

Project 1.37

Transformative Products and Processes: A Value Chain Assessment of the Australian Manufactured Housing Industry



RESEARCH PROGRAM 1: GREENING THE BUILT ENVIRONMENT

This research project aims to improve the understanding of how to leverage greater value from the manufactured buildings industry and increase the robustness of the supply chains involved. The project will investigate both the transformative products and processes associated with manufactured buildings, and the system dynamics of the supply chain. The project will draw conclusions from empirical analyses of real-life cases of both traditional and prefabrication construction to reinforce the confidence and adaptability of the building industry for a consistent and wide-ranging transition from on-site to off-site construction approaches. By providing better information about the costs and benefits of alternative construction options, along with a better understanding of the supply chain dynamics, public and private sector stakeholders in the housing market will be able to make better informed decisions.

Objectives

The objectives of the project are to inform the industrialisation of the residential housing industry through a shift to manufactured buildings. The project will investigate specific opportunities to create greater value in the supply chain for manufactured buildings and to increase the resilience of the entire supply chain. The output from the systems dynamics modelling as part of the project will provide important recommendations and predictions as to how changes to policy, regulatory, and market environments will affect the supply chain and where various opportunities that arise can be targeted to support job creating and value adding. The process involves the development of a conceptual model to be trialled with partners and calibrated with data from a range of sources to produce the final model for scenario analysis.

Industry Outcomes

The first area of this project will focus on extending previous SBEnrc project work in this area to investigate implications of traditional versus manufactured housing construction products and processes such as cost, waste, performance, timings, materials, workplace conditions, water, and energy.

This data will inform the second stream which proposes to use a systems dynamics modelling approach to account for a range of causal relations and feedbacks along the supply chain and investigate strengths and weaknesses associated with the supply chains response to various scenarios. The modelling will seek to take into account scenarios including industrial action, various forms of delay, changes to prices of materials and labour, and natural extreme event recovery, and can consider real-estate prices, job creation, offshore supply and outsourcing, and various factors that affect value across the supply chain.

The output from the modelling can provide important recommendations and predictions as to how changes to policy, regulatory, and market environments will affect the supply chain and where various opportunities that arise can be targeted to support job creating and value adding.



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