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Accounting Transformation for ESG Reporting in The Sustainability Agenda

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Abstract

For sustainability, the transparent information environment is exceptionally substantial. One of the most common global practices that allows us to achieve this goal has become corporative ESG-reporting. The existence of numerous sustainable reporting and ESG-rating systems complicates the process of its harmonization, but progressively moving to synchronize them is already underway. To describe the organization's contribution to sustainable development and long-term ability to generate value, ESG reporting should be grounded on a relevant and complete information base. Hence, a question arises as to whether accounting can act as a source of this reporting information, or whether additional alternative sources of data are required. Specifics of accounting subject field and procedures limits the non-financial reporting composing based only accounting-produced data. Believing accounting remains the main reporting information supplier, it is reasonable to revise its substantial field, and methodological approaches to provide proper ESG information. The objective of the study is to analyze the ongoing changes in corporate reporting, assess their impact on the accounting subject, identify directions for accounting update in the ESG agenda to ensure sustainable development. The paper dwells to expand the accounting conceptual

area, to evolute its objects and methods, for further corporate reporting development in sustainability landscape.

Keywords: corporate reporting, ESG-reporting, sustainability, accounting, financial information, non-financial information, methodology, balance approach, data, integrate reporting, ISSB, GRI, standards, regulators

1. Introduction

Issues of accounting development as a relevant information practice that meets the current needs have been discussed in the professional community for quite a long time. This discussion focuses on many concerns but consciously pays key attention to reporting as the main product of the accounting system, providing communication and transfer of accounting information to interested parties.

Acknowledging the growing acceptance of “responsible” reporting and businesses realizing benefits of sustainable “integrated” thinking it should be noted that there are several not fully resolved issues in this area challenging to prepare and exploit such reporting for decision-making.

Recent decades, increasingly attention of scientists, practitioners, public institutions, and regulators has been paid to the development of corporate reporting as a sustainable development driver of corporations, territories, and the whole world community. This matches the ESG agenda and covers issues not only of reporting practices, but also of managing the responsible development of the economy and society processes. The practice of “responsible” (or ESG) reporting compared to traditional financial reporting has significantly expanded the information scope deriving to stakeholders and furthermore highlighted new key points of corporative management attention.

Moreover, it turns mistakenly to consider solely the ESG reporting isolated from other related information practices, they should be examined in full cycle unity: data collection – ESG information processing - verification and assurance (filters) - rating procedures and evaluation – analysis - decision making in ESG-investment, assets / risk management, sustainability governance. Last decades this connected practices generated a whole information industry based on sustainable responsible development concept.

Several markers can stress the popularity of “responsible” reporting and connected information practices which provide ESG-investments and socially liable governance. Bloomberg estimates ESG assets may hit $53 trillion by 2025, a third of global assets under management [1]. In the largest international database of social responsibility reports www.corporateregister.com as of November 21, 2023, submitted 200,298 reports from 27,896 organizations [2].

IFRS Foundation research indicates that “More than 2,500 businesses in 70+ countries have adopted integrated reporting” [3] and according to a study of Governance & Accountability Institute [4], 96% of S&P 500 Companies and 81% of Russell 1000 Companies Published ESG Reports. The Corporate Sustainability Reporting Directive (CSRD), adopted by the European Parliament in November 2022, makes it mandatory to apply ESG reporting standards by most of part EU companies. An analytical review by the International Federation of Accountants [5] found that ESG disclosures appear in the reporting of 95% of the 1,350 companies studied in various countries. According to KPMG research conducted on data from surveys of large companies’ executives, 45% of respondents admit that ESG programs increase the financial performance of businesses, 69% recognize a significant demand for “responsible” reporting, 72% predict increased attention and control to indicators of non-financial reports [6]. The Ernst & Young survey of large-company executives [7] found that more than 78 percent believe companies should invest in ESG issues, even if it reduces profits in the short term.

ESG-approach led to the emergence of large number related informational, financial and governance ESG practices, such as ESG Audit & Assurance, Analysis of ESG indicators, ESG ratings, stability measurements, e.g. dMRV practice (Digital Measurement, Reporting, Verification, for the voluntary carbon market), ESG Risk and Operational Change Management, Socially Responsible and Impact Investing, Countering greenwashing etc. Thus, arose not so long ago ESG-analysis applies two main approaches - ESG Scorecard Model (a detailed tool using a numerical scale to quantify a company's performance based on an in-depth analysis of each ESG component; using β-coefficient as well to estimate country and industrial risks) and ESG – Ratings (provide a generalized qualitative assessment of the company's effectiveness in the field of ESG practices). Among the leaders in the ESG-rating industry are the known providers like Sustainalytics ESG, Bloomberg ESG data service, Thomson Reuters, Dow Jones Sustainability Indices, MSCI ESG Research, RepRisk, Moody’s Corporate Knights Global 100, S&P 500 ESG (The Standards and Poor’s),

Institutional Shareholders Services (ISS), FactSet Datasets and others. The global ESG-investment market exceeds $41 trillion dollars, by 2025 it expectably will grow on 12 trillion more. The ESG approach is becoming a new standard in the financial market and the Principles for Responsible Investment (PRI) are articulated in the Investor Initiative (UN, 2006) maintain two trendy approaches to ESG Investing - Socially Responsible Investing and Impact-investing.

