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**MODERN TRANSFORMATIONS OF ACCOUNTING AND
MANAGEMENT ACCOUNTING TOOLS FOR SUPPORTING
MARKETING STRATEGIES**

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СУЧАСНІ ТРАНСФОРМАЦІЇ ІНСТРУМЕНТІВ БУХГАЛТЕРСЬКОГО ТА УПРАВЛІНСЬКОГО ОБЛІКУ ДЛЯ ПІДТРИМКИ МАРКЕТИНГОВИХ СТРАТЕГІЙ

Under the conditions of increasing demands for speed and justification in managerial decision-making processes, the importance of reliable and up-to-date data becomes particularly significant. In such circumstances, traditional tools of accounting and management reporting, which rely on human resources, are increasingly proving to be insufficiently effective in ensuring the competitiveness of enterprises. Therefore, the purpose of the study is to identify and provide a systematic description of the directions and features of the modern transformation of accounting and management tools aimed at supporting marketing strategies. The conducted research has shown that traditional accounting and management tools, primarily focused on manual operations and the involvement of human resources, are characterized by a high dependence on staff competencies and significant time expenditures for information processing. While this approach ensures adequate accuracy and quality control, it simultaneously limits the speed of analytical processes and the timeliness of marketing decision-making. It has been demonstrated that, to enhance the effectiveness of supporting marketing strategies, it is necessary to transform these tools toward integrated, automated, and flexible systems capable of providing timely access to reliable analytical

information. The key directions of such a transformation are: automation of data collection and processing; increasing the speed of processing and the relevance of information; integration of accounting systems with marketing platforms; implementation of modern analytical and forecasting methods; and the development of scalability and adaptability to growing data volumes and the dynamics of the business environment. Thus, the modernization of accounting and management tools in the aforementioned directions should ensure their functional alignment with the requirements of modern marketing and enhance the quality of strategic enterprise management. Prospects for further research lie in the development and testing of practical models for integrating automated accounting and management systems with marketing platforms, taking into account the specifics of industries and the scale of enterprises.

В умовах зростання вимог щодо швидкості та обґрунтованості процесів прийняття управлінських рішень особливо зростає значущість достовірних і актуальних даних. У таких умовах традиційні інструменти бухгалтерського та управлінського обліку, які ґрунтуються на людському ресурсі, дедалі частіше виявляються недостатньо ефективними для забезпечення конкурентоспроможності підприємств. Відтак метою дослідження є виділення та системна характеристика напрямків та особливостей сучасної трансформації інструментів бухгалтерського та управлінського обліку для підтримки маркетингових стратегій. Проведене дослідження засвідчило, що традиційні інструменти бухгалтерського та управлінського обліку, орієнтовані переважно на ручні операції та залучення людського ресурсу, характеризуються високою залежністю від компетенцій персоналу та значними часовими витратами на обробку інформації. Такий підхід, хоча й забезпечує достатню точність і контроль якості, водночас обмежує швидкість аналітичних процесів та оперативність прийняття маркетингових рішень. Доведено, що для підвищення ефективності підтримки маркетингових стратегій необхідною є трансформація цих інструментів у бік інтегрованих, автоматизованих і гнучких систем, здатних забезпечувати своєчасний доступ до достовірної аналітичної інформації. Ключовими напрямками такої трансформації є: автоматизація

збору та обробки даних; підвищення швидкості обробки та актуальності інформації; інтеграція облікових систем з маркетинговими платформами; впровадження сучасних методів аналітики та прогнозування; розвиток масштабованості й адаптивності до зростаючих обсягів даних і динаміки бізнес-середовища. Таким чином, модернізація інструментів бухгалтерського та управлінського обліку у зазначених напрямках має забезпечити їхню функціональну відповідність вимогам сучасного маркетингу та підвищити якість стратегічного управління підприємством. Перспективи подальших досліджень полягають у розробленні та апробації практичних моделей інтеграції автоматизованих бухгалтерських та управлінських систем з маркетинговими платформами, що враховують специфіку галузей та масштабів підприємств.

