

The background of the entire slide is a photograph of an industrial interior. On the right side, a large, ornate brass pulley system is visible, featuring a large wheel with spokes and a vertical frame. To the left, there are vertical metal beams and a brick wall. The lighting is warm, highlighting the textures of the metal and brick.

Demystifying the Circular Economy

A practical guide for moving towards a Circular Economy in the built environment

Built

THE NEW WAY
FORWARD



We acknowledge the Traditional Custodians of the Lands throughout Australia and pay our respects to them and to Elders, past and present.

We honour traditional ways of living and acknowledge their importance in returning to a circular use of materials.

Speakers from Built's Circular Economy Event, July 2022 (left to right) Brett Mason (Built), Davina Rooney (Green Building Council of Australia), Dai Forterre (Netherlands Embassy, Canberra), Dr Jacqueline Cramer (Holland Circular Hotspot), Dr Usha Iyer-Raniga (RMIT University), Lisa McLean (Circular Australia) & Joe Karten (Built)

Why this report?

This report aims to:

Demystify Circular Economy theory with clear and accessible explanations

Provide practical steps for applying the Circular Economy through case studies

Clarify current best practice by sharing insights from international experts

Gather the latest information on Circular Economy in one place for easy reading

Transitioning to a Circular Economy is a crucial next step if we're to create a sustainable future for our planet. As more of us learn about circularity – and what it means for the built environment – we have a chance to create change and cut through any confusion together.

That's why we've written this report. We want to share what we're learning from working with international experts, academics, local industry and government sectors, to spark opportunities for change and collaboration in Australia.

We know that industry-wide collaboration and transparency is crucial to shift from a Linear Economy to a Circular Economy – particularly when we don't yet have a unified roadmap, agreed definitions or targets to guide us.

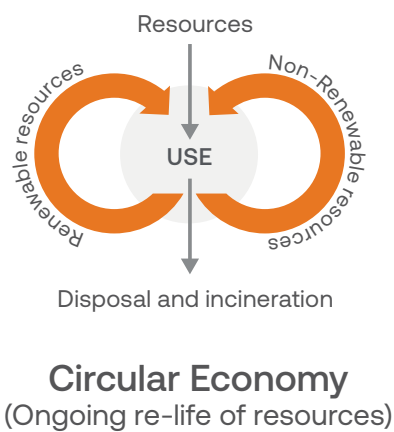
As head contractors, we have the opportunity to influence all aspects of the supply chain from design to construction, driving demand for materials and influencing design outcomes. Both key elements in achieving circularity in products and buildings.

At Built, we have a responsibility to consider the impact of everything we build. That's why sustainability influences everything we do, whether it be building net zero buildings in operation, reducing embodied carbon throughout construction, or transitioning to a Circular Economy. This is how we can not only advance the industry forward, but also create a better future for everyone.

In July 2022, we invited local and global best-practice leaders together at our **Circular Economy: Lessons for Australia and the built environment event**, in close collaboration with the Green Building Council of Australia (GBCA), the Netherlands Embassy, RMIT and Circular Australia.

With 300+ attendees online and in-person, this event ignited new conversations around Circular Economy. We began to share circular initiatives that many of us are starting to implement in our own businesses. A great sign of things to come. You can access a recording of the event [here](#).

Why this way forward, and why now?



Today humanity consumes globally over 1.75 times the amount of resources that the planet’s systems are able to naturally replenish, which means we are digging ourselves into ecological debt. By 2050, we are expected to consume globally more than 3 times the recovery rate of resources. This is because we currently operate in a Linear Economy – where we extract raw materials to make products with little thought given to the after-life of what we use.

A Circular Economy creates a cycle of renewable products, materials and resources, using renewable energy to safeguard natural ecosystems. It represents a path to a truly sustainable future, where global resource consumption does not exceed replenishment.

Achieving global carbon neutrality can realistically only occur through a stark reduction in consumption of energy and materials. This is why transitioning to a Circular Economy is the way forward for everyone.

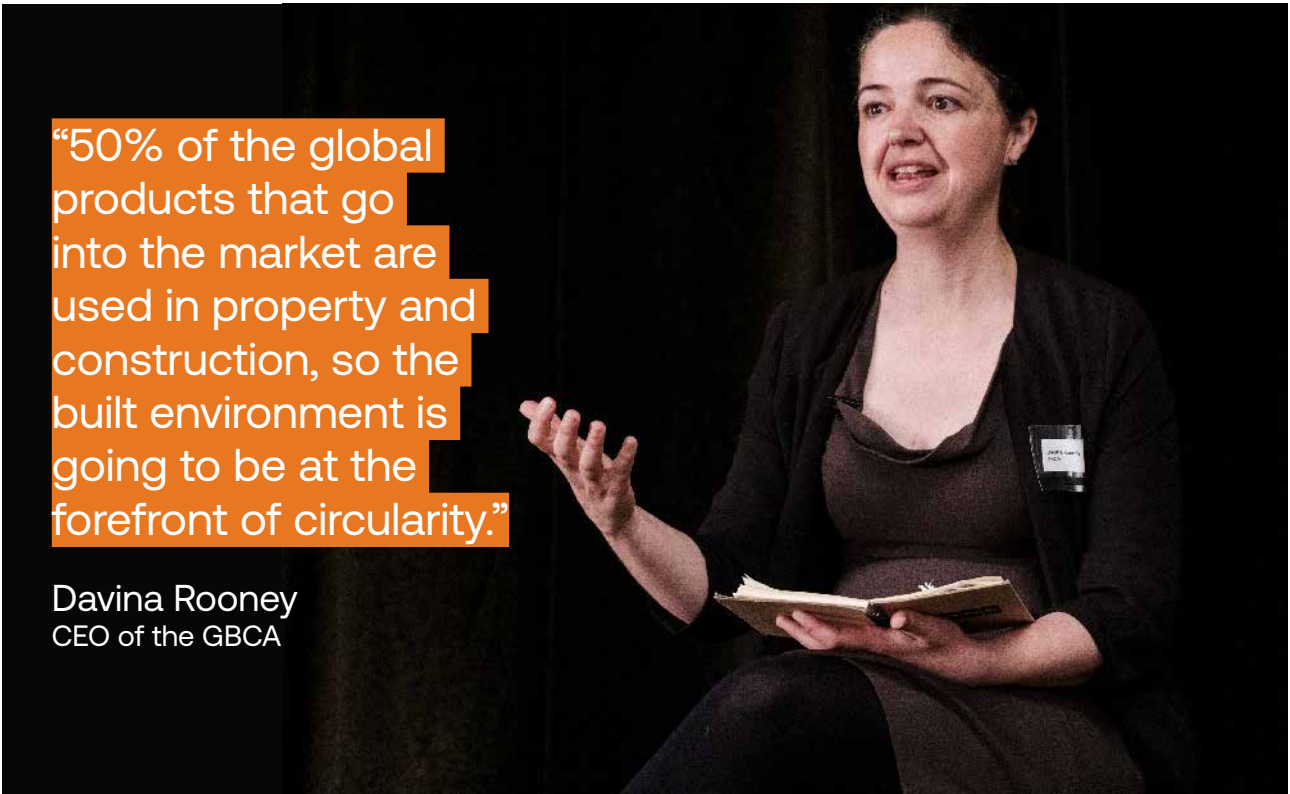
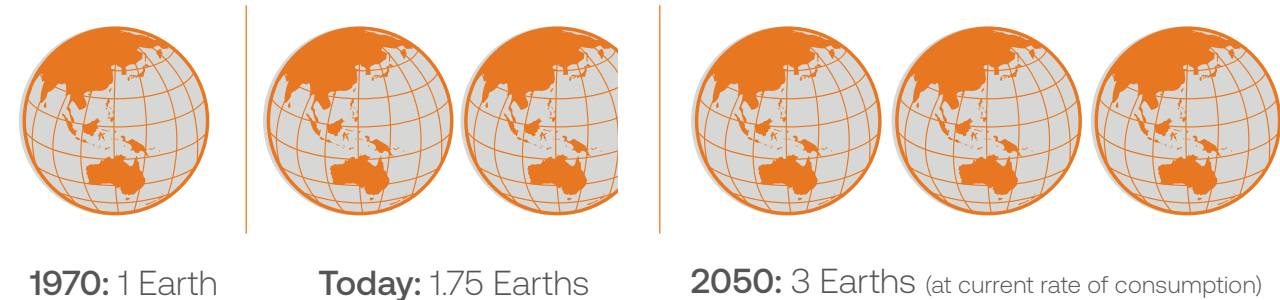
International expert on Circular Economy, Dr Jacqueline Cramer is a Professor of Sustainable Innovation at Utrecht University and Chair of the Holland Circular Hotspot, a public-private platform that facilitates international collaboration for the Dutch Circular Economy.

