

Digital Innovation Hubs contribution to digital transformation in Construction sector

DIHs in MS and regions are contributing to the digital transformation of enterprises in many sectors. When it comes to Construction sector (and selecting "Construction" in the online DIH catalogue of the S3P¹) 69 fully operational DIHs declare offering digitisation services to companies and contributing to the digital transformation process in this sector².

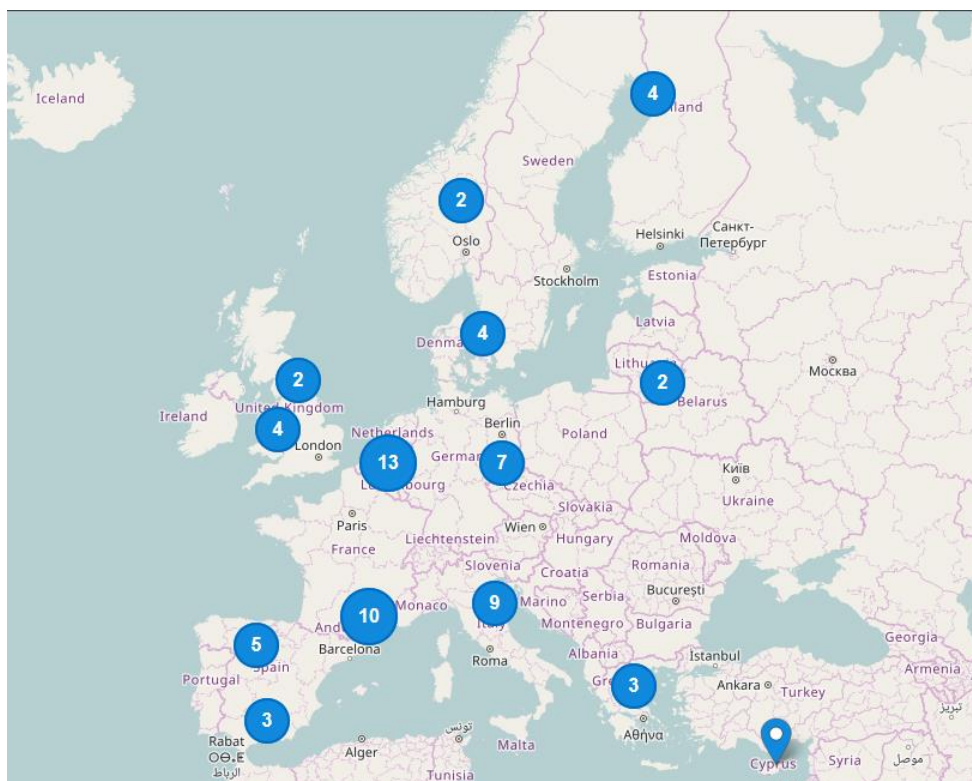


Figure 1: Geographical distribution of DIHs in Construction (Fully Operational)

¹<http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>

² **Disclaimer:** The DIH Catalogue website is a "yellow pages" of Digital Innovation Hubs. The information provided about each entry is based on self-declaration. The European Commission cannot take any responsibility for the provided information. Currently all the entries in the catalogue are being verified (based on the provided information) if they comply to the following 4 criteria:

1. Be part of a regional, national or European policy initiative to digitise the industry;
2. Be a non-profit organisation;
3. Have a physical presence in the region and present an updated website clearly explaining the DIHs' activities and services provided related to the digital transformation of SMEs/Midcaps or industrial sectors currently insufficiently taking up digital technologies
4. Have at least 3 examples of how the DIH has helped a company with their digital transformation, referring to publicly available information, identifying for each:
 - Client profile
 - Client need
 - Provided solution to meet the needs

The purpose of the catalogue is to support networking of Digital Innovation Hubs and to provide an overview of the landscape of Digital Innovation Hubs in Europe, supported by Regional, National and European initiatives for the digitalisation of industry. There is no relation between being present in the catalogue and being able to receive funding of the European Commission.

