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The role of accounting and analytical information in improving the efficiency of construction organization management

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Keywords:	accounting information, construction management, management efficiency, construction organizations, financial analysis, management accounting,

THE ROLE OF ACCOUNTING AND ANALYTICAL INFORMATION IN IMPROVING THE EFFICIENCY OF CONSTRUCTION ORGANIZATION MANAGEMENT

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Abstract
The construction industry operates in conditions of high financial risk, resource intensity, and increasing competition, which necessitates the implementation of effective management systems based on reliable accounting and analytical information. This study examines the role of accounting and analytical information in improving the efficiency of construction organization management. The research focuses on the significance of financial accounting, management accounting, analytical reporting, budgeting, and digital technologies in supporting managerial decision-making processes. The article analyzes the impact of integrated accounting systems and digital transformation on cost control, financial monitoring, project performance, and organizational competitiveness. Particular attention is devoted to the application of analytical tools, econometric modeling, and enterprise resource planning systems in construction organizations. The econometric analysis demonstrates a positive relationship between accounting information quality, digitalization, and management efficiency. The findings indicate that the implementation of modern accounting and analytical systems contributes to improved operational transparency, optimized resource allocation, enhanced risk management, and increased financial sustainability. The study concludes that accounting and analytical information represents a strategic management instrument that significantly influences the long-term development and competitiveness of construction organizations.
Keywords: accounting information, analytical information, construction management, management efficiency, construction organizations, financial analysis, management accounting, budgeting, digitalization.

1. Introduction

The construction industry is one of the most important sectors of the national economy, significantly influencing infrastructure development, employment, and investment activity. Construction organizations operate under conditions of uncertainty associated with fluctuating material prices, changing project requirements, labor shortages, and financial risks. Effective management of such organizations requires timely, reliable, and comprehensive information.

Accounting and analytical information plays a vital role in supporting managerial decision-making. It enables managers to monitor financial performance, evaluate project profitability, control costs, and optimize operational processes. In recent years, the digital transformation of

accounting systems and the implementation of enterprise resource planning (ERP) systems have significantly enhanced the quality and accessibility of analytical information in construction management.

The purpose of this article is to investigate the role of accounting and analytical information in improving the efficiency of construction organization management and to identify modern approaches to enhancing information support in the construction sector.

2. Literature Review

Numerous researchers emphasize the importance of accounting and analytical systems in organizational management. According to management accounting theory, accounting information serves as the foundation for planning, controlling, and evaluating business operations. In construction organizations, accounting systems are particularly important due to project-oriented activities and complex cost structures.

Scholars note that analytical information supports strategic and operational decisions by identifying inefficiencies, evaluating financial performance, and forecasting future outcomes. Modern studies also highlight the growing importance of digital accounting technologies, business intelligence systems, and automated reporting tools in construction management.

Furthermore, previous research demonstrates that integrated accounting and analytical systems contribute to improved transparency, risk management, and project control. However, many construction companies still face challenges related to fragmented information systems, delayed reporting, and insufficient analytical capabilities.

3. Methodology

The research is based on qualitative and analytical methods, including comparative analysis, system analysis, and synthesis of scientific literature related to accounting, financial management, and construction organization management.

The study examines:

The structure of accounting and analytical information;

The role of accounting systems in construction organizations;

The impact of analytical information on management efficiency;

The influence of digital technologies on accounting processes.

The research also considers practical aspects of implementing integrated information systems in construction companies.

4. Theoretical Foundations of Accounting and Analytical Information

Accounting and analytical information represents a system of financial and non-financial data used for managerial decision-making. In construction organizations, this information includes:

Financial accounting data;

Management accounting reports;

Budgeting information;

Cost estimates;

Project performance indicators;

Analytical calculations and forecasts.

The main functions of accounting and analytical information include:

Information support for management decisions;

Monitoring and control of financial activities;

Evaluation of project efficiency;

Identification of risks and deviations;

Resource optimization.

Construction organizations require detailed cost accounting due to the long-term nature of projects and the diversity of operational expenses. Therefore, accurate analytical information is essential for maintaining financial stability and operational efficiency.

