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A Model for Measuring the Usefulness of Financial Reporting and the Effectiveness of Its Application. The Case of Reporting Methodology of the Republic of Moldova

Keywords: qualitative characteristics; usefulness of information; model of measuring; financial reporting; entropy criterion

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Abstract

Theoretical background: Financial statements, due to their verifiability, retain their importance as a fundamental accounting tool trusted by stakeholders. At the same time, the transition to a socio-economic development paradigm has dictated a demand for adhering to requirements which make the information useful for taking informed decisions, primarily those concerning responsible investing. In this regard, the challenge of measuring the usefulness of information requires an in-depth study.
Purpose of the article: Consequently, the aim of this work is to develop a model for measuring the practicality of financial reporting based on the interpretation of qualitative characteristics and to substantiate the effectiveness of its application by any accounting system.
Research methods: To achieve the objective, a research methodology has been developed, based on the methods of analysis, mathematical, and algorithmic modeling. The analysis method was employed to interpret the concept of qualitative characteristics of information, establishing a correlation between the information theory and the accounting methodology. The modeling method contributed to the development

of a three-stage algorithm for choosing one of two modifications within the framework of the qualitative characteristics of information concept and the mechanism for measuring numerical values of information utility for different accounting models – European and Anglo-Saxon.
Main findings: An algorithm has been developed for applying the criteria of the qualitative characteristics concept to choose one of its two modifications. The innovation of the study lies in the development of a step-by-step mechanism for determining the numerical value of information usefulness for various accounting systems. Information entropy coefficients have been established, and axiomatic boundaries of the values of the usefulness of financial reporting information have been calculated for different accounting models. The developed model for measuring the usefulness of financial reporting information has been adapted for international accounting systems and underscores the necessity of a creative approach when applying the qualitative characteristics concept to accounting systems situated between IFRS and the EU Directive.

Introduction

In current times, businesses are undergoing significant changes under the influence of a vast number of reasons: the strengthening of social ties and expansion of economic relations, the recognition of the imperative of transition to a "green" economy, the introduction of information innovations. However, the tendency to inform the public about the achievements and results of the business environment through reporting has not changed. The business environment, while engaging in economic activities, is often solely focused on short-term profit gains, frequently ignoring economic, social, environmental, and other consequences. Nonetheless, within the socio-economic paradigm, the dynamics of the business environment prompt stakeholders to advocate for enhanced quality of information in financial reporting, fostering better decision-making for sustainable development (Tișcenco et al., 2024). In the context of the new paradigm, a business's competitiveness is defined by resources like intellectual capital, which play a pivotal role in converting tangible and financial assets into added value and business success. However, this crucial information is often absent from financial reporting (Čupić et al., 2023). Financial statements, by virtue of their verifiability, retain the importance of a basic accounting tool that is trusted by its users – business stakeholders. At the same time, to fully leverage financial statements, it is essential not only to adhere to legal requirements for their preparation but also to possess the expertise to interpret their financial indicators. Accordingly, the following actions are imperative:

– to understand the logic of their construction, the meaning of the articles, conventions and limitations of application (Kovalev, 2021),

– to realize why financial statements are considered a true picture of the financial position, effective management, risks and uncertainties (Gjoni-Karameta et al., 2021).

The evolution and establishment of the concept of financial reporting are predetermined by shifts in the economic development paradigms. Respectively, two initial accounting models emerged: the continental and Anglo-Saxon, followed by efforts to harmonize them (the second stage). The modern concept of financial reporting represents the culmination of their convergence (the third stage). The last two stages

mirror the struggle between the proponents of traditional accounting, embodying Pacioli's principles, and the International Financial Reporting Standard concept, the result of Fischer's ideas (Richard & Altukhova, 2017a). The continental (European) model of accounting uses a legal approach to preparing financial statements, while the Anglo-Saxon model uses an economic approach. To deem financial statements useful, the information they contain must possess specific properties known as qualitative characteristics. The list of these characteristics depends on the accounting model employed, and consequently, varies between models. Each qualitative characteristic on the list reflects a distinct attribute of information. Assigning a relative numerical value to each characteristic can aid in assessing its impact on the level of information usefulness. The summed values of all the qualitative characteristics give a practical numerical value to the usefulness of the information that users trust to make decisions (Golochalova & Tsurcanu, 2020).

The difference between the actual usefulness value and the estimated usefulness value assists users in determining the extent to which financial statements aid in making effective decisions. However, when qualitative characteristics are concurrently aligned with competing accounting models, such as the European and Anglo-Saxon models, it becomes challenging to discern the contribution of each characteristic to information usefulness. Presently, two modifications of the concept of qualitative characteristics have emerged:

– the methodological rationale of one of them is given in Directive 2013/34/EU and is the basis of the European accounting model,

– the algorithm of application of the other one is disclosed in the Conceptual Framework for Financial Reporting (IFRS, 2018) (hereinafter referred to as the IFRS Concept), on which the Anglo-Saxon model is based.

In some countries, including the Republic of Moldova (RM), the accounting and reporting systems are still in the process of finding a national development path. They occupy an intermediate position between the EU Directive and the IFRS system. It is generally believed that the usefulness of financial information is influenced by three factors: the normative regulation of accounting and reporting in a particular country; the completeness of the use of qualitative characteristics of information; and the level of professional judgment of the accountant (Tsurcanu & Golochalova, 2016; Bezruchuk, 2017). The factors mentioned enable us to evaluate the pragmatic attributes of information usefulness, yet its substantive aspect remains unaddressed.

Financial reporting is typically prepared in accordance with accounting laws and standards, which usually incorporate a list of qualitative characteristics. This implies that, on the one hand, adherence to accounting norms ensures the reliability of accounting information. On the other hand, preparers of reports, lacking adequate methodological support, may lack the professional competence required to generate useful reports for users (Bezruchuk, 2017).