As keynote speaker of Built’s July 2022 event, Dr Cramer reminded us that the danger in over-exploiting the earth’s resources is far from solely an environmental problem: any scarcity of resources and materials will also likely lead to geopolitical and socio-economic unrest.

“It’s the idea that we need to deal prudently with resources,” she said, which is why moving to a Circular Economy offers us the greatest opportunity to create a sustainable future for our planet.

Urgency of the transition to circular economy

Overconsumption and scarcity of natural resources



Davina Rooney
CEO of the GBCA

In Australia, the Circular Economy presents “the biggest piece of bipartisan agreement in the environmental space at a federal and local level,” according to the CEO of the GBCA, Davina Rooney, who sees this opportunity as “ours to take” but acknowledges there’s complexity to unpack.

This opportunity is estimated to be worth \$1.9 trillion in economic benefits over the next 20 years in Australia alone¹. The property and construction sector clearly has an important role to play in making this happen.

As Ms Rooney explained, “50% of the global products that go into the market are used in property and construction, so the built environment is going to be at the forefront of circularity.”

The GBCA surveyed around 200 of their peers on the topic of Circular Economy and discovered that:

- when people talk about circularity they are mainly talking about waste,
- when it comes to Circular Economy most participants don’t know where to start, and
- three out of four participants saw an enormous gap in education, advocacy and understanding in this space.

Demystifying Circular Economy

In another survey by Planet Ark around the awareness, knowledge and perception of circularity in business, 88% of the 500 decision-makers surveyed agreed that the Circular Economy would be important for the future of their business².

Yet only 27% of respondents could identify the correct definition of Circular Economy when presented with a list of options³. This confusion can be attributed to the fact that there is currently no one path or perfect solution driving us forward – but we still need to start today.

As CEO of Circular Australia, Lisa McClean explained: “we don’t need one perfect solution, we need millions of imperfect solutions and action being taken at scale to address circularity.” Taking action as broadly as possible in a slow crawl towards perfect circularity is likely to deliver better outcomes.

In Australia, there are already multiple Circular Economy hubs, as well as people and companies looking at ways to better design, manufacture and build products that avoid the unnecessary destruction of valuable resources. Progress has begun.



Lisa McClean
CEO of Circular Australia

We’ve adopted the GBCA’s definition of Circular Economy from [A Circular Economy Discussion Paper](#). Here they state that:

“The Circular Economy is an economic model that aims to retain the value of the circulating resources, products, parts and materials. It aims to create innovative business models that promote long life, maximise reuse, encourage refurbishment, and boost the use of renewable materials.”

According to the 2020 Circularity Gap Report, our global progress on Circular Economy has been assessed as currently only 8.6% circular⁴. With little to no policy framework in place, it’s impossible to say whether Australia is at or below this mark. But we’re clearly not far into our journey.

A Circular Economy is a complete system change that’s based on individual companies working together. Circularity is regarded as a “team sport” because only multiple companies have the weight to drive market transformation.

While multiple players need to come together to change our current economic structure, individual companies can certainly begin the process of building up the new system by testing small innovations that can be scaled to become mainstream.

In order to innovate, business models need to have systems in place to give products a second life. When products can’t be reused, the resources should be recovered according to the highest potential value and returned to the producer making new products from the reclaimed resources.



