SLOG 4.0

Digital and green skills for boosting innovation and sustainability of the logistics sector

PROJECT AIMS

The project links two frameworks: sustainability/green skills and 4.0 technologies/digital skills within the field of logistics and aims to adapt green and digital skills of students to the requirements of the industry 4.0.

"TO INCREASE THE ADOPTION OF SUSTAINABLE AND DIGITAL PRACTICES IN THE LOGISTICS SECTOR, SECTOR RESPONSIBLE FOR CREATING SUBSTANTIAL COSTS FOR SOCIETY."

IN THIS ISSUE:

The Final SLOG4.0 Project Meeting at Poznan University of Technology

On **17 June 2025,** the SLOG4.0 consortium gathered for a morning working session to put the finishing touches on the presentations for the project's final conference. The agenda included a brief recap of achievements, a review of deliverables, and a discussion on communication channels. Particular attention was given to the project's social media activities, the production of videos, and the organization of local dissemination events.

The **final conference** opened with a welcome address from the Dean of the Faculty, setting the tone for the day. This was followed by a keynote by **Emilia Sutton** from Sutton ESG Consulting, titled "ESG in Logistics: From Compliance to Competitive Advantage." Her talk highlighted the growing importance of embedding Environmental, Social, and Governance (ESG) principles in the logistics sector, stressing their role in aligning businesses with global sustainability priorities and fostering responsible practices.

Afterwards, project partners **Beata Mrugalska, Brigitta Gajšek, Jana Faschinger-Sanborn, Elizabeth Pereira, and Nina Szczygiel** jointly presented the main results of Slog4.0. Their contribution offered a comprehensive view of the project's progress:

- **WP2**: Training Needs Analysis and development of curriculum design principles.
- **WP3**: Creation of training materials and assessment frameworks.
- **WP4**: Piloting of the course and delivery of outputs.
- **WP5:** Communication and outreach.

The presentation also included a demonstration of the online platform and a summary of pilot activities conducted across the three participating universities.

The Final SLOG4.0 Project Meeting at Poznan University of Technology

The conference was concluded with an engaging **Round Table** where partners reflected on several forward-looking questions:

- Which upcoming innovations in sustainable logistics are most promising?
- How can policy and regulation stimulate greener logistics?
- Is the demand for sustainable logistics driven more by clients or by institutional pressures?
- What value can interdisciplinary programs (IT, environmental sciences, logistics) add in training future leaders?
- What concrete benefits has this project delivered to stakeholders?
- What were the main lessons learned?
- Which challenges arise when collaborating in Erasmus projects?

The discussion allowed partners to share experiences, highlight lessons from the project, and gather valuable feedback from the audience.

Gamification and Virtual Reality: New Frontiers in Sustainability Training

In recent years, organizations have been rethinking how they deliver sustainability education to their workforce. Traditional workshops or one-off presentations often struggle to capture attention or translate into long-term behavioral change. To overcome this, companies are increasingly adopting **gamification and virtual reality (VR)** as innovative tools for training.

Gamification introduces game mechanics—such as points, levels, leaderboards, and rewards—into professional learning environments. Rather than simply reading about carbon reduction or energy efficiency, employees are challenged to complete missions, solve sustainability puzzles, or compete in team-based scenarios where every action contributes to a measurable outcome. This playful element keeps participants engaged, encourages repetition, and turns abstract concepts into actionable knowledge.

Meanwhile, **VR simulations** take immersion a step further. Using headsets, employees can experience firsthand the complexity of supply chains, test strategies for waste reduction, or explore the environmental impact of logistics decisions in a virtual world. For example, a VR module might place the user in a warehouse tasked with reorganizing transport flows to cut emissions. The immediate feedback allows participants to understand trade-offs and consequences in a safe, risk-free environment.

