thangavel, K., Safwat, N. E.-D., Hussain, K. F., & Sabatini, R. (2026). A decision support system for multi-domain air and space traffic management. Journal of Air Transport Management, 136, Article 103017. https://doi.org/10.1016/j.jairtraman.2026.103017

Vanini, U., & Bochert, S. (2024). Integration of sustainability issues into management accounting textbooks. Journal of Accounting Education, 66, Article 100886. https://doi.org/10.1016/j.jaccedu.2024.100886

Wang, H., Guo, B., Zhou, X., Ding, K., Wang, S., Hong, Z., & He, T. (2026). Resource-oriented optimization of electric vehicle systems: A data-driven survey on charging infrastructure, scheduling, and fleet management. Transportation Research Part E: Logistics and Transportation Review, 215, Article 105097. https://doi.org/10.1016/j.tre.2026.105097

Wengler, S., Kleinaltenkamp, M., Heirati, N., & Prohl-Schwenke, K. (2026). Untangling value-based customer management approaches in business markets: Value-based selling, customer success management, key account management. Industrial Marketing Management, 133, 162–174. https://doi.org/10.1016/j.indmarman.2026.01.009

Widyasari, P. A., Carvajal, M., & Suleman, M. T. (2026). The implications of student personality types for excellent teaching in accounting higher education: A systematic literature review. Journal of Accounting Education, 74, Article 101055. https://doi.org/10.1016/j.jaccedu.2026.101055

Yoon, S., Lee, Y., & Shin, Y. (2026). Closed-loop supply chain model with third-party logistics-based return management system. Transportation Research Part E: Logistics and Transportation Review, 215, article 105077. https://doi.org/10.1016/j.tre.2026.105077

Zhang, X., Lyu, J., Wang, Z., Li, Y., Deng, K., Dehghanian, P., & Chen, B. (2025). Low carbon regional energy management system with conditional value at risk. Journal of Building Engineering, 107, Article 112572. https://doi.o rg/10.1016/j.jobe.2025.112572

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