Integration as a Foundation for the Establishment of a New Model of Accounting Reporting in Agrarian Organization

L.I. Khoruzhy, T.N. Gupalova, Yu.N. Katkov

Abstract: The establishment of integrated reporting in agribusiness organizations is substantiated in the present article. Particular attention is paid to the issues related to studying the impact of market development on the evolution of the reporting models in organizations. The purpose of the study is to create an integrated reporting model for agribusiness organizations, with due consideration for the impact of innovation, competitiveness, and interrelation with the environment in order to secure the sustainability and independence of an organization in a global saturated market that will fully provide the stakeholders with information on the values and efficiency of the sustainable development of the organization. Methods: monographic, abstract logical, economic mathematical, and comparison methods have been used in this study. Results: transformation of national accounting models has been reflected with due consideration for globalization processes; description of the requirements for reporting in agribusiness organizations, being interrelated with the general scientific systematization laws, has been provided; benefits from the integration of agribusiness organizations have been identified; and a three-factor model of integrated reporting in agribusiness organizations has been presented. Conclusions: the presented three-factor accounting reporting model can provide its users with not only basic but also extended information required for making sound managerial decisions in agribusiness organizations and secure their sustainable development.

Index Terms: agribusiness, fractal, integrated reporting, international financial reporting standards, sustainable development.

I. INTRODUCTION

Organizations enter the world of dynamic chaos and many interactions with qualitatively different market actors in the modern developed market, and it is important for reporting users to know the synergistic effects that influence the organization's performance and reporting indicators. In this regard, it is relevant to develop a method for the establishment of a new reporting system in organizations—a integrated reporting, which is created in order to increase public confidence in the organization in the long term. The prospects for integrated reporting are determined by its two features. First of all, the combined format of its presentation includes financial and nonfinancial information about the company. Secondly, integrated reporting allows assessing both the actual state of affairs and the company's business goals.

Accounting reporting was designed to reflect the issues related to the production activities of organizations. Problems of increasing return on invested capital belong to financial reporting in organizations. Integrated reporting is the next generation of the organization's reporting. It should reflect the value priorities in the activity of the organization: impact on the society, economy and environment.

The obligation to prepare an integrated reporting is not legislated in Russia. Forms of nonfinancial reporting and methods of its preparation are presented in various standards for nonfinancial reporting. Such standards are not legal documents and are not binding on their application. The procedure for generating nonfinancial reports falls within the competence of the company's management. Therefore, there is a set of principles, indicators, and methods of preparing integrated reporting in organizations.

As such, the insufficient development of the method for the creation of integrated reporting remains the relevant problem of modern organizations. In particular, this is due to the absence of a unified method for the development and justification of reporting indicators. Due to this, an in-depth review of the method for the formation of individual reporting in organizations is required, with due consideration for not only economic but also social and environmental components.

II. LITERATURE REVIEW

The need to establish integrated reporting with a social and environmental focus is substantiated in the works of such modern foreign scientists as G.H. Brundtland [1], L.H. Gunderson and C. Holling [2], D.H. Meadows and D.L. Meadows [3]. The problems of accounting provision, analysis, and integrated management of the sustainable development of organizations are covered in the papers of I.V. Bryantseva [4], N.S. Batyrova [5], O.V. Efimova [6], E.V. Korchagina [7], R. Kaplan and D. Norton [8], E.Yu. Pertseva [9], and L.I. Khoruzhy [10]. Integration of accounting analytical information for the purposes of the corporate management was covered in the studies of T.Yu. Druzhilovskaya [11], I.V. Kalnitskaya [12], I.A. Malsagov [13], A.S. Khusainova [14], but they have not reviewed integrated reporting.

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L.I. Khoruzhy, Russian State Agrarian University – MAA named after K.A. Timiryazev, Moscow, Russian Federation.
T.N. Gupalova, Russian State Agrarian University – MAA named after K.A. Timiryazev, Moscow, Russian Federation.
Yu.N. Katkov, Russian State Agrarian University – MAA named after K.A. Timiryazev, Moscow, Russian Federation.

