

Digital Construction and BIM in the EU

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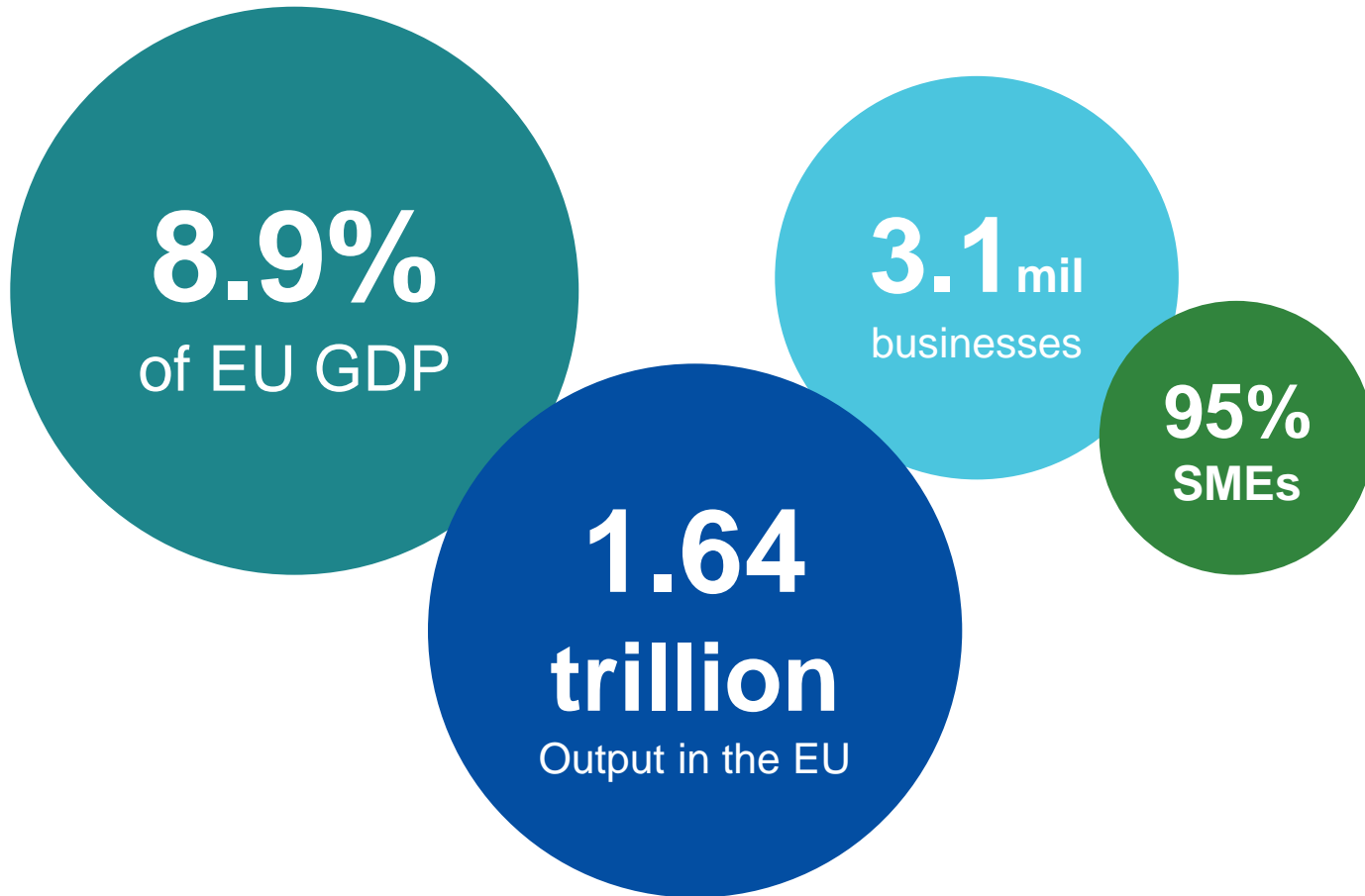
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European Commission



Why is construction important?



Construction 2020

Strategy for the sustainable competitiveness of the construction sector and its enterprises (2012)

Construction 2020 Action Plan (2013)

The European
**Construction Sector
Observatory**
measures the
progress towards
Con2020 targets.

