



European Public Leadership in BIM: Driving Performance, Innovation and Growth

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13th June, 2017



Co-funded
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European Union



INTERNATIONAL CONSTRUCTION
INFORMATION SOCIETY



European Construction Market – Key figures and drivers for change



Key figures:

- € 1.2 trillion (10^{12})
- 9% GDP
- 18 million jobs
- 3.1 million organizations
(95% SMEs)

Drivers for Change:

- Urbanisation and housing crisis
- Workforce skill level
- Resource scarcity
- Climate change
- Ageing infrastructure
- Improving existing stock

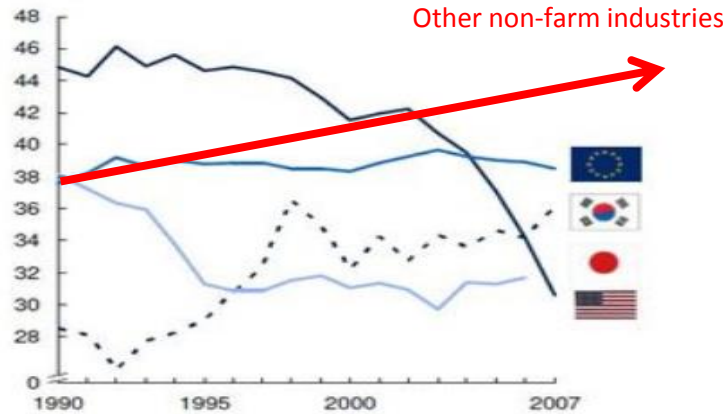
Construction: declining productivity and low digitalisation



Productivity

Digitalisation

Construction productivity
GVA per hour worked in 2007 PPP \$



SOURCE: EUKLEMS; Associated General Contractors of America, 2011; U.S. Bureau of Labor Statistics

Bewertungsskala 1 = größtenteils, 2 = teilweise, 3 = wenig, 4 = ansatzweise digitalisiert



QUELLE: TOP 500 STUDIE 2014/ **accenture**

Causes of low productivity

Traditional ways of working...



*Project process - fragmented
Paper based - errors*

is causing waste.

35%

Cost of waste in the sector

Misunderstanding of client needs

Miscommunication

Rework and recreation of data

Poor or no information management



Value proposition of BIM

- **Economic:** increase productivity, potential for growth, enhance position of European industry on international markets (construction, IT), ...
- **Environmental:** less waste, lean supply chain, lower energy demands, lighter carbon footprint, ...
- **Social:** facilities aligned with societal needs, job creation



What kind of savings are possible on the € 1.2 trillion

- 0,1%: 1,2 billion €
- 1% : 12 billion €
- 10% of 120 billion €

Why provide public leadership: a driver for innovation



As large public procurers we are;

- Non-competitive
- Transparent
- Non-discriminating

Investing Public Money;

- Leading the market through procurement
- Creating fertile environment

EU: Public Procurement Directive

DIRECTIVE 2014/24/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 26 February 2014
on public procurement and repealing Directive 2004/18/EC
(Text with EEA relevance)
(OJ L 94, 28.3.2014, p. 65)

Article 22

Rules applicable to communication

- (1) Member States shall ensure that all communication and **information exchange** under this Directive, in particular **electronic submission**, are performed **using electronic means of communication** [...].

BIM in Public Procurement:

- (4) *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, [...], until** such time as those tools become **generally available [...]**.*

Rapidly evolving national digital programmes



Germany



Norway



Finland



Spain



France



UK



Netherlands



Denmark



Risks of not collaborating

- Adding cost burden
- Slowing economic growth
- Confusing the market
- Closing markets
- Losing competitiveness



EU BIM Task Group

- Deliver greater value for public money
- Increased openness, fairness, competitiveness and productivity
- Stimulating innovation and growth in the construction and digital economies



Austria
Belgium
Czech Republic
Germany
Denmark
Estonia
Spain
Finland
France
Ireland
Iceland

*European
Parliament
*European
Commission



Italy
Luxembourg
Lithuania
Netherlands
Norway
Poland
Portugal
Slovakia
Slovenia
Sweden
UK

