

PROJECT

DIGITALIA 2

Disruptive process for the construction of railway transition zones, reducing drastically construction and maintenance costs

Funding: European (Horizon 2020)

Duration: Mar 2017 - Feb 2019

Status: Complete

Total project cost: €2,182,598

EU contribution: €1,527,819



Call for proposal: H2020-SMEINST-2-2016-2017

[CORDIS RCN : 208756](#)

Background & policy context:

When a train crosses from an embankment area to a bridge, tunnel or viaduct (transition zone), there is an abrupt change in vertical stiffness, accelerating track degradations and generating vibrations. Hence, the embankment at transition zones are constructed differently to the rest of the track, using cement-treated soil to constitute a wedge shaped backfill. However, this construction is complex, uncertain and time-consuming, while not completely solving the vertical stiffness transition. Consequently, maintenance needs of transition zones are up to 6 times higher than regular tracks, requiring yearly about 471M€ (10% EU investment in track maintenance), while only accounting for 2,8% of total length.

Objectives:

TORRESCAMARA has developed DIGITALIA 2, an innovative solution for transition zones based on precast concrete slabs that properly smooth vertical stiffness and maintain this performance over time, with the aim of:

1. Simplifying and speeding up the construction process,
2. Reducing costs of the construction process,
3. Reducing maintenance operation needs, and 4) Reducing the associated vibrations to improve passenger comfort.

The successful execution of Phase1 has led to the definition of a business model to deploy DIGITALIA 2 and reach EU market, establishing strategic alliances with potential stakeholders, users as well as commercial suppliers. In Phase2, our overall objective is to introduce DIGITALIA 2 in the market through the construction of an advanced demonstration element in the most complex and demanding conditions. We will also develop tools to ease and speed up the design, manufacturing and construction process. We will ensure a quick market deployment and promote the inclusion of DIGITALIA 2 in the specifications of railway infrastructure owners.

As a result, the commercialization of DIGITALIA 2 will lead to a revenue of nearly152M€ and a benefit of 13M€ by the 5th year, while saving construction managers over 98M€ in construction cost and 8M€ on maintenance.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Torrescamara Y Cia De Obras Sa

Address:

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46780 VALENCIA
Spain

EU Contribution: €1,527,819

Technologies:

Infrastructure management
Precast concrete slabs to smooth vertical stiffness

Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps: Infrastructure

Transport mode: Rail transport

Transport sectors: Passenger transport, Freight transport

Geo-spatial type: Infrastructure Node