Thematic Objectives



Innovation



Skills



**Resource
efficiency**

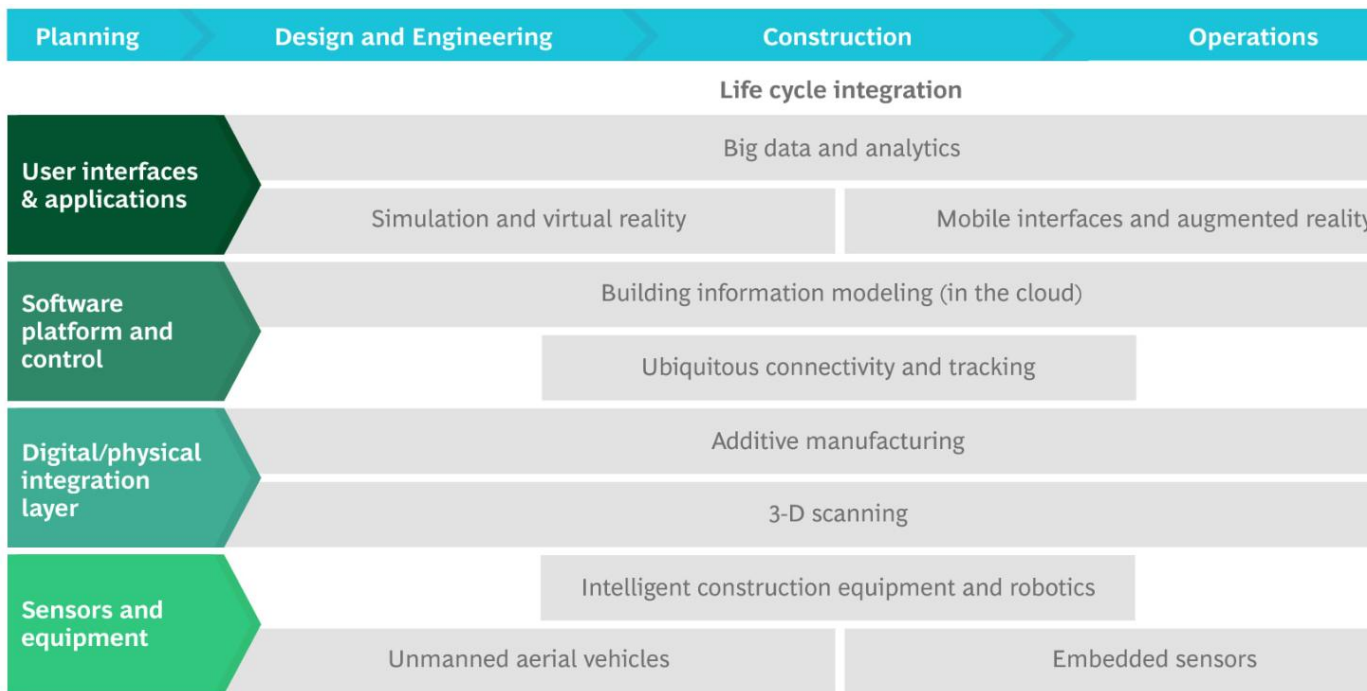


**Regulatory framework
Internationalisation**

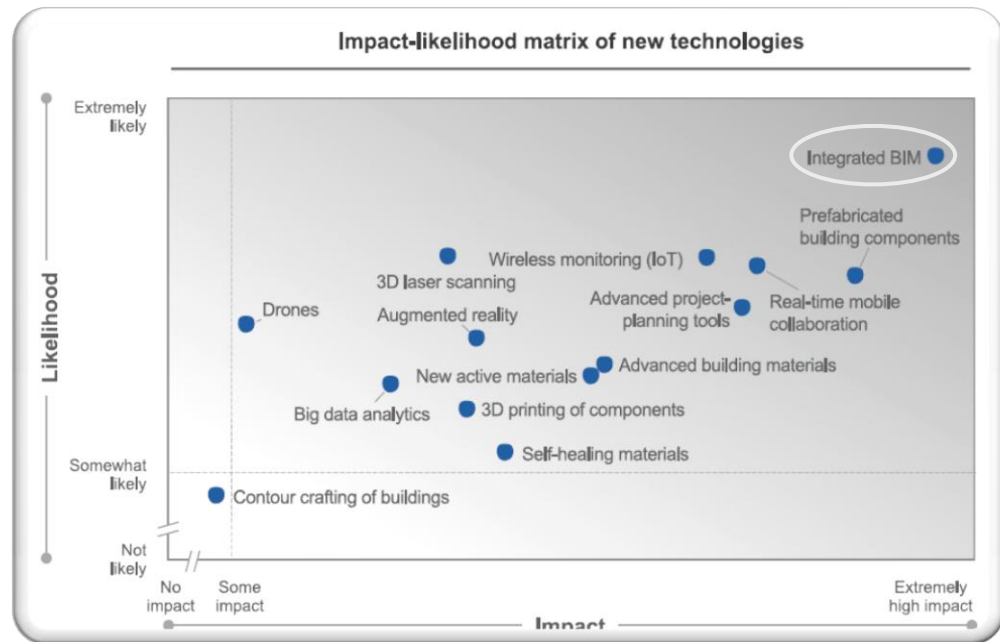


Main focal points of the Construction 2020 Strategy in the area of Digitalization

