

## MANAGERIAL ARTIFACTS AND THEIR EVOLUTIONARY STAGES: ARE THERE INNOVATIONS?

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### ABSTRACT

This study aimed to highlight the managerial artifacts portrayed in the literature as commonly used in management control processes, classifying them as traditional, modern, and innovative. The literature review began with the definition of a search string, which was applied across seven databases indexed in the Capes Periodicals portal. The search process yielded a total of 390 articles, which were filtered and selected through the State of the Art Through Systematic Review (StArt) tool, resulting in 33 articles. Following the analysis of the studies, it was inferred that 42.47% of the artifacts were classified as traditional and 57.52% as modern. Budgeting practices, followed by strategic planning practices, were the most extensively explored in the literature, appearing in 57.57% and 51.51% of the studies, respectively. Methods of cost determination such as Backflush Costing, Life-Cycle Costing, and Target Costing were considered innovative, along with the use of Break-Even Analysis as a performance measure, and Reward Systems and Quality Management as management philosophies. Additionally, a set of artifacts was identified for the integrated informational management of performance, encompassing cost management (27.27%), accounting management (12.12%), financial management (42.42%), and data and information management (33.33%). Overall, the research suggests elements for the proposition of a fifth evolutionary stage of management accounting, focusing on integrated informational performance management through the use of performance indicators.

**Keywords:** Managerial Artifacts. Management Accounting. Controllershship Instrument.

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## 1 INTRODUCTION

In the business environment, information serves as a key differentiator in supporting the decision-making process, contributing to planning, cost reduction, and the development of new products. The implementation of management controls, combined with the use of a management system, enhances organizational performance (Machado et al., 2021). The effectiveness of organizational performance is intrinsically linked to the role of management accounting, as well as the use of controls, artifacts, and managerial practices (Moores & Yuen, 2001; Wahyuni & Triatmanto, 2020). As an organizational framework, management accounting can be understood as a field derived from accounting knowledge, capable of creating, modeling, constructing, and providing controls and information, with a focus on supporting the economic and financial management of organizations (Russo et al., 2022). Reliable accounting information systems enable the improvement of organizational performance through control mechanisms and resource management (Ayodele et al., 2021; Tsahurudu & Carnegie, 2018).

Managerial accounting artifacts can address both operational functions and support planning and decision-making processes (Adu-Gyamfi & Chipwere, 2020; Ahmad & Zabri, 2015; Langfield-Smith et al., 2018; Nuhu et al., 2023). These artifacts are classified as traditional or modern and provide information to support and prioritize strategies, including production cost estimates and process evaluation, thereby enabling organizations to control, plan, and manage outcomes (Chenhall & Langfield-Smith, 1998; Johnson & Kaplan, 1987; Shank & Govindarajan, 1993).

It is also possible to find within organizations management controls that are specific to each company's reality. These controls are established by entities to assist in operational processes, strategic formulations, and the codification of operations, generating information for managers (Jaworski, 1988; Kaveski & Beuren, 2022). Moreover, there are controls derived from cultural processes, values, beliefs, styles, and traditions, which indirectly influence individual behavior and the way operations are conducted or maintained within organizations (Falkenberg & Herremans, 1995; Kaveski & Beuren, 2022; Langfield-Smith, 1997).

Based on this, the guiding question of this study is: which managerial artifacts are portrayed in literature as commonly used in management control processes? The purpose of this study is to highlight the managerial artifacts portrayed in the literature as commonly used in management control processes, classifying them as traditional, modern, and innovative.

This article is justified by the need to clarify the most used managerial artifacts to shed light on the levels of control and the evolution of the processes adopted by organizations. Such alignment enables organizations to make their processes more adaptable and effective in relation to their strategies (Espejo et al., 2009; Souza & Gasparetto, 2020; Chartered Global Management Accounting – CGMA, 2023). From this perspective, research in the field of management accounting is not limited to studies that generate knowledge, but also includes critical analyses of the knowledge produced (Frezatti et al., 2009). Al-Dhubaibi et al. (2023) highlight the relationship between the use of managerial artifacts and the financial and non-financial performance of firms, emphasizing the role of these artifacts in achieving both short- and long-term strategic objectives. Based on this, the approach of this study provides an argument that underscores the specificities of managerial artifacts while considering the opportunities and impacts they may bring to organizations.