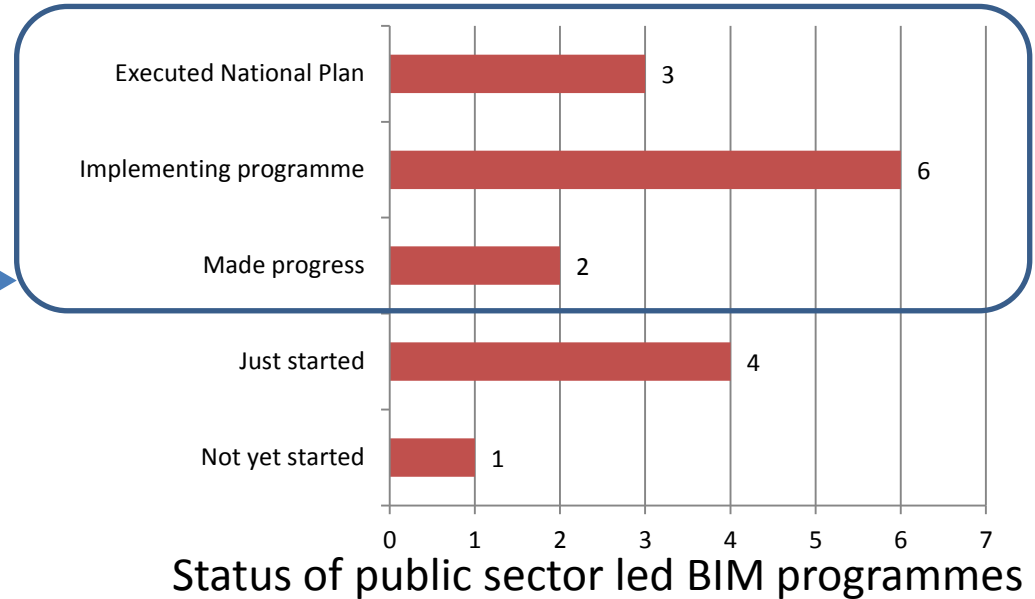


Survey of current European public sector practices for the encouragement and introduction of BIM (into public estate and policy)

Status Quo

- Determine state of public BIM programmes across Europe

11 active programmes in progress
(out of 16 responses)



The EU BIM Task Group



Deliverables

- 2-year program co-funded by the EU Commission, started Feb 2016
- **Create a Common Framework for BIM in public works**

Target Groups

- EU Public estate owners
- EU Public procurers
- EU Policy makers and



Establish a Common Framework / Handbook



The ‘why’ – key incentives for acting now :

- Drivers for Change
- The value proposition of digitalization and BIM
- The value proposition for EU Alignment on BIM

The ‘how’ –

Strategic Guidance for introducing BIM at

- **National/strategic level**
 - A framework for introducing Europe’s public sector BIM programs

The ‘what’ –

Operational Guidance for consistent procuring and delivery

- A common EU performance level
- Refer and encourage standards

Establish a Common Framework / Handbook



The Strategic Level: „The How“

Questions for the Public Sector



What makes a robust and impactful BIM programme?