According to the EU Corporate Sustainability Reporting Directive (CSRD), from 2024, sustainability reporting becomes mandatory for almost 50,000 companies, including non-EU ones, but which have subsidiaries operating in the EU or listed on EU regulated markets. As part of the CSRD, the first set of draft European Sustainability Reporting Standards (ESRS) was released. ESRS is much stricter in scope and depth of disclosure requirements than the current Non-Financial Reporting Directive (NFRD). Companies are now required to report in accordance with ESRS and disclose more than a hundred metrics and targets. The first CSRD reports are due in 2025 (for companies whose year ends on December 31, 2024).

Recognizing the growing acceptance of "responsible" reporting and businesses realizing benefits of sustainable "integrated" thinking it should be noted that there are several not fully resolved issues in this area challenging to prepare and exploit such reporting for decision-making.

First, due to the existence of numerous organizations trying to regulate issues of sustainability there is a multitude of standards, frameworks and accordingly titles of this reporting. You may come across the names "corporate responsibility", "sustainable", "integrated", "ESG", "non-financial", "social", "carbon" reporting etc. moreover there is not only terminological but serious meaning difference. This produces a "patchwork effect" and makes it difficult to figure out the standards consistency degree, choose and applicate appropriate standards. Unidirectional research discloses there are currently more than 600 ESG standards and frameworks, data providers and ratings [8].

Being voluntary and weakly controlled "responsible" reporting differs from mandatory and strictly regulated financial one, this drives complexity and heterogeneity of whole corporate reporting. Besides, new reporting practice adds costs for business since give rise to companies' structural subdivisions designed to manage sustainability and control ESG indicators.

Differently designed non-financial "sustainable" reporting includes various information, for the most part qualitive, professional assessment-based, collection and filtering of which does not undergo strictly regulated procedures and rules like accounted data. It makes concern about quality, validity, and accuracy of non-financial information.

Furthermore, it significantly affects ESG-rating industry, how it was analyzed in paper Halper et al. The authors highlighted divergence of different providers ESG-ratings (e.g., S&P 500 ESG Index) and low correlation among their ranking scores due to the variety of data sources, different methodology of data collection and proceeding, misrepresentations in companies' sustainability efforts assessment, what can pose difficulties for investors, asset-managers and other stakeholders and ease greenwashing. "At present, there is very little consistency across ESG ratings providers and no established industry norms relating to disclosure, measurement, transparency and quality" [8]. One more interesting issue considered in the article is a problem of discrepancy between E, S and G score, and the feasibility of their separate assessment. Besides the paper notes tendency of financial market and corporate reporting regulators' activity growth to consolidate this area and develop rules and recommendations to provide transparency of ESG-information.

ESG reporting is rooted in preparatory practices providing proper information, and it is rather questioning are these practices can be covered by accounting only, as in financial reporting case. To grant credibility and relevance of ESG-reporting it is necessary to assure these practices quality and relevance as well as define which functional units provide them. Out it much increases the problem of accounting information sufficiency for companies' sustainability reporting and governance. Two questions arise: whether accounting can produce the required data for ESG-reporting and informed sustainable decision-making and how accounting system should be re-designed to be relevant information practice facilitating "green" value creation? This matter highly corresponds with the debated for a long-time issue of accounting practice vitality in digital environment and possible tracks of its updating.

I believe key factors that should be considered when building the modern accounting discursive field in the ESG agenda are:

- reality changes affecting the subject and conceptual scope of accounting (new kinds of value, social progress focus, alteration the capital nature, new business models, information as a driver of market actors, institutions and groups behavior, global environmental threats, novel risk, and efficiency markers),

- growth of stakeholders' information requirements with a wide range of interests and tasks solved using this information.

Obviously, that the accounting information semantic specificity, the common criteria for facts accounting embracing, principle-addiction in primary data converting, the brevity of reporting format, and inherent system institutional priorities reduce the information value of accounting.

The paper objective is to analyze the ongoing changes in corporate reporting in ESG-agenda and assess their impact on the conceptual scope, subject, and methodological core of accounting.

Applied in the study methods are based on the of general scientific knowledge, analysis and synthesis, comparison, and evaluation of cause-and-effect relationships. To provide recommendations for such a scaled changes in the accounting system respective accounting theory should be considered. It was decided on a qualitative approach in this research because it makes it possible to analyze evolution of corporate (and particularly non-financial) reporting over time, to assess the potential of existing accounting to provide information needed and to suggest upgrade of accounting constructions in ESG landscape. When assessing the possible impact of the new agenda on the methodology of accounting, the balance sheet theories were used in conjunction with such key accounting methods as double entry, accounts, and reporting.

2. Corporate reporting development in ESG-agenda

Being the chief information product of accounting, corporate reporting has shifted from a set of resources-sources-results monetary indicators to a model of value creating and the long-term economic entities' viability and has become a keyway of business' communication.