Keywords: *automation; data collection and processing; increased processing speed; information relevance; marketing platforms; analytics and forecasting; past operations; current operations.*

Ключові слова: *автоматизація; збір та обробка даних; підвищення швидкості обробки; актуальність інформації; маркетингові платформи; аналітика та прогнозування; минулі операції; поточні операції.*

Problem statement. In conditions of increasing demands for speed and justification in managerial decision-making processes, the importance of reliable and up-to-date data becomes particularly pronounced. Traditional accounting and management tools, which are primarily based on manual work and staff competencies, are increasingly proving to be insufficiently effective in ensuring the competitiveness of enterprises. This is due to the need for manual record-keeping and report preparation, as well as the high risk of errors—from simple arithmetic mistakes to systemic inaccuracies—in the processes of data collection, processing, and transmission. At the same time, the volume of operations and transactions per business entity is constantly growing, exceeding the capabilities of traditional accounting methods in terms of processing speed and accuracy. This problem is especially critical for supporting marketing strategies, where the timeliness and reliability of information determine the effectiveness of market analysis, demand forecasting, and evaluation of advertising campaign performance, while the

absence of integrated and automated accounting tools can lead to a loss of strategic advantages.

Analysis of research and publications. The study of traditional accounting and management tools and their role in supporting marketing strategies is reflected in the works of Sadovska I., Nahirska K., Kulay O. [6], Zasadny B.A., and Bashkin I.E. [3]. In particular, these works address issues such as the effectiveness of using accounting data in strategic planning processes, the possibilities for integrating financial and marketing information, and the impact of accounting accuracy and timeliness on the quality of managerial decisions. In the research of Herasymovych I.A. [2], special attention is given to the problems of adapting traditional accounting systems to the requirements of the modern market, particularly in terms of automation, enhancing analytical flexibility, and providing comprehensive support for marketing strategies.

At the same time, the scientific literature lacks a systematic characterization of the directions and features of the modern transformation of accounting and management tools for supporting marketing strategies, which determines the relevance and practical significance of the chosen study.

Formulation of the article's objectives. Therefore, the aim of the study is to identify and provide a systematic characterization of the directions and features of the modern transformation of accounting and management tools to support marketing strategies.

The paper main body. Traditional accounting and management tools are methods and systems used for collecting, recording, summarizing, and analyzing financial and managerial information without significant use of automated technologies.

Despite differences in their functional purpose, type of data, planning time horizon, and methods of information application (Fig. 1), both groups of tools share common problems:

- The predominance of manual operations in maintaining accounting books and journals.
- The preparation of financial statements in paper form or using only basic electronic formats.

- The preparation of planned and operational reports with substantial involvement of human resources for data collection and analysis.

Difference between traditional accounting and management tools		Accounting tools*	Management accounting tools**
		↓	↓
	Purpose →	Recording, systematization, and control of financial transactions in accordance with accounting standards (UAS/IFRS).	Generation of information for internal management and decision-making.
	Data type →	Historical, factual data on revenues, expenses, assets, and liabilities.	A combination of actual and forecasted indicators (financial and non-financial).
	Time horizon →	Focus on past and current operations.	Focus on current and future operations.
	Role in marketing strategies →	Ensure the reliability of expenses for marketing campaigns; Reflect the financial results of implemented marketing activities; Allow assessment of the profitability of marketing investments (ROI).	Planning marketing budgets and forecasting expenses; Scenario modeling and evaluation of marketing channel effectiveness; Analyzing the relationship between marketing activities and financial results; Supporting flexible resource reallocation.
Problems in the use of traditional accounting and management tools →		Predominance of manual operations in maintaining accounting books and journals; Preparation of financial statements in paper form or using only basic electronic formats; Preparation of planned and operational reports with substantial involvement of human resources for data collection and analysis.	

Fig. 1. Differences and problems of traditional accounting and management tools

Note:

* Manual accounting books (journals, ledgers, subaccounts), forms and templates (invoices, waybills, acts, cash books), abacuses and calculators, paper tables and card files for tracking goods, clients, and inventory.

