

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."**

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The logo for SLog4.0, featuring the word "SLog" in blue and "4.0" in green, with a stylized green underline that loops under the "0".

PRESENTATION ON...

Highlights from the SLog4.0 consortium's meeting in Florence

During an intensive two-day period, the SLog4.0 consortium, consisting of esteemed partners from Poland, Slovenia, Italy, Turkey, Portugal, and Austria, **convened in Florence** to outline the trajectory of the project.

On the first day, the ValueDo's team kicked off discussions, laying the groundwork for the topics ahead. The agenda primarily focused on essential elements such as drafting the interim report, developing training materials, assessment methodologies, dissemination strategies, and gathering green challenges from logistics companies. Partners engaged in robust discussions regarding the **creation of training materials**, emphasizing coherence and adherence to established guidelines. Discussions also extended to **assessment methodologies**, with partners favoring **multiple-choice formats for modules 1 to 3 and team-based exercises for module 4**. The consortium also reviewed dissemination strategies, recognizing achievements while identifying avenues for improvement. Asli Özpolat of the Gaziantep team presented a structured approach for collecting **green challenges** from logistics companies, stressing the importance of clarity in communication.

The following day began with a focus on **dissemination updates** and future activities. Partners discussed progress made in dissemination efforts, pinpointed areas for improvement, and outlined strategies to enhance social media presence, newsletter subscriptions, and website traffic to meet KPIs.



CIRCULAR ECONOMY

What is it?

The circular economy represents a paradigm of production and consumption characterized by the systematic integration of principles such as resource sharing, borrowing, reuse, repair, refurbishment, and recycling with the overarching objective of **prolonging the life cycle of materials and products**. This operational framework seeks to **curtail waste generation to the utmost extent practicable**. Consequently, upon reaching the terminus of its life cycle, a product's constituent raw materials and by-products are strategically retained within the economic system through recycling processes, thereby fostering their efficacious reuse and the concomitant generation of supplementary value.

This methodology stands in stark juxtaposition to the conventional linear economic paradigm, predicated upon the "take-make-use-throw away" trajectory. The linear model is contingent upon copious quantities of economically accessible materials and energy. A distinctive feature of this model is the concept of "planned obsolescence", wherein products are intentionally designed to cease functionality after a predetermined temporal interval. In response to these concerns, the European Parliament has advocated for measures to guarantee the introduction of high-calibre and enduring products into the market.



CIRCULAR ECONOMY

Safety of the environment

The practice of reusing and recycling products plays a pivotal role in mitigating the depletion of natural resources, abating the degradation of landscapes and habitats, and stemming the diminution of biodiversity.

A consequential advantage emanating from the implementation of circular economy principles lies in the **attenuation of total annual greenhouse gas emissions**. As delineated by the European Environment Agency, industrial processes and product utilization contribute to **9.1%** of greenhouse gas emissions in the European Union, while waste management constitutes **3.3%** of the same.

The prospective creation of products characterized by **enhanced efficiency and sustainability at the inception stage** bears considerable potential in diminishing both energy consumption and resource utilization. This proposition is substantiated by the estimate that over **80% of a product's environmental footprint is established during the design phase**.

A strategic transition towards products characterized by enhanced durability and amenability to reuse, improvement, and repair is poised to engender a commensurate reduction in waste generation. The predicament of excessive packaging, epitomized by an **average annual per capita production of nearly 180 kg of packaging waste in Europe**, underscores the exigency of addressing packaging-related challenges. Thus, a requisite facet of this effort entails the optimization of packaging design to facilitate and incentivize reuse and recycling.



CIRCULAR ECONOMY

Reducing dependence on raw materials

The burgeoning global population has engendered a concomitant escalation in the demand for raw materials. However, this surge in demand is met with inherent constraints, as the supply of pivotal raw materials remains circumscribed.

The limitations in resource availability further underscore the interdependence of certain European Union (EU) member states, wherein some nations rely on others for their raw material requirements. Eurostat data indicates that **the EU is reliant on external sources for approximately half of its raw material consumption.**



The aggregate trade of raw materials, encompassing both imports and exports, in transactions between the EU and the global milieu has exhibited a **nearly threefold increase since 2002**, with exports outpacing imports in growth rates. Despite this trend, the EU maintains a net import surplus, resulting in a notable trade deficit of €35.5 billion in the year 2021.

The imperative for recycling raw materials assumes particular significance as it serves to **ameliorate supply risks** such as price volatility, scarcity concerns, and import dependencies. This is especially pertinent in the context of essential raw materials crucial for the fabrication of technologies integral to achieving climate-related objectives, exemplified by batteries and electric motors.

