EDU500031

Learning Industrialized Construction from experts in industry and academia

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Pre-read: Whitepapers referenced in this presentation
Future of Work in Construction

Industrialized Construction in Academia

Learning Objectives

1. Identify strategies needed to incorporate skills and competencies required for education in Industrialized Construction
2. Develop a roadmap for engaging industry and academia in promoting the five megatrends of Industrialized Construction
3. Identify investments by all stakeholders not just in technology but also in teams, skills, and a digital-ready workforce
4. Describe the new roles that will be needed to support Industrialized Construction initiatives

Description

The recent Autodesk and RICS whitepaper entitled Future of Work in Construction calls to action industry, government, and academia to join forces to ensure the adoption of industrialized construction for transformational change in our industry. Each stakeholder: academia, the private sector, and the government has a part to play in this shift of thinking, behaviors, and process to facilitate change. The future of the industry is highly dependent on the competence of graduates entering the workforce. In the face of troubling skilled labor shortages, new employees must enter the industry with the abilities and exposure to technologies to drive digital construction and the IC processes and higher levels of precision in construction. In this panel discussion, we will engage in highlighting the current status and developing a roadmap where stakeholders can work together to enable graduates with knowledge of interdisciplinary skills required to embrace Industrialized Construction fully.

Speaker(s)

Introduction and Moderator

John Herridge – Autodesk

AEC Technical Marketing Manager for Education
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John Herridge currently serves as a Technical Marketing Manager with Autodesk focused on helping prepare the next generation of construction managers, engineers, and architects for the future of work in construction. He received his BS in Architecture from The Ohio State University and practiced architecture professionally for 13 years. He then pursued his technology passion full-time by joining a local Autodesk partner providing training and consulting on Building Information Modeling in Ohio and surrounding states to thousands of people. Later, John joined the Autodesk Education team fifteen years ago serving initially on the field engagement team helping schools and programs adopt Autodesk technology inside the classroom through on-site and virtual workshops. He has presented at Autodesk University several times.

Panelist

Amy Marks – Autodesk

Vice President of Industrialized Construction Strategy and Evangelism
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Twitter: @QueenofPrefab

Amy Marks, VP, Industrialized Construction Strategy and Evangelism at Autodesk is known throughout the world as the "Queen of Prefab." At Autodesk, she informs product strategy, thought leadership and convergence consulting for customers incorporating industrialized construction methodologies.

Prior to joining Autodesk, she defined the language, process and frameworks that are adopted by companies, universities and countries around the world reflecting the convergence of Design-Make-Operate models. Notably, Amy was appointed by the Singapore government's Building & Construction Authority as an international expert to advise its design and construction productivity roadmap.

Her thought leadership and tenacity, leading alongside the government and industry, resulted in unprecedented change and innovation - catapulting Singapore to worldwide recognition in the Industrialized Construction space. She is a graduate of the University of Florida and an alumna of the Harvard Business School.

Panelist

Brian Nickel - Allied BIM, LLC.

Co-owner

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Adjunct Faculty at Gallatin College teaching in the Design Drafting Program remotely from Boise, Idaho. Husband, Father, Technologist, and Entrepreneur who studied his Master of Architecture at Montana State University - Bozeman. A firm believer in the construction trades and applying software knowledge to empower the future construction industry to alleviate the decline in a global trade labor shortage.

Panelist

Mary Hardie, Ph.D. FAIB - Western Sydney University

Associate Professor

Director of Academic Programs Building Design Management

School of Engineering, Design and the Built Environment

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Dr. Mary Hardie has been a registered architect for more than 40 years since graduating from UNSW in 1979. She has worked in Design and Construct building companies as well as in architectural design practices before returning to academic life at Western Sydney University and completing her PhD. She has a particular interest in sustainable construction and in construction innovation.

Her research is mainly focused on innovative construction processes and technologies the ones developed for and/or implemented by small and medium enterprises (SMEs). She is keen to encourage students to understand the potential for industry improvement that can result from prefab and off-site construction methods to improve both quality and safety in the construction industry.

Panelist
Anil Sawhney, Ph.D. PMP FRICS FHEA
Royal Institution of Chartered Surveyors (RICS)

Global Lead, Construction and Infrastructure Sector
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Anil Sawhney is the Global Lead, Construction and Infrastructure Sector for the Royal Institution of Chartered Surveyors. Anil is a construction and infrastructure sector expert, an educator, a researcher, and a Construction Tech enthusiast. He is involved in producing the construction and infrastructure sector's body of knowledge, standards, guidance, practice statements, education, and training. Dr. Sawhney is also an Adjunct Faculty at Columbia University, Visiting Professor at Liverpool John Moores University, and an adjunct faculty at the University of Southern California. Anil has a rich mix of academic, research, industry, and consulting experience gathered in the USA, India, Canada, the UK, and Australia. In 2020, he co-authored a book entitled "Construction 4.0-An Innovation Platform for the Built Environment." He is currently the co-editor of the Construction Innovation Journal and serves on the international editorial board of the ICE Infrastructure Asset Management journal and the Journal of Information Technology in Construction.

