

Methods of Evaluating the Quality of Accounting Information in the Digital Economy

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Abstract – This article is dedicated to the study of methods for evaluating the quality of accounting information in the context of the digital economy. Key approaches are examined, such as normative, statistical, and expert methods, with a particular focus on expert evaluation. The expert method allows for the consideration of factors that are difficult to quantify, which is especially important in the context of the digitalization and automation of accounting. The article also presents a linear model, which can be used to calculate the weighted average composite indicator of the quality of accounting information, enabling the integration of various assessments and providing objective, quantitative results.

For practical application of the evaluation methods, an analysis of the quality of accounting information was conducted using the example of the oil company SOCAR. The study considered factors such as regulatory compliance, staff qualifications, the quality of the information system, and the control system. However, despite the positive result of the calculated weighted average indicator for the company, the need for further work on improving the control system, training personnel, and updating software is emphasized.

Keywords – *accounting, quality, evaluation, expert, digitalization, model.*

I. INTRODUCTION

The digital economy involves the use of modern technologies to optimize business processes and improve efficiency. In particular, the digitalization of accounting and financial reporting opens new opportunities for enhancing the quality of accounting information, which is a key factor for making informed management decisions, ensuring compliance with regulatory requirements, and maintaining trust among stakeholders. However, with the increase in data volume, the complexity of processes, and the introduction of new technologies, the need for accurate methods of evaluating the quality of accounting information grows. Effective evaluation methods ensure high-quality data, which is crucial for ensuring financial stability, preventing errors, and enhancing the competitiveness of a company.

In the digital economy, accounting is becoming increasingly automated; however, issues with the quality of accounting data remain relevant. Errors in data processing, incorrect interpretation of information, and non-compliance with standards can lead to negative consequences such as financial losses, reporting mistakes, and loss of trust from partners. Methods for evaluating the quality of accounting information help prevent such risks and ensure the accuracy, transparency, and reliability of data.

The aim of the research is to study the methods for evaluating the quality of accounting information in commercial organizations within the context of the digital economy.

II. Methods of Evaluating the Quality of Accounting Information

The analysis of international accounting models and global experience in the use of accounting (financial) information shows that information quality is achieved through:

- the use of principles for the formation of accounting information that are consistent with the market economy, as directly formulated in international financial reporting standards;
- the operation of a quality control system for accounting (financial) information;
- the presence of a system of quality indicators for accounting (financial) information and methods for their calculation [1], [2].

A central role in evaluating the quality of accounting information is given to the quality regulation system, which must be assessed at all stages of its formation. Management decisions cannot be made if there are any doubts about the quality of information flows.

Let's consider methods for evaluating the quality of accounting information as a set of ways and techniques for expressing the quality indicators of accounting information. The most effective methods for evaluating the quality of accounting information are: normative; statistical; and expert.

The normative method for evaluating the quality of accounting information is carried out by studying the mandatory legislative and regulatory documents used for the formation of accounting information, as well as the standards regulating accounting and the preparation of financial (accounting) statements. The application of the normative method necessitates the creation of documents of various statuses. Strict requirements are placed on the quality of the content of each document, regardless of its level, and only in this case can this method be applied for evaluating the control of accounting information quality. A set of requirements for documents of any level when applying the normative method can be identified:

specificity, clarity, simplicity, and accuracy of formulations; logical sequence in presenting information; justification; informational stability; and persuasive argumentation. Thus, the quality of accounting information is achieved through the correct and timely implementation of all requirements of regulatory and legislative acts on accounting and reporting.

Statistical methods involve evaluating the quality of accounting information based on statistical data. The main advantage of statistical methods is their quantitative definiteness. In theoretical research and practical methodologies, statistical methods have been widely used to assess product quality. These methods can also be applied to evaluate the quality of accounting information. Among them, methods such as checklists, control charts, and sampling theory can be highlighted [3].

The application of the expert method for evaluating the quality of accounting information is primarily related to the difficulty of mathematically calculating the quality indicators of accounting information. The literature we studied demonstrated the feasibility of using the expert method to assess the quality of accounting information. Among the disadvantages, subjectivity and possible errors in the expert evaluation results were highlighted, as well as significant costs associated with engaging qualified experts. The advantage of the expert method is the speed of obtaining results and the ability to assess the quality of accounting information without quantitative indicators.

