

Sustainable solutions: Advancing in Tech-based ESG reporting platforms

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Abstract. Sustainability reporting plays a crucial role in promoting ethical conduct, managing risks, and enhancing stakeholder engagement for businesses aiming for long-term success. Recent changes in European legislation, particularly the Corporate Sustainability Reporting Directive (CSRD), signal a significant shift towards aligning sustainability reporting with financial reporting to meet Sustainable Development Goals. Concurrently, advancements in Environmental, Social, and Governance (ESG) reporting processes have led to the emergence of tech-based platforms, leveraging artificial intelligence (AI), to streamline data gathering and compliance efforts among EU companies. This paper examines the potential impacts of such platforms, focusing on their role in facilitating ESG information collection for regulatory compliance. Utilizing secondary sources such as European legislative acts and relevant literature, the study also presents a case study of "Ecomate ESG platform" as an illustrative example. In addition to regulatory compliance, these platforms offer benefits such as improved efficiency and enhanced stakeholder engagement. The conclusion draws upon key findings to propose general recommendations for the future development of the ESG sector and the effective utilization of AI within it.

Keywords: sustainability; eco-innovation, net-zero economy, Tech-based solutions, corporate governance.

I. INTRODUCTION

The accelerated dynamics of global economic, social, and ecological processes, influencing and causing changes in the policies and consequently in the legislation of the European Union (EU) which busts innovation and affects businesses. A number of events of the last decade such as the war in Ukraine, Covid-19 and the health crisis (Kumar, Srivastava, 2022), the shortage of energy

resources etc. pose strategic questions to the European community and highlighted the debate in terms of functions and responsibilities of businesses [1]. The literature on Corporate Social Responsibility (CSR) has been a subject of study for over seven decades since its inception in the 1950s. Kumar and Srivastava have observed a remarkable surge in research in this area and today ESG reporting is considered as one of the most researched topics when it comes to business ethics [1]. No-financial reporting becomes an obligatory prerequisite for increasing a company's reputation which leads to better economic performance and increased competitiveness on the market, furthermore "protecting the planet and meeting social needs" [2].

As societal expectations evolve, sustainability reporting has emerged as a pivotal practice, guiding companies toward ethical conduct, risk management, and long-term viability. The landscape of Environmental, Social, and Governance (ESG) reporting is undergoing significant transformation, driven both by the requirements of the latest EU legislation, as well as by technological innovation. The proliferation of tech-based platforms, empowered by artificial intelligence (AI), offers new avenues for companies to navigate the complexities of ESG reporting. These platforms promise to streamline data collection, enhance regulatory compliance, and facilitate stakeholder engagement. Against this backdrop, this paper explores the potential impacts of tech-based ESG reporting platforms in the EU, with a focus on their role in facilitating ESG information gathering for regulatory compliance. The primary objective of this study is to analyse the potential impacts of tech-based ESG reporting platforms in the EU,

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particularly in facilitating companies' compliance with regulatory frameworks and enhancing their sustainability efforts. This study adopts a methodology of utilizing a comprehensive review of European legislative acts and an analysis of relevant scholarly literature, also incorporating a case study of the 'Ecomate ESG platform' to provide practical insights into the functioning and effectiveness of such platforms. By delving into the nuances of this evolving landscape, the paper aims to offer valuable insights and recommendations for the future development of the ESG sector and the effective integration of AI technologies.

II. MATERIALS AND METHODS,

A. Literature review and data collection

For the purposes of the paper secondary sources of information and analysis are conducted, including scientific research articles of established authors and official publications in key databases such as Scopus, and Web of Science. In addition, the research examines an European legislative acts such as the Corporate Sustainability Reporting Directive (CSRD) and relevant literature on sustainability reporting frameworks. Upon the literature review, compiling evidence suggest that this scientific domain remains nascent and inadequately matured. For this reason, the paper presents a case study of an applicable reporting ESG Platform, called Ecomate. The data is analysed in order to evaluate the features and of tech-based ESG reporting platforms. The rapidly evolving nature of technology and regulatory frameworks could be considered as a limitation.

B. Theoretical framework

Sustainability reporting serves as a crucial tool for organisations to communicate their environmental, social, and governance (ESG) performance to stakeholders [3]. Various frameworks and guidelines have been developed to standardise the reporting process and ensure the disclosure of relevant information. One prominent framework is the Global Reporting Initiative (GRI), which provides comprehensive guidelines for reporting on economic, environmental, and social impacts. The GRI framework emphasises the importance of materiality, stakeholder engagement, and transparency in reporting, guiding companies in identifying and prioritizing ESG issues relevant to their business operations [4].

