How BIM can aid Energy Efficiency Process for the European Construction Supply Chain?

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Future Analytics

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How BIM can aid Energy Efficiency Process for the European Construction Supply Chain

Challenges

BIMcert Conference
22nd January 2020

Reducing the energy footprint in the built environment

Key Points

- Understand how BIM can aid **Energy Efficiency Process** for the European Construction Supply Chain and identify core challenges to implementing BIM approaches to green and passive building designs.
- **Energy Performance of Buildings Directive (EU 2018/844)** sets ambitious goals for energy efficiency and renewables in buildings.
- Requires **'near zero-energy buildings' (NZEB) (Ireland)** performance for new buildings from 31/12/2020.
- **Climate Action Plan 2019 (Ireland)** - series of actions for built environment (commitments to consolidate data on retrofitting, facilitating greater accuracy in measuring energy efficiency and carbon savings **(Action 43)**).

Background and Context

***Economic Analysis of Productivity in the Irish Construction Sector* (DPER, Jan 2020)**

Scope: To understand and address reasons for low levels of productivity in Irish construction sector and to identify specific recommendations and actions that can be undertaken to address these issues

WORKSTREAMS

A review of the Irish construction industry dynamics and factors contributing to existing productivity and performance in the construction sector, including a review of existing initiatives and recently published relevant Irish reports

An international comparative report on key challenges and attributes/initiatives driving construction productivity in Australia, Belgium, Denmark, the Netherlands, New Zealand and the UK

Extensive consultation with stakeholders across government and industry incorporating online survey, consultation meetings and submissions.

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BIM Implementation

The Netherlands

- **Leader in embedding BIM** in construction sector.
- The government has made it **mandatory to use BIM in public projects since 2011**, and there are efforts to spread its adoption to private sector.

United Kingdom

- **Ranks second in terms of BIM adoption** in 2017, per European Architectural Barometer.
- The sector in UK is **working towards implementing BIM Level 3** – a dimension dedicated to entire life-cycle management of a building – by 2020.

Australia

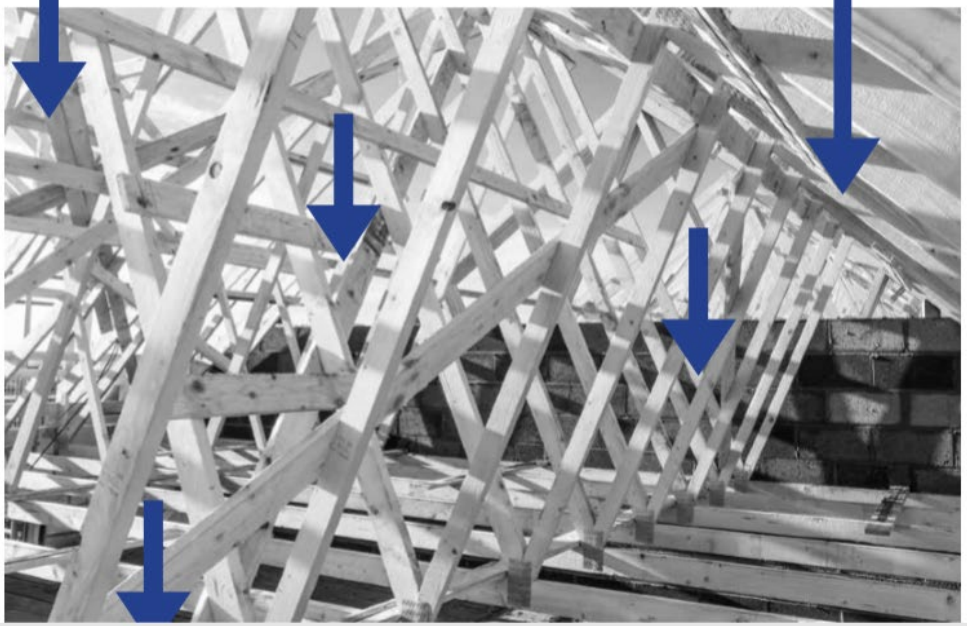
- Australia has been **adopting BIM, prefabricated parts and digital project management tools** in construction activities.
- In June 2019, Government announced **€1.24 million (AU$2 million) funding to start a collaborative lab** for designing prefabricated buildings.

Denmark

- **Legislatively mandated BIM-requirements** in public procurement since 2007.
- **Public sector promotion of BIM** is considered one of key success factors through use of a national and well-coordinated strategy to ensure a **coherent approach to digitalisation**.

