

RESEARCH TOPICS AND METHODOLOGIES

Performance measurement for a better future

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Abstract

Performance measurement has become increasingly crucial, encompassing both organizational and personal spheres. It assesses how effectively tasks are carried out and is pivotal in determining the value derived from these activities. Traditional approaches to performance measurement, rooted in representational realism or social constructivism, present limitations in ensuring trustworthiness. This paper proposes pragmatic constructivism (PC) as an alternative paradigm to enhance the reliability of performance measurement. PC posits that organizational practices are constructed by humans through cognitive processes and offers an epistemological framework for developing effective measurement systems and a foundation for intentional and valuable outcomes. The paper discusses the shortcomings of traditional paradigms, outlines the principles of PC, and demonstrates its application in evaluating the three existing measurement frameworks of financial accounting, the Balanced Scorecard, and sustainability framework of Global Reporting Initiative (GRI).

Keywords: Performance measurement, Performance paradigm, Pragmatic constructivism

1. Introduction

Over the past few decades, performance measurements have increasingly become integral to the planning and control of diverse human practices. These practices span various activities within private, public, and non-profit organizations, as well as those within the realm of personal life.

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Performance, in this context, is linked to the act of doing something, while the measurement of performance assesses how well an individual, machine, etc., executes an activity. Therefore, it is inherently connected to gauging the value derived from the activity. The primary objective of performance measurement is to guide individuals toward achieving the desired goals of value creation (Merchant and Van der Stede, 2014). In pursuit of this goal, the mainstream approach to performance measurement offers calculative techniques for organizational planning and control, along with epistemic methods that underlie the production and utilization of these techniques (Arbnor and Bjerke, 1997; H. Nørreklit, 2017).

In view of this paper, performance measurement systems should serve as a trustworthy and effective basis for planning and control. Establishing trustworthy performance measurement is intricately tied to the appropriateness of the chosen paradigm. The realm of performance measurement finds at its extremes the two opposing paradigms, representational realism and social constructivism. While representational realism assumes that an objective representational truth of accounting information should be established and used to evaluate performance, social constructivism argues that accounting information does not reflect any objective representational truth. The outcome is a fragile paradigmatic basis for the development of trustworthy performance measurement (Mauro et al., 2023).

This paper advocates pragmatic constructivism (PC) as an alternative paradigm that can provide a basis for enhancing the trustworthiness of our performance measurement claims and methods, ultimately leading to the creation of valuable, intentional results. The PC paradigm offers a useful ontology for understanding how functioning practices are created (Nørreklit et al., 2016; Nørreklit H., 2017; Nørreklit L., 2017). It assumes that organisational practices are constructed by human beings by means of cognitive processes, however, not all human constructions are equally well-functioning. (Nørreklit L., 2017). Furthermore, it includes an epistemology that helps us formulate a set of meaningful principles and processes for developing and evaluating frameworks of performance measurement that are effective at facilitating the creation of intentional outcomes. Its epistemology involves validating or rejecting its ability to create functioning reality construction. Thus, the gap between the ‘realist’ mainstream and social constructivism view is bridged by upholding realism as the pragmatic criterion for the success of organisational actors’ constructions.

The paper is structured as follows. Section two explains the shortcomings of representational realism and social constructivism as the paradigmatic basis for the construction of performance measurement. Section three explains PC as a paradigm outlining the necessary conditions for a successful functioning practice along with a set of methodological principles and processes for guiding the actors' development of performance measurement for the successful governance of their reality construction. Section four demonstrates the application of the derived methodological principles in evaluating the validity of the measurement frameworks of financial accounting, the Balanced Scorecard, and Global Reporting Initiative (GRI) sustainability framework. Finally, section five concludes.

2. Problems of dominating paradigms of performance measurement

In this section, we describe the shortcomings and effects of the paradigm of representational realism and social constructivism as the basis for the construction of valid performance measurement systems for planning and control.

2.1. Representational realism

With representational realism as the paradigmatic underpinning, the mainstream approach employs various techniques and methods of performance measurement to generate information for effective rational planning and decision-making. Additionally, these techniques and methods contribute to the control and evaluation of managers' and employees' performance. The paradigm of representational realism assumes that accurate estimates, objective measures and fair standards of performance can be achieved through a scientific process. This objectivity is established by implementing rules that must be adhered to during the measurement processes (Porter, 1996). The estimates, measures and standards are made 'objective' by making rules that must be followed in the measurement processes. Adopting a cybernetic view of control, the formulation of objectives and rules, coupled with the application of negative/positive feedback to deviations, is presumed to exert coercive influence on human actors. This coercion enforces adherence to objectives and rules (Ahrens and Chapman, 2004).