The integration of technology into ESG reporting processes has transformed the way companies collect, analyse, and disclose sustainability data. Tech-based ESG reporting platforms leverage advanced technologies such as artificial intelligence (AI), machine learning, and big data analytics to automate data collection, identify trends, and generate actionable insights. These platforms enable companies to streamline the reporting process, enhance data accuracy, and improve stakeholder engagement by providing timely and transparent information [5].

From a theoretical standpoint, the adoption of tech-based ESG reporting platforms can be understood through several lenses. Institutional theory suggests that organisations adopt new practices, such as tech-based reporting platforms, to conform to institutional norms and expectations. The legitimacy gained through ESG

reporting enhances the organisation's reputation and reduces institutional pressures. Additionally, resource-based theory posits that companies invest in technology to gain competitive advantages, such as improved efficiency and decision-making capabilities. By leveraging tech-based reporting platforms, companies can better manage their ESG risks and opportunities, leading to long-term sustainability and profitability [6].

Despite the potential benefits, the adoption of tech-based ESG reporting platforms is not without challenges. Technical barriers, such as data integration and system compatibility, may hinder the implementation process. Moreover, concerns about data privacy, security, and algorithm bias raise ethical considerations that must be addressed [7]. However, these challenges also present opportunities for innovation and collaboration among stakeholders. By addressing technical and ethical concerns, companies can harness the full potential of technology to advance their sustainability goals and create value for society.

III. RESULTS AND DISCUSSION

A. Regulatory landscape

The introduction of tech-based ESG reporting platforms is dictated not only by global trends and improving the company's reputation, but also with the evolving legislative landscape, particularly within the European Union (EU). Therefore, before analysing the case study, an overview of the European legislation framework is needed. The EU recognizes that environmental issues are not isolated and affect all other spheres, including at the supranational level.

The beginning of the common European environmental policy was set in 1972 during a meeting of a low Council in the city of Paris, France. The Single European Act of 1987 introduces an entirely new section "Environment" which aims to provide the first legal basis for a common policy in the field of the environment, with the aim of preserving the efficiency of the environment, protecting clean health and to ensure the rational use of natural resources [8].

In terms of environmental, transport, energy efficiency and competitiveness policies, the Green Deal is the first European legislative act to set the goal of climate neutrality by 2050. The goals are ambitious, with the document stating that by 2030 carbon emissions should decrease by 55%, and by 2050 the net emissions of greenhouse gases on the territory of the Union should be completely eliminated and a transition to clean energy should be ensured [9].

As a part of the tendency and according to the innovations in the European legislation from 2023, changes to CSRD came into force, which includes mandatory reporting of information on the sustainability of a business, according to the European Sustainability Reporting Standards (ESRS) framework. This means that from 2024 it will be phased in as mandatory for large companies to comply with ESG standards and to report non-financial reports regarding ESG. As of this year The

Directive (EU) 2022/2464 of the European Parliament and of the Council applies to all State Members as it affects the organisations with the public-interest entities with an average number of employees over 500 and net turnover over EUR 40 million [10]. It is envisaged that the non-financial ESG reports will gradually evolve towards greater comprehensiveness for medium and small enterprises.

The changes to the CSR Directive are required for several reasons, the first of which is related to the conditions laid down in the European Green Deal. For example, the following documents are prepared: Action plan for financing for sustainable growth; System for classification of ecologically sustainable economic activities; "Guidance on the disclosure of non-financial information: Supplement on the disclosure of climate-related information" and others that need to be considered when preparing the corporate sustainability report.

The second group of factors relates to the increased interest on the part of investors regarding corporate information on sustainability. Climate change, loss of biodiversity, changes in soil, water, air, etc. are an objective prerequisite for increased financial risk. In this context, before starting the research and subsequently the realisation of an investment intention, ESG data is also needed. This would provide a comprehensive and credible assessment to investors, based on which they could successfully eliminate any of the potential financial threats. In practice, it turns out that non-financial reporting has an indirect financial result and impact, which further increases the need for reporting.

According to a KPMG study conducted in 2015, the world's largest 250 companies (from the Fortune Global 500 ranking) perceive reporting as an important chat from company management, and for the same year, 92% of them developed and communicated a corporate social report [11]. In addition to the need for compliance with regulatory requirements, the consideration of corporate sustainability leads to the improvement of the ESG rating and to positives for the organisation, improving its reputation with customers and investors.

