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A scientometric analysis of ESG criteria implementation in the construction industry

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On the 5th Issue of the European Journal of Public Procurement Markets

This issue is based on a selection of papers presented at the International Conference on Circular and Innovative Construction Procurements held in Turin on 6 June 2023 and is in line with the interdisciplinary approach adopted by the European Journal of Public Procurement Markets. The present evolution of the EU legislative framework on public procurement is analysed combining contributions from engineers, business scientists and lawyers. A recurrent theme is the expansion of different models and tools linked to the challenge of innovative and sustainable procurement well beyond the discipline having given them birth.

Valentina Villa, Paola Alice Rosa Cavallaro and Angelo Luigi Camillo Ciribini lay the ground for the collection examining the evolution of Environmental, Social, and Governance (ESG) principles. These principles were originally rooted in finance but have widened their scope to corporate law and practice and thence to public procurement. Through scientometric analysis, the Authors explore the global ESG research landscape, with a focus on the construction industry. This comprehensive exploration seeks to deepen the understanding of ESG principles and their integration into the construction sector, including real estate and infrastructure. ESG criteria is that, up to now, the predominant focus has been on environmental issues, particularly in addressing the risks and opportunities associated with climate change mitigation. In moving forward, it is crucial for companies to broaden their focus beyond environmental considerations and actively engage in addressing social issues.

Alexandru Buftic opens a salvo of articles decicated to recent EU legislation. Directive 2023/1791/EU (EED) is a critical step in the EU's trajectory towards climate neutrality by 2050, instituting enforceable Green Public Procurement criteria. Butfic's article delves into the Directive's implementation complexities, scrutinising its potential to navigate the EU energy policy evolution and foster sustainability in public procurement. Notably, Article 7 and Annex IV of the Directive demonstrate a clear shift by mandating high energy efficiency performance standards across various sectors, signifying a move from discretionary to compulsory Green Public Procurement criteria. This article provides a comprehensive analysis of Directive 2023/1791, situating it within the EU's broader energy policy framework, and critically evaluates its potential to truly change the Union's approach to energy efficiency and Green Public Procurement.

Roberto Caranta continues the exploration of a number of new legislative instruments that will leave a mark on public procurement. While not having procurement as their main object, they include provisions related to it. Often these instruments introduce new provisions making sustainable requirements mandatory for contracting authorities. The three legislative measures analysed in this article bear witness to both the relevance and the adaptability of public procurement to achieve societal goals, including the fight against climate change but also resilience.

The power of public procurement to act as a lever for the climate transition and to achieve other societal goals would be undermined if non-EU companies were left free to unfairly compete with EU companies. Giulia Benvenuti specifically examines distortions caused by foreign subsidies in public procurement procedures as they are addressed under the Foreign Subsidies Regulation (FSR). Benvenuti's article analyses both the substantive provisions of the FSR and specifically the notion of 'subsidies' and the procedure managed by the European Commission to countervail the effects of subsidies in procurement procedures.

The next contribution shifts the attention to the rules applicable to public procurement funded under the Next Generation EU programs. Leila Kentache traces the diffusion and mutations of the "do no significant harm" principle from customary international law to EU law. EU Member States are obliged to apply the "Do no significant harm" principle in their public procurement procedures when their projects are financed under the EU Recovery and Resilience Facility (RRF). Despite the binding nature of this novel principle, doubts persist around its scope and implications. Still, its importance could hardly be underestimated.

While much new legislation is affecting public procurement, the potential to promote innovative procurement of the 2014 procurement directives is still under researched. Luís Valadares Tavares makes the case that the innovation partnership - a new procedure introduced by Directive 2014/24/UE – as a tool to prepare and to award more innovative and sustainable contracts of public works. Therefore, a set of guidelines is deduced and discussed to support public contracting authorities to make better use of innovation partnerships. The author explores the potential of the Theory of Cooperative Games and studies the present situation using the data available in TED.

Going outside Europe, but still concerning sustainable development concerns, Crossman Mayavo provides evidence on the government policy's moderating role in donor-funded procurement in the laboratory services of Zimbabwe. Medical laboratory services play a very important role in the functioning of any health sector as every disease have to be tested to ascertain the actual disease a person suffering from before any treatment can be commenced.

The papers collected in this issue all bear witness to both the complexity of innovative and sustainable public procurement: they show how this challenge has become an inescapable topic of discussion for public procurement in Europe and beyond as we need to promote a truly circular economy respecting the EcoDeal and the new paradigm of digital and innovative progress.

Roberto Caranta and Luís Valadares Tavares

Chief- Editors of this Special Issue

I - RESEARCH PAPERS

A scientometric analysis of ESG criteria implementation in the construction industry

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Abstract

This article examines the evolution of Environmental, Social, and Governance (ESG) principles, originally rooted in finance, analysing their status and future trends. Through scientometric analysis, it explores the global ESG research landscape, with a focus on the construction industry. The study utilizes Scopus as bibliographic database and VOSviewer and Biblioshiny as processing tools. This comprehensive exploration seeks to deepen the understanding of ESG principles and their integration into the construction sector, including real estate and infrastructure.

Keywords

Bibliometric; Environment; ESG; Governance; Infrastructure; Real Estate; Social

1. Introduction

Governments, investors, and consumers have long recognized the immense influence that corporate entities hold within society. These entities, through their operations and decisions, have influence over various facets of life. From the products and services to the creation of job opportunities, from shaping working conditions to safeguarding human rights, from environmental impact to fostering innovation, education, and training, corporate actions extend into numerous spheres. The cited reasons have prompted world citizens to demand more than mere corporate self-acknowledgment regarding their side effects. Corporate entities are expected to understand the positive and negative impacts they have on society and the environment, and to prevent, manage and mitigate any negative impacts, included in their global supply chains (Hahnkamper-Vandenbulcke, 2021). All of this has led to the need of companies to integrate non-financial factors in their decision-making process. Therefore, environmental, social and governance (ESG) considerations started to be considered when making investment decisions in the financial sector leading to more long-term investments in sustainable economic activities and projects. ESG stands for Environmental, Social, and Governance criteria, which are used to evaluate a company's operations and its impact on society and the environment. The concept originated as a way for investors to consider non-financial factors alongside financial ones when assessing the performance and sustainability of an investment. The acronym ESG, increasingly recognized beyond the realms of finance and 'sustainability,' is composed by three clear terms: Environmental, Social, and Governance. These represent three fundamental dimensions for verifying, measuring, monitoring, and supporting a company or organization's commitment to sustainability. Environmental considerations assess how a company behaves towards the environment, they might include climate change mitigation and adaptation, as well as the environment more broadly, for instance the preservation of biodiversity, pollution prevention and the circular economy. Social considerations are related to social impact and examine the

relationship with the local community, individuals, employees, suppliers, and customers, therefore they could refer to issues of inequality, inclusiveness, labour relations, investment in people and their skills and communities, as well as human rights issues. The Governance of public and private institutions pertains to issues of corporate management guided by best practices and ethical principles, including management structures, employee relations, leadership transparency and executive remuneration (Bellini M, 2021). It is evident how through ESG, it's possible to build a corporate reputation upon which gain or lose investors' trust. Companies can adopt various strategies to enhance ESG performance, such as implementing more sustainable practices, promoting inclusion and diversity, embracing transparency and social responsibility policies, and integrating ESG factors into corporate decisions. ESG principles mark a paradigm shift, encouraging stakeholders to question traditional profit-centric models and promote a more holistic approach to evaluating corporate performance. ESG principles supply that holistic view extending sustainability beyond just environmental issues.

The foundational principle of ESG investing has historical roots spanning centuries, evident in religious decrees prohibiting investments linked to slave labour. Moving ahead to the 1960s and 1970s, the call for divestment from South Africa emerged as an initial step to condemn the apartheid system in the country. Subsequently, numerous other societal issues prompted the adoption of socially responsible investment strategies. The roots of ESG can be traced back to various social movements, growing environmental awareness, and shifts in corporate responsibility that gained momentum in the latter part of the 20th century. However, it took several decades for such initiatives to be structured into precise regulations and methodologies, eventually evolving into the framework recognized today as environmental, social, and governance.

One of the first attempts to offer a framework for sustainability reporting it was the Global Reporting Initiative (**GRI**) founded in **1997**. The GRI is an independent, international organization that helps businesses and other organisations take responsibility for their impacts. Through the GRI Standards, organizations are also able to assess the economic, environmental, and social impacts of their suppliers, aiming to favour suppliers aligned as much as possible with the new sustainability principles. In 2016, GRI transitioned from guidelines to setting the first global standards for sustainability reporting (Global Reporting Initiative, no date). Several years later, in July **2000**, the United Nations Global Compact (**UNGC**) was launched by United Nations Secretary-General Kofi Annan, serving as a call to companies to align strategies and operations with universal principles on human rights, labour, environment and anti-corruption through a set of ten principles. Since then, the Global Compact has continuously assisted businesses in becoming part of the solution against poverty, inequality, and environmental issues. All of this has been achievable solely through ongoing adaptation and alignment with guidelines and objectives developed in the subsequent years. Today U.N.'s Global Compact is composed by more than 12,000 corporates based in over 160 countries (United Nations Global Compact, no date). In response to companies' need for guidelines and recommendations on how to better integrate environmental, social and governance issues in asset management, In January **2004**, Secretary General Kofi Annan wrote to the CEOs of 55 of the world's leading financial institutions inviting them to join in the initiative that led to the development of a report called: **Who Cares Wins** (WCW). The WCW is the first document ever which introduced the mainstream definition of ESG as known nowadays. The report provided several recommendations for integrating ESG issues in analysis,

asset management and securities brokerages (Global compact, 2004). From 2004 to 2008, the UN Global Compact sponsored a series of closed-door-invitation-only events for investment professionals, to increase the industry's understanding of ESG risks and opportunities, and to improve integration of ESG into the investment decision making. Each event considered a particular element of ESG mainstreaming, and four more publications of the Who Cares Wins were published from 2005 to 2008 (International Finance Corporation, 2021):

- 2004 – Connecting Financial Markets to a Changing World
- 2005 – Investing for Long-Term Value
- 2006 – Communicating ESG Value Drivers and the Company-Investor Interface
- 2007 – New Frontiers in Emerging Markets Investment
- 2008 – Future Proof? Embedding ESG issues in Investment Markets

In **2006**, the UN Global Compact and the UNEP FI (United Nations Environment Programme Finance Initiative) launched the Principles for Responsible Investment **PRI**, consisting of six principles aimed at fulfilling the UNGC mission to promote ESG considerations (PRI, 2019). In **2014** the European Union adopted the **NFRD** (Non-Financial Reporting Directive). Under the NFRD listed companies, banks, and insurance companies with more than 500 employees must disclose reports detailing their implemented policies concerning non-financial issues such as social responsibility and employee treatment. This marks the inaugural requirement for companies to issue a non-financial statement as well (European Parliament & Council, 2014).

The NFRD provides considerable flexibility, specifically, it does not mandate the utilization of a specific non-financial reporting standard or framework. Therefore, companies have the option to incorporate a non-financial statement within their management report or, under specific circumstances, generate a distinct report. In addition, companies can use international, European or national guidelines to produce their statements such us: the Global Reporting Initiative (GRI). This flexibility underlines the growing necessity for officially recognized and universally accepted guidelines in this domain. The level of awareness of ESG issues among mainstream professionals has greatly improved since the launch of WCW, moreover they have been significantly influenced by various global initiatives such as the 17 Sustainable Development Goals (**17SDGs**), the Paris Agreement, and the European Green Deal (EGD). The 17 SDGs, established by the United Nations in **2015** as part of the **Agenda 2030**, serve as a universal call to action to end poverty, protect the planet, and ensure prosperity for all. The 17 goals establish a comprehensive framework for global sustainable development, addressing a wide range of social, economic, and environmental challenges. Each goal has specific targets aimed at achieving a more sustainable and equitable world by 2030. ESG factors align closely with these goals, companies that incorporate ESG principles into their strategies consequently align their actions with the sustainable goals. An example of what just said are the: SDG 3-Social factors, SDG 13-Enviromental considerations, SDG 16-Governance. December 12, **2015**, marks another pivotal moment for sustainability and the planet. In Paris, the **Paris Agreement** was signed, achieving the first major universal and legally binding accord on climate change. This represents a strategic decision not only for the ESG trajectory but primarily for the planet. It involves committing to long-term containment of the global average temperature increase well below the 2°C threshold above pre-industrial levels and striving to limit this rise to 1.5°C. In accordance with the Paris agreement in **November 2019** the European parliament set the **carbon neutrality** goal within the

2050. Companies and investors integrating zero carbon goals into their strategies not only align with global sustainability objectives but also strengthen their ESG performance, enhancing their long-term resilience and value creation (AF&PA, 2014). A month later, the same year, in **December 2019** the European Commission has presented the roadmap for a climate-neutral Europe: The European Green Deal (**EGD**) (Attualità Parlamento Europeo, 2019). To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient, and competitive economy, ensuring (European Commission a, 2019):

- No net emissions of greenhouse gases by 2050
- Economic growth decoupled from resource use
- No person and no place left behind

Therefore, the Green Deal promotes a strategy for sustainable development, addresses environmental and social challenges, and requires effective governance to achieve set objectives. Therefore, it not only promotes ESG principles but also reflects the integration of these principles into EU policies and goals. In the context of sustainable finance in Europe, in **July 2019**, a tool was introduced to facilitate companies' financial transparency. Knowing that it is vital to direct investments towards sustainable projects and activities it was necessary to create a common classification system for sustainable economic activities called: "**EU Taxonomy**", realised in the context of the action plan on sustainable finance. As reported on the website of the EU: "The EU taxonomy allows financial and non-financial companies to share a common definition of economic activities that can be considered environmentally sustainable" (European Commission d, no date). Since large and listed companies must make a non-financial report, the EU taxonomy aims to support companies to better understand and report their sustainable investments which are investments contributing to an environmental or social objective. It does not set mandatory requirements on environmental performance for companies but aims to increase investment in projects necessary for achieving goals outlined in the European Green Deal. Therefore, both ESG and EU taxonomy aim to guide investments and corporate decisions towards greater sustainability.

The following year, the European Parliament approved the Corporate Sustainability Reporting Directive (**CSRD**), which came into effect in January **2023**. The main aim is to ensure greater transparency from companies. Specifically, the directive mandates all large EU companies to disclose report concerning the impact of their activities across various sustainability dimensions: impact on people, the environment, and the planet, with particular focus on sustainability-related risks such as climate change. The CSRD introduces rules that address previous shortcomings in existing legislation on the disclosure of non-financial information, thereby enhancing what was initiated by the NFRD in 2014. Companies that fall under the scope of the Corporate Sustainability Reporting Directive (CSRD) have to report in their annual reports to what extent their activities are covered by the EU Taxonomy and comply with the criteria set in the Taxonomy delegated acts (European Commission a, no date). The companies subject to this directive include the so-called "large undertaking" of the EU. Directive 2013/34/EU provides three possible criteria to determine whether a company is to be considered a 'large undertaking': namely the balance sheet total, net turnover, and the average number of employees during the financial year (European Parliament & Council, 2013). On July **2023**, the European Commission adopted the first set of European Sustainability Reporting Standards (**ESRS**), which mandate detailed

reporting for EU companies falling within the scope of the CSRD. The standards cover the full range of environmental, social, and governance issues, including climate change, biodiversity, and human rights. They furnish investors with insights to comprehend the sustainability implications of the companies in which they invest (EFRAG, 2022). The ESRS establish a set of specific rules and directives that companies must adhere to in order to communicate their environmental, social, and governance impacts in a coherent and comparable way. This precision and uniformity make ESG aspects clearer, measurable, and comparable among companies. Therefore, the ESRS contribute to providing greater concreteness and tangibility to ESG factors.

The ESG concept was initially born in and directed towards the investment and finance sector. Given the evolving framework, the finance community has become increasingly aware and comprehending of the ESG concept and its implications on financial, non-technical reporting, and disclosure. However, there is still a restricted comprehension of ESG aspects related to technical products.

This challenge arises when ESG investors and financial entities must deal with non-financial organizations. It is evident that each of these two groups approaches ESG with varying levels of commitment, ambition, and motivation, potentially requiring the "translation of ESG dimensions" between them (CPEA EU ESG Working Group, 2023). The construction industry serves as a notable example in this context.

2. ESG in the Construction Sector

In this historical period, inevitably marked by the COVID-19 pandemic, buildings, their importance in daily life, and their fragilities have been under a spotlight, gathering widespread attention (European Commission, 2020). Moreover, buildings are responsible for around 30% of global final energy consumption and 26% of global energy-related CO2 emissions, from both energy consumption and industrial processes (International Energy Agency, 2022). In addition, the construction sector provides 18 million direct jobs and contributes to about 9% of the EU's Gross Domestic Product (European Commission b, no date). All these data underline how the construction industry has a significant and prominent part to play in shaping our homes, towns, and therefore communities. So, whether it's prompted by client and financial institution requirements or the broader society and local communities, the need for evident awareness and proactive measures, in the construction sector, regarding Environmental, Social and Governance performance is clear. The ESG consideration in the construction industry can be declined as following (Allianz, 2022):

- Environmental aspect revolves around topics such as: energy efficiency, carbon emissions, sustainable materials, water consumption, waste management, future proofing design.
- Social aspect focuses on inclusivity, diversity, community impact, accessibility, fair and safe labour practices.
- Governance aspect emphasizes transparency, stakeholder engagement, risk management and internal control

It can be generally asserted that the construction sector can be divided into two main categories: public procurements (infrastructure) and private works (Real Estate), each with its own dynamics, financing models, and regulatory frameworks. The former category, public procurements, typically

involve infrastructure projects funded or commissioned by government entities, such as roads, bridges, public buildings, and utilities. These projects aim to serve the broader community and are subject to specific regulations and procurement processes. At the European level, in 2014, the European Commission released the new **Directive on Public Procurement 2014/24/EU** to replace its predecessor. According to this directive, contractors are mandated to consider the environmental, social, and sustainability impact throughout the entire project lifecycle. However, the directive specifies that due to significant differences across sectors and markets, mandatory requirements regarding environmental and social aspects are not established. Instead, only minimum standards and guidelines are set, thereby assigning individual nation-states the responsibility in this regard (European Commission, 2014). The following year, the 17 Sustainable Development Goals, through **Goal 12**, "Promote public procurement practices that are sustainable, in accordance with national policies and priorities," highlighted the non-negligible importance of the public procurement sector. In particular, Indicator **12.7.1** is officially titled as the "Number of countries implementing Sustainable Public Procurement policies and action plans" and it is supervised by the United Nations Environment Programme (UNEP). UNEP gathers biennial data from national governments to assess the progress of Sustainable Public Procurement (SPP) implementation. The key findings from UNEP's monitoring activities are presented in the second edition of the SPP report. The aim of the second edition of the **SPP by UNEP published in October 2021** is to provide an updated and comprehensive overview of global Sustainable Public Procurement practices and advancements. It therefore serves as a valuable resource for policymakers, stakeholders, and practitioners, offering insights and recommendations to further promote and enhance Sustainable Public Procurement initiatives worldwide (United Nations Environment Programme, 2021). A few months before the SPP, in **May 2021**, the European Commission released a communication titled: **"Social Procurement - A guide to considering social aspects in public procurement (second edition)."** This document aims to raise awareness about the potential benefits of socially responsible public procurements and practically explain the guidelines and the juridical system provided within the EU legal framework. It underlines how social aspects can be integrated throughout the entire public procurement process and offers numerous examples drawn from actual practices implemented across the EU (European Commission, 2021). While the Commission's Communication focuses on social aspects like social justice, diversity, and inclusion, the UNEP's SPP aims to steer public entities toward adopting sustainable and environmentally respectful practices in their procurements. Both these documents reflect the growing interest in the EU regarding the integration of ESG criteria into public procurement processes to promote greater sustainability and social responsibility in public procurement practices.

On the other hand, private projects encompass real estate development, including residential, commercial, and industrial properties. These projects are initiated by private investors, developers, or companies and may involve constructing housing complexes, office buildings, shopping malls, or industrial facilities. Private projects are driven by market demands and profitability considerations.

At the European level, there are fewer initiatives available, primarily due to the driving force of private construction projects guided by market rules. In the real estate sector, reference can be made to the previously mentioned EU Taxonomy (2020). It can be employed in real estate investments to assess their environmental sustainability. One of the main limitations

characterizing the construction industry and, more broadly, the assessment of ESG criteria across various investment sectors, is the lack of universal and particularly quantitative assessment systems. As clarified thus far, the ESG landscape is replete with guidelines and suggestions but lacks a common, precise, and quantitative evaluation system. Hence, one of the most used and comprehensive tools in the construction sector is represented by the Global Building Rating systems (**GBRS**). GBRSs measure buildings' sustainability level by multi-criteria assessment that considers both quantitative and qualitative indicators. All the indicators influence the finale score for the certification according to a weighting scale and when not explicitly, all criteria are given equal weights. Qualitative criterion points are assigned whether a specific environmental concern is applied or not, making this form of credit easier to evaluate. Quantitative criteria are those that are based on numerical data and are supported by scientific methodologies. Adding more quantitative indicators to the GBRS, such as Life Cycle Assessment (LCA) studies, can enhance the scientific validity of the credits while encouraging innovation in the design. Since Global Building Rating Systems are a multitude of systems developed by private companies, they unfortunately do not entirely address the quest for a common evaluation system. Moreover, the GBRSs are primarily revolved around environmental matters, mainly energy and climate issues. So, there is the need for a multi-dimensional ESG approach which takes into account the intricate connection between the three core components of ESG. Another issue, maybe related to the GBRSs prospective is that even if certain stakeholders on the supply side in the construction and real estate industry, such as manufacturers of building components and materials, may be familiar with ESG reporting demands, their disclosures often focus more on organizational activities than on the actual "final product" (the building). This means that their reporting may not sufficiently address the ESG aspects of the constructed building. The EU Taxonomy aims to bridge this gap trying to ensure that ESG considerations are integrated into the entire supply chain, from manufacturing to the final product (CPEA EU ESG Working Group, 2023).

3. Aim and methodology

After examining the concrete evolution of regulations over the years concerning ESG aspects, it is equally interesting to explore the same evolution from a different perspective: that of research and scientific publications. The aim of this article is to identify the impact, current state, and future trends of ESG principles. Once these principles have been assessed on a generical prospective, a vertical exploration in the building sector was performed. Both real estate and infrastructure field were investigated. The tool used to carry out the research was the scientometric analysis. Scientometric is a research methodology that utilizes quantitative tools to evaluate and examine the production, dissemination, and impact of scientific publications. The bibliometrics analysis could be enhanced with scientific maps representing the relationship among the data under study (Moral-Muñoz, 2020). Through appropriate bibliometric tools it is possible to reach an in-depth understanding of the evolution of research in a field. Therefore, the methodology not only provides an overview of the quantity of publications in a specific area but also enables the examination of knowledge dissemination, key authors, and contributors, as well as the citation network and relationships among various publications. The utility of scientometric analysis extends beyond the mere quantification of academic works. It provides a methodological framework for assessing the evolution of a field of study over time, revealing emerging interests, knowledge gaps, and future directions. Additionally, it aids in identifying the most relevant and influential publications,

facilitating the retrieval of essential information for researchers, academics, and interested parties. Scientometric analysis employs various statistical and computational techniques to process and analyse large amounts of bibliometric data. Among the most common methods are citation analysis, co-citation analysis, social network analysis, and the identification of the most frequent keywords. This approach allows to observe how ESG issues have been the subject of study, debate, and research in the academic landscape, offering a broader and more profound view of their importance and multidimensional impact in the contemporary world. The steps followed for the current paper can be divided into seven steps, each of which crucial for a comprehensive bibliometric study:

1. **Defining Research Objectives**: The first step consisted of Determine the specific objectives and scope of the bibliometric study (Naveen et al., 2021). Clarify what aspects of research impact, collaboration, trends, or other parameters are aimed to be analyse. The primary aim of this research is to elucidate the current state of ESG principles, originally conceived within the realms of finance and investments. This research attempts to outline the trajectory of these principles, shedding light on their birth, evolution, and permeation across various sectors. With a keen focus on the construction sector, aiming to discern the extent of integration and adherence to ESG principles within both the real estate and the infrastructures industries. Therefore, it is possible to divide the research into three topics. The most relevant about ESG and two more secondary topics characterized by the development of ESG within the Real Estate sector and Infrastructure.
2. **Key-Words Identification**: After conducting an initial comprehensive study on the subject, an identification of the key terms characterizing the topics under analysis has been accomplished. The keywords represent the foundation for conducting the third step and therefore, serves as base for the subsequent phases of analysis and exploration. The chosen keywords are:

- ESG Topic: "ESG", "Environment", "Social" and "Governance"
- ESG + Real Estate Topic: "ESG", "Environment", "Social" and "Governance" and "Real Estate"
- ESG + Infrastructure Topic: "ESG", "Environment", "Social" and "Governance" and "Infrastructure"

3. **Database Query**: the third step involves defining specific search parameters within bibliographic databases to retrieve relevant publication. Therefore, firstly it is necessary to choose the appropriate bibliographic databases based on their coverage and relevance to the research domain. For the aim of the research Scopus (from Elsevier) was used, since it is the largest abstract and citation database and covers a wider range of papers in the field of business and management (Aksnes & Sivertesen, 2019). Once the database is defined it is necessary to develop a well-structured search query using Boolean operators (AND, OR, NOT) which are used to correctly query the database and obtain data as coherent as possible to the research. Therefore, the final step is create a comprehensive and focused query combining the previously selected keywords through the Boolean operators.

   Final queries used on Scopus:

- ESG topic: TITLE-ABS-KEY("ESG" AND ("ENVIRONMENT*, SOCIAL AND GOVERNANCE")).
- ESG + Real Estate Topic: TITLE-ABS-KEY("ESG" AND ("ENVIRONMENT*, SOCIAL AND GOVERNANCE")) AND TITLE-ABS-KEY("REAL ESTATE")

- ESG + Infrastructure Topic: TITLE-ABS-KEY("ESG" AND ("ENVIRONMENT*, SOCIAL AND GOVERNANCE")) AND TITLE-ABS-KEY("INFRASTRUCTURE")

  Through this type of queries Scopus will provides all the texts present in its database containing in their title, abstract, or keywords the words in the brackets. The asterisk following the word "Environment" allows searching for all words that have "environment" as the root, thus simultaneously considering words such as "environment" and "environmental. It is important to underline that the final queries are the result of an iterative process aimed to reach a set of data without incoherent element.

4. **Data Filtering**: during the database query it is possible to set different filters in order to perform an initial screening of the data. The possible filters concern the publication year, subject area, language, and document type which allow filtering the data to remove texts that are not aligned with the ongoing research. The only filter used in the fourth step of this research is the one regarding the subject area. Just the following subject areas were selected: Business Management and accounting, Economic Econometrics and Finance, Social Science, Environmental Science, Engineering. The publication year, language and document type have not been set, as the research aims to provide the most comprehensive view possible, considering the entire scientific production with no limitation regarding years language or type of document.
5. **Exportation and Processing**: Once the data are obtained, it's possible to proceed to the processing phase. To further manipulate the data using external bibliometric tools it is necessary to export them. Scopus allows file exportation in various formats, the appropriate one is selected based on the type of bibliometric tool chosen for the analyses. For this research, two different tools were used: VOSviewer and Biblioshiny. VOSviewer is specialized in visualizing and exploring bibliographic networks, particularly co-authorship, citation, and keyword networks. It helps in identifying clusters, trends, and connections within large datasets, providing a comprehensive overview. Biblioshiny operates within the R programming environment. It enables the creation of visual representations such as network maps, co-authorship graphs, and keyword clouds which are useful for understanding relationships and patterns within publications. Since it is recent, most of the analysis developed by previous software tools have been incorporated in it, it therefore represents one of the most complete bibliometric software (Moral-Muñoz, 2020). To carry out the analysis using VOSviewer and Biblioshiny the data were exported from Scopus in the ".CSV" format.
6. **Results' Visualization**: both the bibliometric tools used, allow to create visual representation for each type of data processing such us: network maps, co-authorship graphs, and keyword clouds.
7. **Findings' interpretation**: the last step is represented by the interpretation of the visualization findings.

The research was carried out in November 2023. To make the text more readable, the three topics object of the research: ESG in general, ESG related to the Real Estate world and ESG in relation to Infrastructure. From here on they will be referred to as: Topic1 (ESG), Topic2 (ESG + Real Estate), and Topic3 (ESG + Infrastructure). The datasets obtained from the queries previously reported and on which the processing phase was carried out are the following:

Table 1: Starting data

	N° of Doc.	Time span	Sources
Topic1	2298	2007-2023	815
Topic2	28	2008-2023	21
Topic3	41	2014-2023	40

4. Results

3.1. Publication per year

Table 2 illustrates a substantial increase in publications on the ESG topic (Topic1) over the years. Specifically, there's a noticeable surge starting from 2015/2017, with a consistent and steep rise continuing through 2023. This significant increase can be linked to the birth of the 17 SDGs in 2015 and the focus they have brought to issues strictly connected to ESG. Moreover, the substantial increase in publications in 2022 and 2023 suggests a heightened attention and urgency towards these issues, indicating a growing necessity to comprehend, discuss, and address challenges related to sustainability and corporate social responsibility. It is important to underline that as mentioned before the first document in which the "ESG" word appeared was Who cares Wins in 2004. Since Scopus database is specialized in academic and scientific publications it does not include it. As regarding Topic 2 and 3 it is possible to state that despite a few articles in 2014/2015 the official publication production started in 2018. This may be linked to the growing emphasis around those years on carbon neutrality, later declared as an official goal by the European Commission in November 2019. Since the building sector is responsible for 39% of global CO2 emissions (Adams et al., 2019), the issue of CO2 emissions stands as a common concern within the ESG principles and the construction industry. This increased scholarly output could be a response to the escalating attention toward sustainability goals, specifically the imperative to curb carbon footprints within the construction sector.

Table 2: Topics' Annual Production

Year	Articles		
	Topic1	Topic2	Topic3
2007	1	-	-
2008	3	1	
2009	1	-	-
2010	4	-	-
2011	9	-	-

2012	11	-	-
2013	12	-	-
2014	15	-	1
2015	30	2	-
2016	28	-	-
2017	32	-	-
2018	60	2	5
2019	109	1	1
2020	183	1	3
2021	265	4	3
2022	553	6	12
2023	982	11	16

From Table 2, it's evident how the subject of ESG is currently prominent and extensively explored through scientific production. However, a similar level of attention doesn't extend to its implementation within the construction sector. The substantial disproportion of the numbers in the table highlights that, ESG principles are still in their infancy within the realm of construction. This disproportion raises an initial alarm regarding the potential lack of directives, guidelines, and overall attention towards ESG principles within the construction industry.

3.2. Countries' Scientific Production and Collaboration

Table 3 reports the fifteen countries with the highest scientific production in the Topic1 field. In first place there is China (954 documents), in second place there is USA (675) and in the third place there is Italy (470).

Table 3: Countries' scientific production

Topic1	
Country	**N° of Documents**
CHINA	954
USA	675
ITALY	470
INDIA	356
UK	335
AUSTRALIA	262
MALAYSIA	255

SPAIN	233
SOUTH KOREA	194
GERMANY	180
CANADA	166
FRANCE	150
INDONESIA	141
BRAZIL	128

Results reported in Table3 perfectly align with the following graph generated by Biblioshiny about the correspond author's Countries, Figure 1, where "SCP" stands for Single Country Publications and MCP for Multi Country publications.

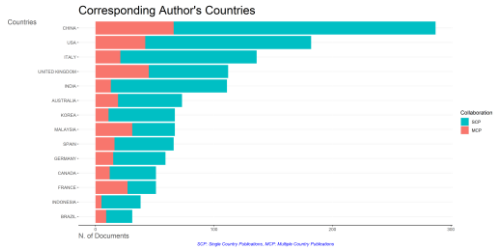

Figure 1: Topic1 Author's countries

Figure 2 shows the collaboration map between countries. The highest frequency of collaboration is between USA and United Kingdom followed by Chin and USA, China and Hong Kong Italy and United Kingdom.

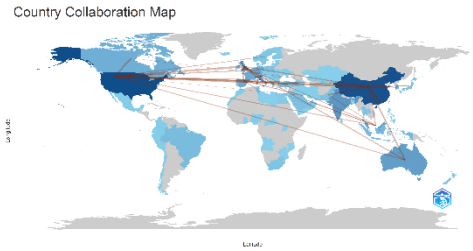

Figure 2: Countries' collaboration

3.3. Co-Occurrence Keywords Network Visualization

A co-occurrence keywords analysis was conducted on topic1, using VOSviewer, including both authors' keywords and index keywords. The minimum number of occurrences of a keyword was settled at 40 and out of 6660 keywords only 44 met the threshold. A .txt file was used to avoid synonymous caused by words that appeared in both singular and plural form, such as: investment and investments, stakeholder and stakeholders, esg score and esg scores. Moreover the .txt file was used also to avoid repetition due to the use of acronyms, such as: csr and corporate social responsibility, sdg and sustainable development goals. Once the analyse is run the software automatically displays a network visualization in which each keyword correspond to a label and a circle. The size of the latter elements is determined according to the weight of the item they represent (Van Eck & Waltman, 2023). VOS stands for visualization of similarities (Van Eck & Waltman, 2006), therefore objects are displayed in such a way that, the distance between any pair of objects reflects their similarity. Lines between items represent links and the thickness of the

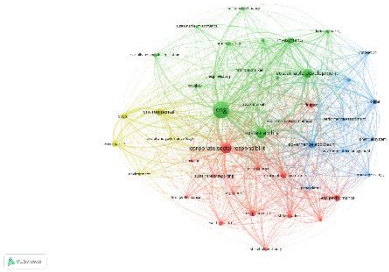

Figure 3: Topic1 - Keywords Network Visualisation

lines represent the link strength. The colour of an item is determined by the cluster to which the item belongs. Clusters are created by default and each item can belong to only one cluster. Figure 3 shows the Network visual representation of Topic1 (ESG). The map is composed by 43 items, 808 links, a total links strength equal to 6692 and 4 Clusters.

