

Remanufacturing Roundtable Report

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Exploring challenges & opportunities in the Australian remanufacturing sector, and its potential to drive circular economic transition in Australia

Australia and the world are in the midst of driving towards a more sustainable economy. Leaders agree that part of accomplishing this is increasing circularity in the economy. Whether to reduce sovereign risk, increase social license to operate, or improve operational efficiency, incorporating circularity into planning is critical.

This report aims to expose key challenges and opportunities in the remanufacturing sector and demonstrate its potential to play a pivotal role in driving a circular economy in Australia.

The insights presented here are derived from a Remanufacturing Roundtable Summit organised by WorkbenchX, which brought together remanufacturing industry stakeholders and circular economy subject matter experts to discuss the current landscape, and share challenges and opportunities surrounding circularity in the Australian remanufacturing sector.

Introduction

What is the remanufacturing sector and why do we need more of it?

"Remanufacturing is an integral part of the circular economy in Australia"

Gino Ricciuti, Executive General Manager of Innovative Mechatronics Group

Australia's economy today is extremely linear; only 4% circular, according to a recent report by CSIRO. This means that 96% of what we consume is a virgin resource. And while Australia extracts more than double the OECD benchmark, we aren't realising the full value of what we extract, making back less than half the OECD benchmark per kg of resource extracted. This is largely because we don't make things- manufacturing percentage of GDP has fallen from almost 30% in the 1950s and 60s to just under 6% in 2020.

The remanufacturing sector is a key component of achieving a circular economy in Australia, critical to achieving the second principle of a circular economy. It consists of the repair and reuse of existing products and product components- this extends the lifespan of products & materials, reduces waste, and keeps resources in circulation onshore at a high value..

Accelerating the adoption of remanufacturing is a key pathway to supporting the transition to a circular economy in Australia, contributing to many of Australia's public and private sector sustainability priorities, including:

Decarbonisation: Remanufacturing saves 8.5 tonnes of carbon dioxide per year and uses 85% less energy than a new manufacture on average

Waste reduction & resource conservation: Up to 80% of a products core is saved from landfill in a remanufacturing model

Social value: With 3x job creation from circular products & services, onshore remanufacturing represents a key opportunity to generate jobs for tens of thousands of Australians

Financial value: Refurbishment and sale into a secondary market unlocks 40% of a product's value vs. 0.1% in recycling, and studies show that over \$1 trillion USD is wasted every year in products that could have been remanufactured.

THE THREE PRINCIPLES OF A CIRCULAR ECONOMY

1. Eliminate waste & pollution
2. Circulate materials & products at their highest value for as long as possible
3. Regenerate natural & social systems



What is the Circular Economy?

The circular economy is an alternative to our current economy, for meeting human needs and fairly distributing resources while restoring nature's functions and regenerating the natural capital on which we depend.

Circularity is how businesses can contribute to a circular economy, guided by the framework's three key principles using a suite of tools to support the adoption of circularity, such as the five circular business models.

THE CIRCULAR ECONOMY & CIRCULARITY ARE TWO DIFFERENT THINGS

Circular economy = the macro system

Circularity the activities that contribute to the system

Tools for adopting Circularity

The Five Circular Business Models

The five circular business models are commercial strategies designed to help businesses generate value from the full lifecycle of the products and materials that flow through our economy.

The remanufacturing sector already inherently leverages several of these business models, including resource-efficient supply chain, resource recovery, & product life extension.



Resource-Efficient Supply Chain

This model focuses on offering biobased, renewable, or recovered resources to the market instead of traditional, virgin materials. Companies operating under this model supply sustainably sourced or recycled materials, reducing the overall demand for newly extracted resources.



Resource Recovery

This model involves creating market offerings that recover, renew, repair, reuse, and recycle materials that would otherwise be discarded. Companies provide services that capture value from waste by transforming it into new products or raw materials.



Sharing Platforms

Why buy new when you can rent, share or reuse an existing product? These platforms promote "access over ownership" and help products have multiple lives and multiple users.