Construction Sector Productivity

PRODUCTIVITY



CAUSES OF LOW PRODUCTIVITY

A number of key challenges have been identified as primary causes of low productivity in the construction sector in Ireland. These causes have been considered across three main stages of the project lifecycle and are set out below:

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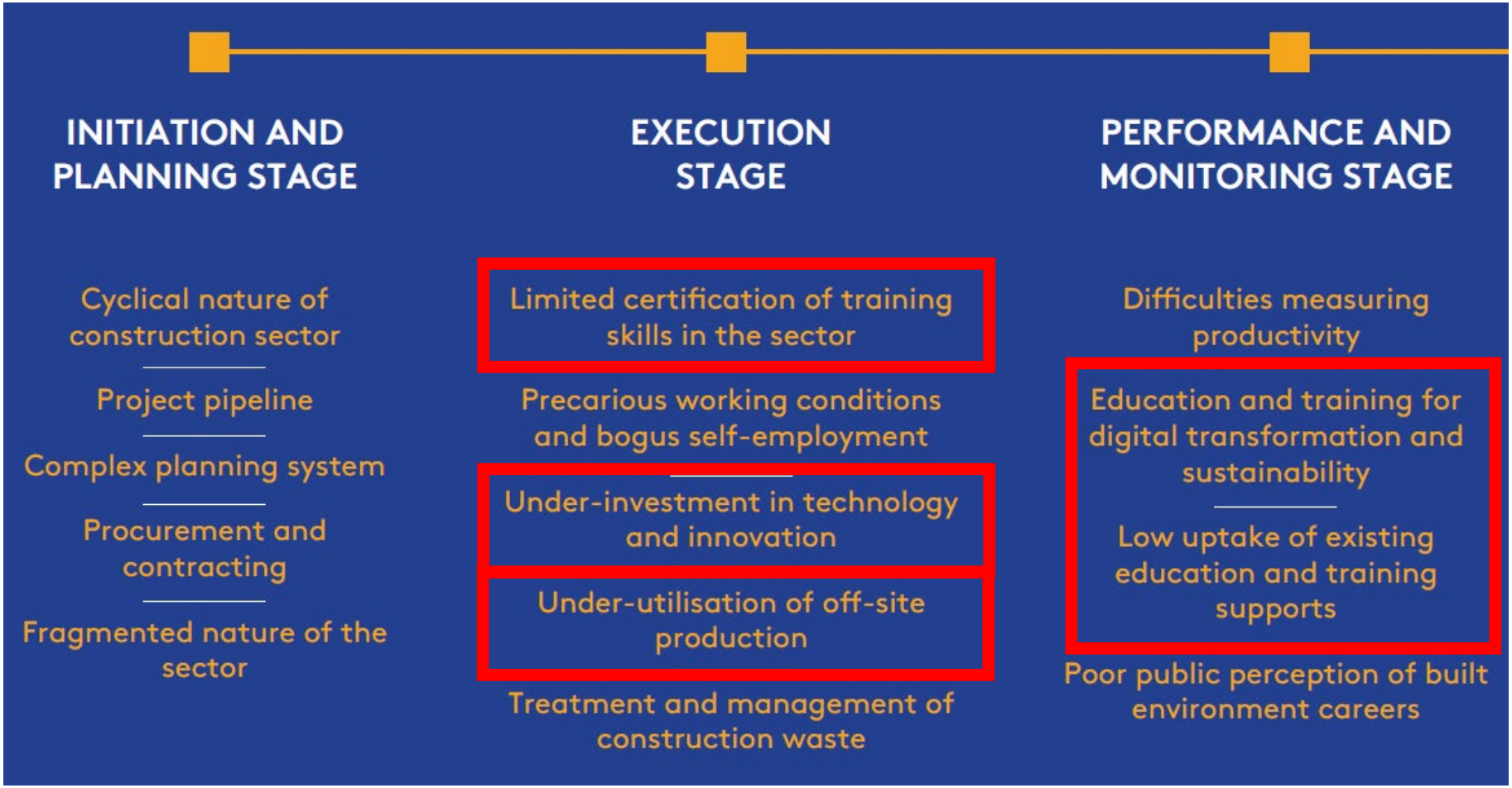
Lifecycle Stages and Key Challenges



Key Challenge Areas and Actions

Planning	• Digitisation of Planning Process
Pipeline of Works	• Greater clarity and awareness of future projects
Procurement & Contracting	• Reform Procurement Processes; Public contracts to support value and reward innovation using BIM, ISO 19650 Lean Processes and Modern Methods of Construction
Policy and Regulation	• Mandate BIM
Operational Management	• Use BIM software (e.g. Revit) to assist Operations (Digital Twin)
Technology and Innovation	• Establishment of Joint Working Group to guide development of off-site production sector • Renewed focus and commitment to support widespread use of BIM across Europe
Education and Training	• Advance plans for Build Digital • Utilise BIMcert • Advance plans for National Centres of Excellence/EU BIM Knowledge Alliance
Image of the Sector	• Joint Working Groups comprising industry and educational partners to promote built environment options within primary and post-primary curricula

'Technology and Innovation' – Key Challenge

Strong appetite to embrace **technology advances** but tight operating margins and a perceived lack of support for funding and training is a barrier

Further **support for BIM**

More **training and awareness** of the value of **off-site production**

Risks

An Action Plan to Accelerate BIM Adoption, **World Economic Forum** (2018): ***'BIM adoption varies significantly by country and level of economic development […] On an EU scale if nothing is done to tackle the barriers […] this may hinder cross-border projects and collaboration'***.

To advance the global BIM Agenda, **WEF** has released a framework setting out three critical criteria:

1) Set **right motivation for BIM adoption**;
2**) Enhance collaboration** on projects; and
3) **Enable all stakeholders to be upskilled**.

And the Challenge…..

How BIM can aid Energy Efficiency Process for the European Construction Supply Chain?

Considering…….

- Building on international best practice
- BIM technology development and innovative
- Overall improved productivity required within the construction sector