The biggest cluster are the red one, Cluster 1, and the green one, Cluster 2 each composed by 15 items. The keyword with the highest occurrence in **Cluster 1** is Corporate Social Responsibility (CSR), which refers to actions taken by a company at least partially beyond the firm's direct economic interest (Pollman, 2019). Considering both the economic developments affecting the public welfare and the obligation towards nature and human values, the CSR is more than a simple vehicle used to enhance or protect firms' reputation. Therefore, CSR represents an essential starting point towards the ESG principles. The words following CSR in terms of occurrence are "ESG performance" (occurrence: 148) and "Financial performance" (occurrence: 122). The link between these three keywords is based on the understanding that CSR leads to enhanced ESG performance, which in turn translates into improved Financial Performance. Beyond the words previously analysed within cluster 1, terms like ESG disclosure (occurrence: 92) and Stakeholders (occurrence: 88) emerge, representing a theme strictly linked to CSR communication. A company's strong financial and ESG performance can become pivotal and indicative during decision-making phases, but only if these performance levels are clearly declared and communicated to stakeholders. Without robust ESG disclosure, any efforts by a company to adhere to ESG principles would be rendered futile (Ihlen et al., 2011).

As regarding **Cluster 2,** the most influent keywords are: ESG (occurrence: 784), Sustainability (occurrence: 359), Sustainable development (occurrence: 282), and Investments (occurrence: 165). These word combinations precisely summarize the investment philosophy based on ESG principles, wherein a good investment hinges on a robust economy, which is based on a healthy society, itself contingent upon a sustainable planet. Moreover cluster 2 is full of environment related terms such as: climate change, covid-19, SDG.

Cluster 3 coloured in blue, is composed by 9 items. The word with the highest occurrence is "Governance approach" (Occurrence: 191). The centrality of corporate governance and so of the governance approach in the transition toward sustainability is evident in the United Nations document "Who Cares Wins". According to which: "corporate governance and risk management systems are crucial prerequisites to successfully implementing policies and measures to address environmental and social challenges". Corporate governance can be defined as a framework which regulates the exercise of power in the corporation (Caprio et al., 2012). Therefore, the governance approach stands as one of the key features of a company that can be manipulate in order to reach a substantial and social change. The next two words with the highest occurrence are respectively: Environmental economics (occurrence: 59) and Environmental management (occurrence: 44). These terms represent the close correlation between a robust governance approach and a sustainable economy. It's indeed plausible to assert that poorly governed companies cannot be sustainable (Camara & Morais, 2022).

Cluster 4 coloured in yellow is the core of the ESG. It is composed by 4 items each of which represents a pillar of the ESG principle. The keywords of cluster 4 are: Environment/Environmental (occurance:53/194), Governance (occurrence: 101), Social (occurrence: 113).

The same analysis was conducted for Topic 2 and 3. Since the number of total documents was considerable smaller than the one of Topic1, the minimum number of occurrences of a keyword was settled at 3. In the case of Topic2 9 keywords met the threshold as shown in Figure 4. In the case of Topic3, 8 keywords met the threshold as shown in Figure 5.

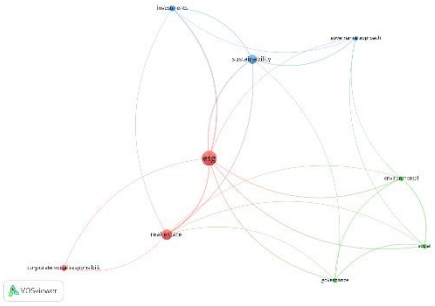

Figure 4: Topic2 keywords map

As regarding Topic2 (ESG + Real Estate) the visualization map is composed by 9 items, 3 clusters, 23 links and a total link strength: 40. If not considering the words "ESG" and "real Estate" the keyword with the highest occurrence is "Sustainability". Highlighting a sector within real estate characterized by a greater scientific output concerning sustainability topics.

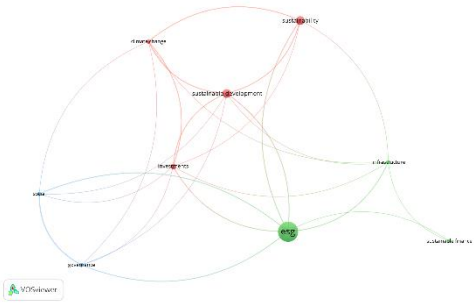

Figure 5: Topic3 keywords map

As regarding Topic3 (ESG + Infrastructure) the visualization map is composed by 9 items, 3 clusters, 25 links and a total link strength: 38. If not considering the words "ESG" the keywords with the highest occurrence are "Sustainable Development" and "Sustainability". Highlighting, once again as the building sector in general is characterized by a greater scientific output concerning sustainability topics. Results on topic 2 and 3 underlined how to date the terms ESG and Sustainability are often used as synonyms. The delineation between Environmental, Social, and Governance (ESG) initiatives and other sustainability frameworks, is frequently blurred. This lack of clarity results in confusion among market participants. Despite ESG being the favoured framework for engaging stakeholders on sustainability matters, a widely accepted definition for the ESG acronym and its boundaries remains elusive. Consequently, ambiguity persists in the utilization of the term and the implementation of its foundational concept across diverse sectors and stakeholder contexts (CPEA EU ESG Working Group, 2023).

3.4. Co-Occurrence Keywords Overlay and Density Visualization

The co-occurrence keywords analysis can be displayed through three different visualizations. The network visualization showed in the previous chapter, the overlay visualization (Figure 6) and the density visualization (Figure 7). The overlay visualization is identical to the network visualization except that, items are coloured differently. In this case, each item is associated to the colour of its average publication year. Whereby default colours ranges go from blue (less recent date) to green to yellow (most recent date) (Van Eck & Waltman, 2023). The map in Figure 6 supports what said in chapter 3.1.

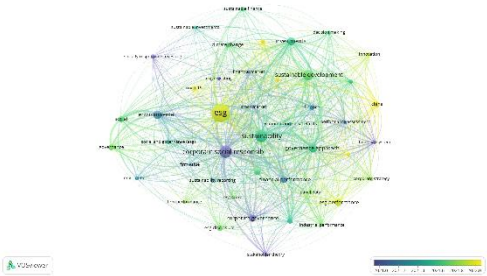

Figure 6: Topic1 - Keywords Overlay Visualisation

In the Density Visualisation, each point has a colour which indicates the density of items at that point. The default colour spectrum spans from blue through green to yellow. Points tend toward a yellow when surrounded by a higher quantity of items with increased weights. On the contrary, they lean towards a blue shade when neighbouring items are fewer in number with lower weights. (Van Eck & Waltman, 2023). Figure 7 highlights the relationship between: "ESG", "Corporate Social Responsibilities" and "Sustainability".

3.5 Words' frequency over time

The toll "words frequency over time" in Biblioshiny allows researchers to track and visualize how the occurrence of specific words or themes in publications evolves across different years. Figure 8 shows the evolution over year of the six keywords characterized by the highest frequency. It is interesting to underline that, despite the conducted research was focus on the term ESG not only it is not the term with the highest occurrence, but it started to consistently appear in publications relatively late. That is because ESG investing evolved over time from the earlier concept of CSR (MacNeil & Esser, 2021). The latter term CSR is indeed characterized by a higher frequency, and

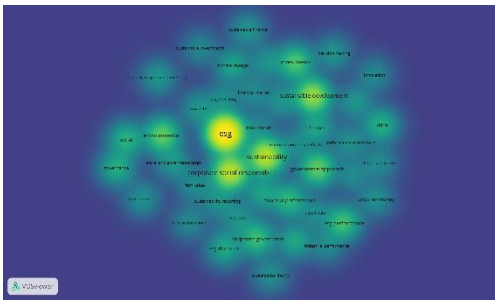

Figure 7: Topic1 – Keywords Density Visualisation

it also appeared earlier in the scientific production.

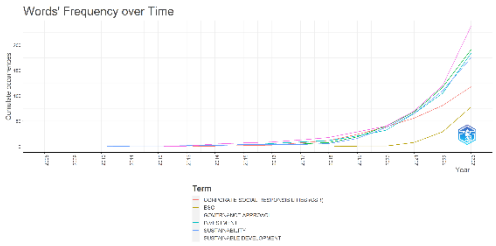

Figure 8: Word's frequency over time

3.5. Thematic map Evolution

By applying a clustering algorithm on the keyword network, Biblioshiny allows to create thematic maps showing the evolution of bibliographic data over time. It helps visualize how certain topics or keywords have been represented in scholarly publications across different years or periods. Moreover, it is possible to divide the time span in different time slices and to study and plot the topic evolution. The time span is divided according to the distribution of publication per year. The thematic map evolution was carried out on Topic1 (ESG) and it was also used a .CSV file to eliminate synonymous. According to the articles' annual production (Chapter 3.1), two cutting point: 2018 and 2021, were setting and the time span was divided into two three time slices: Time slice 1 from 2007 to 2018, Time slice 2 from 2019 to 2021 and Time slice 3 from 2022 to 2023. The selected years used as reference in order to divide the timespan under analysis are both

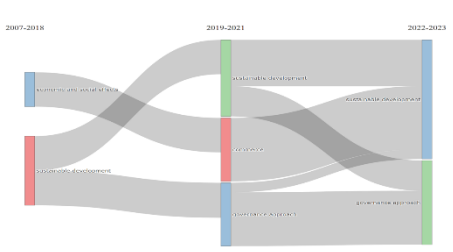

Figure 9: Time slices of the Thematic map Evolution

characterized by a significant surge in the annual production article. As shown in Figure 9, through this type of analysis is possible to highlight the tendencies of some topics to merge, or of a topic to split into several themes.

Considering the initial "time slice," spanning from 2007 to 2018 (Figure 7), a direct influence from addressed objectives and directives at the European and/or global levels becomes evident. As highlighted in the introductory paragraph, notable events within this time frame include the European DIRECTIVE/2014/95/EU Article 19° NFRD, the 17 SDGs, and the Paris Agreement. The European directive might be accountable for the blue cluster, pertaining to Economic and Social effects, while the sustainable goals and/ the Paris Agreement have undoubtedly driven increased interest in sustainability, thus reflecting the presence of the red cluster on Sustainable Development. It's interesting to notice that, even within the initial time slice, the cluster associated with Sustainable Development resides within the bottom right quadrant, indicating its established status as a transversal theme.

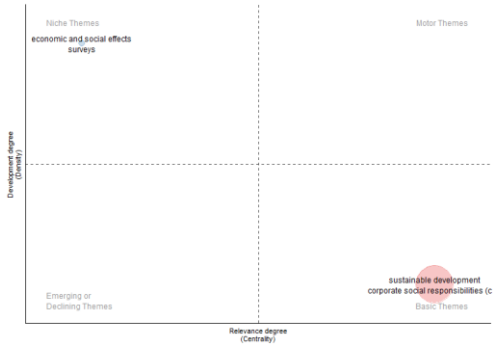

Figure 10: Time slice 1

Time slice 2, spanning from 2019 to 2021 (Figure 11), once again mirrors the various European and non-European initiatives characterizing the period under examination. As shown in Figure 9, this period is distinguished by three clusters. The Sustainable cluster of Time slice 1 is now divided into two cluster: the sustainable development one and the governance approach. The sustainable development cluster has shifted towards the centre of the graph, thereby transforming into a more central theme. The governance approach cluster appears in the upper left part of the chart representing a new motor theme. The two defining terms within the cluster, Sustainable Development and governance approach, are strictly linked. Their bond can be justified through SDG 12.6.1, elucidating how operating within a sustainability framework necessitates consistent reporting, consequently encouraging companies' responsibility through a good governance approach (SDG 12 HUB, no date). As reported in Figure 6, the Sustainable Development cluster is divided into two distinct clusters: the previously analysed green cluster and the blue cluster, which joined the notions of sustainability with the governance approach. Two interdependent

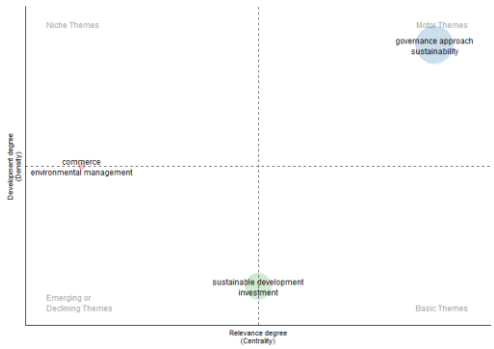

Figure 11: Time slice 2

terms, whose correlation has been discussed in previously paragraphs. In the Time slice 2, another conspicuous cluster emerges, incorporating the term "Europe." This cluster wholly embodies the European Union's commitment to pursuing sustainability and acting as a leader for other nations in this attempt (European Commission b, 2019)

As illustrated in Figure 6, during time slice 3, all clusters converge into merely two primary themes: Sustainable development and governance approach. Although the reference timeframe includes only two years, they notably represent peak periods of scientific output. It's interesting to observe that among the defining principles of ESG, only the governance approach appears. This focus on the governance approach signifies an evolution towards an correct interpretation of the ESG acronym during the last years.

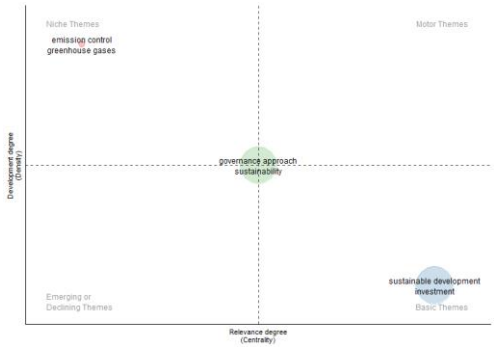

Figure 12: Time slice 3

According to author Camara (2022), the pivotal shift from CSR to ESG involves a true "systematic interaction" between ESG and the corporate governance of companies (and vice versa). This results in a corporate governance assuming the role of an essential tool in pursuing sustainability objectives, thereby shaping itself in alignment with these goals. In essence, corporate governance operates not solely as one of the three investment criteria (ESG), but serves to prepare, adopt, and enforce decisions regarding social and environmental issues.

5. Conclusions

All the introduced regulation and guidelines regarding the understanding, disclosure, and rating of the ESG commitments show a growing demand for sustainable assets among both clients and investors. Similarly, it is evident that companies, considering the construction industry too, are increasingly recognizing their role and responsibilities in adhering to ESG principles. Despite a shared awareness of the importance of prioritizing social and environmental aspects through effective governance approaches, corporate decision-makers are less confident about how they can achieve these priorities. This uncertainty may be attributed to the absence of official and unified regulations and rating systems that would facilitate the evaluation of ESG criteria. A vital step towards a robust sustainability reporting framework in the EU and globally are the European Sustainability Reporting Standards (ESRS), which will be mandatory from January 2024.

Another critical aspect regarding ESG criteria is that, up to now, the predominant focus has been on environmental issues, particularly in addressing the risks and opportunities associated with climate change mitigation. The development of environmental reporting practices and standards is progressing rapidly. In moving forward, it is crucial for companies to broaden their focus beyond environmental considerations and actively engage in addressing social issues. The establishment of comprehensive regulations and standardized rating systems for evaluating ESG criteria can provide the necessary framework to guide corporate decision-makers. By fostering a more holistic and balanced approach to ESG principles, businesses can contribute meaningfully to sustainable development and social equity, aligning their operations with the broader goals of a responsible and ethical corporate landscape.

Author Contributions

Conceptualization, V.V.; data curation, C.P.; formal analysis, C.P. and V.V.; investigation, V.V. and C.P.; methodology, C.A., C.P. and V.V.; resources, C.A., C.P. and V.V.; software, C.P.;

supervision, C.A. and V.V.; validation, C.A.; visualization, C.P. and V.V.; writing, C.P.; writing-review & editing, V.V. and C.A. All authors have read and agreed to the published version of the manuscript.

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The FSR and Public Procurement

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Abstract

Distortions caused by foreign subsidies in public procurement procedures are one of the specific concerns addressed by the Foreign Subsidies Regulation (FSR). This article analyses both the substantive provisions of the FSR and specifically the notion of 'subsidies' and the procedure managed by the European Commission to countervail the effects of subsidies in procurement procedures. The first in-depth investigation concerning a public procurement procedure is also outlined.

Keywords

Public procurement; Subsidies; Foreign suppliers; European Commission

1. Introduction

Distortions caused by foreign subsidies in public procurement procedures are one of the specific concerns addressed by the Foreign Subsidies Regulation (hereinafter "FSR"), given the 'economic significance in the internal market' of public procurement as well as 'the fact that it is financed by taxpayers' funds' (Recital 40 FSR). Indeed, 14% of the European GDP, approximately EUR 2 trillion per year, is spent for the purchase of services, works or supplies by more than 250 000 public authorities. The Commission estimates that even a slight efficiency gain of 1% can lead to a total amount of EUR 20 billion in savings (European Commission, 2022), therefore it is crucial to prevent distortions caused by foreign subsidies to fair competition among companies when participating to public tenders in the internal market.

To address the effects on foreign subsidies on the functioning of the internal market, great attention has been devoted to the definition of what qualifies as foreign subsidy. Drawing on the definition of State aid, at Union level, and subsidy at WTO level, the FSR aims at overcoming the loopholes of existing legislation, firstly by providing a broad understanding when it comes to the types of financial contributions encompassed by Article 3(2) FSR. The latter covers a wide range of financial support such as capital injections, grants, loans, fiscal incentives, tax exemptions and the provision of goods and services. Most notably, the wording '*inter alia*' indicates the non-exhaustive nature of the list provided by paragraph 2. This suggests that an extensive interpretation will be employed by the Commission in assessing the presence of the "financial

contribution" element for the finding of a foreign subsidy. In addition, the FSR extends the understanding of potential actors capable of granting a financial contribution. Article 3(2) lays down that a financial contribution provided by a third country includes assistance rendered both through public or private entities (in addition to financial contributions provided directly by the government) (Article 3(2) of Regulation 2022/2560). What is particularly relevant is that this Article encompasses a broad number of elements that the Commission can take into consideration for the purpose of assessing attribution. Inter alia, the 'economic environment prevailing in the third country' of the entity at issue can be considered. This may also entail analyzing 'the government's role in the economy of that country' (Recital 17 of Regulation 2022/2560).

Once the Commission ascertains the presence of a foreign subsidy, the distortive effect on the internal of the latter must be determined. Contrary to the State aid regime, it is relevant to note that such requirement has been separated by the definition of foreign subsidy itself. This is because, as outlined in Recital 17 of the FSR, 'foreign subsidies are not generally prohibited', therefore a separate, and subsequent, analysis shall be carried out to determine their distortive effect on the internal market. A distortion in the internal market is found where a foreign subsidy is responsible for improving the competitive position of an undertaking, which results in a distortion of competition in the internal market (Article 4(1) of Regulation 2022/2560). Due to the lack of transparency in the realm of foreign subsidies (Recital 18 of Regulation 2022/2560), the FSR provides for a non-exhaustive list of indicators that the Commission may employ to assess whether a distortion exists or not.

This article will firstly scrutinize the distortions caused by foreign subsidization of undertakings performing an economic activity in the Union (§1), which is instrumental to identify the regulatory gap that the FSR intends to cover (§2). Through a comparative analysis, a closer scrutiny will be devoted to the concept of 'unduly advantageous tender' introduced by the FSR (§3). In addition, this article will provide an overview of the *ex ante* notification procedure enshrined in the Regulation and will touch upon the implications for public procurements when considering the *ex officio* procedure (§4). Finally, a brief analysis of the first in-depth investigation concerning a public procurement procedure will be outlined (§5).

2. Distortions caused by Foreign Subsidies in Public Procurement

Before scrutinizing the newly established instruments provided by the FSR, it is central to highlight the distortions arising from the participation to public tenders of subsidized actors.

The consequences that stem from subsidized bidder taking part in public procurement procedures are manifold. A prima facie observation, which is potentially positive in the short-term, relates to the savings of public resources for contracting authorities when the selection process is based on the lowest bid price. In fact, through the participation of subsidized undertakings, lower bids will be submitted thanks to the capital injection the concerned undertaking is benefitting from (COM (2021) 223 final).

Nevertheless, the negative implications resulting from distortions caused by foreign subsidies outweigh the initial positive effects on public finances. This is the case particularly when winners are selected on a lowest bid price basis, since this selection criteria can potentially come to the

detriment of quality and innovation. In addition, this results in particularly negative effects for non-subsidized competitors, which see themselves excluded from public tenders on a regular basis due to the preference given to the lowest bid price. Particularly, the bidder offering the second best economically advantageous option will suffer the greatest losses because of the unduly advantageous bid stemming from the distortive foreign subsidy. In the long run, both the disincentive to invest on innovation and quality as well as the reiterated missed business opportunities of non-subsidized competitors can lead to a desertification of the industrial scenario, due to the fact that bidders do not compete on a level playing field which goes to the detriment of non-subsidized undertakings (COM (2021) 223 final).

Furthermore, public procurement procedures can involve the issuing of a call for tenders for the works, supply or services of strategic contracts or infrastructures. Such instances might raise security concerns particularly when the third country at the origin of the distortive foreign subsidy at issue might pursue political and influence-oriented objectives abroad. Indeed, the subsidization of bidders participating to strategic public procurement procedures becomes instrumental to ascertain control over infrastructures or the award of sensitive contracts (COM (2021) 223 final).

3. The Regulatory Gap in Public Procurement for Foreign Subsidies

The following analysis intends to highlight the lack of effective tools to counter the distortive effects of foreign subsidies in relation to public procurement procedures in the EU. Indeed, prior existing legislation did not provide for specific instruments to control the participation of subsidized bidders in public procurement, which is precisely the regulatory gap the FSR intends to fill.

Directive 2014/24/EU (hereinafter "Public Sector Directive") is one of the most relevant instruments in the European *acquis* with regard to public procurement, since it establishes 'rules on the procedures for procurement by contracting authorities with respect to public contracts as well as design contests' (Article 1(1) of Directive 2014/24/EU). Among the various powers conferred to contracting authorities in the design and assessment of public tenders, Article 69 is particularly relevant for the current discussion. This Article provides that contracting authorities shall request 'economic operators to explain the price or costs proposed in the tender where tenders appear to be abnormally low in relation to the works, supplies or services' (Article 69 (1) of Directive 2014/24/EU).

The aim of such scrutiny is directed to assess the financial viability of an offer (COM (2020) 253 final), as well as to ensure a level playing field among competitors in public tenders (Meskens, 2022). To this end, bidders are offered the opportunity to provide explanations and evidence in relation to the abnormally low offer presented. Where the contracting authority deems the explanations provided by the economic operators not to be satisfactory to the end of accounting for the low bid, the tender may be rejected (Article 69 (3) of Directive 2014/24/EU). Most importantly, it is relevant to note that the contracting authority may reject an offer, after having consulted the tenderer. Where it is concluded that the abnormally low offer is due to EU State aid incomparable with the internal market within the meaning of Article 107 TFEU received by the economic operator. The regulatory gap that the FSR intends to fill lies in the fact that there is no corresponding provision for the scrutiny of subsidization originating outside the EU.

Hence, based on the current Public Sector Directive framework, a contracting authority could have only rejected an offer tainted by the support of foreign subsidies, where the abnormally low offer would have impeded the execution of the contract 'in accordance with the tender documents and all applicable legal obligations' (C/2019/5494). Among the legal obligations just mentioned, Article 18 of the Public Sector Directive establishes that MS shall ensure the respect of environmental, social and labour law standards by economic operators in the

performance of public contracts (Article 18 of Directive 2014/24/EU). Such provision could act as a shield from abnormally low tenders, since contracting authorities are entrusted with rejecting offers which do not comply with these standards. Nonetheless, the requirement of respecting specific Union standards appears to be more of a barrier from accessing the procurement market itself (Meskens, 2022), rather than an instrument able to tackle the distortive effect of foreign subsidies in public tenders.

Article 25 of the Public Sector Directive deals with the participation of third-country bidders to public procurement procedures in the Union. This Article represents the 'gateway to the EU procurement market', since it lays down the conditions for goods, services and works coming from outside the EU to access European public tenders (La Chimia, 2021). Article 25 establishes that works, supplies, services and economic operators originating in countries with which the Union concluded bilateral or multilateral agreement with procurement chapter or parties to the GPA, shall be afforded 'no less favourable treatment compared to works, supplies, services and economic operators of the Union' (Article 25 of Directive 2014/24/EU). This implies that countries that do not fall under the requirements enshrined in Article 25 do not have secured access to the European procurement market (C/2019/5494). Nonetheless, recent data shows that European undertakings encounter considerable difficulties in entering procurement markets of third countries, including those that have ratified international agreements with the Union in the public procurement realm (La Chimia, 2021). The Commission estimated that approximately 'only €10 billions of EU exports (0.08% of EU GDP) currently find their way in global procurement markets' (COM (2016) 34 final). Indeed, the US has only allowed access to its public procurement market to foreign bidders for an amount of €178 billion, while Japan only account to €27 billion. On the other hand, the EU estimated that €352 billions of EU public procurement is open to bidders from member countries of the WTO agreement on government procurement' (COM (2016) 34 final).

Due to this lack of reciprocity, in June 2022 the Commission adopted the International Procurement Instrument (hereinafter "IPI"). The latter intends 'to improve the access of Union economic operators, goods and services to the public procurement and concession markets of third countries' (Article 1(1) of Regulation 2022/1031). This objective is pursued by enabling the Commission to start investigations where there is evidence of a lack of reciprocity by the third country concerned in allowing access to Union undertakings to the procurement market (Article 1(1) of Regulation 2022/1031). The potential measures the Commission is entrusted to adopt are particularly relevant to the current discussion. Namely, where the Commission concludes that a third-country measure or practice aimed at hindering access to the procurement market exists, an IPI measure may be adopted in the attempt to restore reciprocity (Bowsher et al., 2023).

Among the measures available, Article 6(6) entrusts the Commission with the possibility of requiring contracting authorities at MS level to 'exclude tenders submitted by economic operators originating in that third country'. Hence, the outcome of excluding tenders submitted by third country operators may tackle the distortions caused by foreign subsidies, but only as a side-effect. The IPI, while being efficient in addressing obstructions by third countries in relation to EU undertakings outside the Union in the realm of public procurement, it does not address distortions caused by the participation of undertakings benefitting from foreign subsidies in the internal market (COM (2020)253 final).

Lastly, an instrument that is worth taking into consideration is Directive 2014/25/EU on procurement in the water, energy, transport and postal services sectors (hereinafter "Utilities Directive"). The text of the Utilities Directive addresses the issue of tenders comprising products originating in third countries, with which the Union did not conclude any agreement for the purpose of either opening up the procurement market or where goods and services do not have effective access in procurement procedures (Free Trade Agreements encompassing procurement chapters and WTO Agreement on Government Procurement) (COM (2020)253 final).

Pursuant to Article 85 of the Utilities Directive, where more than 50% of the presented tender products originate in a third country, contracting authorities may decide to the reject the bid. This tool creates a system of conditional openness in relation to the procurement market, which is however not explicitly linked to foreign subsidies. This means that a contracting authority by rejecting a tender the proportion of the products of which exceeds 50% may safeguard the procurement market from the distortive effects of foreign subsidies. Nonetheless, similarly to the IPI, the Utilities Directive is not specifically stressing the threat of foreign subsidies in the assessment of the rejection of a tender comprising products originating from third countries. In addition, it shall be noted that the Article at issue, namely Article 85 of the Utilities Directive, almost amounts to dead letter given that this possibility has been scarcely adopted by contracting authorities at MS level (Meskens, 2022). In spite of that, a noteworthy decision has been adopted in 2021 by a German contracting authority, which excluded the most cost-efficient offer submitted by Chinese CRRC by relying on Article 85 of the Utilities Directive (Meskens, 2022; Case Summary B4-115/19). CRRC is a state-owned holding company which, as will be more closely investigated later in this chapter, is known for receiving large amounts of subsidies from the Chinese state. In this context, the Utilities Directive has been effective in tackling the distortive effect, however, considering the poor application of the Article, a more targeted instrument was needed.

4. Comparing concepts: abnormally low offer v unduly advantageous tender

Considering the regulatory gap stemming from existing legislation, the FSR introduced a targeted procedural mechanism specifically aimed at addressing the distortive effects of foreign subsidies in the realm of public procurement procedures. Article 27 FSR clarifies that the public procurement mechanism seeks to counter foreign subsidies which may allow an undertaking 'to submit a tender that is unduly advantageous in relation to the works, supplies and services concerned' (Article 27 of Regulation 2022/2560). In this context, the FSR introduces a brand-new wording in order to describe the problematic aspects it intends to tackle, namely 'unduly advantageous tenders'. Until the adoption of the FSR, the public procurement regulatory framework only knew the term 'abnormally low tender'. For the purposes of the current analysis, it is relevant to highlight similarities and departures between the two concepts.

Firstly, when analyzing the two expressions from a linguistic point of view, a clear difference can be spotted (Blažo, 2021). The term 'abnormal' refers to 'something that deviates from the usual or typical'. In the case of public procurement, the "abnormality" of an offer lies in its extraordinary nature in economic terms (Blažo, 2021). Instead when referring to a tender as 'unduly advantageous', the wording 'unduly' suggests that 'a contradiction from legal standards' underpins the offer. In this case, the contradiction consists in the discrepancy between the prohibition of State aid within the Union, which represent the legal standard potential distortive effect of foreign subsidies contravene. Therefore, both concepts highlight an inconsistency with "ordinary" circumstances, but the Public Sector Directive's concept is primarily aimed at preventing the impossibility of performance of the contract stemming from abnormally low tenders, while the FSR intends to preserve a level playing field in public procurement among undertakings, that might be distorted by foreign financial contributions. Both the Public Sector Directive and the FSR leave 'abnormally low offer' and 'unduly advantageous offer' undefined. In relation to the former concept more guidance is provided due to the fact that the Directive dates back to 2014. Indeed, unless defined by national legislation, the determination of an abnormally low tender is up to the contracting authorities. This discretion has been shaped over time by the interpretation of the CJEU. The latter stated that *prima facie* a tender may appear to be abnormally low where the reliability, genuineness and seriousness of the tender are questionable (Ølykke & Clausen,

2021). In particular, an apparent abnormally low tender shall be considered as such when it produces doubts as to the performance of the contract on its terms, but especially where the abnormally low offer appears to be incompatible with mandatory requirements in the files of social, labour or environmental law or international labour law provisions (Recital 40 and Recital 103 of Directive 2014/24/EU). In such circumstances, contracting authorities may 'compare the price of received tenders to the estimated budget for the contract, to the price of the other tenders submitted, or to the normal market price and thereby identify tenders that appear to be abnormally low' (Ølykke & Clausen, 2021).

When turning to the FSR, the concept of 'unduly advantageous offer' has not yet been clarified by the Commission. Nonetheless, further specification in relation to it will most likely be included in the Guidelines due by January 2026. In fact, Article 46 explicitly lays down that the Guidelines shall address 'the assessment of a distortion in a public procurement procedure according to Article 27' (Article 46 of Regulation 2022/2560). Furthermore, such as in the context of the Public Sector Directive, the meaning of this newly introduced concept will take shape over time through the practice of the Commission and the consequent interpretation of the CJEU.

In relation to the assessment stemming from the two concepts under scrutiny, substantial differences can be identified. For the purpose of comparison in the specific case at hand, the assessment of an abnormally low offer benefitting from state aid will be taken as reference.

The initiation of the procedure represents a first element of departure between the assessment of an abnormally low offer and an unduly advantageous one. In relation to the former, it is up to the contracting authority to identify an abnormally low tender and to start verifying its reliability. Instead, under to the FSR, the scrutiny of an unduly advantageous offer is triggered by the notification thresholds enshrined therein. Some leeway is left to contracting authorities only where suspects in relation to the presence of foreign subsidies arise during the examination of tenders (Article 29(7) of Regulation 2022/2560). In such circumstance, contracting authorities' concerns shall be communicated to the Commission without delay.

Under the Public Sector Directive, once an abnormally low offer has been identified, contracting authorities shall request the economic operators concerned to provide explanations regarding the price or cost proposed based on the fields enshrined in Article 69(2) of the Public Sector Directive, which includes 'the possibility of the tenderer obtaining State aid.' In the context of reviewing the economic operators' explanations, the contracting authority itself is entrusted to conduct a formal assessment in relation to the compatibility of the aid (Biancardi, 2018). The scrutiny is restricted to the appraisal of 'whether the aid was either approved by the Commission or fell within one of the exemption Regulations' (Biancardi, 2018). On the other hand, the assessment of whether a foreign subsidy may have enabled an economic operator to present an 'unduly advantageous offer' is entirely devoted to the Commission. In fact, pursuant to Article 29(2) of the FSR, contracting authorities are under a duty to send notifications or declarations to Brussels without delay. In addition, paragraph 4 of the same Article underlines the centralized character of the FSR system by specifying that the examination of the notifications' content is in the hand of the Commission, which will eventually communicate the outcome of such scrutiny to the contracting authorities.

