Pilots and Collaborators – taking the ‘squiggle’ out of developing recycling solutions

Sophi MacMillan and Helen Millicer, Vinyl Council of Australia

PVC where, how, who?

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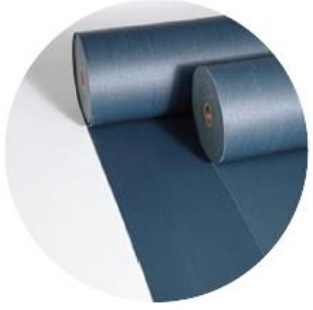

Content

- Strategy
- The operating environment
- Collaborative approaches

VCA Strategy

Strategy

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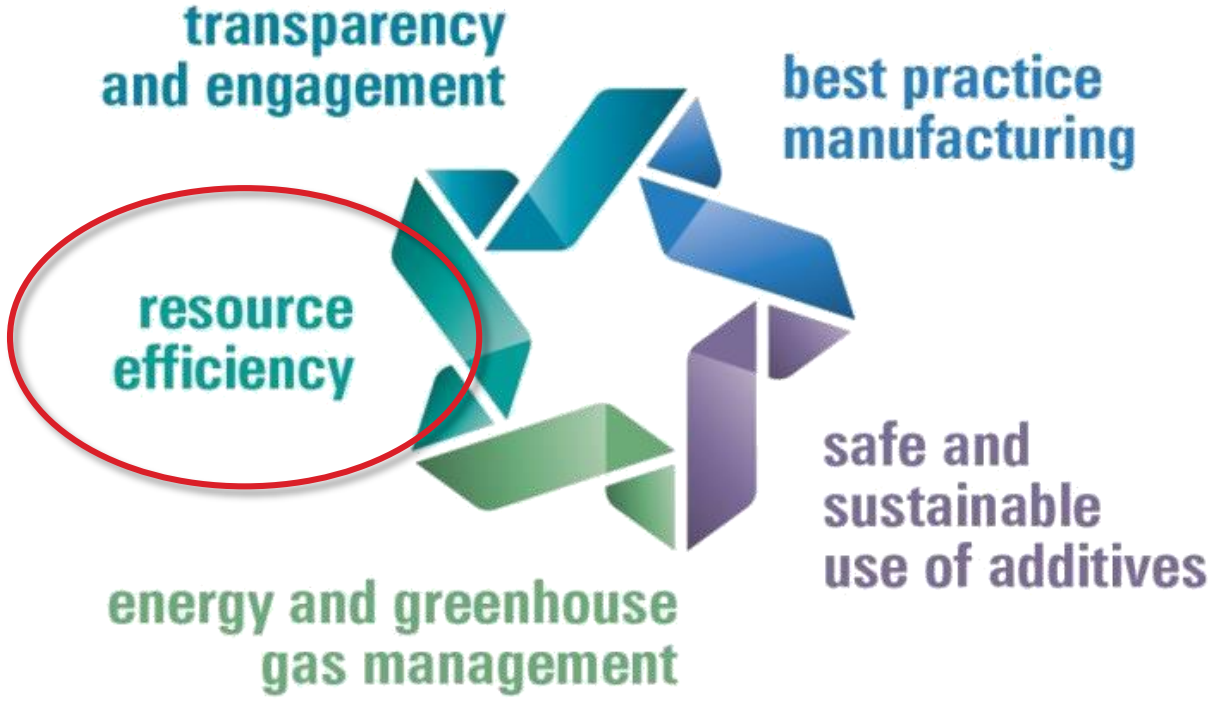
- Continue to develop PVC Stewardship in Australia
- Raise support for PVC recycling research, investment and development

