

**SUSTAINABLE DEVELOPMENT: A REVIEW OF POLICIES  
AND PRACTICES OF EUROPEAN INTERMODAL COMPANIES**

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**Summary**

**Introduction.** *This article explores the alignment of European intermodal transportation companies with the United Nations Sustainable Development Goals (SDGs) as part of the global sustainability agenda. In the context of increasing attention to sustainable development, transport companies have begun actively integrating the SDGs into their operational strategies. These efforts reflect a growing recognition that logistics chains must not only be economically efficient but also environmentally responsible and socially inclusive.*

**The primary aim** of this research is to examine the extent and nature of sustainable development initiatives among intermodal transport operators across Europe. Using a Case Study Research methodology, the study analyzes 123 companies, both signatories of the UN Global Compact and those that independently commit to sustainability principles. The analysis identifies ten key areas of activity – such as decarbonization, safety, gender equality, waste management, and anti-corruption – through which companies engage with the SDGs.

**The findings** reveal that the most systematic and ambitious sustainability practices are pursued by large multinational corporations such as Maersk, CMA CGM, and Kuehne + Nagel. These companies have sufficient resources to invest in innovative technologies, digitalization, responsible procurement, and diversity initiatives. In contrast, smaller operators tend to adopt more flexible approaches, selecting specific SDG targets that align closely with their business capacities and market conditions. Despite the lack of a unified framework for sustainability implementation across the sector, many firms have successfully integrated ethical standards, environmental safeguards, and inclusive labor policies into their value chains.

The study **concludes** that intermodal transport is a critical enabler of sustainable development, particularly in the areas of climate action, decent work, and responsible production. However, effective implementation of sustainability goals requires not only corporate commitment but also collaborative action through international alliances and coalitions. As such, partnerships – such as the Clean Cargo Working Group, the Getting to Zero Coalition, and the Maritime Anti-Corruption Network play an essential role in advancing global SDG progress within the transport sector. This

*paper underscores the importance of multidimensional, adaptable strategies tailored to each company's operational context and global sustainability trends.*

**Key words:** *intermodal transportation, sustainable development, SDGs, liner shipping, maritime transport, container delivery.*

## СТАЛИЙ РОЗВИТОК: ОГЛЯД ПОЛІТИК ТА ПРАКТИКИ ЄВРОПЕЙСЬКИХ ІНТЕРМОДАЛЬНИХ КОМПАНІЙ

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### Анотація

**Вступ.** У статті досліджується відповідність європейських компаній, що здійснюють інтермодальні перевезення, цілям сталого розвитку (ЦСР), визначеним Організацією Об'єднаних Націй, як складника глобального порядку денного сталого розвитку. В умовах зростаючої уваги до принципів сталого розвитку транспортні компанії дедалі активніше інтегрують ЦСР у свої операційні стратегії. Такі зусилля свідчать про усвідомлення того, що транспортні ланцюги мають бути не лише економічно ефективними, а й екологічно відповідальними та соціально інклюзивними.

**Метою** дослідження є оцінка масштабу та характеру впровадження ініціатив сталого розвитку серед операторів інтермодальних перевезень у Європі. Методом кейс-дослідження проаналізовано діяльність 123 компаній, як учасників Глобального договору ООН, так і тих, хто самостійно реалізує політику сталого розвитку. Виділено десять основних напрямів діяльності компаній, через які реалізуються відповідні ЦСР, зокрема декарбонізація, безпека, тендерна рівність, управління відходами та антикорупційні заходи.

**Результати** дослідження показують, що найпоширеніші та найамбітніші практики впроваджуються великими транснаціональними корпораціями, такими як Maersk, CMA CGM та Kuehne + Nagel. Такі компанії мають досить ресурсів для інвестування в інноваційні технології, цифровізацію, відповідальні закупівлі та програми з інклюзивності. Менші оператори, своєю чергою, застосовують гнучкий підхід, вибираючи ті цілі, що найбільше відповідають їхнім операційним можливостям і ринковим умовам. Незважаючи на відсутність єдиного стандарту впровадження сталих практик, багато компаній уже успішно інтегрували етичні норми, екологічні стандарти та політики соціальної відповідальності у свої логістичні ланцюги.