Reporting typology is considered in professional literature in different ways, while there is a terminological and some substantive heterogeneity. Corporate reporting as a commonly used term suggests a certain concept of presenting information to the evolving information needs of stakeholders. At the same time, as Suits, Khorin, Sheremet note [9], corporate reporting in Russian-language sources mostly mean a public information, including both a financial report and non-financial information on strategy, corporate governance, and risks, on environmental and social responsibility of business. In English-language sources corporate reporting interpretation mostly includes only financial statements of companies with a complex

architecture (consolidated reporting). Malinovskaya [10] also indicates the difference in "corporate reporting", which includes public reporting for a stakeholder and "reporting of corporation", covering all types of generated for the different-purposes reports, e.g., managerial, tax, statistical and other reporting.

Vakhrushina and Malinovskaya [11] distinguish financial, social (in fact, including here the sustainable triple-bottom reporting) and integrated. There are two groups of reporting were mentioned in study of Suits, Khorin, Sheremet [9]: business reporting (Accounting, Financial, Stock Reporting), and non-financial reporting (Reporting on Environmental Performance, Corporate Governance Reporting, Corporate Social Reporting, Corporate Social Responsibility Reporting, Sustainability Reporting, Integrated Reporting).

The corporate reporting’s system elements, kind of reports and proper most significant regulatory bodies are summarized in Figure 1.

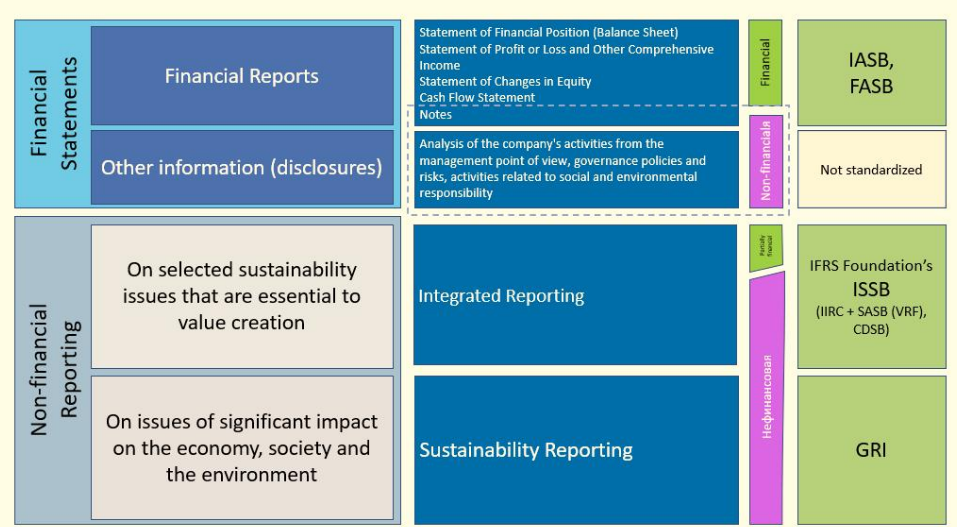

Figure 1 – Generalized scheme of corporate reporting

Systems of indicators, disclosures and standards of non-financial reporting are regulated by numerous international organizations, among them can be highlighted:

- the United Nations Conference on Trade and Development (UNCTAD, United Nations Conference on Trade and Development), which has developed a Guide to the main indicators of enterprise reporting on the contribution of companies to the implementation of goals SDG (Sustainable Development Goals) Reporting,

- international non-profit organizations Carbon Disclosure Project (CDP) and the Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD),

- Global Sustainability Standards Council of the international organization Global Reporting Initiative (GRI, Global Reporting Initiative),

- International Sustainability Standards Board (ISSB), which united the efforts of several organizations - the Value Reporting Foundation (VRF, which includes the Sustainability Accounting Standards Board (SASB), the International Integrated Reporting Committee (IIRC) and the Climate Disclosure Standards Board (CDSB),

- the European Financial Reporting Advisory Group (EFRAG), has been appointed as a consultant to the European Commission on the draft EU Sustainable Reporting Standards (ESRS). The most significant regulators in the field of ESG standards today are the Global Reporting Initiative, the International Integrated Reporting Council, and the European Financial Reporting Advisory Group.

An analytical study published in February 2023 by the International Federation of Accountants and the Association of International Certified Professional Accountants provides data on the use of ESG reporting standards in 2021 – 49 % of companies studied use SASB standards, 63 % use TCFD standards, 74 % GRI standards and 79 % SDG standards (UN Sustainable Development Goals); while 86 % of companies use or reference more than one system of standards. Regarding the form of ESG disclosures, the same publication notes that 50 % of reporting organizations include them in a separate sustainability report, 24 % in a regular annual report, 21 % in an integrated company report and 5 % do not submit such a report. Sources of information about a company's sustainability efforts may also include company websites, the TCFD website, and other types of climate reports [5].