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Taking all the value of the research results into account, it must be noted that many theoretical and methodological problems of the creation of integrated reporting in organizations require further research and the development of a new reporting model corresponding to the modern economic realities.

The purpose of the study is to create an integrated reporting model for agribusiness organizations with due consideration for the impact of innovation, competitiveness, and interrelation with the environment in order to secure the sustainability and independence of the organization in a global saturated market that will provide the stakeholders with full information on the values and efficiency of the organization’s sustainable development.

III. PROPOSED METHODOLOGY

A. General Description

Transformations in the existing Russian reporting are required for the organizations to coordinate the presentation of their key strategic objectives, problems, important risks, and potential opportunities with the modern business environment.

Accordingly, if not only abstract functions but also the activity of an organization can be considered in terms of nonlinear dynamics, then reporting on this activity can also be formed. Since it is important to show the general change in the organization rather than just resources and results of the organization’s activities to stakeholders in the reporting, it can be suggested that the known theories of the organizations’ reporting formation do not correspond to the current stage of the market development.

To reflect the entire internal external network of the internal management elements of production and financial activities and elements of interaction with the external environment in the reporting of organizations, the reporting can be presented as a nonlinear fractal.

A fractal (fractal – fractional) is an example of an unsmooth continuous function; there are objects that present an increasing number of self-similar details as they grow [15].

Graphically, the fractal "... is invariant (constant) under certain coordinate transformations (stretching b times by abscissas and 1/a times by ordinates). On a small scale, the large-scale parts are duplicated; as a result, a function is never reduced to a line in a small segment — it is continuous but does not have a differential or derivative. The function has a complex sawtooth-shaped structure, and the "saws" of the smaller scale are superimposed on the "saws" of a larger scale to infinity [16].

All concepts of organization reporting proposed by scientists before the full saturation of the market considered the organization as an independent, isolated, and constant market actor.

They did not take into account that organizations increasingly felt confrontation between two forces as the market developed: competition and integration, and that they had to make efforts to evolve their reporting for their development.

Such a mechanical approach to the organization as a thing in itself suggested that all interactions of the organization with other market actors led to modifications of assets, capital, and liabilities due to various reasons, but they did not alter the organization itself, which made it impossible for the reporting users to perceive the organization as part of the world. Based on the reporting indicators, the users could do a reduction analysis but could not understand the role of the organization in the environment.

In fact, users need to understand the significance of the obtained results of production and financial activities of the reporting organization in general for the reporting organization, the society, and the environment rather than the results of production and financial activities as such.

In methodological terms, this requires a reporting concept of an organization integrated into the environment and based on a functional, purposeful approach in order to form a picture of changes in the organization as a whole, as a result of all events that occurred in the reporting period rather than selective effects on isolated elements.

As competition increases, the practical value of the reporting information is determined not so much by concentrating on certain issues of the organizations’ production and financial activities as on the ability to quickly obtain accurate information on a wide range of issues required for making managerial decisions by external and internal users of the reporting.

The reporting information is integral, it flows from one reporting type to another without changes, but in a different grouping; all of it is based on the accounting reporting data; reporting is always focused on the information requests of its users, and different user groups pursue similar goals to increase the investment attractiveness of the organization, and therefore an accounting (financial) reporting model was developed based on the accounting reporting.

Accounting (financial) reporting is intended to provide the stakeholders with reliable information on the financial position of economic agents for the reporting date, financial results of their activities, and cash flow in the reporting period.

The interaction among national organizations on the global (transnational) market necessitated the development of the common accounting (financial) reporting standards, which were implemented as the international financial reporting standards (IFRS).

B. Algorithm

The IFRS incorporate the best features of several national reporting models, each solving the tasks of economic growth in its own way (Fig. 1).

The IFRS were originally intended for large public companies operating on the developed financial markets, because the international financial reporting standards were primarily needed for investors as a "universal language of communication for businessmen". This conclusion is based on the John Maynard Keynes’ proof that economic growth requires investments [17].

