RESEARCH ON SUSTAINABILITY REPORTS IN THE WINE INDUSTRY

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Abstract

Sustainability reporting has emerged as a compulsory practice within the regulatory frameworks of both the European Union (EU) and the United States (US). This obligatory facet of corporate operations serves as a pivotal instrument for augmenting transparency, thereby elucidating the ethical underpinnings of a corporation, while concurrently reflecting upon its efficacy in economic, environmental, and social dimensions. Sustainability reports are meticulously structured to encompass both qualitative and quantitative datasets, adhering to industry-established standards that align with the corporate entity's intended exhibition. The comprehensive nature of sustainability performance, as approached from a financial perspective, lends invaluable insights into the pragmatic aspects of corporate conduct. Furthermore, the act of reporting, especially when viewed through the lens of Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) considerations, presents an unembellished portrayal of a corporation's overall health furnishing a realistic panorama that can serve as a compass for future strategic maneuvers. In the context of this paper, the overarching objective is to undertake a comprehensive examination of reporting frameworks and evaluate the influence presented by corporations across three cardinal domains: people, planet, and profit.

Key words: sustainability, reporting, frameworks, environmental, social, governance

The disclosure of financial data, particularly those that underscore a company's goodwill, has historically served as a valuable means through which collaborative alliances have been cultivated. Sustainability reporting, in its pursuit of a more nuanced analysis of indicators, introduces an additional layer of intricacy to this paradigm. As it has evolved into a mandatory practice within the regulatory frameworks of Europe and the United States, sustainability reporting offers a nuanced and comprehensive perspective on the corporate landscape. This entails a multifaceted assessment encompassing financial metrics, social dimensions, partnership evaluations, an examination of long-term strategic orientations, and the attainment of milestone objectives.

The European Union (EU) is currently in the process of formulating the European Sustainability Reporting Standards (ESRS) as a key component of the broader Green Deal agenda, which encompasses various financial and governance initiatives (inance.ec.europa.eu, 2022). This sector-agnostic collection comprises twelve standards that are slated for legal implementation in the year 2023, with their operational effectiveness anticipated to commence in 2024.

Standard-setting endeavors acknowledges and builds upon established sustainability reporting frameworks and standards, drawing from entities such as the Global Reporting Initiative (GRI) (Reporting) the Task Force on Climate-related Financial Disclosures (TCFD), the Climate Disclosure Standards Board (CDSB), the Sustainability Accounting Standards Board (SASB), and the International Integrated Reporting Council (IIRC). Notably, the latter three entities have since coalesced under the auspices of the IFRS Foundation. In a departure from these antecedent initiatives, which represented voluntary standards embraced at the discretion of firms, the forthcoming standards are poised to assume a mandatory status within many jurisdictions.

Sustainability reporting offers a myriad of advantages, pointing a few: Enhanced Customer Brand and Company Loyalty: Sustainability reporting fosters a positive perception among customers, resulting in increased brand loyalty and affinity, Elevated Transparency, Accountability, and Credibility: Through the disclosure of sustainability performance metrics, companies bolster their transparency, thereby augmenting their accountability and overall credibility, Mitigated Legal Risks and Costs: Comprehensive

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sustainability reporting can help reduce legal risks and associated costs by preemptively addressing environmental and social compliance issues, Promotion of Ethical Conduct: Sustainability reporting encourages ethical behavior not only within the company itself but also throughout its entire value chain, fostering responsible business practices.

The foregoing benefits underscore the multifaceted advantages that sustainability reporting offers to organizations, making it an increasingly integral component of contemporary corporate strategy and governance.

MATERIAL AND METHOD

Numerous instruments and guidelines have been developed over the years to facilitate the dissemination of sustainability-related data among diverse non-expert stakeholders, encompassing governmental authorities, entrepreneurs, and the general populace (Benedetto R., 2023).