The large number of regulators and standards, on the one hand, proves the level of interest in the ESG agenda, but, on the other hand, makes it difficult to unify the information field and agree upon requirements for the non-financial reporting. Thereby a global level of harmonization should be essential. The most significant ESG regulators today are the Global Reporting Initiative, the International Integrated Reporting Council, and the European Financial Reporting Advisory Group. In the largest database Corporate Register one can find two main frameworks included: IIRC Framework (Integrate Reporting), the number of relevant reports is 10,063 reports and GRI Framework (GRI Reporting) with 69,595 reports as of 21.11.2023 [2].

Currently, there is a tendency to move towards ESG transparency, stricter and more well-organized reporting regulation, and a further standard convergence. In 2021, following the

results of the International Climate Change Conference, the International Sustainability Reporting Standards Board (ISSB) was created to develop a global framework of standards for sustainable development disclosure. In 2022, it merged with the Environmental Disclosure Standards Board (CDSB) and the Value Reporting Foundation (VRF), which already included the International Integrated Reporting Committee (IIRC) and the Sustainability Accounting Standards Board (SASB). Since IFRS Foundation's ISSB to work, it has released 2 standards, the IFRS S1 and S2 - general sustainability-related and climate-related disclosures which are to be integrated into the company's annual reports. Securities and reporting regulators' activities to develop rules and procedures have increasingly intensified, of the latter can be noted:

- recommendation for ESG-ratings providers of the Board of the International Organization of Securities Commissions (IOSCO),
- regulations for public companies to disclose climate-related and risk information of US Securities and Exchange Commission (SEC),
- Corporate Sustainability Reporting Directive and Standards (CSRD and ESRS), developed by the European Financial Reporting Advisory Group and adopted by the European commission,
- requirements of the UK's Financial Reporting Council (FRC) regarding climate-related metrics and risk disclosures in companies' reports.

Organizations practicing non-financial reporting, due to the numerous ESG reporting systems, must decide on the choice of standards (for example, in 2023 these could be GRI or ISSB standards), the form of publication (individual or combined reports), and verification (confirmation of the reliability) of reporting through professional or public reassurance.

All the diversity of existing non-financial reporting systems can be featured according to:

- scope of users (investors or all stakeholders),
- materiality meaning (financial, impact or dual materiality),
- nature of information (including quantitative, or qualitative data),
- considering industry specifics (universal or industry),
- coverage of topics (broad range of topics, or selected topics).

We believe this list should be supplemented to define ESG-reporting models that have been formed for a moment. Firstly, it is a complex or bloc outcome, e.g., integrated report is a complex model that indicates company’s ability to create value, while larger part of sustainability/corporate responsibility reports provides information different topic blocks. Afterwards, reports could differ by common logic and possibility of results generalization in one integrable output. This possibility is inherent to integrated reporting unlike else frameworks’ ESG-reports with findings cannot be summarized into an overall result or common inference. Figure 2 shows the suggested classification of ESG reporting systems.

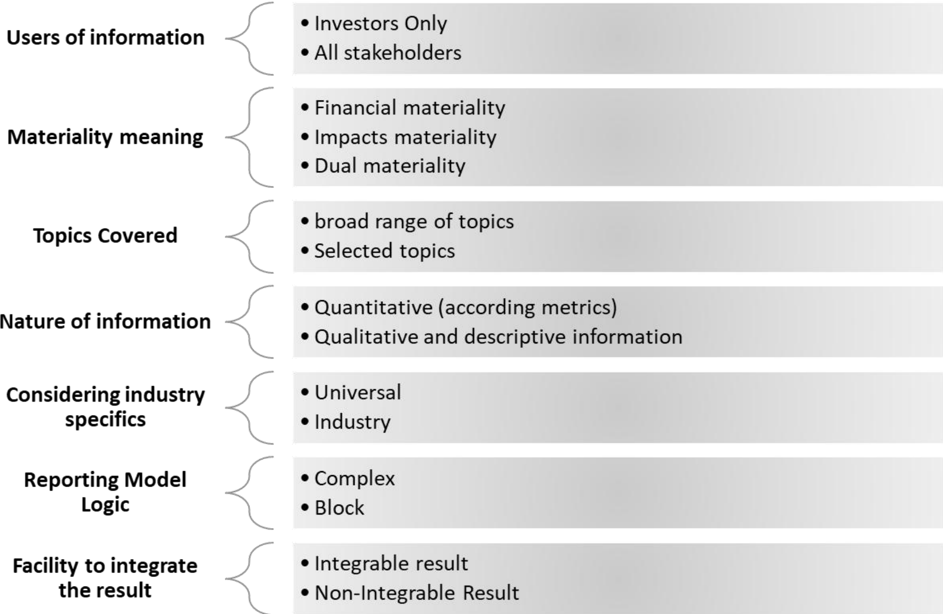

Figure 2 – Classification of ESG reporting systems

Thus, the main distinctive features permit the divide ESG-reporting multeity for basic models.

Reporting model could be defined as a logic of building interrelated system of financial and non-financial indicators and explanations to give users possibility assess company’s sustainability contribution and its impact for all types of capital involved to the value creation. The difference in characteristics listed precisely allows us to distinguish two basic reporting models:

- sustainability reports,
- integrated reporting, with either a few “bottom lines” set of ESG-indicators or complex model of further value creation.

