

CE4CE

Circular Economy for Central Europe

Leadpartner: Leipziger Verkehrsbetriebe

Interreg
CENTRAL EUROPE



Co-funded by
the European Union

CE4CE

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CE4CE: IN A NUTSHELL



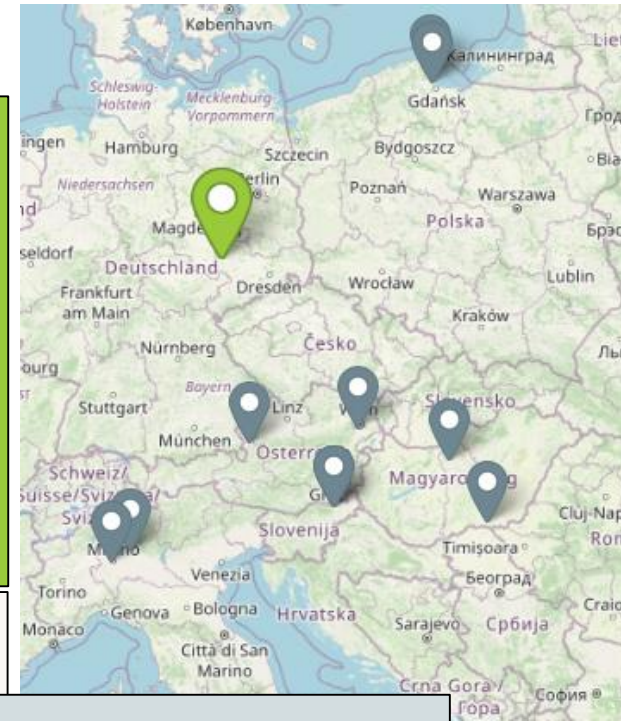
Duration

Start date **04.2023**

End date **03.2026**

PROJECT MAIN OBJECTIVE

CE4CE aims at bringing circular economy principles into the public transport sector and, thus, reduce waste, increase efficiency in the sector and improve the ecological footprint of public transport.





Greening public transport

Objective:

WP1

- Raise awareness & capacity building in public transport sector for 10 „R’s“ of circular economy principles and their impact

Main outputs: Circularity Compass & Knowledge Platform for PT

Objective:

WP2

- Increase energy efficiency/life cycle and reduce use of resources for infrastructure and fleets in PT

Main outputs: Strategies & Action Plans for Circular Economy PT

Objective:

WP3

- Demonstrate how public transport can become circular

Main outputs: Pilots/Tools for circular economy solutions in PT: predictive maintenance, circular energy flows, 2nd hand usage, etc.



SYSTEM-WIDE VIEW



Infrastructure



Circular economy principles embedded into public transport infrastructure planning, design, construction, and operation can play a crucial role in transforming public transport....



Vehicles



Circular economy principles can be applied to public transport vehicles, including buses, trolleybuses, trams, and trains, as well as their batteries, to enhance sustainability ...



Energy



Circular economy principles can significantly influence the energy aspect of public transport, promoting sustainability, efficiency, and resource conservation ...



Governance



Circular economy principles can be integrated into the governance and policy making of public transport systems to promote sustainability, resource efficiency, and resilience ...

CHALLENGES

- **Increased load on public transport** due to urbanization and energy policy trends
- **Subjective asset evaluation and inspection** by employees, leading to insufficient information
- **Age-related retirement** of specialists with specific knowledge
- **Classical diagnostic approaches** are personnel, time, and cost-intensive
- **Resource scarcity and urbanization** make large construction projects difficult and expensive, trend towards minimally invasive interventions at early damage stages

Need for new methods and strategies for:

- Sustainable use of material and human resources
- Significant and sustainable increase in equipment service life
- Early fault detection
- Detection of damage not visible to the human eye
- Prediction of damage and wear