The transition to the new Concept of Sustainable Development, has uncovered new information needs, as its implementation has brought new challenges to busi-

ness, requiring timely and accurate decisions. Consequently, the transition to the socio-economic model of financial reporting has been proposed. This transition will demand a reassessment of the principles and methodologies governing the accounting of economic event outcomes, along with bolstering the standards for information quality, the preparation process, and presentation format. This marks the fourth stage of the financial reporting concept.

The experience of developed countries has proven that a business is more protected from modern challenges if its business model is built on the principles of sustainable development and its results are presented in the financial reports. The socio-economic model of financial reporting provides for a wide range of users, such as investors, creditors, government agencies and managers, for whom financial information is of particular value. Such stakeholders are making responsible investment decisions and, in order for the information to be useful to them, they need to be confident that business metrics are presented accurately. In this context, the challenge of information usefulness resides in understanding the methodology for measuring the utility of financial information by various user groups. Concurrently, financial reporters have the opportunity to delve into methodologies for gauging the utility of accounting information, facilitated by the adoption of new technologies that address the challenges of its formulation and presentation (Pyatov, 2021).

The foregoing argues the topic which is centered on developing a model for measuring qualitative characteristics and assigning numerical value to the usefulness of information, thereby qualifying financial statements as useful to users. This raises the following questions:

Based on what criteria is the concept of qualitative characteristics identified?

How are the numerical values for information usefulness determined?

What factors influence the assignment of a numerical value to a specific qualitative characteristic of information under Directive 2013/34/EU and under IFRS?

What method (algorithm) of applying qualitative characteristics is recommended by the accounting system of the RM?

Is this method effective in providing clear information about the financial position of the business and does it not mislead the reports users in making effective decisions?

The essence of these questions lies in a thoughtful examination of the concept of qualitative characteristics. In this context, the author proposes the following hypotheses:

1. Aligning the principles of information usefulness with those of qualitative characteristics fosters the evolution of a model for evaluating the utility of financial reporting information.

2. The accounting methodology in the RM, which lies between Directive 2013/34/EU and IFRS, applies a system of qualitative characteristics of information that is declarative in nature.

The article is structured as follows to substantiate the proposed hypotheses: Section 1 – literature review examining issues related to the application of the concept

of qualitative characteristics of information and the challenges of achieving information utility for managerial decision-making, Section 2 – research methodology and methods used in substantiating the proposed hypotheses, Section 3 – the research results, which constitute a specific model for assessing the utility of information for managerial decision-making, and the discussions contributing to the achievement of the outcome, Section 4 – conclusions.

Literature review

Typically, in economic literature and accounting regulatory frameworks, studies often focus on defining and enumerating the qualitative characteristics of financial information, delineating their essence and importance. However, there are also scientific works dedicated to evaluating the impact of qualitative characteristics on the generation of useful information. Some of these studies are methodological in nature, while others are empirical research endeavors. Let us delve into a few of them.

The evolution of accounting methodology at the turn of the late 20th and early 21st centuries was influenced by the "struggle" between two predominant accounting models: the European and Anglo-Saxon. In addressing the challenges of harmonization and convergence, researchers inevitably turned their attention to the issue of qualitative characteristics of financial reporting to fulfill its purpose. Notable among these theorists are French scholars (Piketty, 2016; Richard, 2017), an English scholar (Alexander, 2005), and a Russian scholar (Sokolov, 2009). They conducted analyses focusing on the fundamental aspects and underlying reasons for the differences between the two iterations of the qualitative characteristics concept in financial reporting.

According to Piketty's study, the concept of qualitative characteristics (CQC) is shaped by the influence of the state's adopted economic model: the Rhenish model, called the "stakeholder model" or the Anglo-Saxon model, known as the "capital holders model". Piketty conducted the study through the measurement of the Tobin coefficient. According to the French scholar, under the Rhenish model, owning the share capital of a business does not provide shareholders with full power due to the involvement of various stakeholders (hired workers, representatives of the state, environmentalists) in decision-making, who may also hold ownership of business stakes (Piketty, 2016). In this scenario, the Tobin coefficient tends to be less than one, indicating the primacy of trustworthiness (reliability) over relevance in reporting. Conversely, under the "capital holders" model, the system of qualitative characteristics is dominated by relevance, the fulfillment of which determines the investment decision and the profitability of the contract for shareholders (Piketty, 2016). In this case, the Tobin coefficient is usually greater than one. Hence, the two distinct economic models necessitated adjustments within a unified CQC framework.

Another French scholar has pursued a slightly different research trajectory. According to Richard and Altukhova, the rationale behind modifying the CQC stemmed

from a shift in emphasis from the "cost" principle to the "fair value measurement" principle. The authors highlight that the European accounting model is grounded in the control function of accounting, executed through double-entry bookkeeping. In contrast, the IFRS Concept overlooks the essence of double-entry, prioritizing the recognition of economic benefits measured at fair value (Richard & Altukhova, 2017a). The findings of these authors correspond to Piketty's results – two modifications of the CQC.

Referring to the renowned scholar, Alexander's work is fitting in this context. According to his analysis, the divergence between the two iterations of the CQC stems from the source of business financing – whether it is creditors or shareholders and investors (Alexander et al., 2005). When financing is oriented towards:

– creditors – the reporting system is based on a conservative valuation model, which involves preparing financial statements in accordance with the principle of trustworthiness,

– shareholders and current/future investors – it is critical to recognize that their focus lies less on past profits and more on future ones. Consequently, the preparation of financial statements hinges on the principle of "true and fair" presentation, entailing a methodology for assessing past results to render them valuable for future decision-making (Alexander et al., 2005).

