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## Enhancing Managerial Decision-Making Quality through Activity-Based Costing: An Economic Perspective

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### **Abstract:**

*This study aims to analyse the contribution of Activity-Based Costing (ABC) to improving the quality of managerial decision-making, particularly within the manufacturing and service sectors. A systematic literature review (SLR) approach was employed, drawing data from databases such as Scopus, ScienceDirect, and Google Scholar, and focusing on publications from 2018 to 2025. Through a gradual selection process, 23 relevant articles were identified. The findings indicate that ABC effectively reduces cost distortions—such as under costing by up to 491%—enhances operational efficiency, and supports strategic decisions in areas such as pricing and cost control, leading to profitability improvements of up to 20–30% across various sectors. The study suggests that governments should support ABC adoption in small and medium-sized enterprises (SMEs) through subsidy policies and digitalisation initiatives. For businesses, the implementation of ABC can foster competitiveness and innovation, thereby strengthening the local economy through more accurate and data-driven decision-making. This research contributes new insights by integrating ABC into the context of Industry 4.0, highlighting the potential of technologies such as artificial intelligence (AI) to address traditional challenges, including resistance to change and reliance on manual data processing.*

**Keywords:** Activity-Based Costing, Managerial Decision-Making, Cost Accuracy, Organisational Performance, Systematic Literature Review

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## 1. Introduction

The manufacturing industry heavily relies on effective cost management due to intense market competition and rapid fluctuations in demand. Accurate and relevant cost information is essential to support strategic decisions such as production capacity planning, pricing, and new product development. In line with Mumtahanah et al. (2025), accurate and relevant cost data enable management to maximize resource

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utilization and determine competitive selling prices. This is particularly crucial in the manufacturing sector, which continuously faces high competition and dynamic market conditions.

In an increasingly complex business environment, the need to better understand costs and their impact on managerial decision-making has become more pressing. Decisions based on inaccurate cost information may result in significant strategic errors, ultimately harming company performance. Thibault et al. (2024a) explain that, in the short term, some factories adopt strategies to minimize production costs. For this purpose, financial accounting, cost accounting, and management accounting systems are utilized.

Activity-Based Costing (ABC), as a management accounting system, serves to identify, allocate, and analyze costs based on the activities carried out in the production process. According to Demirel and Aksoylu (2018), the ABC method provides a useful tool for accurately determining and efficiently managing costs. Numerous studies in the literature integrate the ABC method with logistics management and highlight its benefits, including improved performance, processes, productivity, profitability, and cost visibility. This method undoubtedly produces better results compared to traditional costing systems.

Traditional costing methods generally allocate all factory overhead costs using one or two volume-based cost drivers. This approach can cause cost allocation distortions because it fails to reflect the complexity of actual production processes. As noted by Laurent and Munandar (2025), the traditional costing system—also known as Traditional Cost Accounting—was primarily designed for external reporting purposes. In this system, overhead costs are allocated to products using drivers such as direct labor hours or machine hours. When the production environment is diverse, companies often apply a single cost rate, which frequently leads to inaccuracies in cost allocation.

Furthermore, the cost information generated by the ABC system has significant strategic implications. With more detailed and accurate data, management can make better pricing and product strategy decisions. According to Mediaty (2021), when individuals face high pressure and uncertainty, bias in forecasting can occur because decision-makers tend to underreact or overreact, leading to irrational decisions. In this context, ABC helps companies establish competitive selling prices and avoid pricing errors commonly found in traditional methods. Consistent with Siahaan et al. (2025), Activity-Based Costing offers a more accurate approach to cost allocation by assigning costs based on the actual activities performed in the production process. By identifying and calculating the real costs incurred, companies obtain more relevant and precise cost information. This assists management in setting appropriate product prices, managing non-value-added activities, and allocating resources efficiently. Furthermore, Borges et al. (2024) revealed that the ABC model empowers managers to make better decisions regarding product design, pricing, and marketing, while fostering a culture of continuous operational improvement.

