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Sustainability in the Public Health System, between Regulation, Reporting and Change Management

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Abstract

This study analyzes how sustainability principles are integrated in public hospitals in Romania. In a context marked by increasing European regulatory pressures (CSRD/ESRS) and increased social expectations, public hospitals should adapt, even in the absence of an explicit legal obligation. The qualitative-comparative research analyzes 32 hospitals subordinated to the Ministry of Health and other government structures, using thematic analysis of official data. The results highlight significant differences in the implementation of sustainability, identify emerging voluntary practices and institutional gaps in compliance preparation. In this context, external public audit becomes an important tool for assessing how public healthcare units integrate sustainability into governance, reporting and resource management processes. By verifying compliance and performance, audit can support not only institutional transparency and accountability, but also accelerate the transition towards a sustainable healthcare system. The study provides an analytical framework, as well as recommendations for public policies, contributing to the foundation of sustainable governance in the public health system.

Key words: *sustainability; public hospitals; external public audit; public policies; non-financial reporting;*

JEL Classification: *H83, M42, I18, Q56*

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Introduction

In recent decades, sustainability has become a strategic imperative for all types of organizations, regardless of sector or legal status. In the European Union in particular, the transition to a sustainable economy is supported by a complex legislative framework, including the recently adopted Corporate Sustainability Reporting Directive (CSRD) and the associated standards (*European Sustainability Reporting Standards*, ESRS). Although these regulations primarily target large private sector entities, their impact extends beyond them, significantly influencing public expectations, strategic directions of authorities and good practices in the public sector, including in the health sector.

Hospitals, as essential institutions for social cohesion and the well-being of the population, are exposed to an increasingly complex context, in which operational efficiency should be coupled with social responsibility, transparency and concern for environmental impact. However, in Romania, public hospitals are currently not legally required to apply CSRD or report according to ESRS.

In particular, public hospitals in Romania include units either subordinated to the Ministry of Health or under the coordination of other ministries or public structures (Ministry of National Defense, Ministry of Internal Affairs, Ministry of Justice, Ministry of Transport, Romanian Academy, etc.). This administrative diversity generates not only differences in the approach to governance, but also significant variations in the capacity and motivation to adopt sustainability measures, be they strategic, operational or reporting.

The literature on sustainability in the healthcare sector is growing, but often remains focused on cases from developed countries, where ESG regulations are directly or indirectly applicable. In Romania, applied research in the public healthcare sector in relation to sustainability is limited, especially regarding departmental hospitals, which operate under distinct administrative and management rules.

In this context, it is becoming increasingly relevant to analyze how external public audit can support the verification of compliance and performance in relation to sustainability objectives, thus contributing to institutional accountability and strengthening public trust. Thus, the audit not only validates the efforts of institutions, but can also act as a strategic guidance tool, especially in the absence of explicit legal reporting requirements.

This research aims to provide an empirical perspective on how public hospital institutions in Romania respond to sustainability requirements, in the absence of an explicit legal obligation. Through a comparative and exploratory approach, the article analyzes a sample of 32 public hospitals, 22 of which are subordinated to the Ministry of Health and 10 departmental, in order to assess the degree of integration of ESG principles, forms of voluntary reporting and mechanisms of institutional adaptation.

The research is based on documentary analysis of official public sources, structured on thematic dimensions relevant to sustainability. By identifying gaps, good practices and development potential, the study provides a useful analytical framework for decision-makers, practitioners and researchers, as well as an original contribution to the sustainability literature in the public health sector.

The approach is preceded by an examination of the specialized literature, intended to contextualize sustainability in the health system and to substantiate the methodological approach adopted.

Literature review

In the context of increasing global concerns for sustainability and transparency, the European Union adopted Directive 2022/2464, known as the Corporate Sustainability Reporting Directive (CSRD), in 2022. It extends non-financial reporting obligations for large and listed companies, imposing detailed standards on the disclosure of information related to social, environmental and governance (ESG) impacts (European Commission, 2022).

