



1st AUTOSUP Policy Brief – 09/2025

“Enabling Seamless Automation: EU Policy Pathways for Multimodal Freight Collaboration”

The European Union's freight transport sector stands at a pivotal juncture, facing unprecedented demands for efficiency, resilience, and sustainability. As global supply chains grow increasingly complex and interconnected, the imperative to leverage advanced technologies, particularly automation and digitalisation, becomes ever more critical. This document outlines policy recommendations for the EU Commission and respective decision-makers, focusing on how EU and National policies can proactively foster collaboration and data sharing within the freight transport ecosystem.

These recommendations have followed a stakeholder co-creation approach, including workshops with extensive stakeholder engagement in key logistics hubs like Antwerp and Trieste, expert interviews, and insights from recent AUTOSUP webinars, all of which underscore the urgent need for a unified, coherent, and forward-looking policy approach.

The outcomes of those actions were evaluated against key EU initiatives. In this regard, the General Safety Regulation (Automated/Connected Vehicles, November 2019), the eFTI Regulation (Electronic Freight Transport Information, August 2020), the (EU) 2022/2236 Regulation on Technical Requirements for Automated Vehicles (June 2022), the Type Approval Framework for Automated Driving Systems, and the Commission Delegated Regulation (EU) 2024/2025 (July 2024) were considered.

The vision is clear: a seamless, multimodal, and automated freight transport system that enhances competitiveness, reduces environmental impact, and improves working conditions across the EU. Achieving this vision, however, is contingent upon addressing fundamental challenges related to interoperability, data governance, legal clarity, human adaptation, and sustainable investment. Current fragmentation, characterised by siloed operations, incompatible legacy systems, and a reluctance to share sensitive data, significantly impedes progress. EU policy has a transformative role to play in

transcending these barriers, creating an enabling environment where collaboration thrives, data flows securely, and innovation is accelerated.

This policy brief initially presents the regulatory framework gaps for the successful adoption of automated cargo transport, followed by concrete policy proposals designed to support and accelerate this transition.

A. Regulatory Framework Gaps and Mitigation Suggestions

The regulatory landscape for transport automation and digitalisation in Europe is evolving rapidly, with a growing number of initiatives aiming to ensure safety, resilience, and interoperability across modes. Key frameworks such as the EU Ports Strategy, the General Safety Regulation, the [eFTI Regulation](#), and the [NIS2 Directive](#) illustrate the European Commission's efforts to harmonise requirements for automated operations, electronic data exchange, and cybersecurity. In parallel, sector-specific initiatives, including the Digital Transport and Logistics Forum ([DTLF](#)), the Cooperative, Connected and Automated Mobility ([CCAM](#)) Partnership, and the Zero Emission Waterborne Transport ([ZEW](#)) Partnership, provide targeted guidance for innovation deployment. Despite these advances, the regulatory environment remains fragmented, with varying levels of maturity across modes and Member States, creating uncertainty for stakeholders and slowing down the large-scale adoption of automation.

Against this backdrop, several regulatory gaps can be observed that limit the seamless uptake of automated multimodal logistics. These gaps highlight the need for clearer frameworks, harmonised standards, and targeted support measures. The following section outlines the most pressing gaps identified and provides mitigation suggestions to support a more coherent and enabling regulatory environment for automation in freight transport.

1. Interoperability and technological integration

At the core of seamless automated cargo transport lies robust interoperability and standardisation. The current landscape is characterised by a patchwork of proprietary systems and disparate data formats across different transport modes (road, rail, inland waterways, sea) and logistics nodes (ports, terminals, warehouses). This fragmentation necessitates manual data re-entry, leading to errors, delays, and significant inefficiencies. For instance, the AUTOSUP workshops highlighted the critical need for common data standards and communication protocols between Terminal Operating Systems (TOS), Port Community Systems (PCS), and customs platforms. Without these, an autonomous vehicle arriving at a port cannot seamlessly exchange information with the port's internal systems or a connecting rail terminal's software.

Key Requirements:

- **Harmonised Data Models and APIs:** Develop and enforce EU-wide common data models and open Application Programming Interfaces (APIs) for critical logistics information, such as shipment status, cargo details, equipment specifications (e.g., pallets, wagons), and estimated times of arrival (ETAs). This includes promoting the adoption of existing standards where available and developing new ones where gaps exist.
- **Cross-Border Data Exchange Protocols:** Establish standardised communication protocols for international logistics corridors, ensuring that automated processes can function smoothly even when shipments traverse different national digital environments (e.g., between EU and non-EU ports, as highlighted in the Trieste workshop). The eFTI (electronic Freight Transport





Information) regulation is a crucial step, but its scope needs to be expanded and complemented by B2B standards (e.g., eCMR).

