

LIAISON

Making transport infrastructure
climate-neutral, sustainable and circular

INFOPACK - MAY 2026

SECTOR 5 OF 5

GOVERNANCE

Modern transport infrastructure is built to last — but over time, roads, bridges, and railways still need repair, renewal, or even replacement. Today, many of these works are carried out without a full picture of the materials on-site, their condition, or how they could be recovered and reused. This lack of information makes planning difficult, increases waste, and limits circular economy opportunities.

BIM4INFRA, developed within the LIAISON project brings Building Information Modelling (BIM) — widely used in buildings — into the world of linear infrastructure, where digital tools have historically been scarce.

This solution combines BIM with practical waste management and planning tools, enabling infrastructure owners and contractors to model sites, estimate materials, and plan selective dismantling and reuse.

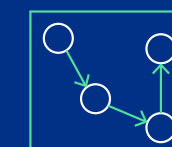
The tool enables engineers and maintenance teams to digitally map transport assets, from a highway section to a railway segment. Using 2D plans, images, or simple model inputs, BIM4INFRA builds a detailed overview of the infrastructure's components and materials. From there, it automatically estimates waste streams, identifies reusable elements, and calculates environmental and economic impacts.

Rather than relying on rough approximations, planners gain a clear and evidence-based view of what a maintenance or deconstruction project will involve. This makes it easier to plan selective dismantling, reduce unnecessary waste, and prioritise reuse and recycling — core goals of the EU's shift toward circular construction.

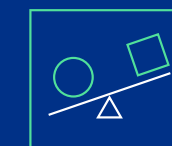
By improving knowledge upfront, BIM4INFRA can help reduce inefficiencies in maintenance works by 15%, cut landfill disposal of construction and demolition waste from 30% to just 5%, and lower life-cycle costs by up to 30%. It turns waste into a resource and data into better decisions.

BIM4INFRA also makes sustainability performance visible. The tool quantifies CO₂ emissions, energy use, time requirements, and cost impacts linked to different demolition or renovation strategies. A built-in Gantt schedule supports the organisation of tasks across crews, machinery, and timelines, helping teams deliver projects more efficiently from start to finish.

BENEFITS



IMPROVED PLANNING
AND DECISION-MAKING



REDUCTION OF CONSTRUCTION
AND DEMOLITION WASTE



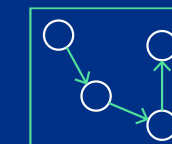
LOWER ENVIRONMENTAL
IMPACT



COST AND EFFICIENCY
SAVINGS



ENHANCED CIRCULAR ECONOMY
OPPORTUNITIES



BETTER PROJECT COORDINATION
AND MANAGEMENT



INCREASED TRANSPARENCY
AND TRACEABILITY

ROADMAP TO IMPLEMENTATION

Prototype and final optimization: Validate core algorithms and workflow to obtain a Minimum Viable Product (MVP)

Pilot testing and validation in operational environments to collect feedback from clients in real scenarios

Commercial ready product and certification: Version 1.0 ready for market

Commercialisation and market scaling: Launch the tool and establish market presence with First clients onboarded

Transport infrastructure — roads, railways, bridges, tunnels — is built to serve generations. Yet information about what they are made of, how they perform, what waste they generate, or how materials can be reused is often scattered or incomplete. As a result, valuable resources are lost, maintenance becomes less efficient, and achieving circular economy goals becomes harder.

The Digital Logbook for Transport Infrastructure, developed within the LIAISON project, provides a solution. It acts as a centralised digital record of an infrastructure asset's materials, components, and circularity performance throughout its life cycle — from construction and operation to renovation and end-of-life processes.

The Logbook builds on and expands CinderOSS, a digital platform originally created for circular construction processes. In LIAISON, the platform is transformed into a dedicated tool for transport infrastructure, capable of storing, organising, and visualising the data needed to support Green Public Procurement (GPP), circular business models, and decision-making based on real evidence rather than assumptions.

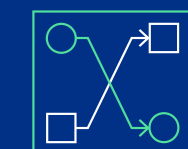
As data flows in from the BIM4INFRA tool and from on-site processes, the Logbook becomes a living asset passport,

providing insight into material quantities, environmental impacts, treatment options, and opportunities for reuse. It also connects to the TRACETOKEN blockchain system to ensure that secondary raw materials and reusable components are tracked transparently and securely.

More than a storage space, the Logbook is a digital ecosystem. It includes tools and services that help public authorities, contractors, and businesses identify new circular opportunities. Through its database of materials, regulations, circular business models, and demonstration cases, it helps users understand how waste can become a resource — and how circularity can be embedded in everyday infrastructure decisions.

The integrated marketplace function also enables organisations to offer or source secondary materials, supported by data on quantities, characteristics, availability, and environmental impact. This creates the conditions for real circular value chains in transport infrastructure, moving from theory into practice.

BENEFITS



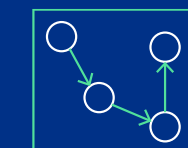
MATERIAL INVENTORY
ACROSS THE LIFE CYCLE



DOCUMENTS
AND MODELS REPOSITORY



OPERATIONAL
PERFORMANCE



MONITORING
DATA



CIRCULARITY
METRICS



ENVIRONMENTAL
AND SUSTAINABILITY ANALYSIS



ECONOMIC
DATA

ROADMAP TO IMPLEMENTATION

**Set foundations for material passports and asset life-cycle tracking.
Implement GIS + BIM integration**

**Validation with stakeholders
to align functionalities with GPP
and EU taxonomy requirements**

**Standardisation and interoperability with
digital construction standards.
Develop links with BIM platforms**

**Commercialisation and market scaling:
first paying clients
and demonstration portfolio**



LIAISON

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