

Research Trends on Determining Cost of Production for Strategic Decision-Making: A Bibliometric Analysis of Job Order and Process Costing Method

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Abstract

Competition Global business demands increased operational efficiency, where controlling production costs is a critical factor to maintain a competitive advantage. This study aims to map the trends of the academic literature regarding product costing, focusing on the Job Order Costing and Process Costing methods. Using a descriptive bibliometric analysis method, publication data of 127 articles were extracted from the Google Scholar database for the period 2016–2026 through the Publish or Perish software, then analyzed using Microsoft Excel and VOSviewer. The results of the study show that Job Order Costing research dominates empirical studies on fragmented small-scale entities (MSMEs), while Process Costing is centered on sustainable mass manufacturing industries. This study found significant structural holes between the traditional manual cost accounting study and the integration of manufacturing digitalization. This study provides comprehensive guidance for future management accounting research directions in supporting strategic business decision-making innovation.

Keywords: Bibliometric Analysis, Cost of Production, Job Order Costing, Process Costing, VOSviewer.

1. INTRODUCTION

The dynamics of the modern economy and global business competition force companies to act adaptively to improve operational efficiency to ensure the sustainability of their entities. In a competitive business environment, cost control through the determination of the right product cost is the main foundation for management in maintaining market competitiveness. Conceptually, product costs are the total sacrifice of economic resources to produce a product until it is ready for sale, which is formed by three main elements: *direct materials*, *direct labor*, and *factory overhead*. This cost information is the most crucial basis in the process of planning, operational control, and determining the selling price of products that directly affect the company's profitability. Failures or errors in the calculation of product costs can trigger *undercosting* or *overcosting*, which has a direct impact on the decline in the entity's profits.

To achieve the accuracy of these calculations, the selection of cost accounting methods must be in harmony with the characteristics of each company's production process. Management accounting recognizes two main methods that are most often implemented in the industry: job order costing and process costing. Job order costing is applied to companies that produce goods based on special orders or specific projects that are heterogeneous, non-bulky, and varied. On the other hand, process costing is a calculation instrument in manufacturing companies that produce homogeneous products in bulk, continuously, and flow through several production departments continuously.

Although the empirical experience of both methods is proven to underlie the operational efficiency of entities, the map of the development of the literature examining the two topics has not been fully integrated. The majority of previous research has been dominated by qualitative approaches and partial case studies on individual business entities. A search of the literature shows that bibliometric studies in the field of accounting so far are still focused on the area of sustainability accounting or activity-based costing in general. Bibliometric research that explicitly maps the conventional cost accounting literature is still very minimal.

This research gap is the strategic position of this research. This study aims to provide comprehensive insights by extracting and evaluating publication data from Google Scholar using Publish or Perish (PoP) software and VOSviewer visualization. The targets of this research include: (1) mapping the trend of publication and literature growth regarding the determination of cost of production during the period 2016 to 2026; (2) identify the most influential scientific articles (most cited articles) in the discourse of cost accounting; and (3) analyze the structure of the author's collaboration

network as well as the clustering of topics to formulate new research directions relevant to digital innovation in strategic business decision-making.

2. LITERATURE REVIEW

2.1. Conceptualization of Cost of Production

In the discourse of management accounting, cost is understood as the sacrifice of resources measured in monetary units to achieve a specific goal (Horngren et al., 2015). In manufacturing companies, financing is further classified into product cost and period cost (Garrison et al., 2021). Product costs include all expenses directly related to the process of acquiring or manufacturing goods, which are capitalized from the beginning as inventory in the financial position statement (balance sheet) and are only recognized as cost of goods sold when the goods have been sold (Garrison et al., 2021).

The urgency of product costing accuracy has strategic implications for the sustainability of business entities. According to the framework of Hansen and Mowen (2018), product cost information is essential for management with regard to three main objectives: (1) inventory assessment and periodic profit determination; (2) managerial planning and control; and (3) strategic decision-making such as pricing decisions. Errors in the classification and calculation of product costs can trigger undercosting or overcosting, with the main risk of distorting selling prices and significantly reducing profit margins (Blocher et al., 2019).

