



History of Management Accounting and New Insight of Islamic Balanced Scorecard

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ABSTRACT

This paper describes the history of management accounting from the ancient era, the medieval era to the era of predictive analysis. The modern accounting and cost management system that we know today is a product of a previously implemented system because of the close relationship between the current system and the previous system. This study uses a qualitative approach because it describes the history and development of management accounting, the relevance of management accounting, and provides new insights on the Islamic BSC concept. The findings of this study reveal that current management accounting practices such as just-in-time, target costing, activity-based costing, value-added management, and zero-based budgeting are no longer able to serve increasingly complex managerial needs. The development of management accounting is currently strongly influenced by the rapid development of information technology, including artificial intelligence and blockchain. This article also describes new insights regarding the concept of the balanced scorecard in an Islamic perspective based on four basic principles, namely brotherhood (*ukhuwah*), justice (*'adalah*), benefit (*maslahah*), and balance (*tawazun*).

Keywords: History of Management Accounting, Ancient Era, Medieval Era, Era of Predictive Analysis, Islamic Balanced Scorecard

INTRODUCTION

Management accounting is one of the fields of accounting that deals with appropriate concepts and methods in processing past economic data and making future projections of a business to assist management in preparing company plans (goals) and making decisions to achieve these goals (Kautsar Riza Salman & Farid, 2017). Management accounting practices help companies to survive in the midst of increasing business competition and changes in the business world. Management accounting practices provide an important competitive advantage for companies because they provide direction in managerial actions, motivate behavior, support and create cultural values needed to achieve the organization's strategic goals. Management accounting is associated primarily with management's need to perform performance evaluations, make future estimates and make business decisions.

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Good management accounting information according to Sharkar, Sobhan, and Sultana (2006), has three attributes which include: technical, behavioral and culture. Technical means that management accounting information can improve understanding of the phenomena measured and provide information relevant to strategic decisions. Behavior means that management accounting information can encourage actions that are consistent with the organization's strategic objectives. Culture means that management accounting information can support or create cultural values, beliefs, and mindset in the organization and society.

Management accounting is expected to be able to provide good information to its users as described by Sharkar et al. (2006). However, the results of the study indicate that there is a gap that arises between the role of management accounting professionals and society's expectations of management accounting professionals. This gap has been fully explained by H Thomas Johnson and Kaplan (1987), with the term management accounting having lost its relevance.

The discussion of this article consists of several parts. The first part of this article describes the phase of the development of management accounting, which is quoted from an article written by Sharkar et al. (2006), and Cokins (2016), which describes the division of management accounting practices from time to time which later became the basis for writing the next sub-section. The second section describes management accounting practices in the ancient era before 1494, the year the book was written by Lucas Paccioli. The third section describes the medieval era, which occurred in the 15th century to show the formation of industrial accounting. The fourth section describes the management accounting practices that occurred until the 19th century, where a number of researchers believed that in this era there was development that was very important in cost accounting. The fourth section describes management accounting practices in the 20th century, which were divided into practices before and after 1950. The third and fourth sections of this article are quoted widely in books written by H Thomas Johnson and Kaplan (1987), articles from Sharkar et al. (2006), Cokins (2016), Rikhardsson and Yigitbasioglu (2018), Yook (2019), and Warren Jr, Moffitt, and Byrnes (2015). The fifth section outlines new insights on the Islamic Balanced Scorecard, a BSC concept based on four sharia principles.

METHODOLOGY

This paper uses a qualitative approach in the form of a bibliographic approach to better understand the history of management accounting in the past, current management accounting practices, and the latest concept of the balanced scorecard from an Islamic perspective. The methodology used refers to Berg and Madsen (2020), where this paper attempts to unify the mosaic picture by synthesizing existing research on the history of management accounting from various academic and practitioner-oriented sources. The novelty of this paper is that it reveals the original idea of the Islamic Balanced Scorecard concept as explained at the end of the paper.