Clearly, in the latter scenario, relevance is acknowledged as the paramount qualitative characteristic, with trustworthiness considered secondary. To counterbalance this, trustworthiness is interpreted as "true and fair representation" to mitigate its impact.

Richard's position is followed by Sokolov's, who identified the challenge of applying the principles of reliability and good faith to the presentation of useful information (Sokolov & Terentieva, 2009). According to his judgment, reliability should be understood as a quality that does not cause doubt. Consequently, the reliability principle underscores the predominance of trustworthiness as a qualitative characteristic of information, in compliance with which the reporting is characterized by accuracy (relative, not absolute) of accounting data. Conscientiousness, as per Sokolov's interpretation, entails the honest and meticulous fulfillment of duties. It means that the preparer of reports should have the ability to make a professional judgment and formulate it in good faith. This fact provides for the possibility of deviating from the requirements of regulatory documents and truthfully (but not reliably) presenting the financial result and financial position (Sokolov & Terentieva, 2009). Since the CQC focuses on the principle of reliability in one case and on the principle of good faith in the other, it is evident that two modifications of it are inevitable.

Golochalova and Tsurcanu support this view. They note that under the European model of accounting, the focus is on compliance with legal norms, and the role of the CQC of information is minimized. The Anglo-Saxon model is dominated by a liberal form of recording economic events, which gives an important role to accounting judgment and requires compliance with the qualitative characteristics of

information. Hence, the IFRS Concept recommends an algorithm for their application (Golochalova & Tsurcanu, 2020).

Other theorists examine the role of individual qualitative characteristics of reporting information. Within the Anglo-Saxon accounting model, Sokolov highlights the issue of information verifiability, which is attributed to the diminishing role of double entry as a controlling technique in accounting methodology. This aspect is not central to the concerns of the IFRS methodology, which is primarily focused on interpreting financial statement data rather than registering economic phenomena (Sokolov, 2021). This implies that achieving a true representation *a priori* is not feasible under IFRS. According to Tsygankov and Fadeikina, the most crucial characteristic is understandability because, in their view, only understandable information can be relevant and, consequently, useful (Tsygankov & Fadeikina, 2016). However, one cannot disregard Hendriksen and van Breda's perspective, as they emphasize that "user type is a key factor in deciding about what information to present, since the perceptibility of information depends on the quality of the user" (Hendriksen & van Breda, 2000). In this regard, it is relevant to note that under the socio-economic development paradigm, accounting and financial reporting methodology is oriented towards a wide range of stakeholders. They should have the skills required for reporting, along with the ability to study and analyze information, as their investment decisions hinge upon this competence.

As noted by Newman et al., the findings of his literature review suggest that while the application of qualitative attributes is extensively examined, the question of whether IFRS or other regulations, such as Directive 2013/34/UE, impact the quality of financial reporting remains unresolved, fueling ongoing debate (Newman et al., 2016). It is plausible that an effective regulatory framework contributes to enhancing the quality of financial reporting (Newman et al., 2016), but both preparers and users are likely to continue experiencing poor reporting quality until they recognize that the key to addressing the issue lies in understanding the substantive aspect of CQC.

In this regard, the work of van Beest and colleagues is of interest. These authors proposed a model for assessing the usefulness of information, which allowed them to identify a number of factors affecting compliance with the qualitative characteristics of information, namely: accounting standards, the legal system and its effectiveness, the size and industry of the business unit (van Beest et al., 2009). At the same time, the developed model is adapted to the requests of investors and shareholders, which, as the developers themselves point out, is a limitation of the study.

A somewhat different methodology for assessing the usefulness of information was proposed by Taranenko (2009). He has developed an economic-mathematical model based on a five-point evaluation system, which:

– assigned one point as a benchmark for each of the qualitative characteristics: trustworthiness, relevance, understandability, comparability and completeness,

– established the practical value of each characteristic as a percentage of the benchmark,

– established the lower threshold of usefulness at 60%, indicating that once this threshold is surpassed, the information in the reports will begin to lose its utility (Taranenko, 2009).

Another methodology for assessing the impact of qualitative characteristics of information on the quality of financial reporting is proposed by Gjoni-Karameta et al. The authors put forward the hypothesis that the absence of a specific numerical value for the quality of financial information has led to different perceptions among users about what information to consider useful (Gjoni-Karameta et al., 2021). Their hypothesis is supported by employing a Likert scale, which enabled them to gauge the extent to which the quality of financial reporting depends on selected qualitative characteristics: relevance, fair presentation, comparability, verifiability, timeliness, and understandability. The results of this methodology revealed a significant correlation between financial reporting quality and fundamental qualitative characteristics (relevance and fair presentation), as well as comparability and understandability, with fair presentation deemed the more significant characteristic. However, there was only a moderate association between financial reporting quality and characteristics such as timeliness and verifiability (Gjoni-Karameta et al., 2021). Evidently, the study evaluated the quality of financial statements prepared based on IFRS.

In response to contemporary stakeholder demands for specific and high-quality disclosure of business performance information, Cosmulese and Grosu devised an estimated econometric model. This model aims to offer insights into the extent to which a particular company prioritizes meeting stakeholders' expectations regarding information usefulness (Cosmulese & Grosu, 2021). What sets this model apart is its foundation on the premise that information usefulness hinges on two factors: the realization of qualitative characteristics in financial statements and the utilization of statistics that enhance usefulness. It is worth noting the work of Samborski, who delves into the challenge of comparability in business reporting with the objective of achieving effective management. Drawing on research findings, Samborski raises the issue of formalizing ESG-reporting to ensure its comparability with financial reporting. ESG-reporting, providing qualitative descriptions of business events, is often poorly understood and therefore less useful to users. However, the absence of data on a business's contribution to sustainable development (ESG-indicators) in financial reporting also diminishes its utility level (Samborski, 2024).