1. BIM



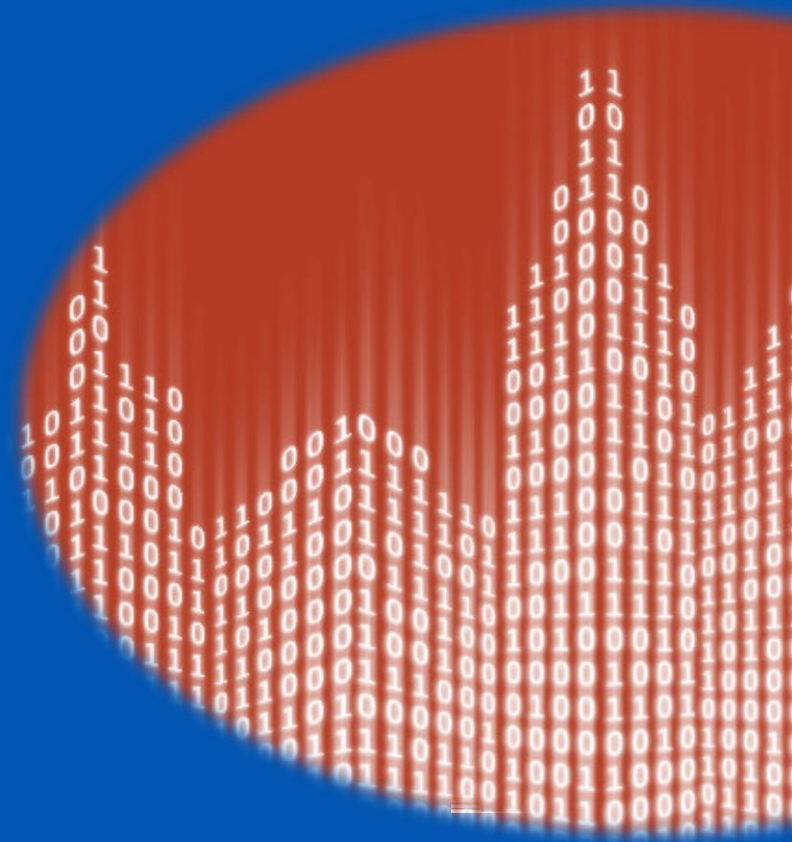
Plethora of new technologies different state of adoption and opportunity



BIM is the basis for our digital infrastructure

BIM is about transforming the way we consider, and operate our built environment.

Whether we are looking at transport networks, utilities, residential or commercial buildings, we need to take the focus away from the physical asset and begin taking notice of the equally important digital data asset.



Building Information Modelling (BIM)

- ▶ The BIM market predicted to grow by 13%, reaching €2.1 billion by 2023, supported by the public sector.
- ▶ From 3D BIM to 7D BIM

1

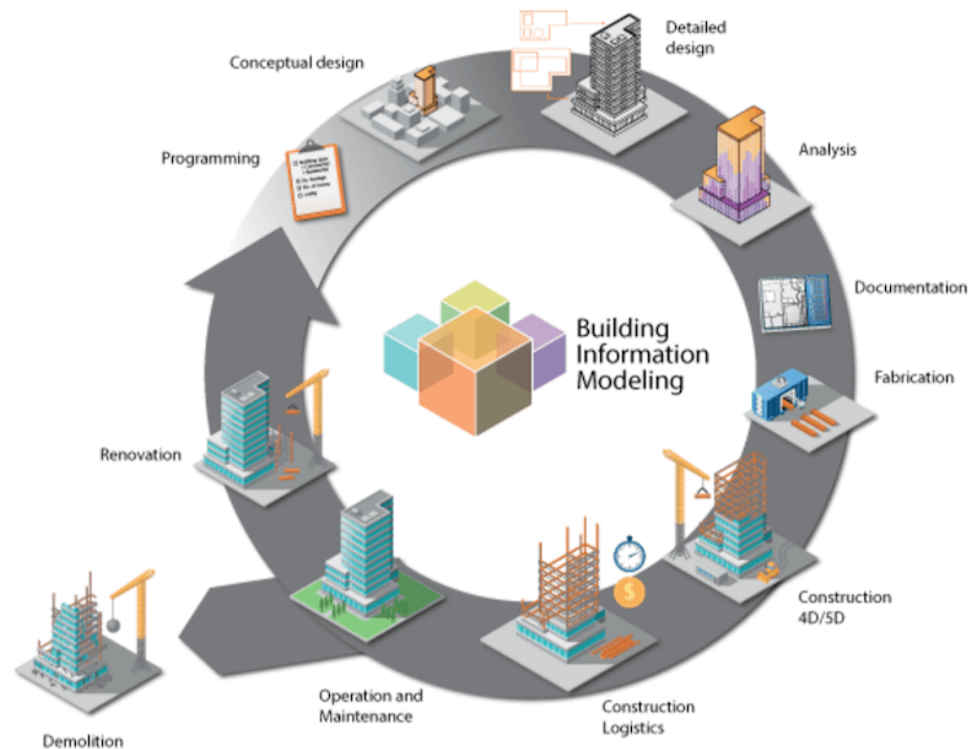
Fragmentation along the value chains, and type of companies

2

Lack of awareness of public and private sector players relating BIM benefits

3

Coordination between public and private sector actors



Basically a gap between offer and demand

The uptake of BIM depends on public authorities. Public procurement is a vehicle for BIM adoption.