In addition, the scrutiny pursuant to Article 69 of the Public Sector Directive examines the compatibility of State aid *in abstracto* (Blažo, 2021). Indeed, the benefit conferred by the aid to the offer under investigation is specifically analyzed only where the economic operator fails to provide sufficient evidence in relation to the compatibility of the financial contribution. On the other hand, Article 27 FSR limits the assessment of the distortive effect of a foreign subsidy to the public procurement procedure from which the notification originated (Recital 46 of Regulation 2022/2560).

In spite of the different aims and procedural mechanisms underpinning the Public Sector Directive and the FSR, overlaps in the assessment of abnormally low tenders and unduly advantageous offers may be envisaged. Article 29(7) FSR intends to clarify the relationship between the two concepts. The text of the Article establishes that the procedural framework

introduced by the FSR does not prejudice the powers of investigation of contracting authorities in relation to abnormally low offers. Nonetheless, contracting authorities are precluded from scrutinizing an abnormally low offer when 'an assessment would be initiated on the suspicions indicating a possible presence of foreign subsidies alone' (Article 29(7) of Regulation 2022/2560).

5. Ex Ante Notification Procedure in Public Procurement

The notification procedure introduced in the realm of public procurement is among the most striking features established by the FSR. This *ex ante* tool, based on notification obligations, resembles the now well-established system of merger control aimed at preventing the creation of dominant actors potentially impairing competition in the internal market. In the same vein, the FSR seeks to counter the distortive effect of foreign subsidies by scrutinizing them before a contract for works, services or supply is awarded (Friton, 2023).

Under the public procurement procedure set out in Chapter 4 of the FSR, only financial contributions awarded in the previous three years are potentially subject to notification requirements (Article 27 of regulation 2022/2560). Pursuant to Article 28 FSR, an economic operator shall notify a foreign financial contribution where: '(a) the estimated value of the that public procurement (…) is equal to or greater than EUR 250 million; and (b) the economic operator (…) was granted aggregate financial contributions in the three years prior to notification or, if applicable, the updated notification, equal to or greater than EUR 4 million per third country' (Article 28(1) of Regulation 2022/2560).

Therefore, two cumulative requirements need to be met for a financial contribution to be notifiable. This double threshold represents an improvement compared to the initial proposal of the FSR, which only included point (a) referring to the estimated value of the public procurement procedure. Under the text of the draft proposal of the FSR, this meant that any foreign subsidy in the context of a public procurement procedure amounting to or greater than EUR 250 million would have been subject to notification (COM/2021/223 final). Commentators and partitioners pointed to the overly burdensome requirement for undertakings participating in public procurement procedures as opposed to notification obligations foreseen in the context of concentrations, where only an aggregate subsidy of more than EUR 50 million was going to be subject to the Commission's assessment (Blažo, 2021). The disproportionate treatment between undertakings participating in M&A transactions and the ones participating to public tenders prompted the Commission to introduce a comparable threshold in the context of public procurement.

Notification obligations arise not only when the financial contribution is granted to the economic operator participating to the public tender, but also when a foreign subsidy benefits 'its subsidiary companies without commercial autonomy, its holding companies, and, where applicable, its main subcontractors and suppliers involved in the same tender in the public procurement procedure' (Article 28(1)(b) of Regulation 2022/2560). For the purposes of notification, a 'main' subcontractor or supplier is considered as such when 'their participation ensures key elements of the contract performance and (…) where the economic share of their contribution exceeds 20% of the value of the submitted tender' (Article 29(5) of Regulation 2022/2560).

Article 28 FSR foresees exclusions from the notification obligations arising from Chapter 4. Namely, public tenders in the fields of defense and security are not covered by the public procurement procedure (Article 28(3) of Regulation 2022/2560).

Where the thresholds set out in Article 28 are met, the economic operator shall notify the contracting authority of the financial contributions received in the previous three years. Nonetheless, economic operators, whose financial contributions do not meet the amount set by Article 28 FSR, are still under an obligation to forward a declaration listing all granted foreign financial contributions, while at the same time attesting that they do not amount to notifiable financial contributions (Article 29(1) of Regulation 2022/2560).

Notifications and declaration shall be sent to the Commission by the contracting authority, which acts as a mere intermediary when it comes to the scrutiny of foreign subsidies. On the other hand, contracting authorities may urge economic operators to submit notifications or declaration where such documentation is missing. Following the 10 working days designated for the economic operator to reply to the contracting authority's request, the contracting authority shall reject the tended in question on grounds of irregularity in case such request is being disregarded (Article 29(3) of Regulation 2022/2560). The Commission shall be informed thereof.

The assessment of the notified foreign subsidies is entirely left in the hands of the Commission, which shall firstly verify whether the notification is complete. Economic operators can supplement incomplete notifications within 10 days, following the expiry of which, the tender shall be declared irregular by the Commission. Based on such declaration, the contracting authority will consequently reject the irregular tender (Article 29(4) of Regulation 2022/2560).

Suspicions relating to unnotified financial contributions can be communicated by contracting authorities to the Commission, even in spite of the presence of a declaration. When such doubts directly stem from the Commission, the latter may request the economic operator concerned to submit a notification accounting for the foreign financial contributions granted, even if they are not notifiable under Article 28(1). Despite the broad leeway left to the Commission under this Article, the FSR specifies that such notification requests still fall under the procedural mechanism of Chapter 4, i.e. *ex ante* notification mechanism, and shall not be regarded as an *ex officio* procedure (Article 29(8) of Regulation 2022/2560).

The scrutiny conducted by the Commission consists of a two-step approach such as in the case of an *ex officio* procedure (Article 30(1) of Regulation 2022/2560). The initial preliminary review shall last no longer that 20 working days from the complete submission of the notification (Article 30(2) of Regulation 2022/2560). The Commission shall eventually decide whether to open an in-depth investigation in conformity with Article 10(3) FSR or close the preliminary review. The latter may be reopened if case new information suggests the presence of distortive foreign subsidies (Article 30(4) of Regulation 2022/2560).

Following an in-depth investigation, where there is evidence that an economic operator benefits from a foreign subsidy distorting the internal market, the Commission shall either adopt a decision with commitments in accordance with Article 11(3) FSR, where the concerned undertaking offers commitments (Article 31(1) of Regulation 2022/2560), or a decision prohibiting the award of the contract, in case of non-collaboration by the economic operator (Article 31(2) of Regulation 2022/2560). The decision prohibiting the award shall be implemented by the contracting authority by rejecting the tender in question.

Throughout the scrutiny of notified financial contributions, procedural steps linked to the public procurement procedure can be conducted, apart from the award of the contract (Article 32(1) of Regulation 2022/2560). In fact, Article 32 FSR introduces a standstill obligation, which prevents contracting authorities to award a public contract to economic entities whose foreign financial contribution are under scrutiny, until the Commission reaches a decision on the merit. This means that the economic operator potentially being awarded the contract will remain uncertain until the Commission reaches a conclusion in relation to the distortive nature of the foreign financial contribution, since despite offering the most advantageous tender it may be excluded in light of the distortion caused on the internal market (Blažo, 2021). Indeed, in case the Commission adopts a decision prohibiting the award of the contract, the contracting authorities will exclude the economic operator from the public procurement procedure.

In January 2024, the Commission reported on the first 100 days since the start of the notification obligation of public procurement procedures. Unlike the detailed set of information provided in relation to notifications in the realm of concentrations, the Commission merely stated that a total of more than 100 submission, comprising both notifications and declarations, were sent by economic operators since October 12th, 2023 (European Commission, 2024).

In addition to the dedicated *ex ante* notification procedure, foreign subsidies in the realm of public procurement can be investigated by means of an *ex officio* investigation tool as well. This double course of action effectively widens the powers of the Commission due to the fact that the *ex officio* procedure allows the scrutiny of financial contributions that do not meet the thresholds for the *ex ante* mechanisms. This possibility is counterbalanced by the fact that only awarded contracts can be subject of an *ex officio* review (Article 9 of Regulation 2022/2560). Furthermore, the potential outcome of an *ex ante* procedure greatly differs from the one allowed under an *ex officio* review. Indeed, in the latter scenario, where the Commission identifies the presence of a foreign subsidy distorting the internal market, the public contract under scrutiny cannot be terminated and the decision awarding such contract cannot be revoked. On the other hand, the Commission is entitled to impose redressive measures pursuant to Article 7 FSR.
In addition, the ex officio tool can be applied to defense, and security contracts covered by Directive 2009/81/EC, which is instead exempted from notification obligation under Chapter 4 of the FSR (Recital 41 of Regulation 2022/2560).

6. First In-depth investigation under the FSR

On February 16th 2024, the Commission has launched its first in-depth investigation under the powers of the FSR following an ex ante notification in relation to a public procurement procedure (IP/24/887). The notification originated from a public procurement tender opened by the Ministry of Transport and Communications of Bulgaria for the project 'Bulgaria-Sofia: Railway and tramway locomotives and rolling stock and associated parts' (C/2024/1096). The estimated value of the project amounts to EUR 613 765 903,66, therefore meeting the threshold enshrined in Article 28(1)(a) FSR (C/2024/1096). The public procedure at hand calls for the supply of '20 single deck zero-emission electric 'push-pull 'trains with a maximum speed of 200 km/h and a capacity of at least 300 seats each', maintenance services for a period of 15 years and staff training. One of the two tenderers that submitted offers in the context of this public procurement procedure, forwarded a notification pursuant to Article 29(1) FSR (C/2024/1096).
The Notifying party is a subsidiary of CRRC Corporation Limited (hereinafter "CRRC"), the world's largest rolling stock manufacturer. In the notification, the Commission reported that CRRC Sifang Co., Ltd did not highlight any foreign subsidy most likely to distort the internal market pursuant to Article 5 FSR, nor did it report for financial contributions equal or greater than EUR 4 million per third state (C/2024/1096). Nevertheless, the Commission requested the notifying party to provide further documentation with regards to its ownership structure and more in depth information on any financial contribution meeting the threshold included in Article 28(1)(b) FSR has been granted to subsidiaries of the holding company (C/2024/1096). The information forwarded by the notifying party provided the Commission with sufficient indications pointing to the presence of foreign subsidies distorting the internal market.
In particular, by analyzing the requested annual reports for financial statements, the Commission detected a total amount of EUR 1.745 billion in foreign financial contributions, split in public procurement contracts awarded to CRRC or to its subsidiaries and in government grants (C/2024/1096). The amount of foreign subsidies received potentially justifies the fact that the offer submitted by CRRC Sifang Co., Ltd is approximately half that of the other tenderer, Spanish Talgo (Bounds, 2024).
Nonetheless, due to the withdrawal of CRRC Sifang Co., Ltd from the public procurement tender in Bulgaria, the in-depth investigation has already been closed. The news issued on March 26th, 2024, by Commissioner Breton comes only a few weeks after the announcement of the initiation of such investigation. The Commissioner added that while 'the single market is open for firms that are truly competitive and play fair', the introduction of the FSR toolbox 'has already yielded results' and the Commission 'will continue to take all necessary

measures to preserve Europe's economic security and competitiveness (…)' (STATEMENT/24/1729).

In spite of the recent termination of the in-depth investigation, it still remains paradoxical that the first ever resort to this newly introduced tool addressed CRRC. In fact, this state-owned Chinese enterprise is an old acquaintance of the Commission in the field of European merger. The Chinese railway manufacturer was at the center of the debate concerning the famous Siemens/Alstom merger case, eventually cleared in 2019 (Killick et al, 2024). Indeed, the German and French enterprises, backed by their respective governments, announced their intention to merge in order to counter the fierce competition of the state-owned CRRC (Liran, 2020). The merger between Siemens and Alstom would have created a so-called "European champion" in the market of railway manufacturing (Nourry & Rabinowitz, 2020). Nonetheless, this scenario would have effectively created a dominant actor on the market, which is the reason that led the Commission to block the transaction. It is worth noting that in relation to the external competition exercised by CRRC, the Commission ironically stated that: 'market entry by CRRC (…) does not appear likely, timely or sufficient to deter or defeat any potential anti-competitive effects of the Transaction in both the overall market encompassing high-speed and very high-speed rolling stock, as well as in the potentially narrower market for very high-speed rolling stock' (C(2019) 921 final).

Furthermore, it is interesting to note that CRRC already entered the European market in 2020 by acquiring the German Vossloh Locomotives, leading in the market for diesel-powered shunters manufacturing (Renner et al, 2024). The German competition authority eventually approved the merger on grounds of a constant decrease in competitiveness of Vossloh despite its strong market position in the EU and Switzerland (German Competition Authority, 2020). Andreas Mundt, President of the German Competition Authority, stated that the presence of foreign subsidies and the considerable technological resources at CRRC's disposal were taken into consideration in the assessment of the merger (German Competition Authority, 2020). Despite the concerns on distortion of competition highlighted by a survey conducted by the German competition authority, the latter approved the merger in view of the minor role played by CRRC to this day in the European market (Craig, 2020).

Notwithstanding the fact that the in-depth investigation at issue is the only one of its kind until now, the actors involved and the outcome that resulted from the announcement of the opening of such investigation provide an initial picture as to the effectiveness of the newly introduced Regulation. In fact, CRRC precisely represents the kind of economic operator capable of distorting the internal market due to the massive injection of subsidies received by the Chinese state. As evidenced by the documentation requested by the Commission as part of the notification procedure, the offer presented in the public procurement procedure in Bulgaria completely "out-bidded" the one submitted by the Spanish enterprise. Due to the early withdrawal of the Chinese undertaking, the Commission will not be able to provide a decision on the matter, but it is reasonable to imply that the Commission would have detected foreign subsidies capable of distorting the internal market during the in-depth scrutiny, since the total sum of financial contributions amounted to approximately five times the value of the bid presented in the public procedure at issue (C/2024/1096). It is still to be seen whether the FSR will effectively acts as a deterrent for such heavily subsidized economic operators to enter the internal market, or whether the Commission will be submersed by notifications without having the personnel and time to address the most distortive subsidies for the internal market.

7. Conclusion

The overarching aim of the FSR is to protect the internal market from foreign subsidies capable of undermining 'the level playing field of various economic activities in the Union' (Recital 4 of Regulation 2022/2560). Such threats primarily originate from third countries, such as China, which are not aligned with the predominant market-liberal policies pursued at EU level. On the other hand, the public interventionist governance exercised outside the

EU may potentially cause significant distortions in the internal market as well. As a result, the Commission responded to the growing dissatisfaction with the unfair conditions for participation in the internal market by seeking to extend state aid rules to companies benefiting from foreign subsidies. Nonetheless, this attempt of 'extraterritorialisation' of Eu law could lead to increased discontent in the WTO context.
Frustration in relation to the obligations stemming from the FSR also emerge from firms taking part to the European internal market. In fact, the notification and declaration obligations foreseen by the Regulation represent an increased administrative burden for companies involved in M&A transactions and public procurement procedures. In relation to the latter, the FSR provides for the notification of information with regards to contractors, subcontractors and suppliers potentially involved in the performance of the public contracts. This entails that contractors are required to systemically gather financial data from the preceding three years, not only in relation to their own firm, but also from their subcontractors and suppliers (Kania & Andhov, 2023). As a result, companies operating in the internal market which could fall under the obligations introduced by the FSR may need to implement reporting mechanisms as well as designating specific corporate functions to comply with the Regulation (Friton et al., 2023). For this reason, smaller sized companies may face significant obstacles when it comes to the participation to public procurement procedures in the EU, which is in contrast with the declared objective of the Commission of 'reducing burdens and simplifying legislation' for SMEs (COM/2020/103 final). Implementing Regulation 2023/1441 partly addresses such concerns by providing a pre-notification procedure, fostering dialogue between the Commission and potentially notifying firms, and by splitting the notification obligations into three categories (Friton et al., 2023), nonetheless the negative consequences on access to public procurement procedures for SMEs may still result to be significant.

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Directive 2023/1791 EED: A Step Closer to Mandatory Green Public Procurement Criteria Through Sectorial Legislation

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Abstract:

The European Union's Directive 2023/1791 EED is a critical step in the European Union's trajectory towards climate neutrality by 2050, instituting enforceable Green Public Procurement criteria. This article delves into the Directive's implementation complexities, scrutinising its potential to navigate the EU energy policy evolution and foster sustainability in public procurement. Notably, Article 7 and Annex IV of the Directive demonstrate a clear shift by mandating high energy efficiency performance standards across various sectors, signifying a move from discretionary to compulsory Green Public Procurement criteria. Despite its robust policy stance, the Directive faces practical impediments, including diverse Member States compliance levels and the need to balance regulatory directives with market dynamics. While the Directive aims to position public authorities at the forefront of sustainable procurement, catalysing market transformation, it walks a delicate line between legislative ambition and actionable enforcement. The variability in economic and technological capacities among Member States could hinder uniform application. By introducing a framework that allows for enforceable, adaptive, and technology-sensitive specifications, the Directive could bridge the gap between policy and practice, optimising its impact on energy consumption and environmental sustainability. However, addressing potential ambiguities in interpretation, the economic burden on public entities, and institutional inertia remains critical for its rigorous and effective implementation. This article provides a comprehensive analysis of Directive 2023/1791, situating it within the EU's broader energy policy framework, and critically evaluates its potential to truly change the Union's approach to energy efficiency and Green Public Procurement.

Keywords: EU Energy Efficiency, Energy Efficiency Directive, Green Public Procurement, Sustainable Construction, Climate Neutrality Legislation

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List of abbreviations:

CAs - Contract Authorities
CPD - Construction Products Directive (1989)
CPR - Construction Product Regulation
CJEU - Court of Justice of the European Union
EC - European Commission EED - Energy Efficiency Directive
EED – Energy Efficiency Directive
EPBD - Directive on the Energy Performance of Buildings
EPCs - Energy Performance Certificates
ESD - Energy Services Directive
ESPR - Ecodesign for Sustainable Products Regulation
EU - European Union
GDP – Gross Domestic Product
GHG - Greenhouse Gas
GPP - Green Public Procurement
GWP - Global warming potential
HWBD or Boiler Directive - Council Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels
ICT - Information and Communications Technology
LCA - Life Cycle Assessment
MEPS - Minimum energy performance standards
Mtoe - Million tonnes of oil equivalent
NECPs - National Energy and Climate Plans
nZEB - nearly Zero Energy Buildings
OECD - Organisation for Economic Co-operation and Development
PAs - Public authorities
PEF - Product Environment Footprint
PEFCRs - Product Environmental Footprint Category Rules
PRIMES 2020 - reference scenario
SAVE Directive - Council Directive 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency
SPP - Sustainable public Procurement
TED - Tenders Electronic Daily
WLC - Whole Life Carbon
ZEB - Zero Energy Buildings

1. Introduction

The dynamic evolution of the European Union's (EU) energy efficiency policy has been influenced by a combination of historical challenges, market responses, and legislative interventions. Among these historical challenges are pivotal moments such as the oil embargo of the 1970s and the global recession of 2008. These events, alongside recognised market failures, have underscored the importance of addressing energy efficiency not just as an economic concern but also as a strategic and environmental imperative.

One of the most salient market failures is the 'energy efficiency gap'—the divergence between current energy efficiency levels and their economically viable potential (Backlund, Thollander, Palm, & Ottosson, 2012; Gerarden, Newell, & Stavins, 2017; Jaffe & Stavins, 1994). This gap signifies more than a theoretical construct; it signifies an actionable divergence between current energy efficiency levels and their economically viable potential, underpinning tangible misallocations of resources. In environments where market imperfections are present, regulatory intervention becomes a critical mechanism for redirecting market trajectories toward optimal societal outcomes (Sanchez Graells, 2014). Nevertheless, the equilibrium between regulatory measures and market mechanisms is delicate, as excessive intervention may risk further market distortion.

Addressing this gap necessitates multifaceted interventions. The EU confronts energy security challenges stemming from reliance on external energy sources and grapples with externalities like the under-pricing of environmental impacts (EPSR, 2020; Gerarden et al., 2017; Mata Pérez, Scholten, & Smith Stegen, 2019). Concurrently, it recognises the expansive impact of energy efficiency, from macroeconomic vitality and air quality enhancement to job creation and, critically, climate change mitigation (COMBI, 2018).

Central to the EU's response to energy challenges is Energy Efficiency Directive 2023/1791 (hereafter EED 2023 or Directive) (EP & CEU, 2023). Designed to propel the EU toward climate neutrality by 2050, the Directive underscores the inadequacy of previous measures in achieving desired energy consumption reductions. Recent reports for 2023 reveal a troubling trend: only 16 EU countries met the deadline to submit updated National Energy and Climate Plans (NECPs) to the European Commission for the period leading to 2030, and astonishingly, none fully adhere to the latest energy efficiency benchmarks (The Coalition for Energy Savings, 2023). Specifically, the Directive mandates Member States (MS) to curtail their energy consumption by a minimum of 11.7% by 2030 (Art 4), coupled with an annual reduction target of 1.5% in final energy consumption from 2024 to 2030. Highlighting the public sector's leadership (Art 5, pr1), the Directive positions public authorities not just as regulatory entities but as influential market participants.

In this context, strategic state procurement—beyond its fiscal role—serves as a catalyst for innovation. As Perez in (Lember, Kattel, & Kalvet, 2014) asserts, through directed public investment, the state can encourage private sector ingenuity, driving both market expansion and technological advancements that are crucial for addressing environmental issues. Public procurement is instrumental in this regard, with public authorities as significant market players, using their purchasing power to effect change. By advocating for sustainable procurement policies, they not only guide market demand toward sustainability but also stimulate the development of energy-efficient solutions in the private sector. This approach is in harmony with the Directive's updated provisions, demonstrating how public entities can leverage their procurement strategies to foster an environment where energy efficiency is not just a directive but an integrated practice.

However, the balance between promoting energy efficiency and accommodating other economic and political considerations is delicate. Introducing the Directive EED 2023 exemplifies the EU's commitment to bridging this balance. It is noteworthy that while regulation, such as this Directive, can act as a remedy to market failures, its design and implementation must be carefully considered to avoid unintended consequences. This article aims to delve deeper into the implications of this Directive, particularly its potential to mandate Green Public Procurement (GPP) Criteria through sectorial legislation and assess its role in addressing the multifaceted challenges posed by the energy efficiency gap.

2. Historical Context: Energy Efficiency in the EU

The beginnings of EU energy policy can be traced back to the European Coal and Steel Community of 1951, followed by the European Atomic Energy Community in 1957. However, it was the oil embargo of the 1970s that made the EU realise the importance of energy security. This led to a shift in the energy discourse from just supply concerns to a more comprehensive strategy that included energy efficiency. The first European Council Resolution of 1974 aimed for a 15% reduction in energy consumption by 1985. This commitment was further strengthened in subsequent years and resulted in the 1986 Council Resolution, which aimed to balance energy and environmental solutions, thus laying the foundation for the EU's first explicit energy efficiency target (Economidou et al., 2020).

2.1. The Formative Years: Energy Efficiency through sectorial legislation - Building-Centric

The EU's focus on buildings stemmed from the varying energy performance standards across its MS. This prompted the need for a harmonised approach. The first steps taken towards this goal were the 1989 Construction Products Directive (CPD) and the 1992 Boiler Directive (HWBD), which aimed to standardise construction product performance and promote energy efficiency labelling for heating systems, respectively. However, it was the 1993 Council Directive 93/76/EEC to limit carbon dioxide emissions by improving energy efficiency (SAVE Directive) that marked the EU's first comprehensive policy in this area. This Directive mandated MS to implement energy efficiency enhancement programs and encouraged thermal insulation provisions in new buildings. While it lacked the stringency to enforce efficiency requirements, it paved the way for subsequent directives such as the 2002 Directive on the Energy Performance of Buildings (EPBD) and the 2006 Directive on energy end-use efficiency and energy services. The SAVE Directive also advocated for building certification, heating regulation, third-party financing for public building energy efficiency, and energy audits for energy-intensive entities. Its significance cannot be overstated, as it has been instrumental in shaping the EU's energy efficiency policies.

2.2. Second Wave, Action Plans for Energy Efficiency

Since the early 2000s, the European Commission has progressively advanced its strategic vision for energy efficiency through a series of Action Plans. While reflecting a growing commitment to ecological responsibility, these plans also exhibit the evolution of the EU's regulatory approach in this domain.

The 2000 Energy Efficiency Action Plan: In response to the inadequate implementation of the SAVE Directive, the 2000 Action Plan was introduced. The previous Directive's limited success was mainly due to the MS reluctance to establish strict efficiency standards. After the 1997 Kyoto Protocol, the EU felt the urgency to actively promote energy efficiency, which led to the 2000 Action Plan. It called for improved measures and standardised reporting while respecting the autonomy of MS. This plan subsequently influenced the development of the EPBD in 2002.

The 2006 Energy Efficiency Action Plan: In 2006, a significant goal was set to reduce primary energy consumption by 20% before 2020. This objective was based on the Green Paper on European Energy Strategy, which identified the potential for 27% energy savings in residential buildings and 30% in commercial buildings by 2020. The plan emphasised the need for stringent requirements for building renovations, paving the way for the 2010 revision of the EPBD. The plan's impact was further highlighted by the EU's commitment to achieving the "20-20-20 targets" by 2020.

The 2011 Energy Efficiency Action Plan: The 2011 Plan aligned with the Commission's Roadmap for a low carbon economy and set ambitious goals to reduce GHG emissions by 2050. It acknowledged the potential for energy-saving in building renovations and highlighted the need for energy-efficient interventions in both public and private sectors. The Plan introduced mechanisms to address 'split incentives' and promoted energy performance contracting and audits. In 2018, the energy efficiency targets were adjusted to 32.5%, reflecting the EU's dynamic commitment to the cause.

The Energy Union and the Role of Energy Efficiency: In 2015, the Energy Union Strategy was introduced to reaffirm the EU's commitment to promoting sustainable energy. The strategy comprised five dimensions, focusing on energy efficiency as its core objective. Its main aim was to decrease the dependence on energy imports, facilitate job creation, and encourage economic growth. The strategy also called for revisions to the EPBD and the Energy Efficiency Directive (EED), ushering in a new era of energy and climate action governance.

Throughout these plans, a clear trajectory emerges. The EU has transitioned from a broad, often ambiguous approach to a more prescriptive, targeted strategy, underscoring the essential role of energy efficiency in its policy landscape.

2.3. Public Procurement: An Instrument for Sustainable Transformation

With the EU allocating approximately EUR 2.3 trillion annually to public expenditure—accounting for 19% of its GDP—the impact of procurement practices is far-reaching. This expenditure is directly linked to a notable 15% of global GHG emissions (Mission Possible Partnership & World Economic Forum, 2022), signifying the potential for procurement to drive significant environmental change.

Delving into the specifics, certain sectors exemplify the urgent need for sustainable procurement. The transport sector, for instance, is a major energy consumer, using over 30% of the EU's final energy, while the construction sector is a substantial contributor to energy use and GHG emissions, with 40% of energy consumption and 35% of GHG emissions attributed to it (IEA, 2022; UNEP, 2020). Compounded by the inefficiency of 75% of EU buildings, the imperative for reform is clear. Additionally, sectors like industry and ICT are notable for their environmental footprint, with the ICT sector alone accounting for 5-9% of global electricity consumption (EP & CEU, 2023).

The evolution of public procurement has progressed from being just a financial tool to becoming a driver of sustainable market behaviour, which aligns with Sustainable Development Goal 12. This goal promotes responsible consumption and production patterns. The One Planet Network (2020) has endorsed procurement practices that value societal impacts and economic costs, reflecting a paradigm shift in policy vision (Westerholm, 2020). This shift is also supported by contemporary scholars such as Bleda and Chicot (2020) and Mazzucato (2020), who advocate for procurement to be used as a strategic lever for societal advancements.

The EU has begun to align with this vision, especially after its 2014 Public Procurement reform. This shift is not just about standardising practices but about harnessing procurement to achieve broader economic and environmental aims. The EU Public Procurement Directive (2014/24/EU) highlights the importance of integrating socio-environmental standards in public procurement (EP & CEU, 2014). However, it falls short in providing a clear and actionable framework for harmonising these standards in practice, leaving a critical gap.

Public procurement, therefore, stands at a crossroads. The magnitude of public expenditure, interlaced with its environmental impact, places public authorities in a pivotal position to shape market trends. When properly executed, today's procurement strategies can confront multifaceted challenges—fostering transparency, efficiency, and delivering on the EU's policy objectives. The task ahead is to bridge the gap identified in the Directive, ensuring that the lofty goals of procurement reform translate into tangible, sustainable outcomes.

2.3.1. Public procurement Law

The evolution of EU public procurement law, particularly Directive 2014/24/EU, reflects the EU's progressive stance on leveraging procurement in support of societal goals, especially sustainability. This Directive, replacing the earlier 2004 suite, emerges from a 2011 proposal by the European Commission and is heavily influenced by landmark cases such as Concordia Bus Finland (8C-513/99) and Wienstrom (C-448/01 EVN AG), which validated the inclusion of environmental criteria in procurement decisions.

The 2014 Directive advances beyond its predecessors, 2004/17/EC and 2004/18/EC, by embedding sustainable procurement deeply within the legal framework of all EU's MS. It transcends the economic realm, placing a marked emphasis on life-cycle costing, endorsing eco-labels, and enforcing compliance with environmental standards(EP & CEU, 2014).

At the core of the Directive 2014/24/EU is Article 18, which establishes a mandate for compliance with environmental, social, and labour laws, anchoring the commitment to comprehensive sustainability. The principle of competition is balanced with sustainability goals, as seen in the Dutch Coffee/Max Havelaar judgment (C-368/10), although adherence to the subject matter principle is strictly maintained.

Articles 42 and 43 continue the sustainability trajectory by promoting transparency, non-discrimination, and inclusivity. Article 42's technical specifications encourage clear communication and accessibility, while Article 43's provisions on labelling guide authorities in promoting sustainability within the procurement process.

The Directive entrusts authorities with significant discretionary power. For instance, Article 56(1) paragraph 4 allows the rejection of tenders for non-compliance with the sustainability obligations laid out in Article 18(2). Enforcement mechanisms are also present in Articles 57(4) and 69(3), which provide for the exclusion of tenders violating social or environmental obligations and the rejection of abnormally low tenders, respectively.

Article 67 introduces a life-cycle cost approach to awarding public contracts, promoting a broad interpretation of sustainability. This ensures that environmental factors are integrated into decision-making processes, as highlighted in cases like Concordia. In Article 68, the Directive underscores the importance of life-cycle costing, acknowledging the comprehensive costs and environmental impacts of procurement, while Article 70 empowers contracting entities to enforce environmental conditions in contract performance, elevating the role of public procurement in sustainable development.

To conclude, the Public Procurement Directive intricately weaves sustainability with the principles of transparency, inclusivity, and competitiveness. It gives authorities broad

discretion while providing checks to prevent misuse. However, it is also crucial to acknowledge that strict adherence to the subject matter principle may limit the full execution of sustainability objectives. Despite this, the Directive's overall direction is unmistakable—it advocates for a nuanced, balanced, and thorough approach to sustainable public procurement, establishing itself as a fundamental instrument for championing sustainable practices within public procurement processes.

2.3.2. Green Public Procurement

The urgency of environmental sustainability has positioned Green Public Procurement (GPP) as a critical instrument in global efforts towards more sustainable practices. GPP, a focused arm of sustainable public procurement (SPP), not only encompasses a wide range of environmental concerns, such as energy conservation and waste management, but also serves as a mechanism to drive the green agenda and net-zero aspirations (Bleda & Chicot, 2020; Mazzucato, 2018, 2020, 2023; Nilsson Lewis, Kaaret, Torres Morales, Piirsalu, & Axelsson, 2023).

Tracing its roots, GPP's inception was marked by the Organisation for Economic Co-operation and Development (OECD)'s landmark recommendation in 2002, subsequently reinforced by global initiatives like the Marrakech Task Force following the Johannesburg World Summit on Sustainable Development. These pivotal endorsements steered nations to adopt sustainable procurement policies, a trend that gained momentum with the OECD's recommendations in 2015 (OECD, 2015).

In the EU, GPP has evolved from an aspirational model into a strategic lever to align procurement practices with environmental imperatives, a transformation essential for EU MS to fulfil international commitments like the Paris Agreement and the European Green Deal. This strategic alignment is underscored by the Communication 2008, which defines GPP as the process where public entities procure goods and services with the least environmental impact over their life-cycle (EP & CEU, 2008).

