



Transitioning to a Circular Economy Insights from the frontline

Prepared by Australia Post
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Advancing the United Nations' Sustainable Development Goals

We all have a crucial role to play in building a sustainable future through responsible business practices, including businesses both large and small.

In January 2016, the United Nations' Sustainable Development Goals (SDGs) came into effect, which provide a common set of goals to help put the world on a sustainable path to 2030.

The UN Global Compact – the UN's corporate sustainability initiative to which Australia Post is a signatory – asks businesses to contribute to the SDGs first by doing business responsibly, and then finding opportunities to solve the challenges represented by the goals through innovation and collaboration.

Australia Post and the SDGs

Australia Post is committed to advancing the SDGs and, in particular, we're focusing our efforts on the goals we can influence the most. We're purposefully advancing our performance against the following particular goals through our investments, our business practices and our products, services and solutions.

The six goals we're currently focused on are:

- ✓ **Goal 5 Gender Equality**
Achieve gender equality and empower all women and girls
- ✓ **Goal 8 Decent Work and Economic Growth**
Promote inclusive and sustainable economic growth, full and productive employment and decent work for all

- ✓ **Goal 9 Industry, Innovation and Infrastructure**
Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
- ✓ **Goal 11 Sustainable Cities and Communities**
Make cities and human settlements inclusive, safe, resilient and sustainable
- ✓ **Goal 12 Responsible Consumption & Production**
Ensure sustainable consumption and production patterns
- ✓ **Goal 13 Climate Action**
Take urgent action to combat climate change and its impacts.

Circular Economy and the SDGs

This paper looks at Goal 12. The circular economy focuses on extending the life of limited resources through a range of better business practices including recycling, reuse and redesign. Australia Post's role in this is driven by our approach to shared value: the circular economy sits in that intersection between our capabilities, our business strategy, and social and environmental needs of our communities.

For further information about the SDGs, see <https://sustainabledevelopment.un.org/sdgs>

For further information about business and the SDGs, see <https://www.unglobalcompact.org/sdgs>



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This paper is the third in a series by Australia Post which explores aspects of the UN Sustainable Development Goals and the role of Australia Post. Papers in this series:

White paper 1: *Small Business Sustainability*

White paper 2: *Digital Inclusion*

White paper 3: *Circular Economy*

Australia Post's approach to corporate responsibility is to look to the role the organisation plays in our broader society and to act in innovative ways to create new forms of economic, social and environmental value.

This paper is in part a contribution to two important drivers of our corporate responsibility: the United Nations Sustainable Development Goals (SDGs) and creating shared value.

In terms of the SDGs this paper looks at Goal 12 Responsible Consumption and Production. Transitioning to a circular economy is fundamentally linked to achieving this goal.

Creating shared value underpins our corporate responsibility and community initiatives at Australia Post. We believe the most valuable outcomes will be achieved when we pursue the intersection between our capabilities, our business strategy, and social and environmental needs of our communities.

It is within this context that Australia Post sees the importance of playing a role in helping organisations build circular businesses.

Australia Post and the circular economy

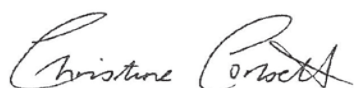
In November 2016 Australia Post established the Revamp Network to provide a collaborative forum for stakeholders to share ideas and participate in opportunities that help drive better circular economy outcomes. We have participated in a range of collaborative projects to test circular economy models.

Our interest in the circular economy also has a commercial flavour, in particular as a provider of logistics to underpin the movement of materials. Through our network of over 4,000 Post Offices and 15,000 street posting boxes we have collection points in all parts of the country.

We also have the processes and systems that move billions of items a year. Getting involved in the circular economy is a natural extension of what Australia Post already does every day.

The aim of this paper is to identify the barriers to lifting the level of investment in or advancing early circular economy activities.

We trust you will enjoy this paper, the third in our series of white papers on the SDGs, and that it may assist with understanding where you can contribute to the circular economy



Christine Corbett
Chief Customer Officer
Australia Post



A circular economy is the opposite of the ‘linear economy’ of take, make and dispose. A circular economy is one where as much value as possible is retained from resources and materials used.

The underlying drivers of a circular economy arise from the economics of the sustainable use of finite natural resources, and minimising the environmental impact from resource extraction, manufacturing, and disposal.

This paper examines what is needed to continue to evolve circular economy activities. It does so by looking at the literature on the circular economy and referencing this against views of experts who are participating in the different parts of the circular economy in Australia.