Зроблено **висновок**, що інтермодальні перевезення відіграють ключову роль у досягненні цілей сталого розвитку, зокрема у сферах кліматичних дій, гідної праці та відповідального виробництва. Проте ефективне впровадження ЦСР потребує не лише зусиль окремих компаній, а і спільних дій через участь

у міжнародних ініціативах і коаліціях. Партнерства на кшталт *Clean Cargo Working Group*, *Getting to Zero Coalition* та *Maritime Anti-Corruption Network* мають вирішальне значення для глобального прогресу у сфері сталого транспорту. У статті підкреслюється важливість багатовимірних і адаптивних стратегій, які враховують як операційний контекст компаній, так і світові тенденції сталого розвитку.

**Ключові слова:** інтермодальні перевезення, сталий розвиток, ЦСР, лінійні перевезення, морський транспорт, доставка контейнерів.

**Introduction.** The Sustainable Development Goals (SDGs) were adopted by all United Nations member states with the aim of achieving them by 2030, in accordance with the “2030 Agenda for Sustainable Development” [2]. The SDGs serve as a framework for governments to enhance the sustainability of their societies and, ultimately, the world as a whole. However, various organizations and international transport companies have begun to interpret and implement the SDGs differently, using them as tools for analyzing and shaping internal policies to align with this global agenda. The SDGs are intended to help companies assess different aspects of their business models in order to identify potential risks and develop strategies for their mitigation or elimination. This approach allows businesses to prioritize specific goals according to their operational profiles and focus on addressing related challenges.

The intermodal container transportation system incorporates several dimensions that can be classified as priorities from a sustainable development perspective.

Sustainable development in the context of intermodal transport is viewed through the lens of establishing principles not only for the operation of the intermodal operator itself but also for the selection criteria of partner companies (agents, actual carriers, terminal operators, and other third parties). These principles include:

- economic – efficient and responsible use of resources, aimed at ensuring long-term profitability and viability of the intermodal business;
- environmental – reduction of waste and carbon footprint during intermodal deliveries and maximization of energy efficiency to minimize negative impacts on the environment (e.g., pollution and global warming);
- social – focus on initiatives such as safety, health, diversity, and inclusiveness among intermodal company employees to foster healthier and more self-sufficient communities.

**Literature review.** The first academic publications dedicated to sustainable development in the transport sector began to emerge in the late 1980s and early 1990s, following the rise in popularity of the sustainability concept after the release of the “Our Common Future” report, widely known as the Brundtland Report [1], by the World Commission on Environment and Development. Alongside initial attempts to define sustainable development, early scholarly works appeared in the context of the transport industry, including the contributions of D. Banister, D. Gordon, P. Nijkamp, J. Whitelegg, and S. Owens [2–6].

This review is based on the analysis of the activities of leading intermodal container operators and their alignment with the United Nations Sustainable Development Goals (SDGs). These SDGs were established by the UN in 2015 as a “universal call to action to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere” [7].

Today, the topic of sustainable development in transportation is examined from various perspectives: global frameworks, maritime shipping, individual SDGs, regional strategies, and case-based analyses. For instance, the sustainability strategies of container shipping companies have been addressed in works such as [12–15], while other studies explore the implementation of sustainability principles in specific seaports across different regions, including: Finland [16], Brazil [17], Indonesia [18], Greece [19], South Korea [20], the United Kingdom [21], Taiwan (Kaohsiung) [22–23], the Netherlands (Amsterdam) [24], Spain (Port of Barcelona) [25], Vietnam (25 ports) [26], and Canada (18 ports) [27].

The diversity and volume of highly cited publications on sustainable transportation, along with the emergence of dedicated academic journals addressing shipping-related sustainability issues, clearly demonstrate a growing academic and professional interest in this subject area.

