

Is Activity-Based Management Still Relevant? A Systematic Literature Review of Its Survival in the Era of Digital Disruption

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Abstract

Relevance of Activity-Based Management (ABM) amid accelerating digital disruption remains contested. This study aims to map the development trends of ABM, analyze factors influencing its sustainability, and identify integration patterns with digital technologies through a Systematic Literature Review (SLR) approach guided by the PRISMA protocol. A total of 309 articles were identified from Scopus, Web of Science, Google Scholar, and Science Direct, with 10 articles ultimately meeting the inclusion criteria for analysis. Grounded in Contingency Theory, findings reveal that ABM has not declined in relevance but continues to evolve adaptively alongside digital transformation. Key factors sustaining ABM adoption include technological complexity, environmental sustainability demands, shifting managerial accountant competencies, and the effectiveness of digital accounting systems. Furthermore, integration of ABM with artificial intelligence, big data analytics, and cognitive time-driven costing has opened new dimensions in cost management. This study concludes that ABM remains a strategically relevant framework, provided organizations proactively integrate it with digital capabilities to maximize its managerial value. Practically, organizations adopting ABM are advised to invest in digital infrastructure—particularly AI-driven cost systems and ERP platforms—to enhance real-time activity tracking, improve cost accuracy, and support more responsive strategic decision-making. These practical implications suggest that ABM adoption should be accompanied by organizational readiness in terms of digital competency, system integration, and managerial commitment to continuous adaptation.

Keywords: Activity-Based Management; digital disruption; management accounting; digital transformation; systematic literature review

Introduction

The ever-changing business environment is driving organizations to re-evaluate the relevance of the various management tools they have been using. Activity-Based Management (ABM) is one of the approaches in management accounting that utilizes activity-based information to support strategic and operational decision-making. ABM evolved as an extension of Activity-Based Costing (ABC) by placing activity management as the primary way to increase value for customers while reducing costs more systematically (Sohrabi, 2021).

But in the midst of an increasingly massive wave of digital disruption, fundamental questions are beginning to arise about whether ABM is still able to maintain its relevance as an effective management instrument in this modern era (Yepes-Nuñez et al., 2021).

The era of digital disruption—characterized by Artificial Intelligence (AI), Big Data Analytics, Cloud Computing, and IoT—has fundamentally transformed how organizations manage costs and measure performance (Klimaitienė & Rudiionien, 2025). This transformation not only affects the production process, but also shifts the paradigm of cost management and organizational performance measurement. The shift towards a digital platform-based business model demands a much more adaptive cost management approach than conventional ABM frameworks (Rico-gonzález et al., 2022). On the other hand, a number of researchers argue that ABM has a strong potential for synergy with digital technology, where its integration with Process Mining is considered to be able to produce sharper managerial insights and is based on real data (Rico-González et al., 2022). Even Time-Driven Activity-Based Costing (TDABC) as an evolutionary form of ABM proves to be increasingly relevant when combined with the system Enterprise Resource Planning (ERP) latest generation (Alahmari & Cities, 2023).

This research is based on the Contingency Theory which states that the effectiveness of a management system is not universal, but rather depends heavily on the environmental conditions that surround it (Jiang et al., 2022). In this context, the sustainability of ABM in the digital age is seen as an adaptive response to changes in organizational contextual factors such as technological complexity, company size, and competitive pressures (Usman et al., 2023). This framework provides an adequate foundation for understanding why some organizations are still retaining ABM while others are starting to shift to a more contemporary approach to cost management (Coffee & Farm, 2023).

Although there have been considerable studies on ABM, most previous research has focused on the partial implementation of ABM and has not comprehensively examined its sustainability in the midst of digital disruption (Rethlefsen et al., 2021). Notably, there remains a significant scarcity of research that systematically synthesizes the continued relevance and survival of ABM specifically within the context of digital transformation. Existing studies tend to examine either ABM implementation in isolation or digital transformation's impact on accounting broadly, without bridging the two in a comprehensive and integrated manner. Studies that systematically synthesize the development of ABM from the perspective of digital integration are also still very limited, especially in the context of developing countries. This gap is what becomes Research gap main background of this research (Ardern et al., 2022).

