



## CASE STUDY

# Supply in the Age of Demand

# SUPPLY IN THE AGE OF DEMAND

## HOW RESEARCH INTO SUPPLY CHAINS IS LEADING TO POSITIVE AND SUSTAINABLE SOLUTIONS

From toilet rolls to fruit pickers, supply chain has entered the consciousness of Australians in 2020 like never before.

In the 21st century we've become complacent that our consumer demands will always be met, whether that's being able to buy what we want when we want it in the supermarket, or have the construction materials delivered for our new house in full on time and to specifications. And yet by and large we're completely ignorant of how that happens.

But supply chain management is a complex and ever-evolving field of study. An effective and efficient supply chain is integral to every industry across the entire world, and yet it has frequently been a case of set-and-forget for many businesses, as well as the general public.

Supply chain transformation is increasingly critical to how we live, so delivering support to supply chain professionals, governments and industry will help improve and refine systems, drive sustainability, increase job opportunities and connect communities to markets.

### BRIDGING THE GAP

The team at the Sustainable Buildings Research Centre (SBRC) at the University of Wollongong have been working across a variety of different industries to examine the specific pain points in their supply chains and what business process improvement programmes can be identified.

The research projects have a fixed focus on a sustainable future and social outcomes, rather than profit driven outcomes, and the analysis of supply chain forms part of a holistic project overview.

The researchers are able to inform the projects using a database of global field research and case studies of businesses with existing supply chain issues and consequently apply and contextualise those learnings to any market.

With the scope for seeding these methodologies to a wider audience, these test cases are proving to offer valuable understandings for supply chain methodology and how this can be applied across a vast array of industries.

The unique multi-disciplinary perspective of the SBRC team delivers comprehensive research, shining a lens on the supply chain process from a multitude of angles. Each research group comprises a team that's drawn from a variety of different disciplines, both complementary and contrasting, who augment the working party with their expertise.

The inherently collaborative nature of the team extends further out to their business sponsors, bridging the gap between academia and practice, industry and government. Because the research is unbiased and impartial, its value being underpinned by theory as well as practice, it delivers measurable outcomes and maximum impact.

### COOPERATION THAT FUELS CHANGE

The appetite across industry for re-engineering supply chains varies, but to the most progressive and agile businesses, as well social change makers and those wanting to increase their impact, it's critical to their very existence.

Additionally, when governments are able to measure the impact of their own policies along the supply chain, this has a positive ripple effect of seeding change where it will have the most impact. The University has been able to help government, industry and private businesses examine elements of their processes and their impacts on wider supply chain.

### COLLABORATION WITH GOVERNMENT

The collaborative research project 'Understanding Decision Making Processes to Meet or Exceed BASIX requirements in Apartment Construction' was undertaken by the University of Wollongong as part of the Energy Efficiency Decision Making Node (EEDMN) and funded by the NSW Government.

BASIX, or Building Sustainability Index, is a NSW Government planning measure to reduce household electricity and water use by setting minimum sustainability targets for new and renovated homes. A BASIX certificate is required for the construction of all new dwellings such as houses, flats and apartments.

The complicated and multi-faceted nature of the design, construction, approvals and supply chain process of apartment blocks, means residents have

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DR TILLMANN BÖHME, SUPPLY CHAIN RESEARCH LEAD, SBRC

little or no say in the factors that help reduce their apartments' energy use. Wall and ceiling insulation, window placement and shading and heating and water systems are just some of the factors influencing energy efficiency that are predetermined by the developers.

The research used a mixed method approach of literature review, semi-structured interviews with stakeholders across the apartment construction sector, and data from an online survey to a broader array of stakeholders.

Using applied systems thinking linking all the aspects from design, through to construction onto habitation, gave a broader view of where the most impact might be felt and opportunities and effective decision points for interventions.