>30%

Of the money
spend in
construction, is
public

250.000

Public authorities
in the EU that
procure for
construction

They spend

**14% of
the GDP
(2 trillion/
year) in the
EU**

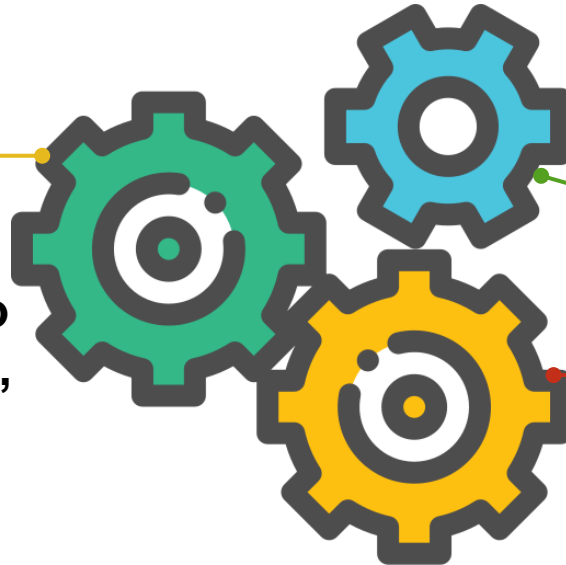
The uptake of BIM in construction is a duty of the public authorities.

Rise of productivity equivalent to

**20 billion/
year**

with optimisation of public procurement

Public competitions should be used to push job creation, innovation, efficiency of resources



Public assets remain to the same owner for longer/forever. The investment done by the public, returns to the public.

Usually, public authorities have a lot of assets (infrastructure and buildings) to manage



BIM is not obligatory, but it is suggested. EU Directive for Public Procurement in 2014

For public works contracts and design contests, Member States may require the use of specific electronic tools, such as of building information electronic modelling tools or similar. In such cases the contracting authorities shall offer alternative means of access, as provided for in paragraph 5, until such time as those tools become generally available within the meaning of the second sentence of the first subparagraph of paragraph 1

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0024>



Nevertheless you shouldn't wait.

->Art.67 Criteria

The best price/quality ration could also be assessed taking into account environmental and social criteria

->Strategic public procurement

->eTendering, with no discrimination on the software.

And these are not so new.



24 EU MS

Several with a plan for general and obligatory use of BIM in public works in the next years (2020-2030)

- **What does the Group do?**
- Deliver greater value for public money
- Increased openness, fairness, competitiveness and productivity
- Stimulating growth in the construction and digital economy
- Convergence of the digital and construction sectors
- Boosting innovation



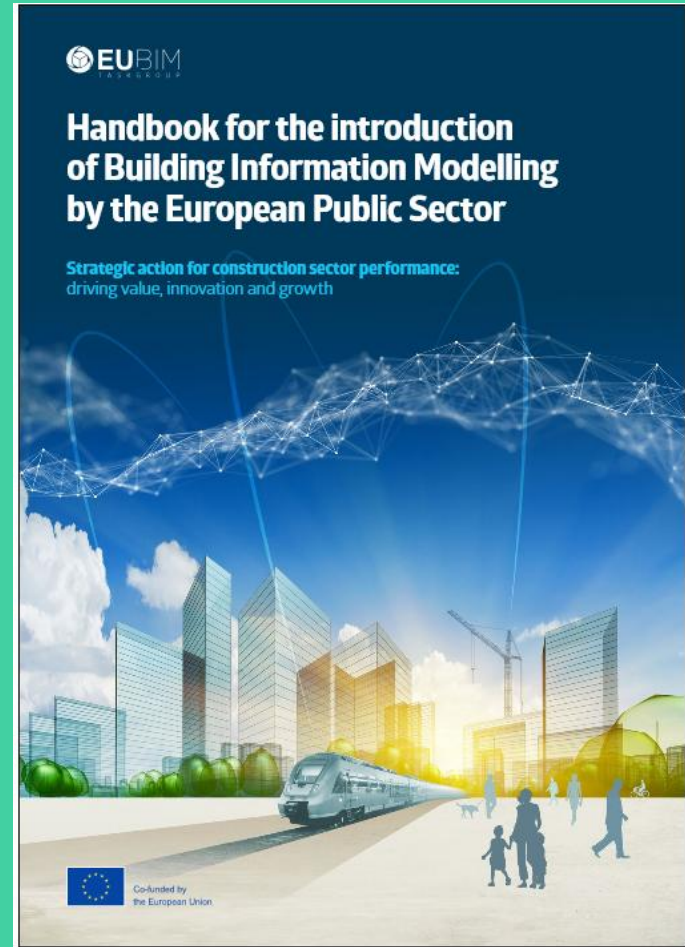
Handbook for the introduction of BIM in PP in 21 languages

250 public procurers trained on BIM in 10 workshops

Methodology for public procurers to show benefits of BIM in public construction works

Cross boarder collaboration on classification systems, digital permits, digital twins, platforms.