However, organizational practices reveal that both organizations and societies face crucial problems in performance measurement for effective

planning and control. Despite numerous measures and metrics, the 2008 financial crisis underscored the inadequacy of performance measurement of mechanical scientific thinking in anticipating and addressing crises within organizational practice. For instance, it laid bare substantial issues related to the promises of the balanced scorecard as a strategic feedforward model, highlighting its partial foundation and blind spots in addressing crucial matters. Consequently, it has the potential to seriously mislead those relying on it for planning and decision-making (Nørreklit, 2017). Also, a considerable portion of the financial crisis can be attributed to the excessive emphasis placed on a reductionist corporate incentive-based governance system, resulting in failing internal risk assessment and management (Kirkpatrick, 2009). Nevertheless, the burden of the financial crisis was placed on employees and taxpayers, while top-management escaped accountability (Baldvinsdottir et al. 2010). While enforcing mechanical objectivity, the measurement models crowd out moral and ethical responsibilities (Ghoshal, 2005). Similarly, the current conceptual framework of sustainability reporting has been shown to be unsuitable for purposes beyond a narrow shareholder interest (e.g., Shearer, 2002; Flower, 2015). Accounting has shown minimal efforts to contribute to the values of flourishing human beings, organizations, communities, and nature (Carnegie et al., 2021; 2022).

2.2. Social constructivism

In-depth critiques have challenged the paradigm of representational realism in the context of performance measurement, with scholars advocating for the principles of social constructivism. This perspective posits that reality is a product of human thoughts, interactions, and agreements (Foucault, 1972; Miller and O'Leary, 1987; Tinker, 1991). Measures, standards and rules are human constructs shaped through subjective interpretations and the interplay of social forces, where laws of power and domination dictate what is deemed "true." As there is no objective reality "out there" to align with, performance measures lack representational faithfulness. Instead, we observe that performance measures function as simulations of reality—self-referential models bearing little resemblance to profound reality (Baudrillard, 1981; Mauro et al., 2023). For example, prevailing performance measurement models often equate measures to the simplest and most easily quantifiable aspects of an activity (Micheli and Mari, 2014, p. 153). Consequently, the measurement system's capability dictates what is considered important, reducing reality to what is easily measurable. These measures operate in conjunction with causal determinism as the primary mode of explaining

organizational performance. Given the speculative nature of the relationships between actual and observed phenomena, numerical models become mere simulacra of reality. A phenomenon that has accelerated with digitalization (Mauro et al., 2023). The intrusion of performance measurement systems without much consideration of any reference to the practical reality can be said to have contributed to the financial, social and environmental crisis.

2.3. Effects of dominating paradigms

Thus, it can be concluded that the effects of dominating performance measurement paradigms are uncertain, stemming partly from their fragile paradigmatic basis in representational realism. Despite extensive scholarly criticism of representational realism as the paradigmatic basis for performance measurement, social constructivist research has made limited efforts to develop a more robust performance measurement paradigm (Micheli and Mari, 2014; Mauro et al., 2023). Also critical realism does not give much detailed insight into how managers can create sound performance measures, although insisting that the relationship between reality and the conception of reality is more complex than assumed by either representational realists or social constructivists. (Armstrong 2019; Bhaskar, 1975). If there is no objective reality and language lacks a representational function, the unfortunate implication of social constructivism is the potential promotion of an “anything goes” stance (Feyerabend, 1975). However, in the real world, ‘anything does’ not go. Real actors striving to build a well-functioning social world recognize that reality has inherent limitations (Eco 1999), and, thereby, not all actions are equally feasible, and not all descriptions are equally helpful (Nørreklit L., 2017).

An ontology is needed for conceptualizing human and social practices of actors being in the world while seeking to construct a relationship to the phenomenon of the world with the aim of creating intentional results. Additionally, an epistemology is needed to develop a valid conceptual framework for performance measurement, enabling the discernment between truth and falsehood, and reality and illusion. The inadequacy of social constructivists in addressing this matter underscores the need for an alternative paradigm. This alternative should pave the way for a meaningful formulation of criteria for valid performance measurement (Nørreklit L., 2017). In the next section, we explain how the paradigm of PC can be a suitable paradigm for doing this.

3. Pragmatic constructivism

PC is a paradigm that views the construction of reality as the fundamental condition and frame for human activities (Norreklit et al., 2010; Norreklit H., 2017; Nørreklit L., 2017). Actions occur in the world filled with various phenomena, including physical and biological entities, technological constructs and social constructs such as institutions, organisations, math, language and accounting. It also encompasses individual personal constructs like human ideas, thoughts, perceptions, feelings, preferences, and interactions. Driven by the intentional values that they hold, actors continuously undertake activities to construct their relationships to the world. So human life encompasses activities in a world including “all things, events or states of affairs that exist, irrespective of whether we know they exist or not” (Norreklit L., 2017), where the creation of a functioning reality construct involves a complex interconnection between actors and phenomena of the world. The result of the actor-world relation is a reality construction that might be more or less well-functioning.