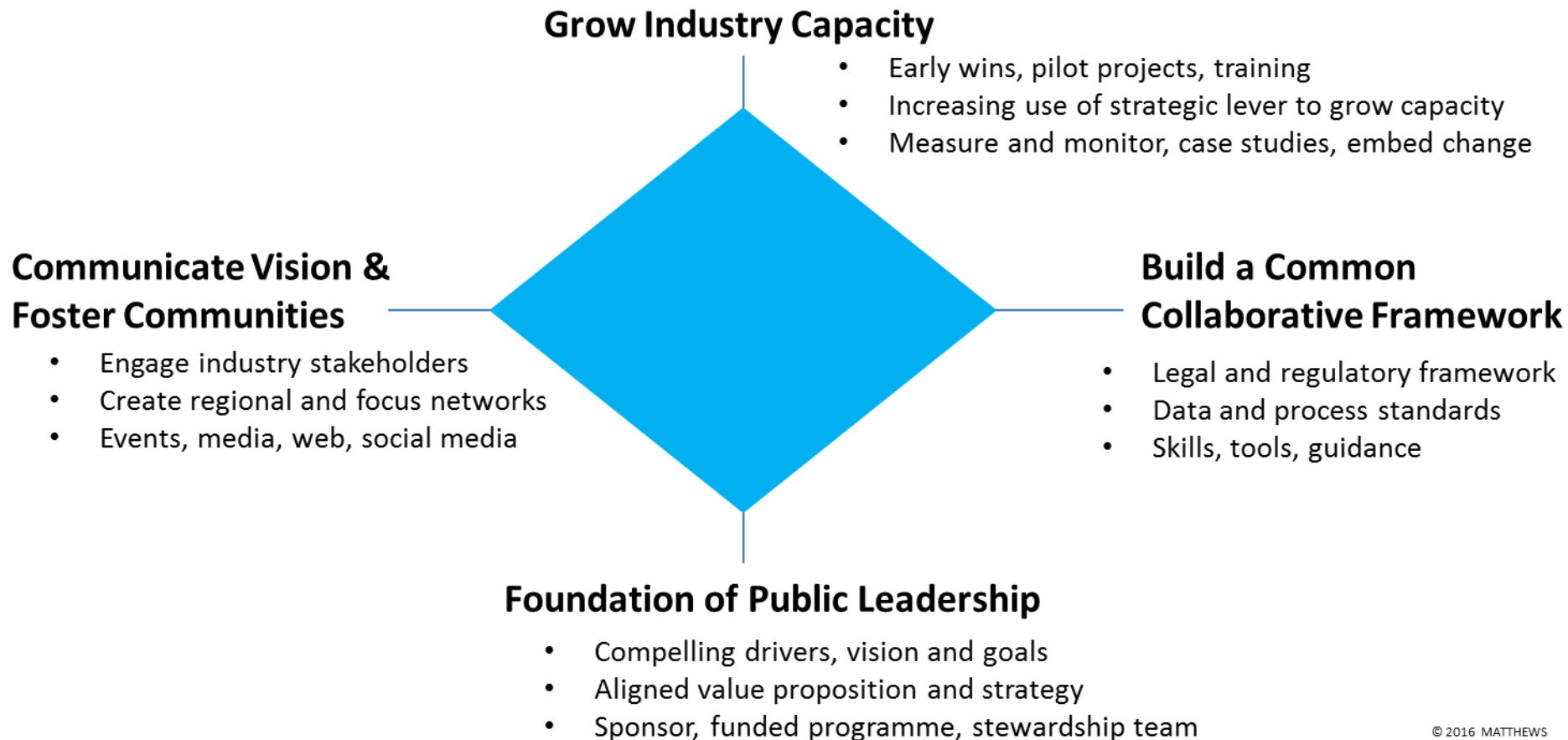
WHAT IS THE ROLE OF THE PUBLIC SECTOR STAKEHOLDER?

When and how should I use pilot projects?

What is the role of industry, associations and standards bodies?

How should to introduce BIM as a public procurer?

Strategic Framework for Public Sector BIM Programs



What are the recommendations? 1 of 12



	Highly recommended	Recommended	Encouraged
1. Vision, Drivers & Goals	<p>Ensure clear public drivers and goals are defined and documented.</p> <p>Make a public statement of intent.</p>	<p>During the BIM adoption process, change management strategies should be implemented to support and monitor commitment, to detect problems or inefficiencies, and where needed to take corrective actions.</p>	<p>Define organisational level metrics that address the drivers and describe progress towards the goals.</p> <p>Benchmark your starting point and measure your progress</p>

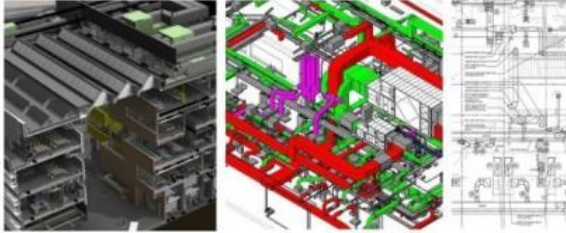
Establish a Common Framework / Handbook



The Operational Level: „The What“

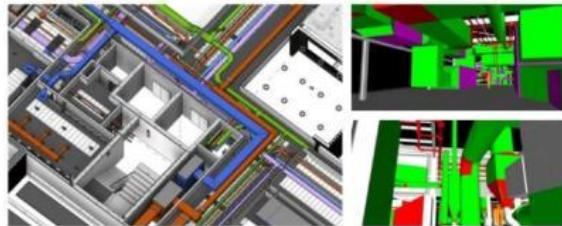
What is a BIM Project?