The quality of decision-making is also closely related to managerial ability to analyze and interpret the information generated. Several studies show that a deeper understanding of cost structures not only enhances efficiency but also reduces the risk of poor decision-making. In line with Vetchagool et al. (2020), Activity-Based Costing (ABC) was introduced as an innovative approach to help companies improve operational and financial performance by allocating overhead (indirect) costs based on activities performed on cost objects. Inaccurate cost allocation for products and services has become a growing concern among strategic decision-makers.

Thus, this study aims to explain how Activity-Based Costing not only provides more accurate cost information but also plays a vital role in enhancing the quality of managerial decision-making. It is expected that this study will contribute both scientifically and practically to the understanding of the relationship between advanced accounting systems and decision-making effectiveness across various sectors.

## **2. Theoretical Background**

### **ABC Theory**

From a theoretical perspective, ABC analysis was introduced by Cooper and Kaplan (1988) as a more appropriate alternative to traditional costing methods. According to (Ronald J. Lewis, 1995), ABC is a method that accumulates product costs by identifying all activities required in the production process. Thus, the total product cost is the sum of the raw material costs and the costs of all activities involved in production. The main focus of ABC is on the causes of indirect costs. Therefore, ABC differs from traditional costing methods, particularly in terms of defining cost blocks as activities rather than as production cost centres. In addition, the cost drivers used to allocate activity costs are also structurally different from traditional costing systems.

According to Cooper (1998), ABC can be understood as a two-stage allocation process. The first stage involves activities such as processing material orders, marketing activities, or order handling, which require resources such as labour, equipment, materials, and capital. The costs incurred for each activity are calculated based on resource cost drivers. In the second stage, ABC links the costs of these activities to calculation objects, such as products or services. To determine the cost structure of these objects, various activities are allocated using activity cost drivers. Thus, activity cost drivers and resource cost drivers become the main link between objects, activities, and the resources required. According to Rayborn and Kinney (2013) as cited in (Indrasurya et al., 2016), the Activity Based Costing (ABC) system consists of three main components. First, recognising and identifying cost allocations that occur at various levels of the organisation. Second, collecting related costs into separate cost pools. Third, using various cost drivers to determine production or service costs more accurately.

**Stages of Activity Based Costing (ABC) System Implementation**

According to Miller (1992) in (Gunasekaran, 1999), the implementation of the ABC system involves several important stages:

1. **Cost Classification**  
There are two main methods for allocating overhead costs. First, costs from support departments are allocated using one or more allocation bases. Second, costs at cost centres are collected and allocated based on labour hours or machine hours. In a unit-based system, overhead costs are allocated proportionally to production volume. However, unlike traditional methods that assume overhead costs change linearly with production, ABC recognises that not all costs change proportionally. Two commonly used allocation bases are: (1) batch level basis, where inputs are consumed proportionally to the number of batches, and (2) product level basis, where specific inputs are used to develop and support product production.
2. **Activity Grouping**  
Because the number of activities in production can be very large, using cost drivers for each activity may not be economical. Therefore, a balance must be struck between cost accuracy and the number of activities measured by combining similar activities into smaller groups. If the grouping is too large, the accuracy of cost tracking will decrease.
3. **Activity Cost Reporting**  
Once activities are grouped, activity costs are reported. There is a trade-off between reporting detail and ease of interpretation. Some activities can be combined in the cost system, but are reported separately to maintain the level of detail without affecting the reported product cost.
4. **Identification of Activity Centres**  
This stage involves determining the activity centres responsible for specific costs. Activity centres are segments of the production process that management wants to monitor separately in order to effectively control activity costs.
5. **First Stage of Cost Driver Selection**  
At this stage, input costs are traced into the cost pool at each activity centre using the appropriate cost drivers. Selecting the right cost drivers improves the accuracy of cost allocation.
6. **Second Stage Cost Driver Selection**  
After activity costs are collected, second stage cost drivers are used to allocate these costs to cost objects such as products or services. The selection of second stage cost drivers is very important given the complexity of modern manufacturing processes, so that the cost system must be economical and avoid excessive distortion.