6 EU countries implemented BIM in construction permits through Structural Reform Funds

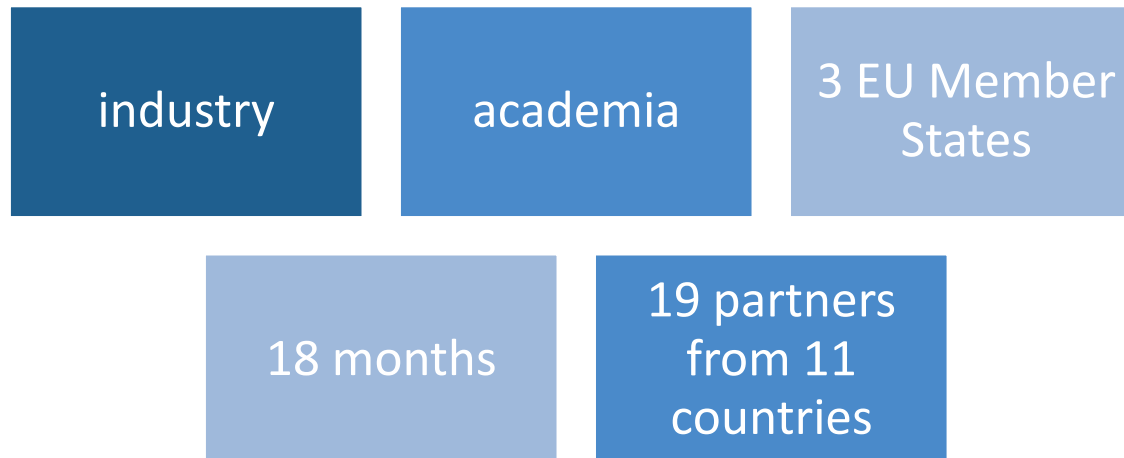


2. Supporting cross-sector collaboration and finding common solutions



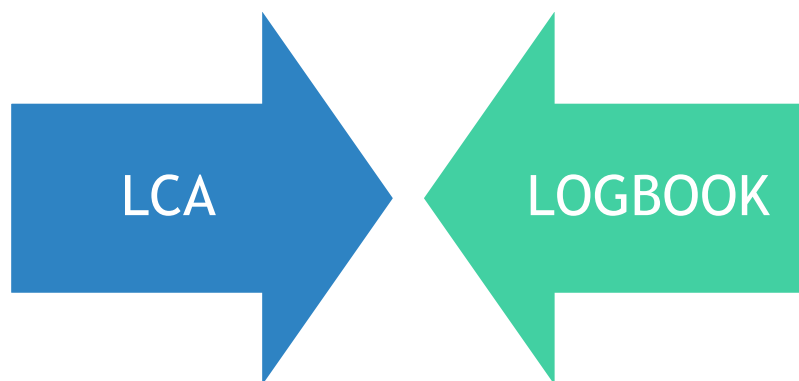
Digitalisation requires collaboration of all stakeholders.
DigiPLACE works on a framework for Digital Industrial Platform for Construction.

- 1) Long-term community building – how to build a sustainable digital construction sector community
- 2) Digital technologies and techniques adoption in the EU construction sector and comparative analysis/synergy with other industrial sectors.
- 3) Identification of barriers, of factors for enhancing digitization also *in relation with European relevant regulation*
- 4) Reference framework architecture (IT), including actions promoting open BIM



3. Support information flow, reliability, investment

towards an EU Building Digital Logbook



- ▶ Need for common language across the lifecycle.
- ▶ A lot of valuable information is generated and gathered over the life cycle of buildings at different stages and for various purposes.
- ▶ This wealth of information could be highly beneficial for property, asset and facility management if it was easily available and structured. However, this information is often not organised or managed in a systematic way.

Digital building logbooks could boost the availability of structured information for a number of purposes to a broad range of market players, including property owners, tenants, investors.

Mapping and analysis of national/regional/sectoral/private initiatives

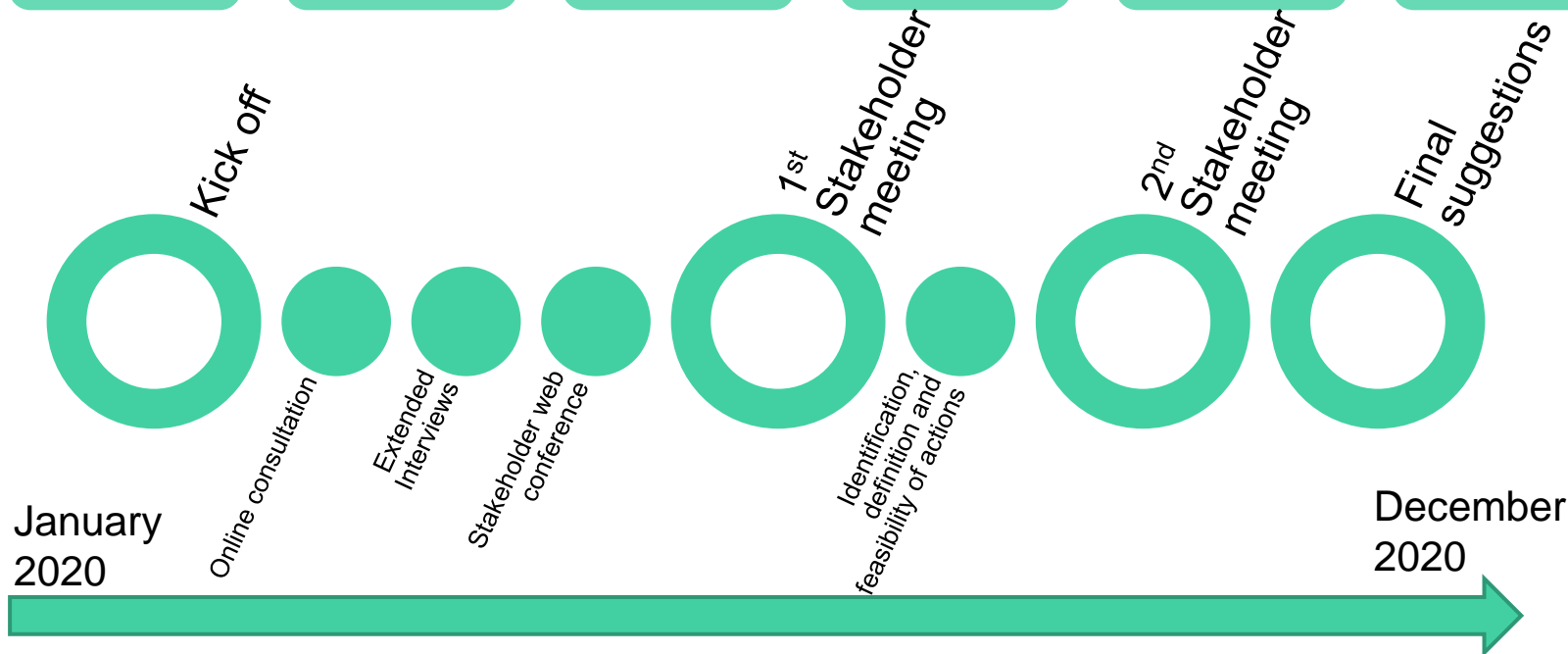
- what works best in which circumstances
- remaining critical gaps in terms of data collection, management and digitalisation, data ownership