Sustainability reports assume comprehensive coverage of all aspects of the company's activities and assessment of their mutual influence. This reporting is addressed to the wide

scope of stakeholders and based mostly on the impact materiality principle – disclosing the organization's impact on nature and society. This approach with same or less coverage of topics and indicators applies in many other frameworks' sustainability / corporate responsibility reports because they mostly use block logic with not integrated output. To be fair it should be noted the movement to the double materiality for many reports, as well as combination of few ESG-frameworks' requirements and ideas in one report. Integrated reporting is more focused on providers of financial capital, although gives a comprehensive vision of the parameters and prospects for the business, matches in coverage and integrity to the requests of user wide range. However, relying on the financial materiality principle, this reporting system indicates relevant value creation drivers. Integrated reporting is based on three key concepts: capital (financial, industrial, intellectual, human, social, natural) both involved and influenced by organizations, a business model that transforms resources into products and results, and the ability to create value under their influence. In terms of the International Framework for Integrated Reporting, an integrated report is a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation, preservation or erosion of value over the short, medium, and long term [5].

Both ESG-reporting models have certain advantages that do not overlap, and both should be used in sustainability pro-active governance. There are few focuses that can be considered while estimating ESG-reporting significance. First, being information and communicative practice, reporting carries double functionality, both in internal processes of data collection construction and in implementation "client-oriented" external approach to govern stakeholders' and mainly market reaction for information supplied. It could be referred to the Constructionist Methodology in accounting in the Interpretative paradigm, considering particularly the possibility of reality construction via information, lingual concept and different roles of accounting and reporting. of ESG-data capture and proceeding shape parallel targeting sustainable-value creation and control linked risks. This practice highlights non-financial areas of managerial attention and platforms for value creation. It refreshes management semantics to transform traditional criteria of business performance to the impact on capitals metrics and appropriate drivers. This approach will enable us not only to predict reaction and behavior of market, society, institutions, and authorities, but to highlight areas of importance for ESG-governance and risk management.

The common feature of models we see initially inherent to reporting emphasis to create value (this case ESG-value), and clear financial intention to attract investors through reputation's capitalization. This means that even being non-financial, ESG-reporting uses financial goals designs. Moving this practice forward, one must avoid financial patterns originating with traditional reporting but use the idea of accounting as a social practice and interpretative paradigm. But to make reporting an instrument of sustainability management we must avoid financial stereotypes in its main idea. We believe this can help to move ESG-reporting impact from re-active to pro-active and utilize it for not just inform but lever sustainability governance incentives and main actors' responsible behavior.

3. Accounting in the information support of corporate reporting

Corporate reporting transformation is deriving challenge for the accounting. There are questions arise: whether non-financial reporting can be prepared based on accounting data only, and, on the contrary, whether ESG reporting can be prepared without accounting data at all. The current accounting practice surely does not achieve data for all the reporting ESG-indicators, but at the same time they cannot be composed without accounting information. This could be illustrated by two main types of non-financial reporting – integrated and sustainable.

In terms of the International Framework for Integrated Reporting, an integrated report is a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation, preservation or erosion of value over the short, medium, and long term [12]. At the same time, the integrated report displays the organization's ability to create value, influencing the external environment and capitals during its activities. Value is embodied in capitals (financial, manufactured, intellectual, human, social and relationship and natural), changing in a certain way because of the organization's activity. Figure 3 shows the value creation scheme in the integrated reporting logic.

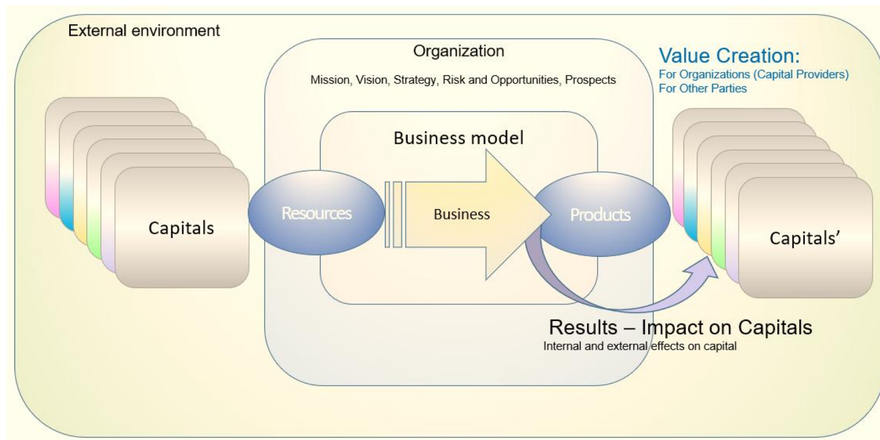

Figure 3 – Value Creation in Integrated Reporting Logic

Evidently required reporting data cannot be gleaned from regular accounting. Capitals presented are not identifiable accounting objects, cannot be evaluated in monetary metrics, and do not relate to controlled or accessible assets. Their further changes and next value dynamics refer to ex-ante information not provided by traditional accounting. A substantial part of this reporting information is qualitative, and judgment based. Nevertheless, the idea of the balance applying to this reporting is of interest, particularly the possibility of returning from the account's theory to the balance theory as a basic paradigm, as proposed in study [9]. The ideas of total, all-encompassing, quantified balance sheets correspond to the challenges of the moment and the social order for information. Simultaneously, the results of value creation, distributed over time and embodied in various types of organization's capital, are provided by aggregate sources related both to its financial relations and non-financial obligations to society due to the humanitarian values, and ethical norms. For example, the balance sheet model in the logic of integrated reporting may look like this (Figure 4).