Key findings

Activities to help the transition to a circular economy

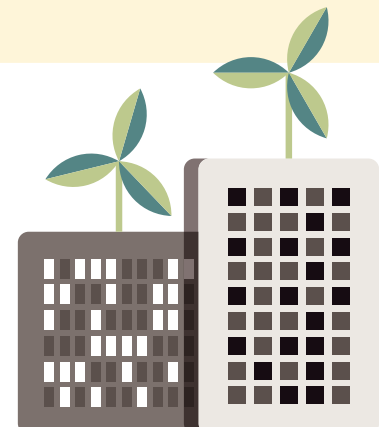
Known activities which can support building of scale into the circular economy.

- 1 Collaboration: you cannot be at arms-length in the circular economy. It is a co-designed system based on synergies and building connections.
- 2 The business case: circular economy initiatives need to stack up commercially to ensure their sustainability.
- 3 Making it simple for customers: putting the customer first and removing barriers for participation in different parts of the circular economy works.
- 4 Logistics: this is what connects the circular economy – getting materials to their next most efficient use.
- 5 The role of reuse or recycle or closed loop systems: scale can be more easily built into some types of circular economy activities than others.

Areas of ongoing debate

Six areas of ongoing debate about where growth will come from to support the circular economy. This is about getting the balance right.

- 1 Will growth come from looking at the system as a whole or by starting with the component parts of a circular economy?
- 2 Should efforts focus on increasing the supply of materials for reuse in the circular economy or on activities to boost demand for such materials?
- 3 Do consumers need to change their behaviour about activities to support the circular economy or do organisations just need to better anticipate consumer expectations?
- 4 Is change better pursued through encouragement from government policy or is regulation the superior approach?
- 5 Can financial incentives help or is it better to encourage social norms to drive change?
- 6 Can we rely on business leaders to bring about change, or do we need to look for bottom up or internal champions of change within businesses?



2 About this paper

This paper examines what is needed to continue to evolve circular economy activities by looking at barriers and what is working to grow circular economy initiatives.

As concern about the depletion of natural resources and climate change deepens, we are increasingly seeing the issue of sustainability being incorporated into the agendas of policy makers and corporate strategists. Businesses are not only recognising their role in creating a more sustainable future, but are also starting to see the many economic and social benefits that come with it.¹

It is within this context that we are seeing the evolution of the circular economy. In simple terms, a circular economy is one where the goal is to retain as much value as possible from resources and materials used. It is the opposite of the 'linear economy' of take, make and dispose.

Simple definitions however obscure the fact that creating a circular economy is a complex task. Actions range from understanding how to change consumer behaviour to unpacking the complexities of supply chain economics, and from intricate recycling technologies to logistical challenges associated with collection and distribution.

The circular economy is transformative but conceptually and commercially challenging. It relies on new processes, new connections and new ways of linking different parts of a supply and manufacturing chain.