Development Accounting Management Phase

The evolution of management accounting as explained by Shotter (1999), is divided into five stages of development, namely: (1) the initial period of cost accounting until 1880 (early 1880); (2) scientific management period from 1880-1914; (3) period of two world wars (1914-1945); (4) period after World War II (1945-1970); and (5) the period after 1970. The disadvantage of the development phase according to Shotter (1999), is that it did not separate the initial period of cost accounting until 1880 into the period before and after the book published by Lucas Paccioli with its book-entry bookkeeping in 1494. In the 14th century this gave great progress in the world of accounting at that time. Other researchers such as Cokins

(2016), separate management accounting practices before and after the 15th century precisely by using 1494 as a split-off year.

According to Cokins (2016), the development of management accounting is divided into 6 eras, namely ancient era, medieval era, industrial era, regulatory compliance era, customer era, and the era of predictive analysis. Distribution according to Cokins (2016) is the basis of systematics in writing this article. Nevertheless, based on consideration by looking at several other articles, the development phase of management accounting according to the author is divided into four phases that need to be explained, namely the phase / era of ancient BC to the 15th century, 15th century era (medieval era), the early 19th century era, and 20th century era. The early 19th century era was known as the industrial era, while the 20th century era known as the predictive analysis era was divided into two, namely the era before and after 1950. So there are four eras that will be discussed in the next discussion.

Management Accounting Practices in the Ancient Era

In the period before the Industrial Revolution, economic progress was mainly in the Middle and East (Shotter, 1999). The description of management accounting practices in the ancient era is based on articles written by Shotter (1999).

Some of the oldest business records date back to the Chaldean Babylonian, Assyrian and Sumerian civilizations. Various types of small business and industrial services were established and the oldest records are known from commercial documents dated 3,500 BC (Shotter, 1999). In Babylon, the formal legal code requires making notes. The most famous is the Code of Hammurabi, which requires that agents who sell goods to traders must provide a memorandum quoting prices to traders. All of these records are stored on clay tablets (Shotter, 1999). From the existing practices, we can find out that 3,500 BC of the community at that time had used evidence or documents for the transactions they carried out despite their limited form, function and uses.

In Egypt, the introduction of papyrus as the writing surface makes writing less practical and permits wider use of supporting documents. Despite initial progress compared to before, development has almost stagnated for several thousand years (Shotter, 1999). This stagnation is likely due to the inability of the community at that time to express goods in monetary units, which are related to measurement.

During the Chao dynasty in China (1122-256 BC), accounting reached the peak of its sophistication which barely increased before it came to the introduction of the double entry technique. The Chaos Dynasty at that time, had used coins, and developed the concept of financial administration and accountability which was the development of the previous dynasties, the Hsia Dynasty (2206-1766 BC) and Shang Dynasty (1766-1122 BC) (Shotter, 1999). Money was created in Greece around 630 BC. One of the oldest and largest records of the accountability accounting system was maintained by Zenon, manager of a private estate and finance minister of Ptolemy II in 256 BC. Each supervisor from the estate sector must create an account for all transactions. These accounts are summarized and audited regularly. This accounting system spread throughout the Mediterranean and the Middle East and was later adopted and modified by the Romans. The essential purpose of this accounting system is the owner's protection (Shotter, 1999). During the period up to 256 BC, management accounting reached its peak in excess of the previous period because at that time an accountability center had been developed and the recognition of audits of financial statements was still very simple. Similarly, the protection of owner rights through the adoption of an accounting system has been carried out.

Ancient management accounting practices are also found in India as found by Murthy and Rooney (2018). Management accounting practices have been applied at the organizational level in ancient society termed the Mauryan period (322-185 BC). Economic and ethical enforcement has been applied to the behavior of figures in the daily life of the Maurya organization so that every actor in the organization adapts socially acceptable values and norms.

However, none of the ancient forms are able to provide assistance for decision making or cost accounting. Until the Industrial Revolution, fixed records made it impossible to separate costs based on product lines and did not separate costs based on capital expenditure and revenue expenditure. This results in an inability to estimate product profitability, capital investment, or an increase in labor investment (Shotter, 1999). The limitation of the practice that developed at that time was the absence of the impact of management accounting on decision making, and the absence of a separation between revenue expenditure and capital expenditure. Furthermore, after the ancient era ended, it was continued by the medieval era in the 15th century.

15th Century Era (Medieval Era)

In the Medieval era, there was a pile of precious metals and paper money, so this phenomenon prompted the publication of a book written by Lucas Paccioli in 1494, an Italian mathematician entitled "Summa de Arithmetica, geometria, proportioni et proportionalità". The book is related to Hindu-Arabic Arithmetic and its algebra branch, and the treatise contains 27 pages of Venesian accounting that explain double-entry bookkeeping.