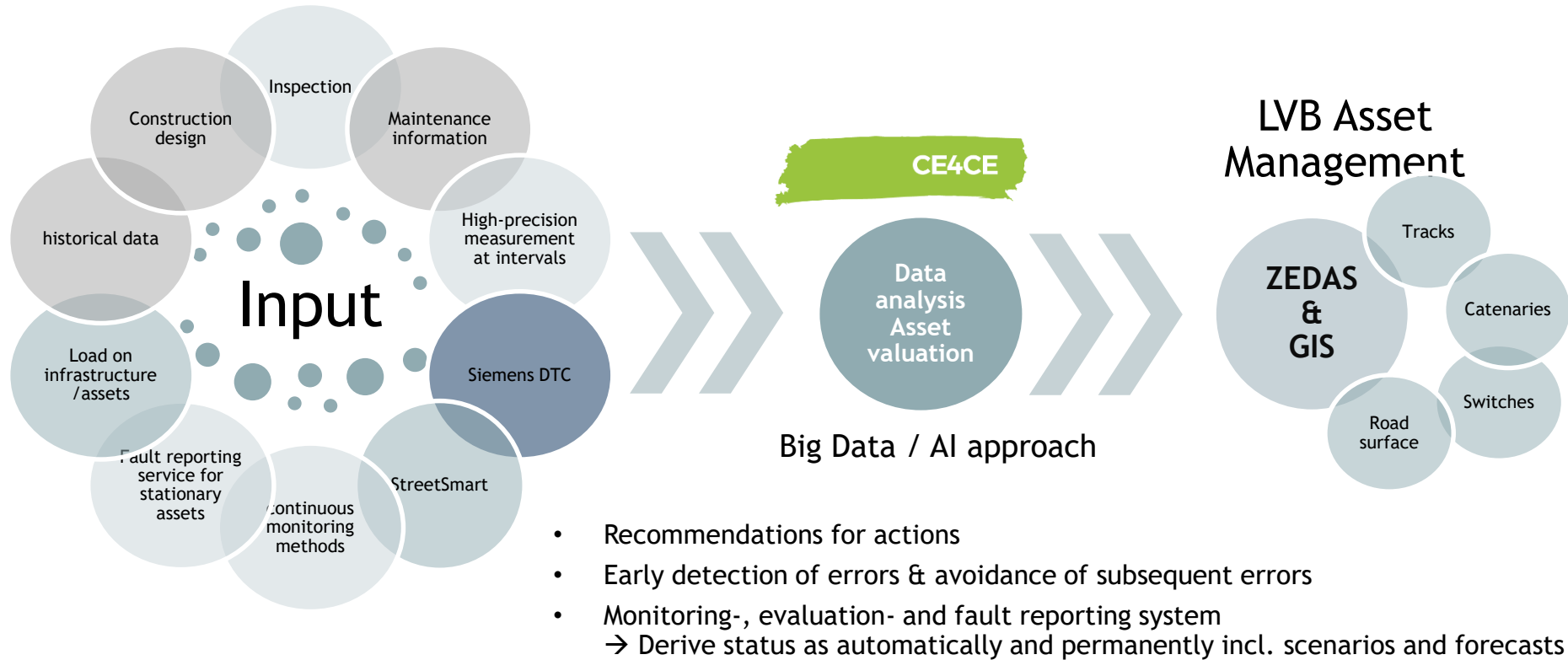
WHAT DO WE NEED?

- Strategic and systemic approach to be able to transfer predictive maintenance processually and structurally into the practice of asset management and maintenance of the LVB infrastructure.

WHAT DO WE WANT TO DO?

- **Action Plan** - in the form of a processual & strategic approach in order to be able to establish the following steps sensibly at LVB:
 - Use of measurement technology available on the market and the use of suitable algorithms for data-based and automated condition recording.
 - Creation of a damage catalog - failure and impact analysis for the evaluation of defects
 - Establishment of a automatically asset evaluation and fault reporting system
 - Development & application of predictive maintenance methods
- **Pilot** - in the sense of a process-related and technical solution which is applied to a section of infrastructure and to a specific type of asset in order to roll out the methodology to the entire network in a further step.

TARGET PICTURE LVB - PREDICTIVE MAINTENANCE



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<https://www.interreg-central.eu/projects/ce4ce/>



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