Departing from this gap, this study seeks to answer the development trend of ABM in the context of digital disruption, what factors affect its sustainability, and how its integration pattern

with digital technology is based on a systematic literature review. The goal is to identify these trends, analyze their determining factors, and map the direction of ABM integration with digital technology through a systematic literature review (SLR) approach. The novelty of this research lies in the effort to comprehensively synthesize the ABM literature in the context of digital disruption using the Contingency Theory framework, which has so far not been carried out specifically in an integrated systematic study.

Methods

This study uses the Systematic Literature Review (SLR) by adopting the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) as the main guide in the process of identification, selection, and synthesis of literature. This approach was chosen because it is able to produce a transparent, structured, and replicable review, making it very suitable for mapping the development of ABM concepts in the context of digital disruption comprehensively. The PRISMA protocol guides researchers through four main stages, namely identification (Identification), filtration (Screening), eligibility (Eligibility), and inclusion (Inclusion) that ensures that every article included in the analysis has met strict scientific criteria (Page et al., 2021).

The literature search process is carried out through several internationally reputable academic databases, including Scopus, Web of Science, Google Scholar, and Science Direct. Keywords used in the search included a combination of terms such as “Activity-Based Management”, “Activity-Based Costing”, “digital disruption”, “management accounting”, “digital transformation”, and “systematic literature review”. The overall search was limited to publications in the range of 2021 to 2025 to ensure the relevance of the findings to the latest literature developments while maintaining the actuality of the digital disruption context that was the focus of the study. This time span limitation is also in line with the methodological practice of SLR which emphasizes the importance of clear temporal boundaries to produce a focused and unbiased synthesis.

The inclusion and exclusion criteria applied in this study are structured systematically as follows. Inclusion criteria: (1) articles published in peer-reviewed English-language journals; (2) articles that directly discuss the implementation, development, or evaluation of ABM or ABC; (3) articles relevant to the context of digital transformation, digital disruption, or contemporary cost management; and (4) articles published within the 2021–2025 timeframe. Exclusion criteria: (1) editorial papers, book chapters, and conference papers without peer review; (2) articles published outside the specified year range (before 2021 or after 2025); (3) articles not directly addressing ABM/ABC; and (4) articles not available in full-text format.

This layered selection approach is important to maintain the quality and validity of the resulting synthesis, as recommended in the latest SLR methodology guide that emphasizes transparency at each stage of article selection (Rethlefsen et al., 2021).

Quality Assessment

To ensure the scientific rigor of the selected articles, a quality assessment was conducted on all 10 articles that passed the inclusion criteria. Each article was evaluated based on three main dimensions: (1) clarity of research objectives and methodology; (2) validity and reliability of findings, including whether the study was published in a peer-reviewed journal with an identifiable impact factor or indexation in Scopus or Web of Science; and (3) relevance and contribution to the topic of ABM in the context of digital transformation. Articles were assessed on each dimension, and only those meeting a satisfactory threshold across all three dimensions were retained for final synthesis. This quality filtering process is consistent with best practices in SLR methodology, which emphasizes the importance of assessing not only the topical relevance but also the methodological quality of included studies (Page et al., 2021).

All articles that met the inclusion criteria were then analyzed using the Thematic Analysis to identify patterns, trends, and gaps that appear in the ABM literature for the 2021–2025 period. Data from each article is systematically extracted including information regarding the author, year of publication, research methods, industry context, and key findings relevant to digital disruption. The process of data extraction and analysis is carried out carefully to ensure the objectivity and accuracy of the interpretation of the results, so that the resulting synthesis truly reflects the current conditions of ABM development in the digital era. The results of the entire selection process are presented in detail in the PRISMA flowchart and the literature synthesis table in the research results section (Scott, 2025).

Results and Discussion

Results

A. Screening of Journal Articles

The literature selection process in this study was carried out systematically following the flow of the PRISMA diagram which consists of four main stages. The first phase resulted in a total of 309 articles that were successfully identified from various international databases, namely *Scopus*, *Web of Science*, *Google Scholar*, and *Science Direct*. Of these, 102 articles were eliminated because they were detected as duplicates, so that 207 articles proceeded to the *screening* stage. At this stage, screening by title and abstract was strictly conducted, resulting in 95 articles that were excluded because they were irrelevant to ABM or digital disruption topics. A total of 112 articles were then searched for *full text* retrieval, but 56 of them could not

be accessed in full so they had to be removed. At the eligibility assessment stage, 56 articles were evaluated in depth based on the inclusion criteria that had been set, of which 25 articles were excluded because they did not directly address ABM and another 11 articles were excluded because they were outside the 2021–2025 range. The final results of the entire selection process resulted in 10 articles that were declared to meet all criteria and are suitable for use as the main analysis material in this study.

