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Development of Management Accounting Concepts in International Higher Education Institutions and Prospects for Their Application in Non-State Higher Education Institutions

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Citation: Shodimuxamedovich X. M. Development of Management Accounting Concepts in International Higher Education Institutions and Prospects for Their Application in Non-State Higher Education Institutions. American Journal of Economics and Business Management 2026, 9(5), 224-229.

Received: 19th Feb 2026

Revised: 30th Mar 2026

Accepted: 20th Apr 2026

Published: 12th May 2026



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Abstract: This article investigates the historical evolution of management accounting concepts in international higher education institutions, their contemporary models, and practical relevance for non-state higher education institutions (HEIs) in Uzbekistan. A comparative analysis is conducted of RCB, ABC, BSC and performance budgeting models applied in the USA, UK, Australia, Germany and South Africa.

Keywords: Management accounting, non-state HEI, responsibility center budgeting, balanced scorecard, performance budgeting, strategic management.

Introduction

In the context of the globalization of the world economy and the expansion of the educational services market, higher education institutions operate as complex economic systems. The Decree of the President of the Republic of Uzbekistan No. PF-5847 dated October 8, 2019, "On Approval of the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030," identified the improvement of higher education management, strengthening of financial independence, and enhancement of competitiveness as priority objectives [1]. Under these conditions, the need has emerged to develop management accounting systems in non-state higher education institutions based on modern international standards.

A number of studies have been conducted in Uzbekistan in the field of accounting and management accounting. In particular, the textbook Accounting by K.B. Urazov and M.E. Pulatov highlights national accounting standards and their practical applications [2]. T.S. Malikov scientifically analyzed the methodological foundations of labor cost accounting [3]. D.S. Tashnazarova carried out significant research on improving cost accounting practices [4]. M.J. Temirkhanova examined the development of methodological foundations of accounting in service-sector institutions [5].

However, specialized studies dedicated to improving management accounting systems in higher education institutions, particularly in non-state higher education institutions, based on international experience, remain insufficiently developed. This article aims to partially fill this research gap [6].

Methodology

The study employed comparative analysis, a systematic approach, as well as monographic and statistical research methods. Foreign and domestic scientific literature, regulatory and legal documents, reports of international organizations, and empirical data were analyzed. The research sources included scholarly works describing the experiences of universities in the United States, the United Kingdom, Australia, Germany, South Africa, and China, along with relevant нормативе documents of the Republic of Uzbekistan.

The historical development of management accounting concepts in international higher education institutions can be divided into four main stages.

The first stage (until the mid-20th century) was the cost control stage. During this period, the primary objective of universities was to control the use of financial resources, while managerial decisions were made in a centralized manner. Budgets were prepared mainly as planning instruments, and emphasis was placed on monitoring their implementation; however, their linkage with strategic management remained weak.

The second stage (1960s–1980s) was the planning and budgeting stage. During this period, management accounting systems were enriched with tools for forecasting revenues and expenditures, preparing budgets, and monitoring their implementation. Financial planning became an essential element of operational management within universities.

The third stage (1980s–2000s) was the decentralized management stage. At this stage, Activity-Based Costing (ABC) systems, responsibility centers, and departmental accounting practices became widely adopted. In particular, the Responsibility Center Budgeting (RCB) model was actively implemented in North American universities.

The fourth stage (from the 2000s to the present) is the strategic management accounting stage. During this period, institutions have widely adopted Balanced Scorecard (BSC) frameworks, KPI systems, performance budgeting, and digital information systems such as ERP and Business Intelligence (BI) platforms. As a result, managerial decisions are increasingly based on an integrated set of financial and non-financial indicators.

Results and Discussion

United States and Canada: Responsibility Center Budgeting Mode

In North American universities, the Responsibility Center Budgeting (RCB) model is widely applied. Under this approach, universities are divided into separate responsibility centers, with each unit independently accountable for its own revenues and expenditures. According to Deering, the main advantage of this model lies in its ability to provide financial autonomy to each unit through decentralized management, while also enabling a clear evaluation of performance outcomes [7]. Research findings indicate that such a system strengthens both vertical and horizontal coordination within higher education institutions.

United Kingdom: Formula-Based Budgeting

In British universities, the management accounting system is closely integrated with budgeting and resource allocation processes. Formula-based budgeting, forecasting techniques, and Activity-Based Management (ABM) systems are extensively used to ensure accurate cost calculation and improve institutional efficiency [8].

Australia: Strategic Budgeting and Balanced Scorecard

In Australian universities, management accounting systems are strongly linked to strategic planning, and budgeting processes are developed based on long-term institutional development strategies. Performance-based budgeting, Responsibility Center Budgeting, and KPI systems are implemented simultaneously. Moreover, the Balanced Scorecard (BSC) approach enables the integrated evaluation of both financial and non-financial performance indicators [9].

South Africa: Efficiency and Financial Sustainability Model

The experience of South African universities, particularly the University of KwaZulu-Natal, demonstrates that management accounting models are directly associated with ensuring financial sustainability. Within the framework of a three-stream financing model—comprising government funding, tuition fees, and additional income sources—effective resource allocation, cost control, and the identification of alternative revenue sources constitute the core elements of the system [9]. This model is closely aligned with the strategic cost management concept developed by Robert S. Kaplan and David P. Norton, adapted specifically for service-oriented organizations [10].

Germany: Scientific Capacity and Academic Productivity Model

In German universities of applied sciences, management accounting models are primarily based on the formula: resources + competencies + scientific support = effective academic productivity. In this context, management accounting serves not only as a tool of financial control but also as a mechanism for managing scientific and educational outcomes. While the South African model is more closely associated with performance management, the German approach is more aligned with capacity and output management [11].