The EU's dedication to GPP took a systematic shape with the Commission Communication on Integrated Product Policy in 2003, which gave rise to national GPP action plans. Progressing further, the Commission's Communication COM (2008) 400 in 2008 underscored the importance of GPP in promoting innovation and sustainability (EP & CEU, 2008). It set forth ambitious targets to ensure that public tenders comply with essential GPP criteria—a vision supported by the EU's Public Procurement Directive 2014/24/EU. This Directive not only wove GPP into the broader European strategy but also established a nuanced, two-tier system to accommodate the differing levels of GPP implementation readiness among MS. However, the adoption of GPP has been tentative and slower than anticipated. Despite the 2020 New Circular Economy Action Plan's stipulation that "…the Commission will propose minimum mandatory green public procurement (GPP) criteria and targets in sectoral legislation and introduce compulsory reporting to monitor Green Public Procurement (GPP) uptake, without creating unjustified administrative burdens for public buyers," the EU has yet to enforce obligatory deadlines for enacting GPP policies (European Commission, 2020a, p. 5).

Scholarly contributions have significantly shaped the discourse on GPP. Researchers like Mazzucato (2023) and Nilsson Lewis et al. (2023) identify GPP as indispensable in decarbonising sectors like construction and transport. Their work, along with insights from Sönnichsen & Clement (2020), advocate a shift in procurement focus from cost to sustainability, considering the full product life-cycle.

Additionally, the academic narrative has evolved, highlighting the integration of GPP within public funding frameworks as crucial in redistributing risks and rewards equitably

(Mazzucato, 2023). A mission-driven GPP approach offers procurement the autonomy to tackle societal challenges, like achieving carbon neutrality, and ensures that environmental criteria are embedded across procurement processes.

The scholarly landscape is rich with diverse perspectives on GPP. Researchers like Appolloni et al. (2014) and Cheng et al. (2018) have analysed its rise and the effectiveness of policy tools, while studies focused on regions such as South Africa by Agyepong & Nhamo (2017) underscore GPP's relevance in sustainable development and climate change adaptation. The dialogue on GPP is further enriched by the recognition of the influence of procurers' beliefs and values, as elucidated by Sönnichsen & Clement (2020).

Moving forward, integrating GPP into public funding discussions is crucial for distributing risks and rewards equitably and ensuring that environmental criteria are embedded in all aspects of procurement (Mazzucato, 2020). It calls for a concerted, multi-stakeholder effort to drive broad societal challenges, like achieving carbon neutrality, a notion supported by the segmented analysis of circular procurement by Xu et al. (2022) and the synthesis of factors influencing sustainable procurement by Qazi & Appolloni (2022).

2.3.3. Bridging the Divide: Towards a Unified Green Public Procurement Strategy in the EU

GPP in the EU, while lauded for its progressive guidelines, confronts significant practical challenges. The European Commission COM (2021) 245 final reports a patchwork landscape of GPP adoption, largely due to its voluntary nature and varying implementation among MS (European Commission, 2021a; Schebesta, 2018). This uneven uptake is stark, with some nations like the Netherlands targeting a 100% integration of green criteria in public contracts while others lack even the basic GPP framework (Rosell, 2021).

Contributing to this disparate adoption are barriers such as financial constraints, bureaucratic inertia, and the complexity of green strategies (Mazzucato, 2020; Nilsson Lewis et al., 2023). These obstacles are manifested organizationally, legally, politically, and economically, differing across nations and regions within them, signifying the need for a unified legislative approach to GPP.

Early studies illuminate the divergence in GPP success rates, with countries like Belgium and Sweden nearing 60% uptake while a dozen linger below 20% (Renda et al., 2012). Furthermore, Rosell's (2021) analysis of the Tenders Electronic Daily (TED) database from 2006-2017 found that a mere 7.2% of MEAT contracts incorporated green criteria. Despite the pioneering efforts of countries like Norway, France, and Denmark, regions like Eastern Europe, including nations like Portugal and Italy, fell behind.

The lack of mandatory adherence to GPP is a significant factor in this uneven adoption (Sapir, Schraepen, & Tagliapietra, 2022). An impact assessment by the European Commission (2018) on the Clean Vehicles Directive of 2009 is telling in this regard. It concluded that the Directive's lack of clear, enforceable quantitative criteria for the procurement of clean vehicles was a considerable barrier to its success. According to Blažo (2019), the outcomes observed could have been attained by market forces alone, even without the Directive. This points to the optional nature of GPP not only as a policy choice but as a potential pitfall, implying that voluntary measures may not be sufficient to bring about widespread change.

Despite these challenges, certain nations exemplify the effective application of GPP. Sweden has pioneered innovative green procurement, and the Dutch commitment to sustainable procurement illustrates the transformative potential of strategic GPP deployment

(Mazzucato, 2023). Nevertheless, the broader EU narrative still needs to be more cohesive, with less than half of public procurement integrating GPP criteria as of 2023 (OECD, 2023).

Therefore, there is a scholarly consensus on the necessity of mandatory GPP regulations (Andhov et al., 2020; Caranta, 2023; Janssen & Caranta, 2023; Martinez Romera & Caranta, 2017). Suggested reforms advocate for a shift from contract-specific considerations to a life cycle perspective, focusing on the environmental impact from production to disposal (Andhov et al., 2020; Pouikli, 2021). Such a holistic view could underpin a more rigorous and unified GPP framework. Moreover, such an approach aims to close the disparity in GPP adoption among MS, and it's essential that its implementation is paired with harmonised EU monitoring, tracking, guidance, and information systems (Andhov et al., 2020). It is probable that these aspirations will be realised to a degree in the forthcoming years (Janssen & Caranta, 2023), given that the recent EU Green Deal asserts that: "[t]he Commission will propose minimum mandatory green criteria or targets for public procurements in sectorial initiatives, EU funding or product-specific legislation. Such minimum criteria will 'de facto' set a common definition of what a 'green purchase' is, allowing collection of comparable data from public buyers, and setting the basis for assessing the impact of green public procurements. Public authorities (PAs) across Europe will be encouraged to integrate green criteria and use labels in their procurements" (EC, 2020, p. 12).

In conclusion, while the strategic vision for GPP in the EU is ambitious, actualisation lags due to a lack of uniformity and enforceable standards. The gap between ambition and practice underscores the imperative for a robust, mandatory GPP directive to align MS with the EU's environmental goals, as foreseen by the recent EU Green Deal. Only through such concerted efforts can the EU hope to fully harness the potential of GPP for sustainable development.

2.4. Leveraging Mandatory Environmental Criteria in Public Procurement: Sector-Specific Legislation for Enhanced Energy Efficiency

Environmental standards are mandatory in public procurement, particularly due to sector-specific legislation. Such legislation may take the form of regulations and directives. Regulations provide a uniform and binding framework for all EU MS. In contrast, directives set overarching goals for the entire EU, but delegate the methodological specifics to individual MS (European Union, 2022). To ensure compliance with these directives, MS shall impose sanctions that are "effective, proportionate, and dissuasive" (Art. 27) (EP & CEU, 2010). It is worth noting that mandatory GPP requirements already apply to sectors such as buildings, transport or IT.

2.4.1. Sectoral Legislation for Mandatory GPP Rules: EPBD

The EU's commitment to a greener and more energy-efficient future of our built environment is anchored in the Energy Performance of Buildings Directives (EPBD). This analytical overview charts its evolution and highlights key measures and their overarching impacts.

EPBD (2002) – With the introduction of Directive 2002/91/EC, the EU introduced a uniform methodology for assessing the energy performance of buildings. In addition, the conditions have been created for the prominent presentation of energy certificates (EPCs) in public buildings. Moreover, the directives promoted energy performance standards and offered incentives to encourage the installation of energy-saving heating and cooling systems (EP & CEU, 2002).

EPBD (2010) - The 2010 recast, represented by Directive 2010/31/EC, underlined the EU's increased ambition to exploit potential energy savings. An essential part of this was the

presentation of the concept for nearly zero energy buildings (nZEB). In addition, the scope of the Directive has been expanded to include smaller buildings in the energy standards. In addition, financial mechanisms reinforced by structural funds and incentives were used to promote energy-efficient renovations (EP & CEU, 2010).

EPBD (2018) - This iteration (2018/844), which emerged from the EU's Energy Union Strategy, emphasised the goal of a decarbonised building stock by 2050 (EP & CEU, 2018a). It called for optimal energy performance of all buildings and promoted smart technologies alongside e-mobility. Significantly, the focus was placed on the health and well-being of residents and measures to improve air quality and ventilation were promoted. This version also identified and prioritised older, inefficient buildings for renovation to address energy poverty directly (EP & CEU, 2018a).

In December 2021, the Commission proposed a significant overhaul of the EPBD through a legislative proposal (COM/2021/802) under the Fit for 55 initiative (European Commission, 2021b). By 2027, "zero energy buildings" (ZEB) will be introduced for new public buildings and, by 2030, for new or deeply renovated structures. These changes transition from the nZEBs standard and specify targeted national renovation plans with milestones for 2030 to 2050, embedding a life-cycle approach to emissions. The recast EPBD tightens regulations for renovations and EPCs, establishing EU-wide minimum energy performance standards (MEPS) and encouraging MS to aim higher. The use of life-cycle GWP calculations will become mandatory for new buildings as of 2030, promoting a holistic approach to the sustainability of buildings. Some provisions ensure that the energy performance of heritage buildings is improved without compromising their historical significance. An essential addition is the phase-out of fossil fuel boiler subsidies by 2027. In addition, this strategy, combined with the requirement for healthy indoor environments and climate change adaptation, underscores the EU's commitment to decarbonising the building stock by 2050. In order to achieve these ambitious climate goals, a harmonised roadmap and periodic revisions are required (European Commission, 2021b).

On March 14, 2023, the European Parliament approved the amendments to the Commission EPBD proposal, which advances MEPS as a fundamental component of existing building stock (EP, 2023). The adopted framework requires non-residential buildings to achieve a D-class energy performance by 2030 and residential buildings by 2033. The compromise emphasised the importance of a transparent investment framework that considers the particulars of each country's building stock and social protections, focusing on energy poverty among vulnerable groups and ensuring a fair distribution of responsibility among the nation's MS (EP, 2023).

Furthermore, the legislation stipulates that ZEB should have an A-class EPC, introducing an A+ category for those also contributing renewable energy to the grid. Including a Whole Life Carbon (WLC) approach for measuring and minimising carbon emissions across all life cycle phases of buildings aligns with broader environmental goals. This measure promotes the adoption of low-carbon materials and boosts recycling in construction, moving towards more circular and sustainable practices (EP, 2023). Despite this, intense lobbying has led to exemptions for hybrid systems and boilers that use partly renewable fuels, which raises concerns about their dependence on potentially less eco-friendly and more costly energy sources.

2.4.2. The Energy Services Directive (ESD) and Energy Efficiency Directive (EED)

The ESD (2006/32/EC) was created in 2006 as a bridge between the SAVE Directive and its successor, the EED (EP & CEU, 2006a). This Directive established a foundational framework with national benchmarks aiming for energy savings of at least 9% by 2016. Additionally, according to Articles 4(2) and 14, Energy Efficiency Action Plans (EEAPs) were introduced

as a mechanism to orchestrate these ambitions. Although the focus was not solely on buildings, the ESD made progress in incorporating provisions related to energy metering, billing, financing, and performance contracts.

Transitioning from the ESD foundations, the EED expanded its scope to include products, buildings, and services. At its core was the introduction of binding energy efficiency measures. A 20% increase in energy efficiency by 2020 was the original target set in 2012 by EED (2012/27/EU), using 2005 as a reference year (EP & CEU, 2012). A subsequent revision in 2018 (2018/2002) and (2018/844) tightened this target, aiming for a 32.5% increase by 2030 (EP & CEU, 2018b, 2018a). Although the targets were indicative, the EED prescribed several policy measures to achieve these ambitions. Relevant articles addressing buildings include Articles 4 (2018/844) and Articles 5, 9, and 11 (2018/2002), which cover topics ranging from the renovation of public buildings and measurement requirements to long-term renovation strategies (EP & CEU, 2018b, 2018a). In particular, Article 8 underscores the importance of energy performance contracts and introduces mandatory audits for large companies. The 2018 amendment further expanded the Directive's scope to include the 2030 energy efficiency benchmarks (EP & CEU, 2018b).

In its efforts to promote energy efficiency, the EED introduces long-term renovation strategies focusing on residential and commercial buildings. These strategies serve as blueprints to support MS in their decarbonisation goals. Despite their novelty, strategies varied in depth and ambition across countries. The 2018 EED revision aimed to promote near-zero energy structures by emphasising the 2030 and 2040 milestones. Under Article 5, the EED emphasised the central role of the public sector in leading the transition to energy efficiency (EP & CEU, 2018b)

Consequently, MS were mandated to renovate 3% of central government buildings annually. Reactions to this have been mixed, with some MS adhering strictly to it while others opting for alternative approaches to achieve comparable energy savings. Article 19(a) of the EED addressed the complexity of split incentives in the building sector, urging MS to assess and develop strategies to alleviate barriers to energy efficiency. Rather than offering a one-size-fits-all solution, the Directive proposed various strategies ranging from regulatory reforms to financial incentives (EP & CEU, 2018b).

Finally, with Articles 9 to 11, the EED advocates energy-conscious behaviour by prescribing consumption-oriented cost distribution and billing protocols, particularly in multi-dwelling units (EP & CEU, 2018b). Building on the foundations of its predecessors, the EED established itself as a pivotal framework for accurate measurement and billing—a framework that received further enhancements with the 2018 policy revisions.

2.4.3. The Directive on Clean and Energy-Efficient Road Transport Vehicles and the Battery Directive

The Directive on Clean and Energy-Efficient Road Transport Vehicles (2019/1161) endeavours to invigorate the clean, energy-efficient vehicle market and bolster the transport sector's alignment with the Union's environmental, climate, and energy policies (EP & CEU, 2019). An essential provision of this Directive requires purchasing authorities to consider the lifetime energy and environmental impacts, including energy consumption and CO2 and other pollutant emissions when purchasing certain road transport vehicles. Although several regulations are in place to improve emissions standards for new vehicles, a gap remains. The EU lacks a common methodology for determining environmental impacts, leading to different practices between procuring entities.

Shifting the lens to the Battery Directive (2006/66/EC), it formulates regulations surrounding the attributes and disposal mechanisms for all battery categories. This Directive

clearly prohibits the inclusion of harmful elements such as mercury, cadmium and lead in batteries, while establishing protocols for the collection, processing, recycling and disposal of used batteries (EP & CEU, 2006b). Recent considerations in 2020 aim to refine this policy further and introduce strict regulations for all battery types, focusing on, among other things, carbon footprint declaration, minimum recycled content requirements and strict safety and durability standards (Halleux, 2023). A notable feature of this proposal highlights the indispensability of binding benchmarks or targets for green public procurement.

2.5. Other related legislative regulations supporting GPP implementation

The proposal for Ecodesign for Sustainable Products Regulation (ESPR), introduced in 2022 under 2022/0095(COD) and set for publication in 2024, aims to enhance environmental accountability throughout product life cycles (European Commission, 2022a). Rooted in the (2019) Ecodesign Directive, the ESPR seeks to standardise sustainable products within the EU (EP & CEU, 2009a). A notable aspect of this reform is the shift from voluntary to mandatory green public procurement criteria. This revised regulation introduces a digital product passport and underscores the importance of preventing the destruction of unsold consumer goods. Article 58 focuses on green public procurement, laying out requirements for public contracts. These provisions weigh the economic value, market demand for sustainable products, and the economic feasibility of ensuring that purchasing sustainable products does not lead to disproportionate costs. Additionally, the ESPR broadens its scope to encompass product durability, reusability, energy efficiency, and the incorporation of substances that support product circularity.

In contrast, the Construction Product Regulation (CPR) No 305/2011, in effect since 2011, highlights sustainability, recycling, and reuse in construction trade regulations (EP & CEU, 2011). Its emphasis on Environmental Product Declarations aligns with the ISO 14025 standard. A proposed 2022 revision (Procedure 2022/0094/COD) seeks to reinforce environmental standards in the EU construction sector (European Commission, 2022b). This amendment not only resonates with the Circular Economy Action Plan and the Sustainable Products Initiative (SPI) but also mirrors the ESPR. Moreover, the CPR update brings in environmental mandates, ensuring a unified approach to assessing construction product sustainability. It also tackles potential disagreements between European Standardisation Organisations and EU directives, allowing the Commission to establish standards underlining the EU's commitment to an eco-friendly, transparent, and adaptive construction sector.

Public procurement is emphasised in the CPR proposal as a vital tool to promote sustainable practices. Notably, Article 7 of the CPR prevents MS from enforcing "additional requirements" on products once standards are mentioned in the Official Journal of the European Union. Although it may seem contradictory to Recital 90, which promotes SPP and urges public entities to prioritise the use of sustainable products that comply with the ESPR, a closer look at Article 7(2) shows a balanced approach. It encourages harmonisation while granting MS the freedom to take environmental performance into account within established technical specifications (European Commission, 2022b). Intriguingly, the proposed CPR and ESPR are interconnected. Whereas the ESPR provides a comprehensive framework targeting universal product sustainability, the CPR revision delivers bespoke regulations explicitly crafted for the construction sector.

Furthermore, the European Commission has developed the Product Environment Footprint (PEF) method to help people understand the environmental impact of products. This method is based on Life Cycle Assessment (LCA) principles. In addition, guidelines known as the Product Environmental Footprint Category Rules (PEFCRs) have been created to provide a detailed guide for determining environmental footprints for unique product categories (European Commission, 2017). However, comparing different products or services directly is

still challenging due to their inherent differences, even with the help of PEFCRs. It is worth noting that while PEFCRs have been developed for certain construction products, there are currently no rules for road transportation products, so the PEF method must be used exclusively for them. The Commission has recommended using the PEF method and encouraged MS to include it in their procurement procedures by the end of 2021(European Commission, 2017).

Simultaneously, environmental labels are instrumental in guiding eco-aware purchasing decisions by setting standardised technical benchmarks. The merit of these labels stems from their transparency, bolstered by third-party validations in line with global environmental standards. The criteria for these labels, such as the EU Eco-label, are rigorously defined, as documented in Regulation (EC) No 66/2010 (EP & CEU, 2009b).

3. Key Features of Directive 2023/1791 for Energy Efficiency (EED 2023)

EED 2023 marks a pivotal step in the EU's progression towards greener public procurement and closer alignment with its climate neutrality aspirations (EP & CEU, 2023). Central to this initiative is the Directive's emphasis on the public sector leading energy efficiency efforts. This section delves into its key features, showcasing how the Directive repositions public entities not just as regulators but as pioneers of sustainable practices.

3.1. The Energy Efficiency First Principle

Article 3 of EED 2023 marks a strategic inflexion in European energy policy, underpinning the 'Energy Efficiency First' (EE1st) principle with newfound legislative rigour. This principle is not merely an option but a prescribed priority in the planning and implementation of energy-related actions by MS. The Directive mandates an evaluative preference for energy-efficient solutions in significant investment decisions and policy formulations, extending beyond the energy sector to include those like ICT and agriculture, which indirectly influence energy consumption profiles.

An analysis of this Directive reveals a dual focus: on the one hand, it prioritises high-value projects with thresholds set at EUR 100 million for transport and EUR 175 million for infrastructure projects, which suggests an aim to target major energy-saving potentials. On the other hand, this financial demarcation might omit smaller initiatives that cumulatively bear on energy efficiency, hinting at a potential scope for refining future amendments.

Moreover, the Directive's requirement for integrating EE1st into all facets of the NECPs underscores a holistic approach, ensuring the principle weaves through the fabric of national energy strategies. Furthermore, it mandates MS to identify barriers to EE1st's implementation, ensuring systematic eradication of impediments to its adoption.

One of the notable features of Article 3 is the inclusion of a review system for financial thresholds. This ensures that the Directive remains relevant even as economic conditions change. By 2024, standardised cost-benefit methodologies will be required to provide a consistent yet flexible evaluation process for all MSs while considering regional differences. In addition, according to Article 3(4), the Directive endorses a comprehensive perspective on energy savings through the use of cost-benefit methodologies to evaluate energy efficiency measures, taking into account social and environmental benefits as well. Importantly, the Directive also recognises the social implications of energy policy, particularly with regards to energy poverty (as set out in Articles 3 and 8) and ensures that the principle is applied in an equitable manner (as per Article 3(5)). The designation of specific monitoring entities for EE1st enforces accountability and fortifies the principle's operational integrity. In combination with explicit reporting mandates, this facilitates an empirical assessment of the principle's enactment efficacy.

3.2. Targets and National Energy Action Plans

The European Union's EED 2023 heralds a decisive transition towards aggressive energy conservation, setting a collective reduction target of 11.7% in primary and final energy consumption compared to the PRIMES 2020 reference scenario. This target delineated through Article 4, distributes the burden among MS via a calculated formula that factors economic, industrial, and environmental considerations. Article 8 complements this by imposing a scalable energy savings obligation, escalating from 0.8% in 2021 to 1.9% by 2030. This dual strategy underscores a nuanced balance between collective ambition and individual MS capabilities, incorporating both overarching targets and national contributions within the framework of the NECPs.

In aligning with Article 4, MS are mandated to chart trajectories that fulfil their designated energy efficiency contributions, with the specificity of targets for both final (763 Mtoe) and primary energy (992.5 Mtoe) consumption, facilitating measurable progress. The Directive requires meticulous planning of policies, measures, and programs that will propel MS towards their 2030 commitments. Meanwhile, Article 8 offers a granular approach to energy savings, allowing for proportional flexibility and inclusivity, particularly for smaller states like Cyprus and Malta, and prioritising support for vulnerable households.

The EED 2023 emphasises transparency and accountability through robust monitoring and reporting obligations, demanding regular updates to the NECPs. This transparency is critical in tracking progress, ensuring that each state's trajectory towards energy efficiency is clear and assessable. Additionally, the Commission's oversight function, equipped with the authority to propose supplemental measures and adjust contributions, ensures that MS adhere to their commitments and that the collective goal remains within reach.

A notable aspect of the EED 2023 is the flexibility afforded to MS in achieving these targets. Article 8 encourages a diversified mix of energy efficiency obligation schemes and alternative policy measures, facilitating the inclusion of citizens' energy communities. This not only respects the diversity of national energy landscapes but also champions the democratisation of energy conservation efforts.

Looking beyond immediate targets, the Directive mandates continuous annual savings even past 2030, showcasing the EU's foresight and long-term commitment to sustainability and climate neutrality. The integration of energy efficiency goals into the broader regulatory framework for energy and climate governance ensures that energy policy is not just about meeting present targets but also about anticipating and shaping the future energy paradigm.

In summary, the EU's strategic Directive for 2030, through Articles 4 and 8, presents a meticulous and forward-looking approach that marries ambition with practicality, securing a path for a cohesive and socially equitable advancement in energy efficiency.

3.3. Public Sector Leading on Energy Efficiency

Article 5 outlines the conceptual and operational framework for the combined energy consumption reduction of all public bodies, prescribing a cumulative annual reduction of at least 1.9% against the 2021 baseline. The emphasis on the public sector is underscored by the fact that it accounts for approximately 5% to 10% of the Union's total final energy consumption, as stated in Recital 33. Given their significant consumption, targeting efficiency in public sector consumption is both logical and impactful. This approach underlines the principle of "leading by example," where Recital 33 further elucidates the public sector's crucial role in stimulating "market transformation towards more efficient products, buildings, and services," as well as influencing "behavioral changes in energy

consumption by citizens and enterprises." Additionally, reducing energy consumption through improvement measures can free public resources for other purposes.

A nuanced approach is evident in Article 5, where MS are granted the discretion to exempt specific sectors, such as public transport and the armed forces. The 2023 EED reinforces this approach by allowing MS to exclude the energy consumption of these sectors from the obligation. Directive 2023 EED strengthens this position by aligning the definition of public bodies with Directive 2014/24/EU, offering legal clarity supported by CJEU case law (Caranta, 2023). Adopting a phased strategy, the Directive marks the period leading up to October 11, 2027, as transitional. During this time, the targets are suggestive rather than mandatory, offering MS a grace period to align their actual performance with the goals. This transitional phase is subject to reassessment, particularly in light of historical reluctance in the public sector to fully commit to energy efficiency due to cost and feasibility concerns.

Furthermore, the 2023 EED introduces sector-specific actions, including healthcare, water management and wastewater treatment, public lighting, education, and social services, to support this comprehensive reduction target. The objective only becomes binding two years after the end of the transposition period, in October 2027. Moreover, Article 5(3) caters to obligations scaled according to the size of local administrative units, implementing a proportionate approach. It also allows MS flexibility to account for climatic variations when assessing energy performance. As emphasised in Recital 39, the Directive provides a supportive framework, encouraging MS to empower public bodies in planning and adopting energy efficiency measures, including competence-building, training opportunities, and inter-agency cooperation at both regional and local levels.

In a commendable move toward accountability and transparency, Article 5 mandates annual reporting protocols, creating a basis for ongoing strategic planning by regional and local authorities. This commitment to transparency is part of the EED 2023 aspirations to include all public bodies in energy efficiency initiatives at every administrative level. Furthermore, MS are required to detail the measures planned to achieve the energy consumption reduction objective in the public sector. This approach promotes financial and technical support to public bodies, emphasising the need to consider a broader array of metrics beyond mere energy savings, especially for municipalities with less than 50,000 inhabitants whose energy consumption is not included until 31 December 2026, and for those with less than 5,000 inhabitants until the end of 2029.

3.4. The Concept of Nearly Zero-Energy Buildings (nZEB):

It is important to note that the Directive has many aspects, but one of the most significant is the emphasis on nZEB. This was not just a goal but a mandatory requirement for all new public buildings by 2018 and all new buildings from 2021 (EP & CEU, 2010, 2018a). This change is significant because it represents a major shift from traditional construction methods to a more holistic approach that combines innovative architecture, sustainable building materials, and cutting-edge energy-efficient technologies. EED 2023 underscores this by aligning renovations with nZEB standards as part of the broader Renovation Wave Strategy (European Commission, 2020b).

3.5. Exemplary Role of Public Bodies' Buildings

Article 6 of Directive 2010/31/EU propels the energy efficiency agenda by setting forth renovation obligations for buildings owned or occupied by central public bodies (EP & CEU, 2010). It commands that at least 3% of the total floor area of these buildings must be renovated annually to meet nZEB standards, as defined by Article 9 of the same Directive. The 2023 EED builds upon these requirements, extending the scope to include public buildings that are heated and/or cooled, and integrating the progressive zero-emission

building (ZEB) standard as envisioned in the forthcoming recast of the EPBD (EP, 2023; EP & CEU, 2023; European Commission, 2021b).

The scope of these mandates now extends to sectors such as healthcare, education and public housing that fall under public ownership, ensuring that sectors such as healthcare and education are not excluded from the energy efficiency vision. In addition to the nZEB standards, renovated buildings must now also aim to meet or exceed the new ZEB standard to strengthen the robustness of the policy (EP, 2023; EP & CEU, 2023; European Commission, 2021b).

Although the objective is clear, the Directive leaves room for manoeuvre and recognises that cost-effectiveness and technical feasibility are crucial for successful implementation. Recital 45 discusses the means to achieve this aim, indicating that to calculate the renovation rate, MS should possess a thorough inventory of buildings that do not meet nZEB standards. The MS are now also tasked with maintaining and periodically updating an inventory that, where pertinent, should include social housing, integrated within a larger energy performance certificate database. This inventory can now facilitate data access for private entities, supporting the broader energy efficiency strategy.

Moreover, this Directive harmonises with the EU's comprehensive energy efficiency strategy, as seen in the EPBD proposal from 2021 (COM/2021/802) (European Commission, 2021b). This proposal underscores the urgent need to renovate energy-inefficient buildings. Buildings in the lowest energy performance category are now mandated to upgrade progressively, aiming for higher energy performance classes at set intervals, with non-residential buildings required to reach at least EPC class F by 2027 and E by 2030, while residential buildings must achieve class F by 2030 and class E by 2033 (EP, 2023; European Commission, 2021b).

Article 6 adds nuanced complexity, presenting exceptions based on building usage and characteristics. Several flexibilities to the renovation requirement are allowed, including the option to exclude social housing from stringent requirements, to renovate certain building types to a lower performance level, or to include new buildings owned by public bodies in exceptional cases. Additionally, early compliance can counterbalance forthcoming renovation obligations, serving as a strategic advantage for early adopters.

In summary, Articles 5 and 6 of the EED 2023 signify a pivotal change in the EU's energy policy, casting the public sector in a proactive role within the energy efficiency dialogue. These articles craft a sophisticated mix of stipulations, exceptions, and support structures to manifest an ambitious yet flexible framework, making it clear that the Directive aims to be both assertive and practical in its approach to energy efficiency. With the detailed granularity and the introduced flexibilities, such as the possibility for MS to adopt an alternative approach delivering equivalent energy savings and the requirement for buildings to attain nZEB levels by 2040, the Directive emerges as a thoughtfully calibrated legislation, poised to be both ambitious and achievable.

3.6. Public Procurement as a Catalyst for Change

EED 2023 manifests a heightened sense of responsibility toward public procurement as an efficacious lever for achieving the EU's energy and climate objectives. Article 7 and Annex IV are especially seminal in consolidating the public procurement process with energy efficiency and sustainability goals.

One of the most salient features of Article 7 is its emphasis on prioritising high energy-efficiency performance in public contracts and concessions. The Directive specifies that contracts equal to or exceeding the financial thresholds set out in Directives 2014/23/EU, 2014/24/EU, and 2014/25/EU must focus on energy-efficient products, services, buildings,

and works. Moreover, Article 7(1) underscores this commitment by removing conditionalities related to cost-effectiveness and economic feasibility. This means that all products, services, and works procured should invariably exhibit high energy-efficiency performance. Such a move is a significant departure from previous directives, reinforcing the non-negotiable nature of the commitment to energy efficiency. It also resonates with the 'energy efficiency first principle,' highlighting an integrative policy alignment that is both clear and progressive.

Another notable development is the heightened emphasis on Green Public Procurement (GPP). Paragraph 5 of Article 7 encourages MS to ensure that contracting authorities consider a range of criteria in their decisions. These criteria encompass wider sustainability, social and environmental factors, as well as circular economy aspects, all aligned with the Union's goals for decarbonisation and achieving zero pollution. This perspective is further endorsed by Recital 41, emphasising that the MS should motivate public bodies to recognise benefits beyond mere energy savings. Such benefits include enhancing the indoor environment's quality and elevating the occupants' well-being and comfort in renovated public buildings. This applies especially to facilities frequently accessed by the public, such as schools, daycare centres, nursing homes, sheltered housing, hospitals, and social housing. This holistic view on public procurement is also reflected in Annex IV, which lays down explicit requirements for energy efficiency in public contracts. Together, these provisions amplify the role of GPP as a vital tool for securing targeted energy savings.

Furthermore, as per Article 7(2), the EED 2023 outlines the exceptions and flexibilities where energy efficiency obligations may not apply, such as in matters of public security and health emergencies. This reflects a nuanced understanding of the complex exigencies that governments may face, ensuring that energy efficiency does not inadvertently compromise other critical social objectives. However, these carve-outs might be too open-ended, inviting loose interpretations that could dilute the Directive's efficacy. To curb this, a narrower delineation of exceptions might be requisite.

Also, according to Article 7(3), The EED 2023 promotes long-term energy performance contracts. This provision underscores the assessment of the feasibility of these contracts, especially when it comes to service contracts with a significant energy component. Such an emphasis aligns seamlessly with the overarching notion of sustainability. This approach fosters a longer-term perspective instead of merely focusing on short-term gains. Under this paradigm, suppliers bear responsibility not just for the delivery of products or services but are also intrinsically tied to the energy performance of the commodities they deliver. This ensures that procured solutions don't merely theoretically claim energy efficiency but demonstrate it tangibly in practice. In a parallel vein, the Directive's Annex IV casts a spotlight on 'nearly zero-energy level' buildings. As indicated in point f of Annex IV, this signals a significant shift towards more sustainable infrastructural investments, emphasising the EU's commitment to conserving energy and actively promoting inherently energy-efficient infrastructures.

Despite these commendable strides, the EED 2023 might be critiqued for not having explicit punitive measures for non-compliance, which could undermine implementation. Moreover, while the Directive offers the latitude for the MS to adopt national criteria equivalent to Union green public procurement criteria[1], this could potentially lead to a lack of uniformity, affecting the harmonisation of energy efficiency standards across the Union.

In summary, Article 7 and Annex IV represent a progressive amplification of the EU's legislative framework on energy efficiency through public procurement. These newly revised sections elevate the GPP and establish a more comprehensive yet flexible path to achieving

[1] Article 7(5) of Directive 2023/1791

the EU's ambitious energy and climate targets. Moreover, EED 2023 introduces a minimum harmonisation approach, allowing the MSs to enact more stringent measures if compatible with Union law.[2]

4. General Observations - Challenges and Potential for Improvement in the EED 2023

EED 2023 presents an ambitious framework for enhancing energy efficiency across the EU. However, several articles and provisions within the Directive highlight distinct challenges and areas ripe for potential improvement.

Economic and Technological Disparities: As highlighted in Articles 4 and 8, economic and technological disparities among MS can stall uniform progress towards energy efficiency targets due to different capabilities in adopting new technologies and adapting economically (Art. 4). The gradual increase in energy savings obligations outlined in Article 8 could burden less developed infrastructures. An improvement would be a tailored support system that respects the unique economic conditions of each MS, thus supporting a fair attainment of collective goals.

Sovereignty and Uniformity: The Commission's oversight, as delineated in Article 4, might stir sovereignty concerns, requiring a delicate equilibrium between national independence and EU-wide consistency in energy policies. This challenge is reflected in Articles 5 and 7, where the local discretion may clash with the homogenous application of efficiency norms. Enhancements could include clarifying the Commission's oversight scope to mitigate concerns while promoting regional uniformity.