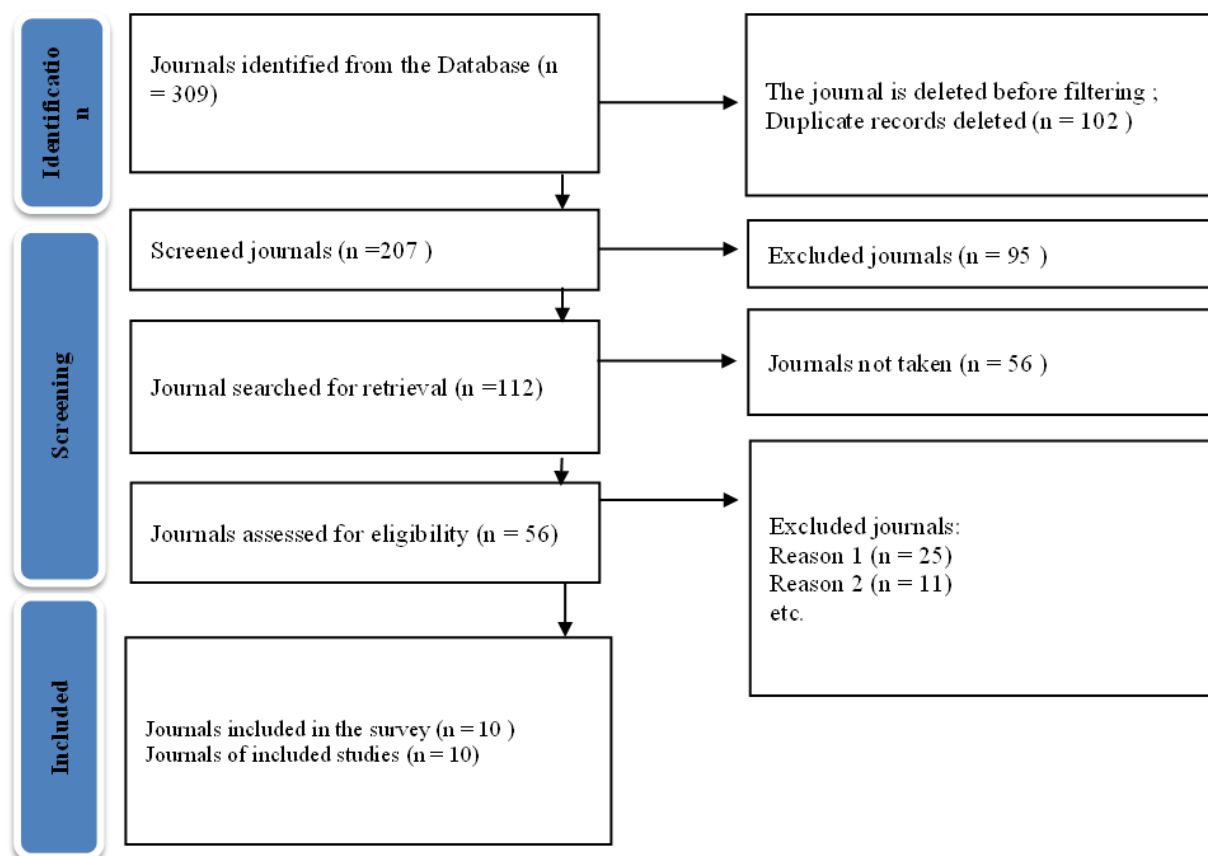


Figure 1. PRISMA Flow Diagram of the Literature Selection Process

B. Summary of Key Findings

Table 1. Literature Synthesis

No	Author & Year	Title	Method	Context	Key Findings
1	(Abbas, 2025)	Management Accounting and AI: A Comprehensive Literature Review	SLR	Management Accounting & AI	AI transforms management accounting functions and accountants' roles across the board
2	(Calderon et al., 2024)	The Role of Digitalization in Business and Management	SLR	Management, Marketing, Finance	Digitalization affects all major functions of the company including accounting