The Industrial Revolution gained momentum between 1760 and 1830 which arose mainly due to technical inventions that reformed the manufacturing world. The invention included a steam engine by James Watt in 1765, Jenny's spinning by James Hargreaves between 1764 and 1767 and spinning frames by Arkwright in 1768 (Ashton 1948). During this period, in the UK the country also faced obstacles to sharp growth in its population, wider use of capital, and rural conversion. In the United States as an impact of the Industrial Revolution was not marked directly by the obstacles as happened in England. Although there is an indirect influence on the economy in the US, the factors that have a tremendous influence are the emergence of trains and telegraphs around 1840 (Shotter, 1999). In the 18th century, textile mills, railroads, and steel mills had developed measures such as calculating cost per yard of fabric, cost per pound of spun cotton, cost per gross tonne-mile and cost per passenger mile in order to carry out internal efficiency assessments (Rajeevan, 2019).

After 1840 and especially the period 1850-1860, the railroad and telegraph industry revolutionized traditional ways of their production and distribution. Coal provides cheap and flexible energy resources that allow trains to provide fast, regular and reliable transportation, transportation that is essential for production and distribution volume (Shotter, 1999). Innovation technology, increased per capita income, and rapid growth of the population increase the complexity of existing production and distribution processes and increase transaction volume and speed. Existing market mechanisms are often unable to coordinate these transactions effectively. This creates a need for administrative coordination. To overcome this need entrepreneurs, form large multi-unit organizations and appoint managers to take care of them.

Furthermore, in the period 1850 to 1915, Kaplan (1984), examined the development of cost accounting and managerial control practices and assessed their relevance to the changing nature of industry competition in the 1980s. During this period, several companies such as The DuPont Corporation in 1903 and General Motors in 1920 made major innovations in decentralized operations management control, including the use of return on investment (ROI)

for performance evaluation, formal budgeting, and incentive plans. More recent developments in the late 18th or early 19th centuries have included discounted cash flow analysis and the application of management science and multi person decision theory models. Kaplan (1984) also finds that cost accounting and management control procedures developed more than 60 years ago for the mass production of standard products with a high direct labour content may no longer be appropriate for contemporary organizational planning and control decisions.

Management Accounting Practices in the 19th Century (Industrial Era)

Management accounting is not something new in the world. The origins of modern management accounting can be traced to the emergence of successful management accounting practices in hierarchical companies in the early 19th century (Johnson & Kaplan, 1991). The Industrial Revolution in the early nineteenth century resulted in the emergence of factory systems that dramatically changed the production process (Sharkar et al., 2006). Accounting practice in this century has become more modern because management accounting is applied to hierarchical companies and there has been a dramatic change in the factory system from the past.

This industrial era is also known as the era of standard costs because in this era standard costing methods were developed. A German civil engineer working in the US named Albert Fink calculates the cost per tonne/mile rate for the rail industry using cost allocations. During this period of time, several engineers headed by F.W. Taylor developed a standard costing mechanism (Cokins, 2016; Rajeevan, 2019). Standard costing at that time was carried out by civil engineers in the railway industry, not by accountants because they were considered to have more expertise in terms of both technical and cost allocation than accountants.

The impact of the Industrial Revolution was the rapid emergence and growth of the railroad industry in the mid-19th century. This was a major force driving the development of management accounting systems. New measures such as cost per ton-mile, cost per passenger mile, and ratio of operating costs to income are created and reported on the segmental and regional basis. Many innovative management accounting measures were developed by railroad companies which were then absorbed and developed by other business sectors (Johnson & Kaplan, 1991). From this we can find out that the development of a method or measurement tool that was initially applied to the railroad industry can then also be applied to other industries by making several adjustments.

During the 19th century, the development of so-called scientific management had resulted in further progress in management accounting. Management accounting experts have developed new cost accounting procedures to evaluate and control the efficiency of physical, financial and process tasks in complex machine-making companies and to assess the overall profitability of the company (Johnson & Kaplan, 1991). In this century, a method of assessing the performance of the company's profitability has been developed.