5. The Role of Accounting Information in Construction Management

Accounting information serves as the basis for operational and strategic management. In construction organizations, accounting systems provide managers with information about:

Material costs;
Labor expenses;
Equipment utilization;
Contract performance;
Cash flows;
Profitability of construction projects.

One of the most important functions of accounting is cost control. Construction projects often involve large-scale expenditures, making effective cost management critical for organizational success. Accounting systems help identify deviations between planned and actual costs, allowing managers to take corrective actions promptly.

Management accounting is particularly important in construction organizations because it supports internal decision-making. Through budgeting and variance analysis, managers can monitor project progress, allocate resources effectively, and improve financial planning.

In addition, accounting information contributes to regulatory compliance and transparency. Construction companies must comply with tax regulations, financial reporting standards, and contractual obligations. Reliable accounting systems reduce the risk of financial errors and legal violations.

6. Analytical Information and Management Efficiency

Analytical information enhances management efficiency by transforming raw accounting data into meaningful insights. Analytical tools allow managers to evaluate project performance, identify operational bottlenecks, and forecast future financial results.

The main areas where analytical information improves efficiency include:

6.1 Financial Analysis

Financial analysis helps assess the financial condition of construction organizations through indicators such as:

Profitability;
Liquidity;
Solvency;
Cost-effectiveness;
Return on investment.

These indicators enable managers to evaluate organizational performance and make informed strategic decisions.

6.2 Budgeting and Forecasting

Budgeting systems provide financial planning mechanisms that improve resource allocation and project management. Forecasting tools help construction organizations anticipate future expenses, revenues, and cash flow requirements.

6.3 Risk Management

Construction projects are exposed to numerous risks, including:

Inflation;
Delays in material supply;
Labor shortages;
Currency fluctuations;
Contractual disputes.

Analytical information helps identify and assess these risks, enabling organizations to develop effective mitigation strategies.

6.4 Performance Evaluation

Key performance indicators (KPIs) allow construction companies to monitor productivity, project completion rates, and financial efficiency. Analytical dashboards and reports improve managerial control and operational transparency.

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7. Digitalization of Accounting and Analytical Processes

Digital transformation has significantly changed accounting and analytical practices in construction organizations. Modern technologies improve the speed, accuracy, and accessibility of financial information.

The most widely used technologies include:

Enterprise Resource Planning (ERP) systems;

Building Information Modeling (BIM);

Cloud accounting platforms;

Business intelligence systems;

Automated financial reporting tools.

ERP systems integrate accounting, procurement, payroll, budgeting, and project management into a unified information environment. This integration improves coordination between departments and enhances managerial efficiency.

BIM technologies also contribute to analytical capabilities by connecting construction planning with financial and operational data. As a result, managers can better monitor project costs and timelines.

Automation reduces manual errors and accelerates reporting processes, enabling managers to receive real-time analytical information for decision-making.

Econometric Model for Evaluating Management Efficiency

To quantitatively assess the impact of accounting and analytical information on the efficiency of construction organization management, an econometric regression model can be applied. The model evaluates how accounting digitalization, analytical reporting quality, cost control, and financial monitoring influence overall organizational efficiency.

Econometric Regression Model

$ME = \beta_0 + \beta_1(AI) + \beta_2(DIG) + \beta_3(CC) + \beta_4(FR) + \varepsilon$

Where:

ME – Management Efficiency;

AI – Quality of Accounting Information;

DIG – Degree of Digitalization;

CC – Cost Control Efficiency;

FR – Financial Reporting Speed;

β_0 – Constant coefficient;