Bureaucratic and Administrative Complexities: Articles 4 and 7 both shed light on the bureaucratic complexities associated with the Directive. Smaller MS may find the required administrative efforts for monitoring and reporting (Art. 4) demanding. Furthermore, the public disclosure mandates in Article 7 could be burdensome for smaller entities. Simplified reporting protocols and administrative aid to smaller MS or public bodies could be beneficial improvements.

Ambiguity and Enforcement: A notable issue is the ambiguity in terms such as "high energy-efficiency performance" (Art. 7), which can lead to inconsistent applications. The dichotomy between aspiration and actualisation in Article 7 emerges as a significant analytical concern, with the Directive's vagueness inviting a spectrum of interpretations and risking disparate practices across MS. The Directive could be strengthened by standardising definitions and introducing explicit enforcement guidelines, particularly for long-term energy performance contracts, which currently lack a solid framework for enforcement.

Potential for Inequity: Article 5 introduces worries about exemptions that could establish unequal standards across MS. Additionally, Article 8's specific derogations for Cyprus and Malta may set a precedent for disparity. A more nuanced application of exemptions and derogations would ensure fair application and maintain collective efforts.

Monitoring and Reporting: The significance of stringent monitoring and reporting is underpinned by Articles 4 and 8, along with Annex IV. However, inconsistencies in data quality and reporting can impede monitoring effectiveness. A more robust approach would be to define explicit metrics and methodologies for consistent and accountable reporting.

Technological and Market Evolution: The commitment to current standards detailed in Annex IV could inadvertently hinder innovation. Annex IV, intended as a guidepost amidst compliance challenges, must contend with the fluidity of regulatory benchmarks, calling for

[2] Article 1(2) of Directive 2023/1791

adaptive mechanisms that can match the pace of technological progress. This adaptive capacity is crucial to prevent the Annex from becoming obsolete and to ensure that emerging sustainable solutions are encouraged in public procurement.

Overall, while the EED 2023 establishes an advanced Directive for energy efficiency, the integration of these additional arguments reveals the need for nuanced regulations that acknowledge the dynamic nature of technology, market demands, and the socio-economic landscape of the EU.

4.1. Integrating Sustainable Objectives into Public Procurement: The Need for Mandatory Measures and Holistic Criteria

The revisions to the EED 2023, specifically through Article 7 and Annex IV, mark a significant legislative stride towards embedding energy efficiency within public procurement frameworks. On a general note, the public procurement directives allow for the purchase of green and sustainable products and services. However, the uptake of sustainability measures has been slow despite the availability of GPP criteria. The main issue with GPP as an instrument is that it is not enforced enough. It is worth noting that the current EED 2023 fails to make GPP criteria mandatory, which is a significant missed opportunity. Article 7 and Annex IV on public procurement do not cover some important aspects required for achieving the EU's climate ambitions, particularly in targeted industries such as construction.

Firstly, MS and Contract Authorities (CAs) should make a mandatory contribution of 3% towards the renovation of their public buildings every year. However, this requirement was also present in the past Directive, with the only difference being the size of buildings addressed. Nevertheless, this goal is not supported by any penalties for non-compliance, and very few MSs have achieved this indicator. Some countries, such as Germany, even renovate fewer buildings compared to the previous year (Kurmayer, 2023). This reflects a systemic problem within the Directive—a lack of stringent, enforceable criteria that could compel consistent and comprehensive adherence across all CAs.

Secondly, there is a new development of GPP criteria for buildings that are being developed in line with the Level (s) framework and EU Taxonomy (Donatello, Arcipowska, & Perez, 2022). This presents an ideal opportunity to establish mandatory core criteria for GPP that encompass not only energy efficiency but all other aspects of making buildings green, such as sustainable and circular products, water conservation, climate risk and adaptation, etc. This step would not only help achieve energy efficiency targets but also reduce greenhouse gas emissions, which are mandatory for MS under this EED 2023 also.

Thirdly, GPP criteria not only provide guidance for selection and award criteria but also encompass steps to cover the broader life-cycle of the "subject matter." For instance, with respect to buildings, CAs requiring in technical specifications nZEB in accordance with legislation in force may pose risks for contract authorities as per Buftic (2023). Specifically, due to a lack of awareness and knowledge about the means of checking and testing complex performance standards requirements, CAs are left with the "good words" of developers that everything is in line.

Finally, according to Annex IV (c), the appeal to "make best efforts" in GPP and the voluntary adoption of "shall" wording fall short of mandatory enforcement, reflecting a voluntary approach that academic discourse criticises for its insufficient drive towards widespread adoption (Sapir et al., 2022). The non-mandatory status of GPP, as noted by Sapir et al. (2022), alongside the European Commission's critique of the Clean Vehicles Directive (2018), highlights a systemic issue where voluntary measures lack the impetus to instigate widespread change. This stance inadvertently leaves CAs grappling with energy efficiency

commitments, often supported by legislative frameworks that lag in coherence, timeliness, and detail (Blažo, 2019). Consequently, the voluntary status of GPP may render its knowledge and application accessible only to the already informed or interested, failing to engender a more ubiquitous and robust uptake necessary for achieving the EU's 2050 climate neutrality goals.

While the EED 2023 revisions present a progressive framework, their effectiveness is hampered by non-mandatory GPP criteria and insufficient enforcement provisions. Addressing these gaps by implementing binding regulations and clearer guidelines could significantly enhance efforts to meet the EU's energy efficiency and climate objectives.

5. Conclusion

In conclusion, EED 2023 encapsulates a definitive approach towards mitigating the 'energy efficiency gap' and steering the bloc towards its ambitious 2050 climate neutrality objective. It represents an evolution of EU policy from the initial, less stringent measures to today's sophisticated, binding legislative framework that underscores the vital role of energy efficiency in achieving a sustainable energy system. This Directive, through its stringent targets and strategic integration into national planning, addresses not only the economic aspects but also the imperative strategic and environmental concerns associated with energy use.

The significance of EED 2023 lies in its potential to guide the EU through a transformative process, fundamentally redefining the energy landscape. However, the challenges in harmonising implementation across diverse MS, coupled with the complexities of enforcement, pose significant barriers. It is critical for policymakers to ensure that the Directive's implementation is as robust and universal as the ideals it espouses. This entails providing clear, actionable guidance and support mechanisms to facilitate compliance and incentivise progressive energy practices, especially in MS, lagging behind in the submission of updated plans and adherence to new benchmarks.

For public entities, the EED 2023 calls for leadership through sustainable procurement and innovation, demanding a proactive rather than reactive engagement with the market. Public procurement has a pivotal role in this regard, setting a precedent for market demand and, thus, driving the sustainability agenda forward.

Recommendations for policymakers include tightening the Directive's enforcement mechanisms, promoting technological innovation, and offering greater support for capacity building within MS. It is critical to bridge the gap between policy formulation and on-the-ground implementation, acknowledging that while the Directive is a substantial move forward, its success hinges on real-world application and compliance.

Stakeholders must also realise the critical balance between regulation and market forces. There is a need for a dialogue that considers the impact of the Directive on competitiveness and market dynamics, ensuring that energy efficiency enhancements do not inadvertently create market distortions. While laudable for its ambition, the Directive's approach must be critically evaluated and iteratively refined to align with market realities and technological advancements.

In the quest for a greener future, the EED 2023 serves as a regulatory instrument and a strategic framework for energy innovation and sustainable development. As the EU endeavours to lead by example, the Directive's implications extend beyond its borders, potentially offering a template for global energy efficiency governance. However, for this vision to materialise, a concerted effort from all stakeholders is imperative to transform the Directive's ambitious goals into tangible, equitable, and sustainable outcomes.

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The more recent wave of mandatory public procurement rules: sustainability rhymes with resilience

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Abstract

At the close of the present legislature, the EU institutions reached a compromise on a number of new legislative instruments that will leave a mark on public procurement. While not having procurement as their main object, they include provisions related to it. Often these instruments introduce new provisions making sustainable requirements mandatory for contracting authorities. The focus in this chapter will be on the Construction Product Regulation (CPR), the Net Zero Industry Act (NZIA) and the Corporate Sustainability Due Diligence Directive (CSDDD). The three legislative measures analysed in this article bear witness to both the relevance and the adaptability of public procurement to achieve societal goals, including the fight against climate change but also resilience.

Keywords

SPP, Green Deal, Resilience, Due Diligence, Construction.

1. Introduction.

At the close of the present legislature, the EU institutions reached a compromise on a number of new legislative instruments that will leave a deep mark on public procurement. While not having procurement as their main object, they include provisions related to it. Often these instruments introduce new provisions making sustainable requirements mandatory for contracting authorities. The focus in this chapter will be on the Construction Product Regulation (CPR), the Net Zero Industry Act (NZIA) and the Corporate Sustainability Due Diligence Directive (CSDDD aka CS3D). This article complements the one by Alexandru Buftic in this issue as he investigates legislative instruments that were already published in the OJEU such as the Energy Efficiency Directive (EED) and the Energy Performance for Buildings Directive (EPBD) (Buftic, 2024). Unlike the latter article, the present one must acknowledge a small margin of uncertainty as to the details of how the final provisions will be worded. Also, articles and recitals numbers are bound to change in most cases. Still, the compromise texts are worth discussing by themselves as they reveal some interesting patterns developing at the EU level in structuring mandatory Sustainable Public Procurement (SPP).

After sketching the current trend in imposing mandatory SPP rules (§ 2), this article will analyse the CPR in the wider context of the Sustainable Product Initiative (§ 3). The NZIA will be instead read in the light of the growing importance resilience is acquiring in reference to public procurement within a wider framework of a more cautious trade policy (§ 4). In turn, the CSDDD will be taken as an attempt to shed light on ethical issues in global supply chains (§ 5). The conclusions will highlight the different public procurement tools relevant in different contexts (§ 6).

2. Towards mandatory SPP.

The 2014 procurement and concession directives went some way in enabling contracting authorities and entities to prefer products and services with sustainable characteristics. These directives, however, stopped well short of mandating or even nudging SPP. The Commission was of the opinion that mandatory SPP rules were best confined to sectoral legislation. The position has some merits concerning sustainability standards and requirements for products and services, much less so when dealing with minimum ethical standards required from suppliers, as it will be discussed below (§ 5).

However, the Commission position started changing with the Communication on the European Green Deal. The Commission avowed that "Public authorities, including the EU institutions, should lead by example and ensure that their procurement is green." (EU Commission, 2019). In 2020 the shift became tectonic. The Commission's Circular Economy Action Plan moved beyond an exemplary role for SPP. The Action Plan referred to both the untapped potential for SPP, and the "limitations of voluntary approaches" (EU Commission, 2020, para 2.1). The Commission therefore committed to proposing, "minimum mandatory green public procurement (GPP) criteria and targets in sectoral legislation" and also to "phase in compulsory reporting to monitor the uptake of Green Public Procurement (GPP) without creating an unjustified administrative burden for the public buyers" (EU Commission, 2020, para 2.2.; see Tátrai and Diófási-Kovács, 2021).

As already anticipated, the Commission followed suit, tabling a large number of sectoral reforms including specific SPP provisions. While not amending the 2014 procurement and concessions directives, the new proposals - and the ensuing legislation - much strengthened the links between those directives and sectoral legislation by expressly referring to the former when dictating specific procurement provisions. One instance in point is Article 7 of Directive (EU) 2023/1791 on energy efficiency and amending Regulation (EU) 2023/955 (recast), on public procurement, which refers to contracting authorities and entities (through Article 2(14) and (15)) as defined in, and to the thresholds as set in the 2014 directives.

A veritable legislative tour de force followed and came to its climax in the Autumn/Winter of 2023. While, as just indicated, sectoral provisions now are conceptually aligned with the 2014 procurement and concession directives, for the first time a very high number of rules about how contracting authorities and entities purchase goods and services - construction services included - find themselves outside those directives putting pressure on practitioners to keep abreast with their legislative environment.

3. Minimum mandatory GPP criteria in the new CPR.

The Sustainable Product Initiative (SPI) is one of the flagships of the European Green Deal, being also linked with the Circular Economy Action Plan (CEAP). Its main outcome was the 2022 Proposal for a Regulation of the European Parliament and the Council establishing a framework for setting ecodesign requirements for sustainable products and repealing Directive 2009/125/EC (EU Commission, 2022b). The proposed regulation is to contribute to making products fit for a

climate-neutral, resource-efficient and circular economy, reducing waste and ensuring that the performance of frontrunners in sustainability progressively becomes the norm (Backes & Boeve 2023). A provisional agreement was approved by Coreper on 22 December 2023 and by the ENVI Committee in the European Parliament on 11 January 2024 and is in the process of being finally approved. According to Recital 43 of the Proposal, the Ecodesign Regulation should address construction products when the obligations created by the CPR which was being revised in the same period and its implementation are "unlikely to sufficiently achieve the environmental sustainability objectives pursued by this Regulation".

Consequently, the CPR is linked to and part and parcel of the SPI, but maintains its autonomy. Actually, the Proposal for a Regulation of the European Parliament and of the Council laying down harmonised conditions for the marketing of construction products, amending Regulation (EU) 2019/1020 and repealing Regulation (EU) 305/2011 (EU Commission, 2022c) presented as a concurrent - and at times prevalent objective - a more traditional aim of market harmonisation. The Commission's explanatory memorandum clearly indicated that the proposal was pursuing two general objectives, namely "to (1) achieve a well-functioning single market for construction products and to (2) contribute to the objectives of the green and digital transition, particularly the modern, resource-efficient and competitive economy". Specifically concerning procurement, amendments from the European Parliament contributed decisively to strengthen the latter dimension enhancing an originally weak preoccupation with SPP (Caranta, 2022a).

The agreed text was endorsed on 2 February 2024 by Member States' ambassadors in COREPER and was approved by the IMCO Committee of the European Parliament on 13 February 2024. What is at this stage Recital 90 has been very heavily redrafted and today reads "***Public procurement amounts to 14% of Union's GDP.*** In order to enhance the use of sustainable construction products***, which would contribute to the objective of reaching climate neutrality, improve energy and resource efficiency and in the transition to a circular economy that protects public health and biodiversity*** and to reach alignment with the [Ecodesign for Sustainable Products] Regulation, Member States' public procurement ***practices*** should ***comply with mandatory minimum performance requirements on environmental sustainability for construction products*** set out by ***delegated acts. The Commission*** should ***decide the essential characteristics to be addressed and its implementation in the form of one o[r] more of the following: technical specifications, selection*** criteria***, contract performance clauses or contract award criteria. The mandatory minimum performance requirements on environmental sustainability deal with essential characteristics only and do not pre-empt the possibility for Member States to be more ambitious in their contracts by requesting better performances for the relevant essential characteristics while respecting the harmonised zone***." Present Recital 91 indicates that "***Contracting authorities and entities should, where appropriate, be required to align their procurement with specific green*** public procurement ***criteria, to be set out in the delegated acts adopted pursuant to this Regulation. The criteria for specific product families or categories, should be complied where contracts require mandatory minimum environmental sustainability performance for construction products as regards their essential characteristics covered by harmonised technical specifications. These minimum requirements*** should ***be established according to transparent, objective and non-discriminatory criteria. When developing delegated acts related to*** green public procurement***, the Commission should take due account of the Member States different geographical, social and economic circumstances. When considering the effect on***

the market situation, the Commission should take into account, among others, the effects of the requirements on competition, SMEs and the best environmental products ***and solutions available on the market. When considering the economic feasibility for contracting authorities, the Commission should take into account that different contracting authorities in different Member States might have different budgetary capacities. In duly justified cases, contracting authorities should be able to derogate from the requirements such as when there is only one supplier, there are no suitable tenders or its application would lead to a disproportionate cost***".

The parts in bold represent changes/additions compared to the proposal and it is clearly a lot. The most important changes envisaged compared with the proposal submitted by the Commission all turn around a novel understanding that there are differences among the Member States including, but not limited to, their spending capacity. This has led to different measures of flexibility in designing and applying SPP criteria which were instead designed as a rigid one size fits all in the proposal that was in line with the original internal market harmonisation frame of mind.

The rules relevant for SPP are in what is presently Article 84, part of Chapter XI - Incentives and public procurement. The provision too has been heavily reworded and made lengthier during the legislative procedure. A new first paragraph makes it a duty for the Commission to ***"adopt delegated acts specifying mandatory minimum environmental sustainability requirements for construction products***". What is expected to become paragraph 3 indicates that those mandatory minimum environmental sustainability requirements may, as appropriate to the product family or category concerned, take the form of technical specifications, selection criteria, performance clauses or award criteria as defined under the procurement directives. This encompassing approach does not only follow the directives but is in line with the articulation of the voluntary GPP criteria developed by the Commission in the past many years.

Contracting authorities and entities must apply those harmonised 'sustainability performance requirements' in procurements covered by Directives 2014/24/EU and 2014/25/EU. The concessions directive is not mentioned. However, this shall not preclude contracting authorities and contracting entities from establishing "more ambitious environmental sustainability requirements" or "additional environmental sustainability requirements" compared to those laid down by the Commission. The lawmakers have taken the lead from scholarly works about the need for minimum harmonisation rather than total harmonisation to avoid more advanced contracting authorities or entities having to walk back from their buying practice and to adapt to less ambitious SPP practices (Andhov et al, 2020).

Article 84 sketches the procedure the Commission has to follow to establish the criteria referring to the need to consult experts designated by each Member State and relevant stakeholders and to carry out an impact assessment and lists a large but not closed number of relevant criteria to be followed. Among the latter are the "environmental benefits entailed by the uptake of products in the highest two performance classes", "the need to ensure sufficient demand for more environmentally sustainable products" but also the possibility to buy more environmentally sustainable products, without entailing disproportionate costs, "the effects of the requirements on competition" and "the impact on, and needs of, SMEs". Finally, an account needs to be taken of the Member States' "regulatory needs and different climate conditions". The list is not closed and is a mix match of different policy preferences or worries, ranging from the environmental to the budgetary, going through more traditional concerns for competition and SMEs.

Budget and insufficient supply are further articulated - and constrained - in the last paragraph of Article 84. The provision bears the hallmarks of hasty last-minute negotiations in trialogue. On an exceptional basis and in specific circumstances, contracting authorities and entities may decide not to apply the minimum mandatory requirements when after a preliminary market consultation it was either found that (a) "the required construction product can only be supplied by a specific economic operator and no reasonable alternative or substitute exists" or (b) "no suitable tenders or no suitable requests to participate have been submitted in response to a previous public procurement procedure" or (c) "its application or incorporation in construction works would oblige that contracting authority or contracting entity to have disproportionate costs, or would result in incompatibility or technical difficulties". An estimated value difference above 10% may be presumed to be disproportionate if it is "based on objective and transparent data". It is again a mixed match of disparate grounds that in two out of three cases recall grounds for negotiated procedures that look very clumsy in this different context. The condition under (a) would exist only if the Commission did a very lousy job in analysing the market before setting out the requirements. The condition under (b) is most out of place as it is not at all clear why a contracting authority would need a market consultation to find out that there was no suitable tender or request in a previous procurement. To make some sense, it is assumed that the market consultation is needed here to assess whether the dismal result of an early procedure was indeed due to the high sustainability requirements rather than to some other clumsy decisions in the drafting of the procurement documents. The most interesting proviso is the one under (c). Adding to the Commission proposal but in line with recent legislative trends, the lawmakers have introduced an escape valve for more budget-constrained contracting authorities and entities. What may be criticised is the very low percentage (10%) sufficient to allow public buyers to forgo sustainable goods and services. At least, however, the need for market research is expected to limit abuses of the derogation simply motivated by the desire to avoid the possible additional work required by sustainable buying. Moreover, the Member States shall report every three years to the Commission about the use of this provision, thus providing the Commission with information about possible excessive recourse to these exceptions.

4. SPP and beyond: Resilience in the NZIA.

The NZIA proposal (EU Commission, 2023c) was tabled last year soon afterwards the Commission launched the Green Deal Industrial Plan for the Net Zero Age (EU Commission, 2023a). The Plan was a response to massive support packages adopted by other third countries such as the US Inflation Reduction Act. It avowed that "Russia's weaponisation of energy was a major wake-up call for security of supply and tackling dependencies. The competitiveness of many companies has been severely weakened by high energy prices and the disruptions in several supply chains" (EU Commission, 2023a, pp. 6). In this framework, the NZIA aims at promoting investments in the production capacity of products that are key in meeting the EU's climate neutrality goals. The NZIA covers eight technologies, and their components, ranging from solar photovoltaic and solar thermal technologies to grid technologies. Along with the NZIA, the Commission also proposed the Critical Raw Materials Act (CRM Act) to ensure EU access to a secure and sustainable supply of critical raw materials, enabling Europe to meet its 2030 climate and digital objectives (EU Commission, 2023b).

The NZIA was approved at lightning speed by Bruxelles standard. The Parliament and Council found a provisional agreement on 6 February 2024, the COREPER endorsed the agreement on 16 February 2024 and the ITRE Committee of the European Parliament approved the agreement on 22 February. The agreed text is now undergoing the usual clerical corrections and translations before going into the OJEU.

The NZIA is to include provisions specific to public procurement. As what is presently Recital 39a indicates that, "Considering the Union's goal to reduce strategic dependencies on third countries for Net Zero technologies, it is crucial that public support mechanisms, such as procurement and auctions, do not exacerbate such dependencies".

More specifically, what is presently Recital 25 recalls that under the present EU directives contracting authorities and entities may base their award decision on factors other than the price, including sustainability, to stress that when awarding procurement contracts for net zero technology they "should duly assess the tenders' contribution to environmental and social sustainability and resilience in relation to a series of criteria relating to the tender's environmental sustainability, innovation, system integration and to resilience". Concerning social aspects, the following recital stresses the need for compliance with applicable obligations in the fields of Union and national social and labour law established by Union law, national law, as well as in collective agreements or by the international environmental, social and labour law provisions.

Article 19 of the NZIA is dedicated to *Sustainability and resilience contribution in public procurement procedures*. As was the case with the CPR, it has been much rewritten during the legislative process. While respecting the WTO Agreement on Government Procurement (GPA) and other sectoral legislation contracting authorities and contracting entities shall base the award of contracts for the purchase or use of net-zero technologies "on the most economically advantageous tender, which shall include the best price-quality ratio, comprising at least the environmental and social sustainability and resilience contribution of the tender". The tender's environmental and social sustainability and resilience contribution shall be based upon five cumulative criteria. Of particular interest are those listed under (a) and (d), namely (a) environmental sustainability going beyond the minimum requirements in applicable legislation and (d), added during the legislative process, "the tender's contribution to decent wages and working conditions, including where relevant the offering of apprenticeships as well as well-defined objectives in terms of skilling, reskilling and upskilling, to increase the attractiveness of employment in net-zero industry sectors". Inputs from the European Parliament have led to widen the original scope of the proposal that referred to environmental sustainability only to include social aspects.

The most interesting development with the NZIA is however the reference to resilience. This is not totally new in EU public procurement. In *EVN AG and Wienstrom GmbH*, one of SPP's early cases, the Court of Justice held that "the reliability of supplies can, in principle, number amongst the award criteria used to determine the most economically advantageous tender" (CJEU Case C-448/01, *EVN AG and Wienstrom GmbH v Republik Österreich*, ECLI:EU:C:2003:651 para 70). This specific aspect was however not, and *pour cause*, codified in later legislative enactments. In the NZIA, instead, resilience is a centrepiece along with sustainability. The relative novelty forced the co-legislator to try spelling out in more detail the resilience criterion. As indicated in Recitals 30 and 31, the application of this criterion must be without prejudice to the obligations flowing from international trade law, such as the WTO GATT and GPA.

According to a paragraph mostly drafted by the Council, the tender's resilience contribution shall be based on three in principle cumulative criteria, namely: "(a) where applicable, the tender's contribution to the energy security of the Union; (b) the tender's contribution to the resilience of the Union, taking into account the security of supplies by considering the proportion of the products originating from a single source of supply, as determined in accordance with Regulation (EU) No 952/2013. The supply shall be deemed insufficiently secured where a single source supplied, in the last year for which data is available, more than 50% of the total demand within the Union for a specific net-zero technology or the components primarily used for the production of these technologies; (c) where applicable, contribution to innovation by providing entirely new solutions or improving comparable state-of-the-art solutions". While (a) and (c) are rather vague - and one might well be forgiven for thinking that they will hardly meet the requirement stated in the same provision of being "objective, transparent and non-discriminatory" - it is believed that the criterion having more bite is the one spelt out under lett. (b). The first aspect worth mentioning is that, compared to the Commission's proposal, the trigger percentage has been lowered to 50% from the original 65%. The EU lawmakers do not expect individual contracting authorities or entities to determine on their own whether the single source threshold is met. Instead, under what is presently Article 22 the Commission is tasked not just to provide guidance on the application of the resilience criterion but to "make available and regularly update a list of each of the net-zero technology final products listed in the Annex, broken down by the share of Union supply originating in different third countries in the last year for which data is available".

The tender's sustainability and resilience contribution must be weighted between 15% and 30% of at least 30% of the award criteria for the net-zero technology part of a tender, taking into account both the sustainability and the resilience contribution in a balanced way. Recital 32 further stresses that 30% is a threshold. As in the CPR, contracting authorities and entities may go beyond the 30% in requiring sustainability and resilience. Both aspects must be taken into account and reference to a 'balanced' way, coupled with the minimum requirement of 15%, seems to indicate that the two aspects cannot be weighted in a too dissimilar way unless they are cumulatively weighted far more than 30%. minimum threshold. Recital 32 is out of touch with the final text as it indicates a wider freedom to differentiate the weighting of the individual criteria, simply requiring not to ignore 'one completely' and stressing, in its final version, the need to "pay significant attention to the resilience contribution".

In any case, the provisions in the 2014 directives requiring the relative weighting of the criteria chosen by the contracting authority or entity will also apply here (e.g. Article 67(5) of Directive 2014/24/EU).

Social and environmental sustainability are further spelt out in Recitals 26 and 27. Recital 26 avows that social sustainability criteria can already be applied under existing legislation and includes working conditions and collective bargaining. Going beyond Article 18(2) of Directive 2014/24/EU and the corresponding provision in the other two 2014 directives, the recital places directly on contracting authorities and entities the burden to take appropriate measures to ensure that contractors live up to their social and labour obligations. Concerning environmental sustainability, Recital 27 encourages contracting authorities and contracting entities to take into account elements such as "the durability and reliability of the solution; the ease of repair and maintenance; the ease of upgrading and refurbishment; the ease and quality of recycling; the use

of certain substances; the consumption of energy, water and other resources in one or more life cycle stages of the product; the weight and volume of the product and its packaging; the incorporation renewable materials or of used components; the quantity, characteristics and availability of consumables needed for proper use and maintenance; the environmental footprint of the product and its life cycle environmental impacts; the carbon footprint of the product; the microplastic release; emissions to air, water or soil released in one or more life cycle stages of the product; the amounts of waste generated; the conditions for use".

A new provision added to Article 19 during the legislative process doubles down on resilience introducing "prequalification conditions for procurement procedures". More specifically, no more than 50% of the financial value of net-zero technology part of the tender shall originate from third countries which are not signatories of the GPA (a); "all equipment supplied under the net-zero technology part of the tender shall be certified in terms of cyber security insofar as a Union or national cyber security certification framework exists for the equipment" (b) and suppliers must not hail from countries having been the subject of to an IPI measure under Article 6 of Regulation 2022/1031/EU, on the access of third country economic operators, goods and services to the Union's public procurement and concession markets and procedures supporting negotiations on access of Union economic operators, goods and services to the public procurement and concession markets of third countries (International Procurement Instrument - IPI) (c). However, if this would lead to no suitable offers, the procurement procedure may be restarted including only cyber security as an insurmountable threshold. As indicated by Recital 27, indeed, in line with the Union's Cybersecurity Strategy, contracting authorities and entities are called to "reject offers which have not been certified under the relevant cyber security certification scheme". In itself, the possibility to dispense with the exclusion grounds set in lett. (a) and (c) is a first instance of limited flexibility allowed to contracting authorities and entities in a quite stringent framework.

More derogations are foreseen when the application of the sustainability and resilience contribution criteria would 'clearly' oblige that authority or entity to acquire "equipment having disproportionate costs, or technical characteristics different from those of existing equipment, resulting in incompatibility, technical difficulties in operation and maintenance". "Cost differences shall be calculated only for the cost of the equipment, excluding related services, and may be presumed by contracting authorities and contracting entities to be disproportionate when they are above 30%, compared to a tender without the sustainability and resilience contribution". Unlike with the CPR, there is no express requirement of a prior market consultation, but reference to clear hindrances would seem to demand a robust market analysis to the least. Moreover, the threshold value for 'disproportion' is much higher. This is totally consistent with the aim of reducing or evening out the huge competitive advantage currently enjoyed by non-EU producers, as 10% would have been in most cases not sufficient for the task. Arguably such clear provision and evident aim should not be revoked into doubt by a rather redundant and muddled provision added in the course of the legislative process referring again to technical incompatibility and unreasonably high costs.

With a dose of a wicked sense of humour, Article 19 now provides that the "Member States may adjust their overall budgets allocated to public procurement procedures as well as the related maximum bid levels in order to accommodate the implementation of non-price criteria". More often than not, increasing the budget would be much more a necessity than an option and anyway, there

is no legal basis in the Treaties for EU lawmakers to tell the national contracting authorities and entities how to design their procurement budget. But again, the NZIA was negotiated and approved at record speed, so it should be no surprise that it ended up encumbered by some useless but also harmless provisions.

Totally reasonably, Article 19 further indicates that all mechanisms set up to boost sustainability and resilience do not exclude the application of the rules on abnormally low tenders, calling for the exclusion of tenders below market price, including because of the effect of subsidies or because of breaches of "applicable obligations in the fields of environmental, social and labour law established by Union law, national law, collective agreements or by the international environmental, social and labour law provisions" (Article 18(2) of Directive 2014/24/EU).

Undeniably the NZIA is going to put much pressure on contracting authorities and entities. It requires knowledge of the EU international trade obligations, fine judgment and changes to contract requirements and award criteria. A limited deferral in the application of Article 19 and a higher threshold are therefore foreseen in Recital 33. Moreover, the NZIA provides for guidance from the Commission. Under what should become Article 20, by six months from the entry into force of the regulation, the Commission shall provide clear guidance on the concrete implementation of Article 19 by providing: "(a) a catalogue of concrete and technology-specific potential non-price criteria for renewable energy auctions, which shall differentiate between non-price criteria suitable for competitive bidding processes and non-price criteria suitable as prequalification requirements in renewable energy auctions; (b) a methodology on how to assess a tender's contribution to environmental and social sustainability and resilience referred to in Article 19 (2), points (a) and (d); (c) a methodology on how to assess the cost differences referred to in Article 20(3)". Recital 29 indicates that the Commission is to publish a yearly list of the distribution of the origin of net zero technology final products, broken down by the share of Union supply originating in different sources in the last year for which data is available.

More generally, the Commission is tasked with evaluating the contribution of non-price criteria in achieving the Union's 2030 and 2050 energy and climate targets. It is also empowered to "modify the contribution of non-price criteria in order to foster manufacturing in the Union, ensuring high environmental and sustainability standards, developing value chains across the Union and increasing the competitiveness of Union businesses at global level".

Moreover, under Article 19 the Net-Zero Europe Platform may issue recommendations to the contracting authorities and entities "regarding appropriate higher thresholds for defining disproportionate costs in light of the market circumstances for specific net-zero technologies" (see also Recitals 37 ff). The Net-Zero Europe Platform, established under what is now Article 29, is composed of the Member States and of the European Parliament and is chaired by the Commission. It therefore resembles a Committee, but the European Parliament is involved. The Net-Zero Europe Platform is tasked with advising and assisting the Commission and Member States on specific questions and constitutes a 'reference body', in which the Commission and Member States coordinate their action and facilitate the exchange of information.

Recital 37 further highlights the need for "both the contracting authorities or contracting entities and the producing companies have a clear understanding of each of the sustainability and resilience criteria". Therefore, the Commission should, in close collaboration with the Net-Zero Europe Platform, adopt an "implementing act specifying the criteria to assess the resilience and

sustainability contribution, with a particular attention for SMEs, who should have a fair chance to participate in the substantial market for public procurement". The implementing act should also clarify the derogations to the application of the sustainability and resilience criteria. Guidance, to be updated every six months, should be issued on how to link the sustainability and resilience criteria with future legislation and provide "concrete and specific examples and best practices".

Finally, a specific article in the NZIA is dedicated to pre-commercial procurement and public procurement of innovative commercial solutions. The Member States are invited to use pre-commercial procurement for pre-commercial innovative net-zero technologies and public procurement of commercial innovative net-zero technologies and might benefit from EU funding.