Could an EU voluntary framework:

- facilitate building logbooks initiatives, where such systems do not exist, without invalidating existing schemes;
- help to address the critical gaps identified.

National, regional and sectoral initiatives
(ex. Woningpas (BE), Carnet Numerique (FR), Real estate service manual(FI))

EU Framework for Buildings' Digital Logbook



A Europe fit for the digital age

I believe Europe can successfully manage the transformation into the digital age, if we build on our strengths and values.

Digital platforms are actors of progress for people, societies and economies.

I want Europe to strive for more by grasping the opportunities from the digital age within safe and ethical boundaries.

A European Green Deal

I want Europe to strive for more by being the first climate-neutral continent.

Preserve Europe's natural environment

Europe needs to move towards a zero-pollution ambition.





A future initiative on ‘Sustainable Built Environment’, will:

The work after
Construction 2020 continues

- Adopt a lifecycle and integrated multidisciplinary approach;
- Include land, materials, products, buildings, infrastructures, districts and settlements up to villages, towns and cities, as components of the Built environment;
- Set human and environment centric objectives, and not only purely market objectives;
- Support with tools informed decision making, especially regarding potential trade-offs;
- Set a sufficiently long horizon (ex. 2050), but also short term actions.
- Exist in synergy with other new key initiatives on buildings and construction, the Circular Economy Action Plan, the Industrial Strategy and the Renovation Wave.

Thank you!

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Sources

- Construction and Built Environment
https://ec.europa.eu/growth/sectors/construction/competitiveness_en
- European Construction Sector Observatory
https://ec.europa.eu/growth/sectors/construction/observatory_en
- EU BIM Task Group www.eubim.eu
- Supporting Digitalization of construction and its SMEs
https://ec.europa.eu/growth/content/report-supporting-digitalisation-construction-sector-and-smes_en
- DigiPlace (EU Digital Platform for Construction)
<https://cordis.europa.eu/project/rcn/224179/en>
- Construction & Demolition waste guidelines and pre-demolition audit
https://ec.europa.eu/growth/content/eu-construction-and-demolition-waste-protocol-0_en

 @EU_Growth

 Construction 4.0 Europe

2. Support to SMEs

leaving none behind



2019
data

▶ Digitalization is important for SMEs in construction?

- ▶ 98% of construction sector is composed of SMEs and micro-enterprises
- ▶ In Industry 4.0 era, various digital technologies have become available, but the rate of adoption in construction sector is very low
- ▶ Digitalisation goes beyond the use of BIM

Context, main objectives and expected impact of this EU study

Context: Part of the implementation of the "Construction 2020" Action Plan (strategy for the sustainable competitiveness of the construction sector and its enterprises and SMEs)

Main objectives: (1) To assess the needs for digitalisation among SMEs at EU level and (2) to devise a sustainable action plan and identify the means for it

Expected impact: Boosting the construction sector in Europe as a driving force in the creation of jobs and for sustained growth for the economy

Involvement of stakeholders: Interviews, webinar, intermediate presentations

Introduce an interactive handbook and a digital maturity scan for the adoption and implementation of digital technologies