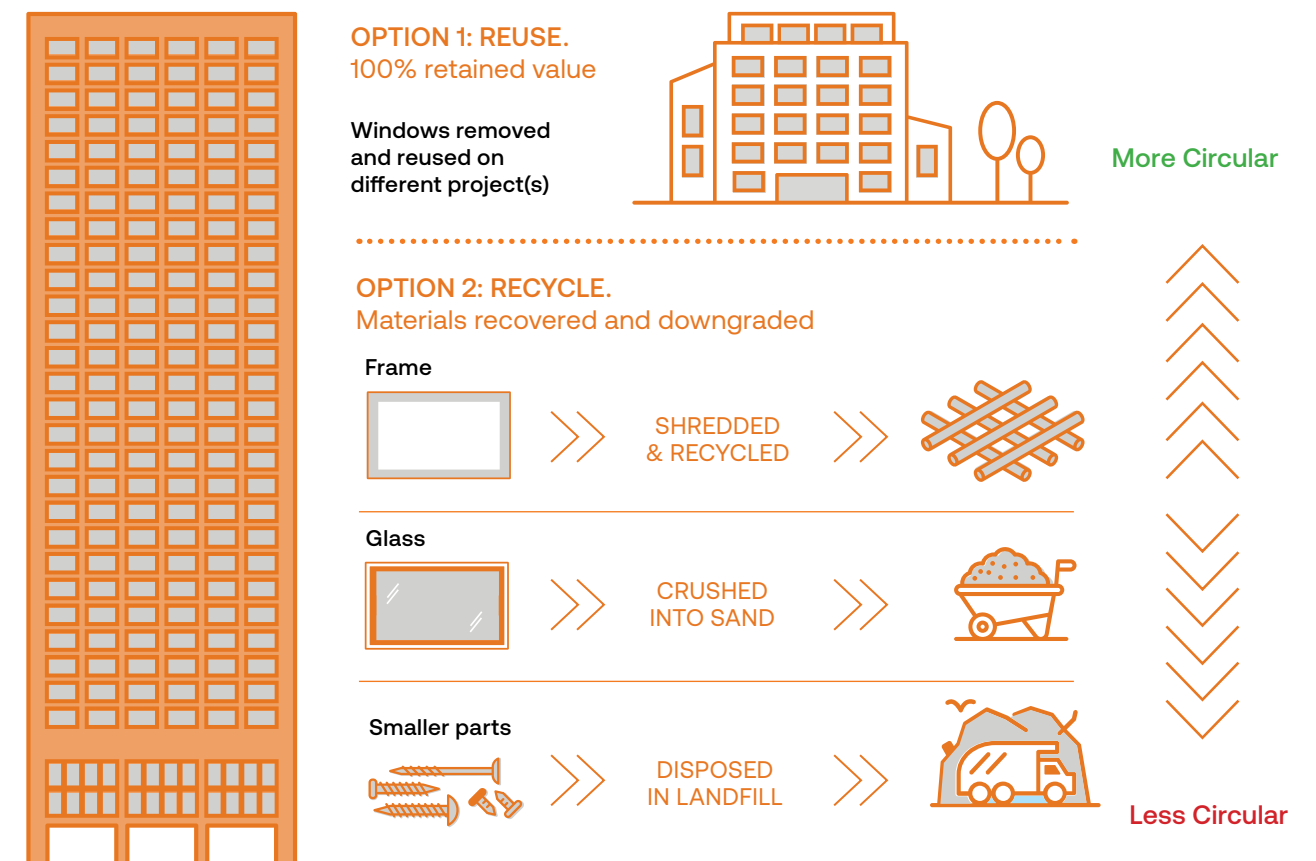
Both options can be considered “circular” but the latter reaches a higher level of circularity. Reusing the windows preserves the product value as much as possible, prevents the use of raw materials that

Refuse:	Prevent raw materials' use
Reduce:	Decrease raw materials' use
Redesign:	Reshape product with a view to circularity principles
Reuse:	Use product again (as second hand)
Repair:	Maintain and repair product
Refurbish:	Revive product
Remanufacture:	Make new from second hand product
Re-purpose:	Reuse product but with other function
Recycle:	Salvage material streams with highest possible value
Recover:	Incinerate waste with energy recovery

Built

If this feels like a stretch, try thinking about circularity in the way we thought of disclosing carbon a decade ago. Initially, disclosing carbon was seen as shameful or risky, given the relative lack of uniformity of data and calculation methodologies. Today, it's standard practice. It's important to recognise that we all want to tackle circularity – together and without judgment.

Circular options for windows from an office tower



Lessons from the Netherlands

In the last decade, European nations have been at the forefront of circularity, prioritising major Circular Economy agendas. The Netherlands has become a leader in the global race to circularity with a 24.5% Circular Economy (three times the global rate) and a 2050 goal of complete circularity.

Despite her country’s progress, Dr Cramer stressed that the Netherlands is on the same journey as Australia – “there is no golden bullet, it is an adventure” – having worked closely with government and industry members to promote circularity across sectors, including property and construction.

Dr Cramer was Chair of the execution of the Sustainable Concrete⁵ and Construction Steel⁶ Agreements, which brought Dutch concrete and steel suppliers together to agree on ambitious circularity goals.

She began these negotiations by asking a question that divided both groups – whose responsibility is it to initiate change? Is it the government or private industry? A former government minister, Dr Cramer warned against waiting for the government to act first, as they’re likely waiting for industry to act and provide examples in practice on which to base policies.



In the Netherlands, businesses began to drive circularity using a “frontrunners' approach”, which led to multiple industry-wide transition agreements following the same steps. The frontrunners' approach originates from gathering a “coalition of the willing”, made up of industry leaders motivated to work collectively to bring promising circular innovations to life.

By pursuing pilot projects, these companies allow for ideas to be tried, adjusted and finally scaled, opening the door to more opportunities, as the frontrunners compete to achieve the most sustainable results possible.

When it was clear that more circular outcomes could be achieved immediately by the frontrunners through these innovations, these outcomes were identified as the standards by which other companies, the “peloton” would be required to comply in a few years.

These standards were formalised by the frontrunners in an agreement presented to the government and established procurement requirements that the government was asked to mandate across the industry, to give the market a strong signal.

Throughout this process, Dr Cramer acted as a “transition broker”, coordinating the different parties, keeping them accountable and steering the conversation in the right direction.

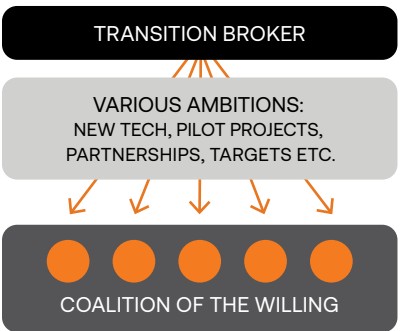
While a similar pattern can be followed in any political or economic context to achieve sustainable outcomes, building a Circular Economy is a journey with a clear destination but no predetermined path.

Dr Cramer describes the experience as an iterative learning process for all parties involved, one where she didn’t know what the results would be at the beginning of the journey. While we can find inspiration in and learn from the Netherlands’ experience, we need to forge our own path towards circularity.

In her concluding remarks, Dr Cramer suggested we avoid starting our journey with a list of barriers because this often leads to feeling paralysed. Rather, we should accept that we’ll try to remove barriers along the way, as the process unfolds.

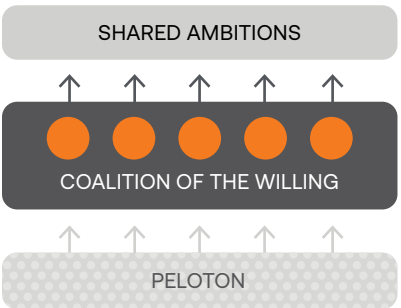
Frontrunners' Approach

STEP 1



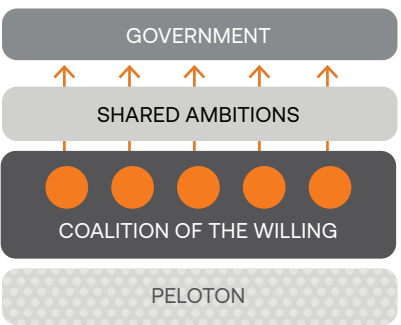
The transition broker coordinates the efforts of a coalition of the willing with a shared vision. They facilitate progress in joint talks, keep all parties accountable, and push for ambitious goals.