It is important to highlight the work of Nobes and Stadler, which substantiated the hypothesis regarding the significant impact of changes in accounting policies on qualitative characteristics, particularly relevance, fair presentation, comparability, and understandability. In the context of adhering to the qualitative characteristics of financial reporting, the authors underscore the pivotal role of managers in ensuring compliance with jurisdictional norms (Nobes & Stadler, 2015). Evidently, this study was conducted from the perspective of the European accounting model.

The works mentioned above primarily explore the influence of the content aspect of qualitative characteristics of information on its usefulness for stakeholders.

Now, let us shift our focus to studies examining the pragmatic side of achieving the usefulness of financial statements. In particular, let us consider the article by Mahdavikhou and Khotanlou, which assesses the impact of professional ethics on the quality of financial reporting. According to these researchers, realizing the CQC is not feasible without professional ethics, which implies that financial statements may present stakeholders with an unrealistic depiction of the business's financial position. This hypothesis was supported by calculating the correlation coefficient between professional ethics and qualitative characteristics, revealing a positive relationship between them (Mahdavikhou & Khotanlou, 2012).

Another author, Bezruchuk, delves into the issue of the impact of the preparer's professional responsibility on the qualitative characteristics of financial statements. From Bezruchuk's perspective, the CQC has taken on a methodological nature, influenced by various stakeholder interests. In this context, achieving the CQC is only feasible with the presence of an effective regulatory framework and the application of professional judgment in financial statement preparation (Bezruchuk, 2017). Moreover, as Bezruchuk emphasizes, standards are applied voluntarily, allowing businesses to develop their own criteria for reporting usefulness. Consequently, this creates opportunities for manipulating information to portray a favorable business state in the reports, often suppressing negative trends or sensitive data. To address this issue, Bezruchuk advocates for accountants to fulfill their responsibility, both legally and socially. The author presents a vision for achieving financial statement usefulness in the form of an algorithm.

Zieniuk's work delves into various risks impacting the realization of qualitative characteristics in the preparation and presentation of financial statements. He highlights that a significant portion of accounting information involves estimations due to the increasing uncertainty and risks in business, thereby compromising the reliability of information (Zieniuk, 2019). Zieniuk proposes reassessing the role of measuring the value of specific accounting objects, such as environmental assets, to ensure accurate reflection of their reality. Furthermore, Zieniuk addresses the challenge of disclosing additional information on risks in reports, which expands the information field but inevitably imposes qualitative limitations on the information presented (Zieniuk, 2019).

Gad et al.'s article explores the pragmatic aspect of modifications to the concept of qualitative characteristics in financial reporting through the assessment and recognition of specific accounting objects. The authors hypothesize that the degree of conservatism in the accounting model may decrease if businesses adopt reward schemes based on non-financial achievements. They establish a positive relationship between rewards based on non-financial achievements and reported business results, while also demonstrating the negative impact of this relationship on the level of conservatism in the accounting model (Gad et al., 2023). Notably, this research is tailored to the Anglo-Saxon accounting model.

The article by Balios is devoted to studying the impact of the phenomenon of Big Data on the achievement of qualitative characteristics of information. Balios argues

that the phenomenon of Big Data has changed the nature of business measurements, as activities and their results are tracked in real-time and promptly provided to users. The researcher believes that in these circumstances, financial reporting has lost its informational value because it has a historical nature, whereas business economics requires real-time process management (Balios, 2021). It should be noted that Balios's perspective is extremely negative towards the methodology of accounting, which he interprets as a system of technologies and their data. In this regard, the problem of achieving qualitative characteristics disappears.

Numerous studies, including those discussed earlier, serve as a rebuttal to Balios's assertion. For instance, Hlaciuk's exploration of the role of professional accountants in supporting sustainable business illustrates that they play a crucial role in generating decision-relevant information, thereby contributing to adding significant value and fostering competitiveness, sustainability, and social and environmental responsibility in businesses. This role necessitates a profound understanding of the methodological aspects of accounting, financial reporting preparation, financial and tax considerations, and their broader impact on the business environment and society (Hlaciuk, 2023). Nevertheless, it is important to acknowledge the existence of a heated debate between advocates of traditional accounting methodology and proponents of the Big Data concept.

Undoubtedly, the above-mentioned scientific works make a significant contribution to the resolution of the problem. Meanwhile, the issue of developing a methodology for assessing the usefulness of reporting information on the basis of assigning numerical values to qualitative characteristics, taking into account modifications of their concept, and substantiating its effectiveness is still open.

Research methodology

The aim of this paper is to construct a model for assessing reported information by identifying modifications of the CQC of information and validating its applicability across any accounting system. This model is founded on a comprehensive understanding of the context and hierarchy of qualitative characteristics of information, incorporating principles from the theory of information utility. This research is conducted on the basis of general scientific and special methods: system approach, analysis, comparison, synthesis, modeling, study of special literature. The application of the system approach is manifested in the rational combination of certain scientific methods aimed at building a research methodology: formulating the problem, proposing hypotheses and their justification, and finally developing an algorithm for identifying modifications to the concept of qualitative characteristics and, in fact, a model for measuring the usefulness of financial statements. Meanwhile, the methods of mathematical and algorithmic modeling form the basis of the developed methodology.