Therefore, this study provides a more updated overview of the organizational artifacts currently in evidence and contributes to previous studies, such as Silva et al. (2021), which indicate a delay in the adoption of management artifacts considered modern and belonging to the third and fourth evolutionary stages. This research highlights new managerial artifacts and the use of such

information, aiming to contribute to the literature in the field of management control and to assist managers in understanding and identifying trends in the use of managerial artifacts.

## 2 EVOLUTIONARY STAGES OF MANAGERIAL ARTIFACTS

Management accounting is oriented toward meeting the interests of internal users by providing financial and non-financial information that enables managers to make decisions. Such information can support strategic actions and generate sustainable competitive advantages for organizations (Atkinson et al., 2015). Over the years, managerial controls and artifacts have emerged, capable of producing information and serving as instruments of control and management, thus fostering organizational practices and the decision-making process (Venturini & Carraro, 2020). According to the International Federation of Accountants (IFAC, 1998) and Venturini and Carraro (2020), Management Accounting, or Accounting for Management, comprises four evolutionary stages, each focused on dimensions of organizational relevance:

- (i) The first evolutionary stage, prior to 1950, was oriented toward cost control and financial control. To achieve this objective, it was necessary to use budgetary techniques in conjunction with financial accounting.
- (ii) The second stage, which emerged around 1965, relied on decision analysis procedures and responsibility accounting, with the purpose of providing information for managerial control and planning.
- (iii) Consequently, the third stage arose in the mid-1980s, aiming to reduce resource waste through process analysis methods and strategic cost management.
- (iv) Finally, the fourth evolutionary stage appeared around 1995, focused on creating and generating value through the effective use of resources and technologies, emphasizing information related to customer drivers, shareholders, and organizational innovation.

In each phase or stage of management accounting, specific managerial artifacts are designated or proposed. Since these phases are interconnected, it is not necessary for one stage to end before the next begins, as managerial artifacts are independent and can be applied either continuously or simultaneously (Kruger et al., 2022). The correct use of managerial artifacts is essential for generating information that can effectively contribute to reducing losses and waste, improving resource quality, and creating value for managers, shareholders, customers, and other stakeholders (Venturini & Carraro, 2020).

The evolution of management accounting practices and the changes in the operational environment have given rise to two categories of managerial artifacts: (i) traditional artifacts, which are oriented toward the financial area, more restricted, internal, and short-term in nature; and (ii) modern artifacts, which are broader, strategic, externally oriented, and long-term in nature (Bhimani & Langfield-Smith, 2007; Chenhall, 2003; Nuhu et al., 2023; Oyewo, 2022). Managerial artifacts can support companies and their managers in addressing the competitive challenges of the contemporary environment (Davila & Foster, 2005; Nuhu et al., 2023; Oyewo, 2022).

Table 1 classifies managerial artifacts as traditional or modern and indicates the stages of evolution in which they were introduced.

**Table 1**  
*Classification of management accounting artifacts*

Approach	Focus	1st Stage 1950	2nd Stage 1965	3rd Stage 1985	4th Stage 1995
Costing Methods and Systems	Absorption Costing	Traditional			
	Standard Costing	Traditional			
	Variable Costing	Traditional			
	Activity-Based Costing			Modern	
Measurement and Evaluation Methods and Performance Measures	Target Costing			Modern	
	Transfer Pricing		Traditional		
	Constant Currency		Traditional		
	Present Value		Traditional		
	Return on Investment	Traditional			
	Benchmarking			Modern	
	EVA ( <i>Economic Value Added</i> )				Modern
	Budgeting		Traditional		
	Simulation				Modern
	Decentralization		Traditional		
Management Philosophies and Models	Kaizen			Modern	
	Just in Time			Modern	
	Theory of Constraints			Modern	
	Strategic Planning			Modern	
	Activity-Based Management			Modern	
	Simulation				Modern
	GECON				Modern
	Balanced Scorecard				Modern
	Value-Based Management (VBM)				Modern

Source: Adapted from Soutes (2006).

According to Table 1, it can be observed that the first and second evolutionary stages of management accounting encompass traditional artifacts, while the third and fourth stages introduce the emergence of modern artifacts. Soutes (2006) and Oliveira, Marques, and Cintra (2020) indicate that the classification structure of management accounting artifacts, into traditional and modern, is based on the International Management Accounting Practice 1 (IMAP-1), presented by IFAC (1998).