Management Accounting Practices in the 20th Century (Predictive Analysis Era)

The development of management accounting practices in the 20th century according to some researchers can be divided into two, namely the decade before and the decade after 1950. In the early decades of the twentieth century before 1950, a wave of mergers in the United States resulted in the emergence of giant vertically integrated organizations and multi-organization division. This multi-activity company develops a centralized unitary organizational structure where operations are broken down into separate divisions, each division carries out special activities. New management accounting techniques are designed to support these diversified multi-activity organizations. In this decade, also developing budget planning and

control systems to ensure that diverse activities are carried out by different divisions that are aligned with the overall objectives of the company.

In addition, return on investment (ROI) is designed to measure the success of each division and organization as a whole. The diversity of markets, products, scale and complexity of the production process in multi-activity companies creates enormous information processing problems. This has resulted in the difficulty of top management to function efficiently and effectively in all markets served by their organizations (Sharkar et al., 2006). During this time, DuPont Corporation developed the practice of examining the components of the cost ratio to identify the root causes of cost variations that are detrimental to the company. This practice is still applied to modern companies today (Rajeevan, 2019).

In the 1930s it was also known as the era of regulatory compliance where at that time it was marked by a major depression in the US which resulted in regulatory reforms to protect investors from shady financial reporting practices. On the one hand, returning to management accounting because reforms set simple rules for calculating the value of inventories and cost of goods sold, but the overhead allocation method is misleading because it is based on cost factors that violate the principle of causality (Cokins, 2016). The solution to some of the problems that occurred before the 1950s was that companies decentralized and created accountability centers where each responsibility center was evaluated according to the type of responsibility center. The responsibility center includes revenue center, cost center, profit center and investment center.

Subsequent developments in management accounting after 1950 are explained by Sharkar et al. (2006). Cost accounting and management accounting innovations in the 1950s can be identified through discounted cash flows, total quality management, cusum charts, and optimum transfer prices. In 1960, innovation in cost accounting and management accounting was identified through computer technology, budgeting for opportunity costs, zero-base budgeting, decision trees, and management by objectives (MBO). While cost accounting and management accounting innovations in the 1970s can be known through information economics and agency theory, just-in-time scheduling, business unit strategies, experience curves, portfolio management, material resource planning, diversification, matrix organization, and product repositioning.

Furthermore, the development of management accounting has stagnated. This condition is due to the development of accounting and auditing standards, the preparation of formal financial statements, the emergence of the stock market and regulatory requirements for issuers. In addition, it was also due to the effects of the oil shock and stagflation in the 1970s (Rajeevan, 2019). However, the public's demand for high-quality products and services at low prices has resulted in an increasing need for management accounting so that companies remain competitive.

The use of activity-based costing, target costing, value added management, theory of constraints, vertical integration, private labels and benchmarking are cost accounting and management accounting innovations in the 1980s. During this period, it was also known as the era of consumers or customers, so the concept of Activity-based Costing (ABC) emerged. However, Berg and Madsen (2020), revealed that although the ABC model has developed, expanded and has produced new concepts, many studies show that ABC is not as successful as other management accounting concepts such as the balanced scorecard. Currently, the popularity of activity-based thinking such as ABC is declining and is currently not receiving much attention in management accounting journals.

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In the 1980s precisely in 1987, published a book written by H Thomas Johnson and Kaplan (1987), entitled "Relevance Lost: The Rise and Fall of Management Accounting" where the book documents the needs and benefits of upgrading the practice of charging costs pool with single and non-causal allocation factors into multiple cost pool with causal related factors (Johnson & Kaplan, 1991). Management accounting has undergone changes in management accounting techniques and focuses on the way in which management accounting is used (Kamal, 2015).

Furthermore, management accounting innovations such as business process engineering, functional quality deployment, outsourcing, gainsharing, core competencies, time-based competition and learning organizations can be found in the 1990s. In the era of predictive analysis, there was a shift in emphasis from traditional to predictive in terms of strategic and operational views. With cost projections, organizations can translate their plans and actions into monetary terms for the purpose of evaluating and / or validating decisions (Cokins, 2016).