STEP 2

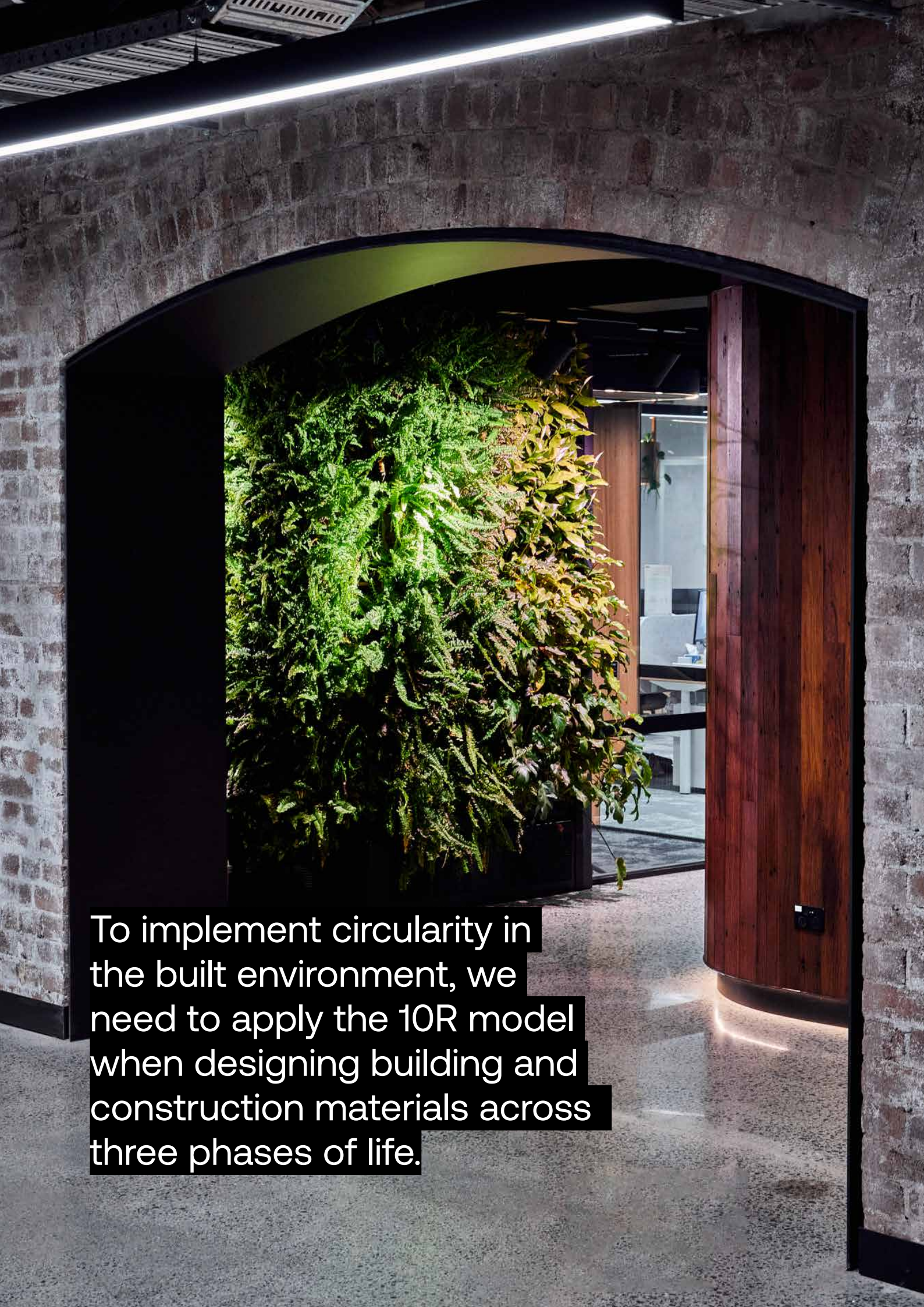


The coalition of the willing settles on common, achievable ambitions and best practices and drags the rest of the industry, the peloton, into the transition

STEP 3



The whole industry signals to the government that there is a market shift, and the government implements adequate policies to support it



To implement circularity in the built environment, we need to apply the 10R model when designing building and construction materials across three phases of life.

Where to start?

1. Development: focus on creating value

The most important phase is the first one, how we develop materials and make key design decisions. Here we need to question the technical and functional aspects of a product, to select more durable and better performing materials. But we also need to design with future uses in mind.

Questions to be asked during this stage might include the ones listed below. These questions refer to a product, but they could equally apply to a material, a small component or more complex systems such as buildings.

- Is the product made from renewable resources (including renewable energy used in the manufacturing process)?
- Is the product created from materials that are durable enough to withstand multiple lives and applications or simple enough to compost back into productive soil?
- Can the product or its components be disassembled and reassembled for use in another location or application?
- Can the product be designed to be flexible and serve multiple purposes, even with minor adjustments?
- Does the product allow for simple and complete breakdown into component materials to enable complete recycling?

2. Usage: focus on preventing loss of value

How we maintain and extend – use and reuse – a product's lifespan is also at the core of circularity. We know that well-maintained buildings last longer and are in higher demand, therefore we need to resist calls for cutting maintenance costs. This short-sighted strategy ends up backfiring on building owners by reducing the life span of their properties and costing them more in the end. Questions to be asked here might include:

- How has this product been designed for durability and to reduce maintenance requirements?
- What maintenance strategies can be implemented to maximise the design life of the product?
- How can the manufacturer of the product be incentivised to create repairable, durable products that best meet the need the product intends to serve?
- Have we selected non-proprietary products that won't be subject to planned obsolescence or prevent future component replacement with easily sourceable parts?

3. Reuse: focus on preventing loss of value

With buildings at the end of their first lifecycle, we need to question the impulse to demolish and instead ask how we might achieve the highest level of circularity while retaining the highest value of invested funds. i.e. can the building be renovated or included in a new development? If not, can we retain or repurpose any of the building's parts or materials? Even if a building must be demolished, which sits at the low level in the 10R scale, it can still be done in a circular manner with materials preserved and reused elsewhere. Questions we might ask here include:

- How can this product be re-deployed elsewhere in its complete form?
- How can this product's constituent parts be feasibly extracted and re-deployed in their original design function?
- How can the constituent elements of products within a building be extracted to maximise their recycling value?

Circular principles in practice

Given the importance of the development phase when it comes to creating circular products and buildings, here are four principles that guide how to design in a circular manner, with case studies to illustrate how each of these principles are being applied in Australia and overseas.