The essence of the proposed methodology for assessing the usefulness of financial reporting information is disclosed below. According to the information theory, qualitative characteristics participate in the formation of the value of information, which is valuable if it has two properties characterizing its substantive (semantics) and pragmatic aspects: truthfulness and relevance, respectively. Obviously, they are fundamental and each of them has an equal share of 50% (percentage weight) in the total value indicator. Meanwhile, entropy – a measure of uncertainty, risk and unpredictability of a phenomenon, event or experience – is inherent to information and its value varies from case to case. For both fundamental qualitative characteristics and entropy, a benchmark value of 10% is set. The level of entropy is determined based on the established practice of losses and risks.

Typically, information is used for economic benefit, and for this purpose, it is necessary to take into account additional properties of information that neutralize the effect of entropy. These properties are embodied in qualitative characteristics such as understandability (E_1) and completeness (E_2). If all qualitative characteristics are met, the total economic utility is 100% or its value is 1.0. Of course, in the absence or non-compliance of at least one of them, the real quality indicator decreases in comparison with the reference one. The sequence of calculations is as follows. First, the total usefulness of information (U') is calculated on the basis of the following formula:

$$U' = FR + R - H \tag{1}$$

where: FR – faithful representation; R – relevance; H – entropy.

The economic utility of the information (U") is then calculated using the following formula:

$$U'' = U' + \sum_{i=1}^{n} Ei \tag{2}$$

The calculation of the reference value of information utility according to information theory is presented in Table 1.

Table 1. Qualitative characteristics of utility according to information theory

Quality characteristics	Symbol	Value (%)	Benchmark assessment		
			Entropy coefficient (K_{Hi})	%	Share
Faithful representation (*semantics aspect*)	FR	50.0	0.05	45.0	0.45
Relevance (*pragmatic aspect*)	R	50.0	0.05	45.0	0.45
Entropy	H	(10.0)	0.10	×	×
Usefulness of information (U')		90.0	×	90.0	0.90
Economic aspect: understandability	E_1	5.0	×	10.0	0.10
completeness	E_2	5.0	×		
Economic utility of information (U")		100	×	100	1.00

Source: Author's own study.

The proposed model also takes into account the fact that in order to qualify information as useful to stakeholders of financial statements, the list of its properties

should include a specific characteristic (UF) that meets the principle of accounting – comparability. In addition, the model development took into account the fact that each of the two accounting models (European and Anglo-Saxon) has different entropy coefficients and information utility bounds at a given interval (from 0 to1.0) or (from 0 to 100%). Finally, the usefulness of the financial statement information is calculated using formula 3:

$$U = U'' + \sum_{i=1}^{n} UFi, \text{ or}$$
$$U = FR \times (1\text{-}K_H) + R \times (1\text{-}K_H) + \sum_{i=1}^{n} Ei + \sum_{i=1}^{n} UFi \quad (3)$$

The modeling method allowed us to develop an algorithm for identifying two modifications of the CQC of information through the prism of their content aspect (Figure 1). The developed algorithm is the basis of the proposed model for assessing the usefulness of financial statements. To realize the stated purpose within the framework of the research, the author provides specific calculations, as well as conclusions regarding the effectiveness of the proposed model for assessing the usefulness of financial reporting information. Other methods used are presented in Table 2.

Table 2. Scientific methods underlying the research methodology of the problem of information usefulness assessment

Nature of the methods	Method of	Explanation of use
theoretical	analysis	to identify the criteria of each of the two modifications of the CQC (Figure 1).
	comparison	when identifying modifications of the CQC (Figure 1); when estimating numerical values of information utility as a whole and each of its characteristics separately (Tables 1, 3)
	induction	when making hypotheses H1 and H2
	synthesis	in formulating arguments and conclusions based on the results of hypotheses H1 and H2
	abstraction	in the study of one fact of accounting methodology, the CQC
empirical	content analysis	is applied when studying the provisions of the IFRS Concept, Directive 2013/34/EC, legislative and regulatory framework of the accounting and reporting system of the RM
	studying scientific works	is used in the study of the works of famous scientists published in scientific journals indexed in Scopus and other indexed databases, and as monographs

Source: Author's own study.

Results and discussions

Algorithm for interpreting the CQC of information within the imperative of utility for managerial decision-making in financial reporting

Financial information, much like non-financial information, is the product of a particular accounting model, reflected in business reporting and providing knowledge of the surrounding reality. It is already known that there are currently two accounting models that "compete" with each other – European and Anglo-Saxon. As a rule, competition as a phenomenon promotes development. Accounting methodology is no exception, which evolves through the resolution of problematic issues generated by the "competition" between two accounting models.

One aspect of accounting methodology involves a system of qualitative characteristics unique to each accounting model, aligning with its reporting principles. Directive 2013/34/EU outlines the qualitative characteristics necessary for financial statements within the European accounting model. Additionally, the IFRS Concept not only delineates these characteristics but also reveals their sequence of application, enhancing the utility of information within the Anglo-Saxon accounting model. The framework of qualitative characteristics originates from information theory and is subsequently embraced by accounting theory, leading to the emergence of another component in modern accounting methodology: the CQC. However, due to disparities between accounting models, its uniform application proves challenging, resulting in the formation of two variations: one conforming to the European accounting model rules and the other to IFRS standards. Consequently, there arises a need to explore the substantive aspect of CQC, complementing its pragmatic considerations addressed in regulatory frameworks. To address this need, the author has devised a three-stage algorithm for identifying the two modifications of the CQC of information (see: Figure 1).

Within the *first stage*, the following identification criteria are established: 1) the adopted model of economy: "stakeholders" or "capital holder"; 2) the purpose of capital owners: current profit or capital growth; 3) the informational purpose of stakeholders: evaluation of management efficiency or evaluation of business value.