A BIM project | Design & documentation



- 3D object modelling software
- Agreed methodology and standards
- Embedded information generates tags and datasheets
- Creation of 2D and 3D output

A BIM project | Coordination



- Use of shared setting-out and coordinate data
- Direct referencing of other disciplines 3D information
- Coordination of discipline zones
- Virtual design reviews and clash detection workshops



A BIM project | Clash avoidance



- Coarse – Clashing between different building zones or spaces
- Medium – Clashing between building components
- Fine – Soft clashing for builderswork and maintenance access

A BIM project | Operation



- Facilities and operations management model
- Equipment lists, specifications and maintenance information
- Monitoring and feedback systems
- Portable hardware

A BIM project | Build



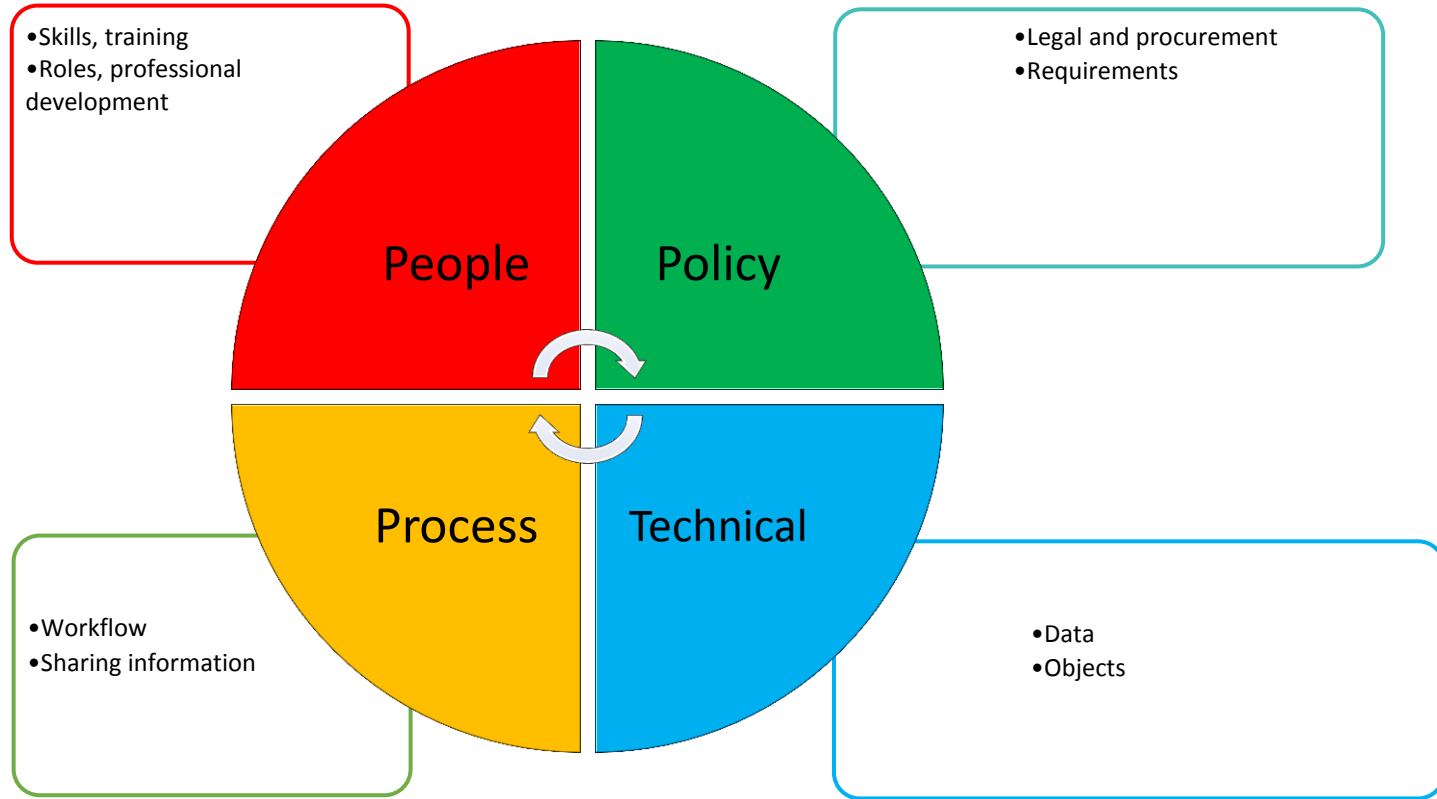
- Virtual construction and coordination
- Data driven setting out and monitoring
- Improved understanding of models over drawings