Country distribution of Fully Operational DIHs in Construction

The country distribution of the above mentioned 69 DIHs that provide digitalisation services in the Construction sector are distributed per country as following:

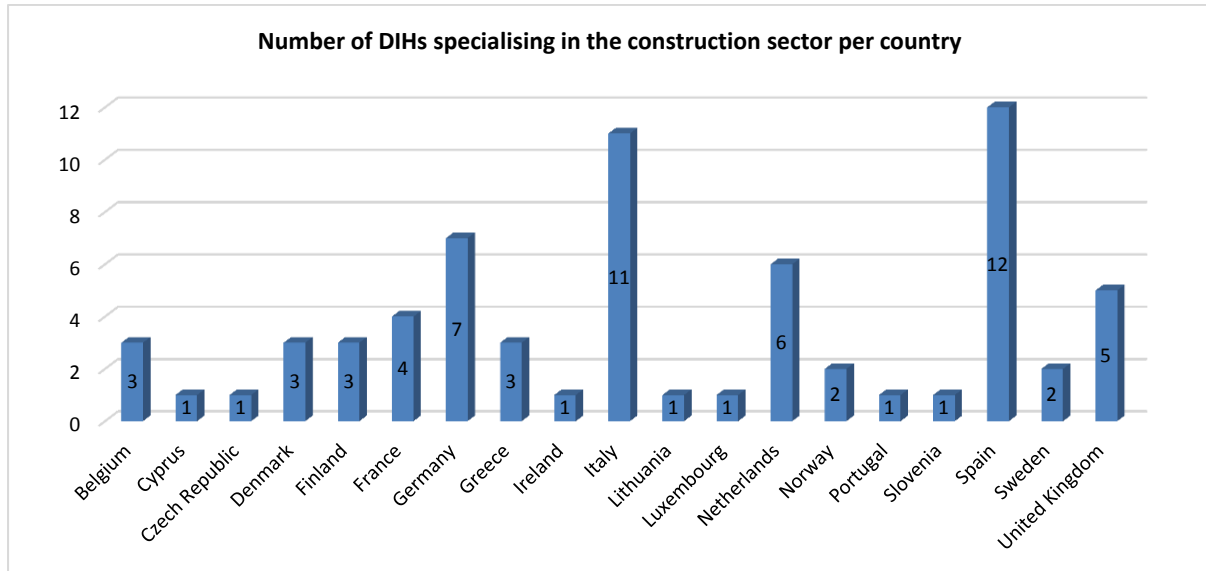


Figure 3: Number of DIHs specialising in the construction sector per country

The identified DIHs possess a number of technical competences and offer a range of services to businesses in the Construction sector. Following is some information on the frequency of technical competences and the range of services provided.

Frequency of technical competences of Fully Operational DIHs on Construction ("Construction")

- Internet of Things (e.g. connected devices, sensors and actuators networks)
- Data mining, big data, database management
- Artificial Intelligence and cognitive systems
- Robotics and autonomous systems
- Simulation and modelling
- Augmented and virtual reality, visualization
- Cyber physical systems (e.g. embedded systems)
- Interaction technologies (e.g. human-machine Interaction, motion recognition and language technologies)
- Sensors, actuators, MEMS, NEMS, RF
- Cloud computing
- Software as a service and service architectures
- Location based technologies (e.g. GPS, GIS, in-house localization)
- Advanced or High performance computing
- Cyber security (including biometrics)
- ICT management, logistics and business systems
- Additive manufacturing (3D printing)
- Broadband and other communication networks (e.g. 5G)

- Micro and nano electronics, smart system integration
- Internet services (e.g. web development, web production, design, networking, and e-commerce)
- Photonics, electronic and optical functional materials
- Screens and display technologies
- Gamification
- New Media technologies
- Other
- Laser based manufacturing
- Organic and Large Area Electronics (OLAE)