Below, we explain PC as a paradigm outlining the necessary conditions for a successful functioning practice. This forms the foundation for the subsequent section on the methodological principles and processes for developing a valid conceptual framework of performance measurement to govern the actors’ reality construction.

3.1. Necessary conditions for a successful functioning practice

i. Language games

Actors organise their construction of activities around the use of language games in which narrations and actions are interwoven into a totality (Wittgenstein, 1953). The construction of activities is initiated with the expectation of transforming initial reality conditions to create desired outcomes which enable value attainment. The actors are concerned about making things work in practice – creating construct causality. However, not all narration use is equally good for creating the intentional outcome. If the actors intend to deliver the objectives, the language construction should provide an integration of the following four dimensions in their actor–world relationships: values, facts, possibilities, and communication (Norreklit et al., 2010; Norreklit H., 2017; Nørreklit L., 2017).

ii. *Integrating four dimensions of reality*

More specifically, the narration of actions should be within the actors' value range. People develop a relation to their life where they want to do something, namely, to realise some of their values. If an action cannot be interpreted as valuable, actors will be disinclined to pursue it. Values motivate action and provide the basis for selecting action possibilities.

In view of PC, there are basic values and instrumental values (Nørreklit et al. 2024). Basic values pertain to the core of people having good lives and thriving in various aspects. Instrumental values, on the other hand, are associated with conditions and resources essential for achieving the basic values. Real instrumental values contribute to the realisation of basic values. These are taken to encompass such issues as a biosphere based on securing natural environmental conditions for life and a social environment for facilitating the production of viable social systems. A chain of activities that results in the accumulation of economic wealth but not in realising basic values is not real instrumental value in any sense. It is the basic and real instrumental values that must guide economic and societal development.

However, for the actor's narration to deliver the actions needed to create intentional results within the value range, the project action must be based on adequate factual possibilities of the world in which to act. If the narration does not include possibilities for action, there is no room for any action, but for the possibilities outlined to be more than fabrications of the actor's imagination, they must be integrated with the situational facts which are deemed to constitute reality. If action possibilities are not grounded in facts, they are illusionary (i.e. impossibilities), making successful action unlikely.

While possibilities for actions are derived based on cognitive skills of reflection, facts signify that proposed informational claims are considered trustworthy because they are based on evidence. Facts serve as the outcomes of an epistemological process, acting as a link between the phenomena and the linguistic or symbolic realm (Mari, 2007, p. 42). Thus 'fact' is not "the thing". Also, there may be any categories of ontological existing phenomena of which we have evidence and hence facts (Nørreklit L., 2017; Searle, 1995). Accordingly, PC does not subscribe to the radical constructivist claim that 'facts do not exist' (Nørreklit L., 2017).

Finally, for actors to establish well-functioning reality constructions, they must communicate to construct and coordinate their practices. Integrating

the four dimensions of reality across organisational activities involves the construction of a shared reality among actors who are to collaborate. It entails organisational actors are concerned with establishing construct causality in local practices while concurrently collaborating in co-authoring and, thus, creating functional organisational practices together. Co-authoring requires a performance management approach that draws on language games of dialogical interaction and reflective reasoning (Nørreklit H., 2017). Dialogue is a dynamic and reflective process of conversation between two or more persons in which both parties ask questions and give answers. In this process, the actors are creative and reflective, and they search together for thorough insight.

iii. Learning theory of truth

When the four dimensions of PC are integrated in the language games, successful action is to be achieved, i.e. construct causality has been established. However, when planning, the actor's reality construction is oriented towards an intended future and, hence, it may succeed or fail. Accordingly, the veracity of the actors' constructions continuously faces the test of meeting (or failing) their projected outcomes, which allows them to determine how good their ideas about their reality have been. In that sense, we are dealing with 'constructivism' in a realist way. By comparing their pre-suppositions with outcomes, they engage in a learning theory of truth, which enhances their ability to function successfully. The result is a learning theory of truth where the learning circle, i.e. the interplay between the pro-active truth of whether the projection will hold true, and the pragmatic truth of whether it did hold true, forms the basis of the learning process.

3.2.Principles for valid language game of performance measurement

The construction of pragmatic functioning activities requires the construction of conceptual narratives of performance measurement to plan and control the organizational fabric of specialised language games essential for organizational activities to be executed (Nørreklit L., 2020). Thus, the conceptual frameworks of measurement are tools for the actors to develop and control construct causality. However, ensuring the validity of the language games of performance measurement requires a robust epistemological process. This process involves sound reasoning and evidence gathering substantiating claims of measurement. By adhering to sound epistemological principles, accountants can enhance information's reliability and credibility, facilitating informed decision-making and control of organizational activities.