At the institutional level, in pursuit of the objectives delineated in the 2030 Agenda, the Sustainable Development Goals (SDGs) were internationally adopted (UN, 2012). Official reporting on SDGs performance (SDG) has become prevalent, occurring at multiple levels - local, regional, national, and international - with periodic reports accessible for public discourse. Another common avenue for public decision-making is the Agenda 21 process.

On an industrial scale, the adoption of Corporate Social Responsibility Reporting (CSR) gained momentum in the environmental and chemical sectors in the late 1980s, subsequently inspiring companies across various domains to account for their performance through mechanisms such as leaflets, annual reports, and stakeholder publications, among others. This impetus was driven by the imperative of global competitiveness and the pursuit of sustainability targets. Companies sought to address environmental and social challenges on a global scale, engaging stakeholders and social interest groups, as well as meeting financial demands while enhancing overall business performance. Diverse frameworks have been devised and updated in response to this imperative, including the methodology of the International Integrated Reporting Council, the Global Reporting Initiative, the AA1000 method of the Accountability Institute, the standards of the Sustainability Accounting Standards Board, the United Nations Global Compact, as well as the guidelines, principles, and standards established by the Organization for Economic Cooperation and Development.

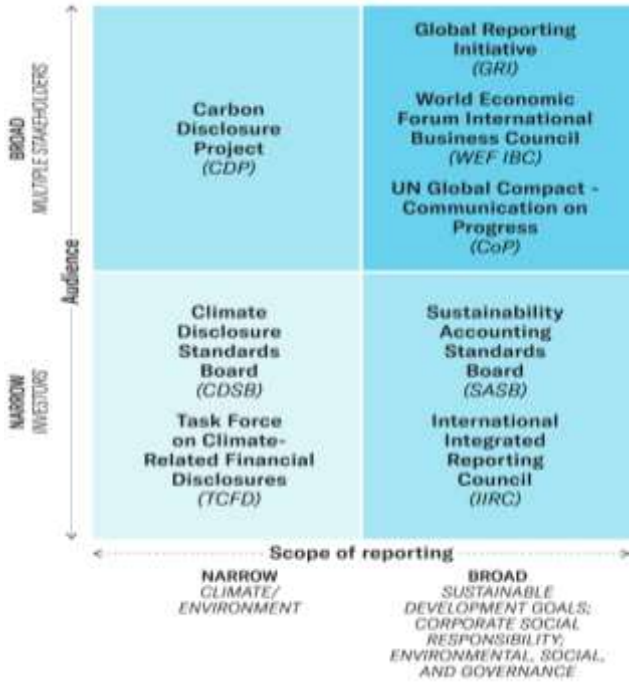
At the product level, both business-to-business and business-to-consumer labels are employed to convey environmental and sustainability information (ISO, 2006c, ISO, 2016, ISO, 2018). The proliferation of such labels has led to some degree of confusion among consumers and the challenge of discerning those labels that truly adhere to sustainability principles from those utilized merely for greenwashing by companies.

Within organizations, several international standards are applicable to management systems across diverse sectors, including social responsibility (ISO 2010), as well as approach, centered on continuous improvement and recurring analysis, proves valuable for sustainability studies, standards on sustainable procurement (ISO 2017a), sustainable events (ISO 2012), and sustainable communities (ISO 2017b.)

Contemplating the dimensions of the target audience and the extent of the report's coverage, companies can ascertain the most suitable framework to employ (Rogmans T., 2022).

Table 1

Reporting standards matrix



By employing this matrix, executives can discern that when their objective is to report on the precise financial risks posed by climate change, they have the option to select either the Climate Disclosure Standards Board (CDSB), which provides a specific standard, or the Task Force on Climate-related Financial Disclosures (TCFD), offering a comprehensive framework. Conversely, organizations seeking to report on a diverse array of issues, encompassing aspects such as their contributions to the United Nations Sustainable Development Goals, can opt for the Sustainability Accounting Standards Board (SASB) and the International Integrated Reporting Council (IIRC), now merged into the Value Reporting Initiative.