- **Federated Data Platforms:** Promote the creation and adoption of federated data platforms for freight hubs and logistics nodes. These platforms should aggregate information from multiple sources (ports, rail terminals, distribution centers) using common data structures to break down data silos and enable real-time visibility across the entire supply chain. Neutral, cross-industry bodies like ALICE and DTLF should be empowered to oversee and facilitate this standardisation.

2. Security Aspects

As logistics systems become increasingly automated and digitally interconnected, the exposure to cyber threats and operational safety risks escalates. A single point of failure or a successful cyberattack on a critical automated system could have cascading effects, disrupting entire national or even international transport networks.

Key Requirements:

- **Enhanced Cybersecurity Protocols:** Mandate and support the implementation of robust cybersecurity measures across all automated logistics systems. This includes advanced encryption, multi-factor authentication, intrusion detection systems, and secure communication channels (e.g., private 5G networks for sensor and system communication). Regular security audits and penetration testing should be a standard practice.
- **Clear Cybersecurity Certification:** Establish EU-wide cybersecurity certification processes and standards for integrated automated systems. This holistic certification, rather than individual component certification, would ensure that the entire system, including its interfaces and interdependencies, meets minimum security criteria. Certification bodies for eFTI platform developers, compliant with EU regulations, are essential.
- **Data Protection and Sovereignty:** Strengthen data protection measures, ensuring full compliance with GDPR, particularly concerning data storage and processing locations. Policies must address concerns about IT systems hosted outside the EU that may not adhere to European data privacy standards, ensuring that European customer data is securely stored and managed.
- **Comprehensive Contingency Planning:** Develop and mandate comprehensive contingency plans for automated logistics operations. This includes maintaining de-connected backup systems, enabling manual override capabilities for critical functions (e.g., remote control of locks and bridges), and establishing clear emergency response protocols for system failures or cyber incidents.
- **Physical Safety Integration:** Ensure that physical security and safety systems evolve in tandem with automation. This involves safeguarding automated equipment from tampering, implementing fail-safes for robots and autonomous vehicles to prevent accidents (e.g., AGV collisions with humans), and developing predictive algorithms to monitor automated systems for pre-emptive safety actions.



3. Legal and Regulatory Certainty

The current legal and regulatory landscape often lags behind technological advancements, creating significant uncertainties that deter investment and adoption of automated solutions. Ambiguity surrounding liability in the event of accidents involving autonomous vehicles, for instance, is a major impediment.

Key Requirements:

- **Unified Liability Frameworks:** Develop clear, harmonised EU-wide liability frameworks for automated transport operations. This framework must define responsibilities for all parties involved (operators, technology providers, infrastructure owners, and insurers) in cases of damage, loss, or data breaches, thereby reducing legal uncertainty and facilitating insurance mechanisms.
- **Adaptive Transport and Safety Regulations:** Review and adapt existing transport and safety regulations to accommodate automated operations across all modes. This includes harmonising rules for autonomous truck platooning on highways, drone operations in ports, and automated crane usage, ensuring that regulations are technology-neutral and support cross-border deployment.
- **Holistic Certification Processes:** Complement legal frameworks with holistic certification processes for integrated automated systems, as opposed to individual components. This ensures that the entire system, from hardware to software and data flows, meets specified safety and reliability standards.
- **Compliance with Existing Laws:** Reinforce the importance of compliance with existing labour laws, data protection laws (GDPR), and environmental regulations within the context of automation. Policies should ensure that automation improves working conditions and respects workers' rights, while also contributing to environmental targets.
- **Multi-Stakeholder Regulatory Dialogue:** Foster multi-stakeholder forums involving technology providers, logistics companies, insurers, research organisations, and regulators to collaboratively shape practical and enforceable guidelines for automation. This ensures that legal frameworks are informed by real-world operational complexities and technological realities.

4. Impact of Automation on Personnel

Automation will fundamentally reshape the logistics workforce, shifting roles from manual execution to supervision, data analysis, and exception handling. A successful transition requires proactive human-centric policies that address skill gaps, manage change, and ensure worker well-being.