Due to the emerging regulatory changes in European legislation, the topic of corporate ESG reporting in 2023 is gaining wide relevance. The specification of documentation and additional administrative work directs companies to seek external companies for creating an ESG strategy and reports. This tendency is a prerequisite for advancing in Tech-based ESG reporting platforms. This, in turn, creates a demand for new competencies in the market and allows a number of consulting and auditing companies to specialise in the subject and build a competitive advantage.

In summary, the implications of regulatory changes on ESG reporting practices are far-reaching and impact the way companies manage risks and position themselves in the marketplace, while sustainability becomes a must-have element in the management of companies that wish to compete in the market. Based on the described effects, at the current stage there is a tendency to introduce new

software developments and tech-based ESG platforms on the market, designed to ease reporting processes in the corporate sphere and provide a technological base for these activities.

B. Tech-based ESG reporting platforms: features, functionality and impact.

Tech-based ESG reporting platforms are designed to offer a comprehensive suite of features and functionalities that enable organisations to effectively manage and report their environmental, social, and governance (ESG) performance. These platforms leverage advanced technologies such as artificial intelligence (AI), machine learning, and big data analytics to automate data collection, analysis, and reporting processes, thereby enhancing efficiency, accuracy, and transparency in sustainability reporting. Some of the main features and capabilities of AI-driven ESG reporting platforms include, but are not limited to [12]:

Data collection and aggregation. Tech-based ESG reporting platforms facilitate the collection and aggregation of ESG data from various internal and external sources. They integrate with existing systems such as enterprise resource planning (ERP) systems, supply chain management software, and sustainability management tools to gather data on key performance indicators (KPIs), environmental impact metrics, social responsibility initiatives, and governance practices. Advanced data aggregation techniques ensure the seamless integration of disparate data sets, enabling companies to generate comprehensive reports that reflect their overall sustainability performance.

Data analysis and visualisation. These platforms employ AI algorithms and machine learning techniques to analyse ESG data and extract meaningful insights. They use advanced analytics tools to identify trends, patterns, and correlations within the data, allowing companies to gain deeper insights into their sustainability performance and identify areas for improvement. Visualisation features such as interactive dashboards, charts, and graphs help users to visualise and communicate complex data in a clear and compelling manner, making it easier to understand and interpret.

Customizable reporting templates. Tech-based ESG reporting platforms offer customizable reporting templates that enable companies to tailor their ESG reports to meet the needs of different stakeholders. These templates provide a framework for organizing and presenting ESG data in a standardized format, ensuring consistency and comparability across reports. Companies can choose from a range of predefined templates or create their own, incorporating relevant metrics, indicators, and benchmarks to effectively communicate their sustainability performance to stakeholders.

Stakeholder engagement tools. Many tech-based ESG reporting platforms include stakeholder engagement tools that facilitate communication and collaboration with investors, customers, employees, and other stakeholders. These tools enable companies to gather feedback, respond to inquiries, and demonstrate transparency in their

sustainability efforts. Features such as online forums, surveys, and feedback mechanisms allow stakeholders to engage directly with companies, providing valuable insights and fostering a culture of openness and dialogue.

The adoption of tech-based ESG reporting platforms has significant implications for companies, investors, and other stakeholders, shaping decision-making processes and driving positive social and environmental impact [5].

Tech-based platforms improve transparency and accountability by providing stakeholders with timely and accurate information about companies' sustainability performance. This increased transparency fosters trust and credibility, enhancing companies' reputation and brand value [13].

By providing companies and investors with access to comprehensive ESG data and insights, tech-based platforms support informed decision-making processes. Companies can identify emerging risks and opportunities, allocate resources more effectively, and align their business strategies with sustainability goals.

Of course, there are also some challenges, limitations and risks associated with the use of Tech-based platforms for ESG reporting [5].

One of the primary challenges associated with tech-based ESG reporting platforms is ensuring the quality and reliability of the data used for reporting. Companies often rely on a variety of internal and external data sources, each with its own level of accuracy and completeness. Ensuring data quality requires robust data validation processes, data cleansing techniques, and ongoing monitoring to identify and correct errors or inconsistencies.

Integrating tech-based ESG reporting platforms with existing systems and processes can be complex and time-consuming. Companies may encounter compatibility issues, data interoperability challenges, and resistance to change from employees accustomed to traditional reporting methods. Achieving seamless integration requires careful planning, stakeholder engagement, and investment in training and organizational change management.