The Carbon Disclosure Project (CDP) places its primary emphasis on assessing a company's

influence on greenhouse gas emissions (Gierling F., 18 November 2020). CDP affords companies the opportunity to delineate their environmental impact across multiple domains, encompassing climate, water, and forests, with climate-related reporting typically hewing to the parameters stipulated by the Greenhouse Gas Protocol. Furthermore, organizations seeking to undertake a comprehensive disclosure encompassing a wide spectrum of environmental and social dimensions may elect to utilize either the Global Reporting Initiative (GRI) or the World Economic Forum International Business Council (WEF IBC). GRI represents the most extensively employed sustainability reporting standard globally, while WEF IBC has aligned its metrics with GRI standards, thus facilitating a degree of comparability between the two frameworks.

The practice of viticulture exhibits an inherent symbiotic relationship with the environment, wherein vineyards constitute an indispensable component of the contiguous landscape. Producers can preserve the landscape by adopting several practices. The protection of agricultural lands as environmental resources is one of the objectives recommended by the European Union (EU), together with the safeguarding of water and air resources. Heightened consciousness among corporations, consumers, and institutions regarding matters of sustainability in the wine sector has been the topic of many discussions. The reduction in the use of phytosanitary products emerges as the most commonly adopted and most pertinent sustainable practice, as reflected by the highest average perceived importance score. Similar trends are discernible concerning practices related to the preservation of biodiversity, underscoring the strong association that producers establish between sustainability and these thematic areas. Moreover, noteworthy emphasis is placed on addressing carbon footprint reduction and water conservation within this context (Laca A., 2021).

Transitioning to practices associated with vinification, winery operations, bottling, and distribution, the collected scores indicate comparatively lower utilization of these practices, particularly with regard to those involving the application of bio-building techniques and the construction of underground structures. The rationale behind this outcome can be attributed to the substantial initial investment required for the implementation of such practices, with corresponding returns materializing over an extended timeframe. It is essential to recognize that the Italian wine industry primarily comprises micro or small-scale enterprises, where construction-related endeavors are typically deemed exceptional and are undertaken only when structural necessity dictates (Casolani N., 2022).

This analysis underscores the nuanced dynamics and economic considerations influencing the adoption of sustainable practices within the Italian wine sector, highlighting the prominence of environmental measures in viticulture and the cautious approach taken toward investments in vinification and infrastructure development.

Catalyzed a proliferation of initiatives, frameworks, and instruments aimed at advancing sustainability within the industry. The approach to sustainable development is founded upon the concept of the triple bottom line, encompassing the dimensions of environment, economy, and society. Predominantly, the programs and objectives of these initiatives primarily emphasize the environmental facet of sustainability, which concurrently represents the most contentious topic within the scientific community, particularly with regard to the delineation of performance indicators.

RESULTS AND DISCUSSIONS

Producers have the capacity to uphold landscape preservation through the adoption of various practices. One of the recommended objectives by the European Union (EU), is the protection of agricultural lands, which are considered vital environmental resources.

Simultaneously, safeguarding water and air resources is a key component of this preservation effort.

In the context of soil protection, producers can employ several techniques. For instance, they can repurpose stones extracted from the ground during vineyard establishment to construct walls and terraces, mitigating the risk of potential landslides. Another approach involves enhancing grass growth by sowing herbs between vineyard rows at the conclusion of the summer season following harvest. This practice facilitates deep-rooted plant growth, ensuring the provision of essential elements for the production of high-quality wine. Furthermore, it serves to counteract the adverse effects of excessive chemical fertilizer use, averted through sustainable practices, which can otherwise lead to long-term soil damage.

Augmenting grass growth yields multiple benefits, it not only mitigates hydrogeological instability associated with the vertical configuration of vineyards, thus preventing water accumulation and uneven ripening of the final vines, but also aids in the resurfacing of essential microelements such as iron, boron, chlorine, and manganese. Additionally, it contributes to increased biodiversity within the vineyard ecosystem (Bandinelli R., 2020).