The objective of the CSRD is to ensure comparable, transparent and relevant reporting of sustainable aspects, in order to support the decisions of investors, authorities and the general public. In this framework, multinational companies, which have significant economic importance, are mainly targeted (EFRAG, 2023).

Public institutions, including hospitals in Romania, are not directly forced to apply the provisions of the CSRD, as they do not fall under the category of "companies" covered by the directive (European Commission, 2023). However, the involvement of public institutions in European funding processes and public-private partnerships makes them

sensitive to certain sustainability requirements. European funds (e.g., the National Recovery and Resilience Plan, PNRR) require certain standards of resource management, efficient energy management, as well as other non-financial reporting indicators for funded projects (Ministry of Investments and European Projects, 2023). Therefore, hospitals may be motivated to voluntarily implement sustainability policies and practices, especially in the areas of green infrastructure, efficient digitalization, and health crisis management, in order to meet the requirements of partners and funders.

In this context, external public audit has a strategic relevance in strengthening transparency and institutional accountability in the public health sector. Although the literature on sustainability auditing is more developed in the private sector, researches are beginning to explore the role of Supreme Audit Institutions (SAIs) in assessing ESG performance in the public sector (INTOSAI, 2023; OAG Canada, 2022). In Romania, the Court of Accounts has the competence to verify how public resources are used, and extending its mandate to sustainability auditing can support the transition of the health system towards greener, more equitable and more transparent practices. Therefore, external public audit is not only a financial control mechanism, but can become an instrument of sustainable governance, contributing to increasing public trust.

Thus, even if there is no explicit legal obligation to report CSRD, adapting its principles can represent an important step towards more transparent governance and responsible management of public resources (Osapiens, 2024).

Established models such as Kotter's 8-Step Model, ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) and *Lewin's Unfreeze–Change–Refreeze Theory* are widely applied for the sustainable implementation of ESG policies (Hiatt, 2006). Advanced analytical methods such as Strong Sustainability Paradigm based Analytical Hierarchy Process, SSP AHP (Wątróbski et al., 2023) offer robust ways to assess sustainability through criteria such as equity, quality and adaptability. Studies using AI (Artificial Intelligence) and IoT (Internet of Things) in hospitals contribute to the efficiency of energy consumption and the implementation of ESG in real time.

The concept of sustainability in healthcare has evolved significantly, especially by integrating governance, social responsibility and environmental protection dimensions in the organization of healthcare institutions. Theoretical studies such as those by Braithwaite (2018) and Leung et al. (2023) highlight the transition from purely clinical medical models to patient-centered systems with environmental and social concerns.

In recent decades, the healthcare sector has undergone a significant transformation, influenced by factors such as demographic changes, technological evolution and economic pressures. Sustainability in healthcare has become a central objective, reflected in the implementation of ESG (Environmental, Social, Governance) principles. Hospitals are institutions that not only consume resources, but also have an impact on the environment by generating medical waste (Wójtowicz & Wójtowicz, 2024). This section reviews the relevant specialized literature in the healthcare sector.

The ESG (Environmental, Social, Governance) model, established within multinational companies, has been gradually adopted in the healthcare sector, especially in the Nordic countries, the UK and Canada.

The World Health Organization, through its *Health in the Green Economy* programme (WHO, 2012), highlights the need to reduce the environmental footprint of healthcare systems. Initiatives such as *Global Green and Healthy Hospitals (GGHH)* and Healthcare Without Harm provide a practical, structured framework, including key objectives such as efficient waste management, green procurement and energy efficiency.

The European CSRD (Corporate Sustainability Reporting Directive) and the related ESRS standards impose, starting with 2024, concrete non-financial and ESG reporting obligations for large organisations, including in the healthcare sector (European Commission, 2022; EFRAG, 2024). Reporting models such as GRI and SASB have been adapted for hospitals, highlighting positive correlations between rigorous ESG reporting and operational and staff retention improvements (McKinsey & Company, 2022).

