

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Factors preventing engineers from implementing the sustainable development goals on UK infrastructure projects

The world is faced with many challenges including climate change, environmental degradation, poverty, inequality and conflict. One global initiative designed to address these enduring challenges is the United Nations' Agenda 2030 Sustainable Development Goals (SDGs). The SDGs, introduced in 2015, describe a vision of the world in 2030, but the pathway to achievement is challenging and unclear. The broad problem this research explores are the factors limiting the contribution of UK infrastructure projects to delivering the SDGs.

Sustainability literature identifies that infrastructure has a key role in the achievement of the SDGs as it is at the interface between society and the environment. However, while advances have been made in the application of sustainability principles to infrastructure projects, adoption has not been uniform or widespread. Behaviour change is one theory that may help to explain why concepts such as the SDGs are not widely adopted and allow for identification of factors limiting their implementation. A review of behaviour change models identified the COM-B model as an appropriate model to form the basis of this research. The acronym COMB stands for Capability, Opportunity, Motivation and Behaviour. The main premise of the model is that for a change in behaviour to occur an individual, group or population must have the appropriate mix of capability, opportunity and motivation.

The study seeks to answer the following research question:

What are the factors preventing engineers from implementing the SDGs on UK infrastructure projects?

To answer the research question qualitative data was collected in two stages. Stage 1 involved project-specific focus groups with design teams of three large infrastructure projects. The focus groups were used to identify challenges facing engineers when applying the SDGs. Based on the identified challenges and building on the COM-B model, a diagnostic tool comprising of a scoring matrix and set of mapped interview questions was developed. The diagnostic tool was used in the Stage 2 interviews, with 25 engineers and clients, to provide an assessment of interviewees' behavioural change state allowing for identification of factors limiting SDG implementation.

Several limiting factors were identified. From these three main conclusions were drawn.

- There is a tension in the role of the engineer, as an engineer needs to balance the demands of the client brief whilst having a willingness to challenge and influence client decisions with respect to SDG implementation.
- The perception of value is project focused rather than targeting improved outcomes for society.
- There is a lack of understanding of the SDGs within the engineering profession.

Overall these findings present a challenge to engineers to accept perspectives wider than their technical scope and to challenge and influence client decisions.

The research problem was approached through the lens of behavioural change. A contribution of this research is the application of the COM-B model to the assessment of factors limiting engineers from implementing the SDGs. Further refinement of the model could, in future, aid the development of targeted interventions to assist SDG implementation.

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June 2020