The project identified four target areas for future policy action:

- Government policy to increase apartment sustainability through increasing minimum BSAIX targets and/or modifying apartment design guidelines
- Measures to increase compliance to ensure apartments as constructed meet modelled energy efficiency performance
- Increasing customer demand for more sustainable and energy efficient apartments
- Providing incentives for developers to exceed existing minimum BASIX targets.

## COLLABORATION WITH INDUSTRY

The EEDMN project 'Developing the CCF market baseline: Establishing a baseline against which to measure market transformation', looked to address energy efficiency and renewable energy beyond the traditional evaluations of cost and savings (eg. kW, kWh and pollution reduction).

Extending on previous work for the Department of Planning, Industry and Environment (DPIE) the project aimed to evaluate the extent of market transformation through two priority market areas:

- Household Batteries: primarily impacted by the Empowering Homes Program (EHP)

- Accredited Certificate Providers: primarily impacted by the Household and Small Business Upgrade Program (HASBUP).

With battery inverters and battery cell manufacturers headquarters located internationally, assembly situated within Australia and a range of distributors and retailers, household batteries have a complex supply chain.

Coupled with this, future demand is unpredictable in a market sensitive and responsive to government policy announcements, and information flow along the household battery supply chain is not coordinated or integrated.

Ultimately, there is very little coordination between states, territories and federal government. Additionally, federal government initiatives to undertake supply chain market transformation, such as supplying incentives to manufacture in Australia and DPIE to get batteries to households, needs definitive action.

The impact of addressing market transformation along this supply chain, such that it creates lasting change, would have a far-reaching effect on the domestic job market.

## COLLABORATION WITH BUSINESS

BuiltQuik, an entrepreneurial startup with a philosophy to support regional projects and regional jobs, developed a pre-certified and pre-fabricated structural housing product refined to meet the needs of Aboriginal residents in the Northern Territory.

In the past, there's been little or no consultation with the community, Elders or tenants in the supply of fit-for-purpose housing. Delivering a product for the community, into the community, BuiltQuik were conscious that the project therefore had to be community led. Examining the supply chain in detail, led to an understanding of how the company could engage local businesses to support local employment.

Recognising the benefits of working with an academic institution and partnering with world-class researchers, BuiltQuik connected with the research team at the SBRC via the ICR at UOW to develop and refine the business model as well as develop the supply chain solution.

The deliverable from the collaboration focused on having a turnkey housing solution for the community as well as meeting the Northern Territory Government and Federal Government requirements to fund the housing, making the business model for the community viable.

BuiltQuik's housing frame will become a vehicle for job creation as BuiltQuik is licensing the technology to the community, training people to deliver the product themselves and developing skills to create housing over a longer term.

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Dr Tillmann Böhme, Supply Chain Research Lead,  
SBRC

Innovative supply chain solutions were enthusiastically adopted to enhance the community sustainability aspects; regionally available materials for the simple wall structures are used (rather than supplying walls from other parts of the country), fit out and design of the frame is left to the community, and the fabrication is done by Indigenous fabricators. This creates an end-to-end physical supply chain, which is owned by the Indigenous community.

## A WORKING PUZZLE

Supply chain management is like putting the pieces of a puzzle together. With an understanding of working environments and the consequence of decisions, you can identify the weak links and fix them, creating a seamless and sustainable function.

Providing well-researched, well-specified and well-communicated solutions, practitioners are able to adopt a rigour and thoroughness to their supply chain solutions.

The outcomes of poor supply chain management are simple; reduced productivity and poor economic growth in the regions and ultimately the nation. And when combined with an approach that looks at our sustainable future, the effects are even longer term.

## ALWAYS MOVING FORWARD

Seeking always to drive transparency, sharing information and adopting a distinctive multi-disciplinary approach, the researchers at UOW and SBRC are able to reach into the deep well of expertise and passion that exists there, and translate data into knowledge to serve all parties looking to create a more sustainable future.

Relentlessly tackling issues that defy categorisation but have far-reaching consequences has become the hallmark of research at the University.

## CONTACT US

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