Key Requirements:

- **Targeted Training and Upskilling Programs:** Develop and fund comprehensive EU-wide training and upskilling programs. These programs should focus on equipping current logistics personnel with essential ICT skills, automation management capabilities, and proficiency in human-machine interfaces (HMI). Training should be staggered and practical, utilising simulators and real-world pilot projects.





- **New Talent Profiles:** Encourage the development of new educational and vocational pathways that combine logistics knowledge with IT and problem-solving skills, potentially attracting new talent pools (e.g., individuals with gaming backgrounds for remote operations).
- **Effective Change Management and Communication:** Implement policies that mandate and support robust change management strategies within organisations. This includes early and transparent communication with employees and unions about the benefits of automation (e.g., reduced strenuous work, improved safety), addressing fears of job displacement, and showcasing how automation augments human capabilities. Pilot projects and demonstrations can be crucial in demystifying technology and building acceptance.
- **Workforce Safety and Well-being:** Ensure that automation genuinely improves workforce safety by taking over hazardous tasks (e.g., automated systems in chemical warehouses, remote-controlled cranes). Policies should also address any new risks introduced by automation and ensure that HMI designs are intuitive and safe, prioritising the well-being of operators.
- **Social Dialogue:** Promote continuous social dialogue between employers, employees, and trade unions at both national and EU levels to collaboratively manage the transition, negotiate new roles, and ensure fair working conditions in an automated environment.

5. Cost and Benefits of Automation

The high upfront costs associated with automation investments can be a significant barrier, particularly for Small and Medium-sized Enterprises (SMEs). Policies must ensure that automation projects are economically viable and contribute to broader sustainability goals.

Key Requirements:

- **Incentivising Investment:** Introduce EU-level financial incentives (e.g., grants, subsidies, tax breaks) for companies investing in automation technologies that demonstrate clear efficiency gains, cost reductions, and adherence to EU standards for interoperability and security. Prioritise investments that support multimodal shifts and green logistics.
- **Long-Term ROI Frameworks:** Promote frameworks for evaluating automation investments based on long-term Return on Investment (ROI), accounting for operational cost reductions, increased throughput, improved reliability, and enhanced resource utilisation. This helps overcome the focus on short-term financial gaps.
- **Public-Private Partnerships (PPPs):** Foster PPPs for large-scale automation infrastructure projects (e.g., federated freight hubs, cross-border digital corridors). These partnerships can de-risk investments, share expertise, and accelerate deployment.
- **Integration of Sustainability Metrics:** Mandate the integration of sustainability metrics into the operational assessment of automation projects. This includes tracking reductions in greenhouse gas emissions, improvements in energy efficiency, and the percentage of cargo shifted to lower-emission transport modes (e.g., road-to-rail via automation). Policies should link funding and incentives to demonstrable environmental benefits.
- **Circular Economy Principles:** Encourage automation solutions that support circular economy principles, such as optimised resource utilisation, reduced waste, and extended asset life through predictive maintenance.



- **Fair Competition and Market Access:** Ensure that policies promoting automation do not inadvertently create monopolies or disadvantage smaller players. Promote open platforms and fair market access to foster innovation and healthy competition.

6. Collaboration Among Supply Chain Stakeholders

Effective collaboration across supply chain actors is a cornerstone of successful automation adoption. Stakeholders underlined that fragmented governance structures, siloed data practices, and a lack of trusted platforms significantly hinder seamless multimodal operations. Moreover, they emphasised the need for common governance processes, federated data spaces, and neutral platforms to facilitate secure and transparent information sharing.

Key Requirements:

- **Shared Governance Models:** Develop EU-level frameworks that define clear responsibilities and decision-making processes among logistics stakeholders, ensuring balanced participation of shippers, carriers, terminal operators, and technology providers.
- **Trusted Data Spaces:** Support the creation of federated, neutral and interoperable data spaces where stakeholders can share operational and planning data while retaining data sovereignty.
- **Stakeholder Forums and Alliances:** Institutionalise cross-sectoral forums (e.g. ALICE Automation in Logistics initiative) to align requirements, build trust and reduce duplication of efforts across projects and initiatives.
- **Capacity-Building and Trust Mechanisms:** Invest in programmes that strengthen stakeholder confidence in collaborative models, including guidelines for liability, dispute resolution, and transparent benefit-sharing.