PRINCIPLE 1: Design for disassembly

This principle informs design decisions and material choices that enable building materials to be configured in a way that's accessible, reversible and robust.

The goal of this strategy is to create added value for building owners while eliminating future wasted resources through closed materials loops, which refers to the process of reusing and recycling products without material loss, thereby using fewer raw materials and minimising waste.

The results are more flexible. When we design for disassembly, we create:

- buildings that are easy to repair, refurbish and reconfigure
- buildings that function as material banks, and
- products and materials that retain value and return to productive use at the end of each discrete life.



CASE STUDY

Triodos Bank in Zeist,
The Netherlands

Architect RAU Architects, in
cooperation with Ex Interiors,
Arcadis Landscape Architecture

Builder J.P. van Eesteren

Owner/Developer Triodos Bank
and EDGE

- Fully demountable, and the main structure is 100% timber
- The building sequesters over 1,633 tonnes of carbon dioxide, which is more than it emits operationally
- Green roofs for rainwater capture

CASE STUDY

Legacy Living Lab, Perth, Australia

Builder Fleetwood Building Solutions

Owner/Designer Curtin University

- The first building in Western Australia that is both modular and designed for disassembly
- Constructed on recyclable steel footings, saving 20 tonnes of concrete
- Contains reused materials and materials with a high level of recycled content
- At the end of its life, 78% of the building's elements can be deconstructed and reused, 10% can be recycled and 11% can be down-cycled



Photography © Roberto Minunno



CASE STUDY

Aeres University of Applied Sciences
in Almere, The Netherlands

Architect BDG Architecten

Builder Aannemingsmaatschappij Hegeman

Owner/Developer Aeres Group

- 60 tonnes of CO₂ saved by using low-carbon raw materials and 50% concrete granulate in all prefab floors. Concrete granulate is obtained from concrete rubble, which is produced during the demolition of structures containing concrete
- The building features bio composite façade panels, guaranteed to be taken back by the supplier for recycling at end of life

Photography © Gerard van Beek

- The main structure is designed like a Meccano set with demountable structural steel containing loose floors. After demolition, the complete building shell can be reused
- Old ship floors – timber that otherwise would be burned – has been used for the roof deck
- Short pieces of tropical hardwood, normally landfilled, were used for wooden bench seating on the roof
- Exterior plants include:
 - 6 trees on the roof
 - 2,000 plants on the roof (about 30 different native plant species)
 - More than 11,000 plants on the façade
- Two large water buffer tanks on the roof and in the ground collect rainwater for watering the green walls

PRINCIPLE 2: Building materials as a service

New models are emerging where building materials are provided as a service, with suppliers responsible for providing and maintaining their products over time, in exchange for a long-term distributed source of income compared to a standard one-time sale.

This allows clients to purchase high-quality products without a significant upfront investment and the hassle of maintaining the product themselves and moves the onus of responsibility onto the suppliers who until now have not been invested in the maintenance and disposal of products.

Just as with the Uber model based on the premise of people don't need a car, they need a ride, this model leverages the concept that the service is what's valuable, not the material item. This business model is relatively new in the construction industry, but new applications are slowly being deployed over time.

CASE STUDY Signify's Light-as-a-Service

- Signify (formerly Philips Lighting) introduced Light-as-a-Service (LaaS) concept more than 5 years ago. LaaS is available in Australia and provides the exact lighting levels required for workspaces and rooms, while maintaining this service over time
- As pioneers in the 'lighting as a service' circularity space, Signify is driven to create products that can be reused at the end of leases
- Customers have benefitted from upgrading their fixtures with a low upfront cost, lower energy consumption and ongoing maintenance cost savings



PRINCIPLE 3: Adaptive reuse

We know that 85% of the buildings that will exist in developed nations by 2050 have already been built; therefore, using existing resources to respond to community needs presents an opportunity to considerably reduce the amount of virgin materials needed by the construction industry.

CASE STUDY Quay Quarter Tower, Sydney, Australia

Architect 3XN Architects |
GXN Innovation

Builder Multiplex

Owner/Developer AMP Capital

- Built on the site of an existing tower
- Retained more than 66% of its existing columns, beams and slabs
- Retained more than 95% of its existing internal walls
- 12,000 tonnes of carbon savings through the retention of the existing structure
- Project targeting net zero for Scope 1&2 in operations