PVC Stewardship

Vinyl Council Australia

PVC Stewardship

Vinyl Council Australia



Recycling Strategy

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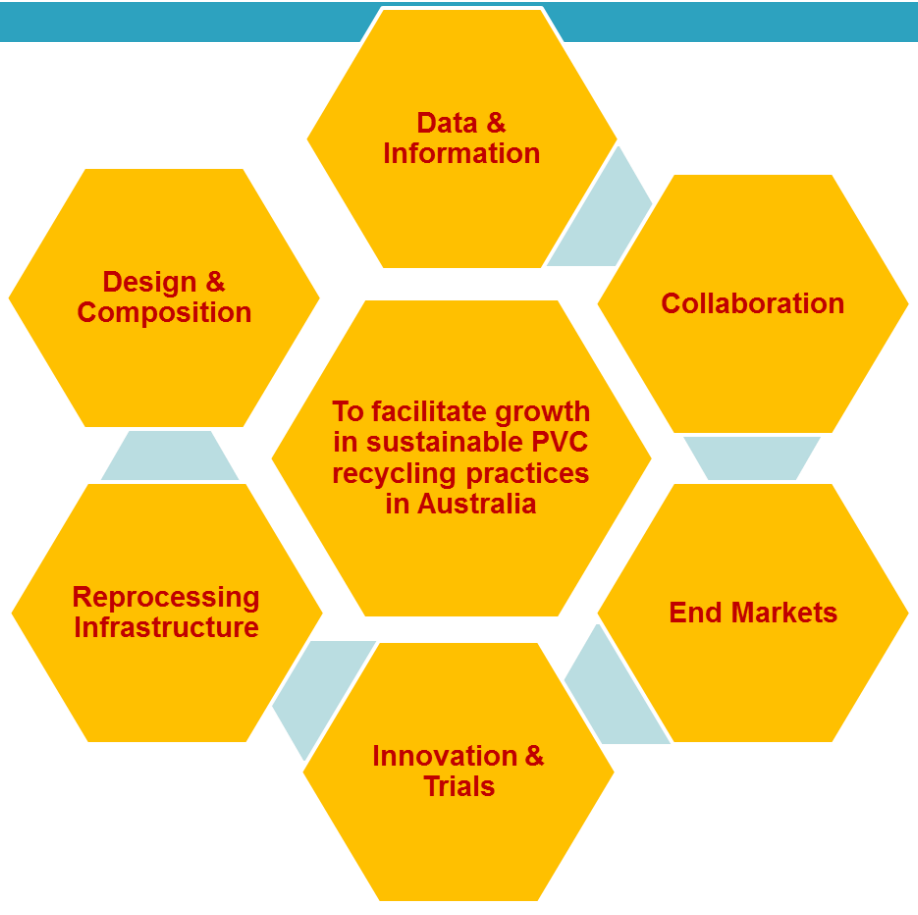
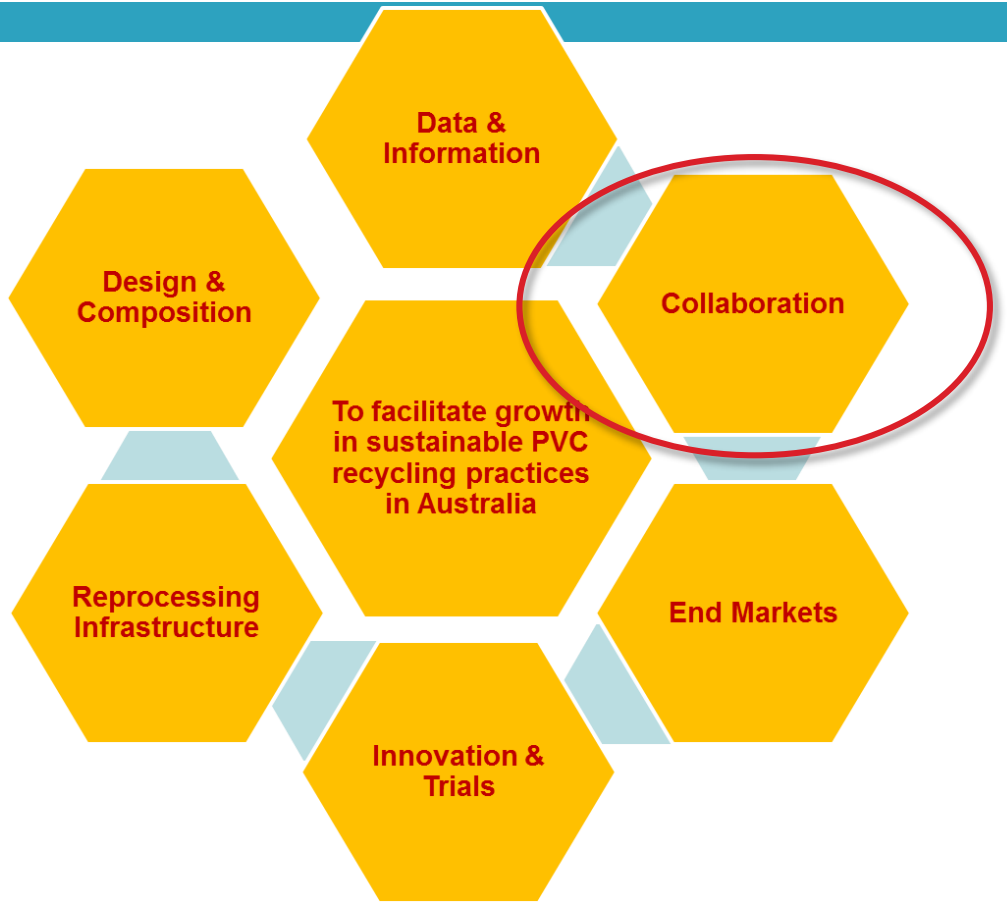