The IFRS contributed to the unification of financial reporting designed to solve economic problems of the external reporting users.
However, although ensuring the harmonization of reporting, the IFRS do not solve the currently relevant problem of reflecting the sustainable development strategy.

It is recommended in the Guidance on Corporate Responsibility Indicators in Annual Reports adopted in 2007 at the 24th session of the Intergovernmental Working Group of Experts on the International Standards of Accounting and Reporting at the United Nations Trade and Development Board to disclose the following elements in social reporting: employment creation and labor practices, technology and human resource development, health and safety, government and community contributions, and corruption.

The environmental aspects are also very important in integrated reporting. For example, A.D. Dumov [20] notes that the first attempts to collect data on the protection and rational use of water resources, including in agriculture, were made in May 1919 in the decree of the Council of People's Commissars "On the accounting of drilling wells for water."

V.S. Karagod [21] believes that the list of environmental protection measures or charity events was the first step in the social reporting development. When elements that broadened the scope of charity were introduced (for example, the costs of labor safety, the amount of water or energy consumed, and the degree of influence on the air purity were indicated), such reports were usually called free social reports. The environmental reporting has gradually become saturated with a wider range of questions. Since 2004, only a few corporations have begun to prepare their reports in accordance with the requirements of sustainable development, i.e., in combination with approaches to the disclosure of the components: economic stability, environmental safety, and social responsibility.

Land, air, water, and biodiversity are depleted and renewed to varying degrees as a result of the production activities of agricultural and processing organizations in agribusiness. Production processes in agriculture are closely intertwined with nature and largely depend on it. However, agribusiness organizations consume the gifts of nature and dump waste into the environment, thus, largely determining the state of environment. At the same time, environmental costs are often not provided when planning the enterprise activities.

Focusing the attention of the management of Russian agribusiness organizations on the need for survival in the 1990s, a reference to commercial secrets, etc. postponed the problem of disposing the production waste into the air, soil, and water. However, the objective reporting data on the natural resource and environmental activities of agribusiness organizations are in demand by the governing and general economic bodies of the Russian Federation [22].

Rational use of all natural resources and active impact on their preservation and renewal are important tasks of mankind. Therefore, there must be a module that reveals the environmental impact of the organization in the integrated reporting.

The need for strictly segmented information for reporting had been first actively discussed in the scientific literature in relation to the events of the World War II, and was introduced into use in the US in the 1960s [23].

Fig. 1. Transformation of national reporting models in globalization (authors' development)

The practice of using the IFRS has indicated that they are not adapted for providing information about the development of an organization integrated into the environment to users.

IV. RESULT ANALYSIS

Social reporting as an integral part of integrated reporting that was designed to solve the issues of social stability, in combination with financial reporting, aroused public interest in sustainability reporting. However, all the above organizations' reporting types are intended to meet the interests of external users of the organization's reporting. Management reporting is intended for the inquiries from internal reporting users, but it is not interconnected with the IFRS or sustainability reporting in any way. At the same time, the development of studies on adaptability [18], the network organization [19], and fractals [16] in the 21st century indicate that the successful operation of the organization is only possible with the interrelation of internal and external development goals, and, therefore, a model aimed at inquiries from both external and internal reporting users is in demand.

The reason why the existing reporting of organizations does not correspond to the modern needs of users is seen in the fact that the reporting method was based on the production concept at the initial unsaturated market stage, then a method based on the sales concept was proposed for the incompletely saturated market stage, and finally, no reporting method was proposed for the saturated market with its concept of value. The attempts made to create models of social reporting and sustainability reporting that are isolated from the organization’s reporting system do not solve the problem of noncompliance of the organizations’ reporting with the needs of stakeholders, since they do not change the segmented direction of the goal.
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Indicators of revenue and profits from sales of products (works, services) in the context of the geographical location of each business dimension of the organization allow the reporting users analyzing the efficiency of a particular operating segment, which is undoubtedly important in the global market. The performance of individual segments should be considered by the organization as discrete financial information. The very definition of segmented reporting implies no need to integrate information that allows seeing a complete picture.