Resources Derived from Capital to Be Used in Value Creation	Obligations to the Owners/Holders of These Capitals
Financial (money and monetary assets)	Legal obligations to suppliers of financial capital (owners, creditors)
Manufacture assets	
Intellectual Assets (Knowledge)	
Resource of human capital (workforce, experience, qualifications, interaction, development)	Legal obligations to society, its individual groups, institutions, and subjects
Social and Reputational Assets	Obligations to suppliers of any type of capital, assumed voluntarily (encumbrances or humanitarian burden)
Environmental and Nature Resources	

Δ Capitals Impact on capitals Δ Obligations

Figure 4 - Recommended balance sheet model for the integrated reporting

Sustainability reporting developed by The Global Sustainability Standards Board (GSSB) provides to assess the organization's contribution to social progress, covering the economic, environmental, and social aspects of its activity" [13]. Since 2000, several versions of the GRI guidelines have been released (2000, 2002, 2006, 2011, 2013). Today, the transition from the GRI Guidelines to the new modular system of GRI Standards has been fully completed; in October 2021, there were presented the updated GRI Standards – 2021. They include:

- universal standards (GRI 1-3) that describe general provisions, principles, and approaches to reporting,
- thematic standards, revealing significant aspects in economic (GRI 200 series), environmental (GRI 300 series) and social (GRI 400 series) impacts of the organization,
- sectoral standards are intended for specific industries.

One of the latest published GRI reports emphasizes the principle of double materiality, developed in interaction with the European Financial Reporting Advisory Group (EFRAG). The principle assumes that corporate reporting is focused on two target audiences of stakeholders. First there are investors and suppliers of financial capital, for whom information on the creation of economic value is fundamental (financial materiality). The second group is the other stakeholders caring about the company's impact on the economy, environment, society, territorial development, etc. (materiality of impact). The combination of these principles gives an understanding of double materiality.

GRI standards reporting indicators cover a wide array of objects such as the organization's impact on the economy, the environment, and people, including human rights. This information is of interest not only to capital providers, but to a much broader range of stakeholders. This information much of it being non-financial cannot be generated only by usual means of accounting, although a certain part of it has an accounting origin or is based on its expanded practices (environmental, social, strategic management accounting, etc.). Compared with IR the GRI reporting model could less be accompanying by the balance sheet approach, although the idea of a three-pronged total can also be seen as the result of the organization's impact on the change in all capital involved (economic, environmental, and social).

Normally, the company's reporting data is based on the information generated by the accounting, but this does not apply for non-financial reporting data. We must admit the data

of regular accounting for now does not meet the ESG information needs. The accounting objects to measurement and registration do not embrace:

- strategy, interaction with stakeholders, quality of corporate governance, management team ethics and integrity, management approaches, economic, environmental, and social indicators of the sustainability report,
- environment features, opportunities and risks, strategy and allocation of resources, business model, prospects, and all types of capital as the integrated report elements.

I believe properly modified management accounting with ESG segment intended for data collecting on climate and environment affect, social responsibility and the company's ability to increase capital can supply this information.

Thus, the accounting conceptual development for matching ESG reporting needs includes two scenarios. The first scenario is to leave only the financial component in the accounting subject area, with a few information items appropriate for ESG reporting. Second feasible way is to expand the accounting conceptual and subject area, its methodology, for forming moreover non-financial information for ESG-reporting. It is in the second option that lies the prospect of accounting development as a popular information practice and a scientifically based system of methods. A meaning part of accounting practice which cannot be implemented through only digital technologies includes:

- selection of information relevant to users,
- design its processing methods,
- determining accounting objects, reporting indicators and disclosures that meet current needs,
- maintaining a balance of reputational benefits of the organization and unbiased stakeholders informing,
- following the principles of "responsible" reporting.

Accounting is moving to the multidimensional measurement and assessment of business activity impact on the environment, aggregate social capital, and sustainability value. Figure 5 presents the fundamental areas of change in accounting theory and practice in the ESG agenda.