Theoretical and conceptual studies (Braithwaite, 2018; Leung et al., 2023) highlight the need for an adaptive management model that embeds sustainability in infrastructure, human resources, and clinical governance. Triple Bottom Line (TBL) models (Elzinga & Johnson, 2017) or evidence-based design (Ulrich & Zimring, 2004) also provide a solid basis for assessing the impact of sustainability on the quality of hospital services.

A 2024 Delphi study proposes the SOLAR (Sustaining of Lean Adoption in Hospitals Roadmap) model, which

combines implementation science and theory of change, providing a roadmap for adopting sustainable practices in hospitals (BMC Health Services Research, 2024).

In 2025, the analysis of governance factors relevant to the implementation of sustainability in European hospitals highlights mechanisms based on managerial knowledge, leadership involvement, staff commitment and the use of technology, factors that predominate compared to barriers, but could become facilitators through appropriate strategic approaches (van Schie, 2024).

Emerging literature brings to the fore the concepts of digital leadership, integrated IoT circuits, indicating how sustainable change is no longer only managerial, but also technological and behavioral (Ismail et al, 2025; Sepetis, A., Parlavantzas, 2025, Sepetis et al, 2024).

Wójtowicz & Wójtowicz (2024) conducted an analysis of ESG reporting in public hospitals in the EU, finding better performance in northern Europe compared to the south.

Patrici etal. (2025) and Piechocka-Kałużna etal. (2021) highlight that the ESG paradigm is still emerging in hospitals, especially in the public sector, where reporting costs and lack of standardization limit their implementation.

Candio (2024) and Borges et al. (2022) demonstrate the positive correlation between ESG scores and financial performance in European healthcare organizations.

Zariņš & Siders (2025) analyze the transposition of CSRD in public hospitals in Latvia, France and Germany, discussing regional legislative differences.

In Spain, the study on sustainability reporting in public hospitals by Andrades et al. (2024) highlights the progressive institutionalization of ESG reporting, but highlights the need for clear protocols and reducing confusion related to content and standardization.

Advanced methods for assessing sustainability in healthcare systems have been proposed by Wątróbski et al. (2023), which provide a framework focused on equity, quality and adaptability. They propose the SSP-AHP (Strong Sustainability Paradigm Analytic Hierarchy Process) framework, a multi-criteria model for assessing social sustainability, with five key domains, equity, quality, adaptability, innovation, participation. Fatehi et al (2023) present a systematic review on the use of AI for predicting energy consumption in hospital organizations, highlighting the potential of modeling and implementation challenges.

Recent bibliometric analyses (Luque Alcaraz et al., 2024) confirm the increase in the number of publications on sustainability in healthcare, with a focus on the role of healthcare personnel as a key factor in sustainability.

The link between ESG score and financial performance was investigated by Candio (2024), who found a positive correlation between governance components and financial results in European healthcare companies. In the same vein, Borges et al. (2022) extend the perspective on integrated effects on financial performance.

Empirical analyses such as that carried out by Schwab et al. (2025), which examines the introduction of sustainable strategies in German hospitals, highlight barriers such as lack of resources, insufficient leadership and technical complexity. The identification of specific environmental indicators for hospitals is addressed by Menezes Galvão et al. (2023), who highlight the need for EKPI (Environmental KPIs), focusing on energy, waste, water and mobility.

The comparative study carried out by Zariņš & Siders (2025) analyses the transposition of the CSRD Directive in public hospitals in the EU (Latvia, France, Germany) and highlights the legislative differences and related sanctions. Other articles (Osapiens, 2024) highlight the importance of CSRD for transparency and accountability in hospitals.

Agboola (2025) proposes the integration of ESG into management reporting as a strategic decision-making factor, and Liu (2025) investigates the long-term benefits of ESG adoption.

Torres Bosch et al. (2025) develop a conceptual model for integrating IoT into sustainable processes, also demonstrated in a healthcare case, an approach that can be adapted for smart hospitals.