Below, we argue that constructing a well-functioning performance measurement involves i) a mechanism of quantification, ii) certain qualities in the structure of concepts, iii) narrative integration of the measures into the four dimensions of reality, and iv) a pragmatic test and learning. (Nørreklit et al., 2016)

i. Mechanism of quantification

In the realm of measurement, it is important to distinguish between what we want to measure and how we measure it. Much of what we want to measure, such as financial wealth, sustainability, customer satisfaction, and temperature, are not quantities referring to the quantity of specific characteristics of a phenomenon, but “measurands” (Micheli and Mari, 2014, p. 151). A measurand involves a quantification mechanism that assigns a non-apparent property to a phenomenon with the intention of controlling it (Micheli and Mari, 2014, p. 150). The measurand refers to an abstract quantity of a phenomenon that is subject to measurement, while a measure is a particular quantity referring to the quantity of a specific characteristic of the phenomenon. As the measurand refers to an abstract quantity that is not directly quantifiable, it needs to be determined as a function of a set of specific measures that are quantities referring to specific characteristics. The measurement task is to establish factual information needed to calculate the measurand.

ii. Qualities in the structure of concepts

Vital for the construction of a valid performance measurement system is the conceptualization of the measurand and the measures in relation to the specific purpose they are to serve. The measurand is to be outlined according to the phenomena we want to control. The measures are to be tailored to the measurand. If the link between measurand and the measures is poorly considered, we may not measure what we think we are measuring.

Furthermore, to be effective in relation to a specific purpose, the structure of the measurement concepts must be outlined by qualities of content, i.e. its abstract meaning and a form of exemplary reference that fits the content (Nørreklit L. 2017b; Nørreklit et al. 2016). The content outlines the characteristics and delimits of a phenomenon including its relation to other concepts. The content serves as a guideline to determine the exemplary reference of the concept, and thereby it can be used to draw lines between what is and is not characterised by the concept.

However, when relating a concept to an abstract idea the result might be overly broad definitions that are inadequate for planning and control purposes. Therefore, criteria must be applied to overcome subjectivity issues by transforming the qualitative basis of the conceptual content into numerical measures (Nørreklit et al., 2016). Criteria outline tighter rules to assess whether the phenomenon falls under the concept.

iii. *Narrative integration of the four dimensions of reality*

However, concepts are not understood only through reductionist definitions that set boundaries to their reference of extension. The conceptualised measurands and measures function only if they become meaningfully integrated into the language game of the specific practice, considering a narrative linking measurands and measures to all four dimensions of reality through the actor's reflective reasoning and judgement.

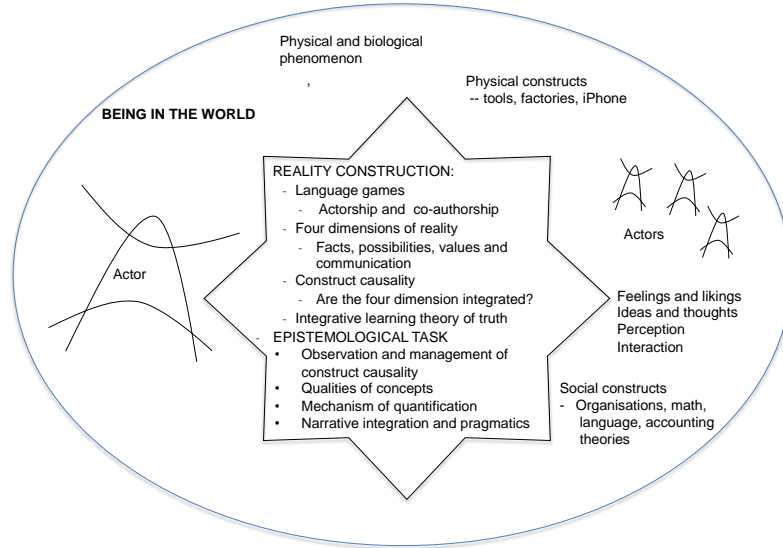
First, this means that a good concept must provide possibilities that are based on facts. This implies that the concept should be identifiable by its schemata of appearance and in relation to the possibilities and necessities embedded in its properties. Furthermore, the conceptual content must be formulated and linked to the sets of values that belong to the actors and organisational goals. Finally, the practical meaning of the conceptual framework must be communicated and understood by the actors and stakeholders involved.

iv. *Pragmatic test and learning*

The ultimate test of a conceptual model of performance measurement is whether it facilitates the creation of intentional results, i.e., *pragmatic truth*. Thus, the meaningfulness of the measurand and measures in relation to the purposes should be justified based on their pragmatic effects. (Micheli and Mari 2014, p.152) Dysfunctional effects give reason for reflecting on and developing our conceptual models.

The following figure summarizes the themes of Pragmatic Constructivism addressed so far.

Fig.1 – Core concepts of Pragmatic Constructivism (adapted from Nørreklit, 2017)



4. Analysis of the validity of conceptual frameworks in accounting

In this section, we apply the derived methodological principles of PC to assess the effectiveness of financial accounting reporting. Additionally, we evaluate two non-financial measurement frameworks — balanced scorecard and sustainability reporting — which have been introduced to mitigate some of the limitations inherent in financial accounting reporting.