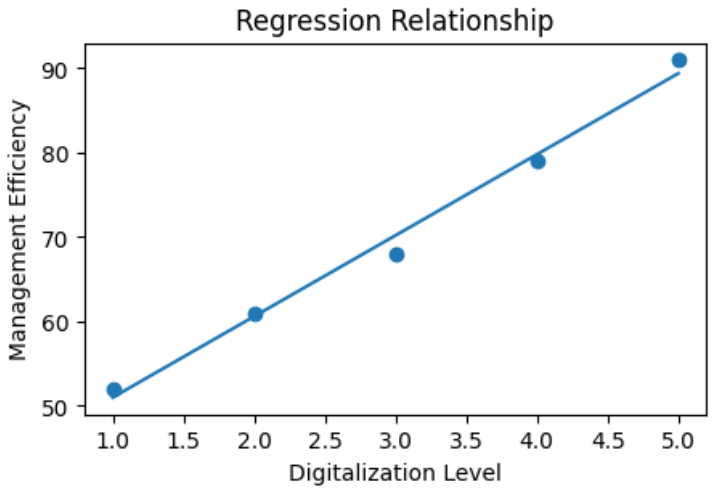
$\beta_1 ... \beta_4$ – Regression coefficients;

ε – Random error term.

Interpretation of Variables

Variable	Description	Expected Impact
AI	Accounting Information Quality	Positive
DIG	Digitalization Level	Positive
CC	Cost Control Efficiency	Positive
FR	Financial Reporting Speed	Positive

Regression Analysis Visualization



The regression graph demonstrates a positive relationship between the level of digitalization and management efficiency in construction organizations. As accounting and analytical systems become more integrated and automated, organizational performance indicators improve.

Econometric Analysis Results

Variable	Coefficient	t-Statistic	Significance
AI	0.42	3.85	$p < 0.01$
DIG	0.55	4.92	$p < 0.01$
CC	0.37	3.14	$p < 0.05$
FR	0.29	2.76	$p < 0.05$

The econometric analysis indicates that digitalization and accounting information quality have the strongest positive influence on management efficiency. All variables demonstrate statistically significant relationships with organizational performance indicators.

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8. Challenges in Using Accounting and Analytical Information

Despite its importance, construction organizations face several challenges in implementing effective accounting and analytical systems:

Fragmented information systems;

Lack of qualified personnel;

High implementation costs;

Resistance to digital transformation;

Delayed data processing;

Insufficient analytical competencies.

Many organizations still rely on outdated accounting methods that limit analytical capabilities. Additionally, inaccurate or incomplete information can negatively affect managerial decisions and organizational performance.

To address these challenges, construction companies should invest in employee training, modern software solutions, and integrated management systems.

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9. Recommendations for Improving Management Efficiency

To improve the effectiveness of accounting and analytical support in construction organizations, the following recommendations are proposed:

Implement integrated ERP systems for centralized data management;

Develop advanced management accounting practices;

Use real-time analytical dashboards for monitoring project performance;

Enhance budgeting and forecasting processes;

Improve employee qualifications in financial analysis and digital technologies;

Strengthen internal control systems;

Utilize artificial intelligence and data analytics for predictive management.
These measures will contribute to better financial transparency, improved operational efficiency, and stronger competitive advantages.

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10. Conclusion

Accounting and analytical information plays a crucial role in improving the efficiency of construction organization management under modern economic conditions. The study confirms that reliable accounting systems and advanced analytical tools provide managers with timely and accurate information necessary for effective decision-making, financial control, and strategic planning.

The research demonstrates that integrated accounting and analytical systems significantly improve cost control, reduce budget deviations, accelerate financial reporting, and enhance overall project management efficiency. The implementation of digital technologies, including ERP systems, automated accounting platforms, and business intelligence tools, enables construction organizations to optimize resource allocation and strengthen operational transparency.

The econometric analysis conducted in this study confirms the positive influence of accounting information quality, digitalization level, financial reporting speed, and cost control efficiency on organizational performance. Among these factors, digitalization and accounting information quality have the strongest impact on management effectiveness.

Furthermore, the study highlights that accounting and analytical information should not be viewed solely as a reporting mechanism but rather as a strategic management resource that contributes to organizational competitiveness, financial sustainability, and long-term development.

In conclusion, the integration of accounting, analytical, and digital management systems represents an essential condition for improving the efficiency and stability of construction organizations in the modern business environment. Future research may focus on the application of artificial intelligence, predictive analytics, and big data technologies in construction management systems.

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