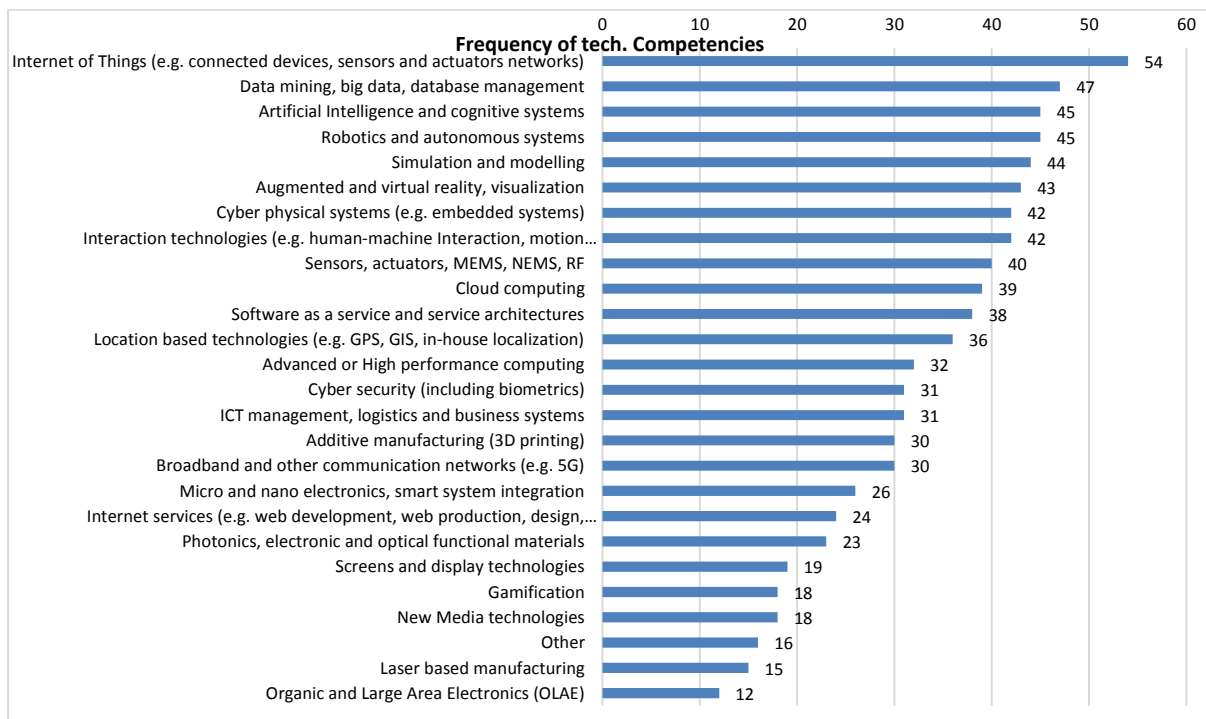


Figure 4: Frequency of technical competencies of DIHs specialising in the construction sector

Most common services offered by Fully Operational DIHs in Construction

There is a broad range of services provided by DIHs depending on their capacities and also on the level of maturity of SMEs in their process of digital transformation. The types of services most commonly mentioned by DIHs that provide support to the Construction sector SMEs are the following:

- Ecosystem building, scouting, brokerage, networking
- Collaborative Researchs
- Education and skills development
- Awareness creation
- Concept validation and prototyping
- Testing and validation
- Incubator/accelerator support
- Visioning and Strategy Development for Businesses
- Mentoring

- Market intelligence
- Access to Funding and Investor Readiness Services
- Digital Maturity Assessment
- Commercial infrastructure
- Pre-competitive series production
- Voice of the customer, product consortia
- Other

