Consortium Project „Future of Construction & Buildings“

Key Facts

*We are currently in cooperation negotiations with further research partners.
JOIN THE CONSORTIUM

Major outcome of the project

Leverage the enormous potential through digitalization, innovative technologies, materials and management methods to improve productivity and efficiency in the field of construction and buildings:

- Learn how to utilize digitalization approaches in domains like planning (e.g., BIM), project management or maintenance
- Discover new technologies and materials that support you in coping with demands like shortage of space in rapidly growing urban environments, climate neutrality and durability
- Get an in-depth analysis of the most relevant applications, materials and technologies selected by yourself and the consortium
- Benefit from the network of research partners, experts and consortium partners and use their knowledge to solve the challenges you are facing

External Conditions

- Start: September 2019
- End: September 2020
- Approx. 20 consortium partners
- € 29,000 *

*Deciders: € 29,000
Listener: € 15,000
PROJECT FRAMEWORK
Selection of potential focus topics

- Market Places and Platforms
- Smart Processes & Tools
- Business Analytics
- Connected Supply Chain
- Logistics 4.0
- Virtual Reality Engineering
- Building Information Modeling
- Digital Construction
- Tool & Fleet Management
- Digital Twin

- Smart Energy Management
- Smart Buildings and Cities
- Predictive Maintenance
- IoT
- Smart Grid
- Automated Construction Vehicles

- Advanced Construction Methods
- Robotics
- Drones
- Advanced Materials
- Additive Manufacturing
- Insulation Materials
- Concrete Materials
- Advanced Materials
- Light Construction
- Modular Construction
- Concrete Materials
- Advanced Materials
WHY A CONSORTIUM PROJECT?

Benefit from Synergies

Your invest

Networking

The Results

- Up to 300 innovative applications
- Profound structure and segmentation of the topic field
- Technological and economical in-depth analysis of the most relevant focus cases selected by the consortium partners

Answers to questions such as:

- What internal and external data sources are relevant to improve my project management?
  - How can we use IoT devices and real-time location technology to improve measurement?
  - Which new building materials will affect the industry?
  - What are suitable applications for 3D printing technology?
  - What solutions can be used to build more sustainably?
  - …

Synergy & Scaling Effects

- 12 PD *
- € 29,000 **

* Recommendation: 2 employees à 4 meetings, 4 days preparation
** Deciders: € 29,000
*** Listener: € 15,000

Excerpt of more than 250 former consortium partners
# Future of Construction & Buildings

## Project Timeline

### Stage 1

- **Kick-off**
  - 26.09.2019

### Stage 2

- **1st Report Meeting**
  - Q1 2020

### Stage 3

- **2nd Report Meeting**
  - Q2 2020

- **Final Meeting**
  - Q3 2020

### Stage 1: 4 months - Segmentation & Application Scanning
- Segmentation of relevant topics within the construction industry
- Scanning & Scouting for cross-industrial applications and materials
- Overview and pre-evaluation of industry solutions in application maps

### Stage 2: 4 months - Technology Assessment
- Detailed technology studies for each selected application and question, e.g. assessment of technological feasibilities or cooperation partners
- Possibility of networking event and start-up workshop
- Online workshops to define the direction of the technology cases

### Stage 3: 4 months - Deep Dive/Roadmap/Demonstrator
- Derivation of, e.g., detailed business cases, technology roadmaps or demonstrators for the selected applications or materials in stage 2

### Additional Technology Assessment
- 4 months
- Additional technology and material studies for further selected solutions from the application map (see stage 2)

### Meetings
- **Questionnaire**
- **Consortium meeting**
- **Optional Workshops with partners/experts/start-ups**
- **Optional network/platform meetings after project end**
PROJECT FRAMEWORK

Proposed focus area structure

### Development & Engineering
- Collaborative Development
- Virtual Engineering
- Digital Twin
-...

### Construction Site Logistics
- Supply Chain Tracking
- Supply Chain Collaboration
- Fleet Management
-...

### Aftersales & Services
- Predictive Maintenance
- Condition Monitoring
- Service Documentation
- Telemaintenance
-...

### Material & IoT
- Smart & Innovative Materials
- Smart Buildings & Infrastructure
- Smart Energy Management
-...

### Construction Methods
- Additive Manufacturing & Prefabs
- Robots & Autonomous Vehicles
- Smart Tools & Digital Worker Support
-...

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**Design Phase**

**Construction**

**Operation**

**Project Management**

**Facility Management**

**Planning, Execution and Management Tools**
Segmentation & application scouting / Kick-off & 1st report meeting

Segmentation

- Evaluation of the **consortium preferences and key questions** (questionnaire)
- Structured overview of **relevant focus areas** and (sub-)segments within these focus areas, taking into account partner preferences and focus directions

Application Trees

- Pre-evaluation of up to 300 of the most relevant **cross-industrial solutions** presented to the consortium during the 1st report meeting
- **Structured overview** of current and future solutions in the context of specific applications fields

Demonstrators

- **Idea generation** for potential and relevant demonstrators in collaboration with consortium, research partners and start-ups
  - The consortium will vote for applications to be analyzed in form of technology and material cases within stage 2 of the project
Technology & material cases / 2\textsuperscript{nd} report meeting

### Technological and economical evaluation *

- Aggregation of relevant technology-, material- and market-related information
- Evaluation of current advantages and disadvantages of the applications chosen by the consortium and their technological feasibility
- Assessment of different technological concepts leading to a technological deep dive
- Identification of potential cooperation partners

### Demonstrators *

- Development of initial set-ups for the selected demonstrators in collaboration with project and research partners as well as external experts
- Definition of boundary conditions and the required input parameters as a starting point for the final project stage

*Presentation of (intermediate) results of technology cases and demonstrators and selection of most relevant cases by the consortium for further evaluation in stage 3*
Focus cases / Final meeting

Technology & material cases *
- Additional technology and material studies for **further selected solutions from the application map**
- Analysis of relevant **technology-, material- and market-related information**

Detailed economic evaluation *
- The results support partners with **insights about e.g. economic potentials and provider landscapes** related to the selected technology or material case in stage 2

Technological roadmap *
- **Identification and analysis of future development** steps of the selected technologies or materials

Demonstrator *
- **Development of a demonstrator** in collaboration with project and research partners as well as external experts
  - **Information basis for partner-specific strategic decisions**

*Possible case considerations*
CONSORTIUM STRUCTURE
Future of Construction & Buildings

**Industrial User**
- Professionals in construction site & technology management, strategy, business development as well as material experts
- Companies involved in the value chain of construction industry

**Research Partners ***

**Interdisciplinary Consortium**
- Cross-industrial consortium of project partners, research entities and solution providers
- Four major networking meetings offering starting points for potential further collaboration

**Technology Providers**
- Research entities
- Industry leaders
- Start-ups
- Established solution providers
- ...

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EXPERT NETWORK *

Future of Construction & Buildings

Professional technology and market information provider founded 2012 as a spin-off of the Fraunhofer IPT
www.kex-ag.com

Intersectoral research institution at RWTH Aachen University concerned with business organization, information logistics and corporate IT.
www.fir.rwth-aachen.de

Knowledge and experience in all fields of production technology for optimizing solutions for modern production facilities
www.ipt.fraunhofer.de

The Center aims at the development and research of new materials and innovative construction methods in the field of the construction industry

*We are currently in cooperation negotiations with further research partners.
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