The NZIA is part of a wider array of recent measures muscularly addressing the EU external dimension of public procurement and this specific collocation is made plain in the recitals. The first phrase in Recital 31 indicates that the application of the provisions on resilience in public procurement procedures set out in Article 19 should be without prejudice to the application of the already recalled Regulation 2022/1031/EU (IPI). The last phrase of what is presently Recital 39a indicates that both the just recalled Regulation (EU) 2022/1031 and Regulation (EU) 2022/2560 on foreign subsidies distorting the internal market (FSR) should be used to their fullest extent in order to ensure that Union companies do not face unfair competition for public contracts. Article 19 expressly refers to those two regulations and to the WTO GPA as constituting outside margins to the discretion contracting authorities and entities enjoy when applying the NZIA to public procurement and concessions. Both the NZIA and the FSR are instances of a trend to protect EU industries and tenderers from unfair competition from abroad, while the IPI act a bit as a carrot to entice trading partners to agree on mutually beneficial and fair procurement trade agreements.

5. CSDDD for ethical supply chains

As indicated in its Article 1, the NZIA aims at shortening some specific supply chains out of a preoccupation with their resilience. This preoccupation is doubled by the desire to repatriate some production and to strengthen the European industrial base (see also Recital 64). Climate neutrality is a core objective and many of the possible criteria listed in Recital 27 discussed above are linked to circular economy aspects. However, wider sustainability has also a more instrumental role to play at least in so far as public procurements are concerned. Significant shares of the competitive advantage enjoyed by far-flung manufacturers are due to their relative ease in externalising environmental, social and labour costs (Caranta 2023). The use of minimum sustainability award criteria under Article 19 of the NZIA are meant to offset at least partially that advantage.

The CSDDD (EU Commission, 2022a) instead revolves around a more ethically-centred approach aiming at making supply chains more sustainable (Martin-Ortega & Methven O'Brien 2019). Its first recital recalls Article 2 TEU and reiterates that the "Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights as enshrined in the EU Charter of Fundamental Rights". Like other legislative measures discussed above, the CSDDD specifically targets climate change, as it aims to set out a horizontal

framework to foster the contribution of businesses towards the achievement of the Union's transition to a climate-neutral and green economy in line with the European Green Deal (EU Commission, 2019) and the UN Sustainable Development Goals - SDGs. It is also to contribute to the European Pillar of Social Rights promotion of decent work worldwide, including in global value chains.

The CSDDD lays down due diligence obligations for companies regarding actual and potential human rights and environmental adverse impacts extending to operations carried out by their business partners in those companies' chains of activities, including supply chains. It also foresees liability for violations of those obligations and an obligation "to adopt and put into effect a transition plan for climate change mitigation which aims to ensure, through best efforts, compatibility of the business model and strategy of the company with the transition to a sustainable economy and with the limiting of global warming to 1.5 °C".

Unlike the legislative measures discussed above, the CSDDD was at the centre of fierce political fights, with some political parties and Member States strongly opposed to measures requiring ethical efforts from companies (Treviño-Lozano & Uysal, 2023). The COREPER approved a watered-down compromise text on the 15 of March 2024 which was finally greenlighted by the JURI Committee of the European Parliament four days later.

In the all debate, the potential of the CSDDD for reducing the competitive advantage enjoyed by companies operating in less sustainably oriented territories was mostly lost (Uysal & Janssen, 2024). However, under its Article 2(2), the CSDDD clearly applies to third-country companies and this will make it more burdensome for some of them accessing the internal market.

The focus here is on the public procurement provisions of the CSDDD which were not present in the original proposal but were introduced following an amendment from the European Parliament. Article 24 - as it is now numbered - is entitled 'Public support, public procurement and public concessions' but actually only deals with the last two. Under the provision, which is somewhat clumsily drafted, the Member States shall ensure that contracting authorities (a) may lay condition the performance of public and concession contracts on compliance with the obligations resulting from the national measures transposing the Directive or (b) may qualify their voluntary implementation as an environmental or social aspect to be taken into account as part of the award criteria.

The provision is somewhat lax as, besides not including contracting entities, it does not go beyond the mere power of contracting authorities to require compliance with national legislation implementing the CSDDD. This weak approach is confirmed by the first phrase in what is now Recital 63.

The latter part of Recital 63 basically paraphrases the non-EU mandatory exclusions grounds in Article 57(4)(a) and (c) of Directive 2014/24/EU, which are mirrored in the other 2014 directives, and concern the breach of environmental, social and labour law obligations and grave professional misconduct respectively. In doing so the CSDDD replicates the weak method of enforcing sustainable provisions through public procurement followed in the 2014 directives (Andhov et al 2020). Article 18(2) of Directive 2014/24/EU provides that "Member States shall take appropriate measures to ensure that in the performance of public contracts economic operators comply with applicable obligations in the fields of environmental, social and labour law established by Union

law, national law, collective agreements or by the international environmental, social and labour law provisions". However, and save for the mandatory exclusion in case of child labour and other forms of trafficking in human beings (Article 57(1)(f)), the directive leaves the Member States discretion on whether or not to make mandatory the exclusion for breaches of obligations linked to sustainability. This choice leads to very different enforcement of those obligations among the Member States (Turudić & Dragojević, 2023) and this is in spite of the Court of Justice holding in the *TIM* case that the sustainability principle constitutes a cardinal value of Directive 2014/24/EU (CJEU, Case C-395/18, *Tim*, ECLI:EU:C:2020:58).

The CSDDD is aware of this inherent weakness. The last phrase in Recital 63 indicates that "To ensure coherence within EU legislation and support implementation, the Commission should consider whether it is relevant to update any of these directives, in particular with regards to the requirements and measures the Member States are to adopt to ensure compliance with the sustainability and due diligence obligations throughout procurement and concession processes".

Still, it is argued that the CSDDD already significantly impacts SPP in the EU as it opens the doors to consider the corporate social and environmental policies of economic operators. The last phrase in Recital 97 of Directive 2014/24/EU indicates that "the condition of a link with the subject-matter of the contract excludes criteria and conditions relating to general corporate policy, which cannot be considered as a factor characterising the specific process of production or provision of the purchased works, supplies or services. Contracting authorities should hence not be allowed to require tenderers to have a certain corporate social or environmental responsibility policy in place" (Semple, 2015). The CSDDD instead requires and allows contracting authorities to require economic operators to have exactly one of such policies in place. Under Article 5(1) of the CSDDD, "Member States shall ensure that companies integrate due diligence into all their relevant policies and risk management systems and have in place a due diligence policy that ensures a risk-based due diligence". Those laid down by CSDDD are "applicable obligations in the fields of environmental, social and labour law established by Union law" under Article 18(2) of Directive 2014/24/EU. This is a very significant development, as either it widens what may be considered 'linked to the subject matter of the contract' to include environmental and social corporate policies or it must be read as finally disposing of the requirement (Caranta, 2022b).

Historically, this goes full circle in effacing the neoliberal approach to public procurement narrowly focusing on price or purely economic aspects of what is bought, an approach that was started by Margaret Thatcher forbidding UK public buyers to discriminate against companies doing business with Apartheid South Africa (Kunzlik, 2013).

6. Conclusions: A toolbox for strategic and resilient public procurement.

The three very recent legislative texts analysed in this article are most relevant in showing the paths taken by the EU in the use of public procurement to achieve sustainability and resilience (Caranta & Janssen, 2023).

As already indicated, these developments stem firstly from the desire to achieve climate neutrality which is at the centre of both the CPR and the NZIA but is also one of the preoccupations at the root of the CSDDD as shown by the obligation for covered companies to adopt and put into effect

a transition plan for climate change mitigation. The consistent use of public procurement in the fight against climate change is called for by the gravity of the climate crisis and the need to use all available resources, including the huge budgets earmarked for public procurement, to fight it. The EU and its Member States do not come anywhere close to the massive resources mobilised by the US through the Inflation Reduction Act (IRA). Whatever is available must be mobilised.

This naturally leads to the second motive, at the centre of the NZIA, that is resilience. To secure the products - and the materials, thanks to the forthcoming Regulation establishing a framework for ensuring a secure and sustainable supply of critical raw materials definitively approved in March this year - necessary for the climate transition, the EU needs both reliable - and thus shorter - supply chains and to boost its internal production. The latter in turn makes enlisting public procurement inevitable because of scarce resources otherwise available. Moreover, the NZIA is part of a wider set of measures aimed at protecting EU companies from 'unfair' competition by regulatory arbitrage through such recent pieces of legislation as the CBAM, the FSR (Regulation 2022/2560; Blažo,2021; Benvenuti, 2024) and the IPI (Regulation 2022/1031). It is worth noting in passing that such competition was until recently considered a physiological part if not even a benefit from the liberalisation of international trade.

Protecting EU companies from unfair competition is also a side effect of the CSDDD. Here, however, the main goal is making trade ethical rather than shortening supply chains.

While the focus on public procurement is a shared character of the three legislative measures analysed here, how they instrumentalise procurement is nuanced. The CPR is having recourse to minimum technical specifications, award criteria and contract performance conditions. This approach requires huge efforts on the side of the Commission to draft those contract requirements. As shown by the experience in Italy, that approach is helpful for contracting authorities which need no more than to apply a toolbox they can easily familiarise with (Botta, 2023; Iurascu, 2023). The market too can be expected to adapt fast to uniform requirements that are the same all over the EU. The choice to have 'minimum' mandatory criteria that was pushed through in the legislative process by the European Parliament will allow more ambitious contracting authorities or entities to raise the bar and develop a market for even more sustainable construction products. Overall, this will lead to accrued sustainability benefits, including in the fight against climate change (Caranta & Janssen 2023).

In the course of time, the NZIA will build on product criteria eventually developed under the CPR and the SPI. However, it will go beyond them, including a resilience perspective and leveraging both sustainability and resilience through award criteria needing to have considerable weight. Moreover, a somewhat flexible exclusion regime is foreseen for tenderers and products hailing from some countries. For contracting authorities, award criteria are more complex to manage than standard technical specifications and contract performance clauses. The NZIA foresees guidance from the Commission but also gives a role to the newly established Net-Zero Europe Platform. As for the 'provenance' condition for participation in the award procedures, the Commission will have to make information readily available for contracting authorities and entities.

Award criteria are used by the CSDDD as well, but only to reward economic operators voluntarily adopting due diligence. For those economic operators bound under the CSDDD, compliance with the obligations provided therein is part of performance conditions of the contract. Moreover, Member States may direct contracting authorities and entities to exclude from the procurement

economic operators found in breach of the obligations flowing from the CSDDD and public buyers might provide the same under Article 57(4)(a) and/or (c). Here the problem might be one of information, but it will very much depend on how efficiently the European Network of Supervisory Authorities will be capable of disclosing information about sanctions following what is now Article 21(9) CSDDD. In principle, the all system might be easier to operate and more effective than the list of economic operators found in breach of the Deforestation Regulation (Regulation (EU) 2023/1115). Article 25 thereof indeed requires a final judgment which might take years to be handed down (Falvo & Muscaritoli, 2024).

The three legislative measures analysed in this article bear witness to both the relevance and the adaptability of public procurement to achieve societal goals, including the fight against climate change (Lichère, 2022; Lazo Vitoria 2022). Now much will depend on the implementing rules and guidance from the Commission and other actors but, as it is clear from the recent Communication *Securing our future Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society*, the wider relevance of SPP is here to stay (EU Commission, 2024). The Communication stresses that "As the Green Deal must also be an industrial decarbonisation deal, an enabling framework for decarbonised industry should complement a strengthened EU industrial policy with resilient value chains, notably for primary and secondary critical raw materials, and increased domestic manufacturing capacity in strategic sectors and principle of competitive sustainability fully incorporated in public procurement. This would require well-resourced funding mechanisms at the EU level and the creation of lead markets, including through public procurement rules, market-based incentives, standards and labels to steer consumption towards sustainable, near-zero carbon materials and goods" (EU Commission, 2024, pp. 27). The reference to 'competitive' together with sustainability means that the EU industry will be helped to become competitive again. Along with sustainability, resilience is expected to acquire a wider role in public procurement.

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A duty under customary international law and a condition for funding under the EU Recovery and Resilience Facility: the genealogy of the "do no significant harm" principle

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Abstract

EU Member States are obliged to apply the "Do no significant harm" principle in their public procurement procedures when their projects are financed under the EU Recovery and Resilience Facility (RRF). Despite the binding nature of this novel principle, doubts persist around its scope and implications. This contribution aims at tracing the evolution of the "no-harm" rule, which is recognised as a rule of customary international law at the international level while in the EU it was elaborated as a mandatory condition on public procurement contracts falling under the RRF framework.

Keywords

Do no significant harm - Principle - Environmental law - Public procurement - Recovery and Resilience Facility

1. Introduction

In 2021, the Recovery and Resilience Facility (RRF) regulation entered into force, providing unprecedented financial support that the EU put at the disposal of its Member States after the COVID-19 crisis. Member States were required to present their National Recovery and Resilience Plans (NRRPs) as in accordance with the rules of the Regulation, setting very specific conditions, among which targets and milestones to be respected along the whole process: from the presentation of the national plans until the execution of the projects financed by the Facility.

According to Article 18(d) of the Regulation, such plans shall explain how "no measure for the implementation of reforms and investments included in the recovery and resilience plan does significant harm to environmental objectives within the meaning of Article 17 of Regulation (EU) 2020/852". The "Do no significant harm" (DNSH) principle thus constitutes a binding condition for EU Member States to obtain the facility's funds. These latter are to be dispensed at the national and then local level in great part through public procurement contracts. Therefore, the DNSH - as defined in the EU Taxonomy Regulation - acquired unprecedented relevance in this field of law in the last years, as public administrations were faced with the challenge of demonstrating, at each

step of the procurement procedure, how the measures at stake would not significantly harm the environment in the meaning of the EU Taxonomy Regulation. In this context, the principle exemplifies a rule which is primarily aimed at integrating environmental concerns along the public procurement cycle. Despite its important potential to drive public administrations towards a more conscious integration of environmental concerns along the procurement cycle, questions remain on its nature, scope, and modalities of enforcement during the various steps of the procedure.

This contribution aims to identify the origins of the "no-harm" principle in the international and then in the EU legal orders to assess whether some patterns can be found in its application in different contexts, for example in how the courts deal with the principle, elaborating the role of due diligence standards or of environmental assessment tools in solving cases of responsibility for environmental harm. Through the study of the genealogy of the principle, some essential features of the rule will be collected which could become relevant in the upcoming judicial elaborations of the principle in its current form under EU law.

The international legal order is the first context in which the principle appeared in the guise of the "no-harm" rule, originally not belonging specifically to the environmental law domain. Its significance has grown through the elaborations of arbitral and judicial tribunals which consider it as a customary international rule. Their work provided important clarifications on its nature and structure. Proof of its relevance and general acceptance is that the rule has been integrated into the most authoritative international environmental conventions. The EU has also introduced the principle into its Green Deal and is apparently giving more and more relevance to its integration in its various policies.

Some differences will be observed between the use of the rule in the international and in the EU legal orders. At the international level, the "no-harm" principle constitutes a general obligation from which various procedural obligations arise and is perceived as the "bedrock of international environmental law" (Sands & Peel, 2012). Within the EU, the rule was elaborated in attempt to provide a common taxonomy in the context of the Union's financial sector and to support its green transition.

2. The development of the "do-no harm" rule in the international context: between judicial practice and international conventions

Originally known as the "no-harm" rule[3], this principle is enshrined in different and authoritative sources of international law, principally belonging to the environmental dimension.

Before delving into its codified versions, it should be noted that the "no-harm" rule is traditionally recognised as a principle of customary international law, "whereby a State is duty-bound to

[3] This contribute will interchange the notions of "principle" and "rule" as the same approach was followed in international environmental law scholarship and practice.

prevent, reduce and control the risk of environmental harm to other states" (Brownlie, 2019). In the international environmental law context, the principle has been mostly operated to ground the liability for acts which are not prohibited by international law - one easy example being an economic activity that causes pollution transcending the borders of a state. Some authors express doubts on the willingness of courts to impose responsibility for transboundary damages on states in the absence of an express obligation, yet, they underline that specific regimes have been established for guaranteeing legal redress in the case of environmental harm (Crawford, 2019). Due diligence also plays a key role in these kinds of cases: even where an activity might not be in itself prohibited by international law, this would not exclude that damage caused by "poor judgment or poor management in carrying out the activity" could entail responsibility (Dupuy, 1976). Not only is due diligence strictly related to the "no-harm" rule, but the rule is sometimes even identified itself as a general obligation of due diligence (Maljean-Dubois, 2021).

It is argued that the principle's original form, the one that is codified in customary international law, derives from the principle of good-neighbourhood and is perceived as a "corollary of the principle of permanent sovereignty over natural resources" (Dupuy & Vinuales, 2018). Since its earliest forms, the "no-harm" rule was identified as a duty placed on States to protect some objects in their territories. The first forms of the rule indeed emerged in State, judicial, and arbitral practice in the late nineteenth and early twentieth centuries (McIntyre, 2020) and concerned the recognition of the duty of States to take reasonable measures to protect aliens within their territory and were closely linked to the duties of prevention and due diligence placed upon States (Dunn, 1932). The "no-harm" duty progressively extended through international jurisprudence from its initial aim of covering harm caused by private actors within a host State's territory, to comprise both a duty to protect foreign citizens from private criminal acts and to a duty to prosecute and punish those who caused injury to aliens and their properties (McIntyre, 2020). One illustrative example is the *Lac Lanoux* case (Lac Lanoux Arbiration, 1957), concerning the use of the waters of Lake Lanoux in the Pyrenees. In this case, France was willing to carry out certain works for the utilization of the lake's waters - which belonged wholly to the French territory. Spain however claimed that such works would have adversely affected Spanish rights and interests since the lake's flowing waters crossed the country. On this occasion, the *ad hoc* Arbitral Tribunal elaborated the relevant rules of international law applying to the case, which were identified as the rules to which "[a]ll still and running water, whether in the public or private domain, shall be subject". The tribunal stressed that when examining the question of whether France has taken Spanish interests into sufficient consideration, "it must be stressed how closely linked together are the obligations to take into consideration adverse interest in the course of negotiations, and the obligation to give a reasonable place to these interests in the adopted solution". The consideration of adverse interest would thus acquire importance in two different ways along the procedure: the manner in which they were considered during the negotiations and the more substantial result in the final solution. In this case, just because France was deemed to have undertaken negotiations in good faith, this did not dispense it "from giving a reasonable place to adverse interest in the solution it adopts". In this latter determination, the manner in which a project has taken into consideration the interests involved and other related factors are "all essential factors in establishing (...) the merits of the project". This case is one of the first instances of how harm has been historically assessed: a clear differentiation between a *procedural* assessment (the manner in which the adverse interests were considered during negotiations) was

contraposed to an assessment on the merits (how those interests were eventually integrated in the result).

In the subsequent *Wipperman* Case (United States of America v. Venezuela) (1887)), the US-Venezuela Mixed-Claims Commissions clarified that no State is responsible for acts of individuals in its territory "as long as reasonable diligence is used in attempting to prevent the occurrence or recurrence of such wrongs". This decision set a clear relationship between the duty of prevention and the one of due diligence: this latter imposes standards on the conduct of Member States and is relevant in assessing the State's responsibility when the damage occurred. This aspect appears to be one of the founding elements of the "no-harm" rule, as it will become clear in the judicial and arbitral elaborations of the principle within the environmental domain.

When it comes to liability for specifically environmental harms at the international level, the "no-harm" rule is often depicted as a "complicated mix of customary international law, sparse precedents from arbitral or judicial panels, liability provisions in international agreements and domestic law" (Percival, 2021). The rule in this context was indeed firstly elaborated by arbitral and judicial courts, then recognised as a customary international rule and subsequently codified in international agreements concerning the protection of the environment. Its existence has mostly been linked - and often coincided[4] - with the duties of prevention and due diligence binding on States. However, some authors have argued that because its emphasis is on the transboundary harm rather than protection of the environment *per se*, the principle "stops short of embracing a genuine preventing dimension" (Sadeleer, 2020).

The "no-harm" rule's first traces in the environmental domain are traditionally identified in the judicial and arbitral activities on transboundary cases (McIntyre, 2007). In the '40s, the rule was for the first time applied in the field of environmental law in the *Trail Smelter Arbitration* case (1941). On that occasion, the Arbitral Tribunal constituted for the case found that:

> Under the principles of international law (...) no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

For the first time, a tribunal explicitly placed on States the responsibility of avoiding injuring the territory of another State, in the cases where the consequences would have been "serious" and the injury would be established by "clear and convincing evidence". The first mentions of the rule were thus grounded on the duty of States to avoid harming other States' territories, in other words, to prevent harm to territories outside their jurisdiction.

Further guidance on the substantive and procedural aspects of the rule in the environmental domain are to be found in the International Court of Justice (ICJ) judicial activity. Two outstanding decisions in this regard are the 2010 *Pulp Mills* case (Argentina v. Uruguay) and the

[4] See e.g. O. McIntyre, *The current state of development of the no significant harm principle: How fare have we come?*, Springer, 2020. https://doi.org/10.1007/s10784-020-09501-8

2015 *San Juan River* cases. In *Pulp Mills*, the Court considered prevention - as often used as synonym to the "no-harm" rule[5] - as the source of other customary environmental rules, among which that of requiring environmental impact assessment, "all of which function to discharge the due diligence obligations inherent to the duty of prevention" (McIntyre, 2013). This represents the first time an international court has stated that "the prior assessment of transboundary impacts is not merely a treaty-based obligation but a requirement of general international law" (Boyle, 1991). The relationship between the general duty of prevention and requiring an environmental impact assessment (EIA) is thus one way to prove that the duty of prevention has been respected. In the *San Juan River* cases (Costa Rica v. Nicaragua), the Court for the first time recognised the loss of ecosystem services associated with a watercourse State's riparian rights as amounting to compensable material damage. In this case, Costa Rica contended that Nicaragua had occupied the territory of Costa Rica because of the construction of a canal from the San Juan River to Laguna los Portillos, and carried out certain related works of dredging and the River. According to Costa Rica, the dredging and the construction of that canal would seriously affect the flow of water to the Colorado River of Costa Rica, and would cause further damage to Costa Rican territory, including the wetlands and national wildlife protected areas located in the region. As part of the proceedings, Costa Rica sought compensation for the loss of environmental goods and services the country sustained due to Nicaragua's activity on its territory. The ICJ issued an order in 2011, finding that Costa Rica should be compensated for the unlawful activities of Nicaragua, and a decision on the merits in 2015, establishing that Nicaragua's activities were unlawful and violated Costa Rica's territorial sovereignty and navigational rights. In 2018, the Court ruled how much Nicaragua had to compensate Costa Rica for the loss of environmental services. In this case, the ICJ clearly recognised that the principle of prevention, as a customary rule, has its origins in the due diligence that is required of a State in its territory.[6] *Costa Rica v. Nicaragua* was the first case wherein the ICJ adjudicated a claim for compensation for environmental damage.

These two decisions are considered among the most relevant ones elaborating e specifying the duty of due diligence and the related importance of EIAs as a proof of the fulfilment of this duty. On these occasions, the "no-harm" rule was thus used as a source for more specific environmental obligation and as a sort of catalyst / guarantee that procedures are carried out in respect of the duty of due diligence.

Despite these important elaborations of courts on the principle, the "no harm" rule has tended and still tends to be formulated in a very general manner. For this reason, the implications of its application on States' activity have remained opaque (McIntyre, 2020). However, the principle has not remained marginalised to the practice: the "no harm" rule has been codified in authoritative sources of international environmental law, as it will be illustrated below.

In the '70s, the first global environmental summit took place in Stockholm, known as the United Nations Conference on the Human Environment. The outcome of the conference was a declaration of principles of environmental law: the Stockholm Declaration on the Human Environment.

[5] Courts appear to use the two rules as synonyms in most cases. However, some scholars differentiate their scope: despite States will not breach the no harm principle where any damage caused is not considered otbe significant, they might still breach their duty of due diligence is not preventing its occurrence (Sadeleer, 2020).

[6] In this passage, the Court recalled its previous decision in ICJ, *Pulp Mills Case*. (2010). para. 101.

Principle 21 of this Declaration expresses the responsibility that States have to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction, as previously expressed in the cases *Trail Smelter* and *Lake Lanoux* (Boon, 1992). The 'no harm' rule was subsequently codified also in Article 10 of the 1987 Principles and Recommendations adopted by the Brundtland Commission's Expert Group on Environmental Law (EGEL 1987) but, most importantly, in Principle 2 of the 1992 Rio Declaration. Titled "State responsibility for damage", the latter states:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

The Stockholm's principle 21 and Rio's principle 2 represent together a paradigm shift: according to some authors, they place greater emphasis on the prevention of damage in general rather than on the damage caused to the sovereign rights of other States (Sadeleer, 2020). This represented an important difference with respect to the judicial and arbitral tribunal above-mentioned.

The 2001 International Law Convention Draft Articles on State Responsibility can also offer some clarifications on the legal nature of the duty of prevention. These apply generally to "activities not prohibited by international law which involve a risk of causing significant transboundary harm through their physical consequences" (Draft Article 1). In the commentary to the Draft Articles, it was noted - in reference to different environmental conventions - that:

> It is clear that such agreements do not establish the strict obligation not to pollute (obligation of result), but only the obligation to "endeavour" under the due diligence rule to prevent, control and reduce pollution. For this reason, the breach of such obligation involves responsibility for fault (Pisillo-Mazzeschi, 1991).

A progressively more detailed determination of the function of the rule was thus provided. In the case of the Draft Articles this involved a focus on the obligation to behave in a certain way prescribed by the principle. In this regard, due diligence became an essential element for assessing liability. McIntyre indeed pointed out the relevance of the due diligence-based standards of conduct on the part of the State to describe the normative content of the no-harm rule. As highlighted by the author, due diligence is often employed in international law to denote a notionally similar standard of care which is required in different contexts. The notion, according to the ILA Study Group 2016,

> is concerned with supplying a standard of care against which fault can be assessed. It is a standard of reasonableness, of reasonable care, that seeks to take account of the

consequences of wrongful conduct and the extent to which such consequences could feasibly have been avoided.

Due diligence has been also described as a "technique of proceduralisation, deferring controversial inquiries as to the content of substantive rules regulating wrongdoing to less controversial questions relating to informed decision-making and process" (Koskenniemi, 1989). This standard is flexible and thus allows States for a certain degree of autonomy. Its 'open-ended' nature is perceived as convenient by some because it allows avoiding the setting of too precise rules in international conventions.

The no-harm rule has thus become an "omnipresent feature" of different international agreements and declarative instruments and conventions (McIntyre, 2020). The history contributing to its formation is reflected in those tools. In fact, the principle is nowadays described as a positive obligation, more specifically as a duty of due diligence - "an obligation of conduct and not of result" (Maljean-Dubois, 2021). It is acknowledged that the rule plays as a source for other procedural obligations which are its corollaries: "information, notification, cooperation, impact assessment, and continuous monitoring" (Maljean-Dubois, 2021, referring to *Costa Rica v. Nicaragua*). However, the non-detailed content of the principle might lead to an important level of legal uncertainty, which might represent a significant obstacle in times in which the protection of the environment is experiencing a democratisation process. Those are interested in claiming that harm has occurred indeed will not enjoy of a well-established and detailed rule drawing the lines of the responsibility of the perpetrators. On the other hand, such flexibility and its customary nature allow the principle to be applied even where the law does not expressly mention it.

3. The "do no significant harm" (DNSH) principle in the EU legal context

Within the EU legal order, the DNSH is also found in different sources, each one of them varying in objective and legal nature. The most relevant ones considered in this contribution are EU primary law (the Treaties), the EU Green Deal, the EU Taxonomy Regulation, and the RRF Regulation.

Article 191 of the Treaty on the Functioning of the EU (TFEU) sets important and general rules for the development of the Union's environmental policies. Its paragraph 2 specifies that: "Union policy on the environment (...) shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay". Moreover, Article 11 TFEU explicitly calls for environmental protection to be integrated into the definition and implementation of the Union's policies or activities - thus opening a wide range of policies whereby concerns like the DNSH could be integrated.

The first and most general reference to the DNSH principle in the EU legal order is to be found in the EU Green Deal (COM(2019) 640 final). Representing the EU manifesto for its green ambitions, the Green Deal is a non-binding EU legal instrument defining the general address of the Union policy with a focus on the protection of the environment. The document displays a section titled "A

green oath: 'do no harm'", where it is stated that the Commission, in general, "will improve the way its better regulation guidelines and supporting tools address sustainability and innovation issues", with the objective of ensuring that all the EU initiatives - also those outside the Green Deal - "live up to a green oath to 'do no harm'". To this end, the Communication states that an explanatory memorandum will accompany all legislative proposals and delegated acts and will include a specific section explaining how each initiative upholds this principle.

The content of the principle is described in more detail for the first time in the EU Taxonomy Regulation (Regulation 2020/852), in the context of the Union's greater attempt to create an "EU-wide classification system for sustainable activities". To pursue this objective, EU institutions developed the EU taxonomy as a market transparency tool that helps directing investments to the economic activities that are needed for the transition. Among the announced ambitions of the strategy, the EU included the aim of avoiding greenwashing practices, *i.e.* that economic operators would use auto-referential qualifications to obtain unfair advantages in the market by advertising financial products as eco-sustainable where in reality they do not meet the environmental criteria (Recital 11 of Regulation 2020/852). This is why "a common language and a clear definition of what is 'sustainable' is" was elaborated for financial and non-financial companies to share common definitions in this field.

The principle appears several times in this Regulation. Firstly, the Regulation 2020/852 refers back to Regulation 2019/2088 on sustainability-related disclosures in the financial services sector, in particular to its Article 2, para. 17, which defines what a "sustainable investment" is, that is "an investment in an economic activity that contributes to an environmental objective (...) to a social objective (...), provided that such investments do no significantly harm any of those objectives and the investee companies follow good governance practices, in particular with respect to sound management structures, employee relations, remuneration of staff and tax compliance". This legal instrument couples the adjective "significant" with harm, differently from what can be read in the more general declarations of the Green Deal. Despite the insertion of this new element to the principle, Regulation 2019/2088 only mentions it in general terms - differently from the EU Taxonomy Regulation. Article 3, para. (b) of the EU Taxonomy Regulation indeed provides further elements on the rule by stating that to establish the degree to which an investment is environmentally sustainable, an economic activity shall qualify as environmentally sustainable where that economic activity "does not significantly harm any of the environmental objectives set out in Article 9 in accordance with Article 17". These are the first references to the legal content of the DNSH principle within the EU legal order. Article 9 lists the environmental objectives for the purposes of the Regulation, they are: (a) climate change mitigation; (b) climate change adaptation; (c) the sustainable use and protection of water and marine resources; (d) the transition to a circular economy; (e) pollution prevention and control; (f) the protection and restoration of biodiversity and ecosystems. Article 17 recalls these objectives and defines when an economic activity shall be considered to significantly harm the objects of those objectives: for each one of them, the provision describes the effects of an activity on the corresponding objective. For example, an activity shall be considered to significantly harm climate change mitigation, "where that activity leads to significant greenhouse emissions" (Article 17, para. 1(a)). It is thus Article 17 that defines the content of the DNSH principle. To establish whether an economic activity is sustainable, the activity should succeed in a "double test": one is positive and foresees a contribution to one or more

of the six environmental objectives contained in Article 9, one is negative and prescribes that the activity shall not significantly harm any of those objectives (Onida, 2021).

The EU Taxonomy Regulation therefore represents the first document legally defining the DNSH principle and the main reference for the other EU legal instruments mentioning the principle. However, it should be noted that despite the authority of the Taxonomy as reference for other legal tools mentioning the rule, Article 17 never mentions the notion of "principle" along the definition of the content of this rule. The DNSH rule is introduced *merely* as an evaluation tool (Spera, 2022).

What is relevant for the definition of the principle is that this Regulation is not isolated as it was indeed integrated and supported by some subsequent legal documents such as the *Climate Delegated Act* (2021), the *Disclosures Delegated Act* (2021), the amended *Complementary Climate Delegated Act* (2023) and the *Environmental Delegated Act* (2023).[7] Each one of them provides further technical guidance on the DNSH principle by providing sectoral technical screening criteria. The level of technical details provided by these documents surely represents an important difference from the international law's conception of the principle, which still nowadays appears to display a quite vague content.

The principle was then included in other policy instruments of a financial nature, adding relevance to a novel but growing EU financial strategy, that is a performance-based system for which allocation of EU funding is based on targets and milestones - among which the respect of the DNSH principle, which progressively acquired more and more importance. For instance, in 2021, the European Commission published the *Technical guidance on the climate proofing of infrastructure in the period 2021-2027* (2021/C 373/01).[8] In this document, the Commission affirms that this guidance meets the requirements laid down for several EU funds,[9] among which the DNSH principle as derived from the EU's approach to sustainable finance and enshrined in the EU Taxonomy Regulation.[10] Another representative example of this trend beyond the financial domain is the Commission's *Better Regulation* communication (2021),[11] which "ensure[s] that the 'do no significant harm' principle is applied across all policies in line with the European Green Deal oath".

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[7] All these resources are available on the European Commission's official website: https://finance.ec.europa.eu/regulation-and-supervision/financial-services-legislation/implementing-and-delegated-acts/taxonomy-regulation_en.

[8] Climate proofing is a process that integrates climate change mitigation and adaptation measures into the development of infrastructure projects.

[9] It mentions InvestEU, Connecting Europe Facility (CEF), European Regional Development Fund (ERDF), Cohesion Fund (CF), and the Just Transition Fund (ITF).

[10] It should be noted that the guidance addresses only two of the environmental objectives of Article 9 of the EU Taxonomy regulation, i.e. climate change mitigation and adaptation.