Gamification and Virtual Reality: New Frontiers in Sustainability Training

The combination of gamification and VR not only increases motivation but also enhances **knowledge retention**. Studies suggest that interactive and immersive formats help learners internalize information faster and apply it more effectively in their daily roles. For companies, this means sustainability training becomes less of a compliance exercise and more of a strategic investment—shaping employees who can think critically about resource efficiency, ESG commitments, and future-oriented practices.

Looking ahead, these tools also open up possibilities for **scalable training programs** across regions and departments, ensuring that large organizations can deliver consistent and engaging sustainability education. By making the learning journey interactive, memorable, and fun, gamification and VR are redefining how businesses prepare their teams for a greener, more responsible future.

Sustainability KPIs in Employee Performance Reviews

A growing number of organizations are embedding **sustainability Key Performance Indicators (KPIs)** into staff evaluations, signaling that environmental and social responsibility is no longer peripheral but central to business success. By linking sustainability outcomes directly to appraisals, bonuses, and career progression, companies are turning broad commitments into everyday practice.

KPIs are tailored to roles and responsibilities. For example:

- **Staff members** may be assessed on reducing paper use through digital tools, meeting recycling targets, or choosing greener travel options.
- **Managers** might be evaluated on implementing sustainable procurement policies, leading energy-saving initiatives, or cutting departmental waste.
- **Executives** are often measured against company-wide goals, such as emission reduction, integrating ESG into strategy, or ensuring supplier compliance with sustainability standards.

Several global companies already lead the way. **Unilever** ties part of its management incentives to waste and emission reduction. **Microsoft** includes carbon reduction goals in executive compensation, ensuring accountability for climate pledges. **DHL** assesses managers on their ability to introduce sustainable logistics practices, such as fleet electrification and route optimization.

These examples highlight how linking sustainability KPIs to performance reviews creates clear accountability. Employees see how their efforts contribute to the company's broader goals, and sustainability becomes inseparable from professional success. In some cases, these KPIs are also tied to bonuses or career progression, making eco-friendly performance as valuable as financial or operational results.

Sustainability KPIs in Employee Performance Reviews

Beyond **motivation**, this practice also builds **trust** with stakeholders. Investors, customers, and regulators increasingly expect measurable progress. When companies can show that sustainability is part of the performance framework for every employee, they demonstrate genuine commitment rather than surface-level pledges

Thus, this approach has **three key benefits**:

1. **Accountability** – employees see how their actions contribute to company-wide sustainability goals.
2. **Behavioral change** – broad strategies are translated into concrete, measurable practices at every level.
3. **Credibility** – investors, regulators, and customers recognize sustainability as a core business metric, not a symbolic gesture.

In short, weaving sustainability KPIs into performance reviews ensures that eco-friendly practices are rewarded, learned, and scaled across the organization. It creates a culture where responsible action is not optional, but a shared driver of long-term success.

Policy and Regulatory Developments in Green Logistics: The EU Perspective

The European Union has been rolling out a wave of new regulations that place sustainability at the heart of logistics. These initiatives are reshaping how goods are moved across Europe, setting ambitious targets for emissions reductions, infrastructure development, and supply chain transparency.

Greener Shipping

From **2024**, maritime transport is included in **the EU Emissions Trading System (ETS)**. Shipping companies must now purchase allowances for their CO_2 emissions—40% in 2025, 70% in 2026, and 100% from 2027. In parallel, **the FuelEU Maritime Regulation** (effective 2025) requires gradual reductions in the greenhouse gas intensity of ship fuels, alongside mandatory shore-side electricity connections in ports. These measures will raise operating costs but also accelerate the adoption of cleaner fuels and technologies.

Road Freight Transformation

Heavy-duty vehicles are also under the spotlight. Revised EU rules set steep reduction targets for new trucks: **45% by 2030, 65% by 2035, and 90% by 2040**, compared with 2019 levels. All new urban buses must be zero-emission by 2035. This regulatory push is driving manufacturers and logistics operators to fast-track the transition to electric and hydrogen-powered fleets, even as charging infrastructure remains a challenge.