2.2. Product Cost Components

Based on the *traditional costing system*, the basic cost structure of manufacturing is formed by three main components that are integrated with each other (Carter, 2014; Weygandt et al., 2020), namely:



Figure 1: Three Main Components of Forming the Cost of Production

1. *Direct Material Cost*: Raw materials that form an integral part of finished goods and can be physically and economically traceable to the product, for example steel in car assembly or wood in the furniture industry (Drury, 2018).
2. *Direct Labor Cost*: Compensation or wages given to workers who are in direct contact with products and actively convert raw materials into finished goods, which fall into the category of *prime costs* along with direct raw materials (Raiborn & Kinney, 2013).
3. *Manufacturing Overhead*: All production costs in the manufacturing sector other than direct raw materials and direct labor, including auxiliary materials, indirect labor (supervisors and mechanics), and factory utility costs. These costs cannot be traced directly to specific units, so their allocation requires a specific *cost driver* basis (Garrison et al., 2021).

2.3. Job Order Costing System

Job order costing is a method of calculation in which costs are accumulated for each separate order (*job*), job, or project (Horngren et al., 2015). This method is applied to companies that produce varied (heterogeneous) products or services, in relatively small quantities, and are done based on customer-specific specifications (Drury, 2018). The cost accumulation center in this system uses a *job order cost sheet* document that records the details of direct raw materials, direct labor, and overhead allocations separately for each order (Weygandt et al., 2020). The use of this method requires very strict record-keeping, but it gives management an advantage in accurately monitoring profitability per project to guide future price negotiations (Hilton & Platt, 2020).



Figure 2. Order Card Cost Accumulation Flow on Job Order Costing

2.4. Process Costing System

As an alternative to the ordering method, the process costing system accumulates production costs based on processes or departments, which are then charged to a large number of identical (homogeneous) product units (Hansen & Mowen, 2018). The system is designed for large-scale continuous manufacturing to meet market stocks, rather than individual customer orders (Garrison et al., 2021). Since the output of products is uniform, this system utilizes the concept of equivalent units of production to divide the total expenditure of the department by the total units produced in a given period (Horngren et al., 2015). Users of this method include cement factories, petroleum refiners, pharmaceuticals, and packaged food manufacturers (Drury, 2018). Its implementation makes it easier for management, simplifies accounting records, and evaluates daily operational efficiency per department (Raiborn & Kinney, 2013; Blocher et al., 2019).



Figure 3. Continuous Cost Accumulation Flow per Department on Process Costing

2.5. The Relationship between Costing Method Selection and Managerial Performance

Alignment between the design of the cost accounting system and the characteristics of the manufacturing type is an absolute condition (*necessary condition*) to produce optimal business decisions. Imposing a *process costing* system on entities that produce unique goods results in distortion of cost pricing (Kaplan & Anderson, 2007). On the other hand, using *job order costing* on mass production lines creates administrative complexity with no added value. A cost system that is compatible with physical operational flows has been proven to improve the reliability of financial statements, strengthen internal controls, and the company's capabilities in responding to global market price pressures (Hilton & Platt, 2020).

3. RESEARCH METHODS

3.1. Research Design

This study uses a quantitative approach with a descriptive bibliometric analysis design. Based on the methodological framework of Donthu et al. (2021), bibliometric analysis is used as a statistical instrument to objectively evaluate publication data, map trends in academic literature, and identify the structure of knowledge within a discipline. The object of observation in this study is a set of metadata of the scientific literature on management accounting published in the last decade (2016–2026).

3.2. Data Sources and Search Strategies

The primary data source is secondary journal article metadata extracted from the Google Scholar database due to its comprehensive indexing coverage (Gusenbauer, 2022). Data retrieval is assisted by *Publish or Perish* (PoP) software to

systematically extract author names, year of publication, journal names, and citation ratios (Ahmi, 2022). The search strategy is carried out through the *Title/Keywords* column using the following Boolean query formulation: "Job Order Costing" OR "Process Costing" AND "Product Cost" OR "Cost of Production" with a temporal limit of 2016 to 2026 (Mukherjee et al., 2022).