CIRCULAR ECONOMY

What advantages accrue from the transition towards a circular economy?

The implementation of waste prevention, eco-design, reuse, and analogous strategies emerges as a viable avenue for bolstering the financial solvency of European Union (EU) enterprises, concurrently contributing to a reduction in aggregate annual greenhouse gas emissions. At present, the production trajectory of commonplace materials stands as a principal contributor, accounting for **45% of carbon dioxide emissions**.

The prospective shift toward a circular economy unfolds a spectrum of advantages encompassing **the mitigation of environmental exigencies, enhanced security in raw material provisioning, heightened competitiveness, the catalysation of innovation, and consequential economic growth**, denoting an incremental 0.5% augmentation in Gross Domestic Product (GDP). Concurrently, this transition is anticipated to yield substantive **employment opportunities**, with a projected creation of 700,000 new jobs within the EU by the year 2030. Additionally, consumers stand to benefit from **access to more enduring and inventive products**, thereby realizing economic savings and an augmented quality of life.



The strategic overhaul of materials and products to align with circular utilization principles is poised to **instigate innovation** across a spectrum of economic sectors.

DID YOU KNOW...

Five interesting green logistics start-ups

SeaRoutes – Voyage Optimization

Sea voyages are often fraught with unpredictability due to weather and maritime conditions, resulting in perilous journeys and high fuel consumption costs. Startups like SeaRoutes, based in Germany, address these challenges by optimizing sea routes using historical data from automatic identification signals (AIS). Their algorithm factors in wind, waves, tides, and weather conditions to calculate the most fuel-efficient route, while also considering territorial waters to avoid. Additionally, it provides estimates for bunkering costs, fuel consumption, carbon emissions, and weather forecasts along the journey, offering potential cost savings and reduced environmental impact.



RigiTech – Cargo Delivery Drones

Last-mile delivery challenges, including traffic congestion and environmental pollution from delivery vehicles, can be mitigated with drone technology. Swiss startup RigiTech specializes in cargo delivery drones, with the RigiOne as their flagship product, offering substantial payload capacity. It boasts an 80 km round-trip range on a single battery charge, is constructed using biodegradable materials, and operates with zero carbon dioxide emissions, making it a sustainable and efficient solution for cargo delivery.



DID YOU KNOW...

Five interesting green logistics start

NomadPower – Green Cold Chain

Temperature-controlled logistics are essential for transporting sensitive cargo, often relying on refrigerated vehicles with electronic temperature control systems. However, these refrigeration units traditionally use engines or diesel generators, leading to carbon emissions. NomadPower, a Dutch company, offers electrical connection points for trucks with cooling units at strategic locations across European transportation routes. These points can be activated through their app, website, or phone, helping transporters reduce refrigeration costs, lower CO2 emissions, and mitigate noise pollution.



Blubirch – Reverse Logistics

The surge in environmental awareness among consumers has amplified the demand for recycling and disposal solutions, highlighting the link between reverse logistics and eco-friendly initiatives. Reusing products helps reduce waste and environmental impact.

Indian startup Blubirch specializes in reverse logistics, assisting retailers, manufacturers, and enterprises in optimizing the recovery of returned, unsold, and unused technology assets. Beyond facilitating asset trading, they actively work on the safe disposal of electronic waste, aligning with sustainable practices.

The Blubirch logo features the word 'Blubirch' in a blue, sans-serif font. The letter 'B' is stylized with a blue circular shape around its top left corner. A small green leaf-like shape is positioned above the letter 'i'.

DID YOU KNOW...

Five interesting green logistics start

Velove – Electric Cargo Bikes

City traffic poses a significant challenge for urban goods transportation, and simply deploying more delivery vehicles exacerbates the issue. A sustainable solution is needed for the growing demands of eCommerce, one that integrates seamlessly with existing logistics infrastructure and doesn't add complexity or costs.

Swedish startup Velove offers the Armadillo, a cost-efficient e-cargo bike with high capacity. This eco-friendly bike utilizes bike lanes and secure, theft-proof containers for versatile cargo transportation. It reduces environmental impact, takes up less space, enhances personal safety, and minimizes energy consumption and CO2 emissions compared to conventional combustion engine vehicles.

velove



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

Number: KA220-HED-B12C4B93

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)
- ◆ Valuedo srl (Italy)
- ◆ ECQA (Austria)
- ◆ Zerynth srl (Italy)



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