What you will find in this paper

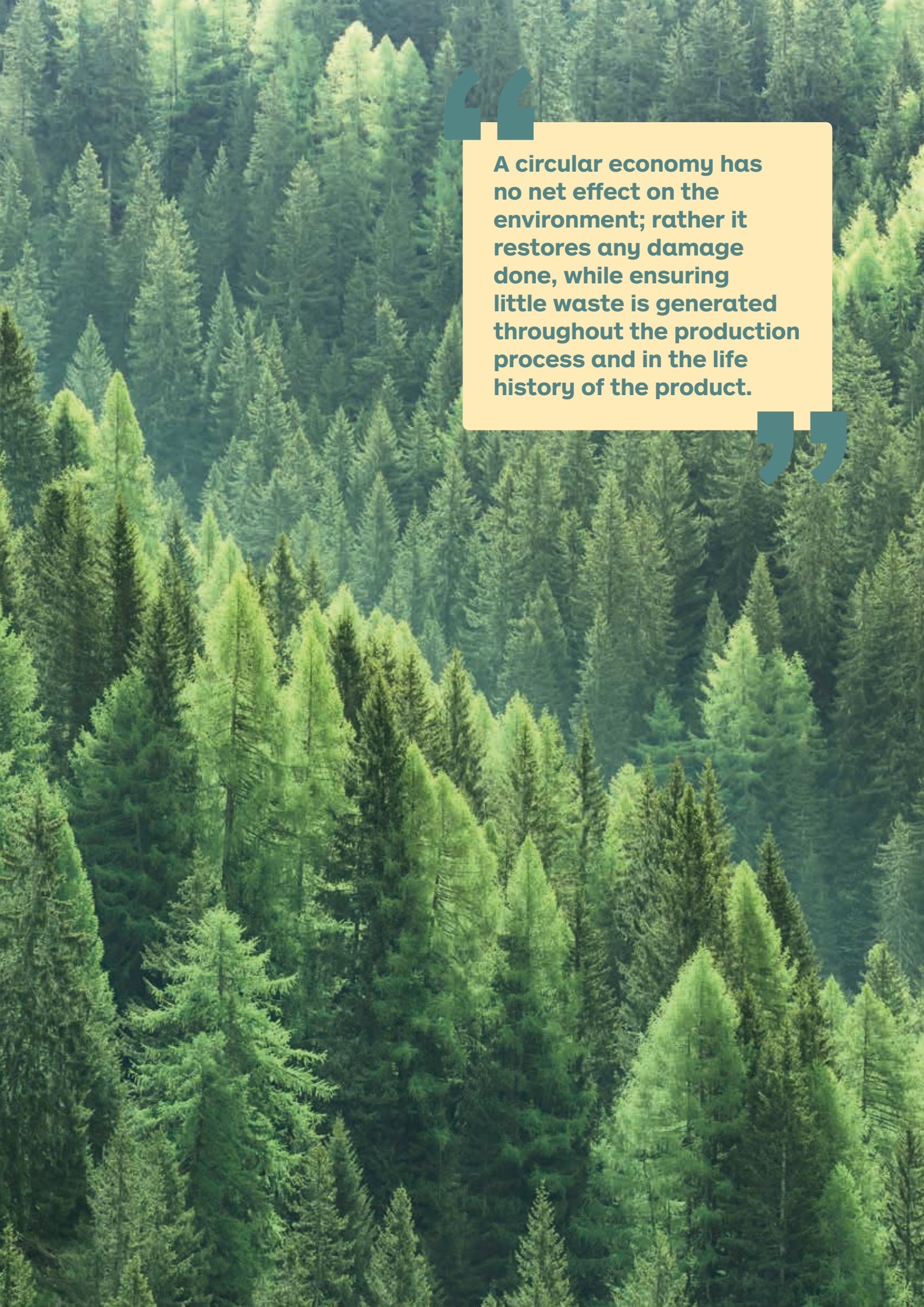
This paper first explores some of the formal definitions and evolution of the term 'circular economy'. From there we examine the key ingredients to transition initiatives into more fully formed circular economy activities (Section 4) before looking at six arenas of change or areas of ongoing debate in the development of the circular economy (Section 5).

These sections are informed by interviews we conducted during July 2017 with subject matter experts involved in the circular economy as well as a general literature review on the circular economy. The interviewees stretch across corporate, government and not-for-profit sectors. We include input from industry associations, resource recovery companies and online shopping companies (see Appendix 1 for a full list).

As part of our interviews we explored different drivers for the circular economy. The results, once explored more deeply, exposed the areas for debate and identified clear areas of activity to transition to a circular economy.

Australia Post would like to acknowledge all Revamp Network members and especially the following groups for their contribution to this paper: Australian and New Zealand Recycling Platform (ANZRP), Banksia Foundation, Close The Loop, eBay, Department of Environment, Land, Water and Planning (Victoria), MobileMuster, Monash Business School, Nestle, Planet Ark, Salvation Army Stores, Telstra, TerraCycle, TOMS Australia and TyreCrumb.

Australia Post also thanks Jodie Bricout, Circular Economy Manager at Lifecycles, for reviewing the paper.



A circular economy has no net effect on the environment; rather it restores any damage done, while ensuring little waste is generated throughout the production process and in the life history of the product.

3 What is the circular economy?

The term circular economy introduces the concept of a cycle where the goal is to retain as much value as possible from resources and materials used.

As such a circular economy is the opposite of the 'linear economy' of taking resources, making products and disposing them. It is about designing out waste and it is about using renewable resources.

At its purest, a circular economy is a closed loop system. In this way the term circular economy conceptualises an economy "as having no net effect on the environment; rather it restores any damage done, while ensuring little waste is generated throughout the production process and in the life history of the product".²

The idea of a cyclical closed loop system goes back to the 19th century and stems from previous business model theories such as regenerative design, performance economy, cradle to cradle, industrial ecology, biomimicry, blue economy, permaculture, natural capitalism, industrial metabolism and industrial symbiosis.³

The term circular economy has been gaining momentum since the 1970s with the most referred definition framed

by the Ellen MacArthur Foundation – a recognised global leader in this field – as "...an industrial economy that is restorative or regenerative by intention and by design".⁴

As such the circular economy is a contemporary and restorative approach to economic systems and industrial processes which addresses the simple question: how do we as a global community manage our production and consumption to meet our current needs and ensure those of future generations?