To attain optimal vineyard growth, meticulous attention must be given to site selection and the chemical-physical characteristics of the vineyard. Such considerations reduce the likelihood of adverse economic consequences and

enable producers to yield wines of exceptional quality. Furthermore, a focus on judicious land selection requires fewer interventions, resulting in cost savings and the potential for higher wine prices.

Quantitative frameworks serve as instrumental mechanisms for furnishing pertinent data, facilitating the assessment of the efficacy of management interventions, and effecting necessary adjustments. They manifest themselves as valuable and dependable instruments for the transmission of sustainability-related information from producers to consumers. Nevertheless, upon an extensive examination of the multitude of extant protocols and the burgeoning corpus of literature, it becomes apparent that a fragmented array of certification programs has been put forth, encompassing an assortment of tools and indicators. Regrettably, this proliferation has engendered unwarranted impediments to the adoption proclivity, impacting both corporate entities and consumers alike. Certainly, there are various existing programs and potential frameworks that can be applied in the wine sector to evaluate sustainability. These programs can be assessed based on several analytical criteria, such as comprehensiveness, adaptability, credibility, and scalability. Here are a few notable programs that have been or could potentially be applied, along with an evaluation of them based on these criteria:

1. Sustainable Winegrowing Programs (SWPs):
    - **Comprehensiveness**: SWPs typically encompass a wide range of sustainability criteria, including vineyard management, water and energy use, and social responsibility.
    - **Adaptability**: They can be tailored to suit different geographical and climatic conditions, making them adaptable to various wine regions.
    - **Credibility**: SWPs often have a strong reputation for credibility due to their industry-specific focus and long-standing presence.
    - **Scalability**: These programs can be implemented by vineyards of all sizes, making them scalable to both small boutique wineries and large commercial operations.
2. Organic and Biodynamic Certification:
    - **Comprehensiveness**: Organic and biodynamic certifications emphasize chemical-free farming and holistic vineyard management, addressing environmental and health concerns.
    - **Adaptability**: They can be adapted to various vineyard types and regions but may require adjustments based on local conditions.
    - **Credibility**: Organic and biodynamic certifications are well-established and credible in the organic and natural wine market segments.
    - **Scalability**: These certifications can be applied to vineyards of different sizes, but they may involve additional paperwork and processes.
3. Carbon Footprint Assessment:
    - **Comprehensiveness**: Carbon footprint assessments focus primarily on greenhouse gas emissions, offering a narrow perspective on sustainability.
    - **Adaptability**: They are adaptable to any vineyard or winery but may not capture the full scope of sustainability issues.
    - **Credibility**: These assessments are credible in terms of measuring emissions, but they may not cover broader sustainability aspects.
    - **Scalability**: Carbon footprint assessments can be scaled up or down depending on the desired level of detail and complexity.
4. Sustainability Certification by Regional Bodies:
    - **Comprehensiveness**: These certifications often cover region-specific sustainability criteria, which may vary in comprehensiveness.
    - **Adaptability**: They are adapted to the particular environmental and socio-economic conditions of a specific wine region.
    - **Credibility**: Regional certifications can be credible within their designated areas but may lack recognition outside their region.
    - **Scalability**: The scalability of regional certifications depends on their recognition and acceptance beyond their local area.
5. Blockchain-Based Traceability:
    - **Comprehensiveness**: Blockchain traceability can provide comprehensive data on a wine's journey from vineyard to consumer, enhancing transparency.
    - **Adaptability**: It can be adapted to various wine supply chains but requires technological infrastructure.
    - **Credibility**: Blockchain offers high credibility due to its immutable nature and transparency.
    - **Scalability**: While blockchain is scalable, its implementation may require significant initial investment and industry-wide adoption.

The evaluation of these programs should take into account the specific goals and needs of wine producers, as well as regional and market considerations. It's important to select a program that aligns with a producer's sustainability objectives and resources while considering the potential impact on consumers and market positioning.

The heightened awareness among consumers regarding minimizing environmental impacts in wine viticulture has been a catalyst for the adoption of environmentally sustainable practices, including the utilization of organic and biodynamic methods.