3.3. Article Selection Stages (PRISMA Protocol)

The document screening stage adopts the standard *protocol Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) (Page et al., 2021) through four phases:

- 1) **Identification:** Initial capture of 485 documents from Google Scholar through the PoP application.
- 2) **Screening:** Deleted duplicate documents and eliminated non-journal literature (books, thesis/thesis, proceedings without strict peer-review), leaving 248 documents.
- 3) **Eligibility:** Conduct a manual assessment of the title and abstract to ensure the loading of the discussion of product cost components (raw materials, labor, overhead), leaving 127 documents.
- 4) **Inclusion:** Assign 127 high-quality final articles exported into CSV format for further analysis.

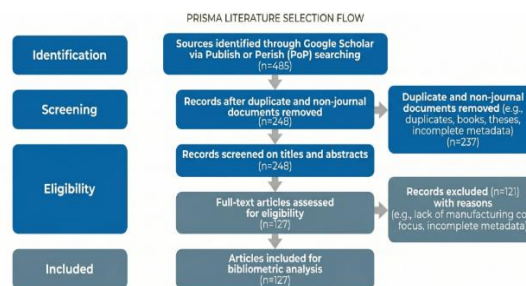


Figure 4. PRISMA Protocol Flowchart Literature Screening 127 Final Article

4. RESULTS AND DISCUSSION

4.1. Descriptive Analysis and Annual Publication Trends

Table 1. Publication Distribution of Journal of Production Cost Determination (2016–2026)

Year of Publication	Number of Articles	Percentage of Total (%)	Growth Trends
2016	6	4,72%	-
2017	8	6,30%	Rise
2018	9	7,09%	Rise
2019	10	7,87%	Rise
2020	11	8,66%	Rise
2021	16	12,60%	Significant Increase
2022	21	16,54%	Significant Increase
2023	18	14,17%	Get Down
2024	22	17,32%	Highest Peak
2025–2026*	6	4,72%	Data Running
Total	127	100%	

Based on Table 1, the dynamics of the literature on the determination of production costs evolved through three main phases. The first phase (2016–2020) was an initial stagnation period in which the contribution of publications was below 9% per year because this topic was once considered settled science, shifting researchers to topics such as sustainability accounting.

The second phase (2021–2024) reflects a sharp escalation, reaching a peak of 22 articles in 2024. This massive surge correlates with supply chain disruptions and post-global pandemic raw material inflation that forces business entities into survival mode. This condition encourages academics to review the basic foundations of cost accounting to prevent

undercosting risks that threaten company profitability. The third phase (2025–2026) is an ongoing consolidation phase that begins to indicate a shift towards the digitalization of the cost system.

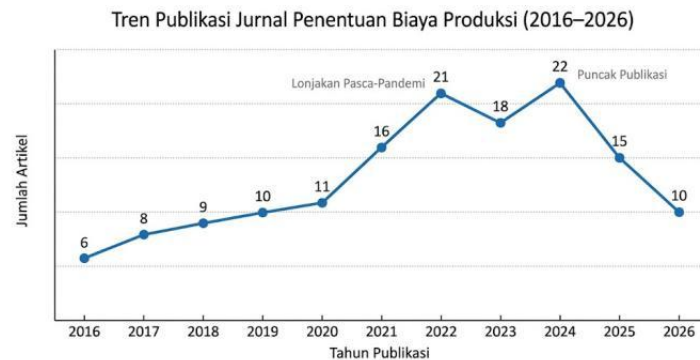


Figure 5. Publication Trends of the Journal of Production Cost Determination (2016–2026)

The publication landscape shows an empirical *problem-solving* research orientation. The top position is filled by specific forums such as *the Journal of Applied Managerial Accounting*, followed by cross-disciplinary applied journals such as *the Journal of Business and Economic Accounting* and *AKUA*. This reveals the reality of the field, the high awareness of academics publishing field case study research in the MSME sector and creative industries that are vulnerable to cost price distortions.

