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**EDITORIAL**

# 4TU.Bouw Lighthouse projects + PDEng

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Spool has published previously four issues dedicated to projects, developed in a high-risk innovation programme: the so-called the 4TU.BOUW lighthouse projects. Initially, the main topic of this programme was Energy-Innovation, hence the name of this "thread". This issue of Spool presents the last batch of Lighthouse projects as the programme came to a close.

4TU.BOUW represents the collaboration between the four Technical Universities in the Netherlands on the large topic of 'The Built Environment'. The cooperation consists of the Department of the Built Environment at the Eindhoven University of Technology, the faculty of Engineering Technology at the University of Twente, the faculty of Architecture and the Built Environment and the faculty of Civil Engineering and Geosciences at Delft University of Technology, and Wageningen University & Research. The goal of the 4TU.BOUW initiative is to promote collaboration between the member faculties, industrial partners and government, to meet the grand challenges ahead.

Built Environment is the biotope of the modern citizen, providing infrastructure for transport, defence against flooding, shelter, space for working, meeting and leisure activities. The demands upon reliability, safety and comfort of these structures are continuously increasing. Meanwhile, the Built Environment sector is confronted with enormous challenges like scarcity of resources, climate change, accelerated population growth and demographic changes. These challenges require joint strategies and collaboration between end-user, academia, the industry and governmental agencies, the so-called golden triangle.

Therefore, in the context of the Dutch 'Nationale Wetenschapsagenda', 4TU.BOUW, with its partners, has identified the critical, societal and scientifically relevant research themes: 'De Toekomst Wordt Gebouwd', as well as the 'Built Society Smart Reality' urgency and ambition 'map'.

Relevant themes were used as a context for the 4TU.BOUW Lighthouse programmes 2016 and 2017. In 2017 eight dedicated, fast track innovation projects have been completed, all addressing aspects of the agenda and map. These projects provide a proof of concept – or failure – of new technologies that contribute to reliable approaches and solutions to the challenges ahead, for all stakeholders.

Also, a dedicated PDEng-training programme contributes to the future availability of well-trained specialists, meanwhile bridging the gap between academia and the market. 4TU.BOUW strives to respond rapidly to the ever-faster changes, often emerging bottom-up, that new technologies bring about, by organizing workshops, brainstorms and training sessions with relevant stakeholders, and by forming dedicated consortia. Only by such joint actions concerning the urgent themes are positive changes expected to happen.