

Disruptive Technologies in Design

Sidsel Katrine Ernstsen, PhD project

Challenge

“Disrupt! - or be disrupted!” has become a catchphrase among managers today. Across a wide range of industries, well-renowned companies are being disrupted by new technologies and game-changing business models – causing other established companies to look for answers as to how, where and when disruption may hit their industry.

Compared to the development of other industries, such as manufacturing and healthcare, the practices of construction have largely remained the same in the last 50 years. This makes the construction industry an expected target for disruption. But which technologies may cause disruption – and how? And what can be done to prepare?

Understanding how disruption emerges and how disruptive technologies can be identified, may be an important part of the early stages of designing new products and services. The purpose of this project is to explore how the potential of disruptive technologies can be utilized in design to benefit stakeholders in the construction industry, as well as society at large.

Research questions

- What technologies represent possible disruption of construction and how do they challenge the current value network?
- How can we spot emerging and potentially disruptive technologies and define their potential impact?
- How can existing or new business models be embedded in the engineering system of the built environment – to the benefit of society?

As this industrial PhD project is carried out in collaboration with the large engineering consultancy NIRAS, the company will be the point of departure for exploring the construction industry and developing new business models based on disruptive technology.

Theory and methodology

This project contributes to design science as well as management of construction by taking point of departure in three theoretical frames: Disruptive technologies and innovation, Engineering systems and Business models.

Design Research Methodology (DRM) is applied to outline the project into four phases. This structures the research as an interplay between theoretical and empirical analyses, with the ambition of introducing new methods and tools to improve design.

Expected results

Expected results include an assessment of potentially disruptive technologies across domains, as well as an investigation of the new opportunities provided by these. Based on this, a new business model for the built environment may be developed and tested. As disruption tends to happen across all industries, the results are expected to be relevant for a wide range of companies and stakeholders seeking to remain competitive by preparing for disruption.



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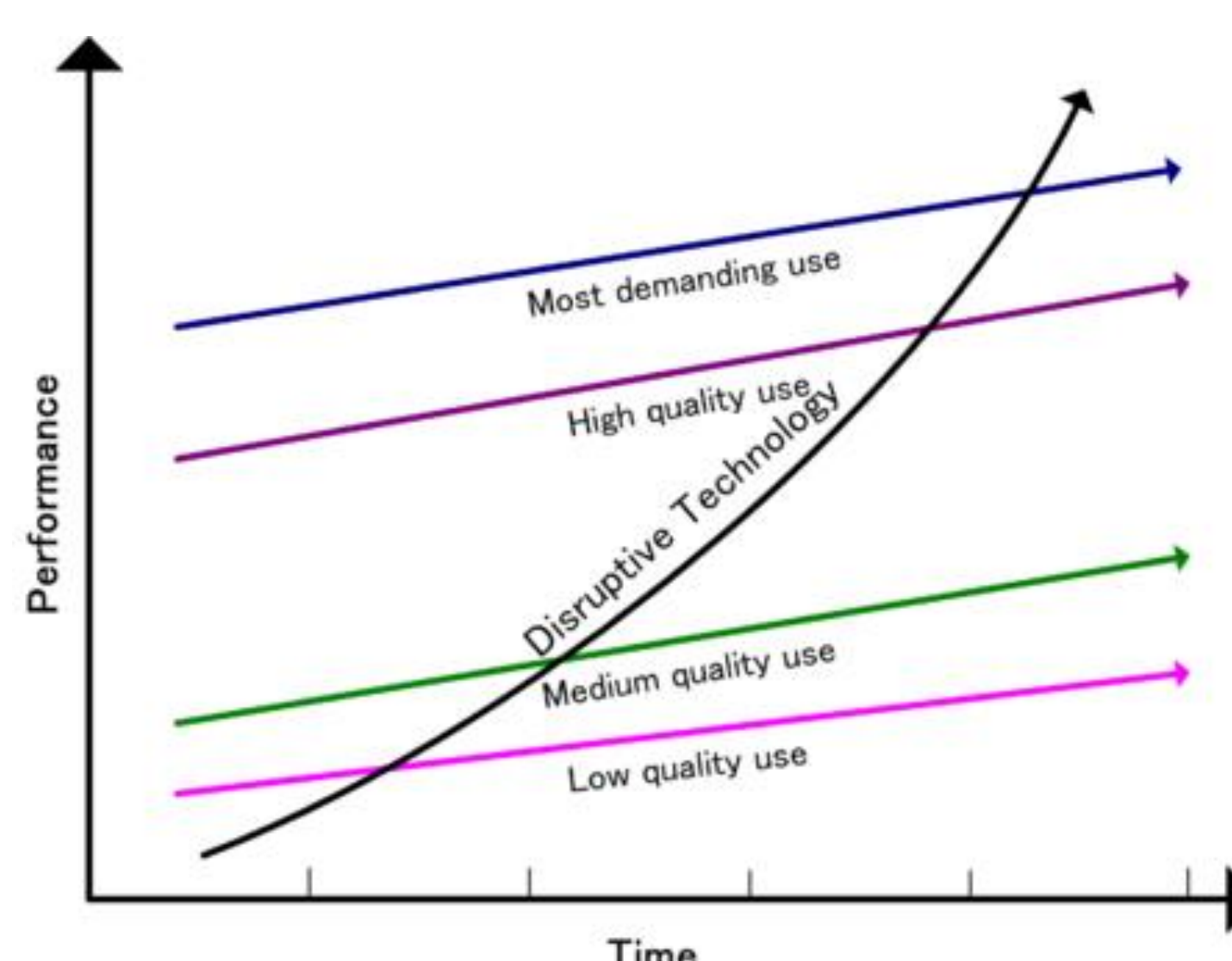
Start and completion date:

1 January 2017 – 31 December 2019

Collaborating partners:



Funded by:



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