Table 2. Top Five Journals by Number of Publications (2016–2026)

Rank	Name of the Journal of Publication	Journal Focus/Category
1	<i>Journal of Applied Managerial Accounting</i>	Management & Manufacturing Accounting
2	<i>Journal of Business and Economics Accounting</i>	Business & Applied MSMEs
3	<i>Tambusai Education Journal</i>	Multidisciplinary Research & Education
4	<i>Title: Journal of Accounting and Finance</i>	Financial Accounting & Costing
5	<i>Nusantara Hasana Journal</i>	Applied Research & Economics

4.2. Analysis of the Most Influential Articles (Anchor Articles)

Table 3. Top 5 Most Influential Articles Based on Number of Citations

Rank	Author (Year)	Article Title	Study Focus	Number of Citations
1	Bastian & Nurlela (2018)	Analysis of the Calculation of the Cost of Production Using the Job Order Costing Method...	Job Order Costing	128
2	Suartini et al. (2019)	Application of the Job Order Costing Method to Determine the Cost of Production...	MSMEs & Pricing	115
3	Purwanto (2020)	Analysis of the cost of production using the Full Costing method in determining the selling price	General Manufacturing	94
4	Hilmiyati et al. (2020)	The Role of Job Order Costing in Determining HPP and Selling Price Case Study in Printing	Price Distortion	87
5	Astri (2021)	Analysis of the Application of the Full Costing Method and Costing Variables as a Calculation of HPP...	Method Comparison	82

The evaluation of the citation data in Table 3 shows the absolute dominance of operational empirical studies. The article by Bastian & Nurlela (2018) leads in absolute terms with 128 citations, followed by Suartini et al. (2019) with 115 citations. The in-depth analysis uncovered two main polarizations of the theme. First, the urgency of *job order costing* as an instrument to save the profitability of MSMEs from the risk of *undercosting* which has the potential to trigger pricing decision errors. Second, a comparison of the cost charging method (*Full Costing vs Variable Costing*) which proves the completeness of overhead identification is the main key to optimizing the profits of manufacturing

companies. The constant presence of descriptive conventional manual research until 2024 confirms the occurrence of *saturation* in the local scientific literature that has not integrated cost instruments with digital technology architectures.

4.3. Analysis of Collaboration Networks and Research Gaps

The co-authorship network visualization shows highly fragmented topologies with high modularity (siloe clusters). The network is divided into several independent clusters with minimal interconnection, indicating that the research is highly locallycentric. Two main poles were identified: the Empirical-Local Pole (Bastian, Hilmiyati) which focuses on the case of convection/local printing MSMEs, and the Conceptual-Manufacturing Pole (Purwanto, Astri) which focuses on the standardization of mass manufacturing. The most crucial finding is the occurrence of structural holes (Burt, 1992), in the form of visual total separation and the absence of bridging links between the two large poles. The academic community that researches the case of local MSMEs tends not to have adopted the digital information system model that is developing at the manufacturing pole.

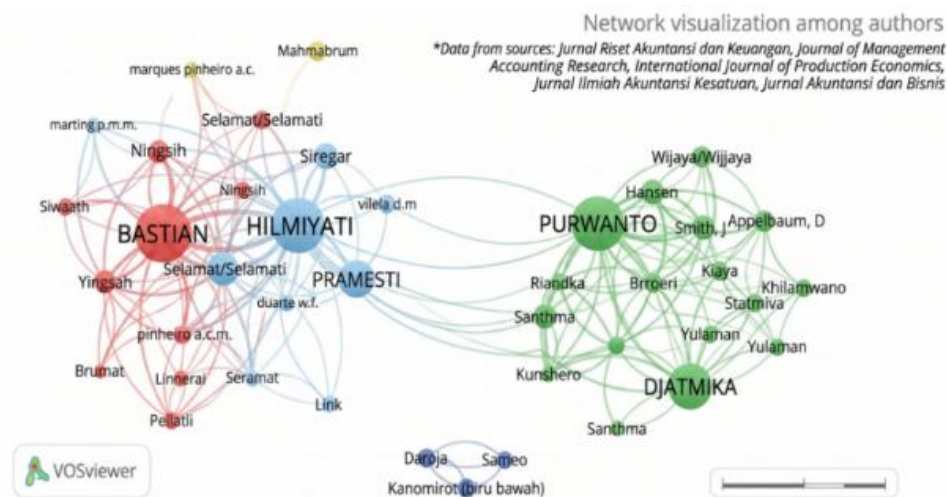
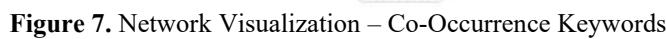