[11] The Commission's "better regulation" is an EU agenda aiming at ensuring "evidence-based, transparent EU law-making based on the views of those impacted". Its mission aims at evaluating and improving EU law. https://commission.europa.eu/law/law-making-process/planning-and-proposing-law/better-regulation_en.

The mention of the DNSH principle in these different documents is a demonstration of the EU institutions' position on the principle, which is apparently to expand its application to other forms of funding and policies of the EU. In its replies to the European Court of Auditors (ECA)'s report "Sustainable finance: more consistent EU action need to redirect finance towards sustainable investment" (2021), the Commission claimed that it has integrated "wherever possible", aspects of the Taxonomy Regulation into the EU budget. It added that the DNSH principle is "largely applied across the EU budget through a number of tools and regulatory provisions".

In line with these recent developments, the DNSH was described to be an "essential paradigm" for the use of EU funding and to have a "pervasive" scope (Spera, 2022). This character of the DNSH principle is shown very clearly within the RRF framework - the largest programme under the 2021-2027 Multiannual Financial Framework (MFF). According to Regulation 2021/241, access to RRF funding is conditional: the NRRPs shall include measures that effectively contribute to the green transition of an amount that represents at least 37% of the plan's allocation, and no measure shall violate the DNSH principle.

The DNSH principle is mentioned in Article 5 among the "Horizontal principles": "The Facility shall only support measures respecting the principle of 'do no significant harm'". Its respect is mandatory in all phases of the projects and transcendental: compliance shall be ensured from the moment the plan is presented until the execution and monitoring of the project, for any measure included in the plan. Article 18 includes, among the elements that the plans shall include, "an explanation of how the recovery and resilience plan ensures that no measure for the implementation of reforms and investments included in the recovery and resilience plan does significant harm to environmental objectives within the meaning of Article 17 of Regulation (EU) 2020/852". According to Article 19, the Commission is in charge of assessing the plans and thus shall take into account, among other criteria, "whether the recovery and resilience plan is expected to ensure that no measure (...) does significant harm to environmental objectives (...)". Additionally, the Commission is expected to provide technical guidance to Member States to this effect. Commission's guidance in this regard is a pragmatic support provided to Member States and their administrations to assist them in the application of the principle when spending the RRF funding. The principle thus translates into an assessment of compliance with the objectives building up the principle according to the EU Taxonomy.

The effects of the detailed DNSH principle as applied obligatorily on Member States in the RRF context are specific to this framework, with important considerations for the field of public procurement law. Being the Regulation directly binding in the domestic legal orders, public administrations face a decrease in the uncertainty around the rules but also in the room for their discretion (Costanzo, 2023) in the procedures for using the RRF funding. The DNSH principle in the EU legal order is a rule showcasing multiple meanings and which can reach a considerable degree of technical and legal detail. This has the effect of making it a binding rule of conduct for public administrations and economic operators which does not necessarily require the interpretation of legislators and courts, differently from what is traditionally expected from a principle (Cozzio, 2024) and from how the "no-harm" rule is known and applied at the international level.

4. The DSNH principle in the light of its genealogy: a new paradigm or just an evaluation of potential harm under specific circumstances?

Given its mandatory nature under the RRF, the principle is collecting growing attention from scholars in the public procurement law field. The DNSH principle was described as one of the most prominent legal instruments for the development of public procurements towards the green transition (Cozzio, 2024). According to some authors, the principle represents a change in the administrative culture of planning and definition of public investments. It would contribute to ensuring the coherence of the public buying activity with the economic policies of green transition which go beyond the RRF (Pernas Garcia, J. J., 2021). These statements are ambitious and in line with the premises announced by the Commission in the recitals of the RRF Regulation, whereby it associates several times the recovery with the green transition's objective. Moreover, the European Commission's recent communications made it clear that the applicative scope of the principle will be expanded through its progressive application to other EU funding instruments (C(2021) 5430 final). Specifically, it is foreseen that the realisation of financial measures referred to in the technical guidance document, from 2021 until 2027, and of the 8th Environment Action Programme to 2030 (Barelli, 2023).

Since most of the NRRPs' investments enter the market through public procurement, the impact of the principle becomes evident despite these ambiguities. Contracting authorities are indeed required to ensure the respect of the DNSH principle along all phases of the procedure: from planning to execution of the contracts. This requires both *ex ante* and *ex post* monitoring and assessments. In this context, some observations on the historical origins of the principle could be elaborated to reflect on the components of the principle.

One relevant example is the use of EIAs, which is a relevant element for the principle in both legal orders, but arguably with a different weight. While in the international context, courts have historically used such tools as a strong support for due diligence relevant for the findings of responsibility for environmental harm, the EU case is different. In the European Commission's *Technical guidance on the application of 'do no significant harm' under the Recovery and Resilience Facility Regulation* (C/2023/111)[12], EIAs constitute a strong indication for the absence of significant harm for various relevant environmental objectives, however they "do not automatically entail that no significant harm is done". The undertaking of EIAs could support the arguments brought forward by the Member State for its DNSH assessment. Yet, "this does not exempt the Member State from carrying out the DNSH assessment for that measure since an EIA, SEA [...] or proofing might not cover all aspects that are required as part of the DNSH assessment". Therefore, the DNSH has a wider scope if compared to other evaluation tools. These latter could integrate its assessment, but are nor decisive or complete for its purposes under EU law. The Commission's Technical guidance underlined that the DNSH considerations should be reflected in the RRP (Recovery and Resilience Plans) from the outset, meaning that tendering and procurement processes should integrate DNSH considerations and necessary mitigating steps for compliance to be ensured.

[12] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023XC00111.

Also the level of detail required in the international and in the EU legal orders which will[13] most probably entail different implications of the application of the rule. Those differences result mainly from the different *ratios* for which the principle has been elaborated. While in the international domain, the principle arose to hold States accountable for their activities and the transboundary effects of those and is applied as a customary international law, the EU's DNSH principle was elaborated in a framework that aims at facilitating sustainable investments by providing for a classification system. Therefore, while the international "no harm" rule places on States the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States, which is a quite general aim, the EU DNSH principle was elaborated as a tool for transparency and classification and ended up being applied a condition for the disbursement of EU funds. To confirm the different perceptions of the principle in the two systems, it should be noted that no EU legal source mentions the "no-harm" rule as established in the international context.

In any case, despite the technical support of the European Commission, the practical difficulties arising from the application of the DNSH principle under the RRF persist (Caruso, 2022), being it designated as a "principle" but elaborated in a form that differs from the traditional idea of a principle of law. Among the main applicative difficulties in this framework, the assessment of its respect is among the most evident ones. In its special report on the RRF performance monitoring framework, the European Court of Auditors (ECA) emphasised the vulnerabilities of the RRF system, claiming that it is not sufficient to capture performance (ECA, Special Report 26, 2023). This element of complexity places significant obstacles on the effectiveness of the principle when it is weighed with other principles and interests (Costanzo, 2023).

However, even though relevant applicative difficulties remain around the DNSH principle, the potential of the rule in the field of public procurement should not be underestimated. By requiring public entities to assess the potential impact of their action, the principle functions as a guarantee along procedures of different types. Specifically under the RRF, its respect is required mandatorily and thus contracting authorities shall declare and prove that the projects under their control do not significantly harm the environment. This guarantee shall be provided for each step of the procurement cycle and needs thus to be substantiated in various ways, depending on the phase at stake.

5. Concluding remarks

The international "no harm" and the EU DNSH principles thus arose in different legal contexts and consequently showcase different features and implications for their application. While the "no-harm" rule has emerged as the result of states', arbitral and judicial practice where they needed states to take into account the others' views on measures that could impact beyond the national boundaries, the EU DNSH principle was elaborated as part of a wider classification system aimed at clarifying which economic activities could be deemed to be sustainable, with a

[13] Since the Court of Justice of the EU (CJEU) has not yet decided on any case on the DNSH principle, this is an hypothesis.

view to guide investors within the Union, and subsequently became mandatory for obtaining funds under the RRF. The environmental crisis and the need to cope with it urgently have accentuated the demand for a progressive and continuing elaboration of more detailed and sophisticated rules to avoid and measure harm. A tendency in this sense can be observed in both legal orders, accompanied by a development of related evaluation and assessment methodologies related to the protection of the environment and the green transition (McIntyre, 2020). This propensity contributes to the development of technical methodologies that are more comprehensive[14], in the sense that they are more predictive of the harms that certain activities could cause and they provide criteria to assess that. More reliable methodologies would be capable of supporting the identification of the necessary preventive, and monitoring measures.

In any case, the principle is in general strictly tied to procedures: its proclaimed aim - at both international and EU level - is that of securing that environmentally-aware procedures are carried out. This requires a set of specific activities on the part of the initiating public entity. Those generally include pragmatic duties of, for instance, information, impact assessment, continuous monitoring, etc. This was made clear already in the first arbitral and judicial cases concerning the principle (see, for instance, *Costa Rica v. Nicaragua*) and has been developed in detail at both the international and at the EU levels.

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[14] One example is the set of Delegated acts provided by the European Commission in support of the EU Taxonomy.

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A New Approach to Public Contracting of Sustainable Construction Using Innovation Partnership

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Abstract

Sustainable public procurement of construction projects is a key objective to fulfill the targets of the EU Green Deal, the new Regulation approved by the European Parliament, and the conditions required by the Facility of Recovery and Resilience approved by EU.

However, most of the adopted procedures are based on traditional procedures, open competition, or restricted procedures, which are not appropriate for developing an innovative approach aiming for more ambitious sustainable objectives.

Innovation partnership is a new procedure introduced by the EU Directives of Public Procurement of 2014 (Article 31º of 2014/24/UE), and it has been discussed and applied to the development of new products but, unfortunately, its potential has not been studied as a tool to prepare and to award more innovative and sustainable contracts of public works. This is the objective of the research presented in this paper, and a set of guidelines is deduced and discussed to support public contracting authorities to make better use of innovation partnerships.

Keywords: Innovation, Sustainable Public Procurement, Innovation Partnership

1. Innovation in Public Procurement

The importance of innovation to promote sustainable development has been supported by most economists as it is mentioned (Mazzucato, 2018) and public procurement should be considered a key instrument to improve and disseminate innovation policies as it is expressed by Recital (47) of the Directive 2014/24/UE:

(47) Research and innovation, including eco-innovation and social innovation, are among the main drivers of future growth and have been put at the center of the Europe 2020 strategy for smart, sustainable, and inclusive growth. Public authorities should make the best strategic use of public procurement to spur innovation. Buying innovative products, works, and services plays a key role in improving the efficiency and quality of public services while addressing major societal challenges. It contributes to achieving the best value for public money as well as wider economic, environmental and societal benefits in terms of generating new ideas, translating them into innovative products and services and thus promoting sustainable economic growth.

This approach stems from the preparatory 2011 Commission's "Green Paper on Modernisation of EU Public Procurement Policy" mentioning that the new Directives should "… *allow procurers to make better use of public procurement in support of common societal goals: These include*

protection of the environment, higher resource and energy efficiency and combating climate change, promoting innovation and social inclusion, and ensuring the best possible conditions for the provision of high-quality public services".

The quoted Directive is clear about the importance of innovation in public procurement (in Recital 95):

"In this context, it should be recalled that public procurement is crucial to driving innovation, which is of great importance for future growth in Europe."

And in Article 2-(22) innovation is defined:

'innovation' means the implementation of a new or significantly improved product, service, or process, including but not limited to production, building or construction processes, a new marketing method, or a new organizational method in business practices, workplace organization or external relations inter alia with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth "

However, innovation can be hindered by public procurement if the bidder has no degree of freedom to propose a different solution explaining why the Directive is in favour of variants as mentioned by Recital (48):

(48) *Because of the importance of innovation, contracting authorities should be encouraged to allow variants as often as possible*.

Furthermore, the quoted Directive also recommends the adoption of the Most Economically Advantageous Tender (MEAT) instead of the traditional Minimal Price Criterion (MP) as the award criterion in order that the full range of benefits of innovation will be evaluated and considered to make the award decision (Article 67). Such criteria are listed and cover quite a wide range of attributes such as:

"… qualitative, environmental and/or social aspects, linked to the subject-matter of the public contract in question. Such criteria may comprise, for instance:

(a) quality, including technical merit, aesthetic and functional characteristics, accessibility, design for all users, social, environmental and innovative characteristics and trading and its conditions;
(b) organisation, qualification and experience of staff assigned to performing the contract, where the quality of the staff assigned can have a significant impact on the level of performance of the contract; or
(c) after-sales service and technical assistance, delivery conditions such as delivery date, delivery process and delivery period or period of completion."

The recent European Green Deal approved in 2020 (https://www.ihobe.eus/news/the-european-green-deal-a-roadmap-to-a-sustainable-economy) aiming to achieve the first climate-neutral continent is based on multisectoral innovation to promote circular and non-carbon economies and

therefore public procurement will be an important instrument to drive such challenging processes of societal change.

The European Commission supports the application of sustainability criteria and requirements in public procurement through several publications such as the well-known Manual on Green Public Procurement (European Commission, 2016).

2. Innovation In Public Works: Research Questions

Public works account for a substantial budget within public procurement of more than €500,000 M in 2017 (European Commission, 2019) and the sector of construction has quite a high impact on economic development as it generates more than 15% of GDP in many countries (Barlow, 2000) and more than 13 Million jobs (2021) in European Union (https://www.statista.com/statistics/763219/total-employed-persons-in-building-construction-industry-eu/).

Public works are also quite critical to implementing the Green Deal because changing the built environment is necessary for minimizing the consumption of non-renewable energy, promoting the circular economy, preserving natural resources, and avoiding transportation systems based on fossil fuels. The new technologies, more ambitious standards, and performance requirements are factors of the increasing complexity of public works explaining why innovation is also becoming more important.

The issue of innovation has been extensively discussed for public works but, unfortunately, the assessment of innovation in public procurement of construction has been quite disappointing despite the increasing complexity (Brown et al, 2015) of most public works as it is shown by several authors, such as (Barlow, 2000) mentioning that" *Concern about the poor performance of the construction industry, and its lack of innovation, is coming at a time when its customers are demanding more and projects are becoming increasingly complex*" or " *There is a perception that the industry (construction) is not generally innovative* " although "*The higher levels of innovation in the construction industry, the greater the likelihood that it will increase its contribution to economic growth*" as it is pointed out by (Blay and Manley, 2004).

Furthermore, several authors have pointed out that a culture of "adversarial actors" and litigation prevails in public work rather than a cooperative mindset (Bresnen and Marshall, 1999) proposing a "*partnering approach*" that can stimulate innovation and improve performance results. This culture of partnership is quite important for public works because each contract corresponds to a singular case and so the whole production process tends to be "one of a kind" due to specific conditions, restrictions, and objectives. Also, professional organizations such as the American Institute of Architects have proposed guidelines to foster an innovative and cooperative culture in public works (AIA, 2007 in https://aiacontracts.com/).

However, the traditional process of public contracting (Tavares, 2019), based on open or restricted competition is not much in favour of cooperation because bidding is a single stage non-cooperative, zero-sum game and the awarded contract just can be changed under very restricted conditions

also defined by the quoted Directive under its Chapter IV "contract performance". Thus, the potential to implement a cooperative and innovative culture of new procedures such as the Innovation Partnership should be studied.

Therefore, the three research questions to be studied in the next paper are:

Research question 1: Can the lack of innovation in public works be explained by the adoption of the Minimal Price (MP) award criterion despite the increasing complexity and sustainability requirements?

Research question 2: Can Innovation Partnership (IP) be used to contribute to promoting a cooperative and innovative culture in public works?

Research question 3: How can Innovation Partnership (IP) be applied to the contracting of public works?

3. Can the Lack of Innovation Be Explained By MP?

Innovation in public procurement according to Directive 2014/24/EU and (Tavares,2019) implies two major conditions:

a) freedom to propose alternative solutions;
b) incentives to achieve better performance.

The process of contracting public works implies a multi-stage procedure starting with the initial document describing objectives, criteria, and restrictions often called the " Basic Program" followed by three stages of design: schematic design, design and construction design according to the US terminology (see https://www.asd-usa.com/blog/architectural-design-phases/) or "*program base, esquisse, Avant-project and project execution*" according to the French terminology. In other countries such as Portugal (Portaria 701-H /2008 , 28 July) the first stage corresponds to the "*programa preliminar* " (preliminary program) presented by the client and the second stage is the "*programa base*"(basic program) proposed by the designer, and then the following stages are " *estudo prévio*" (previous study), " *ante-projeto ou projeto base* "(design), and finally, " *projeto de execução*" (execution project).

The degree of freedom to innovation is quite high for the initial stages, but the bidder has virtually no room for innovation if the bid should be confined to the implementation of the construction design.

There are several approaches to the contracting of public works, namely:

a) the Design-Bid-Build (DBB), with two successive competitive stages, the former to award the design contract and the latter to award the construction contract based on a construction contract.
b) The Design-Build (DB), with just one competitive stage to award a contract including design and construction.

In the US DB is becoming quite popular as it is quicker and saves problems for the clients as they just have to interact with one contractor but this is not the case in Europe where professional architects associations tend to be in favour of DBB because they feel less dependent on builders. However, countries such as Italy and Portugal are approving special articles to facilitate the adoption of DB to contract public works supported by European Funds, namely those allocated by the Facility for Recovery and Resilience (Regulation of The European Parliament and of the Council 2021/241 of 12 February).

Thus, innovation may not be significant if DBB is adopted and if the minimal price is adopted because the single domain to innovate concerns the execution methods to be adopted and because there are no incentives but price bidding.

The TED website is used to find how often the minimal price criterion is adopted and for the active notices on 9 April 2023, the following numbers of notices were obtained:

	Open procedure	Restricted Procedure
Award criteria		
MP	971	14
MEAT	761	39

Therefore, most open procedures still adopt MP, which is not the case for restricted procedures.

These results show that the adoption of MP is a partial answer to the first research question, but other factors should be added to explain the low level of innovation, namely concerning the absence of incentives and the lack of freedom to propose alternative solutions and variants.

4. Can Innovation Partnership Be Used To Promote A Cooperative And Innovative Culture In Public Works?

4.1 What is Cooperation?

As it was mentioned before, the paradigm of *partnering* and cooperating is proposed as a key condition to develop innovation, but this implies having an accurate definition of cooperation, unfortunately, absent in legal articles about this theme. Actually, the scientific treatment of this concept has been developed in Economics, and Applied Mathematics due to the pioneering work by Von Neumann (1928) and (1944), as well as, later on, by Shapley (1958).

The traditional approach to contracting public works including full specification of requirements and of the construction design and adopting the minimal price as the award criterion corresponds to the case of a zero-sum game where the single outcome of the game is the price that is paid by

the contracting authority and received by the contractor. Unfortunately, reality shows that such a game is an illusion because one of the objectives of the contractor is being compensated by unforeseen additional works accounting on average more than 25% as is shown by several studies such as (Tavares, 2017). Therefore, this means that the initial game is a zero-sum game but then, after starting the execution, the relationship can be modelled by the so-called incomplete contract (Hart, 1998, Wang, 2016 ,Hart and Moore, 2017) giving to the contractor "residual rights" which corresponds to a very unfavourable situation to the contracting authority (Martimore et al, 2005)because the options are just two: either accepting the new demands from the contractor or having a disruptive interruption of the execution implying high transaction and delay costs as well as risks of litigation. This unfavourable balance is aggravated by the information asymmetry between the contracting authority and the contractor as it is explained by the Principal-Agent theory giving additional advantages to the latter (Grossman, 1983, Salanié,1997, Maskin and Tirole, 1999).

On the contrary, cooperative games studied since 1928 (Von Neumann,1928, Von Neumann and O Morgenstern, 1944) are games avoiding the zero-sum balance and allowing the improvement of the outcome of a player without reducing the outcome of the other player. This means that for 2 or more players there is more than one set of outcomes called coalitions, S(n)= (S(1),…, S(N)) satisfying the cooperation condition: the sum of outcomes is higher than zero.. Then, there are two problems to be solved:

A) Which is the optimal coalition maximizing the sum of the outcomes, S*(n), or at least a coalition better than the worst one, S^o(n), and so near as possible to S*(n), and named by S´(n)?
B) How to share the value, V(n), corresponding to S´(n), by the players?

These questions were studied by several authors, namely (Shapley, 1953), the application of the concept of cooperation to the contracting of public works implies that the procedure will be responsible for driving the decisions of both institutions to obtain a coalition S´(n) through an iterative and interactive process. Then, the coalition value, V(n), should be shared by both actors.

This means that such a procedure should include incentives to achieve S´(n) and a method to share V(n).

4.2 The Innovation Partnership

The need to develop a cooperative and partnering relationship between contracting authorities and contractors to promote innovation as it was presented before, it is fully understood by the new Directives explaining why the Innovation Partnership (IP) is proposed (Article 31º of the 2014/24/EU Directive) by the Recital (49):

"*Where a need for the development of an innovative product or service or innovative works and the subsequent purchase of the resulting supplies, services or works cannot be met by solutions already available on the market, contracting authorities should have access to a specific*

procurement procedure in respect of contracts falling within the scope of this Directive. This specific procedure should allow contracting authorities to establish a ***long-term innovation partnership*** *for the development and subsequent purchase of a new, innovative product, service or works provided that such innovative product or service or innovative works can be delivered to agreed performance levels and costs, without the need for a separate procurement procedure for the purchase*" where the author underlined by bold the very challenging objective of " long-term innovation partnership.

This means that the single-stage bidding process of open or restricted procedures can be substituted by a partnering approach aiming at durable cooperation and reducing the losses due to the "residual rights". Thus, IP is not just a contracting procedure but rather a process to establish long-term cooperation.

The Innovation Partnership has three phases as it is studied by (Caranta and Gomes, 2021) concerning:

a) The selection of economic operators who will be partners of the procedure using as a major criterion their ability to promote innovation (Article 36º-c).
   Then a first contract is awarded to such operators so that the second stage can be started.
b) The second phase is the contract execution aiming to develop innovative solutions. According to Article 31º-2, it should include sequential stages and intermediate targets to be achieved by the partners.
c) The third phase also belongs to the contract execution and concerns acquiring the developed innovative solutions.

Obviously, the quoted Article specifies that MEAT criterion should be adopted in IP.

4.3 How Can Innovation Partnership Meet the Cooperation Conditions?

The presented description allows checking how IP meets the cooperation conditions:

a) Is there an Interactive and iterative sequence to improve S(n) by obtaining S´(n)?
b) Is there a procedure to share V (n) between the contracting authority and the contractor?

Fortunately, there is a positive answer to the first question because IP includes a sequence of stages allowing direct and iterative interaction between each competitor and pushing each contractor to achieve higher targets set up the authority for each stage. Thus, the incentives stem from such targets and also from the competition between contractors which means that IP with just one contractor should be avoided.

However, competition is hindered if just one partner is qualified and contracted and so the possibility stated by Article 31-1:

"*The contracting authority may decide to set up the innovation partnership with one partner or with several partners conducting separate research and development activities"* should be avoided.

The answer to the second question depends on the adopted award MEAT criterion which is a function of a measure of the attained benefits for the contracting authority and of the contract reward allocated to the winning contractor. Therefore, a positive answer implies allocating a significant reward to the winner, namely:

a) Price of the contract
b) Respect for property rights including the transfer of their use but avoiding a transfer of property and
c) Allowing the contractor to make future use of the developed innovation.

On the other side, additional benefits can be allocated to the contracting authority, namely allowing future competition based on the developed innovation. An interesting example corresponds to the development of more advanced energy boxes to measure the energy consumption of each household as the electric utility (E-Redes, www.EREDES.pt) prefers to pay more to the winner and keep the rights of using the developed prototype to be produced by multiple producers-.Actually, another example of this situation is given in the next section by the contract awarded by CLUID in Ireland aiming to develop a methodology to be spread across the industry.

Thus, the answer to the second research question is positive if a very balanced equilibrium between the benefits and rewards allocated to both sides of the contract is fulfilled by the award criterion.

c) How Can IP Be Applied to the Contracting of Public Works?

Several types of application of IP to the contracting of public works can be considered according to the previous results, namely:

a) Development of innovative designs
b) DB for projects requiring innovative solutions
c) Execution contracts using innovative construction processes
d) Transforming existing constructions to achieve new performance standards, namely on sustainability.

The number of contract notices concerning public works and published by TED using IP from 1January 2021 until 1 January 2023 is 10 and their contents can be synthesized:

COUNTRY	BUYER	ABSTRACT
LOUXEMBOURG	Centre Hospitalier du Luxembourg	The client is seeking a partnership with a modular construction manufacturer to plan and realize the extension of the existing 2-story

		building A degree of prefabrication of 80-90 % is expected.
ITALY	Ministry of Infrastructure	Design and execution of the works to achieve energy efficiency of the building of the Supreme Court of Cassation, located in Rome, Piazza Cavour
IRELAND	Cluid Housing Association	Clúid wants to partner with a suitably qualified Contractor/ The goal is to develop an appropriate methodology for measuring, recording, and reducing embodied carbon in the construction process. While Clúid's focus is on creating high-quality residential developments, it is envisaged that this methodology would be shared with the wider construction industry.
GERMANY	Vattenfall Atlantis 1 und Global Tech 2 Offshore Wind GmbH	Wind-power installation works are divided into 3 lots: Lot 1: Foundation Installation; Lot 2: Inter Array Cable Installation; Lot 3: WTG Installation Vessel
NETHERLANDS	Gemeente Amsterdam, Ingenieursbureau	The municipality, school boards, and market players will work together to create at least 9 high-quality sustainable, circular, and flexible school buildings for Amsterdam over the next 10 years!
FRANCE	Territoire habitat (OPH)	The object of this contract is to create a building that is energy self-sufficient in all seasons, to be able to replicate it, and to make it accessible on the market: The technological strategy is based on storing the surplus of photovoltaic energy produced out of the heating period in the form of hydrogen and being able to reuse it via a fuel cell
SPAIN	Metro de Madrid	Modernization and implementation of a new system of lifts and of sales points
		The contract concerns a new building with a total of approximately 60 apartments using hemp concrete blocks and taking into account Scandinavian weather conditions. The aim of the project is to build a sustainable and low-carbon apartment building and the low-carbon

FINLAND	VAV Asunnot Oy	target is around 10% lower than existing projects under construction (14.7-15 kg CO2e/m²/a over the whole life cycle).
GERMANY	National park service gGmbH, Multimar Wattform	Design and construction of a new building, aquariums, and an adventure exhibition, as well as animal enclosures and biotope design measures in outdoor areas achieving sustainability targets.
IRELAND	Galway City County	Fabrication, provision, and installation of designed parklet units at locations throughout the city, at a number of inland and exposed coastal locations. The units should just use marine-grade stainless steel, hardwood, stone, composite recycled boarding, and soft landscaping/planting for a minimum design lifespan of 20 years.

The presented cases show that some of them concern green and lean construction and that most of the contracts concern public works focusing on the design and building of new systems such as wind power units, residential units, or parklets as well as the rehabilitation of old constructions to cope with sustainable targets, such as energy and low-carbon levels. Another example from Ireland concerns the development of a methodology and instruments for measuring, recording, and reducing embodied carbon in the construction process.

Thus, the answer to the third research question is yes, and, in most cases, the contract concerns the development of integrated solutions and instruments coping with sustainable targets rather than focusing on partial activities such as planning, design, or construction.

However, the number of 10 for the whole European Union for 2 years is surprisingly small confirming that IP can be a powerful instrument but frequently ignored by contracting authorities.

5. Conclusions

A major strategic objective of the European Union concerns the promotion of innovative public procurement to achieve more ambitious sustainable targets but, unfortunately, there are scarce shreds of evidence of innovative procurement of public works. This is why three research questions were studied in this paper:

a) Research question 1: Can the lack of innovation in public works be explained by the adoption of the Minimal Price (MP) award criterion despite the increasing complexity and sustainability requirements?

b) Research question 2: Can Innovation Partnership (IP) be used to contribute to promoting a cooperative and innovative culture in public works?

c)Research question 3: How can Innovation Partnership (IP) be applied to the contracting of public works?

The study of TED notices just allows a partial positive answer to the first question. The study of the structure of the IP procedure using the contributions of the Theory of Games is positive providing that this procedure is applied fulfilling the conditions required by the cooperative games. Finally, the most significant cases of the application of IP to the contracting of public works are studied using again TED notices and showing that a wide diversity of challenges can be tackled by IP such as the construction of new sustainable low-carbon buildings, the rehabilitation of historical premises, the development of new management information systems to monitor the carbon incorporation during the construction, the renewal of complex equipment of Metro facilities, the production and installation of metering units and the development of wind power generation units.
Unfortunately, the small number of TED notices concerning the use of IP in the procurement of public works is rather small confirming the lack of training and skills of the public procurers to promote innovative public procurement.

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Donor-funded procurement effectiveness in the public health medical laboratory services: Examining the moderation role for government policy in donor-support

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Abstract

The paper seeks to provide evidence on the government policy's moderating role in donor-funded procurement in the laboratory services of Zimbabwe. Procurement is a key component for any organisation to function optimally and the medical laboratory service is no exception considering that the donors are the major funders of the department hence the need for this study to examine the government policy as the moderating variable for this research. Medical laboratory services plays a very important role in the functioning of any health sector as every disease have to be tested to ascertain the actual disease a person suffering from before any treatment can be commenced. The aim of the paper was to examine the moderating role of government policy on donor-funded procurement in Zimbabwe's laboratory services.

This study only focused on donor-funded procurement in the laboratory services of Zimbabwe. The paper made use of a quantitative method research method. Data was collected from 214 respondents from the Ministry of Health and Child Care, Zimbabwe. The study found out that government policy (GP) moderates the pre-donation preparation process (PDPP) (ß=0.15, p-value = 0.038) donation requirement process (DRP) (ß=0.24, p-value =0.000), donation recipient planning process (DRPP) (ß=0.22, p-value = 0.001) and donation implementation process (DIP) (ß=0.18, p-value = 0.004) and the effectiveness of donor-funded procurement. Based on the results, the study concluded that government policy has a role to play to support donor-funded procurement in the laboratory services in Zimbabwe and the world over. This study is the first of its kind focusing on how donor-funded procurement can be improved in support of the key health outcomes such as laboratory services.

Keywords: Donor-funded procurement; donation implementation process; medical laboratory; moderating role; disease; pre-donation; government policy

1. Introduction and Background

Globally, laboratories are a fundamental component of the health system in the face of emerging and re-emerging diseases and contribute directly to improving health services (National Health Laboratory Strategic Plan (NHLSP), 2017; Oswalia & Vasdev, 2021). These include both private and public laboratories. Despite the nature of the laboratory, quality, reliable and timely results from laboratory investigations remain critical elements in decision-making in all aspects of health services (Ridde & Gautia, 2017; Bachtiger, Adamson, Chow, Sisodia, Quint & Peters, 2021). Laboratory testing identifies the cause of disease and provides data for the surveillance of diseases

and early detection of emerging problems to guide an effective response to health threats (Petrose et al., 2016; NHLSP, 2017). Maintaining functional and effective national public health laboratory services requires guidance, support, and regulations through well-laid-down policies and strategies (Mekonnen, 2004; World Health Organisation (WHO), 2015). The laboratories operate with minimum standard requirements for equipment, reagents and supplies, staffing levels, and the correct required qualifications (NHLSP, 2017).

Despite ODA disbursing such funding to health in developing countries, Global Fund, on the other hand, has been playing a critical role in the health sector by mobilizing and funding low and middle-income countries to fight AIDS/HIV, Malaria, and TB (Global Fund, 2021) and in 2017 and 2018 alone a total of 4.3 billion and 3.1 billion United States Dollars respectively (WHO, 2020; Global Fund, 2021; OECD, 2021) was used to fund the health sector worldwide. As shown by the statistics above, donor funds contribute to and support the African continent. However, the effects of donor funding are seen as most of these SSA countries destroy economies for the health sector at a large scale. The countries are creating a culture of dependency syndrome and laziness within their territories, affecting the general populace (Moyo, 2009; Madlongwa, 2014). The other downsize of the donor funds in the African continent is that the governments neglect to provide services to the people they lead and concentrate on themselves, as witnessed by poor service delivery in various African countries (Odaro, 2014; Hangulu & Ankitola, 2017). Moyo (2009) concedes that Africa is failing to take note of the aid given due to corruption within the high ranks and files of the leaders of these countries and bureaucracy which makes approval so difficult for programmes to take place. One has to move from pole to window without success. With the high figures of monies making their way to Africa from Europe and other continents, nothing seems to change in deliverables (Alexander, 2010; Baporikar & Randa, 2020).

1.1. Sub-Saharan Africa Perspective

However, with such donor funding being distributed to various lower to middle-income countries to fight diseases, sub-Saharan Africa (SSA) remains behind in terms of meeting targets such as Sustainable Development Goals (3) (SDGs) and still is battling to meet Sustainable development goals (SDGs) target for the year 2030 (Jailobaeva, Falconer, Loffreda, Arakelyan, Witter & Ager, 2021). The governments of SSA will need to put policies in place to support donor-funded programs within their countries. For the donor funds to make progress, the world leaders, in 2005, met in Paris, France, in what is known today as Paris Declaration on aid effectiveness. This declaration

on aid effectiveness was said to help improve health donor coordination and harmonization between donors and governments of various countries, mainly those with poor health systems, especially the SSA. In 2018, SSA got half of the Health ODA funding, as shown in Figure 1.1.