Meanwhile, according to Danang et al., (2013), the stages of ABC development and implementation are as follows:

1. Reviewing all of the company's financial information.
2. Determine the objectives of implementing ABC.
3. Identify the main activities that affect overhead costs.
4. Link indirect costs to activities to calculate the basic allocation rate per unit.
5. Calculate the indirect costs charged to each cost object.

6. Calculate the total costs for each cost object.
7. Using the results of ABC calculations for improvement and decision making.

Bidiawati & Kurniati (2017) explain the procedure for calculating production cost using ABC through two stages:

1. First Stage:
  - a. Identify activities.
  - b. Allocate costs to activities.
  - c. Grouping related activities into activity groups.
  - d. Summing up the activity costs in each group.
  - e. Calculate the factory overhead rate for each group.
2. Stage Two:

Generating an overhead allocation formula from each cost group to the product. With this series of steps, ABC implementation can be carried out systematically and provide more accurate cost information for managerial decision-making.

### **Comparison of Traditional Systems and Activity-Based Costing (ABC)**

According to Rahman Hakim (2018) Activity Based Costing (ABC) offers a much higher level of precision than traditional cost calculation methods. This is because traditional systems typically allocate factory overhead costs based on working hours, which often results in inaccurate cost allocations. In response to this weakness, ABC applies cost allocation in two different stages, using cost drivers at the unit, batch, and product levels. This approach allows for more accurate cost calculations, thereby supporting better managerial decision-making.

According to Widjaja (1992), there are several fundamental differences between traditional costing methods and the Activity Based Costing system:

1. The ABC system uses activities as cost drivers to measure overhead consumption by each product more accurately. In contrast, traditional systems allocate overhead costs arbitrarily, usually based on only one or two allocation bases that are not representative.
2. ABC focuses on cost, quality, and time aspects, thus providing a more comprehensive picture. Meanwhile, the traditional system focuses more on short-term financial performance, such as profit. Therefore, when used to determine product pricing and profitability, the results of the traditional system are often less reliable.
3. The ABC system requires data contributions from all departments, which encourages better organisational integration and provides a more comprehensive cross-functional view of company operations.

### **Advantages and Disadvantages of the Activity-Based Costing (ABC) System**

The Activity Based Costing system has the advantage of facilitating the identification of unrealistic costs and controlling overhead costs, which are often obstacles in traditional cost accounting. With more accurate cost information, management can make more informed decisions to increase the company's sales value and profitability. However, this system also has disadvantages, namely its inability to cover all types of costs, especially marketing costs. Furthermore, the implementation of ABC tends to

be complex and requires relatively high administrative costs, which can increase the company's operational expenses. Therefore, although ABC offers significant benefits in cost management, companies need to also consider the challenges and additional costs that may arise.

## **Management Decision Making**

### **Understanding Management Decision Making**

Decision-making is a systematic process that begins with problem identification and ends with recommendations as a basis for decision-making. These recommendations are then used as guidelines for further action. Therefore, errors or mistakes in recommendations, which may arise due to a lack of caution in problem analysis, can have a significant impact on the outcome of decisions.

Decision making is the process of recognising and analysing problems and opportunities in order to find solutions. This process involves a series of efforts, both before and after a choice is made. For example, when selecting junior auditor candidates such as Colin, Tasha, or Carlos, an accounting manager must be sure that the position is indeed necessary, ensure the availability of potential candidates, conduct interviews to gather important information, select the best candidate, and then integrate the new employee into the organisation. All these steps aim to ensure the success of the decision made (Richard L. Daft, 2010).

### **Stages of Decision Making**

According to Simon (1960), the decision-making process consists of four main stages:

1. Intelligence  
This stage involves gathering information to identify and understand existing problems.
2. Design  
In this stage, various possible solutions are designed to address the identified problems.
3. Choice  
This stage involves evaluating the advantages and disadvantages of various alternative solutions, then selecting the option deemed most appropriate.
4. Implementation  
The final stage involves formal decision-making and the implementation of the selected solution.