B. Policies Encouraging Collaboration and Data Sharing Across Transport Modes

As highlighted in the previous section, fragmentation in regulatory frameworks, the lack of harmonised standards, and uncertainties around liability, security, and data governance remain critical barriers to the adoption of automation in multimodal freight. These gaps not only hinder technological interoperability but also weaken trust and discourage stakeholders from sharing data or engaging in cross-modal collaboration. Overcoming these challenges requires policies that create a common foundation for collaboration, strengthen incentives for data exchange, and ensure a secure and trusted environment for all actors in the logistics ecosystem.

The following policies focus on addressing these gaps by encouraging interoperability, establishing clear governance mechanisms, and promoting a culture of collaboration and data sharing across transport modes, with the aim of accelerating the transition to seamless, automated multimodal logistics.

1. Unified EU Digital Transport Space (EDTS)

The EU should actively work towards creating a unified European Digital Transport Space (EDTS) that serves as the overarching framework for data exchange and collaboration.





- **Action 1.1: Develop and Mandate Common EU Data Standards and Ontologies:**
 - **Policy:** The Commission should establish a dedicated task force, involving ALICE, DTLF, and other relevant standardisation bodies, to develop and mandate a comprehensive set of common data standards and ontologies for all critical freight transport operations (e.g., shipment data, vehicle status, infrastructure availability, customs information). These standards should be open, technology-neutral, and compatible with international best practices.
 - **Implementation:** Introduce legislative proposals that make adherence to these standards mandatory for new digital platforms and systems deployed in EU freight transport. Provide transition periods and financial support for legacy systems to upgrade.
 - **Impact:** This will directly address data interoperability challenges, reduce data engineering complexities, and enable seamless technological integration and communication between different systems (Customs, TOS, IoT, TMS), eliminating manual re-entry and reducing errors.
- **Action 1.2: Promote and Support Federated Data Platforms and Data Spaces:**
 - **Policy:** Actively promote and co-fund the development and adoption of federated data platforms and secure data spaces (e.g., European Data Spaces for Mobility) that allow controlled, secure, and transparent data sharing among supply chain actors.
 - **Implementation:** Launch pilot projects for cross-modal and cross-border data spaces in key logistics corridors and hubs, demonstrating their benefits. Provide clear legal guidance on data ownership, access rights, and governance within these spaces, potentially leveraging blockchain or distributed ledger technologies for enhanced traceability and trust.
 - **Impact:** This will foster a culture of data sharing, overcome reluctance due to confidentiality concerns, and create a common operational picture for all stakeholders, leading to optimized routes, reduced congestion, and improved real-time tracking.
- **Action 1.3: Accelerate the Implementation of eFTI and Expand its Scope:**
 - **Policy:** Ensure the swift and effective implementation of the eFTI regulation for Business-to-Administration (B2A) communication. Simultaneously, initiate discussions and legislative proposals to expand the scope of eFTI to include Business-to-Business (B2B) data exchange, potentially through the development of an EU-wide eCMR standard.
 - **Implementation:** Provide technical assistance and funding for SMEs to adopt eFTI-compliant systems. Develop user-friendly digital tools and platforms that simplify the creation and exchange of electronic transport documents.
 - **Impact:** This will significantly reduce administrative burdens, eliminate paper-based processes, and enable automated document flow, which is crucial for end-to-end automation and real-time decision-making.



2. Strengthening Cybersecurity and Resilience

Given the increasing threat landscape, EU policy must prioritise the cybersecurity and resilience of automated freight transport infrastructure.

