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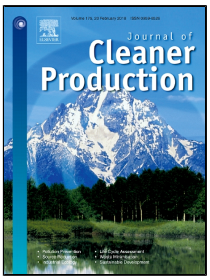

Disentangling the relationships between business model innovation for low or zero carbon buildings and its influencing factors using structural equation modelling

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Disentangling the relationships between business model innovation for low or zero carbon buildings and its influencing factors using structural equation modelling

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Abstract

Whilst low or zero carbon buildings (L/ZCBs) are espoused in many policy instruments, with many examples constructed to demonstrate their technical feasibility, there is a scarcity of effort examining the role of business models (BMs) in the delivery of L/ZCBs. BM innovation plays a decisive role in improving a company's competitiveness because it could quickly convert emerging technologies into commercial values by reorganising company's internal structure and offers. This paper aims to identify the factors influencing construction firms' BM innovation in the context of L/ZCBs, and measure the relationships between BM innovation for L/ZCBs and its influencing factors. This paper first identifies the influencing factors of BM innovation for L/ZCBs at both external and internal organisation levels and conceptualizes the constituting elements of BM innovation through a critical literature review. The paper then conducts a questionnaire survey with 132 building professionals in Hong Kong, and analyses the collected data using Structural Equation Modelling (SEM). Results from the survey show that favorable external environment towards L/ZCBs has a positive impact on BM innovation. Entrepreneurship of top managers and organisational learning capability of a firm are positively correlated with BM innovation for L/ZCB. Entrepreneurship and organisational learning capability mediate the relationships between external environment and BM innovation. The paper provides novel insights for building developers, contractors, and designers that wish to develop alternative business strategies and BMs. Research findings provide practical guidances on the process and elements of BM innovation for industry practitioners, and support the accelerated diffusion of L/ZCBs.

Keywords: Business model; Innovation; Low carbon building; Zero carbon building;