Figure 6. Co-Authorship Network

Keyword descriptive metrics confirm this saturation (Snyder, 2019). The themes of *Job Order Costing* (Occurrences: 48, TLS: 215) and *Process Costing* (Occurrences: 35, TLS: 182) occupy the highest density coordinates ($Y = 3.00$) that are already very saturated (Zupic & Čater, 2015).

Table 4. Descriptive Metrics of HPP Literature Core Themes (2016–2026)

No	Theme / Core Concepts (By Topic)	Occurrences (Frekuensi)	Total Link Strength (TLS)	Permetaan Klaster Themed
1	Job Order Costing (Main Theme I)	48	215	Cluster 1 (MSME Focus)
2	Process Costing (Main Theme II)	35	182	Cluster 2 (Mass Focus)
3	Product Cost / HPP	31	156	Cluster 3 (Foundation)
4	SMEs / MSMEs (Implementation Context)	26	128	Cluster 1 (MSME Focus)
5	Efficiency (Impact Context)	21	94	Cluster 2 (Mass Focus)
6	Pricing/Selling Price (Financial Impact)	18	85	Cluster 1 (MSME Focus)
7	Digitalization / Information Systems (Gap)	5	18	Klaster 4 (Emerging/Baru)



Visualisasi Pemetaan Kata Kunci 'Job Order vs Process Costing' (2016-2026)
 (Data from sources: Jurnal Riset Akuntansi dan Keuangan, Journal of Management Accounting Research, International Journal of Production Economics, etc. N = 127 Google Scholar documents)

Y-axis: Kepadatan/Relasi Topik (Density/Overlay)

X-axis: Kluster Topik (Cluster ID)

Legend:

- *LEGENDA (Warna Overlay / Timeline)**
 - Tahun Tua (2016) / Old Years
 - Tahun Menengah (2021) / Intermediate Years
 - Tahun Muda (2026) / Emerging Years
- *KLAUSTER (Density & Position)**
 - 'Kluster Inti / Core Clusters (Saturated)'
 - 'Kluster Penghubung / Bridging Clusters (Intermediate)'
 - 'Kluster Perifer / Peripheral Clusters (Emerging)'

Kluster Topik (Cluster ID)	Kata Kunci / Topic	Warna Overlay / Timeline	Kategori Kluster
1	Job Order Costing Focus (UMKM, Custom Order, Harga Jual)	Dark Blue (Tahun Tua / Old Years)	Kluster Inti / Core Clusters (Saturated)
2	Process Costing Focus (Manufaktur Massal, Unit Ekuivalen)	Dark Blue (Tahun Tua / Old Years)	Kluster Inti / Core Clusters (Saturated)
3	Profitabilitas & Alokasi Overhead	Green (Tahun Menengah / Intermediate Years)	Kluster Penghubung / Bridging Clusters (Intermediate)
4	Integrasi Teknologi (ERP, Digitalisasi, Sustainable Cost)	Yellow (Tahun Muda / Emerging Years)	Kluster Perifer / Peripheral Clusters (Emerging)

5. CONCLUSION

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Cloud Accounting software is urgently needed to modernize the accuracy of real-time production cost calculations in the digital industry era to support strategic business decisions

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