- **Action 2.1: Enhance and Enforce the NIS2 Directive for the Transport Sector:**
 - **Policy:** Ensure robust implementation and enforcement of the NIS2 Directive within the freight transport sector, classifying critical logistics infrastructure (ports, major terminals, digital platforms) as essential entities subject to stringent cybersecurity requirements.
 - **Implementation:** Develop sector-specific guidelines and best practices for cybersecurity risk management, incident reporting, and information sharing within the transport sector. Conduct regular EU-wide cybersecurity exercises and simulations involving public and private stakeholders.
 - **Impact:** This will raise the baseline for cybersecurity across the sector, improve incident response capabilities, and foster a more coordinated approach to threat intelligence sharing, protecting automated systems and the resilience of critical infrastructures from cyberattacks.
- **Action 2.2: Establish an EU Certification Scheme for Automated Logistics Technologies:**
 - **Policy:** Develop a mandatory EU-wide certification scheme for automated logistics technologies and integrated systems, focusing on cybersecurity, functional safety, and data protection.
 - **Implementation:** Define clear technical specifications and testing procedures for certification. Establish accredited certification bodies with expertise in both automation and cybersecurity. The certification should cover the entire system, including hardware, software, and communication protocols.
 - **Impact:** This will build trust in automated solutions, provide a clear benchmark for security and safety, and facilitate market access for compliant technologies, reducing risks associated with low-quality or vulnerable systems.
- **Action 2.3: Support Research and Development in Predictive Security and Resilience:**
 - **Policy:** Increase funding for Horizon Europe and other EU research programs focused on developing advanced cybersecurity solutions for automated transport, including AI-driven predictive security algorithms, threat intelligence platforms, and resilient system architectures.
 - **Implementation:** Encourage public-private research collaborations to develop and test innovative security measures, such as continuous validation of autonomous vehicle control, and satellite-based backup systems for critical communications.
 - **Impact:** This will ensure that the EU remains at the forefront of cybersecurity innovation, anticipating and mitigating emerging threats to automated logistics.

3. Legal and Regulatory Frameworks

The EU must proactively update its legal and regulatory frameworks (see first page of this Policy Brief) to provide certainty and enable the safe and efficient deployment of automated freight transport.



- **Action 3.1: Develop a Harmonised EU Liability Framework for Automated Vehicles and Systems:**
 - **Policy:** The Commission should propose a clear and comprehensive EU regulation on liability for automated vehicles and systems in freight transport, addressing issues of responsibility in case of accidents, malfunctions, or data breaches.
 - **Implementation:** This framework should consider shared liability models, insurance requirements, and mechanisms for dispute resolution. It should cover all modes of transport and integrate with existing national legal systems where appropriate.
 - **Impact:** This will remove a significant legal barrier to the adoption of autonomous vehicles and automated systems, encouraging investment and deployment by providing legal certainty for operators and technology providers.
- **Action 3.2: Harmonise Cross-Border Regulations for Automated Operations:**
 - **Policy:** Initiate legislative processes to harmonise national regulations that currently impede cross-border automated operations. This includes rules on autonomous truck platooning, drone usage in shared airspace, and remote operation of port machinery across national borders.
 - **Implementation:** Establish an EU-level regulatory body or expand the mandate of existing agencies to oversee the harmonisation and enforcement of these regulations, ensuring consistency across Member States.
 - **Impact:** This will create a truly seamless European transport network for automated freight, eliminating bureaucratic hurdles and facilitating the efficient movement of goods.
- **Action 3.3: Ensure Regulatory Expertise and Training:**
 - **Policy:** Implement programs to train and upskill personnel within national and EU regulatory bodies, customs authorities, and certification agencies on emerging automation technologies, their vulnerabilities, and their operational implications.
 - **Implementation:** Organise regular workshops, seminars, and exchange programs between regulators and industry experts to foster a common understanding of the technological landscape and its regulatory needs.
 - **Impact:** This will ensure that legal and regulatory frameworks are well-informed, practical, and adaptable to rapid technological advancements, avoiding the creation of outdated or counterproductive rules.

4. Workforce Transformation and Social Dialogue

Recognising the human dimension of automation, EU policy must prioritise workforce adaptation and foster constructive social dialogue.

- **Action 4.1: Establish an EU Skills Alliance for Logistics Automation:**
 - **Policy:** Create an EU-wide "Skills Alliance for Logistics Automation" involving educational institutions, vocational training centers, industry associations, and trade unions.





- **Implementation:** This alliance would develop standardised curricula for new skills required in automated logistics (e.g., IT skills, data analytics, HMI operation, problem-solving for exceptions). It should also facilitate the recognition of qualifications across Member States and support the development of practical training tools like simulators. Provide funding for companies to implement internal reskilling programs.
- **Impact:** This will ensure a skilled workforce capable of operating and managing automated systems, mitigating job displacement fears, and transforming roles into higher-value activities.
- **Action 4.2: Promote Best Practices in Change Management and Communication:**
 - **Policy:** Develop and disseminate EU-level guidelines and best practices for change management and communication strategies within organisations adopting automation.
 - **Implementation:** Encourage pilot projects and demonstrations that actively involve workers, showcasing the benefits of automation (e.g., improved safety, reduced physical strain) and demonstrating how human roles will evolve rather than disappear, strengthening workforce adaptation and social acceptance of automation. Provide support for companies to engage in early and continuous dialogue with employees and unions.
 - **Impact:** This will foster greater acceptance of automation, reduce resistance to change, and ensure a smoother transition for the workforce, promoting a human-in-the-loop approach to technological adoption.
- **Action 4.3: Support Research on Human-Machine Interaction (HMI) and Ergonomics:**
 - **Policy:** Fund research and innovation projects focused on designing intuitive, safe, and user-friendly Human-Machine Interfaces (HMI) for automated logistics systems.
 - **Implementation:** Emphasise ergonomic design principles and cognitive load considerations in HMI development to optimise human performance and reduce errors in supervisory roles.
 - **Impact:** This will enhance operational safety, improve worker efficiency, and ensure that automated systems are designed with human capabilities and limitations in mind.