Photography © Adam Mork, courtesy of AMP Capital

CASE STUDY

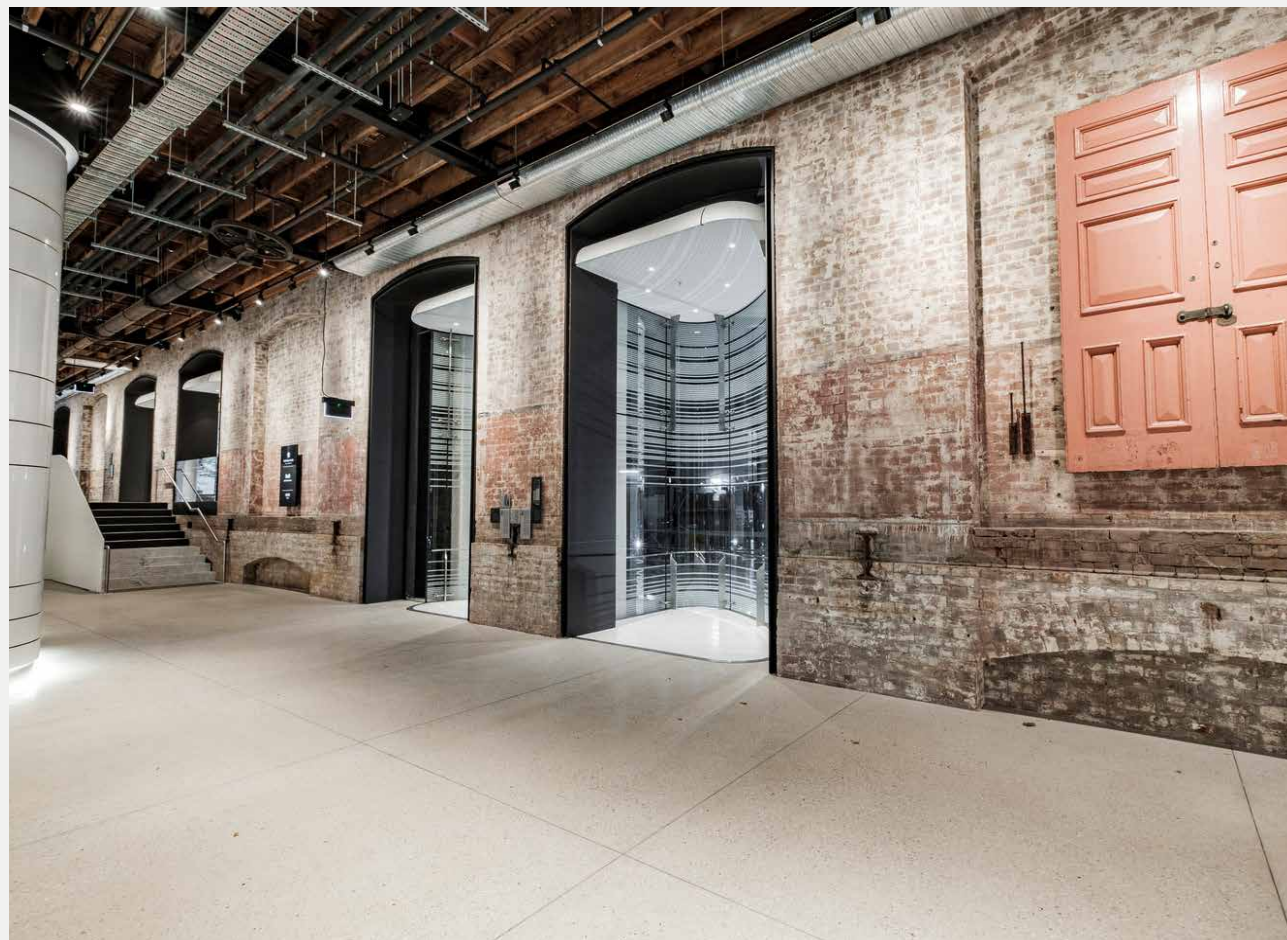
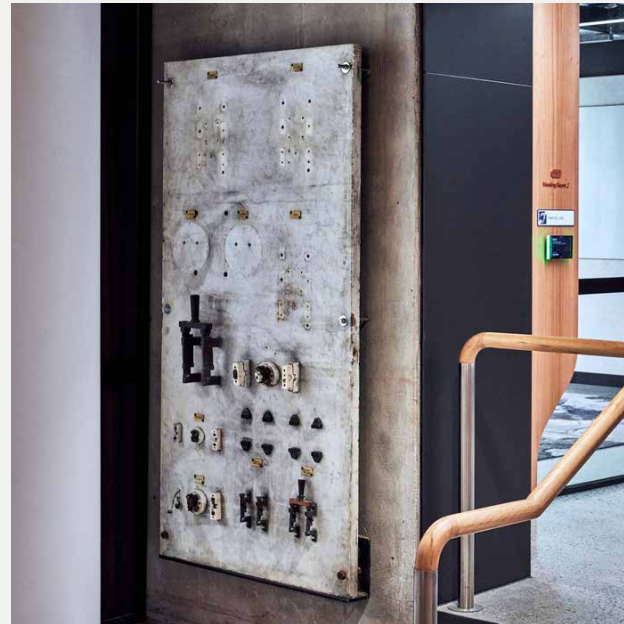
Sub Station No. 164 in Sydney, Australia

Architect fjmt

Builder Built

Owner/Developer Nuveen/Built

- Adaptive reuse of two heritage-listed buildings
- Doubling of NLA through 7-storey extension above the existing warehouse buildings
- Preserved heritage façade, floors and column structure, resulting in embodied carbon savings of 2,500 tonnes in these elements alone
- Reuse and interpretation of heritage items into finishes and features



CASE STUDY
20 Martin Place, Sydney, Australia

Architect Crone Partners, Jamie Carpenter & Associates

Builder Built

Owner/Developer Pembroke Real Estate

- Extensive redevelopment of existing 1970s commercial tower
- Stripped back to steel skeleton
- Retained 5,500 tonnes of steel structure, saving 13,769 tonnes CO₂
- 6 Star Green Star Office As Built v3 rating



Before 2013



Retained structure



After 2015

PRINCIPLE 4:
**Waste as
a resource**

In Australia, 40% of our overall waste comes from construction and demolition. But much of that waste can be avoided by designing buildings differently. When waste can't be avoided, we need to find different ways to close the loop and look at waste as a resource.



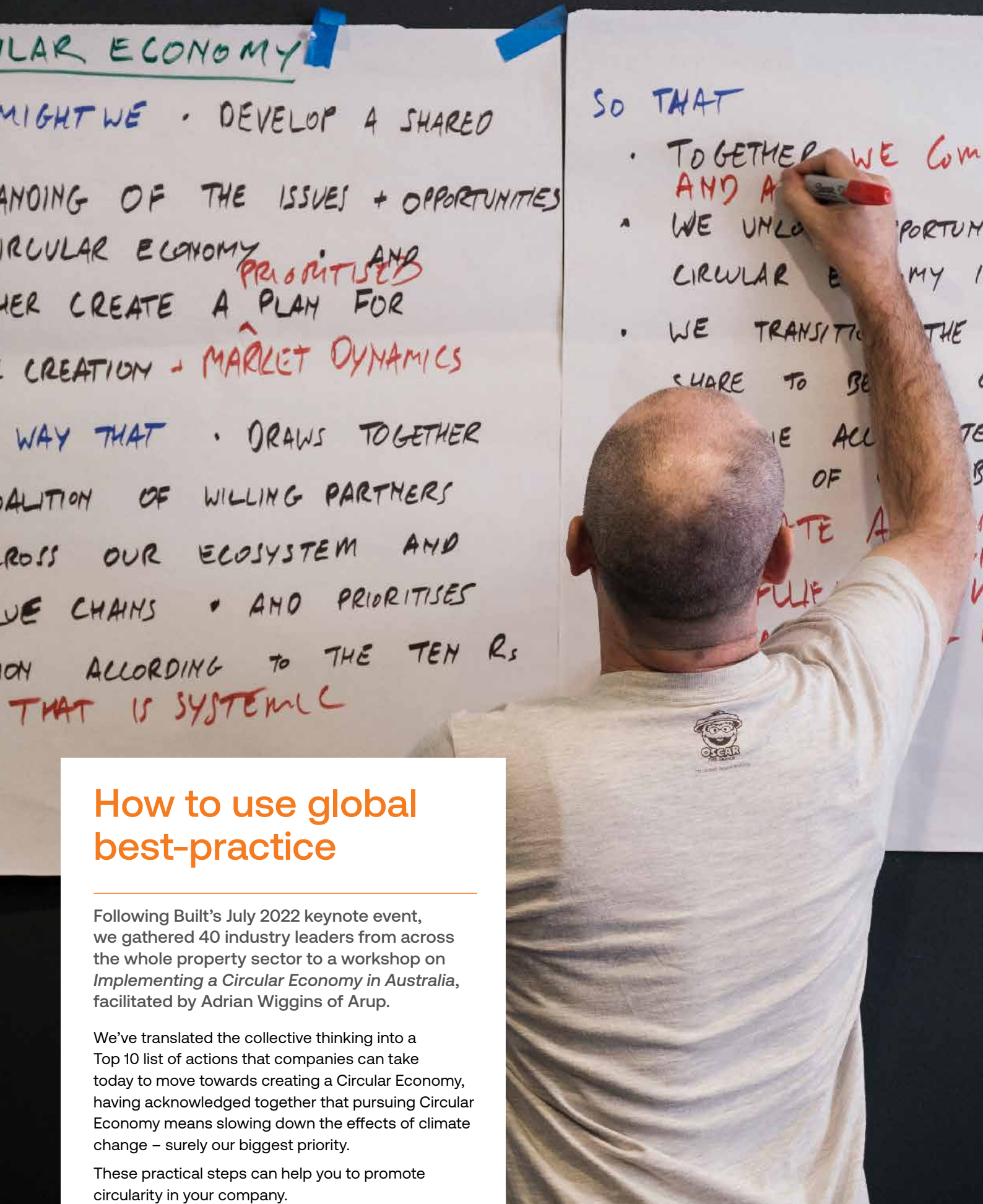
CASE STUDY
Boral's Circular Materials solution