## **3. Methodology**

This study uses a systematic literature review approach to comprehensively analyse the contribution of Activity-Based Costing (ABC) in improving the quality of managerial decision-making. This method was chosen for its ability to identify, evaluate, and synthesise relevant evidence from previous studies in a structured and objective manner, thereby producing an in-depth and evidence-based understanding of the topic under investigation.

The search for sources was conducted through databases such as Scopus, ScienceDirect, Publish & Perish, and Google Scholar. The literature was limited to publications from 2018 to 2025 to ensure relevance. The article selection process was carried out in stages and carefully. The article selection process involved initial identification, screening of abstract titles, and reading the full text to ensure relevance. The inclusion criteria included articles that explicitly discussed ABC and its relationship to managerial decision-making. Irrelevant articles or those that did not meet the criteria were excluded, until finally the 23 most suitable articles were selected.

#### **4. Empirical Findings/Results and Discussion**

##### **The Role of ABC in Identifying Value-Added Activities**

In this systematic literature review (SLR), we analysed 23 relevant articles on Activity-Based Costing (ABC) from various sources such as Scopus and academic journals, focusing on its contribution to the quality of managerial decision-making. The analysis focused on two main aspects: the role of ABC in identifying value-added activities and the role of ABC in the accuracy of cost information. The synthesis results show that ABC consistently provides added value in cost management, despite limitations such as sample size and specific contexts. This discussion integrates findings from these articles to highlight managerial implications, while considering industry variations such as manufacturing, services, and agriculture.

ABC plays a crucial role in identifying activities that truly add value for customers (value-added activities) and distinguishing them from non-value-added activities, which are often a source of waste. This approach enables managers to allocate resources more efficiently, thereby supporting strategic decisions such as process optimisation and unnecessary cost reduction. A synthesis of 23 articles shows that ABC not only detects inefficiencies but also enhances operational transparency, ultimately strengthening the quality of managerial decisions.

Several studies emphasise how ABC helps uncover non-value-adding activities, as in the case of PT. S (Larasati & Wijayati, 2024), where ABC identified non-value-added activities in a cardboard factory, reducing sales price estimation time from 30 minutes to 2 hours and increasing profitability from 3.75% to a target of 20-30%. Similarly, in the automotive industry (Bodendorf & Franke, 2024), the integration of ABC with deep learning (PSO-PSO-ABC-MLP) prioritised cost reduction in setup and tools, which are the main non-value-added activities, with model accuracy reaching  $R^2=0.9514$ .

In the restaurant sector (Enes & Koşan, 2024), levelled Time-Driven ABC (TDABC) revealed idle capacity at the chef level (e.g., 70.89% for demi-chefs), enabling managerial recommendations such as reducing the number of commis chefs from 4 to 2, which alleviated production bottlenecks within 2 months. A similar situation was observed in hotels (Tesyra Sisilia Lupa et al., 2023), where ABC identified six main activities such as laundry and energy, with cost drivers such as occupancy rate (70.79%),

enabling to optimise the allocation of operational costs worth £2.608 billion for competitive price efficiency.

In agriculture (Varani et al., 2025), an automated CANBUS-based ABC framework analysed seasonal tractor patterns, identifying idling of up to 43% as non-value-added, supporting fleet optimisation for sustainability. In reverse logistics (Demirel & Aksoylu, 2020), ABC in end-of-life vehicle (ELV) dismantlers classifies activities such as depollution (9.5%) and crushing (7%), reducing overhead evenly and improving efficiency. Overall, a literature review (Parindingan et al., 2024) shows ABC's flexibility across sectors, including cement manufacturing (Grace Mendrofa Cindy et al., 2024) and recycled paper (Hsieh et al., 2020), where activity hierarchies (unit, batch, product level) helps eliminate waste, although limitations such as manual data (Larasati & Wijayati, 2024) often hinder generalisation.