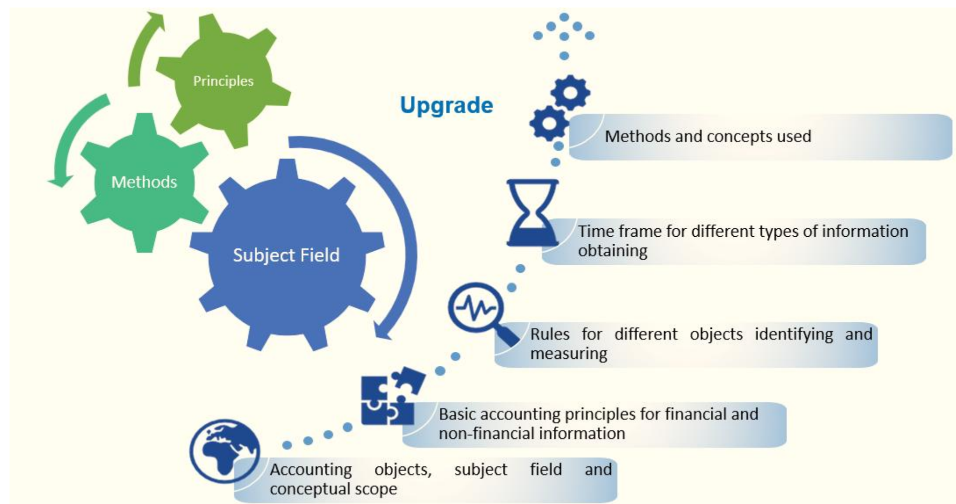

Figure 5 - Changes in accounting to provide the of ESG reporting

To become relevant and match ESG needs accounting must be updated, this matter has been under consideration by scientists for quite a long time. There were expressed the ideas of creating integrated accounting system [14], unified accounting system [15], business accounting [16], integrated accounting and analytical system [17]. M. Vakhrushina [18] highlighted the management accounting title role in the integrated reporting preparation. N. Malinovskaya [19] emphasized the need for a combined system of indicators providing both financial and non-financial reports data. In most of these proposals, there is an expanded vision of the subject and functionality of accounting and its types. Numerous studies were devoted to the issues of accounting internal structuring and recognizing types of accounting. Many of them pick out certain types of accounting e.g., ecological, social; others consider information needed can be provided by existing generally recognized accounting types (mostly financial and managerial). Data gathering for ecological and social parts of corporate reporting is carried out same way as for financial one; and existing reporting practices even now based on data remarkably given by accounting divisions. Nonetheless, while delivering data required, including non-financial one, accounting can maintain relevance as an information practice.

But whether the existing methodological framework of accounting will be able to provide such an information leap? There are enquiries arise regarding new value categories, necessity in forward-looking information, measurement of non-financial objects and the multidimensional results of the companies' activity, subjectivity of indicators based on professional judgments. This significantly expands the usual accounting framework and impacts the methods used, subject, principles for financial and non-financial accounting, rules for objects identifying and measuring, times for varied information obtaining and aggregating.

For example, emerged new objects of accounting through ESG-reporting semantics, e.g., elements of the business model, risks, performance indicators, non-financial benefits, and influences. Regular objects such as assets, resources, capital, asset claims, liabilities and voluntary encumbrances, results, rights of ownership, access, use, and benefit their content of is in turn expanded. For instance, we can define an asset as a resource existing as a means or opportunity to accomplish something, and its value is not always monetary, there are other types of utility (environmental, humanitarian, etc.). The rights of ownership are replaced by the rights of access/use/receipt of some benefit embodied in it (in the form of obligations or voluntary encumbrances). The evolution of the concept of assets passed several stages, from balance and controlled resources to available and used resources (Figure 6).

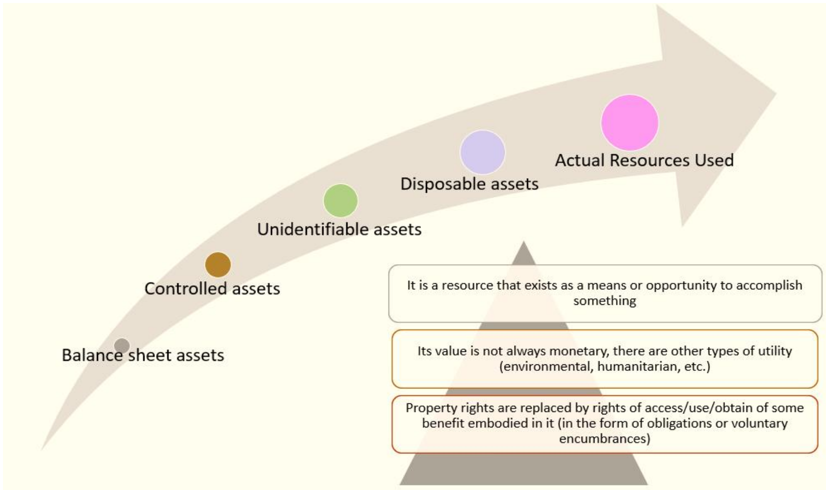

Figure 6 - Evolution of the "Asset" concept of for integrated accounting

A traditional concept of "result/outcome" in the ESG agenda also get is a significant expansion as an accounting object (Figure 7).