Soutes (2006) and Oliveira et al. (2020) point out that most Brazilian companies do not use modern artifacts, particularly those classified in the latest evolutionary stage of management accounting. Oliveira et al. (2020) and Kruger et al. (2022) reinforce that both national and international companies predominantly employ management control artifacts classified within the first and second evolutionary stages, considered traditional. However, some companies have also adopted so-called modern artifacts, and their use is linked to organizational maturity and the very evolution of management controls and informational demands within organizations to support decision-making.

The management control system (MCS) can be regarded as an instrument that enables the harmonization of individual skills, actions, and performance with organizational objectives (Cardinal et al., 2017; Kaveski & Beuren, 2022). According to Chenhall and Moers (2015) and Mattos et al. (2023), the MCS represents the set of controls over processes and outputs of organizational activities or information, which can effectively contribute to achieving a company's strategic objectives. The MCS allows for the inspection, monitoring, and control of operations, aiming to manage activities and resources (Sihag & Rijdsdijk, 2019). Another perspective is that the MCS is developed to meet organizational objectives rather than the self-interest of managers or employees, aligning goals and actions with corporate objectives (Giustina et al., 2020; Kaveski & Beuren, 2022; Mattos et al., 2023).

Managerial controls represent the recording mechanisms established within internal processes, which reflect and influence the behavior of groups, individuals, and organizations themselves, with the purpose of supporting operational processes, strategy formulation, and information codification (Jaworski, 1988; Kaveski & Beuren, 2022). The use of managerial artifacts provides information that enhances the management of both short- and long-term strategic objectives (Al-Dhubaibi et al., 2023).

In general, managerial controls can contribute to the management process of organizations by supporting decision-making (Santos et al., 2022) and assisting different companies in their diverse business environments (Kruger et al., 2022). Consequently, the use of different MCS also influences the diversity of managerial artifacts (traditional or modern) adopted by firms (Mattos et al., 2023). Shaik (2023) emphasizes that managerial artifacts continue to evolve as companies face problems that need to be solved, while external environments also drive changes in the way organizations employ managerial artifacts.

### 3 METHODOLOGICAL PROCEDURES

Methodologically, this study is characterized as descriptive, carried out through bibliographic research with a qualitative approach. The construction of the theoretical review on management accounting artifacts began with the selection of the database, which defined the sampling field and resulted in a set of available studies to be considered in the article selection process (Tasca et al., 2010; Ensslin et al., 2010). To represent the data source, the Periodicals portal of the Coordination for the Improvement of Higher Education Personnel (Capes) was chosen as the primary source.

Once the sampling field was defined, the next step was the construction of the keywords, which served as the first filter for article selection. For a study focused on management accounting artifacts, the researchers initially determined the following keywords: “management accounting” AND “management accounting practice” OR “global management accounting principles.” Using terms in each axis and separated by the Boolean connectors “AND” and “OR” the search string was aligned with the purpose of the research under development.

After an analysis of adherence and alignment with the study’s objectives, a new search string was defined as follows: "contabilidade gerencial" OR "controladoria" OR "management accounting" OR "controllership" AND "práticas de contabilidade gerencial" OR "princípios globais de contabilidade gerencial" OR "management accounting practices" OR "global management accounting principles."

With the keywords and databases established, several criteria were applied to select the final set of articles: (i) open access studies; (ii) publications in English, Portuguese, or Spanish; and (iii) the period from 2014 to May 2024. The survey of studies was conducted between June 21. 2024. and June 25. 2024. which constituted the first step in selecting the research portfolio.

**Table 2**  
*Database*

Databases	Number of Articles	Percentage (%)
EBSCO	35	8.97%
Emerald	72	18.46%
SciElo	9	2.30%
Science Direct	87	22.30%
Scopus	90	23.07%
SPELL	46	11.79%
Web of Science	51	13.11%
TOTAL	390	100%

Source: Prepared by the authors.



According to the criteria established, 390 articles were identified across the databases, as shown in Table 2. The articles were downloaded in “RIS” format, which is compatible with the bibliographic portfolio management tool *State of the Art Through Systematic Review* (StArt). This software, developed by the Software Engineering Research Laboratory of the Federal University of São Carlos (UFSCAR), aims to support the application of systematic review techniques (Cerrao et al., 2019). The structure of StArt is divided into three stages: (i) planning, consisting of a search protocol; (ii) execution, involving the inclusion, selection, and data extraction steps; and (iii) summarization, which records the review results.