4.1. Financial accounting reporting

Monetary value is a basic concept involved in accounting practice that is aimed at measuring financial and economic wealth. Broadly, accounting aims to determine the financial or economic values of various activities, objects, and organizational units (Nørreklit et al., 2017). It encompasses a range of conceptual frameworks, each tailored for different accounting purposes such as decision-making, accountability, control, and rewards. Thus, the epistemological principle of employing distinct conceptual systems for varied purposes is well-established in accounting. Below, we analyze the framework for financial accounting statements from the epistemological principles of pragmatic constructivism.

For centuries, the need for stewardship has been the dominant purpose of accounting (Pelger, 2016). In line with this, the financial accounting framework has primarily been developed to serve the stewardship function (Littleton, 1953). This conceptual system of historical-based accounting is designed to measure managers' abilities to create financial wealth, with the measurement task being to establish information needed to calculate the measurand of financial value. However, in recent decades, there has been a noticeable shift. The focus has moved towards providing more forward-looking accounting information that is tailored to shareholder decision-making, paralleling a greater emphasis on the economic value of firms (Sterling, 1979; Jensen and Meckling, 1976).

The financial accounting framework is a logical conceptual model that interlinks concepts like assets, liabilities, revenues, expenses, costs and cash flow in a logical and coherent conceptual framework (Nørreklit et al., 2016; Nørreklit et al., 2017). Within this framework, specific concepts are outlined through content, including their relation to the other concepts, references and criteria. It aims at precision in the conceptual description and definition of phenomena and their interrelations.

Historical-based financial statements strive to generate financial value statements based on reliable evidence, i.e., facts. Predominantly based on historical cost measurement and revenue transactions, many, but not all, of the contents of historic cost-based financial statements are based on references to factual financial transactions. Much of the linking to possibilities is historically based e.g. inventory is based on historical evidence of its existence and that it has been factually possible to produce a certain item at a certain historic cost. Thus, financial statements are based partly on what has been factually possible to do. However, some measures require future estimates like asset lives, debtor receipts and stock selling prices (Nørreklit et al., 2017). These "facts" are not susceptible to claims of truth on a directly observable basis but instead rely on historically based judgments of what is factually possible. Furthermore, a historical-based value measurement is restricted to assets that have been subject to accountable transactions, neglecting elements like firm reputation or research in progress.

Accounting practices also incorporate elements of proactive and pragmatic truth when making judgments. Principles like going concern, conservatism, consistency, and reliability guide subjective judgment in financial statements. For example, the evaluations of debtor receipts are reflectively

based on a judgement of whether the debtors will pay. The pro-active judgement is an integrated part of a pragmatic observation of whether the debtors are paying. In this way, the assumption about what it may be factually possible to do and the values to be employed in reporting are linked to the conservative projections of historically rooted business. However, offering feedback rather than feedforward information (Kaplan and Norton, 1996), this conservative approach could be misleading in judging what is factually possible and valuable in the future.

Accordingly, the financial accounting statement is caught between the conflicting intentions of producing fact-based accounting information (based on past transactions) and incorporating more subjective current values for economic credibility. The latter development towards prioritizing measuring the economic value to support the investor's decision-making purpose of financial statements advocates incorporating more current values. However, these are related to the market and the managers' expectations of possibilities and not to past transactions. Accordingly, movement in this direction has meant that the factual basis has become more questionable.

Furthermore, current financial statements fall short of measuring financial and economic wealth against the backdrop of significant environmental and social problems (Nørreklit et al., 2024). The disconnect between the financial and economic values and the values of flourishing human beings, organisations, communities and nature (Carnegie et al., 2022) is highlighted by major environmental and social challenges. It underscores the inadequacy of contemporary financial accounting statements in measuring and facilitating real values (Nørreklit et al., 2024). The economy, driven by financial goals, has thus developed value discrepancies in relation to the real values of human beings and nature.

The purpose of better-supporting investors' decision-making has increasingly overshadowed stewardship as the primary function of financial statements. This shift towards investor decision-making prioritises certain users' values over others, aligning with the ongoing neo-liberalisation of global economies (Zhang and Andrew, 2014). As neo-classical economics dominate accounting thought, organizations are made accountable primarily through an economic lens, often excluding social and environmental consequences. Financial accounting is publicly available, but the language is a highly specialised language for the shareholders. The body of perspectives, arguments, and concerns, which is used to control the language games of

financial statements, is controlled by the shareholders, while the values and reasoning of the other stakeholders, including nature and the social, are excluded. (Nørreklit et al., 2024).