Boral is a major construction materials supplier deploying Circular Materials solution practices by receiving, sorting, processing, and then developing new construction material products at its recycling facilities. Boral receives and processes demolition and excavation waste, as well as concrete waste from construction sites and re-purposes the waste into new construction materials.

Currently, Boral is working across three major projects with various builders and developers in Sydney, where over 50,000m³ of concrete is being supplied, pumped and placed, generating over 900 tonnes of concrete waste, and which is

being directly managed by Boral on behalf of its customers. The 900 tonnes is being recycled at Boral's Widemere recycling site is achieving a 98%+ recycling rate from the waste. The recycled material is being developed into products that are being sold back to the construction industry, resulting in approximately 20 tonnes of carbon offsets. It is expected that the cost of managing these volumes of concrete waste will be reduced by approximately 50% when compared to the traditional methods of waste management.

In another project, Boral directly managed over 200kT of excavation sand from a customer's project site by directing the waste material to their Emu Plains recycling site, where the excavation sand was washed and upcycled for reuse into the company's concrete mixes.



How to use global best-practice

Following Built's July 2022 keynote event, we gathered 40 industry leaders from across the whole property sector to a workshop on *Implementing a Circular Economy in Australia*, facilitated by Adrian Wiggins of Arup.

We've translated the collective thinking into a Top 10 list of actions that companies can take today to move towards creating a Circular Economy, having acknowledged together that pursuing Circular Economy means slowing down the effects of climate change – surely our biggest priority.

These practical steps can help you to promote circularity in your company.

Top Ten Actions towards Circularity

1 >>>>>>>

Identify your starting point

Rather than waiting for the government to act and vice versa, decide on what you can do now.

EXAMPLE STEPS

- >> Initiate the conversation and put Circular Economy on the agenda
- >> Include Sustainability at the core of your company structure with circularity as one of the mega trends you intend to excel at in the future

2 >>>>>>>

Start small

Start with promising, small-scale projects and take a leap of faith on non-established initiatives.

EXAMPLE STEPS

- >> Engage a Circular Economy consultant to guide you on targeted projects

3 >>>>>>>

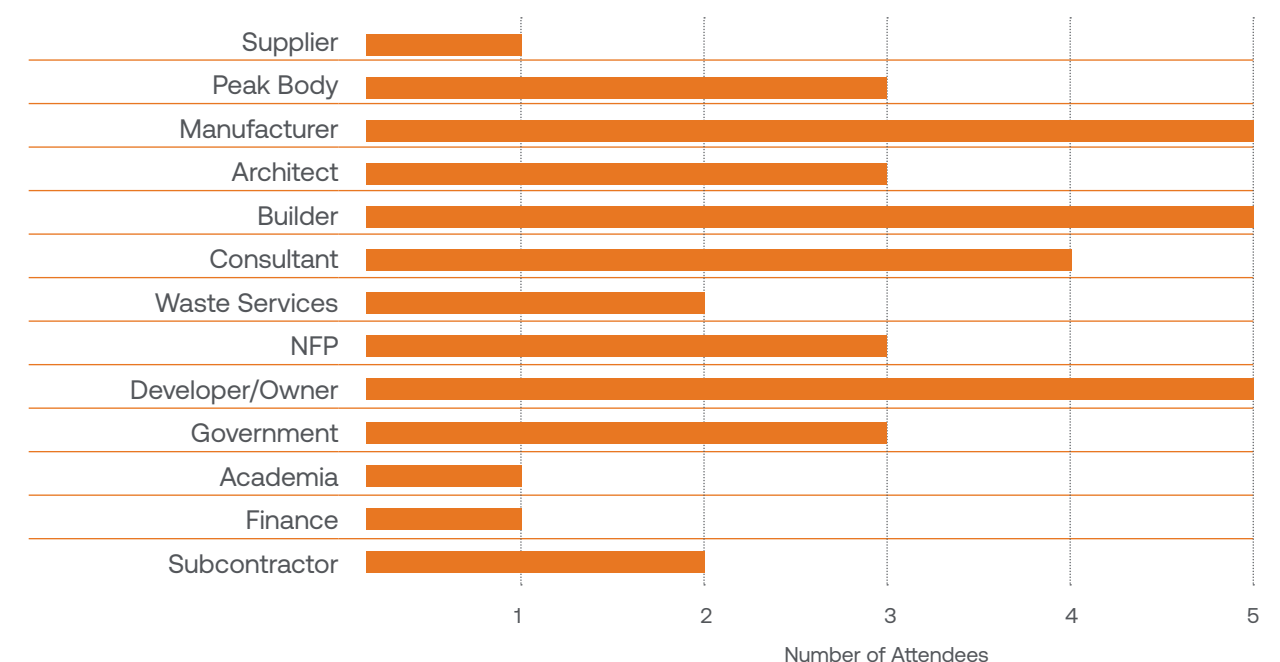
Reach out

Circularity is a team sport. We need to share our collective learnings and reach out to our competitors.

EXAMPLE STEPS

- >> Reach out to research and industry partners and participate in as many circularity opportunities as possible to build relationships, knowledge and share ideas with other "frontrunners"

Circular Economy Workshop Attendees by Industry Sector



4 >>>>>>

Design differently

Integrate circularity early into the design phase and then extend it beyond the project's lifetime.

EXAMPLE STEPS

- >> Take up the Green Star Building's 'Circular Economy Leadership Challenge' on targeted projects
- >> Promote design for disassembly by completing a Disassembly Plan for a targeted project
- >> Undertake internal research on materials passports

5 >>>>>>

Minimise value destruction

Look across your supply chain for ways to reduce value destruction, or wasted resources, at the front and back end of a project.