As is known, two models have emerged in the capitalist economy: the Rhenish or "stakeholder model" and the Anglo-Saxon model, called the "capital holders' model". Under the Rhenish model, business ownership belongs not only to shareholders but also to a range of stakeholders who, while not shareholders, participate in decision-making, including investment decisions. Piketty outlines the primary rationale behind how the economic model shapes the adaptations of the CQC of information. According to his analysis, providing pertinent information is crucial for facilitating investment transactions. However, stakeholders beyond financial capital owners might harbor reservations about specific investment ventures, potentially withholding their support (Piketty, 2016). Consequently, in such scenarios, the market valuation of a business's equity could significantly lag behind its book value. Conversely, in

the "capital holders" paradigm, shareholders endowed with full authority leverage pertinent information to inform their investment choices. Here, the market valuation of capital would either surpass or align with its book value, contingent upon the market's optimistic or pessimistic appraisal of the company's investment utilization prospects (Piketty, 2016).

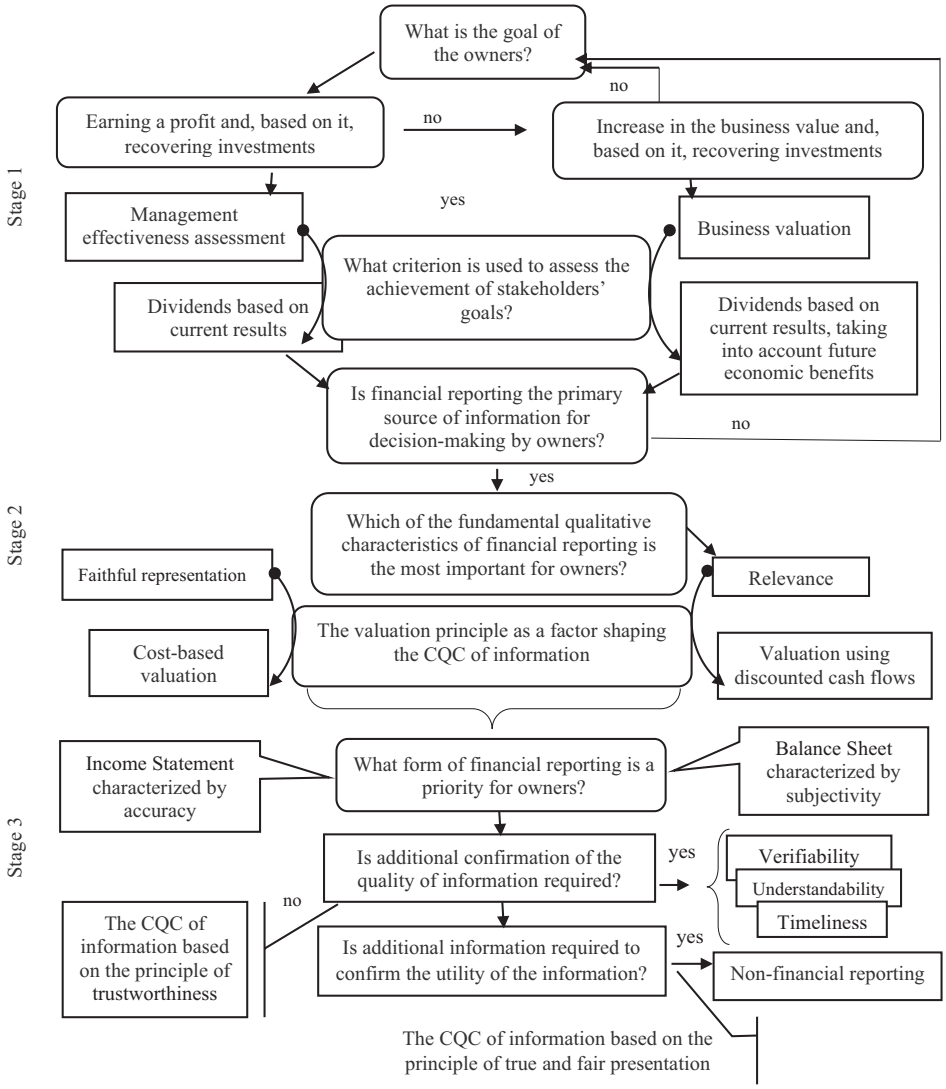

Figure 1. Algorithm for interpreting the CQC of information for measuring the utility of financial reporting

Source: Author's own study.

The purpose of shareholders in the Rhenish model is to earn a *profit or return on investment* in the form of dividends, which are calculated based on current earnings, with capital valued at book value. Under the "capital holders" model, the purpose of shareholders is *capital growth*, which is realized through return on investment through transactions in shares valued at market value. Clearly, in this case, current and future economic benefits are taken into account when calculating dividends. Alexander characterizes this phenomenon in the following way: accounting focuses on calculating the profit of the accounting period. However, capital holders "need to make the results of the past useful for assessing the future (...), and for this purpose it is necessary to apply a flexible approach in the formation of accounts" (Alexander et al., 2005). Obviously, under the Rhenish model, capital providers are interested in the reliability of estimation of reporting totals, and first of all, current profits. Therefore, they assess the effectiveness of business managers. In the Anglo-Saxon model, the focus of capital holders is on the value of the business, which is subject to the influence of professional judgment.

The criteria of the *algorithm's second stage* stem from the outcomes of its initial phase: 4) prioritization of fundamental qualitative characteristics in crafting valuable information: faithful representation or relevance; 5) fundamental valuation principle aligned with the accounting model: cost or fair value. As previously highlighted, the European accounting model is underpinned by the conservative valuation principle. Stakeholders, including capital providers, prioritize the credibility assessment of current performance, with double entry playing a pivotal role in this process within the accounting methodology.