The protocol adopted followed the structure proposed by Biolchini et al. (2007), which includes: title, researchers, description, objectives, main question, intervention, control, population, results, application, keywords, criteria for source selection, study languages, methods for searching sources, search mechanisms, inclusion and exclusion criteria, and definition of study types.

The inclusion and exclusion criteria for the studies were defined in the protocol embedded within the StArt tool. With the protocol established, the selected studies listed in Table 2 were imported into StArt in “RIS” format. The filtering and selection stage followed the criteria outlined by Biolchini et al. (2007). In other words, the inclusion or exclusion of articles was guided by the protocol. During this stage, the results were as follows: (i) duplicate identification, accounting for 12% of the total 390 articles; (ii) rejection criteria applied as follows: a) score 0 and 3, based on keyword incidence in the title, abstract, and keywords of the articles; b) lack of association with the researched theme; c) not applied in companies; d) systematic reviews; e) publications prior to 2020. These criteria eliminated 294 articles, representing 75% of the total. Consequently, a primary sample of 45 studies was obtained, corresponding to 12% of the portfolio.

The extraction stage included several criteria: (i) objectives; (ii) research question; (iii) methodology; (iv) theoretical framework; (v) results; (vi) conclusions; and (vii) suggestions for future research. To complete all these fields, a full reading of each article was necessary, as the completion of each field formed the extraction form. Following this analysis, 3 duplicate articles (with titles in both English and Portuguese) and 9 articles that did not meet the scope and criteria of the protocol were excluded. The final portfolio thus comprised 33 studies considered relevant, which became part of the study’s bibliographic framework (as listed in the Appendix). These articles were analyzed using content analysis lenses, following the methodology proposed by Bardin (2011):

- (i) Research Strategy: only empirical studies of an applied nature were considered for inclusion in the bibliographic portfolio.
- (ii) Approach to Managerial Artifacts: the managerial artifacts observed by the researchers throughout their studies were analyzed, verifying the identification of traditional, modern, and others considered innovative artifacts.
- (iii) Specificities of Managerial Artifacts: the results presented by each author were analyzed, with attention to the detailed description of the artifacts employed in the studies.

The presentation of the results was structured according to the theoretical framework of Soutes (2006), encompassing the approach, focus, and stages (traditional and modern). Additionally, artifacts not evidenced in the initial model were incorporated into a proposed fifth stage, in which artifacts oriented toward performance management absent from the structure originally presented by IFAC were considered as part of integrated informational management (1998).

## 4 ANALYSIS AND INTERPRETATION OF RESULTS

After the steps presented in the previous section, the bibliographic portfolio was analyzed using the lenses of analysis mentioned, with the aim of summarizing and extracting conclusions regarding managerial artifacts and management control instruments. According to the second and third lenses of analysis, the managerial artifacts reported by each author were allocated to their respective contexts and evolutionary stages. Their classification as traditional or modern was then observed, followed by a detailed examination of the management practices employed.

The literature intuitively presents three main approaches to management accounting artifacts: (i) costing methods and systems, (ii) measurement and evaluation methods and performance measures, and (iii) management philosophies and models. However, additional managerial artifacts were identified that are not included in the construct of the evolutionary stages (as shown in Table 1 of this study). These artifacts are presented in the analysis through a new classification (5th stage), which also introduces a new approach called Integrated Informational Management, as shown in Table 3.

Table 3 presents the classification of studies according to the use of artifacts, considering the evolutionary stages of management accounting. Based on the analysis of the studies and the allocation of artifacts in their respective contexts, it can be inferred that 42.47% of the artifacts are classified as traditional, while 57.52% are classified as modern.

According to the results of the content analysis, as shown in Table 3, it is possible to identify performance evaluation indicators (a set of metrics, indicators, and/or KPIs) that were not highlighted in the original theoretical model of Soutes (2006). Table 3 illustrates cost determination methods such as Backflush Costing, Life-Cycle Costing, Target Costing, and Cost-Volume-Profit Analysis; the use of Break-Even Point as a performance measure; and Reward Systems and Quality Management as management philosophies. Furthermore, the term Integrated Informational Management was introduced to designate the set of artifacts aimed at performance management, representing an informational system that consolidates data and information from cost management, accounting management, and financial management.