4.2. The balanced scorecard

As solutions to address some of the shortcomings of the existing financial accounting conceptual framework, non-financial measurement frameworks are increasingly being advocated. In this context, the Balanced Scorecard (BSC) has been suggested as a forward-looking measurement framework to assess a company's future earnings potential and to guide strategic decision-making and control (Kaplan and Norton, 1996).

The Balanced Scorecard (BSC) is designed to measure the drivers of future long-term success. It operates on the premise of a cause-and-effect relationship among various elements of a business model. Correspondingly, the measurement framework of the BSC is characterized by a series of conditional statements: 'If event X occurs, then event Y will follow.' These are often linked in transitive sequences. For example, 'If event X then event Y, and if event Y then event Z.' These conditionals are posited to represent cause-and-effect relationships that should govern strategic planning (Kaplan and Norton, 1996). At a holistic level, the BSC presupposes in short the following causal chain: organizational learning and growth lead to effective internal business processes, which in turn lead to satisfied and loyal customers, culminating in favourable financial results.

However, the quantification mechanism within the Balanced Scorecard (BSC) presents certain challenges (Nørreklit et al., 2012). The BSC is designed to manage a company's future earnings potential, which makes up an overall measurand that needs to be determined as a function of a set of specific measures. To this end, it specifies objectives and measures within the four areas of the aforementioned causal chain. For instance, within the customer perspective, objectives like customer satisfaction are gauged using metrics such as satisfaction surveys, market share, and customer retention metrics (Kaplan and Norton, 1996). However, a complication arises because many of BSC objectives are measurands as they refer to an abstract quantity that is not directly quantifiable, e.g. customer satisfaction, quality in internal process, and organizational learning. These conceptual phenomena don't lend themselves easily to quantification as they are not quantities referring to the number of specific direct observable characteristics.

Furthermore, the BSC model exhibits shortcomings in adequately defining the conceptual content and criteria for its measurands and measures. For instance, it fails to thoroughly outline the conceptual content of key measures like organisational learning, effective internal business processes, and customer satisfaction. Additionally, the model frequently connects variables with arrows claiming a cause-and-effect relationship; however, as shall be further explained below, the inferences are questionable. In summary, the BSC measures seem constructed by an intuitive approach, relying heavily on ambiguous and common-sense terminology, which detracts from its conceptual soundness.

Although the BSC lacks a reasoned justification for choosing measures and their connection to specific measurements, it provides examples of measures such as employee and customer satisfaction. However, it seems that what is measured is what is simplest and most easily measured as noted by Micheli and Mari (2014, p. 153). Moreover, when it comes to quantifying abstract concepts that lack specific characteristics, the model often resorts to broad evaluation methods, such as Likert scale surveys asking for subjective opinions. As such evaluations are based on intuitive expression, it raises doubts about what is behind the numbers.

Regarding its narrative, the Balanced Scorecard (BSC) fails to provide a cohesive account that encompasses the integration of the four dimensions essential for a functioning reality construction. Firstly, the BSC's conceptual framework is weakly defined, leading to open-ended interpretations of the phenomena it addresses. This ambiguity raises questions about the factual underpinnings of the model, as these phenomena are not clearly identifiable by their apparent schemata. Moreover, the BSC narrative relies on a cause-and-effect logic reminiscent of natural sciences, suggesting deterministic outcomes from specific initiatives, i.e. it assumes a deterministic integration of facts and possibilities. For example, it posits that customer satisfaction will invariably lead to favorable financial results. However, this assumption is flawed; a direct, inevitable link between customer satisfaction and profitability is neither necessary nor highly probable. Evaluating the profitability from customer satisfaction is a question of a financial calculus; satisfying customers may be too costly to be financially feasible.

Additionally, while employee and customer satisfaction metrics are included in the BSC, this does not necessarily mean it prioritizes the basic values and well-being of these human actors. The framework tends to view

human behaviour from a stimulus-response perspective, treating individuals more as adaptors than actors. This approach overlooks a fundamental value of human beings — being actors rather than mere responders to stimuli. Overall, the BSC narrative seems primarily focused on the financial interests of shareholders, often at the expense of considering vital aspects such as natural environmental conditions and the development of sustainable social and human conditions.

Overall, moving beyond the numbers and arrows of the BSC, we find a lack of meaningful narratives and numbers that enable organizational activities to function effectively. The authors aim to address some commonly recognised problems of accounting that are commonly recognised, yet they fail to provide a robust model capable of resolving these issues. This situation prompts reflection on why the framework has gained such popularity. The answer may lie in the communication style of the BSC, which aligns with the genre of management guru texts. This genre, characterized more by emotional appeal and persuasive tactics than by sound argumentation, persuades its audience and encourages the adoption of the model. It serves as a useful tool for those in power to establish social order and legitimacy, often at the expense of marginalizing human actors and the social and natural environment.

Finally, the balanced scorecard does not connect to truth gaps and concerns of learning not only within the organisation but also within the framework.