To fulfill the control objectives of accounting, the cost method is endorsed as the foundational evaluation principle for economic activities. Within the Anglo-Saxon accounting model, emphasis is placed on the interests of capital owners, acknowledged as the principal user group of business accounts. To enable informed decisions regarding capital growth, they necessitate diligently prepared relevant information. This principle necessitates the adoption of a fair value measurement model, deemed by equity owners (investors and shareholders) as more beneficial for their decision-making compared to historical cost.

An illustrative example of the application of the fair value model and its impact on the faithful representation of financial statements is the valuation of management bonus awards. Gad et al. characterize this phenomenon as follows: information about bonus remuneration is disclosed when owners of capital need optimistic financial statements, which predetermines the formation of the internal business environment and decision-making process that affects the quality of accounting (Gad et al., 2023).

At the *third stage* of the algorithm, the following aspects are scrutinized: 1) the precedence of reporting forms: Income Statement or Balance Sheet; 2) the imperative of assessing the quality of information. As highlighted by Richard and Altukhova, shareholders consistently prioritize the information presented in the Income Statement, particularly focusing on its bottom line. Hence, for them, ensuring the

reliability of data for this line is paramount (Richard & Altukhova, 2017b). This is because dividends are computed based on this data as a return on investment, and it also serves as a metric for evaluating management effectiveness. It is evident that these considerations underpin the prevalence of the Income Statement in the reporting system.

In the Anglo-Saxon model, the defining role is assigned to the Balance Sheet since it provides information about the value of future economic benefits, based on which the capital size is calculated. The cost of capital and the value of the business are the goals of shareholders of a business reporting according to the Anglo-Saxon accounting model.

In this case, the Balance Sheet is characterized by subjectivity, as it is based on judgmental assessments regarding the future economic benefits from the use of assets and the fulfillment of business liabilities. However, capital stakeholders' interests require the application of fair value measurement, which is subjective in nature but more appropriate for investment decision-making. The neutralization of the subjective nature of Balance Sheet valuation is achieved through characteristics that support the usefulness of information: verifiability, timeliness and understandability. Therefore, the third stage of the developed algorithm is aimed at qualifying the quality of the information field of financial reporting.

The above is summarized in the algorithm (Figure 1) and is the first part of the substantiation of hypothesis H1.

Model for measuring the usefulness of financial reporting

The proposed model for measuring the usefulness of financial reporting is based on both the substantive and pragmatic aspects of the CQC of information. It represents a step-by-step mechanism for determining the numerical value of information utility for various accounting systems. As the study involves evaluating the effectiveness of the proposed model, it is adapted to the system of qualitative characteristics of financial reporting established by the legislative framework of the RM in the field of accounting and reporting.

In the initial phase of the information utility measurement mechanism, properties defining both its semantic and pragmatic aspects are identified. According to information theory, inherent value exists within all information. However, its true significance lies in its usability to users. Within this framework, information is distinguished by its accuracy (semantic) and relevance (pragmatic), both deemed equally vital and allocated equal weightage in the overall utility indicator.

Typically, information tends to demonstrate entropy, thereby diminishing its actual utility level in comparison to the benchmark (the initial step of the measurement mechanism). However, the utility of information for the user hinges on achieving some economic impact. Consequently, it becomes imperative to consider information

characteristics such as clarity and completeness, which aim to counteract entropy (the second step of the measurement mechanism). Completion of this second step marks the conclusion of the benchmark assessment.

Now let us proceed to describe the third step of the measurement mechanism. The study pertains to specific information – accounting information prepared in a specific manner – double-entry accounting, and presented in its original form – financial statements. Moreover, this information is generated in accordance with the principles of two different accounting models. In Directive 2013/34/EU and the IFRS Concept, it is emphasized that financial reporting is based on judgments, estimates, and models, rather than on an exact representation of economic phenomena. According to Directive 2013/34/EU, the reporting should be presented clearly, and its information should be reliable. As a rule, financial reporting may contain errors, inaccuracies, and discrepancies, but the key is for none of them to be material for users' decision-making. As a result, the level of reliability is further reduced, and the information is already qualified as true and fair presentation. The IFRS envisage the use of an economic approach in preparing financial statements, wherein to the natural level of entropy and the fact of errors, entropy arising from judgmental estimates is added. As a result, the level of credibility is further reduced and the information is already qualified as faithfully presented.

The choice of the criterion value of entropy, caused by accounting errors, is based on the provisions of the materiality concept. According to this concept, the cumulative level of information quality loss for business shareholders is set at 10% (Rybak & Lavrentieva, 2012).

In this context, on the given interval of numerical values of utility (from 0 to 1.0) or (from 0 to 100%), coefficients of total information entropy K_{Hj} are established (see: Table 1):

K_{H1} = 0.20 – for reporting prepared in accordance with Directive 2013/34/EU,
K_{H2} = 0.40 – for reporting prepared according to IFRS.

The neutralization of entropy in accounting information is carried out through the application of additional characteristics inherent in information presented in financial reporting. One of such characteristics is the comparability of information. Given that information prepared according to IFRS typically exhibits greater entropy compared to that prepared according to Directive 2013/34/EU, the IFRS Concept advocates for adherence to verifiability and timeliness, properties of information intended to bolster its utility. The step-by-step mechanism for measuring the utility of financial reporting enables the mathematical formalization of the assigned task.

$$U = FR \times (1\text{-}K_{Hj}) + R \times (1\text{-}K_{Hj}) + \sum_{i=1}^{n} Ei + \sum_{i=1}^{n} UFi \quad (4)$$

where: K_{Hj} is the entropy coefficient specific to a particular accounting model.

Based on formula 3, axiomatic boundaries of information utility are established, which are (Table 3):

0.80 < U≤1.00 – for reporting prepared in accordance with Directive 2013/34/EU,

0.60 < U≤1.00 – for reporting prepared according to IFRS.