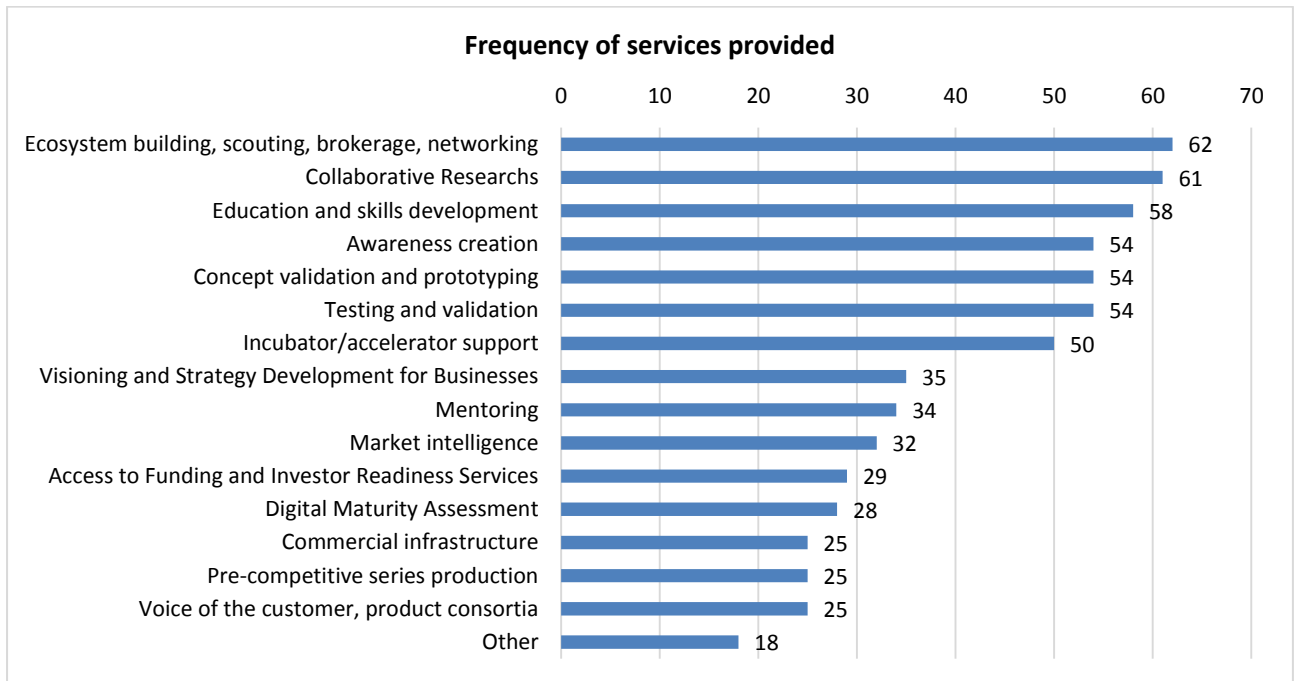


Figure 5: Frequency of services provided by DIHs specialising in the construction sector

➤ **Examples of digitalisation services in Construction:**

DIHs are already contributing in the digital transformation of businesses in the Construction sector in Europe and in the future their role will be increasingly important. Following are some examples of different digitisation services provided by DIHs in different countries to beneficiaries related to the Construction sector:

i) Jožef Stefan Institute, Slovenia

(<http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool/-/dih/1435/view>)

Service example

Digitalisation of a motorhome

Adria Mobil is a company from Novo Mesto, Slovenia, that produces caravans and motorhomes, under the ADRIA brandname and sells 99 percent of the total turnover to the West European markets. The company has a 6.5 percent market share on the European market and ranks sixth among the most successful European producers in the basic programme, caravans and motorhomes.

Adria Mobil and the Jozef Stefan Institute cooperate in the development of a motorhome of the future, which will be able to fully autonomously operate. To this end, Adria's latest model was equipped with a host of sensors and an artificial intelligence system.

The aim of cooperation is to find as much as possible services relevant for the user, and at the same time develop a sensor and artificial intelligence system that will enable the camper to meet the user, adapt to his mode of living and use, and take care of security and tasks such as filling up fuel and water or discharging wastewater.

ii) RoboCity2030, Spain

(<http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool/-/dih/1555/view>)

Service example

Robotics for Maintenance and Inspection of Civil Infrastructures

Robotics for Maintenance and Inspection of Civil Infrastructures • What service(s) provided: BOSCH (one of the biggest factories in Madrid). Conceptual design and testing of robotics solutions for maintenance and inspection tasks in: highway, tunnels, buildings, shafts, service galleries, etc. Improvement of the robotic cycle time and quality of the products. Technological consultation on how to introduce collaborative robots and artificial vision in the industry. • The relation with digitization? Digital infrastructures' services. Name customer, contact details: BOSCH. Other collaborations such as Egnatia Odos highway (Greece), London tube (UK) and HUNOSA (Spain).

<http://www.badger-robotics.eu/> , <http://www.robo-spect.eu/>, <http://indires.eu/>, <https://stams-rfcs.eu/>

iii) CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS, Greece

(<http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool/-/dih/3085/view>)

Service example

Energy management for construction sector

Need addressed: An improved and more reliable tool for construction industry key stakeholders (such as Architects, designers and engineers), that will assist them in delivering better and more sustainable construction projects, taking into account during performance evaluation not only the static information of the buildings (e.g. walls, material, equipment) but to incorporate also models that cope with the analysis of their dynamic behavior due to occupancy.

Service provided: A software prototype was designed and developed from CERTH/ITI for assessing the energy performance of construction products (mainly focusing on enterprise or commercial buildings) taking into account advanced occupancy models that will be parameterizable and will support building occupancy analysis and simulation.

Customer: DRAXIS Environmental Technologies

More details: <https://draxis.gr/el/>