Based on traditional and modern artifacts, the development of a fifth evolutionary stage of management accounting was identified, characterized by the integrated use of information generated by managerial artifacts. Table 3 incorporates elements of this fifth stage, referred to as Integrated Performance Management, which introduces new artifacts. These are related to the approach of costing methods and systems (including cost-volume-profit analysis, backflush costing, life-cycle costing, and target costing). Artifacts were also identified under the approach of measurement and evaluation methods and performance measures (Break-Even Point), as well as under management philosophies and models (reward systems and quality management). In addition, a set of artifacts was classified as Integrated Informational Management, comprising indicators and/or KPIs for performance evaluation, which are based on: (i) data and information management, (ii) cost management, (iii) accounting management, and (iv) financial management.

The combined use of these artifacts, often supported by technology, provides valuable information for performance management and evaluation. This integration allows for comprehensive analyses of past operational results while also enabling future projections.

As shown in Table 3, the numerical classification of the studies (as presented in the Appendix of this research) includes the artifacts identified in each study. Subsequently, these artifacts are related to the evolutionary stages of management accounting. Elements not indicated in the initial construct (Table 1), as well as the focus on integrated informational performance management, were considered part of the fifth stage.

**Table 3**
*Definition of management accounting artifacts with their respective stages and approaches*

Integration of management accounting systems with their respective stages and approaches						
Approach	Focus	1st Stage	2nd Stage	3rd Stage	4th Stage	5th Stage
		Traditionals			Moderns	
Costing methods and systems	Absortion Costing	33				
	Activity-Based Costing			13; 17; 19; 20; 21		
	Standard Costing	10; 12; 13; 19				
	Variable Costing	28				
	Cost-Volume-Profit Analysis					9;19;31
	Backflush Costing					21
	Life-Cycle Costing					19;20
Measurement and evaluation methods and performance measures	Target Costing					9; 20; 21
	Benchmarking			11; 13; 21; 25; 30		
	EVA				33	
	Constant Currency		3; 31			
	Return on Investment	19; 22; 28				
	Break-Even Point					3; 10
	BSC				11; 13; 25	
	GECON				25	
	Simulation				26	
	Activity-Based Management (ABM)			11; 13; 17; 19		
Management philosophies and models	Just in Time (JIT)			25		
	Kaizen			21; 25; 33		
	Budgeting		1; 3; 9; 10; 13; 14; 19; 20; 23; 24; 25; 26; 27; 28; 29; 30; 31; 32; 33			
	Strategic Planning			1; 3; 4; 5; 6; 7; 9; 11; 13; 14; 18; 23; 24; 25; 26; 29; 31		
		Reward System				
	Integrated Informational Performance Management	Total Quality Management				
Indicadores de desempenho e/ou KPIs		1; 2; 3; 4; 6; 8; 9; 11; 12; 16; 18; 19; 23; 26; 28; 30; 31; 33		11; 13; 15		1; 7; 13; 15; 17; 19; 22; 27; 30
Total		27	21	38	06	21

Legend: \*the numerical identification of the articles is presented in the Appendix of the paper.  
Note: The insertions highlighted in yellow were made based on the analysis.

Source: Prepared by the authors.



From a more critical and in-depth perspective, Russo et al. (2022) present performance evaluation measures as managerial artifacts. Based on their study, it can be inferred that these include budget reports and the accounting management of information, underscoring the importance of adopting accounting guidelines and their operationalization, as well as the influence of such guidelines on results. This justifies the relevance of managing accounting information for performance evaluation. Ayodele et al. (2021) also emphasize accounting management artifacts as mediating tools that provide benefits to organizations, particularly since they involve the accounting information system (AIS), which encompasses the processes and techniques of data collection, classification, recording, processing, analysis, and interpretation of resources within entities.

In this regard, it can be concluded that integrated informational performance management represents a new approach within management accounting, composed of performance indicators and/or KPIs derived from the set of management data and information, including cost management, accounting management, and financial management information. As detailed in Table 4, key performance indicators observed in the studies are highlighted.