Keeping pace with evolving regulatory requirements and standards presents a significant challenge for companies using tech-based ESG reporting platforms. Regulatory frameworks such as the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Task Force on Climate-related Financial Disclosures (TCFD) continue to evolve, introducing new reporting requirements and guidelines [4]. Ensuring compliance with these regulations requires ongoing monitoring, updates to reporting templates, and alignment with industry best practices.

Tech-based ESG reporting platforms often involve the collection, storage, and processing of sensitive data, including financial information, employee data, and environmental performance metrics. This raises concerns about data privacy and security, particularly in light of increased regulatory scrutiny and the growing threat of

cyberattacks. Companies must implement robust data protection measures, such as encryption, access controls, and regular security audits, to mitigate the risk of data breaches and unauthorised access.

The use of AI algorithms and machine learning techniques in tech-based ESG reporting platforms introduces the risk of algorithm bias and interpretation errors. Biases in data selection, modelling assumptions, and algorithmic decision-making can lead to inaccurate or misleading results, undermining the credibility and reliability of ESG reports. Companies must carefully assess the validity and robustness of AI algorithms, conduct sensitivity analyses, and provide transparent disclosures about the limitations and assumptions underlying their models [13].

While tech-based ESG reporting platforms offer many benefits, there is a risk of overreliance on technology and automation, leading to a reduction in human oversight and judgement. Automated data collection and analysis processes may overlook nuanced or context-specific factors that require human judgement and interpretation. Companies must strike a balance between automation and human intervention, ensuring that technology complements rather than replaces human expertise in ESG reporting and decision-making processes.

To summarise, tech-based ESG reporting platforms offer promising solutions to enhance sustainability reporting practices, providing companies with advanced tools and functionalities to streamline data collection, analysis, and reporting processes. These platforms enable companies to improve transparency, accountability, and stakeholder engagement, driving positive social, environmental, and economic outcomes. However, their adoption is not without challenges and potential risks, including data quality issues, integration complexities, regulatory compliance burdens, as well as concerns about data privacy, algorithm bias, and overreliance on technology. Addressing these challenges and mitigating risks will be crucial to realizing the full potential of tech-based ESG reporting platforms and ensuring their effectiveness in supporting sustainable business practices and decision-making.

C. Case Study: Ecomate ESG Platform

This section of the article presents a case study of an applicable reporting ESG Platform SaaS (Software as a service), called Ecomate, presented by the Italian company Ecomate S.R.L. The investigated platform is one of the first ESG software suites of all products needed to integrate sustainability in a company, whose alpha version was released first in 2020. Furthermore, the platform is pertinent to be researched due to the fact that it integrates all 4 investigated features and capabilities of AI-driven ESG reporting platforms. Its algorithms guide the company through the implementation of sustainability, with straightforward language and instant timing.

The process starts from the data acquisition through either self-assessment or risk analysis. Subsequently, an ESG rating is obtained, leading to the generation of a customised improvement report and continuing through to

the stage of non-financial disclosure. One of the positives is that the Platform offers solutions designed for monitoring a multitude of companies to create personalized audits and ratings using the world's first RaaS (Rating As A Service), which is considered as a competitive advantage of this product.

Through a fully guided assessment, Ecomate's algorithm calculates the environmental, social, and governance (ESG) performance of a company using 11 impact modules and over 70 sustainability topics. The scope of the algorithm supports all existing industrial sectors and multiple national and international compliance frameworks and detects the criticalities of the company. Platform advantage is that it automatically generates a fully personalised report, based on the client's answers, whose aim is to enhance and solve sustainability related problems. The platform is designed to facilitate portfolio monitoring, incorporating tailored audit trails personalised to individual requirements, which ensures control and documentation in accordance with scientific standards.

Another positives of the researched platform is the ESG open standard approach, which means that the entire process, related to sustainability ranking, is designed to be transparent, clear and accountable, which enhances visibility and facilitates the decision-making process

In order to ensure transparency and compliance with the legal framework the process is overseen and verified by a decentralised technical-scientific committee. This committee operates under an open-science licence, emphasising the importance of collaboration and sharing within the scientific community. This type of crowdsourcing, involving external experts in shaping the rating's logic and content, should ensure transparency and fairness. Currently, 8 consulting firms and nearly 50 experts across various domains have volunteered their time, contributing over 20,000 hours of work. Ecomate claims that the approach allowed them to create a reporting algorithm, able to produce nearly 300,000 unique improvement and impact comments, along with a benchmarking system that offers substantial depth of analysis and flexibility [14].