Galvão et al. (2023) identify two main categories of sustainability indicators in hospitals, optimizing water and energy consumption, and monitoring and reducing the impact of hospital activities on the environment (waste, effluents, emissions). The results suggest that the potential for reducing social and environmental impacts in hospitals is considerable, and the involvement of medical staff is essential for the implementation of these practices.

The study by Dolcini et al. (2025) analyzes the integration of environmental sustainability into hospital performance management systems, highlighting the importance of adopting environmental strategies in improving the efficiency of health institutions. The authors propose the implementation of performance indicators that include

environmental aspects, in order to contribute to reducing environmental impact and increasing the long-term sustainability of hospitals.

The Romanian context brings interesting perspectives. The study by Mesteru (2025) highlights the urgent need to improve sustainability in the private healthcare sector in Romania, especially in terms of energy efficiency, social equity and financing models. By comparing with countries such as Germany, the USA and Japan, the author proposes the adaptation of international good practices to create a more sustainable and accessible healthcare system in Romania. Coman & Grigore (2017) discuss the role of innovation in the sustainability of the healthcare system, addressing in particular prevention programs and the social effects of smoking. Rotaru et al. (2024) provide an analysis of Romanian regulations and active projects, especially in promoting the concept of "age-friendly healthcare", integrating environmental and societal objectives in a European context. Dobre et al. (2025) investigate the correlation between corporate governance and financial performance in the Romanian environment, highlighting the importance of governance in achieving sustainable performance. In the healthcare sector, Ivanković et al. (2024) provide an empirical study on quality indicators in Romanian public hospitals, highlighting the importance of institutional commitment. Other works have addressed patient perception (Radu et al., 2021) and satisfaction in public hospitals.

International studies on sustainability in public hospitals remain relatively rare compared to the private sector.

Research methodology

This current study comparatively analyzes how public hospitals in Romania, subordinated to the Ministry of Health, respectively to other public institutions (departmental hospitals), integrate sustainability principles (ESG) into their institutional activity, given that there is no formal reporting obligation under EU Directive 2022/2464 on CSRD/ESRS. The study investigates voluntary organizational behaviors related to ESG practices with a focus on the potential for future compliance and institutional readiness.

The central objective is to identify emerging models of voluntary compliance, good practices and institutional obstacles, relevant in the context of alignment with European regulations.

The research questions are:

- *To what extent does the integration of sustainability differ between hospitals subordinated to the Ministry of Health and departmental ones?*
- *What type of voluntary reporting initiatives or ESG practices are visible in the two institutional categories?*

The research hypotheses are:

I1: *Departmental hospitals (especially military ones, MAI, SRI, Justice) are more conservative in transparency and communication of ESG initiatives, compared to hospitals in the Ministry of Health network.*

I2: *Hospitals in the Ministry of Health network have greater exposure to European requirements regarding funded projects, which stimulates the implementation of ESG practices (even informally).*

I3: *No category of hospitals is currently legally required to apply CSRD/ESRS, but significant differences in institutional readiness and openness towards these standards are observed.*

According to Directive (EU) 2022/2464 on corporate sustainability reporting (CSRD), the obligation falls on large entities (with over 250 employees, turnover > 40 million EUR) and public entities, or listed on the stock exchange.

