

Construction Transformation

Christian Thuesen

Background

The global society relies on our ability to construct buildings and infrastructure. Construction has been the key sector in creating the modern societies of developed countries, a position for which developing countries also rightfully strive. With continuing population growth and rapid urbanization, global needs for housing, schools, transport and energy infrastructure keep rising. However, current construction practices are inherently unsustainable and cannot be considered blueprints for the rise of the developing world. Recent simulations from the Stockholm Resilience Centre find that only bold transformative change will allow us to create a sustainable society beyond 2050 within a safe operating space of our planet's boundaries. This has significant implications for the construction sector. We are on the verge of a new construction reality where two trends converge - the need for sustainability and new disruptive technologies that can transform the products, processes and organizations of construction.

Purpose

The purpose of this project is to provide building blocks to the transformation of the construction industry towards sustainability, leveraging developing digital capabilities. It represents one of the core challenges of our societies, and companies and research institutions in Denmark and the US are frontrunners in the field. The objective is to develop a research agenda for construction transformation in collaboration with leading research centres in the bay area. Through case studies and workshops with pioneering organizations on digitalization and sustainability, the project explores and leverages synergies between the construction industries in DK and US.

Collaborators

The projects key collaborators and academic hosts are:

- Iris Tommelein, Professor at the Civil and Environmental Engineering Department, UC Berkeley and director of the Project Production Systems Laboratory (P2SL)
- Michal D. Lepech, Associate Professor at the Civil and Environmental Engineering Department, Stanford University and faculty member of Center for Sustainable Development and Global Competitiveness (SDGC).

Outcomes

Specific deliverables of the project will be translated into a wider range of outcomes to DTU, UC Berkeley, Stanford and our respective networks and societies. The outcomes, by which we want to evaluate the success of the project, are:

- A collective and coordinated research agenda on Construction Transformation, leveraging disruptive technologies to address urgent societal needs.
- Development of a global network on Construction Transformation between central stakeholders in the US and DK
- Support of a wide range of companies to navigate and shape the future of construction.
- Connecting the DTU ProjectLab with similar labs at UC Berkley (P2SL) and Stanford (CGSD).
- Strengthened relations to the Lean Construction, Digitalization, and Global Sustainability Community by participation in conferences and other activities.
- Development of partnership for continuous and executive educational activities.

About the researcher (Christian Thuesen)

I am Associate Professor in project and construction management at the Technical University of Denmark and currently a Fulbright scholar at UC Berkeley and Stanford. I have worked with projects for more than 20 years as lecturer, researcher, and consultant in various engineering settings, including construction and IT. This has sparked my fundamental research interest in the role of projects as vehicle for societal change through engineering work including construction, sustainable development, innovation and digitalization but also more broadly in today's society - as a human condition. To pursue this agenda I cofounded DTUs ProjectLab (www.doing-projects.org) which I am currently directing.

Acknowledgement

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Contact

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