In the 1980s and 1990s, it was found that traditional management accounting practices were no longer able to serve managerial needs. This condition is caused by global environmental factors, rapid technological advances in products and processes, fluctuations in exchange rates and raw material prices as the cause of the traditional management accounting system is not able to provide accurate and timely information. Product costing is more accurate, more useful and able to explain the use of inputs in detail, in the period needed to enable managers to improve quality, productivity, and reduce costs. In response to cost accounting weaknesses In traditional management, various efforts have been made to develop a new management accounting system that can meet the needs of today's economic environment. In the end, more flexible approaches emerged such as Just-in-Time (JIT), Total Quality Control, and product life cycles that shorten product life and computer-integrated manufacturing (Johnson and Kaplan, 1991).

Management Accounting Practices in the 21st Century

In the 21st century, there has been significant development of management accounting because it was triggered by the economic crisis conditions at that time (Endenich, 2014). This fact was found in several companies in Germany and Spain that experienced changes in management accounting practices due to the economic crisis at that time. The budgeting process is increasingly being carried out continuously compared to conditions before the crisis. Empirical evidence also shows that the development of a management accountant's position is getting stronger in the company's decision-making process and the image of a management accountant is better than before.

Rashid, Ali, and Hossain (2020), find that strategic management accounting in the 21st century has been adopted differently in developed and developing countries. In developed countries, practices that are widely adopted by companies are management accounting techniques that focus on competitors and customers, strategic pricing, and benchmarking with moderate to high adoption rates. However, most of the techniques studied are experiencing low adoption rates in some developed countries. In addition, it was also found that some of these techniques cannot replace traditional management accounting practices, but are used only as complementary tools. But the practice of strategic management accounting in developing countries is still very minimal. From the study, it was also revealed that there was a significant positive effect of the use of strategic management accounting on several aspects of company performance for both developed and developing countries.

In this century, thinking about the role of management accounting has developed in reducing negative impacts on the environment. The development of management accounting leads to a concept known as the environmental management accounting. Tran, et al. (2020)

found that many companies in Vietnam have implemented environmental management accounting to reduce production costs, react to environmental concerns, and comply with laws, procedures and processes in the work environment in which they do business.

The development of management accounting in this century is very drastic compared to the previous decade due to the development of information technology, including business intelligence and big data analytics in management accounting (Rikhardsson & Yigitbasioglu, 2018), artificial intelligence-based balanced scorecard (Yook, 2019), and blockchain-based numeric cards (Warren Jr et al., 2015).

One of the developments in information technology is the existence of big data. This big data has enormous implications for companies and users of accounting information in various fields of accounting science, including management accounting. Various types of big data including video and image data, audio data, and textual data can serve as a complement from existing accounting records (Warren Jr et al., 2015). Accounting information is currently widely available through Big Data so that it can result in better accounting practices. In a complex and high-volume data environment, the use of technology and big data analytics will offer greater opportunities to all areas of accounting, including management accounting.

Besides big data, a very significant role is artificial intelligence (AI). The functions that AI performs are machine learning and deep learning, which allow users to process large amounts of work in very short periods of time, using significantly increased computer processing capabilities (Yook, 2019). In the world of accounting education, e-learning has now been widely used by many universities. In manufacturing, AI enables faster, higher-level analysis and utilization of accounting data, and faster reporting of results linked to management strategy and other strategic decisions. Yook (2019), revealed that AI also functions to detect fraudulent transactions, suspect irregularities or mistakes early on, and identify and fix them first before problems occur.

New Insight of Islamic Balanced Scorecard (IBSC)

Currently, Islamic accounting is also growing rapidly and gave birth to sharia accountants who are guided by the principles of Islamic law. Islamic accountants also carry out basic accounting functions and also aim to improve work efficiency and effectiveness and the results of their work in real-time. In his study, Arwani (2020), reveals that the industrial revolution also poses challenges to Islamic accounting, including the provision of financial and non-financial information based on information technology, as well as the accountability of financial statements in accordance with Islamic accounting standards as the main basis for policy makers.

In addition to financial accounting, management accounting is also colored by the existence of Islamic accounting. The emergence of Islamic management accounting ideas and concepts cannot be separated from several aspects including halal industry and products, halal product and process certification, and sharia accounting information systems. New insights regarding the concept of Islamic management accounting are based on one of the principles in sharia transactions, namely balance (tawazun), where companies are not only profit-oriented but also benefit or benefit the people. This concept is actually in line with the concept of a balanced scorecard (BSC) which was initiated by Kaplan and Norton (1996).