**Research area and methodology.** Unfortunately, the direct implementation of the general transport-related SDGs outlined in [34] as a roadmap for intermodal transport companies is not entirely feasible due to the following reasons:

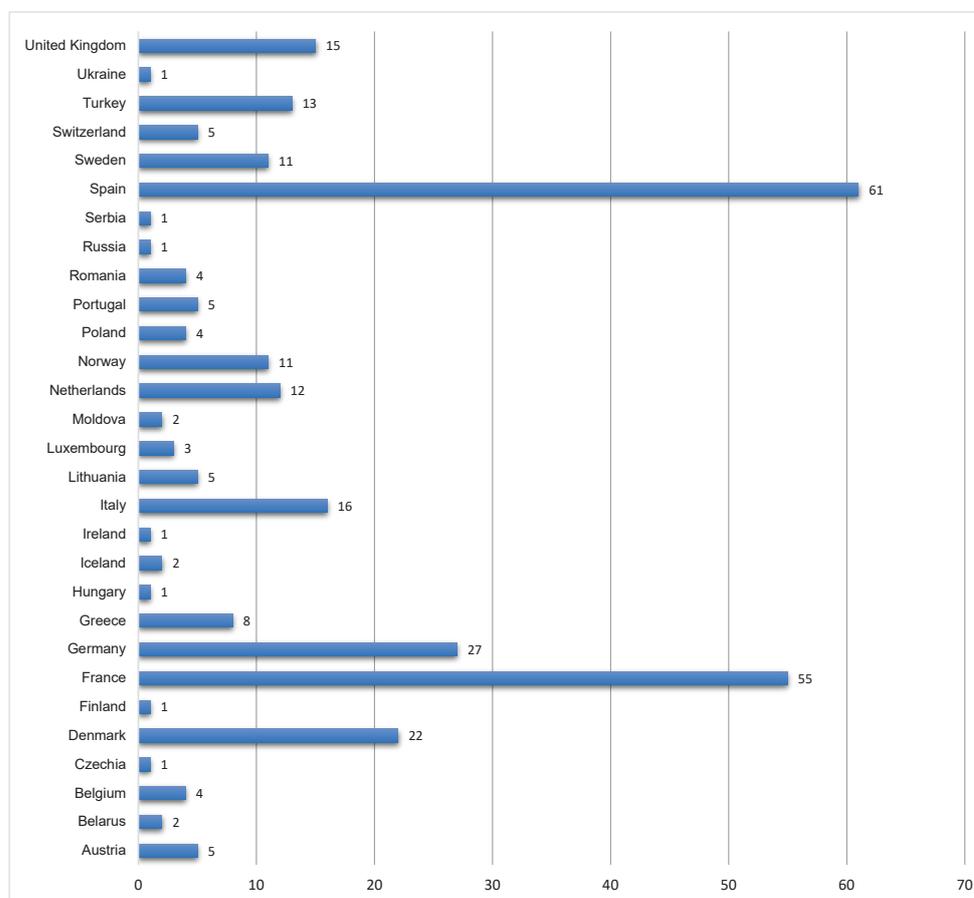
- the specific nature of intermodal transport companies lies in freight operations, which inherently limits their ability to support targets associated with passenger mobility (e.g., SDG 11.2 – access to safe, affordable public transport, and SDG 3.6 – reducing traffic-related deaths and injuries);
- the diversity among intermodal transport companies – in terms of resource availability, financial capacity, operational profiles, workforce size, and geographic scope – allows them to selectively adopt SDGs that are aligned with their capabilities and priorities;
- an intermodal company may commit to sustainable development objectives either formally (e.g., by signing the UN Global Compact) or informally by voluntarily integrating sustainability principles into their operations without external declarations.

Fig. 1 presents the number of European transport companies (sector: “Industrial Transportation”) that have joined the UN Global Compact as of May 2025, indicating their formal alignment with the sustainable development agenda.

Among the listed signatories, the leading countries are France, Germany, and Denmark. However, it is evident that only a portion of all transport companies included in the statistics actually provide intermodal services.

The analysis of intermodal transport companies’ engagement in sustainable practices was conducted using the Case Study Research (CSR) approach. A total of 123 European companies were studied, including both signatories of the UN Global Compact and those that independently commit to sustainability principles. The study focused on annual and sustainability reports of intermodal operators headquartered in EU countries, aiming to assess the scope and focus of their sustainability-oriented business activities.

**Presentation of the main research material.** As previously noted, companies independently define the hierarchy of priorities, identifying which tasks are most relevant to their business, and where they can exert influence and bear responsibility for mitigating negative impacts.