**Table 4**

*Breakdown of integrated informational performance management through indicators and KPIs*

Integrated Informational Performance Management	
	<p><b>i) Data and information management:</b> Budget Report (1); Reward System (7); Non-financial indicators [customer satisfaction, number of returns, average customer service time, daily sales volume, employee satisfaction, absenteeism] (15;19;30); Competitor Performance Report (17); Benchmarking Reports (17); Integrated Performance and Measurement Report (17); Competitive Position Monitoring (17;19); Reports on operating profit, sales growth, variance analysis, gross profit margin, cash flow, on-time delivery, sales/direct labor (22); Financial Measures [revenue, profit margin] (30); Break-Even Point (3;10); Economic Value Added [comparison between company profitability and financial investment returns] (30); Total Quality Management (11;13;15).</p>
Gestão informacional integrada de desempenho (Indicadores e/ou KPIs)	<p><b>ii) Cost Management:</b> Cost-Benefit Analysis (13); Value Chain Analysis (11;13;17); Customer Lifetime Analysis (17); Cost-Volume-Profit Analysis (9;19;31); Backflush Costing (21); Life-Cycle Costing (19;20); Target Costing (9;20;21); Product Profitability Analysis (27).</p> <p><b>iii) Accounting Management:</b> International Financial Reporting Standards – IFRS (1); Tax Legislation (1); Internal Accounting Policies (1); Accounting Information System (8); Bookkeeping [accounting and tax] (26;28); Consolidation of Financial Statements (28); Disclosure of Accounting Information (28); Balance Sheet Analysis (28); Tax Guidance (28); Tax Planning (28); Tax Management and Control (28).</p> <p><b>iv) Financial Management:</b> Financial Availability (1); Receivables Management (1); Accounts Management (2); Cash Flow (3;16;28;31); Leverage (4); Return on Assets – ROA (4); Financial Strategy (6); Customer Profitability Analysis (17;19;27); Financial Statements (18); Contribution Margin (31); Product Profitability (31); Product Profitability Analysis (31); Financial Control and Evaluation [cash flow projections, sales projections, operating budget, cost analysis by customer type, financial performance analysis against pre-established targets, capital investment approval procedures, and operating expense approval procedures] (28;30;33).</p>

Source: Prepared by the authors.

It can be observed that there is an integrated use of information derived from managerial artifacts. In this regard, the authors propose the focus of the fifth stage of management accounting, referred to as Integrated Informational Performance Management. Assuming that organizational

continuity is a fundamental objective, it is important to highlight that the diversity of controls is associated with adaptation measures, which involve the capacity for innovation and learning (Cardinal et al., 2017; Mattos et al., 2023). From another perspective, the study by Al-Dhubaibi et al. (2023) shows that performance management allows for the identification of non-financial measures, such as customer-related indicators. Thus, the study reveals the evolution of managerial artifacts over the timeline illustrated in Figure 1, aligning organizational needs with their purposes.

There is evidence that all managerial artifacts serve the interests of internal users, with managerial skills positively influencing organizational performance. However, studies do not always confirm a clear alignment between the use of artifacts and their relationship with organizational performance (Mattos et al., 2023). From this perspective, the results of the study highlight the breadth of performance management measures, encompassing managerial artifacts that combine traditional and modern controls related to cost management, accounting management, and financial management, generating indicators for integrated informational management.

Among all the artifacts, budgeting and strategic planning stand out, appearing in 57.57% and 51.51% of the studies, respectively. These artifacts belong to the third approach, identified as Management Philosophies and Models. Next, studies emphasizing performance evaluation artifacts gained relevance, considering the perspectives of cost management (27.27%), accounting management (12.12%), financial management (42.42%), and data and information management (33.33%). These encompass the artifacts included in the proposed fifth stage of Management Accounting, according to the analysis of this content.

Following the identification of the predominant characteristics of the examined studies, a new stage (the fifth stage of management accounting) was proposed, based on the developments observed in the literature (presented in Table 3). The analysis demonstrates the use of managerial information to support decision-making, particularly regarding the adoption of modern artifacts that provide strategic insights. These were shown to correspond with the modern evolutionary stages of management accounting, corroborating the findings of Kruger et al. (2022).

In the context of modern artifacts, accounting organizations are increasingly familiar with providing various scenario simulations and strategic planning (Venturini & Carraro, 2020). Nonetheless, this study emphasizes that literature predominantly focuses on practices related to budgeting and strategic planning artifacts. Regarding the recognized and applied artifacts, traditional ones remain present, although modern artifacts have gained strength over time, as is the case with strategic planning, linked to the third stage (Santos et al., 2018). As for the second stage, budgetary control stands out as the most prominent and widely discussed artifact (Venturini & Carraro, 2020).