4.3. Sustainability reporting

Also as solutions to address some of the shortcomings of the existing financial accounting conceptual framework, various models of sustainability reporting have emerged to enhance disclosures on environmental, ethical, and social impact issues (Nørreklit et al., 2024). For instance, the GRI (Global Reporting Initiative) standards offer guidelines for organizations to report on their positive and negative contributions to sustainable environmental, economic, and people development. The GRI standards are structured as a system of interrelated reporting standards, including various topics of attention such as water and effluents, biodiversity, agriculture, mining, coal, child labour and anti-corruption. In this subsection, we analyse the quality of responsibility reporting as represented in the standards for water and effluents outlined in the GRI 303

(<https://www.globalreporting.org/standards/standards-development/topic-standard-for-water-and-effluents/>).

Concerning water and effluents, the GRI offers guidelines on how to manage and measure an organization's water-related impacts. The guidelines emphasize the critical importance of access to fresh water for human life and well-being. However, the report does not conceptualise overarching measurands for neither water quality, nor sustainable human life and well-being.

Overall, water quality is not outlined in terms of content and criteria for the purpose of human life and well-being, but by referring broadly to "physical, chemical, biological, and taste-related characteristics." The guidelines state that the standards to be applied are influenced by local, national, or regional regulations and may vary with the characteristics of the receiver, particular conditions and time. Accordingly, the quality standards are in the hands of the organisations and institutional environment and, hence, their interests.

Also, the GRI standards on water and discharge lack to display a proper quantification mechanism. It is stated in the guidelines that water quality standards are often determined by specific measurement characteristics of water, such as its temperature or pH level, but although such measures might be meaningful for controlling water quality, the guidelines do not elaborate further on this matter. Instead, the guidelines stipulate that the organization must disclose water metrics measured in megalitres, including total water withdrawal, discharge, and consumption across all regional areas. Furthermore, if applicable, a detailed segmentation of this aggregate by source is required, encompassing surface water, groundwater, seawater, produced water, and third-party water. However, the meaning of such numbers in relation to the impact on water quality is not clear. For instance, as stated in the report, measuring the amount of water released by an organization can aid in assessing its detrimental effects on the body of water that receives this discharge, but the connection between the amount of water discharged and its adverse effects is complex and not straightforward. A higher discharge volume does not automatically mean more harm, as the nature of these impacts is influenced by the quality of the discharged water and how sensitive the recipient water body is. Accordingly, the report does include some numbers, but it fails to provide insightful explanations for the relevance and impact of these figures in relation to water quality. This omission of sound quantification of measurands implies that the steering of the organisational activities

towards sustainability goal setting becomes hazy. This implies subjectivity in interpretation: different organizations may interpret GRI indicators differently based on their industry, geographic location, business model, and stakeholder priorities on what constitutes a significant environmental impact of water quality for a company.

Considering this context, the GRI standards also fail to present a comprehensive narrative that integrates the four essential dimensions necessary for a robust reality construction. First, the text does not elaborate on the ecological and human values that are to be achieved. Instead, it leaves it in the hands of organisations and institutions to formulate the standards, and hence, rather than concealed, it gives space for their values. Secondly, due to weakly defined concepts, the report's measures of facts are insufficient, leading to ambiguous interpretations of the phenomena it addresses. Thirdly, the report fails to make a thorough explanation of the possibilities and necessities embedded in the principles and activities, leaving unclear whether these will lead to the intended results, i.e. values. It also fails to document the relative effectiveness of an organisation in creating this value compared to other possibilities, i.e. other producers, technologies, materials, etc. Accordingly, it is impossible to analyse if there is a method to produce this value that is significantly better (from a value point of view). Fourthly, while the sustainability reporting of GRI standards is an act of communication, it lacks information on the soundness of the initiatives and measures concerning water quality for human life and well-being and how they are acted upon. Thus, organizations may view GRI reporting primarily as a compliance exercise rather than a tool for driving meaningful sustainability action. This can lead to a disconnect between reported sustainability performance and actual impacts on the ground.

Finally, the GRI sustainability reporting does not address truth gaps and concerns about learning within the organisation and in relation to the framework. This lack of sound conceptualisation and reflection and learning processes diminishes the report's overall impact and usefulness.

Given this weak conceptual basis, it is understandable that it has been found that the models are biased towards shareholders, which is facilitated by the prevalence of disintegrated ad hoc proposals of measures (Bebbington and Unerman, 2020; Parrique et al., 2019; Sobkowiak 2020).

4.4. Analysing the effectiveness through PC

Table 1 summarizes the results of our empirical analysis. It explicitly links the PC methodological principles to analysing the effectiveness of financial accounting reporting, balanced scorecards, and GRI standards. The vertical axis shows the PC elements (column 1) used in the analysis, and the horizontal axis shows the outcome of the analysis of three conceptual frameworks of performance measurements.