Product Life Extension

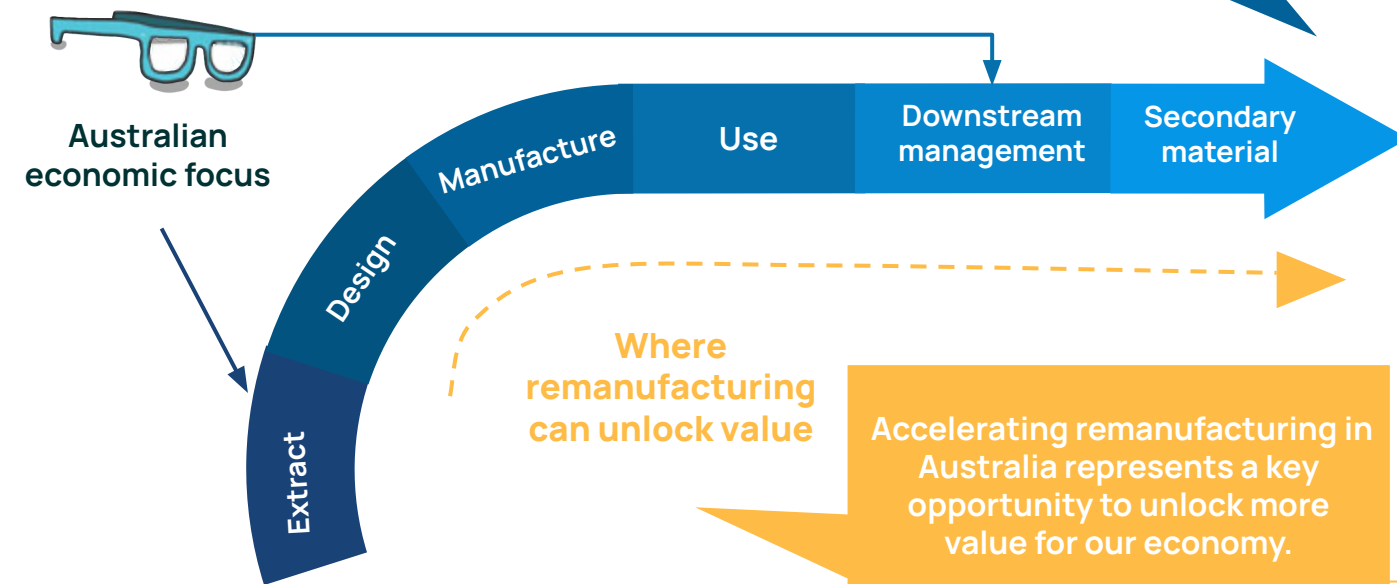
This model offers services that extend the lifespan of products, such as through repair, refurbishment, or upgrade. Businesses create value by providing maintenance and enhancement services that keep products in use for longer periods, thus reducing waste.



Product As-a-Service

This is all about repair, reuse, repurposing and remanufacturing - designing things to last and offering new services that breathe new life into old products.

Today, with 1 in 4 Australian manufacturing jobs having disappeared since 2006, the majority of the country's economic activities are focussed on a small fraction of a product's lifecycle.



What is Needed in Order to Accelerate Remanufacturing?



The practical recommendations below are targeted at stakeholders in the remanufacturing, manufacturing sectors, procurement teams from the public & private sectors, and policymakers.

DESIGN

- **Integrate remanufacturing into Design for Excellence (DFX) strategies:** Dfx needs to include extension of life (reuse, repair, refurbish) and new lifecycles (reman, re-purpose) strategies.

ALL

- **Distribute & diversify supply chain infrastructure**
 Distribute: shift towards a hybrid model combining centralised manufacturing facilities with distributed microfactories to enhance flexibility and scalability in remanufacturing processes.
 Diversify: equip organisations with the necessary skills, tools, and systems to support remanufacturing operations.

USE

DOWN-STREAM MGMT

- **Leverage digital platforms:** Use digital platforms such as WorkbenchX to facilitate transactions and communication between different nodes in the supply chain, enabling smoother coordination to build sustaining circular systems across regions, in addition to tracking the benefits of product life extension.

ALL

- **Develop legislative support:** Policymakers and remanufacturing sector stakeholders should collaborate to create effective regulatory frameworks that incentivise remanufacturing through tax benefits, subsidies, or grants, and streamline regulations to reduce the compliance burden on remanufacturers, making it easier for the sector to grow.

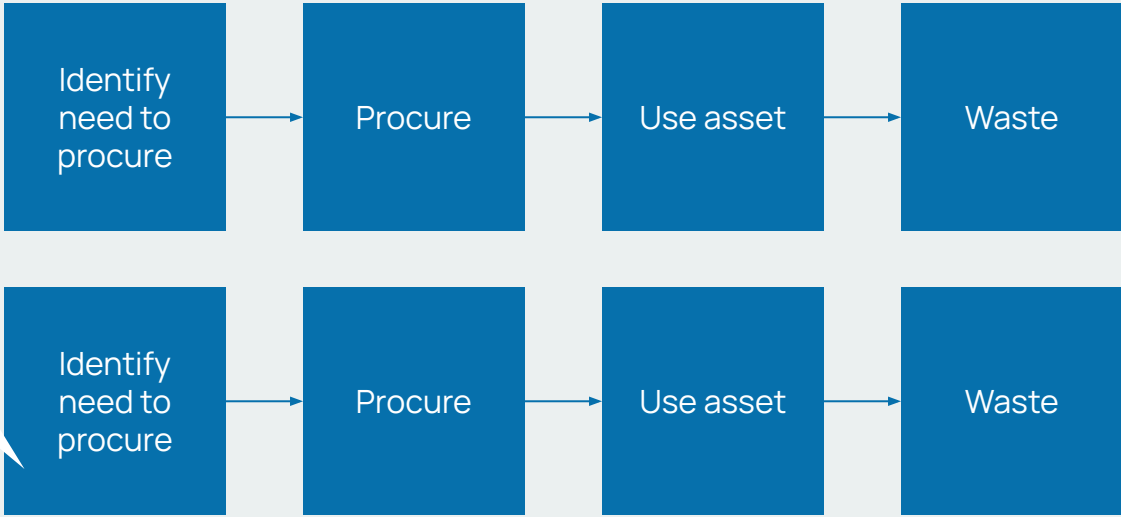
USE

- **Targeted procurement policies:** integrate product life extension criteria into fleet management and infrastructure, ensuring public & private procurement drives the demand for remanufactured products.