In summary, the study presented an overview of management control artifacts reported in the literature and the findings drawn from empirical studies, which, for the most part, analyzed the correlation of theories or other variables influencing the use of managerial artifacts. The overall purpose was to demonstrate how these influences benefit the organizational context and contribute to the business management process.

## 5 FINAL CONSIDERATIONS

Based on the relevance of advancing academic research on management accounting artifacts, this study aimed to highlight the managerial artifacts portrayed in the literature as commonly used in management control processes, classifying them as traditional, modern, and innovative.

To achieve this objective, a “State of the Art” review on the topic was developed, grounded on premises that included targeted searches in selected databases and the application of defined

selection criteria. Regarding the analysis of the studies, the content analysis of the final portfolio revealed that budgeting and strategic planning practices were the most frequently used managerial artifacts in the studies reviewed. With respect to the evolutionary stages, the third stage was found to be the most prominent, followed by the first stage.

The study contributes to the literature by suggesting a fifth stage of management accounting, composed of performance evaluation indicators (a set of metrics, indicators, and/or KPIs). These include cost determination methods such as Backflush Costing, Life-Cycle Costing, Target Costing, and Cost-Volume-Profit Analysis; the use of Break-Even Point as a performance measure; and Reward Systems and Quality Management as management philosophies. In addition, a set of artifacts aimed at integrated informational performance management was identified and designated as innovative management methods, representing a data framework that consolidates information from cost management, accounting management, and financial management.

In terms of practical contributions, the study sheds light on trends toward the integrated use of managerial artifacts, particularly in the development of integrated informational performance management. This approach consolidates integrated management information and indicators from cost management, accounting management, and financial management.

Overall, the research supports and expands the literature by proposing the fifth evolutionary stage of management accounting, identified through the integrated use of artifacts observed in the study. These artifacts form the basis of integrated informational management, with indicators designed to monitor and evaluate organizational performance, including cost, accounting, and financial information. The findings are limited to the analysis of the bibliographic portfolio as the basis for suggesting the fifth stage of management accounting. In this regard, the use of sustainability indicators and artificial intelligence systems could be investigated as complementary avenues. For future research, it is recommended to explore the evolution of management control artifacts over longer timeframes, since this study was limited to the past five years of literature, as well as to consider business practices and managerial perceptions in order to identify additional management controls.

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## APPENDIX – Final Bibliographic Portfolio

Items	Titles	Authors
1	Understanding the deliberation practice in a controllership from the performative judgement perspective.	Russo, P. T., Leandro, J. R., Borinelli, M. L., & Souza R. P. (2022).
2	Influence of account receivable management practices on the performance of small and medium scale enterprises.	Sah, G. G. (2022).
3	Practices of management accounting adopted by innovative companies.	Souza, F. F. & Gasparetto, V. (2020a).
4	Global management accounting principles: relationship between management practices and the performance of Brazilian companies.	Costa, I.L.S. & Lucena, W.G.L. (2021).
5	Management accounting practices among Vietnamese small and medium enterprises.	Bui, N.T.; Tu Le, O.T. & Nguyen, P.T.T. (2020).
6	The global management accounting principles (GMAP) and the relationship between organizational design elements.	Oyewo, B.; Taurigana, V.; Omikunle, B.M. & Owoyele, O. (2022).
7	The effect of the organizational change on company performance mediated by changes in management accounting practices.	Wahyuni, N. & Triatmanto, B. (2020).
8	Knowledge management and organizational performance: The neglected role of institutional accounting practices.	Ayodele, O.F.; Yao, L.; Haron, H.B. & Eaw, H.C. (2021).
9	Supply chain management strategies, management accounting practices and firm's growth.	Waked, S. S.; Aljaaidi, K. S. & Alanazi, I. D (2023).
10	Management Accounting Practices and Organizational Performance.	Dahal, R. K. (2022).
11	The contemporary management accounting practices adoption in the public industry: Evidence from Jordan.	Rumman, G.A.; Alkhazali, A.R.; Barnat, S.E.; Alzoubi, S.; Alzagheer, H.; Dalbough, M.A.A.; Alibraheem, M.H.; Ahmad, A.Y.A.B. & Darawsheh, S.R. (2024).
12	The relationship between cost system functionality, management accounting practices, and hospital performance.	Kludacz-Alessandri, M. (2020).
13	The effect of traditional and contemporary management accounting practices on organisational outcomes and the moderating role of strategy.	Nuhu, N.A.; Baird, K.; & Jiao, L. (2023).
14	Management accounting practices and efficiency in a Colombian multi-utility conglomerate.	Álvarez, C. B.; Adhikari, P. & Gómez Mejía, A. (2021).
15	The association between management accounting advancement and corporate performance: an application of IFAC conception for management accounting evolution.	Al-Dhubaibi, A.A.S.; Sanusi, Z.M.; Hasnan, S. & Yusuf, S.N.S. (2023).
16	How management accountants purposefully create cash flow forecasts in capital budgeting: a field study of product development decisions.	Wouters, M. & Stadtherr, F. (2024).
17	Intellectual capital and investment efficiency: The mediating role of strategic management accounting practices.	Thien, T.H. & Hung, N.X. (2023).
18	The role of multiple values in developing management accounting practices in hybrid organizations.	Campanale, C.; Cinquini, L. & Grossi, G. (2021).
19	The impact of SMES characteristics on management accounting practices: Evidence from the state of Amazonas.	Barreto, C. Z. & Brás, F. A. (2023).