Session introduction

Today's construction industry is under more pressure than ever to deliver projects that are on time and on budget—all while dealing with record global labor shortages, supply chain issues, and other challenging external constraints. With these factors in mind, it is important to acknowledge that traditional means of construction is not scalable nor sustainable to meet the future demands of construction for the built environment.

As an industry we need to address these challenges by embracing digital transformation to create the data needed to support new means of production that includes Industrialized Construction (IC) while also shifting our mindset from project-centric delivery to productization to improve safety, quality, sustainability, and scale.

The increased use of Industrialized Construction in construction enabled by technology will change how we design, manufacture, and assemble. It is projected that by 2035 most buildings will be constructed using IC, as manufacturing and construction converge; utilizing manufacturing's expertise in mass production and construction's ability to design and build a highly customized complex product.

With these new production approaches, it is imperative that industry, academia, and government unite to help ensure architecture, engineering, and construction (AEC) programs align to produce highly skilled construction professionals with deeper insight in building information modeling (BIM) and IC.

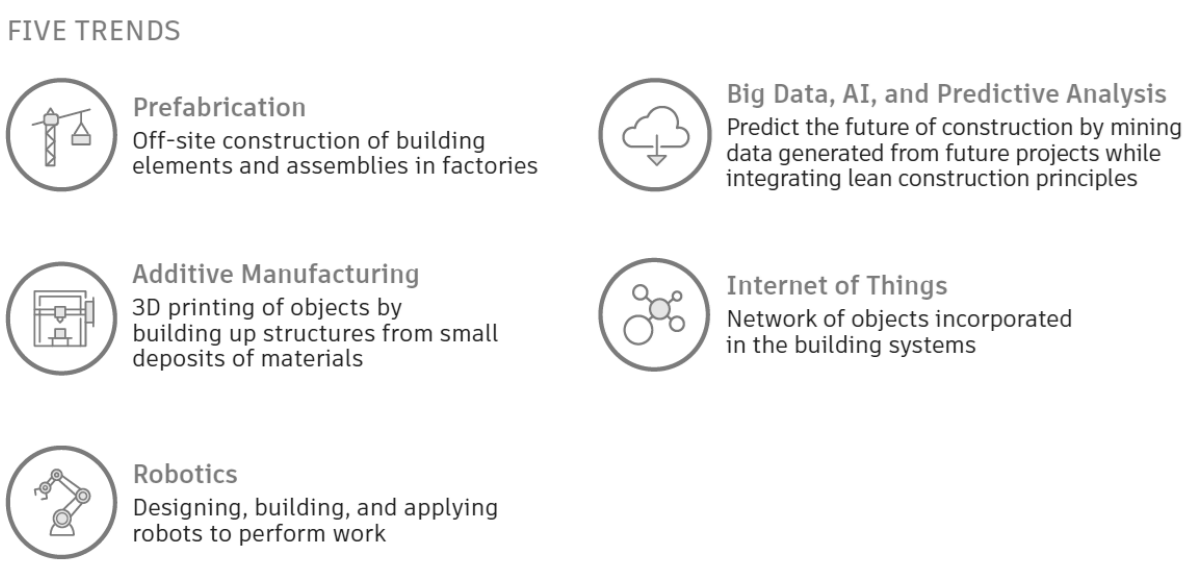
Panel summary

This panel brings together experts from technology, industry, and academia to discuss the key issues affecting the adoption of Industrialized Construction. The panel will begin by establishing the current state of Industrialized Construction in industry and academia. Then, identify the mindset and skillsets needed to engage in IC for a digital-ready workforce as well as future skilling the existing workforce. Next, we discuss the new roles that will be needed to support Industrialized Construction initiatives.

We plan to take questions from the audience that are aligned with the themes discussed in this panel session.