5. Fostering Sustainable and Financially Viable Automation

EU policy should ensure that automation investments are not only economically sound but also contribute significantly to the Union's ambitious sustainability goals.

- **Action 5.1: Integrate Green Criteria into Automation Funding Programs:**
 - **Policy:** Mandate that all EU funding programs for logistics automation (e.g., Connecting Europe Facility, Horizon Europe) include strong "green criteria" that prioritise projects demonstrating clear environmental benefits.
 - **Implementation:** Incentivise automation solutions that facilitate modal shifts to lower-emission transport modes (rail, inland waterways), optimise energy consumption, reduce empty runs, and minimise waste. Require applicants to provide quantifiable sustainability metrics, supported where possible by standardised cost-benefit analysis (CBA) frameworks.





- **Impact:** This will align automation investments with EU Green Deal objectives, accelerate decarbonization of the freight sector, and promote resource efficiency.
- **Action 5.2: Develop and Promote Business Models for Shared Risk and Reward:**
 - **Policy:** Encourage the development and adoption of innovative business models that facilitate shared risk and reward among supply chain partners in automated environments.
 - **Implementation:** Provide legal and financial guidance on "gain/loss sharing" contractual arrangements. Explore how environmental benefits (e.g., CO2 reduction) can be monetised or recognised as shared rewards within collaborative frameworks.
 - **Impact:** This will incentivise collaboration, support multi-stakeholder governance frameworks, and overcome the "what's in it for me?" mentality, ensuring that the benefits of automation are equitably distributed across the supply chain, and fostering a more robust and resilient ecosystem.
- **Action 5.3: Support Pilot Projects and Living Labs for Integrated Automation:**
 - **Policy:** Increase funding and support for large-scale pilot projects and "Living Labs" (like those in AUTOSUP) that demonstrate integrated, end-to-end automation solutions across different transport modes and logistics nodes.
 - **Implementation:** These projects should serve as testbeds for new technologies, business models, and regulatory approaches, providing practical insights for wider industry implementation. Focus on scalability and replicability of solutions.
 - **Impact:** This will accelerate the learning curve, validate the economic and environmental benefits of automation in real-world contexts, and build confidence for broader adoption.



Funded by
the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N. 101147468. Views and opinions expressed are however those of the author (s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.



C. Summary

Key Findings and Policy Directions

Automation and digitalisation are transforming European freight transport, but fragmented regulations, data barriers, and workforce challenges risk slowing this progress.

🔍 Key Regulatory Gaps

1. **Interoperability & Standards**
– Lack of harmonised data formats and protocols.
2. **Legal & Liability Frameworks**
– Unclear rules on accidents, failures, and data breaches.
3. **Cybersecurity & Data Protection**
– Inconsistent certification and enforcement.
4. **Workforce Adaptation**
– Limited training/reskilling for new roles.
5. **Economic & Sustainability Incentives**
– Few mechanisms to support investments aligned with decarbonisation.

🚀 Policy Directions

- ✓ **Harmonised EU standards for interoperability and data exchange.**
- ✓ **EU-wide framework for electronic transport documents.**
- ✓ **Clear liability and governance rules to build trust.**
- ✓ **Data sovereignty & secure sharing through common data spaces.**
- ✓ **Investment in training and capacity building.**
- ✓ **Stronger cybersecurity awareness & certification schemes.**
- ✓ **Ports as integrated multimodal hubs adopting EU-wide standards.**

🚀 The Way Forward

Europe must move from fragmented initiatives to **coherent, cross-sector frameworks**. Harmonised standards, legal clarity, and secure data governance will enable certainty for investment, while training and incentives ensure that automation benefits **industry, workers, and society**.



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