Green Corridors and Inland Waterways

The EU is also investing in **Green Freight Corridors**, linking ports with inland hubs through lower-emission transport chains. Inland waterway freight is set to expand by **25% by 2030 and 50% by 2050**, providing alternatives to congested and polluting road routes.

Policy and Regulatory Developments in Green Logistics: The EU Perspective

Supply Chain Accountability

Beyond transport, Brussels has advanced legislation requiring companies to ensure that their supply chains meet environmental and social standards. While still debated among member states, **the Corporate Sustainability Due Diligence Directive** points toward a future where compliance on ESG issues becomes inseparable from logistics operations.

Why it matters?

For logistics players, these developments mean that sustainability is no longer optional- it is embedded in both daily operations and long-term strategy. Shipping firms must factor in carbon pricing. Road carriers need fleet transition roadmaps. Ports and terminal operators will be asked to deliver cleaner energy infrastructure. And all actors will need to prepare for greater scrutiny of their supply chains.

The EU's approach is clear: by combining **regulatory pressure** with **infrastructure investment,** it aims to position Europe as a leader in green logistics. For companies, adapting early is not just about compliance - it is a chance to innovate and remain competitive in a rapidly changing market.

Green Logistics Certifications and Standards

Sustainability in logistics is no longer a “nice to have” but a business necessity. Across the EU, companies are increasingly adopting recognized certifications and standards to prove their environmental commitments and to remain competitive in supply chains where sustainability is becoming a key requirement.

The most common is **ISO 14001,** which sets out an environmental management system. Major logistics players such as **DHL Supply Chain and DB Schenker** apply it across their European operations, ensuring fuel use, waste management, and emissions are systematically tracked and reduced. Energy performance is covered by **ISO 50001.** Companies like **PostNord in Scandinavia** have used it to cut electricity consumption in sorting centers, while **Kuehne+Nagel** relies on it to optimize warehouse energy efficiency. For transport emissions, the GLEC Framework is becoming the global benchmark. Firms such as Maersk and Kuehne+Nagel use it to provide shippers with reliable carbon footprint data for their cargo, helping customers make informed choices. Finally, green building labels such as BREEAM and LEED are transforming logistics real estate.

The EU’s own scheme, **EMAS (Eco-Management and Audit Scheme),** goes a step further by requiring verified environmental reporting. It has been adopted by the **Port of Valencia in Spain and the Port of Antwerp-Bruges in Belgium**, making environmental performance transparent and comparable.

These certifications **are not just badges**. They drive operational efficiency, prepare companies for stricter EU regulations, and give logistics providers a competitive advantage when bidding for contracts. In today’s market, being certified is increasingly the difference between being considered a partner or left behind.

WHAT IS SLOG4.0?

Slog4.0 is a European project that aims to promote the uptake of eco-friendly and technologically advanced approaches within the logistics industry, a sector known for generating significant expenses for society, including greenhouse gas emissions and pollutants. For this purpose, it aims to contribute to the formation of a fresh cohort of proficient professionals for the logistics sector, equipped with a sustainability-focused mindset and a comprehensive skill set aligned with the principles of Industry 4.0.

PROJECT INFORMATION

Name: Sustainable Logistics4.0: Digital and green skills for boosting innovation and sustainability of the logistics sector
Project number: 2022-1-PL01-KA220-HED-000086366
Duration: 36 months
Funding: Erasmus+ Programme of the European Union, call "Cooperation partnerships in higher education"

PROJECT PARTNERS

The consortium includes 4 universities that believe in the need of proposing an innovative training offer in the field of logistic 4.0 by developing a new interdisciplinary curriculum, and 3 companies providing specialized and advanced services, selected upon the expected commitment proven by consolidated previous relations and their acknowledged proficiency.
The partners of the project are:

- Poznan University of Technology (Poland) - coordinator
- University of Aveiro (Portugal)
- University of Gaziantep (Turkey)
- University of Maribor (Slovenia)
- RESOLVO srl (Italy)
- ECQA (Austria)
- Zerynth srl (Italy)

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