*Fig. 1. European countries whose intermodal transport companies have joined the UN Global Compact initiative as of May 2025*

All SDG-related initiatives of a particular company can be broadly classified into three categories:

- areas with a high potential for large-scale positive impact;
- areas where the company sees an opportunity for direct or indirect positive contribution;
- areas where there is potential to minimize or prevent negative consequences.

This paper identifies ten key fields of activity for intermodal transport companies (Fig. 2), through which their alignment with the Sustainable Development Goals (SDGs) is examined: establishing sustainable intermodal chains; decarbonization programs; security; responsible ships recycling; supporting diversity and inclusion; employee-employer relations policies; responsible procurement; air emissions; protecting ocean health/spills preventing; anti-corruption.

**Application of Intermodal Supply Chains.** The implementation of intermodal supply chains contributes to the achievement of several United Nations Sustainable Development Goals (SDGs). The creation of sustainable intermodal connections is directly aligned with SDGs 8.2, 8.3, 8.5, 9.3, 12.3, 17.10, and 17.16.

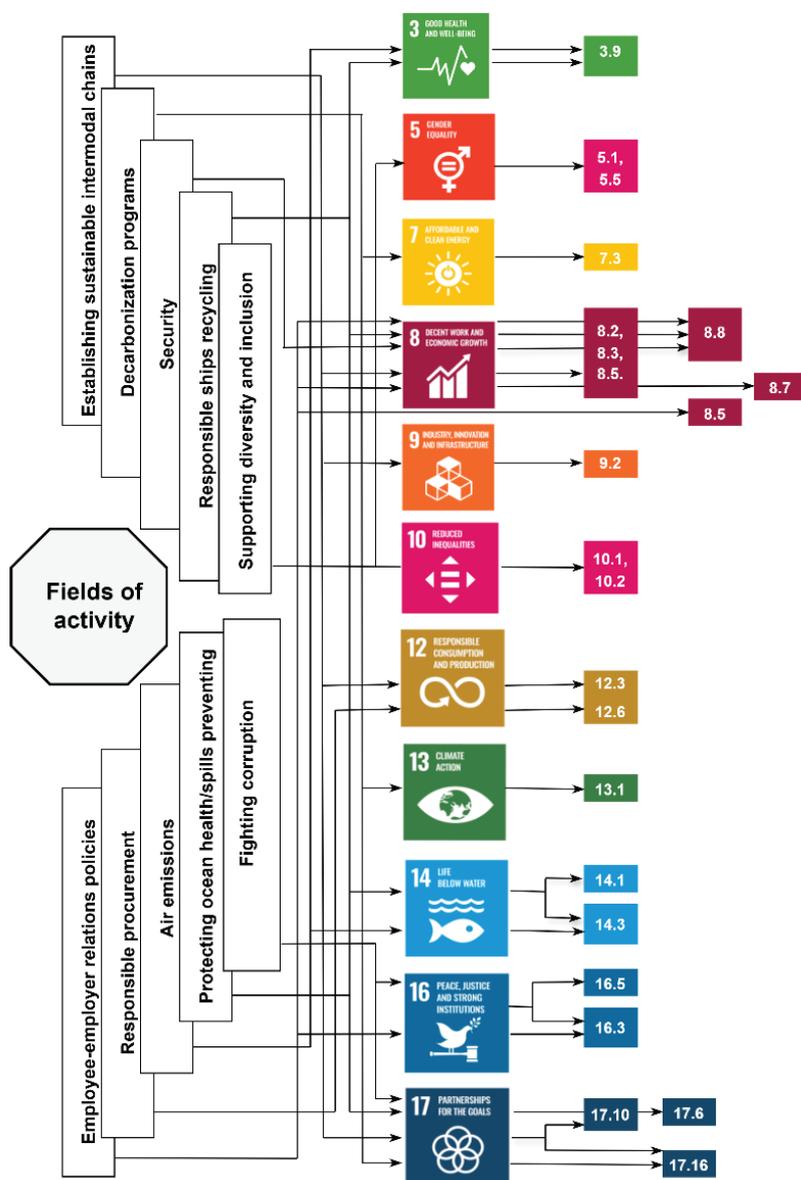


Fig. 2. Intermodal fields of activities and SDS's (Source: Compiled by the authors)

For example, the TradeLens platform (developed by IBM and GTD Solution, a division of Maersk) enabled integration of over 220 organizations, including ocean carriers, ports, and terminals, providing access to data representing nearly half of global containerized seaborne trade. Maersk is also planning two pilot projects within a multilateral initiative aimed at automating advance cargo information for developing countries (SDGs 17.10, 17.16) [22].