3	(Fähndrich, 2023)	Literature Review on the Impact of Digitalisation on Management Control	SLR	Management Control	Digitalization expands management control tasks and instruments
4	(Huy & Phuc, 2025)	Effectiveness of Digital Accounting System and Sustainable Business Model Innovation	Quantitative	SMEs	Digital accounting systems have a positive effect on sustainable business model innovation
5	(Liang, 2025)	Modern Technology's Role in Accounting Cost Calculation	Quantitative	Manufacturing Industry	ABC's integration with AI and <i>big data</i> improves cost calculation accuracy
6	(Scott, 2023)	After 30 Years, What Has Happened to ABC?	SLR Bibliometric	Healthcare & Manufacturing	Interest in ABC continues to grow, particularly in the healthcare and manufacturing sectors
7	(Ortiz- cea et al., 2025)	The Role of ABC in Reducing Environmental Impact	SLR	Various Industries	ABC contributes significantly to minimizing environmental impact
8	(Pashkevich et al., 2023)	Accounting for Cognitive Time in ABC	Conceptual	Digital Economy	<i>Cognitive Time-Driven ABC</i> (CTABC) expands TDABC for the digital economy
9	(Quesado & Silva, 2021)	ABC and Its Implication for Open Innovation	Bibliometrics	Various Industries	ABC's publishing trend continues to increase with a focus on open innovation
10	(Pargmann, 2023)	Digitalisation in Accounting: Activities and Implications for Competences	SLR	Accounting Education	Digitalization changes routine activities and demands new digital competencies

C. Classification of Findings by Major Research Themes

Based on thematic analysis of the 10 selected articles, the key findings are classified into four major research themes:

- Theme 1 – ABM/ABC Integration with Digital Technology (Articles 1, 5, 8) These studies consistently demonstrate that ABC and ABM are actively being integrated with AI, Big Data, and cognitive computing. The emergence of Cognitive Time-Driven ABC (CTABC) exemplifies how ABM frameworks are evolving to accommodate the informational demands of the digital economy.
- Theme 2 – Digitalization's Impact on Management Accounting Practices (Articles 2, 3, 10) Research in this theme confirms that digitalization broadly transforms management

accounting—expanding control instruments, automating routine tasks, and demanding new competencies from management accountants. ABM remains a relevant tool within this transformed landscape.

- Theme 3 – Sustainability and Environmental Costing (Articles 6, 7) ABM/ABC is increasingly applied in sustainability contexts, where its activity-based logic provides an effective mechanism for tracking environmental costs and supporting eco-responsible decision-making across various industries including healthcare and manufacturing.
- Theme 4 – Digital Accounting Systems and Business Model Innovation (Article 4, 9) These studies highlight the positive relationship between effective digital accounting systems and sustainable business model innovation, with ABM's open innovation implications further reinforcing its strategic relevance in contemporary organizational settings.

Discussion

ABM Development Trends in the Context of Digital Disruption

A review of the ten selected articles shows that academic interest in *Activity-Based Management* (ABM) and *Activity-Based Costing* (ABC) shows no signs of slowing down, and instead continues to experience consistent growth amid a wave of digital disruption. These findings are in line with the results of bibliometric studies showing that ABC-related publications have continued to increase significantly over the past three decades, with the focus increasingly shifting towards practical applications across various industry sectors (Abbas, 2025). This growth reflects that ABM remains seen as relevant by academics and practitioners even though the technology landscape continues to change fundamentally. On the other hand, the expansion of ABM studies into a more contemporary realm is also evident from the increasing research linking ABC to strategic issues such as open innovation and environmental sustainability, indicating that this activity-based framework is constantly adapting to the needs of modern organizations (Fähndrich, 2023). This trend is further reinforced by studies that have found that digitalization does not necessarily replace ABM approaches, but rather expands the scope of its application through integration with new technologies that allow for more granular and cost-effective analysis. *real-time* (Calderon et al., 2024). Thus, it can be concluded that the development trend of ABM in the context of digital disruption is evolutionary and adaptive, not regression or extinction, so that its relevance as a cost management instrument is maintained in this modern era.