Column 2 reveals that financial accounting reporting is a well-defined and coherent conceptual framework for the performance measurement for the performance measurement of financial wealth. However, it faces a dilemma: it strives to present fact-based information from past transactions while also integrating subjective current values for economic relevance. This shift towards measuring economic impact to aid investors' decision-making introduces managerial expectations of possibilities into the evaluation, consequently weakening the factual robustness of these statements. Moreover, current financial reports fall short of measuring financial and economic wealth against the backdrop of significant environmental problems and social issues like stress and democratic dissolution (Nørreklit et al., 2024).

Columns 3 and 4 reveal that both the balanced scorecard and GRI standards are poorly constructed measurement frameworks. The frameworks provide intuitively outlined examples of activities and measures. The quantification mechanism seems to be governed by what is most simple and easily measured rather than through careful consideration of tailoring the measures to the measurand. Overall, the frameworks fail to conceptualise the measurands and measures through purpose, content, and criteria. Furthermore, the conceptual frameworks fail to provide a cohesive account that encompasses the integration of the four dimensions essential for a functioning reality construction. Thus, the factual underpinnings of the model are poor, and their integration with possibilities is questionable. Overall, the BSC narrative seems primarily focused on the financial interests of shareholders, often at the expense of considering vital aspects such as natural environmental conditions and the development of sustainable social and human conditions. Also, the GRI standards seem to be more concerned about making standards that fit institutional and organisational interests rather than human life and well-being. Accordingly, the conceptual frameworks aim to address some of the shortcomings of the existing financial accounting conceptual framework, yet they fail to provide a robust model capable of resolving these issues.

Principles of PC (1)	Financial ac- counting (2)	Balanced scorecard (3)	GRI standards Water and dis- charge (4)
Conceptual qualities and quantification			
Purpose	Stewardship Decision-making	Decision-making	Stewardship Decision-making
Overarching Measur- and	Financial wealth (economic wealth)	Financial potentialities	Friendly to hu- man life and well- being
Quantification Units and criteria	Monetary value Past transactions	e.g. Satisfaction - Lickert scale	Megalitres Water transactions
Conceptual content Measurands and measures	Well- defined Coherent	Not defined Fragmented	Not defined Fragmented
Reference	Examples	Examples	Examples
Criteria	Tight	Poor	Poor
Narration and learning			
Facts	Evidence	Uncertain	Uncertain
Possibilities	Derived conser- vatively	Mechanical determin- ism	Intuitively and broadly outlined
Values	Financial values steward-share- holdes	Financial values Shareholders	Organisational and institutional power
Communication	Specialized fi- nancial language	Hierarchical top- down within the or- ganization	Compliance to sustainability
Pragmatic truth	yes	no	no

5. Conclusions

Establishing trustworthy and effective performance measurement for planning and control is intricately tied to the appropriateness of the chosen paradigm. In the field of performance measurement, two prevailing paradigms—representational realism and social constructivism—stand in contrast. However, neither fully captures the complexity of real-world situational reality. This limitation undermines the foundational principles guiding the creation of trustworthy performance metrics, leading to a fragile paradigmatic framework for their development.

This paper advocates pragmatic constructivism (PC) as an alternative paradigm that can provide a basis for enhancing the trustworthiness of our performance measurement claims and methods, leading to the creation of valuable, intentional results. PC bridges the gap between the ‘realist’ mainstream and the social constructivism view by upholding realism as the pragmatic criterion for the success of organisational actors’ constructions.

Also, the study demonstrates PC as an investigative framework for evaluating the trustworthiness of measurement frameworks. It allows to pinpoint the problems of the measurement frameworks such as financial accounting, the Balanced Scorecard and Global Reporting Initiative (GRI). In particular, the analysis reveals that the financial statements are controlled by the shareholders, while the values and reasoning of the other stakeholders, including nature and the social, are excluded (Nørreklit et al., 2024). Furthermore, the analysis displays a lack of conceptual awareness of the non-financial frameworks of the Balanced scorecard and sustainability reporting, which may translate into conceptually confused performance management systems. Also, the models do not facilitate the integration of the four dimensions of reality: fact, possibilities, values and communication.

This paper proposes PC as a promising alternative paradigm that can address these limitations. We advocate that the development of performance measurement frameworks can benefit if based on the paradigm of pragmatic constructivism. PC bridges the gap between representational realism and social constructivism by emphasizing realism as the pragmatic criterion for evaluating the success of organizational actors' constructions. By adopting PC, we can enhance the trustworthiness of performance measurement claims and methods, leading to the creation of valuable, intentional results.

Different research initiatives have been made to explore the potential of developing more valid performance measurement systems by using the lenses of PC (see e.g. Mitchell et al., 2021; Mauro et al., 2023; Nørreklit, L. et al 2024). The findings underscore that PC can provide a more comprehensive and nuanced understanding of performance measurement, thereby improving organizations, but more research is deserved in this field.

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