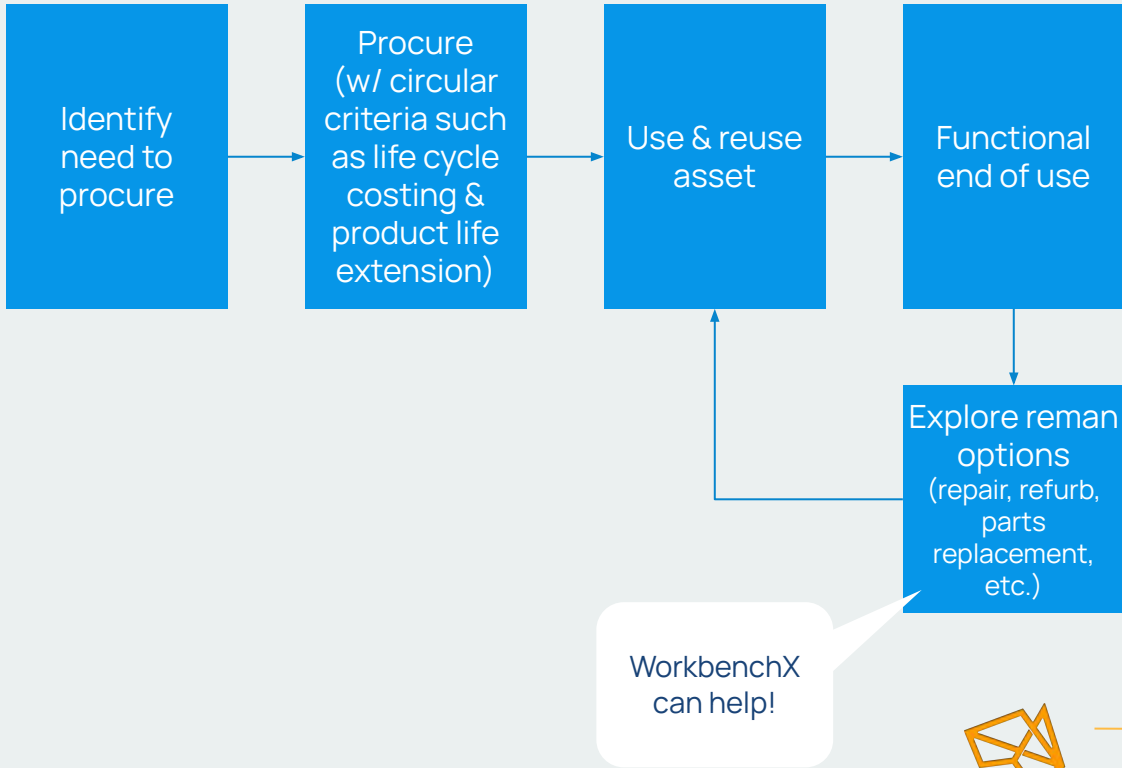


A Mindset Shift Circular Procurement

Linear Procurement (TODAY)



Circular Procurement (WHERE WE NEED TO BE)



Common Challenges

Key barriers to the acceleration of remanufacturing practices in Australia

Despite the inherent circularity of their practices, remanufacturers face several challenges in positioning themselves as leaders in the circular economy.



Key Enablers

● Academia ● Government ● Industry

Key enablers to accelerating remanufacturing & circularity in Australia

Industry stakeholders highlighted several key opportunities to overcome current challenges, and catalyse the uptake of remanufacturing in Australia with participation from industry, government, and academia



Conclusion

The remanufacturing sector can be a catalyst of circular economic transition in Australia

The Remanufacturing Roundtable Report underscores the sector's potential to drive Australia's circular economy, offering carbon savings, waste reduction, job creation, and financial value recovery.

However, the sector faces key challenges, including skills gaps, unclear value propositions, regulatory hurdles, and limited OEM engagement.

To unlock its potential, targeted training, streamlined regulations, improved communication, and stronger OEM partnerships are essential.

With these efforts, remanufacturing can reshape Australia's manufacturing landscape and become a cornerstone of the circular economy, advancing the nation's sustainability goals.



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For further information, don't hesitate to reach out to hello@workbenchx.com

We look forward to hearing from you!

With thanks to Remanufacturing Roundtable participants, including:



(and others)