As such, the information detailing in segmented reporting models allows presenting the maximum gradation of the causes of the results obtained but does not allow seeing the overall picture of the organization’s values. At the same time, the task is to achieve integration using the fractal principle in reporting and give stakeholders an idea of values the organization determines for itself and actions it takes to achieve them. Therefore, the segmented reporting method is not suitable for the purposes of this study (Fig. 2).

Integration (Latin integratio – restoration, replenishment, from integer – whole) is a dimension of the development process associated with the integration of previously heterogeneous parts and elements into a whole. Integration processes can take place both within an already established system (in this case they lead to an increase in its integrity and organization) and when a new system emerges from previously unrelated elements [24].

The integration of organizations' information can be viewed as a process able to simultaneously reflect several opposite conditions and prerequisites in the activities of organizations.

The process of integrating accounting (financial and management) reporting with the principles of sustainable development is considered as their maximum approximation in two key areas:

1) integration based on direct introduction of the basic principles of sustainable development and the corresponding transformation of concepts, definitions, classifications, indicators, and method for their calculations, sources of information, methods of its collection and processing into accounting reporting practice;

2) integration based on the adaptation of the principles of sustainable development to the existing national accounting format, which also involves the consistent harmonization of basic concepts, definitions, classifications, method for calculating the reporting indicators, and methods for collecting and processing information.

The authors believe that spontaneous integration is impossible without the regulatory role of governmental institutions due to the mutual adaptation of national economies. This role is assigned to the Institute of Professional Accountants in the Russian Federation in terms of regulating integrated reporting.

A system of constructive communication between business, government, and the public is required for the development of agribusiness organizations in the modern world, which integrated reporting is intended for.

Integration in reporting provides the following advantages: the organization’s values and ways to achieve them both in the reporting period and in the future are presented in a structured manner; a high level of strategic orientation of information is achieved for the needs of external and internal stakeholders; and optimization in the search and analysis of the organization's goals is achieved.

Fig. 2. Impact of the market development on the evolution of the organizations' reporting models (authors' development)
The physical and mental abilities of a human to process information are limited, so there should not be excessive information in the reporting. Back a decade ago, many theoretical studies were aimed at improving management through increasing the volume and speed of collecting information about a system under control, but now it is time to raise the question of optimizing the reporting information. Managers at all levels overloaded with information cannot make optimal and timely decisions.

Reporting on the principles of integration is in demand because neither financial nor management reporting today provides users with systematic information about the values of an economic agent to meet the demands of various categories of users, taking the prospects for achieving a strategy into account.

True consideration of sustainable development aspects when making investment decisions will be possible only if information about the company's activities is provided in the context of and along with the usual information about management, strategy, operational and financial indicators, which serve as a basis for analysis and decision-making by investors.

The post-industrial civilization is distinguished by the economy globalization, labor intellectualization, rapid improvement of production technologies, high mobility of goods, capital, and labor.

There are five main questions under the influence of these modern trends that society must constantly answer:
- What, of which quality and in which assortment to produce?
- How much to produce?
- How, from what resources and technologies to produce?
- Whom to produce for? and
- How to ensure the adaptation of production to changing conditions?

These problems in the activities of agribusiness organizations were dominant in the period of industrial development of the country. Therefore, reporting that was based on the production concept method met the needs of an industrial society. It provided users with answers to the following questions:
- How is it possible to increase the real volume of the nominal product?
- What are the reserves for increasing the production of goods (works, services)? and
- What is the amount of profit created at all stages of the production process, including work in progress?

The account plans in accounting and balance sheets existing in the country in different years demonstrate the compliance of the accounting reporting concept with the production concept reporting.