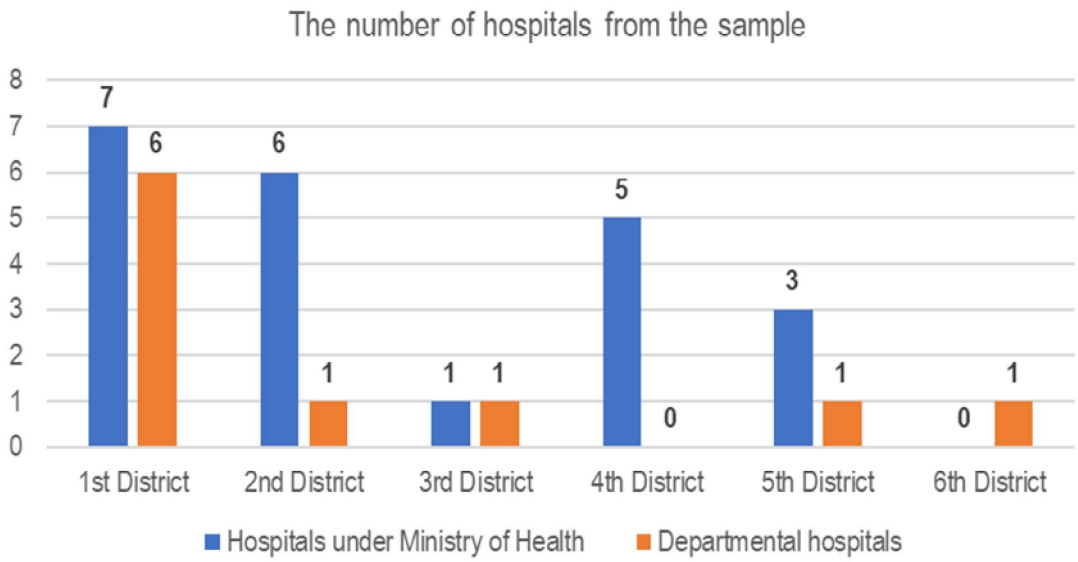
Public hospitals in Romania are organized as budgetary public institutions, without commercial legal personality; they are not included in the category of entities of public economic interest defined by the directive; they do not fall, in their current form, under the direct obligation of CSRD/ESRS, but are indirectly influenced by projects financed through PNRR or EU funds, institutional expectations or possible future national regulations.

This current exclusion from regulation provides an ideal framework for the comparative analysis of voluntary institutional reactions and preparation for future compliance.

The research carried out is a qualitative comparative one, through an extensive case study, with thematic analysis on two types of institutions (**Figure no. 1**).

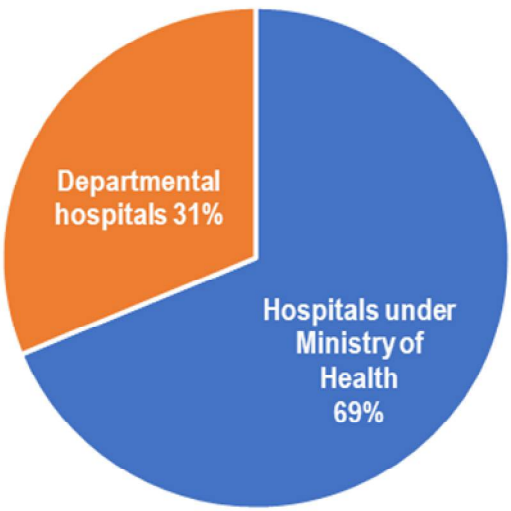
The analyzed sample includes 32 public hospitals, respectively 22 public hospitals subordinated to the Ministry of Health, including in this category university hospitals and representative county hospitals, according to the official list published by the Ministry of Health, and 10 departmental public hospitals, subordinated to various ministries, such as the Ministry of National Defense, the Ministry of Internal Affairs, the Ministry of Justice, the Ministry of Transport, the Romanian Intelligence Service or the Romanian Academy (**Figure no. 2**).

Figure no. 1. The sample



Source: own projection

Figure no. 2. Composition of the analyzed sample



Source: own projection

A purposive sampling technique was used, based on criteria such as the status of a public institution with hospital medical activity, different administrative subordination, to ensure comparability, accessibility to public data, strategic relevance (large, university, military or national hospitals).

The data collection and analysis were carried out by accessing the official websites of the hospitals, strategies, funded projects, official press releases, legislation and European documents on ESG/CSRD, activity reports, management plans, information on digitalization and energy efficiency.