Our research has shown that the most suitable method for analyzing the quality of accounting information is expert evaluation. Expert assessments represent the viewpoints (opinions, judgments) of highly qualified specialists in specific subject areas—experts—formulated in the form of evaluations of an object in substantive, qualitative, or quantitative terms. Expert assessments are formed during the process of conducting expert examination research of a specific object by an individual or a group of competent specialists with the aim of gathering information about the relevant characteristics and properties of the object, which are used in decision-making.

The essence of the expert evaluation method lies in the proper organization of the examination by specialists—organizers of the expert review with the aim of obtaining information about the judgments of experts on the objects under consideration, and in the subsequent processing of this information to generate generalized data and new insights [4].

A questionnaire is developed based on four elements, with an evaluation and its justification. For the research of the problem and based on the discussion of the issue, each expert assigns scores at their discretion and comments on their viewpoints. Based on these opinions, conclusions can be made, and the quality of information can be improved. Let's consider these elements:

The first element is the regulatory framework of the organization, the methodology, and techniques of accounting.

The second element is highly qualified national personnel. In our view, this factor is the most complex, as it is related to the human factor. The operations carried out in an organization are based on the professional judgment of the accountant. Thus, accountants should, on the one hand, objectively reflect the financial and economic activities of the organization, and on the other hand, rely on the opinions of users of accounting information. As part of this initiative, a program for training and certification of accountants has been developed in the country.

The third element is the information system. Modern accounting is unthinkable without an information system that processes all primary data and identifies the final accounting results. However, information systems carry several risks: loss of information, distortion of information, provision of false information, financial and other losses due to system breaches, and work stoppages caused by system failures.

The inability of management to allocate sufficient resources to counteract the security risks inherent in information systems may have a negative impact on the internal control system—incorrect computer program opinions or source data may go unnoticed by management, or unapproved business transactions may be carried out. [5],[6].

The fourth element is the control system. Control, in turn, can be divided into external and internal. In general terms, the internal control system can be defined as a set of measures taken by the organization's management to prevent and detect negative events. The accounting system is just a part of internal control.

Internal control allows for the prompt identification, prevention, and limitation of financial and operational risks, as well as potential abuses by officials [7].

External audit is a system of independent expert inspections aimed at ensuring the proper quality of tax and accounting practices.

A questionnaire is developed based on the four elements, with an evaluation and its justification. When using the expert method for assessing quality, an ordinal scale is often used. With an ordinal scale, experts evaluate the elements in order, and it is important that the assessments are consistent and reflect specific levels of quality. This scale allows for a clear classification of elements according to their compliance with requirements, providing a clearer picture of the state of the accounting system. To assess how good the result is, the following grading scale can be used, for example, from 0 to 100. This scale can include several levels (Table 1):

0–49 — Low quality of accounting information: This range indicates serious problems in the accounting system, low staff qualifications, a lack of or insufficient information system, and a weak control system. Such a result may indicate high risks of errors, violations, and low transparency of reporting.

50–69 — Average quality of accounting information: This range indicates the presence of some issues that can be addressed. The organization may have

certain strengths, but overall, the accounting system requires improvements, particularly in the areas of regulatory compliance or staff qualifications.

70–89 — Good quality of accounting information: This range indicates stable operation of the accounting department, the presence of a sufficiently good information system, qualified staff, and adequate control. However, there is still room for improvement, such as enhancing the integration of information technologies or increasing staff qualifications.

90–100 — Excellent quality of accounting information: This result indicates a high level of the accounting system, effective control, highly qualified specialists, and a reliable information system. The reporting is transparent, timely, and accurately reflects the company's financial position.

Table I. Quality Measurement Scale

Number	Quality Scores	Quality Grading
1	0-49	Low
2	50-69	Average
3	70-89	Good
4	90-100	Excellent

The quality assessment result is based on constructing a linear function that depends on a set of factor indicators and their weights, which form the resulting indicator. In our study, the resulting characteristic is the quality of accounting information, and the factor characteristics are the elements of forming accounting information.