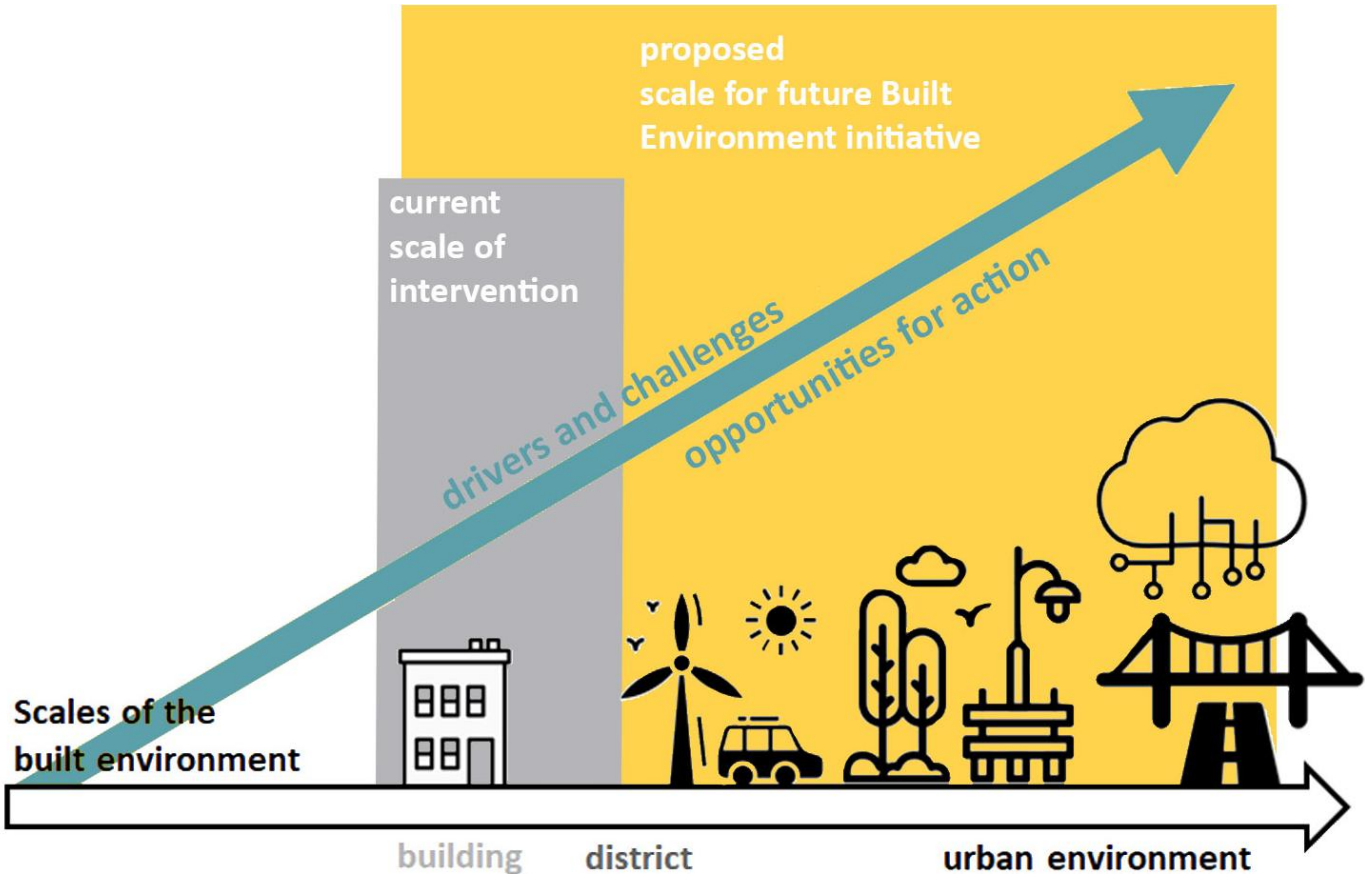
- ▶ **Why:** Need to understand your own digital maturity level and ways to improve it
- ▶ **For whom / by who:** For managers of SMEs / do-it-yourself + exchange of best practices
- ▶ **What:** A maturity scan tool and an interactive guide
- ▶ **How:** Functional – self-assessment, benchmark, peer-to-peer SME network, expert pool
 - Technical – on a digital platform, online tool and database, regular monitoring
- ▶ **When:** 2020-2021

Provide lifelong (Digital) skills development for (blue collars) within the construction sector

- ▶ **Why:** Need of digital empowerment for blue collar labourers in construction
- ▶ **For whom / by who:** For trainers of blue collar labourers / by cross-disciplinary experts
- ▶ **What:** Train the trainers programme on digitalization through face-to face and online courses
- ▶ **How:** Sequential and complementary with EC programme 'Blueprint for sectoral cooperation on skills'
- ▶ **When:** 2020-2021

Although construction is one of the sectors with the highest needs in new knowledge, only 45% of construction workers were involved in some form of training at their work place

Looking into the bigger scale.



From product information to digital logbooks

From Smart Buildings to Smart cities

From BIM to Digital Twins



The EU built environment is very complex with layers of very different buildings and infrastructure

It needs to increase agility and resilience and respond to future needs



Digitalisation and the emergence of digital and sharing economy transform it.

Ageing population, migration, affordability, accessibility, skills all affect and are affected by it.