Recycling Strategy

Vinyl Council Australia



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Progress

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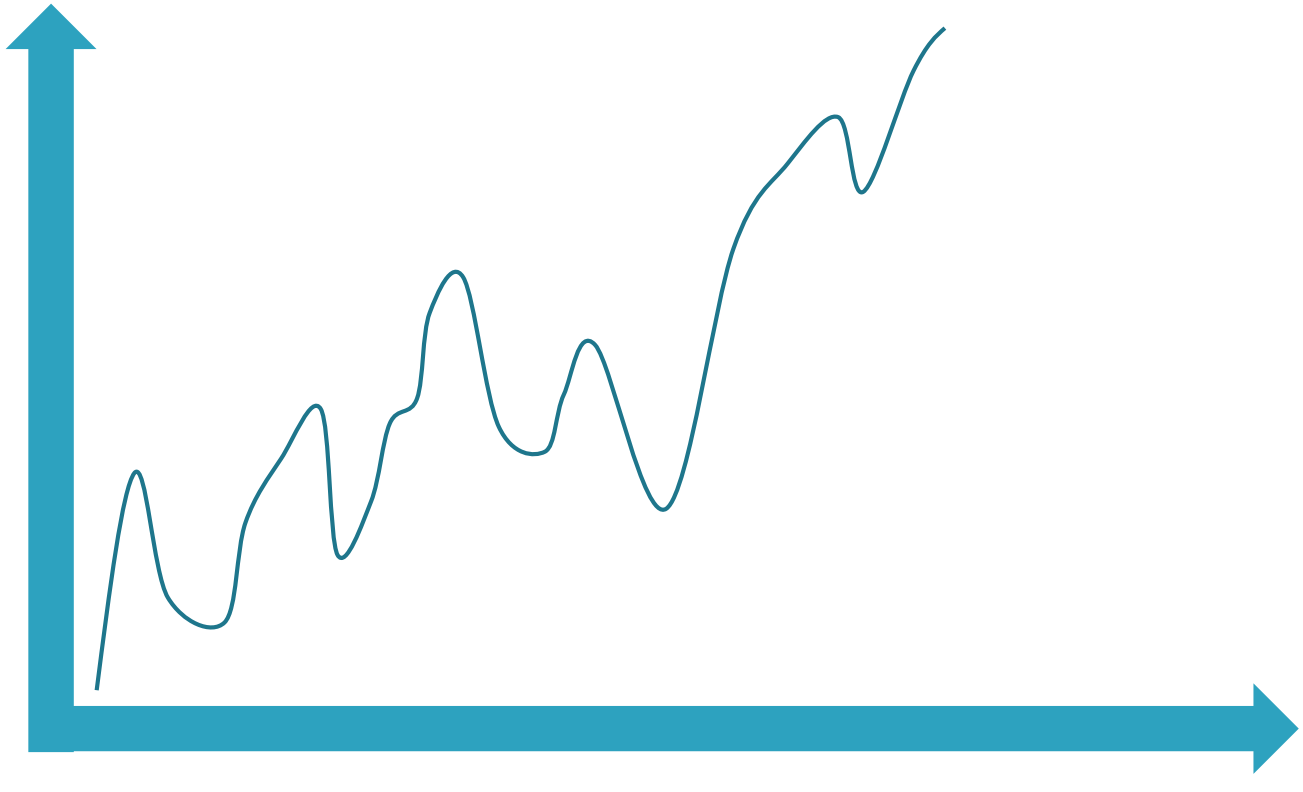
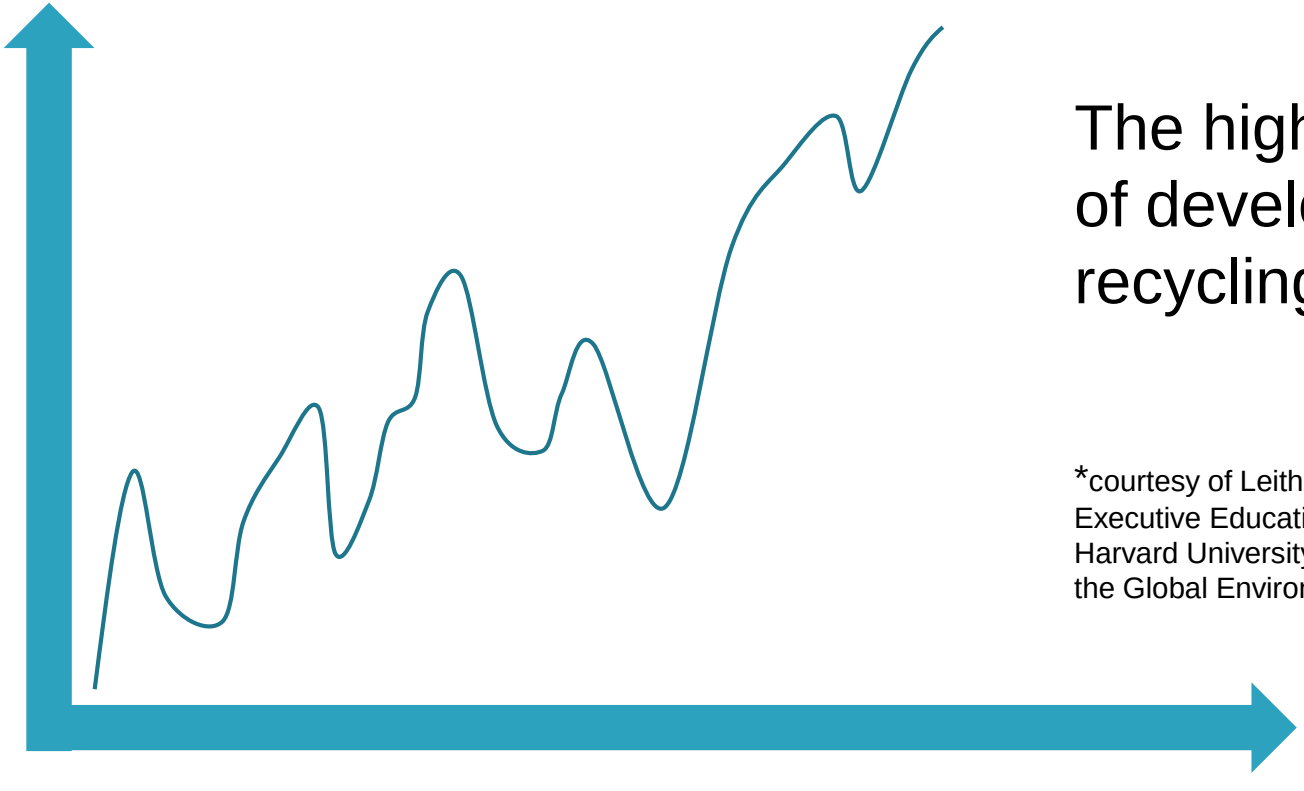