The post-industrial society is described by economic theories that raise the problems of reporting not only for fixed and circulating capital, but also such its varieties as industrial, financial, human, intellectual, social, and natural capital. So far, the reporting users have not been able to obtain the necessary information about various modifications of capital, the economic, social, and environmental performance of an organization, etc. due to the lack of a reporting method that would integrate responses to the modern demands from a post-industrial society.

The increasing complexity of economic ties leads to natural evolutionary processes in accounting and reporting, as well as in other branches of knowledge. Only accounting reporting represents a concentrated purpose and ways of the organization’s development, and therefore it allows analyzing the organization’s activities, planning measures to improve the organization’s operation by the organization managers, and controlling business processes by reporting stakeholders, which should be used.

As such, the attention of the reporting users in the modern Russian organizations, including agribusiness, shifts from short-term to long-term goals, from exclusively financial indicators to interaction between the financial and nonfinancial indicators, to structuring information around the prospects of the organization’s sustainable development. Accordingly, a new reporting model is required that would integrate elements demonstrating the organization’s social and environmental performance into the proven accounting (financial) reporting model.

Overall, integrated reporting should not focus on information about production processes but rather allow assessing the balance of managerial decisions from various standpoints, including social and environmental objectives, in order to describe the relationship with the environment based on general systematization laws (Fig. 3).

![Diagram](image)

**Fig. 3.** Description of the requirements to agribusiness organizations' reporting in conjunction with the general scientific systematization laws (authors' requirements)

The limitations of the accounting (financial) reporting model for providing stakeholders with information on the economic efficiency of the organization are due to the insufficiency of the modern theory, which considers only the general properties of the object. As such, a model of individual reporting for agribusiness organizations has been developed, with a focus on the social and environmental efficiency (Figure 4), which can be expressed as a three-factor model consisting of the following elements:
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1) innovativeness;
2) competitiveness; and
3) environment (relationship with the environment to secure the sustainability and independence of the organization in a global saturated market).

![Three-factor model of integrated reporting for agribusiness organizations](image)

Let us substantiate the inclusion of the factors in the above model of integrated reporting for agrarian organizations.

The focus of the organization on innovation, modernization of equipment and technologies, and the ability to develop promising business dimensions determine the extent to which knowledge is included in the production of products (works, services) of an organization.

The prominent Western scientist Robert S. Allen notes that agribusiness organizations must pay attention to the technology used [25]. He concludes in his study that the overall technological backwardness of the agricultural sector of the Russian Empire was one of the most important reasons (along with the rapid population growth in the country and the lack of arable land) for the emergence of small private farms, which caused low labor productivity and extremely low income, which in turn predetermined the revolution of 1917.

Competitiveness is a reflection of how perfectly an organization operation is organized and managed. Competition in the market economy requires the organization to prevent negative results of the economic activity. State and market mechanisms for managing competitiveness in the modern economy are aimed at supporting efficient organizations.

Interaction with the external environment is a requirement to reflect not only significant economic outcomes for the internal environment of the organization in the reporting, but also the long-term impact of the organization’s activities on the external environment this organization interacts with.

The external environment is a combination of economic, social, and natural conditions, national and international institutions, and other conditions and factors existing in the organization’s environment and influencing various parts of its operation. The internal environment is a resource base, processes, activities, organizational management system, financial economic state of the organization, and its competitiveness – that is, a part of the general environment which is within it.

Altogether, the above elements of the three-factor model of integrated reporting allow to obtain complete and objective accounting analytical information required for making the efficient managerial decisions.

V. CONCLUSION

The Russian agrarian organizations need an accounting model aimed at reflecting the organization’s strategic focus on sustainable development in integration with the external environment, providing indicators of economic, environmental, and social performance in value creation in the modern economic conditions. Integrated reporting should provide its users with not only the necessary (basic) but also with additional (expanded) information useful for making sound managerial decisions.

The presented three-factor model of integrated reporting of agribusiness organizations will contribute to the formation of relevant information in the context of economic, environmental and social indicators, thereby securing the efficiency of managerial decisions on the long-term sustainable development of agricultural organizations in the foreseeable future.

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