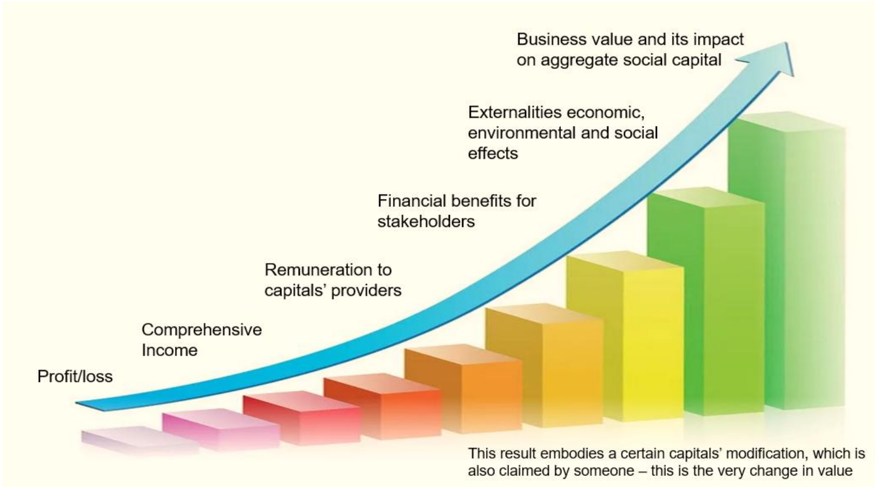

Figure 7 - Evolution of the "Outcome" concept for ESG-accounting

Within the duality paradigm framework, the balance "capital = liabilities" fits into the non-financial reporting logic called to assess of the business socially influencing activities. We significantly expanded the concept of resources and obligations received through capital or voluntary encumbrances; hence it is possible to adhere to the balance theory modelling value creation as a set of various kinds of effects.

The application of the theory of accounts in ESG- accounting may produce a few difficulties. Even when supposing that it is possible to show the object in the form of two-way account, believing possibility of quantitative measure in which its changes can be estimated, it is difficult to use only a monetary record. Moreover, according to the digraphism concept, there must be an object that changes synchronously. Such a logic for non-financial objects may be different from that in traditional accounting. In double-entry bookkeeping, the balance of static accounts is equal to the balance of dynamic accounts and reflects the activities' performance. But performance outcomes in non-financial reporting can be multidirectional, interdependent, and not quantifiable.

Likewise, not all financial accounting principles and assumptions are applicable in non-financial accounting, for example, entity, monetary measure, continuity, conservatism, and some others. All these methodological issues are ambiguous and require a separate study.

But it should be accepted that most of the non-financial information for the ESG reporting can be generated within the accounting system without its methodological core breaking. This accompanies expansion of the vision of accounting goals, objects, principles, and structure.

The results of the study are several provisions that determine significant areas for the development of accounting in the context of the sustainable development agenda and responsible business. The proposed approaches can be used to develop accounting methodology in the context of new accounting information needs and evolving types of corporate reporting.

4. Conclusions

ESG-reporting and practices based on it comprises a wide scope of financial, governance and information matters, not only information supplying for the decision-makers and broad range of stakeholders. It led to new approaches providing sustainability management, in particular:

- ESG metrics are part of a business strategy and an element of reputational capital,

- companies considering ESG factors in their decision-making have a better understanding of the risks and opportunities of their business,
- they provide strategic choice and operational change facilities to improve ESG parameters at all management levels,
- this is a ground of a "responsible" investment market and creation of "green" value,
- they set up integrated thinking and movement towards societal progress and a sustainable future.

Analysis of reporting systems revealed that the wide-spread ones could differ many points (users, materiality meaning, detailing, topic coverage etc.), but the most important distinction is in basic informational reporting model including either few “bottom lines” set of ESG-indicators or complex model of value creation. The common feature of both models we see initially inherent to reporting emphasis to create value (this case ESG-value), and clear financial intention to attract investors through reputation’s capitalization. This means that even being non-financial, ESG-reporting uses financial goals designs. Moving this practice forward one must avoid financial patterns originated with traditional reporting but use the idea of accounting as a social practice and interpretative paradigm. The analysis of two main ESG-reporting models reveals their certain advantages do not overlap and both should be used in sustainability pro-active governance. The approach recommended will enable not only to predict reaction and behavior of, market, society, institutions, and authorities, but to highlight areas of importance for ESG-governance and risk management.

Changes in corporate reporting undoubtedly impact accounting, expanding its subject field, basic concepts, the scope of objects, criteria for their recognition, and making multidimensional the businesses’ activity metrics. This is a promising area for accounting practices development, due to leaving a significant part of them outside the sphere of algorithmic digital solutions.

Accounting for corporate ESG-reporting should be integrated, including financial, non-financial, assessing information and professional judgments. This accounting is based both the accounting methodology (the concept of duality, balance sheet theory, accounts, value measurement), and methods from related types of accounting and information practices. At the same time, it produces information necessary for stakeholders, making flexible own subject field and using consistency and logical integrity as an advantage. The suggested logic

of accounting refreshing in ESG agenda could improve quality of information environment and sustainability governance.

Conflict of Interest

The author declares no conflict of interest.

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