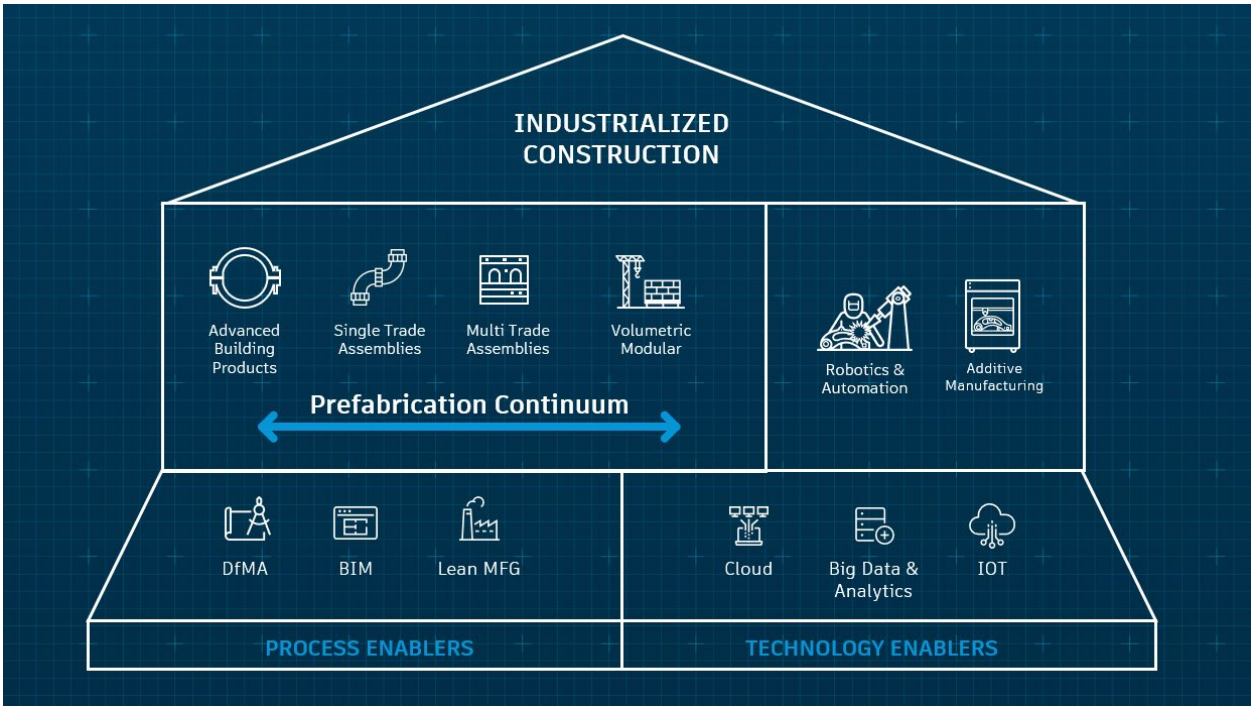
Key concepts

Five megatrends in Industrialized Construction

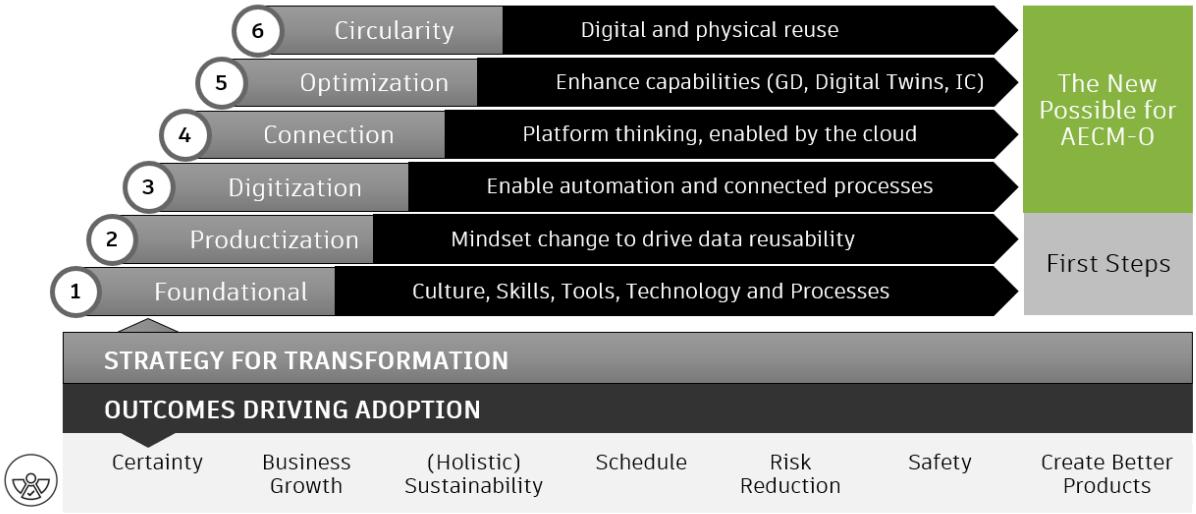


Six benefits of Industrialized Construction

House of Industrialized Construction



Transformation framework



Future Industrialized Construction teams, roles, and skills