Further discussion indicates that identifying value-added activities through ABC not only reduces costs but also supports long-term decisions such as sustainable outsourcing in the gas industry (Kuhait et al., 2025), where 100% allocation to gas treatment saves £7 billion economically and environmentally. However, challenges such as resistance to change (Božić & Knežević, 2025) emphasise the need for manager training to maximise these benefits.

### **The Role of ABC in Cost Information Accuracy**

One of ABC's main contributions is improving cost information accuracy by allocating overheads based on relevant cost drivers, rather than traditional methods that often cause distortions (under/overcosting). This results in more precise cost data, which is essential for managerial decisions such as pricing, budgeting, and profitability evaluation. Of the 23 articles, the majority found that ABC reduces allocation errors by 20-50%, although its implementation requires high-quality data.

In cardboard manufacturing (Larasati & Wijayati, 2024), ABC revealed significant undercosting of Rp3.434 billion in four out of five products (a difference of 53%-491%), while overcosting of 14% in die-cut plain identified A1 plain as a loss-making product (-80%). Similarly, in garment MSMEs, ABC produced variable unit costs (Rp14,932-Rp49,915 per unit) versus fixed costs in traditional costing (Rp18,432-Rp38,767), identifying low margins (<25%) on four products for price adjustments. In hospitals, ABC calculates inpatient costs more accurately, for example Class II at £1.397 million (higher than the tariff of £350 thousand), detecting underpricing in the lower classes.

A study in electronics (Zamrud & Abu, 2020) compared ABC with TDABC, where TDABC excelled with a single allocation stage and objective time drivers, avoiding overestimation and providing transparency on capacity utilisation (unused time -58,800 minutes on trimming). In the automotive industry (Bodendorf & Franke, 2024), the hybrid ABC- MLP model achieved MAPE=4.228%, supporting early estimates with CPE  $\leq \pm 5\%$  in 72.5% of cases. In a Thai startup (Daowadueng, 2024), perceived ABC accuracy mediates decision-making ( $\beta=0.44$ ,  $p=0.00$ ), explaining 47.4% of the variation with  $R^2=0.474$ .



In Kurdistan cement (Omer et al., 2019), regression shows ABC explains 74.6% of decision-making variation through performance management (coefficient 0.737,  $p=0.000$ ). In a Sudanese industrial project (Saad et al., 2025), ABC increased competitive advantage ( $\beta=0.207$ ,  $p=0.017$ ), although the effect on decision-making was not significant ( $p=0.076$ ). In a pulp mill (Thibault et al., 2024b), ABC identified 12 steady-state regimes, optimising profits by CAD 49 million/year without investment. A general review (Zamzami et al., 2025) confirms that ABC detects 20-30% distortions, increasing ROA by 12-15% in manufacturing/services.

Overall, ABC's accuracy supports high-quality decisions, such as in Jordanian healthcare (Shaheen & Al-Khreisat, 2024) with  $R=0.799$  for cost management, and freight forwarding (Yulan & Karim, 2022) which detected undercosting of 35.56%. However, limitations such as single samples and historical data indicate the need for longitudinal studies for further validation. Integration with technologies such as AI could strengthen this role in the future.

### **ABC's Contribution to Cost Planning and Control**

The Activity-Based Costing (ABC) approach plays a crucial role in supporting cost planning and control, as it offers more targeted cost allocation based on actual activities, enabling managers to more easily identify inefficient areas and optimise resource utilisation. From a review of 23 articles, key findings stand out, with most studies, such as those conducted by (Enes & Koşan, 2024), (Larasati & Wijayati, 2024), (Varani et al., 2025), and (Bodendorf & Franke, 2024) prove that ABC can effectively reduce undercosting and overcosting issues. For example, at PT. S Plant 4, undercosting amounting to Rp 3.434 billion on four out of five products with a difference of up to 491% was not revealed by conventional methods, while in the Bavarian automotive industry, the ABC model utilising deep learning achieved an accuracy of  $R^2=0.9514$  for planning global supply chain costs with greater precision.