More than 4.000 active clients of Twill/Maersk Go and nearly 1.700 participants in its webinars and coaching programs have been recorded. Additionally, Maersk has invested in 21 start-ups supporting small and medium-sized enterprises (SMEs) in trade

facilitation, reaching over 15.000 clients. Trade procedure reform support was provided in 10 countries. Its cold chain logistics business serves hundreds of clients in nearly 50 countries (SDG 17.6). Communication with small businesses is facilitated through the Maersk Mobile App (SDG 8.2).

In 2024, CMA CGM introduced TANGRAM, a program consisting of three core modules: Artificial Intelligence (with BCG University), Leadership (with HEC Paris), and Climate (with Imperial College London), contributing to SDG target 8.5. In the same year, the company launched the *She Sails* program, aimed at promoting maritime careers for women, with the goal of having 500 female crew members by 2026 (SDGs 17.10, 8.3).

**Decarbonization Programs.** Regulatory frameworks – particularly in the European Union – are evolving in response to climate change, with a focus on sustainability and decarbonization. Business entities engaged in intermodal transport are implementing decarbonization strategies aligned with SDGs 7.3, 13.1, and 17.16.

The main contributions to energy efficiency stem from various initiatives, including fleet modernization, deployment of energy monitoring systems, and optimization of transport operations. For instance, Maersk utilizes the Star Connect monitoring system installed on all vessels, enabling real-time tracking of engine performance. This data assists crews in selecting optimal, fuel-efficient routes (SDG 7.3).

ZIM has set a target to reduce its carbon intensity (g CO<sub>2</sub>/TEU-km) by 30 % by 2025 compared to the 2021 baseline. To enhance resilience and adaptation to climate-related disruptions (SDG13.1), ZIM identified five major climate risks for monitoring: Sea-level changes; Regulatory developments; IMO Carbon Intensity Indicator (CII); Extreme weather events; Inaccurate greenhouse gas (GHG) emissions management.

CMA CGM has committed to achieving net-zero carbon emissions across all operations by 2050 and set two intermediate targets in maritime transport: a 30 % reduction in GHG emissions by 2030 and an 80 % reduction by 2040 (compared to 2008 levels). Moreover, the company adopted a strategic modal shift: 70 % of intermodal road transport operations were transitioned to lower-carbon options such as rail and barge.

A strong example of collaborative sustainable development is the joint initiative among intermodal companies such as Kuehne + Nagel, CMA CGM (which owns CEVA Logistics), and PSA (a co-owner of Loconi Intermodal S.A.). These entities are engaged in joint R&D efforts with 20 industrial partners within the Coalition for the Energy of the Future, aiming to accelerate the energy transition in global supply chains (SDG 17.16).

**Safety.** In the context of intermodal transport companies, safety issues – particularly in relation to SDG 8.8 – are of critical importance, given the sector's reliance on a diverse and often vulnerable workforce. This includes drivers, dockworkers, equipment operators, third-party personnel, and subcontractors across various transport modes and intermodal nodes.

Safety measures typically involve the deployment of real-time monitoring systems on cranes and forklifts, as well as the organization of hazard identification and emergency response training sessions. These measures form part of integrated corporate Health, Safety, Security, Environmental, and Quality (HSSE) management systems.

The intermodal transport sector operates using both directly employed staff under formal labor contracts and outsourced services from third parties. In both cases, ethical labor standards must be maintained – ensuring fair remuneration, social protection, and the right to participate in trade unions or labor committees. Since a significant portion of intermodal operations is executed through partner companies, adherence to common business ethics across the value chain is crucial.

Notable examples of codified partnership standards include the DB Code of Conduct for Business Partners [24], the Kuehne+Nagel Supplier Code of Conduct [25], and Hupac Intermodal's ethical guidelines [26]. These documents incorporate provisions prohibiting forced and child labor, upholding freedom of association, enforcing fair wages, and setting environmental criteria for logistics partners. They also address migrant worker rights, compliance with international labor standards (ILO, UNGP), workplace safety, and anti-corruption policies.