Progress

The Squiggle*

Vinyl Council Australia

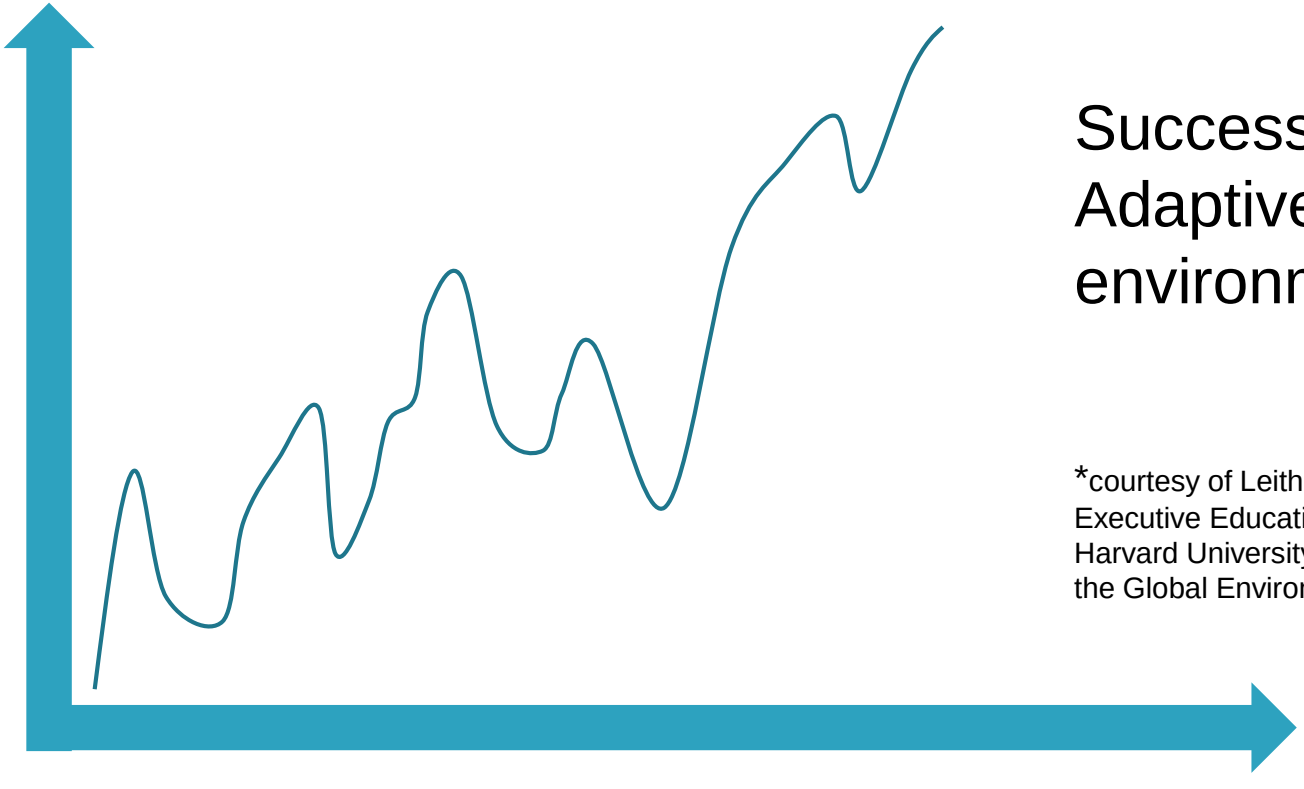


The highs and lows of developing recycling solutions

*courtesy of Leith Sharp, Director of Executive Education for Sustainability with Harvard University's Center for Health and the Global Environment

The Squiggle*

Vinyl Council Australia



Progress

Success requires an Adaptive operating environment

*courtesy of Leith Sharp, Director of Executive Education for Sustainability with Harvard University's Center for Health and the Global Environment