In tech-based platforms the duality is considered crucial, especially in the context of the business model aimed at institutional clients (e.g. banks) or companies with extensive supply chains. In connection with that Ecomate's framework is established based on self-reporting, with the dual purpose of preventing fraud, as a basis for the truthfulness of platform's results and assisting users through a process inherently reliant on uncertain and potentially not clear-understood data. To be competitive in the market, the platform needs to incentivize the adoption of the framework among their clients and suppliers to gain traction, making the platform a useful instrument that could reduce monitoring overburden. In response to marker Ecomate has created an extensive approach, combining different techniques and logic, which showed that the use of AI (especially machine learning algorithms) was a last resort, more

supporting than enforcing fraud prevention. Multiple layers (tiers) of engagements are applied as follows:

- Psychological. The platform provides valuable insights and business improvement suggestions, which rely entirely on correct data, in case of fraud data the user is explicitly warned, added to a grey list and network is informed and users are aware of sample checks of the received data, including visits;
- Stakeholder involvement - Each profile has its public url address at Ecomate, where stakeholders could report discrepancies or detected problems;
- Internal logical supervision – The platform uses its proprietary mapping algorithm, using an expert system of unusual or contradicting user trails, basically asserting that claimed data is not expected by certain types of client profile.
- External data cross checking - proprietary multilevel algorithm for cross-checking with data from databases e.g. Creditsafe and from publicly available data e.g. Eurostat;
- Machine learning algorithms – Use to detect anomalies, later assigned for review to the support team.

In summary of the provided information about the Ecomate ESG platform, the tool could be considered only as an intermediate stage before actually Ecomate takes steps into implementing deepening AI integration. Looking at the core service model of Ecomate platform the value of AI could be extracted, considering scalability as a data flow and connectivity and a client servicing. The increase of diversified clients will put pressure on the servicing and maintaining client satisfaction. With the increase of data and global data flow, machine learning is increasing its ability to be useful instruments in providing more by fraud detection, smarter decisions, and improved look over the future.

The newest AI advance under the label of LLMs (Large language models) is setting a new bar of expectations. The current implementation, providing users with advice and connecting them with consultants is not enough within the world of AI agents, especially those trained for specific tasks. Writing reports could be easily also "outsourced" to AI.

In order to be competitive in the rapidly growing market of reporting technologies, Ecomate has created a plan for the forthcoming 2025 to integrate AI in the entire set of services and processes such as:

- AI for robo-advisory to guide better customer experience/support
- Forecasting ESG engine with ML / deep learning
- GPT-LLM large language model for improvement reports
- Fraud detection improvement with AI-Analyst
- Strategy/tactical AI to create revenues paths
- Filling the gaps between products with AI

It is essential to make a distinction between the market expectations, especially the venture investors, in such a way that the AI is obligatory included in the future backlog against the necessity to implement it. Challenges

are mostly related to gaining traction with the customers, making reporting easy and useful for the final respondents.

Probably the most direct benefit in the backlog will be gained from the connection with LLM. Understanding LLM only as an advisory function is showing some limitations, where the full potential could be realised only in fine-tuning and in the future integration of the scientific committee as specific LLM agents, with the ability to adapt to the increasing legal framework.

IV. CONCLUSION

In conclusion, the rise of tech-based ESG reporting platforms represents a significant milestone in the evolution of sustainability reporting practices. These platforms leverage advanced technologies such as artificial intelligence and machine learning to automate data collection, analysis, and reporting processes, offering companies a powerful tool to enhance transparency, accountability, and stakeholder engagement. By streamlining reporting processes and providing timely and accurate information, tech-based platforms enable companies to meet evolving regulatory requirements, identify emerging risks and opportunities, and align their business strategies with sustainability goals. However, the adoption of these platforms is not without challenges and risks, including data quality issues, integration complexities, and concerns about data privacy and algorithm bias. Addressing these challenges requires a concerted effort from companies, regulators, and other stakeholders to ensure the effective implementation and responsible use of technology in ESG reporting.

The case study of the Ecomate ESG platform provides a practical illustration of how tech-based platforms are implemented and utilized in real-world scenarios. Ecomate's innovative approach combines self-reporting with AI-driven algorithms to facilitate data collection, analysis, and reporting processes, while also addressing concerns related to fraud prevention and stakeholder engagement. By leveraging AI technologies, Ecomate enables companies to assess their ESG performance, identify areas for improvement, and generate actionable insights to drive sustainability initiatives. The platform's transparent and collaborative approach, coupled with its commitment to data integrity and security, underscores the potential of tech-based ESG reporting platforms to drive positive change and enhance corporate sustainability practices.