Not only that, ABC also helps control costs by revealing activities that do not add value, as found in research on fine dining restaurants (Enes & Koşan, 2024) and Mel's Inn hotels (Tesyia Sisilia Lupa et al., 2023), where the application of leveled TDABC revealed an idle capacity rate of up to 70.89% at the chef level, which then prompted a workforce restructuring and the removal of production barriers, as well as reducing the cost of goods sold (COGS) per room to £69,388 through the identification of six core activities such as laundry and energy, which ultimately strengthened the strategy to achieve an occupancy rate of 94.58%. In addition to these aspects, the integration of ABC with technology and sustainability principles further expands its benefits, as explained in the works of (Varani et al., 2025) and (Hsieh et al., 2020), which highlight the use of CANBUS-based automated ABC in the Italian agricultural sector to improve cost clarity per hectare and reduce tractor idle time by up to 43%, and the green ABC model in Taiwan's recycled paper factory, which generated a maximum profit of £643,194 million while limiting CO<sub>2</sub> emissions to below 80,000 tonnes, including energy savings of up to £129,200 million thanks to sensitivity analysis for sustainable control.

In other fields, increased profitability has emerged from better operational cost management, such as in cement manufacturing (Grace Mendrofa Cindy et al., 2024) and

roof tiles (Afidah et al., 2023), where ABC has succeeded in reducing the cost of goods sold to £2.270 per bag of cement and £28.2 per unit of roof tile by utilising cost drivers such as working hours and production volume, as well as in the garment SME sector, which revealed unit cost differences of up to £49,915 to support inventory management and a 30% markup for greater efficiency. In essence, the strength of ABC lies in its ability to integrate real-time data with activity hierarchies from the unit to the facility level, which significantly reduces waste and increases return on assets (ROA) by up to 15% across various sectors although constraints such as manual data processing and a narrow scope indicate the need for further technological utilisation to broaden its application.

### **The Impact of ABC on Managerial Decision-Making**

In addition to improving the accuracy of cost data, ABC also enriches the managerial decision-making process by providing in-depth strategic insights related to pricing, outsourcing, and achieving competitive advantage, as revealed by an analysis of 23 articles that consistently show a positive influence, although it is still influenced by contextual elements such as company scale and the availability of IT support. Particularly in supporting pricing and profitability decisions, the cases at PT. Anugrah Ocean (Yulan & Karim, 2022) illustrate how ABC prevents pricing deviations, including undercosting of 35.56% on freight forwarding services and differences in hospitalisation rates of up to £1,397,797 per class, while in a Thai startup (Daowadueng, 2024), perceptions of ABC accuracy mediate 47.4% of the variation in decision-making ( $\beta=0.44$ ,  $p=0.00$ ) to form competitive pricing strategies and strengthen business resilience in a dynamic environment.

The impact also extends to strategic decisions such as outsourcing and innovation, where in gas companies in Iraq (Kuhait et al., 2025), ABC enabled cost savings of up to 80% (Rp 17 billion compared to Rp 1.23 billion) through collaboration with the Balanced Scorecard (BSC) and Total Quality Management (TQM) to achieve sustainable value, as well as in a Sudanese industrial project (Saad et al., 2025), which increased competitive advantage ( $\beta=0.207$ ,  $p=0.017$ ) with a dominant IT moderator role ( $\beta=0.754$ ,  $p=0.000$ ). Decision quality also improved thanks to increased transparency and data analysis, as found in the Amman hospital survey (Shaheen & AL- Khreisat, 2024), which showed progress in cost management ( $R=0.799$ ,  $\text{Adj } R^2=0.636$ ) for resource allocation without compromising service quality, and in the Kurdistan cement industry (Omer et al., 2019) where regression analysis revealed 74.6% variation in decision-making through performance management (coefficient 0.737,  $p=0.000$ ), with a comparative study (Zamrud & Abu, 2020) emphasising the superiority of TDABC for high-variability manufacturing through time transparency that supports capacity forecasting. The link between ABC and competitive advantage as well as the adoption of modern methods is evident in the Republic of Srpska (Božić & Knežević, 2025), where the level of implementation is higher in large and private companies (odds ratio 3.218) despite facing resistance to change, and from a literature review (Parindingan et al., 2024) stating that ABC drives ROA improvement and Porter-style differentiation through flexibility in the Industry 4.0 era with the support of AI and big data. Overall, this discussion confirms that the influence of ABC on managerial decision-making is positive and multi-layered, particularly in the manufacturing, service, and healthcare sectors, where accurate data forms the basis for evidence-supported decisions, despite limitations such as a limited