Adaptive is Collaborative

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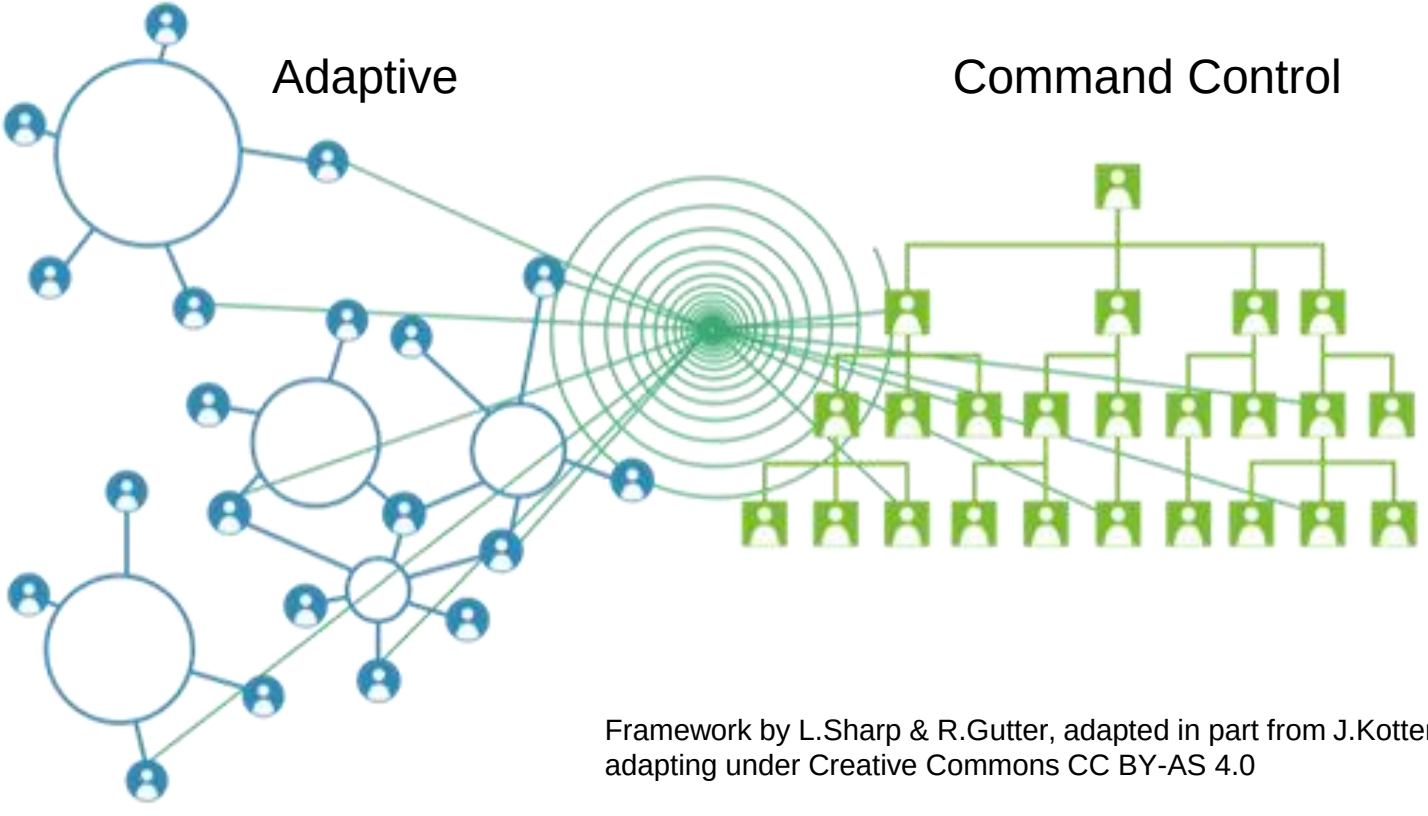

Collaboration in Recycling

Finding end markets by applying design innovation to end-of-first-life PVC coated fabrics

The waste problem

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- 1.2M m^2 billboard skins p.a
- Disposal costs A$250-500K p.a.
- Polyester ‘fluff’

Collaborate for inspiration

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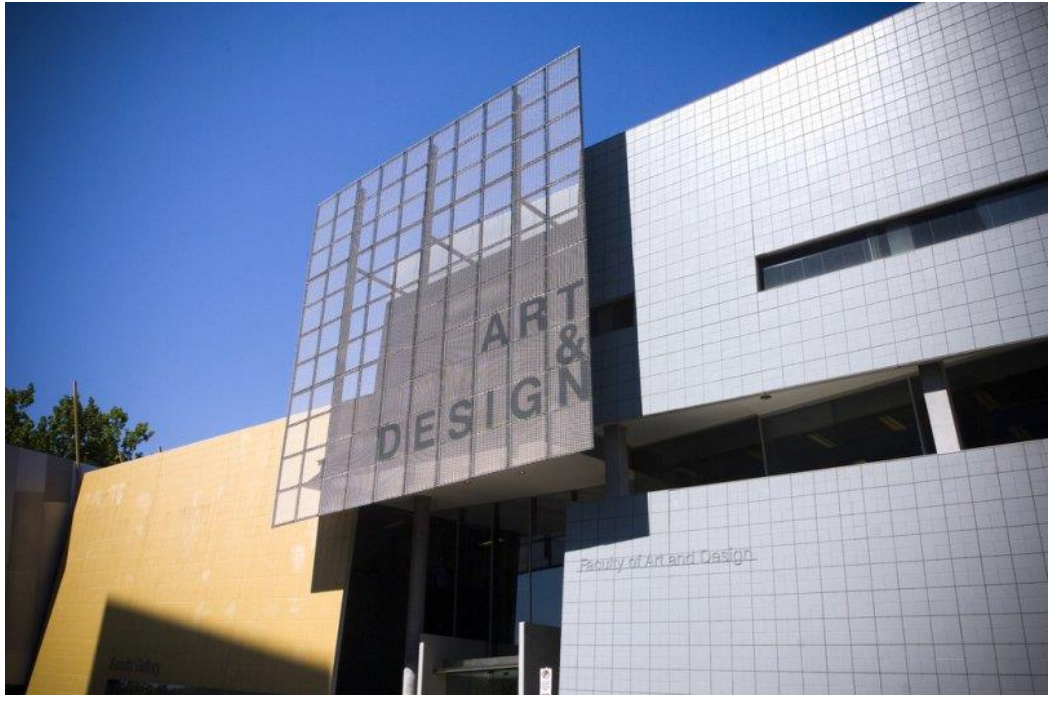
MADA