China: DEA Models and Innovation Efficiency

The experience of Chinese universities demonstrates that DEA (Data Envelopment Analysis) models and innovation-driven development are key factors in improving the efficiency of resource allocation. Technical efficiency and innovative development represent the principal objects of management accounting within this model [12].

Table 1. Significance of International Experience for Non-State Higher Education Institutions in Uzbekistan.

No	Country / Model	Main Approach	Significance for Non-State HEIs	Main Tool
1	United States / Canada (RCB)	Accounting by responsibility centers	Introducing financial independence at the faculty level	RCB Model
2	United Kingdom	Formula-based budgeting	Developing a strategic budgeting system	ABM, Forecasting
3	France	State control combined with management accounting	Strengthening internal audit and control systems	Financial Control
4	Australia	Integration of strategic management	Enhancing long-term planning mechanisms	BSC, KPI
5	South Africa	Revenue diversification	Developing alternative income sources	Three-Stream Model
6	Germany	Scientific capacity and productivity	Managing academic performance systems	Output Management
7	China	DEA efficiency model	Applying analytical models in management	DEA Analysis

Methodological Differences Between Russian and European Scientific Schools

In the Russian scientific school, management accounting is predominantly viewed as an integral component of the accounting system. Greater emphasis is placed on cost accounting, cost determination, and normative accounting systems. Such an approach is primarily oriented toward centralized management and demonstrates a high level of integration with financial reporting processes [13].

In contrast, the European scientific school considers management accounting as an independent strategic management instrument. Within this approach, Activity-Based Costing (ABC), Balanced Scorecard (BSC), KPI systems, responsibility center accounting, and the integration of financial and non-financial indicators are widely developed and

applied. In their empirical study on cost accounting in higher education institutions, Mahmoud Ezzamel, Keith Robson, and Pam Stapleton demonstrated the advantages of this strategic approach [14].

For non-state higher education institutions, it would be appropriate to integrate the most effective elements of both approaches. In particular, while maintaining strong cost-control mechanisms, institutions should simultaneously implement strategic management accounting systems aimed at improving efficiency, competitiveness, and long-term institutional development.

Table 2. Methodological Approaches to Management Accounting in Russian and European Scientific Schools.

No	Criterion	Russian School	European School
1	Main Focus	Cost accounting and cost calculation	Strategic management
2	Methodology	Normative and calculation methods	ABC, BSC, KPI
3	Management Model	Centralized	Decentralized
4	Accounting Objects	Costs and product/service cost	Segments, responsibility centers, and outcomes
5	Performance Indicators	Financial indicators	Financial and non-financial indicators
6	Decision-Making Level	Operational level	Strategic level
7	Advantages	Strong control and accuracy	Comprehensive management approach
8	Disadvantages	Limited strategic orientation	High complexity of implementation

Prospects for Application in Non-State Higher Education Institutions of Uzbekistan

The Resolution of the President of the Republic of Uzbekistan No. PQ-4391 dated July 11, 2019, "On Measures to Introduce New Principles of Management in the Higher and Secondary Specialized Education System," established the legal framework for improving governance in higher education institutions [15]. At the same time, the "Concept for the Development of the Higher Education System until 2030" emphasized the necessity of strengthening financial independence, diversifying revenue sources, and modernizing management systems within universities.

- In improving management accounting systems within the national context of Uzbekistan, several key directions can be identified:
- Introduction of responsibility center systems. Inspired by the Responsibility Center Budgeting (RCB) model, each faculty or institute within non-state higher education institutions should function as an independent financial responsibility center, managing its own revenues and expenditures autonomously.
- Performance evaluation based on KPIs. Drawing upon the experiences of Australia and South Africa, clear Key Performance Indicators (KPIs) should be established for each structural unit, and their implementation should be monitored regularly.
- Development of strategic budgeting systems. Based on the British experience, budgets in non-state higher education institutions should be designed not merely as financial documents, but also as instruments for achieving strategic institutional objectives.
- Diversification of revenue sources. Following the three-stream financing model applied in South African universities, it is advisable to actively develop alternative income sources, including consulting services, research projects, and continuing education programs.

Implementation of digital information systems. The introduction of ERP and Business Intelligence (BI) systems would enable real-time monitoring of both financial and

non-financial indicators. As noted by Urazov and Pulatov, modern information systems significantly increase the efficiency of accounting and management accounting processes.

Conclusion and Recommendations

Based on the research findings, the following conclusions can be formulated:

Management accounting in international higher education institutions has evolved from a traditional cost-control system into a major source of strategic management information. This transformation has acquired a universal character and serves as an important methodological guideline for non-state higher education institutions in Uzbekistan.

The experience of various countries demonstrates that an effective management accounting system should include responsibility center structures, modern budgeting models, performance evaluation based on KPI and Balanced Scorecard (BSC) approaches, as well as digital information systems.

For non-state higher education institutions in Uzbekistan, the most appropriate approach would be an integrated model combining the efficiency component of the South African model with the scientific capacity component of the German model. Such a model should be adapted to national conditions and aligned with institutional strategic objectives.

Within the framework of national legislation particularly the "Concept for the Development of the Higher Education System until 2030" and regulatory documents defining management reforms there exists a sufficient legal basis for improving management accounting systems.

As practical recommendations for non-state higher education institutions, it is advisable to:

- gradually introduce accounting systems based on responsibility centers;
- develop KPI systems and integrate them with budgeting processes;
- establish real-time financial monitoring through ERP-based systems;
- implement measures aimed at improving staff qualifications in the field of management accounting.

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