While many sustainability programs aim to address all three dimensions of sustainability - environmental, social, and economic - it is often observed that a disproportionate amount of emphasis is placed on the development and implementation of environmental management systems.

Table 2

Online survey regarding sustainable practices in the wine industry

		Adoption level			Importance level
Wine supply chain phase	Environmental practices	Yes	No	We are going to adopt it	Average
Viticulture	Bio-bed systems	20.21%	62.38%	17.41%	3.73
	Intelligent agricultural machines	56.41%	34.62%	8.97%	3.45
	Land protection	47.43%	48.72%	3.85%	3.37
	Micro-irrigation	57.69%	32.05%	10.26%	4.09
	Precision viticulture	35.90%	55.13%	8.97%	3.79
	Preservation of biodiversity	65.38%	29.49%	5.13%	4.10
	Production of compost from pruning residues	35.90%	52.56%	11.54%	3.51
	Rationalisation of phytosanitary treatments	92.31%	6.41%	1.28%	4.54
Vinification and winery	Avoidance of chemical substances	78.20%	16.67%	5.13%	3.82
	Bio-building techniques	10.25%	78.21%	11.54%	3.47
	Cellar waste recovery systems	38.47%	46.15%	15.38%	3.56
	Clean energy adoption	38.47%	46.15%	15.38%	4.21
	Construction of underground structures	10.25%	78.21%	11.54%	3.47
	Rainwater filtering	20.52%	65.38%	14.10%	3.73
Bottling and distribution	Bottle made from recycled materials and alternative raw materials	43.59%	42.31%	14.10%	3.74
	Digital communication	61.54%	25.64%	12.82%	4.00
	Label made from recycled materials	24.36%	66.67%	8.97%	3.24
	Packaging made from recycled materials	43.59%	42.31%	14.10%	3.74
	Transport zero km	29.49%	61.54%	8.97%	3.56

CONCLUSIONS

A common framework that promotes collaboration across multiple disciplines to enhance the sustainability of wine production is essential. This framework should be built upon shared sustainability indicators adaptable to various geographical contexts and socio-economic conditions, thus facilitating the development of a consensus within the industry. Existing sustainability programs primarily concentrate on accounting for the adverse externalities and potential disservices arising from diverse management practices. However, they tend to overlook the substantial value of ecosystem services provided by agricultural systems.

The underappreciation of the value of these ecosystem services underscores the necessity for consensus indicators that can measure the trade-offs resulting from externalities, which may have either positive or negative impacts on ecosystem service provisioning. Consequently, a conceptual framework is imperative to facilitate the integration of such evaluations into wine sustainability programs. In addition to assessing detrimental effects through methodologies like Life Cycle Assessment (LCA), sustainability programs must incorporate comprehensive knowledge and indicators that recognize the benefits derived from the responsible utilization of natural capital assets that support the entire life cycle of wine production.

Therefore, when examining environmentally sustainable practices that wine companies should integrate into their operations, managers can effectively utilize a tool that aids in the practical implementation of sustainability initiatives. Furthermore, an exploration of the environmental practices that wine companies either currently adopt or regard as significant for future adoption can offer valuable insights to institutions. Understanding the extent to which these practices are adopted can guide institutions in directing their efforts and resources toward encouraging and supporting companies to enhance their sustainability endeavors. The absence of standardized indicators for quantifying the trade-offs arising from externalities, which may exert either positive or negative influences on ecosystem service provisioning, underscores the necessity for a conceptual framework. Such a framework is imperative to facilitate the integration of this evaluation into wine sustainability programs. In addition to assessing adverse impacts through methodologies like Life Cycle Assessment (LCA) and its related approaches, sustainability programs must encompass comprehensive knowledge and indicators pertaining to the advantages stemming from the utilization of natural capital assets that underpin the entire life cycle of wine production.

The optimal framework is the one that not only provides the most dependable information for consumers but also aligns with the company's requirements, thereby mitigating skepticism

surrounding certifications and environmental disclosures.

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