Construction & digital innovation
BUILD UP digital construction skills workshop

Barcelona 16th May 2019
Established in 1988;
Association re-launched in June 2013;
Work towards **consensus** on generic issues;
Membership made up of over 50 national and EU associations.

**Purpose:**
Lobby on CE marking & sustainable construction
European construction industry
Greatly impacted by financial crisis;
Sector employs 6.4% of EU workers;
Construction delivers 8.9% of European GDP;
95% of the companies are SMEs;
Long and very diverse value chain.
Europe & housing: market reality
Protesters denounce gentrification in Lisbon as housing prices soar

LISBON (Reuters) - Anti-gentrification groups from across Europe joined hundreds of Portuguese activists on Saturday in a rally against soaring rent prices in Lisbon as the city experiences the biggest tourism boom in its history.
Why rising rents across Spain are causing a new crisis

26 September 2018
10:06 CEST+02:00

property
rent

All photos by by Gabriel Buoyes/ AFP
No place to live: Germany's daunting urban housing market

Finding an apartment in a German city is hard work these days. That is especially true for those who have little money. Some critics say it's a dangerous development that could have dramatic political consequences.
Will you ever be able to afford to buy a home? This is how long it will take you to get on the property ladder

Depending on where you live in the city, you could have a long wait before buying your first home

Getting on the property ladder is harder than ever

New data suggests that across Merseyside, the average couple would need to save for around seven years to be able to buy a two-bedroom house.
Irish Times view on housing: No time for political caution

Providing cheap State-owned land for developers will not remedy a broken system

Richard Curran: Real questions over plan to tackle housing crisis with land agency

POLITICS 18/09/2018 22:30 BST | Updated 19/09/2018 15:14 BST

Landowners Pocket £13bn Profit In One Year Just For Getting Planning Permission

'In the face of a disastrous housing crisis, it is clear that the broken housing market is simply not delivering.'
More than one homeless person dies every day in the UK, study finds

'This is a wake-up call to see homelessness as a national emergency,' said Crisis CEO Jon Sparkes

More than one homeless person died every day in the UK over the last 12 months, according to a new study.

A physicist, a former soldier and a travelling musician were among the 449 deaths recorded since October 2017, including 14 in one week alone.

Experts described the statistic as a “national scandal” and placed the blame on welfare cuts, high rents and a lack of social housing.
It’s official, the housing market has cooled off, but it will take some time for it to become a buyers’ market.
European Commission
Level(s):

- voluntary framework to improve the sustainability of buildings;
- Test phase underway;
- Conference 18th December, Brussels.

- Transposed into national legislation;
- Third attempt to promote energy efficiency in buildings.
EU Adaptation Strategy:

- Resilience to natural disasters;
- Flooding, temperature variation, earthquakes …;
- Evaluation published in November 2018, it outlines how Europe is still vulnerable.

Is resilience the new sustainability?
Smart cities:
- Promotion of digital & telecommunication technologies.

Artificial intelligence and robotics:
- EU AI development coordinated action plan published on 7th December 2018.
Deconstruction:

- Construction Demolition Waste protocol;
- Buildings as material banks;
- Circular economy principles in construction.
What do we build?

- Sustainable/green?
- Near-zero energy?
- Energy efficient?
- Energy-positive?
- Resilient?
- Smart?
Cutting costs for competitiveness;
New build = 1 to 3% of EU market;
Infrastructure needs;
Investment policies?
Investments & technologies
Once upon a time …

Sears Modern Homes;

Kit houses for sale via online catalogue as of 1908;

These now valued over $1M;

Innovation is nothing new.
In a galaxy (not) so far away …

Bricklaying robot works five times faster than a human
In a galaxy (not) so far away ...

Japanese plasterboard robot
In a galaxy (not) so far away …

Exoskeletons make the wearer stronger and safer
Digital construction investments

$18 billion in cumulative investment over last 5yrs;
$1 billion invested in start-ups 1st half 2018, 30% above 2017;
119 start-ups deals in 2018, up from 104 in 2017 & 97 in 2016;
More M&A activity foreseen as larger software firms acquire co. rather than reinventing the wheel.
Drone for data collection and more;
3D printing for rapid prototyping, shorter production runs;
Blockchain, first real estate deal in EU Oct. 2018;
Internet Of Things (IoT)

Interconnected devices and sensors that communicate via web;
Tools and equipment tracking for servicing and repair;
H&S support through connected wearables.

Introducing...
Trimble Connect for HoloLens

Trimble Connect for HoloLens utilizes mixed reality for project coordination by providing precise alignment of holographic data on the job site, enabling workers to review their models overlaid in the context of the physical environment.

With two-way communication to the Trimble Connect cloud, users always have the most up-to-date data on their site, literally.
And also …

Big data explosion driving Artificial intelligence (AI) prompting businesses to track and make use of more and more data; 

Augmented Reality (AR) integrated into equipment visors and vehicle windshields.
Building Information Modelling (BIM)

A technology - in use for a decade;

A process - spans generation and management of construction project;

An industry - value $11.7 billion by 2022.
Funded by the European Commission
Launched in February 2016
Objective to set up European BIM network for public works
Published BIM handbook for public procurers
Available online in 20 languages
Organisations & digitalisation construction in Europe

Exploratory study

1\textsuperscript{st} version to be published online in June

93 BIM initiatives & 185 associated software products
What next?

Understanding needs and constraints/liability of construction industry;
Mutual benefits/targets;
Common language;
Data ownership;
Standardisation;
Political framework.
EU digital construction initiatives
In June 2018, 23 EU associations co-signed digital manifesto;

It recommends that:

- EU take political lead on digital construction;
- To focus new EU budget on digital skills, R&D and deployment of IT infrastructure;
- For data policy regulatory framework.
European standardisation

CEN Technical Committee 442 Building Information Modelling (BIM);

Artificial Intelligence (AI) Focus Group with roadmap and milestones;

Blockchain & Distributed Ledger Technology (DLT) Focus Group which produced White Paper.
EU digital construction platform

European Commission Horizon 2020 funding;
DigiPLACE digital platforms pilot project;
Project duration: 18 months, starting in September;
21 partners, including European associations, research institutes, national government officials, BUILDINGSMART and Politecnico di Milano.
Smart CE marking

CEN Workshop Agreement freely available online;
Ready to be implemented;
Not BIM but “gate” to BIM for construction products data.
Summary

Multiple challenges for built environment: extreme weather conditions; rising energy costs, demographic changes…

Specialised jobs/skills to emerge linked to digital transformation;

Surge in investment in digital technology;

Industry spends 1% or less of annual sales on digital tools;
Summary

Industry - potentially entire built environment - to be reshaped;

Technology for all actors, from architects and owners to workers;

“Digital construction” is 5-10 yrs off but standardisation required;

Need for (EU) political guidance?
Recommendations

Communication between tech and construction industries;
Interoperability/common language;
Common goals;
Guiding political framework;
“Digital construction” priority for New Skills Agenda for Europe & Digitising European Industry initiatives