The Balanced Scorecard (BSC) translates an organization's mission and strategy into a comprehensive set of performance measures that provide a framework for strategic measurement and management systems. BSC measures organizational performance in four perspectives, namely financial, customer, internal business processes, and learning and growth (Kaplan & Norton, 1996). The principle of expediency of the BSC is in line with the principle of

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expediency in the concept of Islamic management accounting, where the BSC allows companies to track their short-term financial performance while at the same time providing satisfaction to customers, as well as providing benefits to employees.

New insights on Islamic BSC still refer to the four perspectives in Kaplan and Norton (1996), based on four sharia principles. These four principles are the basic principles in all sharia transactions. Sharia transactions are based on the principles of brotherhood, justice, benefit, balance, and universalism (K. R. Salman, 2020). The first sharia principle is the principle of brotherhood (*ukhuwah*). The principle of brotherhood has universal values that regulate social interaction and harmonization of the interests of the parties for the general benefit in the spirit of mutual help. This principle upholds the value of togetherness in sharing economics so that one person should not benefit at the expense of others. This principle can be applied to interactions between companies and customers, companies and employees, companies and investors, where these interactions provide mutual benefits and benefits for all parties.

The second sharia principle is the principle of justice. The principle of justice means always putting something only in its place and giving something only to those who are entitled and treating things according to their position. The implementation of justice in business activities is in the form of the principle of *muamalah* which prohibits injustice that can harm employees and customers, as well as the existence of unlawful elements in the production of goods and services. In the internal business process, the company must not produce goods and services that are forbidden and the production process itself must be free from haram elements. The principles of justice and halal are upheld by companies that implement Islamic BSC.

The third sharia principle is the principle of benefit. All forms of goodness and benefits that are worldly and hereafter, material and spiritual, as well as individual and collective are the core of the principle of benefit. The company's business processes and products must meet two conditions, namely: sharia compliance (*halal*) as well as useful and bring goodness (*tayyib*) in all aspects as a whole that does not cause harm. Companies must be of the view that their production processes and products are not only halal, but also beneficial to customers.

The fourth sharia principle is the principle of balance (*tawazun*). The principle of balance includes the balance of material and spiritual aspects, private and public aspects, the financial sector and the real, business and social sectors, as well as the balance of utilization and conservation aspects. In this principle, the company is not only oriented to maximizing profits for the benefit of shareholders, but also to all parties who can feel the benefits of a company's economic activities. Companies that implement Islamic BSC will compete to pay zakat, infaq, alms, and waqf (ZISWAF) as the realization of the spiritual aspect. The company makes ZISWAF payments as a performance indicator from a financial perspective, meaning that the better the company's financial performance is not measured in profit, but is measured by how much ZISWAF has been issued.

CONCLUSION

Although in the 20th century there were many innovations carried out related to modern management accounting practices such as activity-based costing (ABC), Just-in Time (JIT), target costing, value added management, zero-based budgeting and other innovations. But as explained by H. Thomas Johnson and Kaplan (1991), that in the 1990s management accounting practices were no longer able to serve managerial needs. This is caused by several factors including (1) management accounting is less helpful to operations managers in an effort to reduce costs and increase productivity; (2) failure to produce accurate production costs; and (3) managers are only short-term oriented through the monthly income statement.

In the new era, the product cost calculation is more accurate, more useful, and that explains in detail the use of input, and allows managers to improve quality, productivity and reduce costs. Three key success factors, namely quality, productivity, and cost, are key success factors that can make management accounting relevant again to practices in companies, especially in decision making. According to H. Thomas Johnson and Kaplan (1991), in response to the weaknesses of traditional management cost accounting, various efforts must be made to develop a new management accounting system that can meet the needs of today's business environment. The management accounting system currently utilizes the latest developments in information technology, including the use of blockchain and artificial intelligence.

In the 21st century, management accounting leads to environmental management accounting and is strongly influenced by the development of information technology. In addition, current management accounting is also colored with awareness about the halal industry and products, halal certification regarding processes and products, so that new insights emerge about the concept of the Islamic balanced scorecard.

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