Leading intermodal operators are increasingly implementing mentorship programs for women in operational roles and are creating inclusive environments tailored to their needs. These efforts include the provision of gender-specific personal protective equipment (PPE), anti-harassment policies, and initiatives to ensure equal access to job opportunities and career advancement.

**Responsible Ship Recycling.** Ship recycling initiatives are typically undertaken by major intermodal transport operators that own and manage maritime fleets. These programs support the achievement of SDGs 8.8, 14.1, and 17.16. They are implemented under internal frameworks such as the Maersk Responsible Ship Recycling Standard and the MSC Ship Recycling Policy, in accordance with the 2009 Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, the conventions of the International Labour Organization (ILO), the United Nations Guiding Principles on Business and Human Rights (UNGP), and the OECD Guidelines for Multinational Enterprises.

**Promoting Diversity and Inclusion.** This area of activity aligns with SDGs 5.1, 5.5, 10.2, and 10.3. Some of the most impactful diversity initiatives are found in sectors traditionally dominated by male workforces. For instance, gender equality policies at Rail Cargo Group (RCG) – primarily operating in the railway sector – have increased the proportion of women in the workforce to 20.5 %, with women occupying 13 % of management roles in Austria and 19 % abroad. Furthermore, 45 % of trainees at RCG are women [29].

Hellmann Worldwide Logistics has established a representative body for employees with severe disabilities and actively develops tailored integration solutions for candidates and employees with disabilities [30]. Maersk is recognized for its consistent efforts in building an inclusive and respectful environment for LGBTQIA+ colleagues [31].

The CFL Group prioritizes diversity and equal career opportunities for all employees. It is a signatory of the Luxembourg Diversity Charter (IMS – Inspiring More Sustainability) and the Women in Rail agreement [32]. CFL has published a Gender Equality Policy and developed a multi-year action plan addressing recruitment, career development, work-life balance, and the prevention of sexual harassment and sexism. The company adheres strictly to the MEGA (Ministry of Gender Equality and Diversity) positive action approach.

**Employer–Employee Relations Policies.** In intermodal transport companies, employer–employee relations policies are most closely associated with SDGs 8.5, 8.7, 8.8, and 16.3. These initiatives often intersect with diversity and inclusion strategies, as they are aimed not only at external stakeholders but also at the internal workforce of the companies themselves.

CEVA Logistics provides an illustrative example of robust and measurable internal equality policies. The company tracks and discloses several performance indicators, including the base salary gap between women and men (score: 38/40), individual differences in salary increases (20/20), disparity in promotion rates (10/15), and the percentage of employees receiving salary increases after returning from parental leave (15/15).

A key example of SDG 8.5 in practice is the Maersk Academy, a centralized resource center offering training and mentorship programs to empower employees to meet business goals while advancing their careers. Leadership development initiatives provide managers with tools to guide teams effectively while fostering inclusive talent pipelines.

In alignment with SDG 8.6, intermodal companies strictly prohibit child labor and affirm their compliance with international standards on children’s rights. This commitment is documented in several policies and codes, such as the MSC Code of Business Conduct, Kuehne+Nagel Modern Slavery Statement, Hellmann Code of Conduct, Hupac Code of Conduct, and CEVA Logistics Statement on Fighting Against Forced Labour and Child Labour in Supply Chains.

**Responsible Procurement Policies.** According to SDG 12.6, it is recommended, particularly for large and multinational enterprises, to adopt sustainable production practices and to report on efficient resource use. Intermodal companies integrate responsible procurement policies by embedding sustainability principles throughout the value chain.

These practices are supported through the digitization and standardization of procurement processes, with particular focus on decarbonization, occupational safety, and human and labor rights. Strategic sourcing efforts aim to ensure that suppliers uphold environmental and social standards consistent with corporate sustainability goals.

**Air emissions.** Efforts to reduce air emissions support SDG 3.9, which seeks to minimize deaths and illnesses caused by hazardous chemicals and air, water, and soil pollution. A notable example of coordinated efforts in this direction is the joint initiative by CEVA Logistics, ENGIE, and SANEF to establish the European Clean Transport Network (ECTN). This alliance is focused on deploying charging infrastructure for heavy-duty trucks along highways, powered by low-carbon fuels such as biogas, hydrogen, and electricity [34].