A BIM project | 4D Modelling



- Linking the construction programme to the project model
- Overall site phasing

Common European BIM Performance Level

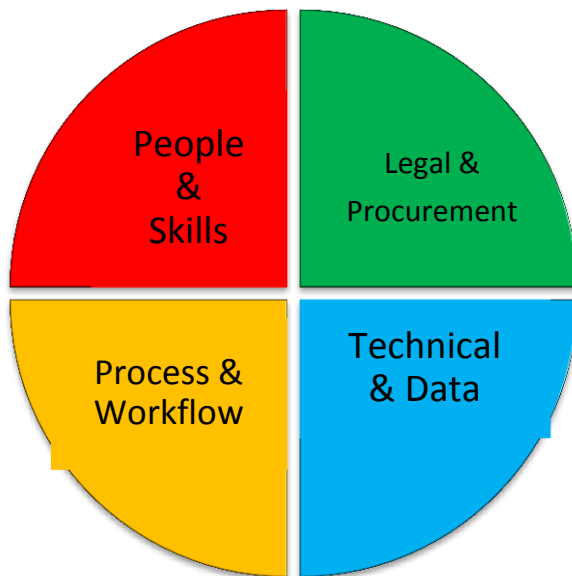


HOW TO TRAIN 18 MILLION PEOPLE...

Responsibilities
Consistent education
Capacity building

HOW TO DEFINE OUTCOMES...

Liability, IP
Employers Information Requirements
Execution Plan (pre- and post-award)



HOW TO DEFINE INPUTS...

Exchange format
Objects, classification
Security minded

HOW TO DEFINE COMMON WAYS OF WORKING...

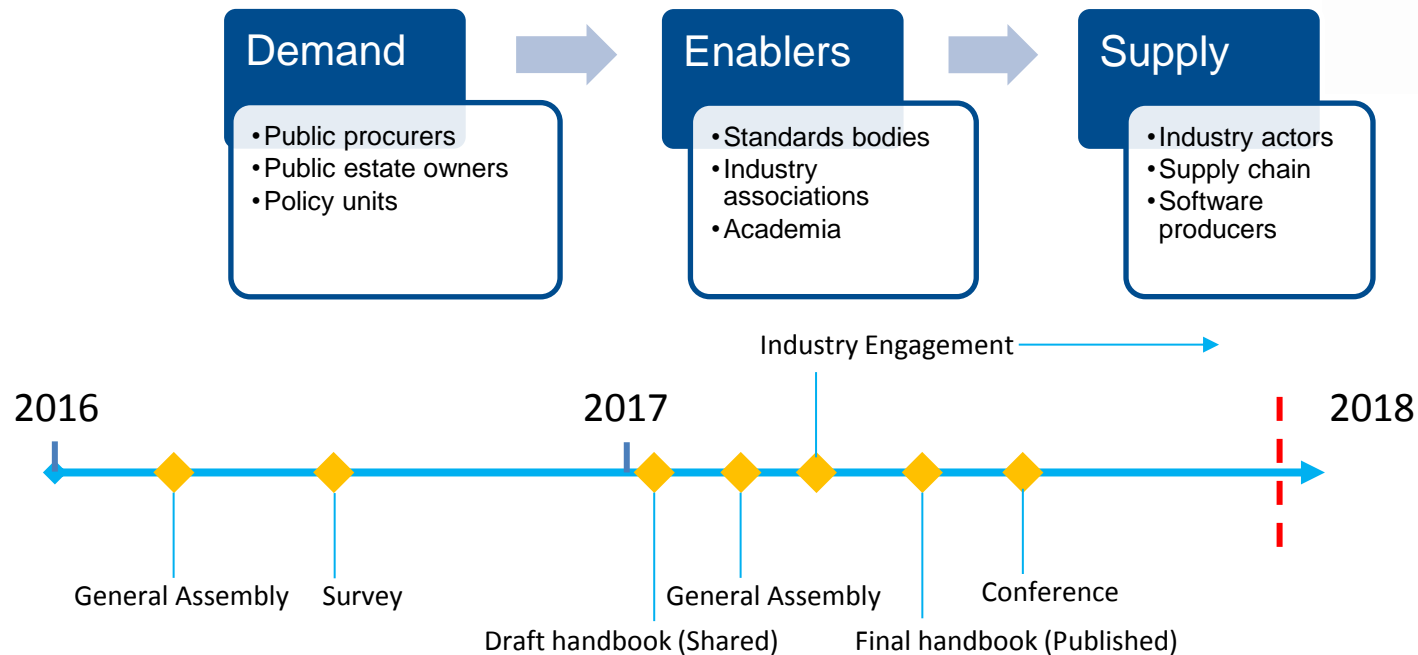
Common data environment
Version control
Manage information