The analysis carried out is an inter-institutional comparative, qualitative thematic (Braun & Clarke, 2006), organized by ESG dimensions: energy efficiency, waste management, green infrastructure; digital innovation, modernization of services; transparency, accountability, governance; staff training initiatives, social inclusion; reporting, sustainability projects (even without ESRS formalization).

The research does not use primary data (from interviews or questionnaires), but exclusively public and official secondary sources, which limits depth but maximizes transparency. Some hospitals (especially departmental ones) may publish less information, which affects comparative symmetry. However, the fact that the analysis focuses on voluntary compliance in the absence of mandatory compliance brings major methodological and practical added value.

The qualitative thematic analysis was conducted in accordance with the methodology proposed by Braun & Clarke (2006), organized by ESG dimensions:

- **E (environment)**: energy efficiency, green infrastructure, waste management;
- **S (social)**: digitalization, modern services, social inclusion, staff training;
- **G (governance)**: institutional transparency, managerial accountability, voluntary reporting initiatives.

This paper offers a unique contribution to the ESG literature applied to the public healthcare sector in Central and Eastern Europe, namely the case of Romania, supporting public policies by highlighting gaps and good practices between institutions in different administrative networks.

Results of the research and discussions

The research results highlight a number of significant differences between the institutional networks analyzed. Hospitals in the Ministry of Health network demonstrate a greater openness to good ESG practices, due to external pressures related to European funding and participation in digital transformation and energy efficiency projects. Departmental hospitals tend to exhibit a more conservative and less transparent organizational culture, with an emphasis on institutional security and rigid hierarchies, which limits the communication of ESG initiatives. In both categories, there are isolated ESG initiatives, but these are not formalized according to the CSRD/ESRS, reflecting the lack of a national framework adapted to the public sector.

The analysis of the 32 public hospitals in Bucharest reveals an almost non-existent visibility of sustainable initiatives. There are no sustainability reports, ESG indicators, or public strategies for social inclusion or open governance. This reveals a strong need for ESG awareness, auditing and reporting in the public healthcare system.

Environmental Dimension (E)

Regarding the environmental dimension, a concrete example of a green initiative could be the implementation of an energy efficiency model, the use of sustainable technologies and the implementation of modern ecological infrastructure standards. However, most of the hospitals analyzed did not publish strategies, reports or initiatives related to the reduction of energy consumption, the management of medical waste or the development of green spaces, fundamental aspects of environmental responsibility.

Social Dimension (S)

Within the social dimension, the public data analyzed do not indicate relevant social inclusion programs, continuous staff training, or corporate social responsibility initiatives. Although these aspects are essential for the quality of medical services and social cohesion, they seem to be generally not addressed or not communicated transparently by the institutions in the sample, with few exceptions (**Table no. 1** and **Table no. 2**).

Governance Dimension (G)

In terms of governance, institutional transparency and accountability are still low, especially in the case of departmental hospitals, where access to public information is limited (**Table no. 1**). Hospitals in the Ministry of Health network display some openness by publishing activity reports and management plans, but these do not usually include specific ESG indicators or policies.

Currently, the lack of explicit public data on ESG implementation in hospitals suggests low transparency, especially in the public healthcare sector.

Table no. 1. Comparative Analysis of ESG Reporting in Public Hospitals from Bucharest

Hospitals	ESG (using available data)	Observations	ESG dimensions
Hospitals in the Ministry of Health network (22 hospitals)	Limited information; rare public ESG initiative	Most have no ESG reports or green projects disclosed	E (not disclosed), S (partially), G (not disclosed)
Departmental Hospitals (10 hospitals)	No public visibility on ESG	Reduced accesibility to information	E (not disclosed), S (partially), G (partially)

Source: own projection

Table no. 2. Comparative-exploratory Presentation of Integrating ESG in Public Hospitals from Bucharest