Hapag-Lloyd has partnered with the environmental organization One Earth – One Ocean to combat marine pollution. The company operates specialized maritime waste collection vessels, such as SeeHamster and SeeKühe, tasked with the removal of oil, chemicals, and plastic waste from global waterways [35].

SDG target 14.1 is addressed through corporate standards aimed at preventing and reducing marine pollution, as well as active participation in global initiatives. Several intermodal operators, including DB Schenker, MSC, Kuehne+Nagel, Hapag, and CMA CGM, collaborate with Ocean Conservancy [36], and are members of the Clean Cargo Working Group (CCWG) [37].

**Ocean Protection incl. Spill Prevention.** Activities in this area support not only SDGs 3.9 and 14.1 but also 14.3, through the promotion of effective regulations on marine resource extraction, reduction of harmful emissions, and the adoption of environmentally friendly technologies.

These efforts are also closely linked to SDG 17.6, which emphasizes the importance of international scientific and technological cooperation for sustainable development. Intermodal companies engage in global alliances and partnerships such as the Clean Cargo Working Group, Digital Container Shipping Association (DCSA), Getting to Zero Coalition, and the Global Centre for Maritime Decarbonization (GCMD). Initiatives like the Hydrogen Council and the European Clean Hydrogen Alliance foster innovation and low-emission transport solutions.

These companies also contribute to North–South, South–South, and triangular cooperation initiatives, including the Maritime Just Transition Task Force and Mercy Ships. Moreover, they participate in monitoring programs and contribute to international data reporting platforms, including those coordinated by the United Nations [38].

**Anti-Corruption Initiatives.** Intermodal companies reinforce SDG 16.3 by promoting the rule of law through the development of employee codes of conduct and ensuring compliance with legal and ethical standards. Target 16.5 is supported through strict anti-corruption policies that prohibit facilitation payments and all forms of bribery.

These measures are further implemented through participation in global frameworks such as the Maritime Anti-Corruption Network (MACN), which includes members like Maersk, CMA CGM, and MSC [39]. Employee training programs and supply chain risk assessments strengthen the integrity of business operations. Global partnerships (SDG 17.16) are advanced through supplier engagement and participation in anti-corruption and compliance networks worldwide.

**Conclusions.** Intermodal transportation plays a crucial role in advancing the United Nations Sustainable Development Goals, particularly in areas such as energy efficiency, emissions reduction, gender equality, inclusion, and safe working conditions. However, the practical implementation of these goals varies depending on company size, business profile, and degree of engagement in global initiatives.

A systemic integration of sustainable practices is most commonly observed among large transnational corporations such as Maersk, CMA CGM, and Kuehne + Nagel, which possess the resources to invest in innovation, decarbonization, digitalization, and social initiatives. The majority of intermodal transport companies tend to adopt a flexible approach to the SDGs, selecting targets that best align with their business models. This reflects the absence of a unified standard for sustainability implementation across the intermodal sector.

Sustainability efforts are most effectively pursued through partnership-based initiatives, corporate codes of conduct, ethical procurement policies, and participation in international coalitions such as the Clean Cargo Working Group, the Getting to Zero Coalition, and the Maritime Anti-Corruption Network (MACN).

Based on the review of intermodal practices and policies, 6/10 aforesaid fields of activity (Fig. 1), with a high level of impact on sustainable development and a low level of implementation. Among them: 1) measures to comply with the principles

of decent work, equal opportunities and inclusion are mainly applied to in-house personnel. Contractors often have uncontrolled social standards; 2) the focus on global decarbonization shifts attention from noise pollution and air quality in ports/terminals, which has a negative impact on local communities; 3) responsible use of resources (reuse of containers, recycling of packaging, recycling of materials) is developing slowly, although it is declared in the policies of many companies; 4) sustainable development strategies rarely include systemic protection of intermodal infrastructure from extreme weather events, rising sea levels and other climate threats; 5) low-level of application of “green” financial instruments for infrastructure modernization; 6) despite the growth in the number of published reports, there is still no single standard of transparency, and the indicators are often incomplete and/or incomparable.

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