

ECTP Conference 2021

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hybrid meeting



Spanish National Strategic Plan about Digital Transformation of the Construction Sector

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PTEC: About Us



Introduction



In 2019 the Spanish Technological Construction Platform (hereafter PTEC) launched a Work Group (WG) “Strategic Group for the Digital Transformation of the Construction Sector” led by INDRA.

The group’s objective is to develop a national strategic plan within this context and promote the creation of specific grants for the construction sector in the framework program set to start in 2022.

Between 2020 and 2021, the dynamization activities for the strategic plan started, including the entire value chain of the construction sector, in order to contrast conclusions, obstacles and challenges.

These activities have been supported by a R&D consultation leaded by this WG



The Consultation



OBJECTIVE:

The objective of this consultation was to collect opinions and carry out a contrast activity related to the digital transformation of the construction sector at a national level.

DIFFERENT POINTS OF VIEW:

- By Region, by entity type and both.
- Regional coordinators → Universities or R&D entities

STRUCTURE OF THE DOCUMENT:

- Digital Transformation Strategy (based in companies' visions)
- Barriers (by entity type, by region and both)
- Challenges. Intended to analyse the challenges identified by the members of the WG, which are aligned with the challenges identified in the European Strategic Agenda.
- Strategic Pilot/Use Case/Projects



Main Barriers

1 BB-10

**Reactive
Innovation**



2 BB-12

**Legacy
Technologies**



3 BB-6

**Digital
Competition**



4 BB-11

No standards



5 BB-14

**New Skills
needs**



- Large Companies: Fragmented Market
- SMES: Expensive/Costs
- Universities: Skills close to market

Main Challenges

1 BB-10

**Energy
Availability**



2 BB-12

BIM Adoption



3 BB-6

**Materials
tracing**



4 BB-11

**Resilient
Buildings**



5 BB-14

Data Privacy



- Large Companies: Energy availability and BIM adoption.
- SMES: Data Privacy and user-centric approach
- Universities: BIM adoption

Strategic Pilots



STRATEGY to increase the Efficiency:

Development of small pilots/use cases for efficiency tracing →
Extend them into big projects and RIS3 alignment

- Small cell installation, enabling use of 5G technology.
- Create housing models in 3D infographics.
- Residential BIM with energy management.
- Demonstration in realistic environment of the use of digital technologies in a pilot that covers the complete life cycle of the building.
- Digitisation for control of different construction phases to be able to verify the execution compared to what was designed or previously executed.
- Pilots of temperature and acoustic data of buildings.
- Building pilots, infrastructures of delimited dimensions so as to implement the different digital tools and export them to a bigger dimension based on the results.
- Monitored pilot buildings.
- Database traceability and safety, as well as training staff for its management.
- More efficient data analysis for developing company projects.
- Chips and traceability for materials. Investments and information shared among manufacturers.
- Launch an e-commerce platform, control panel for tracking simulation, exploit Big Data regarding relationships with clients and for product purchases.
- Sound system program in buildings and infrastructures to better understand the reality of the constructed facility.
- Integration of sensors and data collection elements for high-rise and housing construction, where several companies may be involved.
- Public construction pilot that incorporates the digital tools for design, construction and maintenance and the new multiparty contract models with Blockchain technology.
- Work with standard models between all agents and/or tools.
- Develop Digital Twins



Transformación Digital del Sector Construcción

4. Study of Intelligent Specialisation Strategies (RIS3)

This section includes a brief analysis that links the digital transformation challenges identified by the WG to the priorities selected in the RIS3 Strategies in the different regions of Spain.

The objective here is to be able to identify (mark in green) the RIS3 priorities (or priority sectors) of Communities where digital transformation challenges may arise.

Identified challenges:

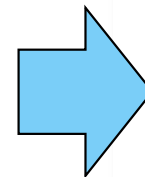
- Allow an integrated approach of the value chain
 - Generate a central data and learning platform that can be used as a base to create Artificial Intelligence applications and learning tools to broaden knowledge of the value chain from an integral point of view.
 - Create a holistic approach based on common European digital Platforms, BIM, IoT and Big Data.
 - Achieve adapting BIM methodology as a base for life cycle and circular economy management.
 - Carry out implementation and innovation of the supply chain to improve its efficiency by using disruptive technologies such as Blockchain.
- Revolutionise operation and maintenance of built up environment
 - Manage, monitor and maintain infrastructure and buildings by means of big data.
 - Create an open European database with information about the vulnerabilities of buildings and infrastructures.
- Guarantee a perfect and safe life for EU citizens
 - Guarantee data privacy by applying best practices and new technologies (BigData, AI/ML).
 - Use the Internet of Things and digitisation to offer a user-centred approach.
 - Improve the resilience and safety of buildings and infrastructures, especially of those that are state-owned.
 - Create the digital identity passport.



DIGITAL BUILT ENVIRONMENT
AN ECTP COMMITTEE

Spanish National Strategic Plan

On-going Plan: To be published in 2022



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Should DBE Committee to extend this initiative to other EU countries?



Thank You!