sample size (e.g., 81 respondents in Božić et al.) and the lack of long-term research encourage more comprehensive future research, including adjustments in the Indonesian context. In essence, ABC has proven to be a crucial tool for strengthening decision quality, with prospects for development through technology integration to address various obstacles in its implementation.

### **The Relationship Between ABC and Organisational Performance**

Based on the 23 articles reviewed, ABC has been shown to have a positive relationship with organisational performance through increased cost efficiency, profitability, and resource optimisation. The majority of studies (approximately 80% or 18 articles) highlight how ABC addresses cost distortions caused by traditional methods, thereby supporting improvements in performance indicators such as Return on Assets (ROA), contribution margin, and occupancy rate. The following is a synthesis of the main findings:

**Improved Cost Accuracy and Profitability:** In case studies at manufacturing companies such as PT. S (Larasati & Wijayati, 2024) and a cement factory in Jakarta (Grace Mendrofa Cindy et al., 2024), ABC reduced undercosting by up to 491% on certain products, resulting in an average profitability increase from 3.75% to 20-30%. Similarly, at the Tia garment SME, ABC identified low margins (<25%) on four products, enabling price adjustments that improved overall operational efficiency.

**Resource Optimisation and Operational Efficiency:** Articles on tractor fleets in Italy (Varani et al., 2025) and Mel's Inn Manado hotel (Tesy Sisilia Lupa et al., 2023) show that ABC reduced idle time by up to 43% and increased occupancy rates to 70.79%, with savings in overhead costs such as energy and labour. In the reverse logistics sector in Turkey (Demirel & Aksoylu, 2018), ABC precisely allocated transportation costs (51%), reduced non-value-added activities, and increased profitability compared to conventional methods.

**Impact on Performance in Various Sectors:** In the healthcare industry (Shaheen & Al-Khreisat, 2024), ABC detected underpricing in inpatient classes (a difference of up to £1.397 billion), which supported an increase in ROA through the allocation of direct and indirect costs. A study of Thai startups (Daowadueng, 2024) found a positive correlation ( $\beta=0.63$ ) between ABC and organisational performance, particularly in HealthTech, where perceived ABC accuracy explained 47.4% of performance variation. However, not all studies are entirely positive; for example, at PT. Anugrah Ocean (Yulan & Karim, 2022), ABC detected pandemic losses but failed to directly increase profitability due to external fluctuations.

**Variations Based on Organisation Size and Type:** ABC is more effective in large or foreign companies (Božić & Knežević, 2025), where modern costing adoption is 3.218 times higher, compared to SMEs or the public sector, which face resistance (Omer et al., 2019). In Sudanese industrial projects (Saad et al., 2025), ABC contributed to competitive advantage ( $\beta=0.207$ ), although its effect on direct decision-making was small. Overall, these relationships are idiographic, with limitations such as small samples

(e.g., only one company in 70% of studies) and a lack of longitudinal data, which limits cross-context generalisation.

### **Implications of ABC for Decision-Making Quality**

ABC not only improves the quality of cost data but also enriches managerial decision-making by providing transparency and flexibility. Of the 23 articles, 19 studies (83%) emphasised the strategic implications of ABC, such as pricing support, outsourcing, and bottleneck identification, which reduced estimation errors by up to 38.18% (Enes & Koşan, 2024). A synthesis of findings shows ABC as an adaptive decision support tool, especially in the digital age and Industry 4.0.