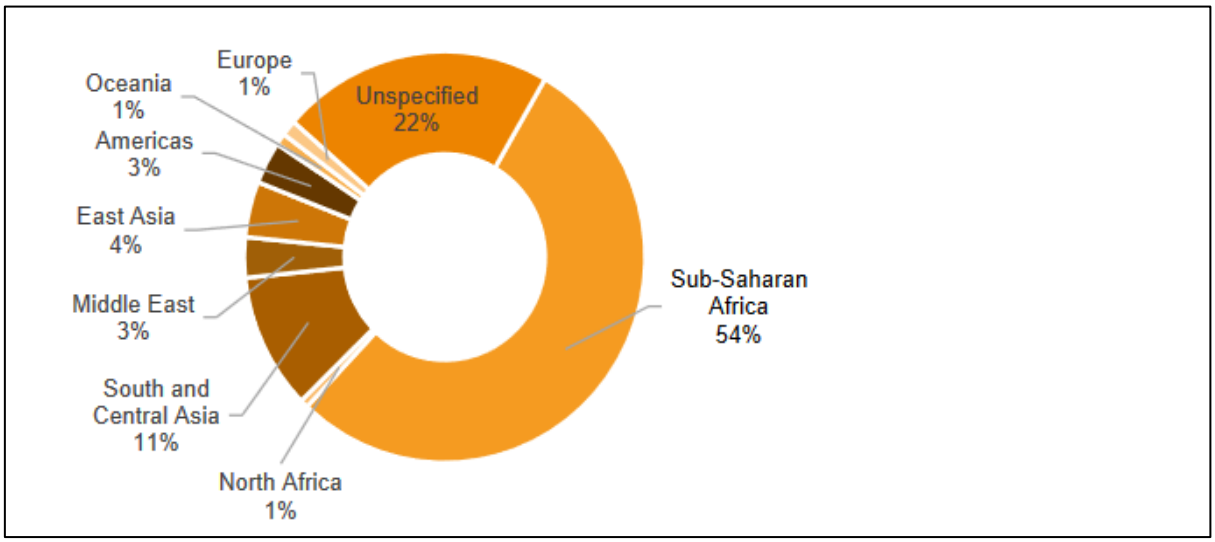

Figure 1.13: ODA to Health by region
Source: Development Initiative based on OECD (2018)

Figure 1.1 shows the Health ODA distribution for 2018, which has remained in place until 2021 and is expected to remain the same going into 2022. The SSA continues to get 54% of the total ODA health funding, which has been the norm ever since. Some of the SSA's top beneficiaries of the above donor funding are illustrated in Figure 1.2.

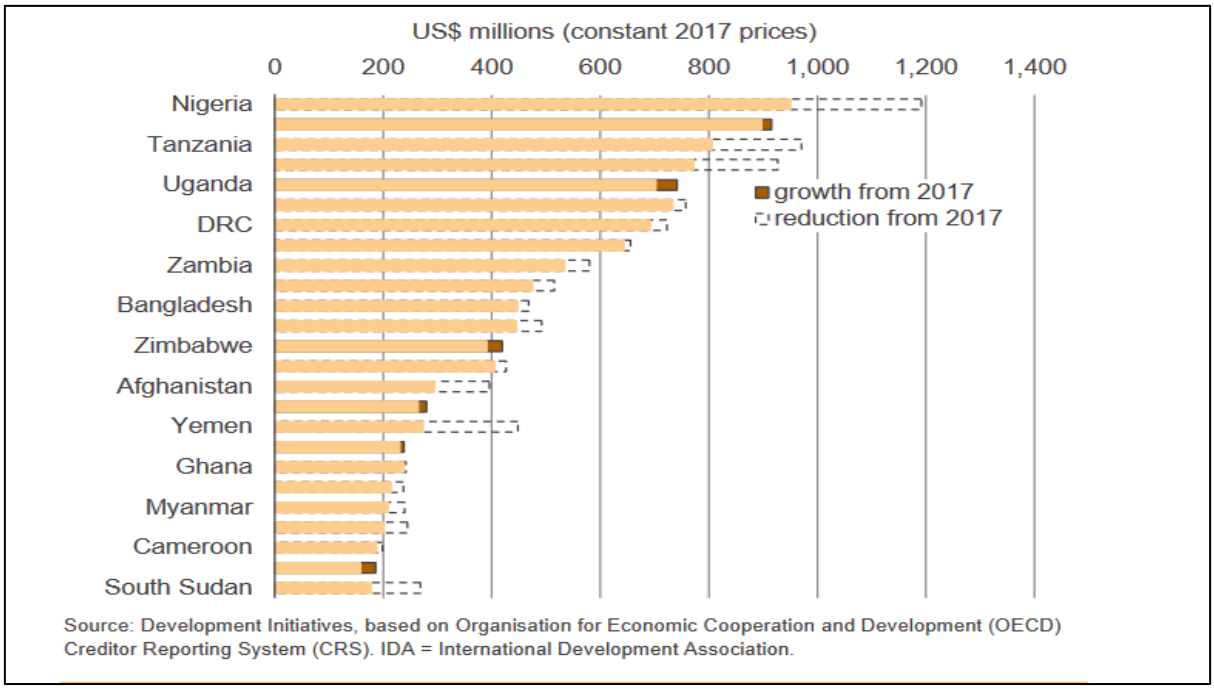

Figure 1.14: Top African beneficiaries of Health ODA

Source: Organisation for Economic Cooperation and Development (2021)

Figure 1.2 indicates the top SSA beneficiaries of the ODA health funding despite some other countries not from SSA being included within the same category as the SSA. Nigeria tops the SSA countries with USD951 million, followed by Tanzania and Ethiopia in the 3rd place (OECD, 2021). The country (Zimbabwe) under study is the 7th ranked in terms of receiving global health funding. The above only represents the top nine SSA countries. SSA received 31 billion in 2019 and 39 billion in funding in 2020 in their health sectors to procure health goods and services and fight COVID-19. Bilateral, Multilateral, and private Foundations contributed to the SSA health sector in 2020, and they are tabled in Table 1.1

Table 1.1 Bilateral, Multilateral, and Private Foundations

Donors	**Amount contributed (USD)**
United States of America	6.5 billion
Global Fund	3.6 billion
Bill and Melinda Gates	2.8 billion
Global Alliance for Vaccines and Immunisation	1.9 billion
UK	1.8 billion

Source: UNICEF (2021)

In 2001, African states met in Abuja, Nigeria, known today as the Abuja declaration, to deliberate on health funding. The African Union states members agreed to 15% of the national budget for health sector funding (Abuja Declaration Report, 2001). Unfortunately, most of these African states have failed to meet the agreed targets, and still, they are failing to meet and have no further discussions concerning this matter. For me, this was just a talk show of African leaders and only benefitted from the allowances given, but no implementation was given priority, although the idea was for the good of Africa as one. According to WHO (2019), only four countries managed to meet the target, and others only managed to increase their national budget funding towards the health sector. Today, no African country managed to surpass the 15% threshold. However, those other countries that had managed to meet the 15% have decreased their health sector budget for reasons known to them.

Adding on to the Abuja Declaration (2001), the nations called on the donors to scale up their support to African countries to enable them to procure the much-needed health equipment and other requirements and combat HIV/AIDS pandemic since it was the main focus. However, as the African nations failed to meet their 15% of the national budget towards health, donors heeded the call, and they are supporting the health sectors of the same SSA states while the SSA countries fail to meet their end of the bargain (McCoy, Chandi & Sridhar, 2009). To further bring together the relationship between donors and African governments, global leaders also met in Accra, Ghana, in 2008 to discuss the Paris Declaration on Aid Effectiveness of 2005 and named it Agenda for Action. Over 80 developing nations, all OECD countries, and over 3000 civil society organizations worldwide joined the emerging economies, United Nations, multilateral institutions, and global funds for negotiations (OECD, 2008).

It seems like all these efforts were in vain since all the efforts of these meetings did not translate into any meaningful, productive from the leaders. According to Olalere and Gatome-Munyua (2020), the African countries' failure to meet such conditions to improve their health systems is because of low inefficiencies in African countries in the collection of taxes and low GDP associated with other competing priorities which impound on health budget allocation. The researcher supports the notion of the scholars. However, the failure of African government leaders at times to provide guidance, trust, and inspire confidence in the running of the affairs of their countries are some of the reasons for the failure to meet the much talked about 15% health budget. Research

has shown that from 2001 to 2015, 21 countries' health spending decreased, and it could be worse after the COVID-19 era (Olalere & Gatome-Munyua, 2020). However, since countries' spending is decreasing, the ministries of health should advocate for health systems to be adequately resourced and the resources to be used optimally. Increasing health spending and giving health priorities are some of the key feasible approaches African countries can use to increase resources for health.

The governments of African countries should know that well-resourced health provides key benefits to the nation, such as building good human capital, safeguarding the health system security from health pandemics, increasing workforce productivity, reducing poverty and inequality as well as providing employment to their citizens (CDC, 2021; Olalere & Gatome-Munyua, 2020). Resourcing the health sectors is the best way to advance Africa's healthcare sectors.

However, with donor funding finding its way into the African continent to fund the health sector without much progress, WHO (2011) prescribed four principles that guide healthcare donations to improve donor procurement and donations in SSA countries. These include meeting the expected quality or standards of the host country, ethical consideration of the benefits the receipt obtains, compliance and conformity to the stipulated guidelines in receiving donations by the host country, and accountability.

All donations must be based on expressed needs, as they should benefit the recipient of health care to the maximum extent. Government policy and the administrative system of the recipient nation's health system should conform to all policies. The donation must meet the quality standards of the country donating failure. The recipient nation must not accept it. Lastly, communication between the donor and end-user should be communicated during and after the procurement is complete and delivered using the plan formulated by both parties. This was in addition to the other suggested prescription by WHO (2000), which pointed out that the donors should follow the pre-donation requirement process, donation recipient process, donation requirement process, and donation implementation process in every procurement process. All the above background was to try and address the SSA countries' health sector problems and other humanitarian problems.

1.2 Zimbabwe's socio-economic elements

The country made significant progress in its early first decade of independence (UNICEF, 2021). However, regrettably, Zimbabwe has registered a decline in social and economic indicators (UNICEF, 2021; UN Report, 2021). The challenges that have affected the country's socio-economic are prolonged economic recession, climate-induced humanitarian crisis, and political challenges, and these challenges will impede Zimbabwe from meeting the UN Agenda 2030, SDGs, and worse off, threatening to reverse the past gains of health development (UN Report, 2021). Zimbabwe remains the highest country to achieve social development in the continent, but unfortunately, it has remained stagnant or regressed over the years. Poverty was at 70.5% in 2017 and is higher in rural areas, while the urban vulnerability is increasing due to formalization, and unemployment is said to be above 90% (Zimbabwe National Statistical Agency (ZIMSTAT), 2017). To curtail the damages, the donors have increased their focus on providing support to keep the social sectors operational, most support outside direct government. The country faces barriers to a functioning market economy based on private sector-led growth. The level of inflation, the effects of the multi-currency system on the competitiveness of exports and investments, and the unsustainable high level of external debt (World Bank, 2021).

The informal sector lacks financial support to spur growth limiting the capacity to progress and contribute significantly to economic growth (MoFED, 2021). Zimbabwe has peace, but political polarisation remains high due to historical or past conflicts not being resolved, disputed elections since the turn of the millennium, human rights abuse, lack of the rule of law, and corruption, among other issues (UN Report, 2021). The health sector remains fragmented despite donor-funded procurements mushroom and no proper government support, which eventually affects public service delivery.

2. Objective of the study

The primary objective of this paper is to determine the moderating effects of government policy in support of the effective donor-funded procurement in the Zimbabwean public health medical laboratory.

3. Literature Review

3.1 Government Policy

Government policy is key to the improvement of the performance of public health laboratories because all the procurements, including those of donors, are guided and led by consistent policies (Mackenbach & McKee, 2013; Schaffer et al., 2022). Government policy acts as a guide on all the donor procurement activities supported by the donor country policies, which both help to align with the constitutions of the countries involved. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks. According to OECD (2019), government policies should influence procurement of services and goods outcomes as it is used to measure the fairness, equitability of the systems in place, transparency, and cost-effectiveness. Moreover, the same policies may drive remuneration of attractive salaries to procurement officers and public health laboratory employees with the skills and qualifications required (Ahsang & Paul, 2018).

However, government policy may make situations difficult since employees are not well paid, which may create circumstances that will see employees get into elicit deals and corruption and fail to follow the required procurement processes. As if the above is not enough, there must be trust between the government and the Western donors; since the turn of the millennium, the government of Zimbabwe has not been comfortable with donors that come from Western nations because they accuse them of "regime change agenda" (Chigora & Chisi, 2009). Given all the above, these political terms have affected the development of health services in Zimbabwe since the Chinese are much into mining, Agriculture, Tourism, and other sectors leaving the health sector without much support (Safi et al., 2020; Witter et al., 2019). There is a need to have trust with those international support donors and partners (PEPFAR, CHAI, World Bank, and Global Fund, to mention a few). There cannot be a favourable policy regarding donor funding in Zimbabwe.

3.2 Theoretical and Conceptual Framework

The theoretical framework describes and introduces the theories supporting the research. Here, the author demonstrates an understanding of the theories and their relevance to the study, connecting this researcher to the existing knowledge (Passey, 2020). On the other hand, the conceptual framework brings together the expected relationship between the research variables. Normally, it is developed based on the literature review of the previous studies and theories available about the topic under study (Adom, Hussein & Agyem, 2018).

3.3 Theoretical Framework

The Transaction Cost Economic theory, Person-Situation Interaction theory, and Agent theory are the three theories that are listed below to support the study. The researcher will expand and explain the theories to understand why these three theories were chosen to support this research.

3.3.1 Integration of the three theories

In this study, three key theories, that is the economic transaction cost (TCE) and person-situation interaction (PSI) theories, and agency theory, are considered in this study to integrate and seek to understand the relationship that exists in the donor-funded procurements and the Ministry of Health and Child Care participation in such processes. It is not an easy task, though, since there are more other theories left out of this study, and no one theory can apply to answer the challenges faced in this complex relationship in procuring public medical laboratory commodities. The TCE talks of the structure that exists for the proper organizational management and operations as well as outlining the causes of transaction costs (Coase, 1937; Williamson, 1979) putting forward key assumptions, which are bounded rationality (BR) and opportunism as major challenges, with key constructs asset specificity and uncertainty (Grover & Malhotra, 2003) that may affect the procurement of public medical laboratory commodities. BR is said to be limited to individuals.

Person-situation interaction theory is based on individual behaviours which affect the performance of donor-funded procurements and activities. For donor procurements to succeed, individuals must be goal-orientated and task-oriented. People's behaviour is affected more by the situations around the procurement than by the people around, as mentioned by Mischel (1968) and supported by Kihlstrom (2013). The Agency theory discusses the relationship between the donor and the MoHCC's laboratory services. MoHCC's laboratory services are the "principal", and the donors are the "Agency" since they are procuring on behalf of the MoHCC. This study proposes integrating the three theories as a theoretical contribution to the study. These theoretical factors will assist in improving laboratory performance since the organisational structures are manned by people who are self-aware of their obligations to improve the health welfare of the general populace of Zimbabwe through well-supported/functioning medical laboratories.

3.4 Government policy on effective donor-funded procurement

Government policy is key to improving the performance of public health laboratories because all the procurements, including those of donors, are guided and led by consistent policies (OECD, 2017). Government policy acts as a guide on all the donor procurement activities supported by the donor country policies, which both help to align with the constitutions of the countries involved. Policies help to curb illicit deals and corruption. According to OECD (2019), government policies should influence procurement of services and goods outcomes as it is used to measure the fairness, equitability of the systems in place, transparency, and cost-effectiveness. Moreover, the same policies may make remuneration attractive to procurement officers and public health laboratory employees with the skills and qualifications required (Ahsang & Paul, 2018). The government policy moderates the determinants of donor-funded procurement, which eventually benefit public medical health laboratory services (Jarvis et al., 2020; Rechel & McKee, 2012; Robert et al., 2022; Tsai et al., 2022). However, government policy may make situations difficult since employees are not well paid, creating circumstances that will see employees get into elicit deals and corruption and fail to follow the required procurement processes (Schaffer et al., 2022). Good procurement practices and government policies enhance service delivery within the health sector and the provision of the much-required commodities and equipment for the nation's benefit. Therefore, the following hypotheses were provided.

H1a: Government policy positively moderates the relationship between the pre-donation planning process and the effectiveness of donor-funded procurement.

H2b: The relationship between the donation requirement process and effective donor-funded procurement is moderated by government policy.

H3c: The donation recipient preparation process and effective donor-funded procurement relationship is moderated by government policy.

H4d: The government policy moderates the relationship between donation implementation and effective donor-funded procurement.

3.3 Conceptual Framework

Figure 1.3 shows a proposed conceptual framework based on the hypotheses discussed above and that all the constructs have existing relationships, as shown by the direction of the arrow.

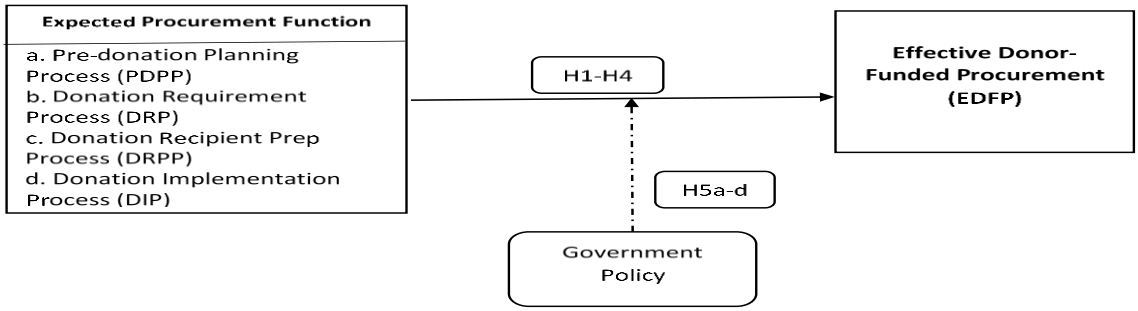

Figure 1.3: Conceptual Framework
Source: Author's construct (2023)

The conceptual framework (Figure 1.3) envisages that the pre-donation planning process, donation requirement process, donation recipient preparation process, and donation implementation process directly affect the effectiveness of donor-funded procurement denoted by hypotheses H1-H4. Additionally, H5 (H5a-d) indicates that government policy moderates the expected procurement outcome of donor-funded procurement and effective donor-funded procurement, as shown by hypotheses in the conceptual framework.

4. Methodology

The study adopted a pragmatism philosophy associated with mixed methods research (Park, Artino & Konge, 2020; Biesta & Burbules, 2003; Tashakkori & Teddlie, 2003). Pragmatism allows the use of both quantitative and qualitative methods in a single research to build on the strength and weaknesses of both methods (Morgan, 2007; Shannon-Baker, 2015). This researcher adopted descriptive-exploratory research because they are complementary in this mixed-method research since descriptive research design helped this researcher to deal with quantitative methods and exploratory helped this researcher to collect data on the qualitative part of this research (Streubert & Carpenter, 1999; Larson-Hall, 2010; McNabb, 2010), and this was explored through the experiences of the medical laboratory scientists and the procurement officers and SCMLTs.

The research's sample was 214 questionnaires returned by the Scientists, Procurement Officers and State Certified Medical Laboratory Technologists from the Ministry of Health and Child Care.

A sample is defined as a representative of the population chosen for a study to ensure the generalisation of the findings to the whole population (Sallant & Dillman, 1994; Shorten & Smith, 2017). These were well-informed of the developments in their provincial and national medical laboratory territories, they are aware of the subject matter under study, and they meet the inclusion and exclusion criteria for participating in this study (Blankenship, 2010; Cresswell & Plano-Clark, 2011; Giri, Dawadi & Shrestha, 2021; Gill, Stewart, Treasure & Chadwick, 2008). The participants could communicate their experiences articulative and expressively and were willing to participate (Bernard, 2000; Farrockhi, 2012; Hauken, Larsen & Holsen, 2019). The data were analysed using STATA version 17 and made use of Structural Equation Modelling to identify the causal relationships that exist between and among variables (Morris, Hall & Nock, 2017; Hox & Bechger, 1999; Morgen, 2007; William, 2011).

5. Results of the Study

Table 1.2 shows the frequency, percentages, median, factor loading, and alpha results for a government policy's effects on donor-funded public health medical laboratories procurement.

Table 1.2: Frequency, descriptive, median, factor loading, and the alpha on the effects of government policy on donor-funded procurement.

Statement	Strongly Disagree n(%)	Disagree n(%)	Neutral n(%)	Agree n(%)	Strongly Agree n(%)	Median (IQR)	Factor loading	Alpha
GP01: We need government policy to motivate donor support	5(2.3)	6(2.8)	39(18.2)	94(43.9)	69(32.2)	4(4-5)	0.03270	0.8133
GP02: We believe government policy promotes donor-funded procurement in the public health medical laboratory services	2(0.9)	13(6.1)	47(22.0)	89(41.6)	63(29.4)	4(3-5)	0.13338	0.7725
GP03: We trust the government policy helps to curb corruption in the	6(2.8)	13(6.1)	53(24.8)	84(39.3)	58(27.1)	4(3-5)	0.17982	0.7721

procurement process for all supported public health medical laboratory services.								
GP04: We know government policy is a tool that influences support of recruitment of qualified employees	2(0.9)	11(5.1)	32(15.0)	111(51.9)	58(27.1)	4(4-5)	0.23747	0.7619
GP05: We know that government policy can be used to set attractive salaries to avoid brain drain.	6(2.8)	9(4.2)	37(17.3)	108(50.5)	54(25.2)	4(4-5)	0.16498	0.7657
GP06: We accept that donor-funded procurement can be frustrated by unfavourable government policy	3(1.4)	2(0.9)	34(15.9)	101(47.2)	74(34.6)	4(4-5)	0.12421	0.7790
GP07: We believe that procurement policy direction comes from consistent government policy	1(0.5)	11(5.1)	45(21.0)	105(49.1)	51(23.8)	4(3-4)	0.17880	0.7642
GP08: We know that government policy may foil/support collaborations between the public health laboratory and donors	1(0.5)	2(0.9)	37(19.3)	114(53.3)	60(28.0)	4(4-5)	0.16206	0.7694
GP09: We believe that government policy influences the harmonisation of equipment used in the public health laboratory	2(0.9)	4(1.9)	50(23.4)	109(50.9)	49(22.9)	4(3-4)	0.11042	0.7838
GP10: We know donor-funded procurements may	0(0)	3(1.4)	37(17.3)	116(54.2)	58(27.1)	4(4-5)	0.10222	0.7853

flourish due to supportive government policy.								

Table 1.2 show that 43.9% (n=94) of the respondents agree that we need government policy to motivate donor support, and 41.6% (n=89) of the respondents agree that we believe government policy promotes donor-funded procurement in the public health medical laboratory services. 39.3% (n=84) of the respondents agree that we trust the government policy helps to curb corruption in the procurement process for all supported public health medical laboratory services, 51.9% (n=111) of the respondents agree that we know government policy is a tool that influences support of recruitment of qualified employees, 50.5% (n=108) of the participants agree that we are aware that government policy can be used to set salaries that are attractive to avoid brain-drain, 47.2% (n=101) of the respondents agree that we accept that donor-funded procurement can be frustrated by unfavourable government policy, 49.1% (n=105) of the respondents agree that we believe that procurement policy direction comes from consistent government policy, 53.3% (n=114) of the participants agree that we know that government policy may foil/support collaborations between the public health laboratory and donors, 50.9% (n=109) of the respondents agree that we believe that government policy influences harmonisation of equipment used in the public health laboratory and 54.2% (n=116) of the respondents agree that we know that donor-funded procurements may flourish due supportive government policy. The same results were confirmed by median (IQR) results. The factor loadings were estimated for each item and ranged from 0.0270-0.23742 and are not showing a good item contribution to the construct. The item reliability coefficients (alpha (α)) range from 0.7619 to the highest of 0.8133.

The researcher went on to run the structural equation modelling using the collected data. The structural equation model provides and defines the causal relationships and association between observed endogenous variables and the exogenous observed variables. The diagram is shown on figure 1.4 below;

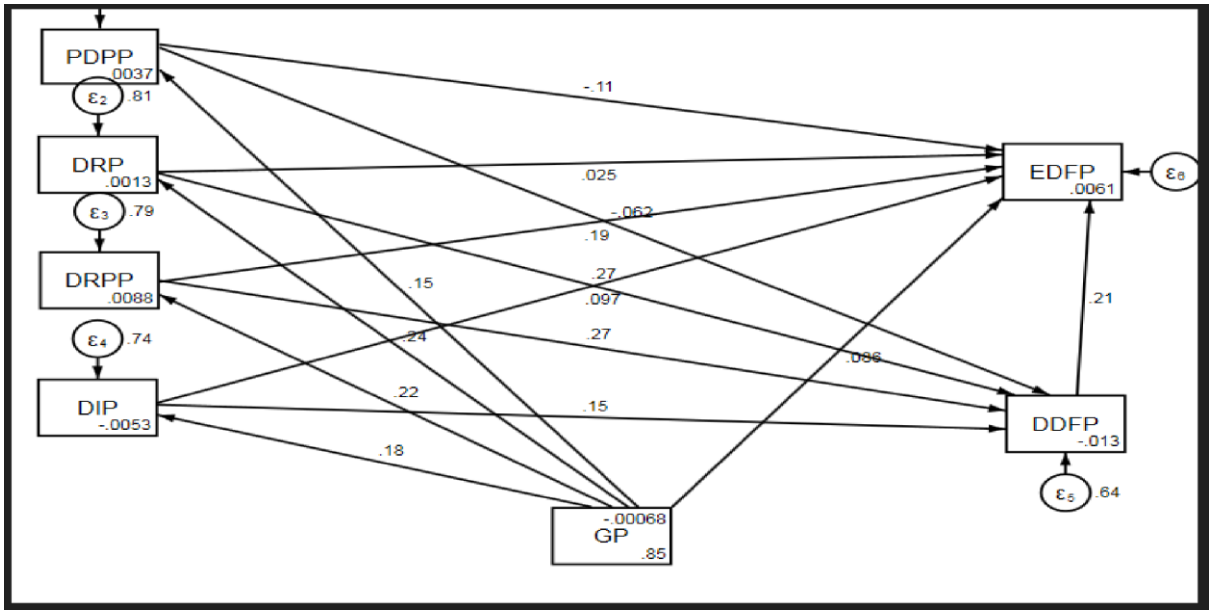

Figure 1.4: Structural Equation Modelling (source: Author's construct, 2023)

The correlation coefficient measures the association of observed and measured variables. However, the correlation coefficient values should be between 0 and 1 to significantly influence the relationship between variables (Edwards, 2009; Sardeshmukh & Vandenberg, 2017).

6. Discussion of Results

The objective was to examine the moderating effect of government policy on donor-funded procurement for public health medical laboratories in Zimbabwe. The researcher came up with the hypotheses, and all the hypotheses were supported, which talks about government policy (GP) moderates the pre-donation preparation process (PDPP) (ß=0.15, p-value = 0.038) donation requirement process (DRP) (ß=0.24, p-value =0.000), donation recipient planning process (DRPP) (ß=0.22, p-value = 0.001) and donation implementation process (DIP) (ß=0.18, p-value = 0.004) and the effectiveness of donor-funded procurement. The table below shows the hypotheses;

Table 1.3: Tested hypotheses supported

H1a: Government policy positively moderates the relationship between the pre-donation planning process and the effectiveness of donor-funded procurement->>>>	0.038	supported
H2b: The relationship between the donation requirement process and effective donor-funded procurement is moderated by government policy->>>>	0.000	supported

H3c: The donation recipient preparation process and effective donor-funded procurement relationship is moderated by government policy->>>>		Supported
H4d: The government policy moderates the relationship between donation implementation and effective donor-funded procurement->>>>	0.001 0.004	Supported

Source: Author's construct, (2023)

The research results show that government policy moderates these variables and shows positive relationships. The study's positive results accept that government policy has a role in supporting the effectiveness of donor-funded procurement. This assertion is supported by the views held by the OECD (2019) that government policies should influence procurement of services and goods outcomes as it is used to measure the fairness, equitability of the systems in place, transparency, and cost-effectiveness. Moreover, Ahsang and Paul (2018) postulate that the same policies may make remuneration attractive to procurement officers and public health laboratory employees with the required skills and qualifications.

When the government policy is inconsistent, there is no control, and as seen by the positive results of this study, donors and procurement agents behave in a way that suits their agenda (Sebitlo et al., 2022; Weerasekara et al., 2023). As stated by OECD (2019), government policy acts as a guide on all the donor procurement activities supported by the donor country policies, which both help to align with the constitutions of the countries involved. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks. The results further speak to the decision-making that takes a long time. Every document passes through different offices before the final decision or approval can be obtained. This slows the implementation of the procurement processes and can be manipulated by corrupt decision makers in their favour, and such policies are anti-progress (William, 2017; Ahsan & Paul, 2018; Schaffer et al., 2022).

However, to increase efficiency in procurement, such practices work against the efficient performance of donor-funded procurements and the general populace who tend to benefit from such critical procurements and must be discouraged by the public health laboratory directorate and the concerned donors. Additionally, the host nation's bureaucratic procedures typically caused procurement delays, dramatically increasing the cost of funding (Ahsan & Gunawan, 2010; Carvalho et al., 2015). Furthermore, most host nations, like Zimbabwe, are unaware of donor

procurement rules and procedures (Parker et al., 2018; Spieske et al., 2022). However, the challenge the host countries must address is the lack of a legal framework to curtail and monitor government departments' bureaucracy, which will help improve donor-funded procurement performances.

7. Conclusion, Limitations and Recommendations

The study revealed that government policy is a blueprint that guides donor-funded procurement and assists in driving better remunerations to attract the right skills and qualified employees in procurement and laboratory testing, such as scientists, SCMLT, and others who push the agenda forward. However, the government of Zimbabwe's policies is anti-Western donors due to the "regime change agenda" and political terms that have generally affected the laboratory and health sector's development. Furthermore, the study found that the government policy does not provide the lost trust between the donors and the government. Additionally, the study found that corruption, unethical practices, and lack of government commitment are some challenges that Zimbabwean government policy is failing to curtail. Policies help to curb illicit deals and corruption and influence efficiencies rather than providing bottlenecks.

Furthermore, the government policy should provide a legal framework that can monitor the administrative systems that take a long time to approve the requirements for further procurement processes as the bureaucracy drastically increases over time, thereby increasing the cost of funding. The study's findings also demonstrate a positive relationship between the factors determining successful donor-funded procurement and those factors. The researcher concluded that based on the research results, government policy should be proactive in support of the general populace who benefits from such procurement policies such that the laboratories perform above the current scenarios where donors are not held responsible for supporting the laboratory system and the policy should compel adequate funding that brings in confidence in the laboratory systems. The results below confirmed the above argument;

✓ Government policy moderates the pre-donation preparation process – effective donor-funded procurement relationship (ß= 0.15, p-value =0.038).

✓ Government policy moderates the donation requirement process –effective donor-funded procurement relationship (ß =0.24, p-value = 0.000).

✓ Government policy moderates donation recipient preparation process – effective donor-funded procurement relationship (β = 0.22, p-value =0.001).

✓ Government policy moderates the donation implementation process – effective donor-funded procurement relationship (β = 0.18, p-value = 0.004).

The researcher discovered that government policy is key in donor-funded procurement because, although in some cases, it was hypothesised in this research, it appears that it has a direct, indirect, and total effect relationship with determinants of donor-funded procurement. Additionally, the government policy went on to have an indirect relationship with effective donor-funded procurement. While the structural equation modelling provided these relations, it is important to note that such relationships were not hypothesised in this research. Nonetheless, this demonstrates the significance of government policy in procurement, regardless of whether it is public or donor-funded (Mojumder et al., 2022). This study has no different results in this regard. Government policy has implications in that it stands as the role modelling of donor and government activities, and failure to have consistent government policies leads to illicit deals, failure to curtail corruption, and failure by the donors to provide the services they purport to be providing in the country hence the patients are the most affected under such circumstances.

The study recommended that the government of Zimbabwe must;

- ✓ Enact policies that support and attract skilled employees in the laboratory since the study indicates that the laboratory is the backbone of any health system.
- ✓ Treat all donors equally without looking at the home country of the donors, as the research shows that Western donors do much better in terms of support that Eastern partners.
- ✓ Enact policies and legal frameworks that strongly cut bureaucracy and unethical practices and enforce commitment within the government structures.
- ✓ Provide policies that support good procurement practices at all levels of the laboratory and donor systems.
- ✓ Enact government policy that makes all universities that train laboratory scientists increase their intake numbers from 25 per intake to at least 50.
- ✓ Remove political statements that curtail productive relationships within the laboratory and health sector.
- ✓ Avoid politicising donor support as is the case and take full advantage of such support to improve the general health service conditions in Zimbabwe.

8. Conflict of interest

No conflict of interest regarding this paper.

9. Disclaimer

The views and opinions expressed in this article are those of the author and is the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency, or that of the publisher. The author is responsible for this article's results, findings, and content.

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