This concludes the third step of the mechanism for measuring the usefulness of financial reporting information.

Table 3. Model for assessing the usefulness of financial reporting information

The nature of indicators to assess the usefulness of information / Elements and levels of information utility	Benchmarks for assessing the usefulness of information:		Real indicators of assessing the usefulness of information for the accounting system, in share:		
	Value (%)	Indicator with entropy, in share	IFRS	Directive 2013/34/EU	Framework Law of the RM
Semantics: faithful representation (FR)	50	0.45	0.30	0.40	0.40
Pragmatics: relevance (R)	50	0.45	0.30	0.40	0.40
Usefulness of information (U')	**100**	**0.90**	**0.60**	**0.80**	**0.80**
Increase of economic effect (E*i*):					
understandability (E_1)	×	0.05	0.15	0.10	0.10
completeness (E_2)	×	0.05	×	×	×
Economic utility of information (U")	**100**	**1.0**	**0.75**	**0.90**	**0.90**
Improving the usefulness of reporting (UF_i):					
comparability (UF_1)	×	×	0.10	0.10	0.10
verifiability (UF_2)	×	×	0.10	×	0.10
timeliness (UF_3)	×	×	0.05	×	0.05
Improving the usefulness of information for financial reporting purposes (UF)	×	×	**0.25**	**0.10**	**0.25**
Usefulness of information for investment decisions (U)	**100**	**1.0**	**1.0**	**1.0**	**1.15**

Source: (Golochalova, 2023).

The above justifies and proves the hypothesis H1.

Let us consider the effectiveness of the proposed model using the example of the financial reporting system of the RM. Law No. 287 of December 15, 2017, of the RM "On Accounting and Financial Reporting" (hereinafter referred to as Law No. 287/2017), which requires compliance with fundamental principles and qualitative characteristics of information to recognize financial reporting as clear, regardless of the adopted model of financial statements (Art. 20).

It is noteworthy that, in its efforts toward alignment with the European Union, Law No. 287/2017 has been adjusted to comply with the provisions of Directive 2013/34/EU. This legislation delineates a set of qualitative characteristics that mirror those outlined in the IFRS Concept. The imperative for clear presentation of financial statements necessitates the application of a modified version of the qualitative char-

acteristics concept in line with the European accounting model (Law No. 287/2017, Art. 20, par. 1). However, Law No. 287/2017 also mandates the application of the qualitative characteristics concept of information according to IFRS (Art. 20, par. 3, 4). The evaluation of utility resulting from the amalgamation of the reliability principle and the qualitative characteristics concept according to IFRS is presented in Table 3.

According to the data obtained in the application of the provisions of Law 287/2017, the indicator of usefulness of information will be 1.25, with an acceptable limit of 1.0 (see: Table 1). This indicates paradoxes in the accounting methodology of the RM. The above justifies hypothesis H2. In this context, let us cite the judgments of famous scientists:

> Any accounting concerning a country or a company depends on socio-political choices and is therefore very subjective, even if this subjectivity is often masked by technique. (Richard & Altukhova, 2017a)

> In developing countries, the accounting methodology is developed on the basis of concepts fundamentally different from those of developed countries. The change of orientation in political and economic development leads to the need to introduce a new methodological framework in the field of accounting and reporting taking into account modern realities. (Kovalev, 2021)

It is difficult to disagree with this opinion since the RM belongs to a group of developing countries.

Conclusions

Financial reporting, owing to its verifiability, retains its importance as a fundamental accounting instrument relied upon by stakeholders. Concurrently, the transition towards a socio-economic development paradigm has amplified users' expectations regarding the quality of financial reporting. This reality underscores the necessity of adhering to qualitative characteristics of information to realize its utility objective, rather than merely formalizing them in legislative acts of national accounting systems.

In the context of the modern trend towards presenting actionable information for decision-making, particularly in responsible investing, the author draws a general conclusion: the challenge of quantifying the utility of information remains unresolved and necessitates further exploration. Building upon the research findings, the author delineates specific conclusions:

– the concept of qualitative characteristics of financial reporting arises from adapting accounting methodology to the principles of information theory,

– currently, two operational modifications of the concept of qualitative characteristics of information exist, arising from two distinct accounting models: Continental and Anglo-Saxon,

– the semantic aspect of each characteristic forms the basis for assigning it a specific numerical value, the cumulative sum of which equates to 1.0 or 100%, serving as the benchmark value for ideally prepared financial reporting.

Within the axiomatic boundaries of information utility ($0.60 < U < 1.00$), its level is adjusted according to the objectives of the business model. A value below 0.60 signifies errors in the application of the financial reporting concept, while a value exceeding 1.00 indicates paradoxes within the concept.

The accounting methodology of the RM, which amalgamates Directive 2013/34/EU and IFRS, exhibits paradoxes. Resolving these is crucial to achieving the reporting goal of usefulness for decision-making.

The model devised by the author for gauging the utility of financial reporting information showcases the efficacy of the utility assessment methodology across various accounting systems. It underscores the necessity of a creative approach in applying the CQC to accounting systems situated between IFRS and the EU Directive, including the accounting system of the RM. However, the study encounters a limitation as hypothetical values were assigned to certain indicators of qualitative characteristics, and the developed model was tailored to the accounting methodology of the RM. One promising avenue for future research involves conducting surveys of developers of Accounting Policies and financial statement preparers to refine the weights of auxiliary qualitative characteristics for crafting a model that effectively assesses the usefulness of financial reporting in the RM's accounting and reporting system. Concurrently, this study contributes to the advancement of accounting methodology in the RM and lays the groundwork for further exploration by young scientists and researchers passionate about advancing accounting theory.

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