The built environment is major consumer of resources and polluter, and every operation on it should be optimised to reach environmental objectives

**EU
Green
Deal**



Circular
Economy
Action Plan

Renovation
Wave



**An economy
that works for
people**

**EU fit for the
digital age**



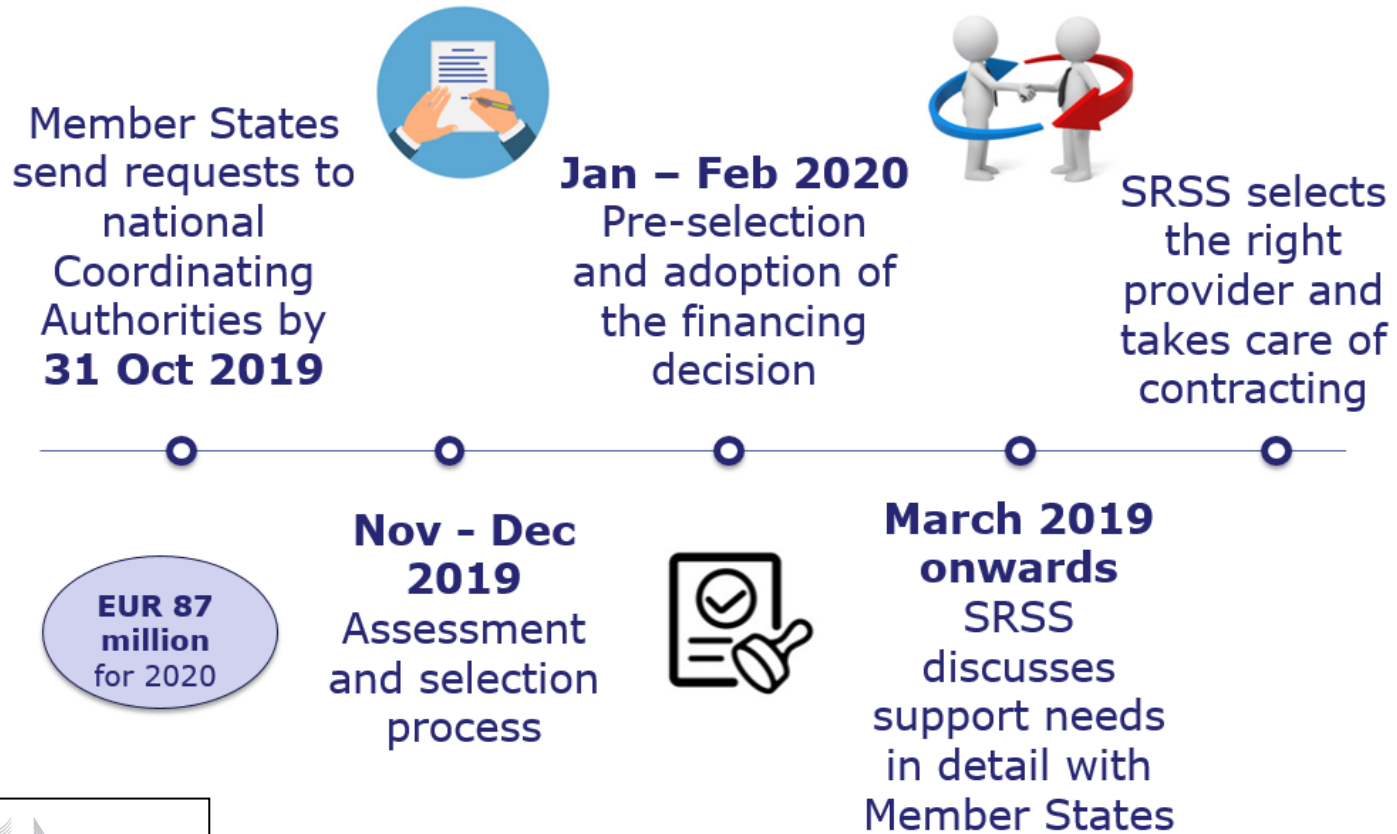
6 EU countries implemented BIM in construction permits through Structural Reform Funds

SRSS funding for uptake on BIM

- *Παρέχει εξατομικευμένη και στοχευμένη τεχνική υποστήριξη για τον σχεδιασμό και την υλοποίηση διαρθρωτικών μεταρρυθμίσεων, **κατόπιν αιτήματος του ενδιαφερόμενου κράτους μέλους***
- Κράτη Μέλη έχουν την κυριότητα της κάθε μεταρρύθμισης

147 projects in Greece
110 projects=65 mil transferred from the Greek Government to SRSS to manage
29 projects=10mil were allocated to Greece from the SRSS fund

SRSP 2020 - roll-out calendar



https://ec.europa.eu/info/funding-tenders/overview-funding-programmes/structural-reform-support-programme-srsp_en

What do stakeholders say on the future of Construction 2020?

“Explore working with **cities**. They have an interesting point of view of what they need from the construction products, services and the C&D operators.”

‘Involve actors from all the **value chain** to address lifecycle performance’

‘Vision 2050’

3 Circular Economy, resources, affordability	4 Better regulation, Internal Market		1 Digitalisation	
	Digital Single market		Innovation uptake	
Energy Efficiency, decarbonisation	2 Skills	Jobs and Growth	5 Cross boarder investment	Internationalisation