What are the recommendations? ...1 of 9



Topic	Highly recommended	Recommended
Contractual arrangements	Obligations, liabilities and associated limitations for BIM are incorporated into the contract, for example as a BIM specific appendix or protocol.	Provide templates for BIM specific arrangements for different procurement strategies.

Timeline



Launch Date:
6th July 2017, Brussels



Construction: Let's build changes!
Conference, 6 July 2017

Topics:
Digitalisation - Innovation - Skills
Connections for sustainable growth
Modularity/Industrialisation
Cities - Markets

An illustration of a hand touching a smartphone screen that displays a map of Europe. Surrounding the phone are various icons representing construction and urban development, such as a house, a crane, a factory, and a city skyline. The background is a light green gradient.

 European Commission

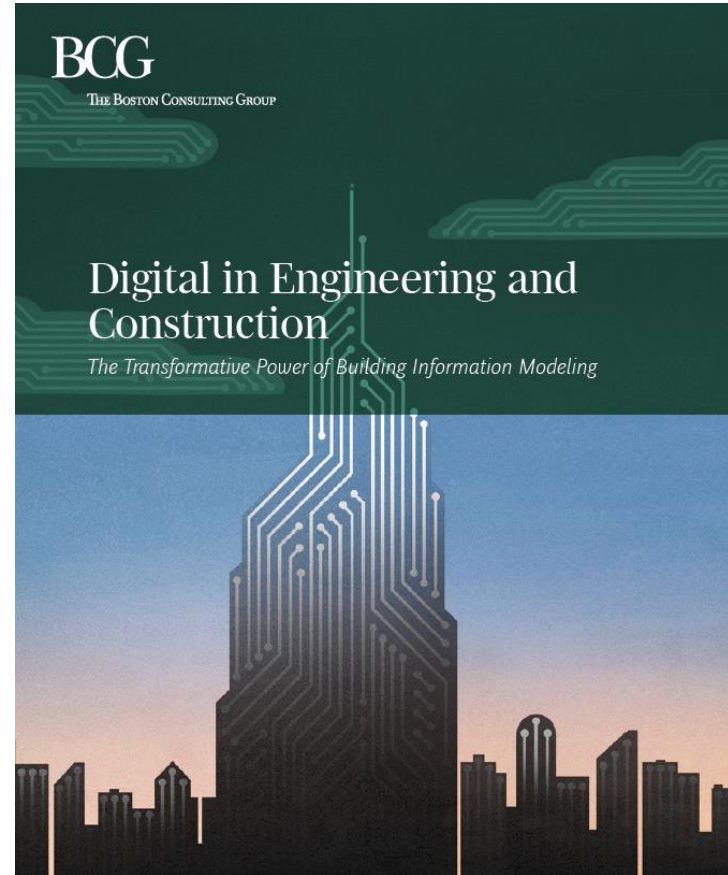
Innovation in Europe

- Public leadership growing
- Accelerating national adoption
- Benefits to private and public sector
- Common standards emerging
- Creation of Single Digital Construction Market



European alignment
A common approach to BIM

15-25% by 2025





Bringing together national efforts into a common and aligned European approach to develop a world-class digital construction sector

EU BIM Task Group

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