Factors Affecting the Sustainability of ABM Implementation in the Digital Era

Analysis of the collected literature reveals that there are a number of key factors that directly affect the sustainability of ABM implementation in the midst of the ongoing digital transformation. The first and most dominant factor is the ability of digital technology to automate and improve the accuracy of activity-based cost calculation processes. Research shows that the integration between ABC methods and artificial intelligence (*Artificial Intelligence*) and *Big Data Analytics* Proven to be able to significantly improve the accuracy of cost calculations while accelerating the managerial decision-making process (Huy & Phuc, 2025). The second factor is the evolution of the role of the management accountant itself. Digitalization and AI technology have shifted the role of accountants from performing routine tasks to more strategic and analytical functions, making competence in managing activity-based systems increasingly crucial (Pashkevich et al., 2023). The third factor relates to the pressure of the sustainability dimension (*Sustainability*), where organizations are increasingly required to integrate environmental cost calculations into their management systems, and ABM is proving to be the most adaptive framework to accommodate this need. The fourth factor is the change in activities and competencies needed in the digital era, where routine activities are increasingly automated while non-routine activities that require managerial assessment are actually increasing in significance, this condition puts ABM in a strategic position as a tool to support non-routine decisions. Finally, the effectiveness of digital accounting systems implemented by organizations has also been shown to have a positive effect on the innovation capabilities of sustainable business models, which indirectly strengthens the argument that activity-based frameworks such as ABM remain relevant in the digital business ecosystem (Pashkevich et al., 2023).

ABM Integration Pattern with Digital Technology

The findings of this literature review consistently illustrate that the integration of ABM with digital technology is not just a theoretical possibility, but has become an ongoing practical reality in various industry sectors. One of the most prominent patterns of integration is the development of *Cognitive Time-Driven Activity-Based Costing* (CTABC), an innovative extension of TDABC that is specifically designed to accommodate the unique characteristics of the digital economy, namely by taking into account human cognitive time as a key asset that has been eluded by conventional cost calculations (Quesado & Silva, 2021). Another pattern of integration can be seen in how digitalization fundamentally changes the way management control instruments are organized and analyzed, thus encouraging the birth of new control models that are more responsive to the dynamics of the digital business environment. The integration of ABM with modern technology is also manifested in the application of *real-time cost control model* that incorporates linear programming, *Data Mining*, and AI to optimize

industrial production processes, where the ABC method is a core component in more accurately categorizing and allocating costs. Furthermore, this pattern of integration is also seen in the context of environmental sustainability, where ABC is combined with an approach *life-cycle assessment* and environmental cost management systems to generate more ecologically responsible decisions (Pargmann, 2023).

The role of specific digital technologies in reinforcing ABM's relevance deserves further emphasis. Artificial Intelligence (AI) enables automated, real-time activity cost allocation that significantly enhances the speed and accuracy of managerial decision-making. Big Data Analytics allows organizations to process large volumes of transactional data to identify cost drivers with far greater precision than conventional ABM methods. Meanwhile, Enterprise Resource Planning (ERP) systems provide the integrated operational infrastructure through which evolved ABM frameworks such as Time-Driven Activity-Based Costing (TDABC) can be implemented efficiently across the entire organization. The convergence of these three technologies with ABM's activity-based logic therefore represents not a displacement, but a powerful amplification of ABM's strategic capabilities in the digital era. Overall, these integration patterns reflect that ABM has a high flexibility and adaptive capacity to evolve with technological developments, so instead of being replaced, ABM is further strengthening its position as a relevant and strategic cost management framework in this era of digital disruption (Scott, 2023).

Conclusion

A systematic review of the ABM literature in the context of digital disruption yields three main interrelated conclusions. First, ABM has not experienced a decline in relevance in the digital era, but rather continues to evolve with the scope of application increasingly expanding to various industrial sectors. Second, the sustainability of ABM is influenced by a number of contextual factors that are in line with the predictions of Contingency Theory, namely technological complexity, environmental sustainability demands, changes in management accountant competencies, and the effectiveness of the digital accounting system implemented by the organization. Third, the integration of ABM with digital technologies such as artificial intelligence, big data analytics, and cognitive time-driven costing has opened up a new dimension in more adaptive and precise cost management. Overall, the study confirms that ABM remains a strategic and relevant cost management framework, noting that organizations need to proactively integrate it with digital capabilities to maximize its managerial value in the future. From a managerial standpoint, these findings carry important practical implications for organizations that wish to sustain the relevance of ABM. Organizations should proactively

integrate ABM with digital tools such as AI-powered analytics and ERP systems to improve cost accuracy and decision-making agility. Management accountants need to continuously develop digital competencies in order to effectively manage activity-based systems within increasingly automated environments. Organizations operating under growing sustainability pressures should also consider deploying ABM's activity-based logic as a structured mechanism for tracking and managing environmental costs. In sum, the key to ABM's enduring relevance lies not in preserving its conventional form, but in its continuous adaptation alongside advancing digital capabilities.

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