** Budgets, calculation sheets and journals for computing direct and indirect costs, statistical reports and analytical tables, methodological instructions for cost calculation and performance evaluation, standards and norms tables for production, card files, and paper-based control systems.

Source: compiled based on [1;5-6]

Based on the data presented, it is evident that, on one hand, traditional accounting and management tools provide recording and reflection of business or

other activities based on documents in various measures (quantitative and/or qualitative [6]). On the other hand, their slowness, high likelihood of errors, and insufficient integration complicate timely market analysis, evaluation of advertising campaign effectiveness, and demand forecasting. The main factors that reduce the effectiveness of accounting and management tools for supporting marketing strategies are presented in Table 1.

Table 1. Factors reducing the effectiveness of accounting and management tools in supporting marketing strategies

Impact factor	Specific impact of the factor in accounting	Обмеження у підтримці маркетингових стратегій
Limited data processing speed	Traditional accounting tools require manual data entry and verification, which slows down report generation.	Marketing decisions require up-to-date information in real time, and manual accounting cannot process large volumes of data quickly.*
Risk of errors	High likelihood of arithmetic, logical, and system errors due to the human factor.	Data errors can lead to incorrect conclusions about the effectiveness of advertising campaigns and market trends.**
Integration complexity	Manual and basic electronic systems poorly integrate with other information platforms.	Integration complexity limits comprehensive data analysis and complicates the comparison of marketing metrics with financial results.***
Insufficient analytical flexibility	Limited capabilities for forecasting, scenario modeling, and analyzing large datasets.	Complicates planning of marketing campaigns and evaluating their effectiveness under different scenarios.****
Scalability	As transaction volumes increase, traditional accounting methods become resource-intensive and slow.	It is impossible to quickly adapt accounting processes to the growing needs of marketing analytics and operational decision-making.*****

Note:

* For example, preparing weekly sales reports takes several days, whereas a marketing campaign requires daily data.

** For example, incorrectly entered prices or sales volumes in Excel reports distort sales profitability analysis.

*** For example, advertising expense data in the CRM is not automatically transferred to the accounting system, requiring additional manual reconciliation.

**** For example, it is impossible to quickly model the effect of price reductions on demand or test multiple advertising campaign scenarios.

***** For example, an increase in the number of product items in a large online store complicates daily manual report updates.

Source: compiled based on [2-3;6]

Consequently, the issues outlined arise because traditional accounting and management tools depend on human resources; thus, key tasks such as data entry, record verification, report preparation, and analytical calculations are executed by employees. Humans and their competencies act both as the source and processor of information, which requires time and attention to detail.

Therefore, it is necessary to transform traditional accounting and management tools, shifting from manual and localized accounting to integrated, automated, and flexible systems capable of providing timely analytical information to support marketing decisions. The main directions of this transformation include (Table 2): automation of data collection and processing; increasing the speed of data processing and the relevance of information; integration with marketing platforms; analytical flexibility and forecasting capabilities; and ensuring the ability to handle growing volumes of data and easily adapt the system to changes in marketing and financial processes.

The transformation of data collection and processing should involve implementing software algorithms in accounting and management tools. These algorithms should enable the automatic acquisition, integration, and preliminary processing of accounting information from various sources, converting it into data that is relevant for marketing purposes [4-5]. For example, this may involve the implementation of ERP systems (Enterprise Resource Planning), which automatically collect data from financial modules, CRM systems, and online sales platforms, transforming it into consolidated analytical reports for marketing analysis. Such a transformation reduces the influence of human factors, minimizes the risk of arithmetic and system errors, and accelerates access to up-to-date data for managerial decision-making.