**Improved Data Accuracy and Transparency:** The integration of ABC with deep learning in the automotive industry (Bodendorf & Franke, 2024) achieved 95.14% accuracy ( $R^2=0.9514$ ), enabling early cost estimates with errors of <5%, which supports interorganisational supply chain decisions. In fine dining restaurants (Enes et al., 2024), Time-Driven ABC (TDABC) identified chef idle capacity of up to 70.89%, facilitating staffing recommendations that reduced production bottlenecks within two months.

**Strategic Decision Support:** A study in Kurdistan cement (Omer et al., 2019) found that ABC regression explained 74.6% of decision-making variation, with performance management as the strongest predictor ( $\beta=0.737$ ). In Iraq's gas filling industry (Kuhait et al., 2025), ABC supported outsourcing raw materials, saving 80% in costs, while the " " achieved sustainable value through integration with the Balanced Scorecard (BSC). Furthermore, in a Taiwanese recycled paper factory (Hsieh et al., 2020), the ABC-TOC model maximised profits of CAD 49 million/year by optimising throughput, demonstrating implications for environmental decisions such as CO2 emission reduction.

**Role in Decision Making in Specific Sectors:** In Jordanian hospitals (Shaheen & Al-Khreisat, 2024), ABC improves cost management ( $R=0.799$ ), supporting resource allocation decisions while maintaining quality of care. In roofing SMEs (Afidah et al., 2023) and sea freight forwarders (Yulan & Karim, 2022), ABC avoids overhead distortions, enabling competitive pricing and detection of unexpected losses. However, in a Sudanese project (Saad et al., 2025), the effect of ABC on decision-making was insignificant ( $p=0.076$ ), emphasising the need for IT integration ( $\beta=0.754$ ) to strengthen implications.

**Challenges and Limitations Implications:** Although positive, the implications are hampered by implementation complexities (high costs, employee resistance) as acknowledged (Božić & Knežević, 2025) and (Zamrud & Abu, 2020), where TDABC is simpler for variable manufacturing. The lack of primary empirical data in some studies (e.g., literature review by Parindingan et al., 2024) indicates the need for field validation to enhance decision reliability.

In discussion, these findings confirm that ABC contributes significantly to the quality of managerial decision-making by providing a more accurate and actionable database, which in turn strengthens organisational performance. However, its effectiveness depends on context, such as company size and technological support. Practical implications include recommendations for ABC adoption in Indonesian SMEs through

training and digital integration, while future research should explore longitudinal comparative studies and the moderating effects of external factors such as pandemics or environmental regulations. This approach could enrich the management accounting literature in developing countries, where ABC adoption remains low.

## 5. Conclusions

Based on the results and discussion, it can be concluded that Activity-Based Costing (ABC) plays a significant role in improving organisational efficiency through the identification of value-added activities, increased cost allocation accuracy, and support for data-driven managerial decision-making. The implementation of ABC has been proven to reduce cost distortions (undercosting and overcosting), increase process transparency, and improve profitability and operational efficiency in various sectors, from manufacturing to services. In addition, ABC helps managers determine pricing, outsourcing, and resource planning strategies with greater precision. However, the effectiveness of ABC is highly dependent on data quality, organisational readiness, and technological support. Therefore, it is recommended that companies, especially in the SME sector, adopt ABC in a phased manner ( ) through training and digitalisation of accounting systems in order to optimise its benefits.

The implications of these findings indicate that the implementation of ABC can strengthen organisational performance in a sustainable manner, support strategic decision-making, and increase competitiveness in the digital era. Nevertheless, this study has limitations in terms of its scope, which is largely a single case study, the short research period, and the lack of longitudinal data, which limits the generalisation of results across contexts and sectors. For future research, it is recommended that researchers conduct comparative studies across industries and countries, and integrate moderating variables such as information technology support, organisational culture, and external factors such as economic crises or environmental regulations. This approach is expected to enrich the management accounting literature, particularly in the context of ABC implementation in developing countries such as Indonesia.

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