EXAMPLE STEPS

- >> Push for a higher waste recycling/reuse rate by breaking down waste into sub targets and potentially collaborating with a waste management company
- >> Specify products with high recycled content or refurbished products

6 >>>>>>

'Be' the demand

Support circular manufacturers by recommending circular products on your next project and including them in your procurement documents.

EXAMPLE STEPS

- >> Specify a leased construction product into targeted projects
- >> Specify products with high recycled content or refurbished products.



7 >>>>>>

Push for policies

Support advocacy groups and organisations advancing Circular Economy at the policy level.

EXAMPLE STEPS

- >> Collaborate with industry bodies such as the Materials & Embodied Carbon Leaders' Alliance (MECLA) and GBCAA
- >> Check in with groups promoting circularity-related policies at a federal and local level, such as the Property Council of Australia

8 >>>>>>

Collaborate

Participate in Circular Economy events and round tables and be open to collaboration.

EXAMPLE STEPS

- >> Collaborate with universities on research
- >> Work with Circular Australia, Planet Ark and other industry non-profit organisations promoting Circular Economy on potential pilot projects

9 >>>>>>

Tell your story

Share the work you're doing on circularity with your peers and clients, to motivate and inspire.

EXAMPLE STEPS

- >> Publish reports on work you do to promote circular economy initiatives within your value chain to upskill industry

10 >>>>>>

Build a new paradigm

Think deeply and talk widely with colleagues and employees to move closer to circularity and build a new culture and behaviours in the workplace.

EXAMPLE STEPS

- >> Educate project teams about circularity through learning sessions and sharing reports, podcasts, webinars and case studies of best practice initiatives and research



Useful resources

Here are some of the leading Circular Economy initiatives available in Australia in the built environment. Use this list to identify who the main actors are at this time and which organisations to contact, to pursue these initiatives.

Organisations and Institutions

- [Green Building Council of Australia](#) drives the transition to a sustainable built environment through rating tools, advocacy and education.
- [Planet Ark](#) launched the Australian Circular Economy Hub in 2020, and promotes grants, funding, and general guidance for circular initiatives.
- [Circular Australia](#) is an independent not-for-profit company working collaboratively with businesses, government, researchers and individuals to remove barriers and scale the Circular Economy.
- [RMIT's Circular Economy Hub](#) is a cross-disciplinary, industry-engaged network of researchers and experts working across the University on cutting edge and innovative CE research in Australia and overseas.
- [UNSW's SMaRT Centre](#) has developed a [Green Ceramics MICROfactorie](#) to convert construction waste into new construction materials.

Incentives, grants and support

(Current as at November 2022)

- The \$15 billion National Reconstruction Fund will drive investment in key sectors focusing on value adding and capability development to leverage Australia's natural and competitive strengths, supporting new and emerging industries including recycling and clean energy. Keep up to date with new funding measures and incentives as they are announced through the [Department of Industry](#)
- The \$250 million [Recycling Modernisation Fund](#) is transforming Australia's waste and recycling industries to help them meet demand to process waste that was previously exported.
- The \$26 million [National Product Stewardship Investment Fund](#) will increase the number of industry-led product stewardship schemes in Australia and increase the recycling rates of existing schemes.
- The \$100 million [Australian Recycling Investment Fund](#) is supporting large-scale projects that use clean energy technologies in recycling waste plastics, paper, glass and tyres.
- The Australian Tax Office's [New Investment Engagement Service](#) gives tailored guidance on tax issues to businesses planning significant new investments in Australia.
- [Planet Ark Funding](#) is offering a \$3 million dollar boost to sharing, reuse, repair and recycling initiatives in Victoria and operates the [Australian Circular Economy Hub](#).
- [Circular Australia](#) is an independent not-for-profit on a mission to fast track the transition to a Circular Economy.

Papers and articles

- [A Circular Economy Discussion Paper](#), GBCA, 2021
- [First steps towards a Circular Built Environment](#), Arup and Ellen MacArthur Foundation, 2018
- [How Network Governance Powers the Circular Economy](#), Dr. Jacqueline Cramer, 2020
- [Building a Circular Future](#), Dr. Jacqueline Cramer, 2022
- [Articles by Circular Australia](#), consistently updated Media
- [Mapping the Circular Economy Ecosystem of Victoria](#), RMIT, Victorian Circular Activator, 2022

Newsletters

- [Australian Circular Economy Hub](#)
- [Circularity Weekly](#) by Greenbiz
- [Ellen MacArthur Foundation](#)
- [Circulab](#)
- [Platform for Accelerating the Circular Economy](#)
- [Sitra's World Circular Economy Forum](#)
- [Circular Economy Business Innovation Centre \(CEBIC\)](#)
- [Circle Economy](#)

Footnotes

1. <https://www.pwc.com.au/media/2021/circular-economy-to-grow-australian-GDP.html>
2. https://assets.ctfassets.net/fqjwh0badmlx/4k22NgdhvEPKIQ9YUwnOz7/c0e10aeaf4cf7e-3cab78bed0d55443ec/ACE_Hub_Circularity_In_Australian_Business_Report_2021.pdf
3. [ibid](#)
4. <https://www.circularity-gap.world/2020>
5. <https://www.betonakkoord.nl>
6. <https://hollandia.biz/en/nieuws/steel-construction-agreement/>

ABOUT THE AUTHOR

Filomena Beshara is a Sustainability Manager at Built. Her career has focused on creating change in the built environment – working towards healthier buildings that use fewer resources and drive positive social and environmental outcomes. She works with clients, integrating their values to inspire change and action on projects and delivering leading sustainability results.

ACKNOWLEDGEMENTS

Built would like to acknowledge and thank our partners, contributors and participants to our **Circular Economy - Lessons for Australia and the built environment event**: Green Building Council of Australia, Circular Australia, Netherlands Embassy in Canberra, RMIT University and Planet Ark with special thanks and gratitude to Dr Jacqueline Cramer, Professor of Sustainable Innovation at Utrecht University and Chair of the Holland Circular Hotspot.

If you would like to be involved with any of the Built initiatives outlined in this paper, please contact Joe Karten at joekarten@built.com.au

About Built

Built has the scale and certainty of a tier one construction company with the culture and agility to stay ahead of change.

Proudly Australian and privately owned since 1998, we have grown to be a national diversified general contractor and one of Australia's largest private construction groups.

Our reputation is built on being the most responsive, client focused partner in the industry with a specialist team with extensive tier one and large corporate experience.

From large scale new builds to complex refurbishments and intricate fitouts, we innovate and challenge industry conventions. When you work with us, you work with a group of leaders on a mission to improve the way the world is built.

built.com.au

Built THE NEW WAY
FORWARD