When multiple factor indicators are available, the quality level indicator can be determined by calculating the weighted average composite indicator. For this, a linear model is built, which depends on the set of factor indicators and their weights. The linear function for assessing the quality of accounting information (the resulting indicator Q) can be expressed as follows:

$$Q = w_1 * X_1 + w_2 * X_2 + \dots + w_n * X_n$$

(1)

If it is necessary to assess the quality level of accounting information considering several factor characteristics, each with its own weight, the formula for calculating the weighted average composite indicator can be used:

$$Q_{\text{Weighted average}} = \frac{w_1 * X_1 + w_2 * X_2 + \dots + w_n * X_n}{w_1 + w_2 + \dots + w_n}$$

(2)

where: Q – resulting indicator; $Q_{\text{Weighted average}}$ – Weighted average composite indicator of accounting information quality; $X_1, X_2, \dots, X_n$ – factor characteristics that influence the quality of accounting

information.; $w_1, w_2, \dots, w_n$ – weights assigned to each factor characteristic; n – number of factors.

It is important that the sum of the weights is normalized. This means that the sum of the weights must equal 1 (or another agreed value). With normalized weights, using a linear function or weighted average indicator allows the interpretation of values within a general scale, for example, from 0 to 100.

Thus, the assessment of accounting information quality using a linear model allows for the consideration of several factors that influence the accuracy and reliability of reporting. The weight coefficients for each element provide the ability to account for their relative importance and ensure a more accurate and objective evaluation of the quality of accounting information within the organization.

II. ASSESSMENT OF THE QUALITY OF ACCOUNTING INFORMATION USING THE EXAMPLE OF THE AZERBAIJANI OIL COMPANY SOCAR

For the assessment of the quality of accounting information of the oil company SOCAR, the following data were obtained:

$X_1=80$ (assessment of regulatory compliance);

$X_2=75$ (assessment of staff qualifications);

$X_3=90$ (assessment of the quality of the information system);

$X_4=85$ (assessment of the control system).

And the weights for each element:

$w_1=0.25$ (weight for regulatory compliance);

$w_2=0.2$ (weight for staff qualifications);

$w_3=0.3$ (weight for the information system);

$w_4=0.25$ (weight for the control system).

Using the formula for calculating the weighted average composite indicator, the resulting indicator was 83.25.

The value of 83.25 falls within the range of 70–89, indicating good quality of accounting information. This means that the accounting system in the organization is generally effective, with qualified staff, adequate regulatory compliance, and a functioning information system. However, there may still be a need for optimization of the control system or updating the accounting software to achieve a higher level of accuracy and transparency in reporting. Thus, to reach excellent quality, further work on improving internal processes and enhancing staff qualifications is necessary.

Based on the research, we propose several directions for improving the quality of accounting information in the company:

1.Automation of checks and integration with other systems: To enhance control efficiency, it is important to establish integration between the accounting system and other

corporate information systems, as well as implement automated data checks at all stages of information processing.

2. Software updates and security: Regular software updates, along with the implementation of encryption systems to protect data, can increase the security level of accounting information.

3. Staff training: It is essential to continue staff training to improve their qualifications in using the system and adhering to accounting standards.

4. Implementation of real-time analytics and reporting: To improve decision-making speed, real-time data analysis systems can be implemented, enabling the rapid identification and correction of errors.

5. Periodic evaluation of the control system: It is recommended to regularly conduct internal audits and assessments of the control system to identify potential weaknesses and improve procedures.

These specific steps will not only help maintain the current high level of accounting information quality but also significantly improve it, ensuring more accurate and reliable reporting.

IV. CONCLUSION

The use of the expert method combined with the construction of a linear model for assessing the quality of accounting information is a powerful tool for organizations in the context of digitalization. Expert evaluation allows for the consideration of factors that are difficult to measure

quantitatively, while the linear model helps integrate these evaluations into an overall system and provide objective, quantitative results. This approach enhances the quality of financial reporting, improves risk management, accelerates decision-making, and increases the transparency of accounting information.

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