By analysing the case study, an important outcome is that due to the new technologies and legislation, there occurs a need for data availability and collection, which is an essential part of the ESG reports optimization and analyses. Furthermore, reflection on the significance of tech-based ESG reporting platforms is that the companies should incentivize data collection which also will reflect positively on fraud, and probably also reduce self-reporting through automated data analysis. By applying comprehensive ESG tools and ensuring the quality and reliability of the data used for reporting, companies increase their competitiveness in the market and improve

their efficiency and decision-making capabilities, reputation, and overall performance.

As we continue to navigate the complex landscape of sustainability reporting, it is essential to embrace innovation, collaboration, and transparency to build a more sustainable future for all. By harnessing the power of technology and adopting best practices in ESG reporting, companies can not only meet regulatory requirements but also create value for society, investors, and other stakeholders, driving positive social, environmental, and economic outcomes in the process.

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REFERENCES

- [1] V.Kumar, A. Srivastava, Trends in the thematic landscape of corporate social responsibility research: A structural topic modelling approach, 2022 [Online] Available at: <https://www.sciencedirect.com/science/article/abs/pii/S014829632005215> [Accessed February 22, 2024]
- [2] E. Appiah-Kubi, Management knowledge and sustainability reporting in SMEs: The role of perceived benefit and stakeholder pressure, 2024 [Online] Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652623042257> [Accessed February 22, 2024]
- [3] A.Kolk, "The social responsibility of international business: From ethics and the environment to CSR and sustainable development". *Journal of World Business*, 51(1), 23-34, 2016 <https://doi.org/10.1016/j.jwb.2015.08.010>
- [4] Global Reporting Initiative (GRI). GRI Standards, 2022 [Online] Available at: <https://www.globalreporting.org/standards/> [Accessed February 20, 2024]
- [5] C. de Villiers, R. Dimes, and M. Molinari, "How will AI text generation and processing impact sustainability reporting? Critical analysis, a conceptual framework and avenues for future research." *Sustainability Accounting, Management and Policy Journal*, Vol. 15 No. 1, pp. 96-118, 2024. <https://doi.org/10.1108/SAMPJ-02-2023-0097>
- [6] S.B.Banerjee, "Corporate environmentalism: The construct and its measurement." *Journal of Business Research*, 55(3), 177-191, 2002. [https://doi.org/10.1016/S0148-2963\(00\)00135-1](https://doi.org/10.1016/S0148-2963(00)00135-1)
- [7] S.Schaltegger, and R. Burritt, "Sustainability accounting for companies: Catchphrase or decision support for business leaders?" *Journal of World Business*, 45(4), 375-384, 2010. <https://doi.org/10.1016/j.jwb.2009.08.002>
- [8] M. Curmei, C. Kurrer, Environment policy: general principles and basic framework, 2023 [Online] Available at: <https://www.europarl.europa.eu/factsheets/en/sheet/71/environment-policy-general-principles-and-basic-framework> [Accessed February 22, 2024]
- [9] European Commission, The European Green Deal, 2024. [Online] Available at: <https://commission.europa.eu/strategy-and->

- [policy/priorities-2019-2024/european-green-deal_en](#) [Accessed February 22, 2024]
- [10] Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting (Text with EEA relevance), Available at: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32022L2464>
- [11] KPMG, The KPMG Survey of Corporate Responsibility Reporting 2015. Netherlands: Haymarket Network Ltd, 2015. [Online] Available at: <https://assets.kpmg.com/content/dam/kpmg/pdf/2015/12/KPMG-survey-of-CR-reporting-2015.pdf> [Accessed February 22, 2024]
- [12] Financial Reporting Council (FRC). Artificial Intelligence and Corporate Reporting: How does it measure up? London, 2019. [Online] Available at: https://media.frc.org.uk/documents/AI_and_Corporate_Reporting.pdf [Accessed February 20, 2024]
- [13] N.Cucari, G. Nevi, F. Laviola, and L. Barbagli, Artificial Intelligence and Environmental Social Governance: An Exploratory Landscape of AI Toolkit, November 11, 2023. [Online] Available at: <https://ssrn.com/abstract=4629933> [Accessed February 20, 2024]
- [14] Ecomate, 2024 [Online], available at: <https://ecomate.eu/en/esg-sme-rating> [Accessed February 26, 2024]