Table 2. List of key transformations of traditional accounting and management tools

Required transformations	Description of the desired characteristics of transformations in accounting and management tools	Means of transforming accounting and management accounting tools
Transformation of data collection and processing.	Replacement of manual data entry with automated collection and processing of financial and marketing information from various sources; reduction of human factor involvement and errors.	ERP systems, automated accounting software, integration with CRM and other information platforms, RPA (Robotic Process Automation).
Transformation of data processing speed and relevance.	Ensuring real-time updating and access to information for prompt management and marketing decision-making.	BI and ERP systems, cloud platforms for data storage and processing, automated report generation.
Transformation of accounting data exchange processes.	Ensuring a unified information environment for financial and marketing data, enabling comprehensive analysis and forecasting.	API integrations between ERP, CRM, and marketing platforms; centralized analytics hubs; Master Data Management (MDM) systems.
Transformation of analytical flexibility and forecasting functions.	Ability to model various scenarios, forecast demand, and evaluate the effectiveness of marketing campaigns based on reliable data.	Big Data Analytics tools, BI analytics, scenario modeling, forecasting systems, and machine learning.
Transformation of scalability and adaptability.	The system should quickly adapt to increasing data volumes and changes in marketing and financial processes without losing efficiency.	Cloud computing, modular ERP systems, automated workflows, and flexible, scalable BI tools.

Source: compiled based on [1; 4-5]

Moreover, thanks to such transformations, accounting processes become more efficient, faster, and more accurate, enabling enterprises to respond promptly to market changes, plan marketing campaigns, and evaluate their effectiveness based on reliable information.

The transformation of data processing speed and relevance should be implemented through the integration of real-time systems into accounting and management tools. These systems ensure rapid updating of metrics and timely access to information for operational decision-making, as evidenced by the set of characteristics and signs presented in Table 3.

Table 3. Characteristics and signs of real-time systems in accounting and management accounting

Real-time systems	Characteristics of real-time systems	Signs of real-time systems
Business Intelligence	Power BI, Tableau, Qlik Sense, which allow automatic collection, processing, and real-time visualization of data.	Instant data updates. Low processing latency. Integration with multiple data sources. Automated alerts and notifications. Real-time analytical tools. Support for operational decision-making. Scalability and stability with large data volumes.
ERP systems	SAP S/4HANA, Microsoft Dynamics 365, Oracle NetSuite, which integrate financial, marketing, and operational data within a single environment.	
Cloud services for accounting and analytics	Google Cloud, AWS, Azure, providing fast access to large volumes of data and centralized storage.	
Integrated dashboards	Systems such as Klipfolio or Data Studio, which display key performance indicators (KPIs) in real time for prompt decision-making.	

Source: compiled based on [3-5]

For example, BI platforms, such as Power BI or Tableau, automatically aggregate data from financial modules of ERP systems, CRM platforms, online sales, and social media, enabling managers to monitor key performance indicators (KPIs) of marketing campaigns in real time, such as advertising ROI, customer conversion rates, or sales volumes by channel [3]. This transformation reduces the time needed to prepare reports, minimizes delays in accessing critical information, and lowers the risk of making decisions based on outdated or incomplete data.

The transformation of accounting data exchange processes should be carried out through API integrations, which create unified information flows between accounting systems, CRM, ERP, and other marketing tools for comprehensive analysis and planning. For example, via API, the accounting system can automatically receive sales data from an online store, while the CRM obtains information on customer behavior, enabling marketers and financial managers to make coordinated forecasts and assess campaign effectiveness. In other words, it is crucial to ensure the unification of different software systems for automated data exchange and interaction through standardized interfaces, based on the characteristics and signs outlined in Table 4.

Table 4. Characteristics and signs of API integration in accounting and management accounting

Directions of API Integration	Characteristics of API Integration	Signs of API Integration
Transmission of financial and accounting data	Configures protocols for transferring financial and accounting data between ERP, CRM, marketing platforms, and other information systems.	Standardization. Automated data exchange.
Consolidation of data into a unified system	Configures protocols for creating a unified information flow, where data is updated in real time without duplication or manual entry.	Real-time or near real-time processing. Security and access control.
Expansion of data analysis and aggregation capabilities	Enables the integration of financial, marketing, and management data from various systems to generate comprehensive analytical reports and forecasts through protocols for aggregation, standardization, and cleansing, as well as automated report generation, forecasting, and scenario modeling.	Ability to handle increased data volumes and integrate new systems without major modifications. Data unification
Adaptation to changes in data volume and scalability	Allows for the rapid addition of new modules or platforms without disrupting existing accounting processes.	Support for analytics and reporting/

Source: compiled based on [1; 4]

This transformation reduces the risk of errors, delays in data processing, and the need for manual data entry, while simultaneously increasing the speed, accuracy, and comprehensiveness of analytics.