20	The intensity of the use of management accounting systems under Industry 4.0 conditions. Confirmation from Poland.	Piosik, A. (2022).
21	Firm culture and management accounting practices among manufacturing firms in Nigeria.	Ogungbade, O. I. & Oyerogba, E.O. (2020).
22	The Impact of Contingency Factors on Management Accounting Practices in Vietnam.	Pham, D.H.; Dao, T.H. & Bui, T.D. (2020).
23	Cost and Management Accounting in Budget-Funded Organizations in Bósnia and Herzegovina.	Veledar, B; Gadzo, A. & Lalic, S (2020).
24	Management accounting adoption in small businesses: interfaces with challenges and performance.	Ylä-Kujala, A., Kouhia-Kuusisto, K., Ikäheimonen, T., Laine, T., & Kärri, T. (2023).
25	Práticas da contabilidade gerencial, qualidade e desempenho no contexto de um monopólio natural.	Correia, E.E., Lima, A., & Ching, H.Y. (2020).
26	Estágio evolutivo da contabilidade gerencial em organizações contábeis de natureza jurídica Eireli no município de Porto Alegre – RS.	Venturini, L.D.B. & Carraro, W.B.W.H. (2020).
27	Innovative organization dimensions and the adoption of modern management accounting practices	Souza, F. F. & Gasparetto, V. (2020b).
28	Relação da cultura organizacional com as práticas de controle gerencial em empresas de gestão familiar.	Machado, F. T.; Theiss, V. & Lavarda, C.E.F. (2021).
29	Estudo sobre a usabilidade das práticas de contabilidade gerencial mais intensamente usadas em empresas que atuam no Brasil.	Souza, R P; Russo, P T & Guerreiro, R (2020).
30	Práticas de contabilidade gerencial e cultura nacional: um estudo com pequenas e médias empresas chinesas instaladas no Brasil.	Souza, I. B., & Wanderley, C. A. (2021).
31	Práticas de contabilidade gerencial no terceiro setor: o desafio da gestão eficiente.	Innocenti, R. & Gasparetto, V. (2021).
32	Fatores contingenciais organizacionais e individuais e práticas gerenciais: um estudo à luz dos princípios globais de contabilidade gerencial.	Siqueira, D.D. & Lucena, W.G.L. (2023).
33	Isomorfismo institucional na adoção das práticas de contabilidade gerencial nas cooperativas agropecuárias.	Meyr, C.E. & Carpes, A.M. da S. (2023).

Source: Prepared by the authors.

## CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding this submitted work.

## AUTHOR CONTRIBUTIONS

Roles	1st author	2nd author	3rd author
Conceptualization	♦		
Data Curation	♦	♦	
Formal Analysis	♦	♦	♦
Funding Acquisition			
Investigation	♦	♦	
Methodology	♦	♦	
Project Administration		♦	
Resources	♦	♦	
Software	♦	♦	
Supervision		♦	
Validation		♦	♦
Visualization		♦	♦



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Writing – Original Draft	♦	♦	
Writing – Review and Editing	♦	♦	♦