Item	Hospitals in the Ministry of Health network	Departmental Hospitals
Buget of Revenue and Expense	86%	80%
Wealth and Interest Statements	95%	70%
Code of conduct	86%	60%
Code of ethics	82%	60%
Integrity Plan	86%	50%
Environment	10%	20%
Social	40%	70%
Governance	0	10%

Source: own projection

The results of this exploratory analysis indicate that the public healthcare system in Bucharest is at an early stage of integrating ESG principles. The visibility of environmental, social and governance initiatives is low, suggesting the level of importance given to institutional sustainability, as well as a need to promote transparency and accountability in this area. Regarding the environmental dimension, hospitals should monitor air quality, have urban gardens, implement solar panels, energy-efficient design and green infrastructure, given the high consumption of resources. The social dimension should provide access to modern medical services, health education programs, community spaces, and rehabilitation facilities. Governance should consider public-private partnerships or with various NGOs, ESG reporting, as well as dialogue with authorities and other stakeholders.

Conclusions and recommendations for future research

The comparative study conducted on the 32 public hospitals in Bucharest highlights a low level of explicit integration of ESG principles in the institutional activity, both in hospitals subordinated to the Ministry of Health and in departmental ones. The lack of policies and reports dedicated to sustainability indicates that these institutions operate mainly outside the formal framework of European regulations on ESG reporting, which limits transparency and the potential for social and ecological responsibility.

The environmental dimension is almost absent from strategies and public communications, with the exception of isolated initiatives such as projects of some hospitals to reduce the impact on the environment by collecting unused medicines or other waste, which also provide a positive example through sustainable infrastructure and energy efficiency.

The social dimension is insufficiently explored and communicated, and aspects related to inclusion, training and social responsibility are missing in most cases from the institutional discourse.

Governance is marked by limited transparency, especially in hospitals subordinated to the Ministry of Health, which highlights the need for clearer communication and accountability mechanisms. In this regard, external public

audit can become an important tool for objectively assessing institutional transparency and compliance with good governance principles, filling the lack of formal ESG reporting.

All these findings reflect both a lack of external pressure and direct legal obligations regarding ESG in the public healthcare sector, as well as a clear need for awareness and development of institutional capacities for the integration of sustainability.

The main public policy recommendations may concern the development of a national methodology for ESG reporting in the public sector, adapted to the specifics of budgetary institutions and in accordance with the ESRS principles, but without imposing excessive administrative requirements, the integration of ESG requirements within projects financed from EU funds (PNRR, ERDF, etc.), in order to stimulate voluntary compliance, the creation of an inter-ministerial ESG coordination mechanism in the healthcare sector, which would include representatives of the MH, MApN, MAI, MJ and other departmental structures, in order to harmonize good practices, professional training and development of institutional capacity on sustainability, for managerial and technical staff in hospitals, the publication of a transparent platform of ESG good practices in the healthcare system, which would serve as a guide for public hospitals.

The implementation of these recommendations can contribute to the modernization of the public healthcare sector both in Bucharest and in the country, with positive effects on operational efficiency, quality of medical services, employee satisfaction and responsibility towards the environment and society. At the same time, the adoption of solid ESG practices in hospitals can become a factor of competitiveness and a positive image, in line with global sustainability trends.

For a thorough understanding and effective adoption of ESG principles in Bucharest public hospitals, we recommend collecting primary data through questionnaires and interviews with managers and medical staff, to identify perceptions, obstacles and unpublished good practices; ESG audits that assess infrastructure, resource consumption and internal policies, to identify critical points and opportunities for improvement; developing an ESG reporting platform adapted to the public healthcare sector, to increase transparency and stimulate voluntary initiatives or initiating pilot projects in collaboration with local and European authorities to implement sustainable practices in infrastructure and social responsibility.

In conclusion, the transition to sustainable governance in the health system is a strategic necessity, which must be supported by clear public policies, adequate resources and an organizational culture open to change. External public audit, as an independent and objective verification mechanism, can play an important role in monitoring progress and contribute to increasing public trust.

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