The transformation of analytical flexibility and forecasting capabilities should be implemented by incorporating modern analytics methods (MA) into accounting and management tools, including BI systems, scenario modeling, and demand forecasting, to evaluate the effectiveness of marketing campaigns, based on the characteristics and signs presented in Table 5.

For example, at Kyivstar JSC, the implementation of modern analytics methods allows the integration of financial, marketing, and management data into a single system. The use of BI systems enables managers to track the effectiveness of advertising campaigns in real time, assess demand for various tariff plans, and make decisions on adjusting marketing strategies. Scenario modeling helps forecast the impact of price changes and promotions on company revenue, while

demand forecasting allows planning of production and operational resources according to expected subscriber demand.

Table 5. Characteristics and signs of integrating modern analytics methods into accounting and management accounting tools

Directions of integrating modern analytics methods	Characteristics of transformations using modern analytics methods	Signs of modern analytics methods
Implementation of BI systems	Automatic collection and aggregation of financial, marketing, and management data; creation of interactive dashboards and real-time reports	Interactive visualization. Scenario modeling. Use of machine learning models to predict changes and outcomes. Data integration from multiple sources
Scenario modeling	Development of “what-if” scenarios to assess the impact of various managerial and marketing decisions on financial outcomes	
Demand forecasting	Use of statistical methods and machine learning algorithms to forecast future demand for products or services	

Source: compiled based on [1-2; 5-6]

\Such a transformation allows traditional accounting tools to become flexible, integrated systems that provide timely analytical information for well-informed managerial and marketing decisions.

The transformation of data scalability and adaptability should involve integrating algorithms into accounting and management tools that can process increasing volumes of data. These algorithms should be easily customizable to meet the needs of marketing processes, based on the characteristics and indicators outlined in Table 6.

Such a transformation makes it possible to rapidly scale accounting systems in the event of increased transaction volumes or expanded marketing activities.

This transformation enables the company to improve its responsiveness to market changes and adapt analytical models to new marketing strategies.

Table 6. Characteristics and signs of data scalability and adaptability in accounting and management accounting

Directions for integrating algorithms for processing increasing data volumes	Characteristics of transformations with the integration of algorithms for processing increasing data volumes	Signs of processing increasing data volumes
Parallel processing	According to the algorithms, data is divided into parts and processed simultaneously on multiple servers or nodes.	Fault tolerance Support for analytical and predictive functions Rapid updating of metrics Multifunctional integration of data sources
Flexible adaptation to data volume	The algorithms automatically adjust resources depending on the current workload.	
Flexible processing speeds and arrays of accessible data.	They ensure efficient use of computing resources when working with large volumes of information.	

Source: compiled based on [1; 3-4; 6]

Conclusions. The conducted study has shown that traditional accounting and management tools, which are primarily focused on manual operations and reliance on human resources, are characterized by a high dependence on staff competencies and significant time expenditures for processing information. While this approach ensures sufficient accuracy and quality control, it simultaneously limits the speed of analytical processes and the promptness of marketing decision-making.

To enhance the effectiveness of supporting marketing strategies, it is necessary to transform these tools into integrated, automated, and flexible systems capable of providing timely access to reliable analytical information. The key directions of such transformation are: automation of data collection and processing; increasing processing speed and information relevance; integration of accounting systems with marketing platforms; implementation of modern analytics and forecasting methods; development of scalability and adaptability to growing data volumes and the dynamics of the business environment.

Thus, the modernization of accounting and management tools in these directions should ensure their functional alignment with the requirements of modern marketing and improve the quality of strategic enterprise management.

The prospects for further research lie in the development and testing of practical models for integrating automated accounting and management systems with marketing platforms, taking into account industry specifics and enterprise scale.

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