MONASH UNIVERSITY
ART DESIGN & ARCHITECTURE



2014 Project ReForm

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2 x Chem.Eng
2 x Product Designers

Vinyl industry

Project objectives

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- Explore ways for recovering, reprocessing, recycling and reusing PVC-coated fabric
- Create a multidisciplinary collaborative exchange program that brings together industry, businesses, students, designers and engineers to establish potential ‘raw material’ supply chains within local markets
- Explore processes for designing and making new products from PVC waste using both traditional industrial processes and digital means (such as 2D and 3D printing and CNC cutting)
- Design products for continuing reuse and value

Research and explore

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- Data collection and analysis
- Material property analysis
- Design visualisations
- Digital modelling
- Prototyping

Research and explore

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Engage industry, designers

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Stage 2: Project ReMake

2016 Project ReMake

- Characterise recyclates and processing options in conjunction with UNSW and industry partners
- Conduct a participatory Design Lab event at Monash Uni to identify design ideas
- Undertake design and reprocessing trials in at least two commercial-scale products
- Engage outdoor media industry to discuss material supply, logistics, program management, growth and reporting

Collaboration – Design Lab

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Outcomes

- Two potential technologies
- Prototype industrial designs to absorb recyclate
  - Pallet slip sheets
  - Industrial floor mats
  - New concepts

UWEAVE MARKET BAG

© Shannon Kok, Industrial Design/Mech Eng, Monash University

Novel reprocessing technology

PVC banner cut, ready to soak

PVC-Polyester Separation

Catalyst added

Product Concept – Roof tile

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Conclusion – Pilots & Collaborators

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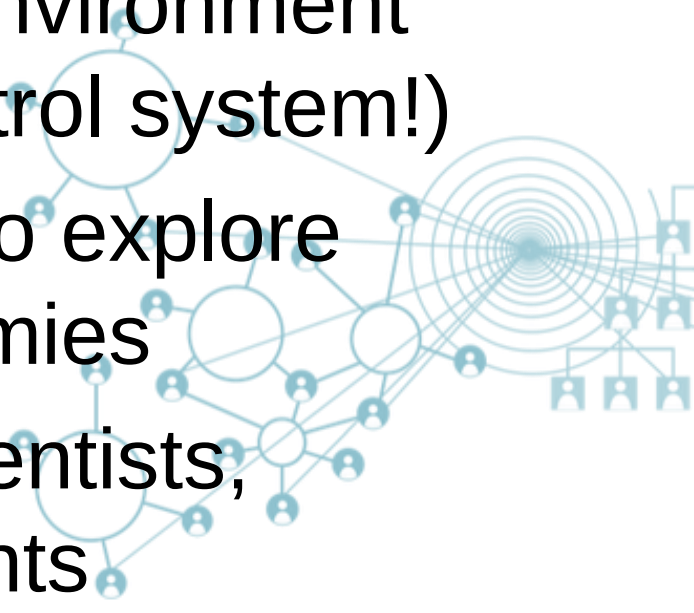
- Foster an **adaptive** operating environment (break out of the command control system!)
- Use **participatory processes** to explore opportunities for circular economies
- **Collaborate wide**: industry, scientists, technologists, designers, students



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