There is a pressing need for an answer as demand growth, resource scarcity and fluctuating commodity prices sets us on a path to higher prices, supply insecurity and serious environmental consequences. These in turn have adverse implications for communities and wildlife. Steel, aluminium, plastic, cement, glass, wood, primary crops and cattle are alone responsible for 20% of global greenhouse gas emissions, 95% of water use and 88% of land use.⁵

Focus areas and opportunities

Recycle

- Re-manufacturing
- Collection
- Depth of reuse

Sourcing

- Reduce use of finite resources
- Substitute materials

Making

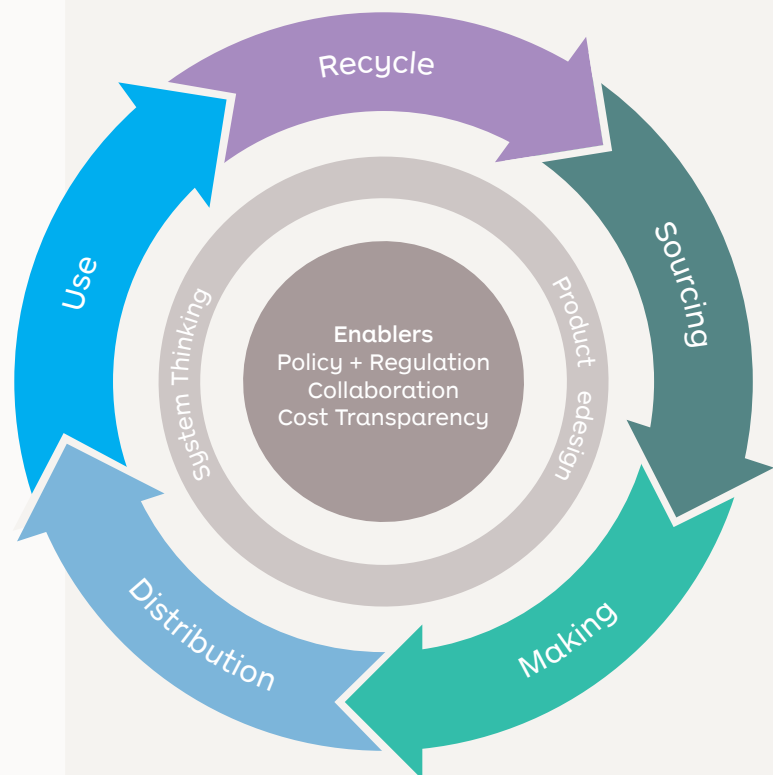
- Efficient manufacturing techniques
- Use of renewable energy
- Reduced environmental footprint

Distribution

- Logistics management
- Reduced carbon emissions

Use

- Sharing economy
- Maintain and prolong use
- Acceptance of pre-used components



The transition from linear to circular

Despite its appeal, the circular economy presents businesses with a big challenge.

Rather than simply ‘greening’ existing linear business models through traditional environmental sustainability practices, a circular mindset requires businesses to transition to innovative new business models that leverage disruptive technology and adopt shared value practices. These models integrate economic activity with social and environmental wellbeing to ultimately create a “zero-waste” society.⁶

Some examples of circular business models being adopted around the world include circular supplies, resource recovery, product-life extension, sharing platforms and products as a service.⁷ They all look to regenerate, share, optimise, loop, virtualise and exchange.⁸

Political support for the circular economy is growing around the world with Germany (Closed Substance Cycle and Waste Act), Japan (Basic Law for Establishing a Recycling-Based Society), China (Chinese Circular Economy Promotion Law) and greater Europe (European Circular Economy Package) leading the charge.

Closer to home, Green Industries South Australia has released a study which shows how the circular economy can create thousands of jobs and lessen carbon emissions in South Australia.⁹



Where ever you see this symbol you are reading quotes from the interviews we conducted with sector experts on the circular economy for this paper. A full list of participants can be found in Appendix 1.



“We clearly cannot continue the way we have in the past. We seriously need to do more whether it is around waste recovery or other models.”

“Whether we like it or not, customers see the need for reducing the waste associated with our products.”

Case Study



AUSTRALIA POST: collaboration toward a circular economy

In July 2016 Australia Post brought approximately 70 customers and key stakeholders together from a range of industries to share their insights and knowledge on ways to create value from unwanted materials, with a focus on e-waste and textiles.

Australia Post was upfront about being just one player in the ecosystem and that everyone has a role in addressing Australia’s growing waste problem.

Using a range of design thinking tools and applications, the group came up with 15 ‘big’ ideas. Stakeholders then self-nominated their ongoing involvement in development of these ideas.

Australia Post prioritised the ideas that had the greatest opportunity to scale. Three ideas were pursued:

- 1 Charity valet service** – a service that allows people to sell their unwanted, higher value fashion items for a good cause
- 2 Sustainable uniforms** – a ‘one-stop-shop’ for organisations to securely decommission uniforms and move used stock via a social enterprise to charitable recyclers and other such marketplaces for resell, and
- 3 eWaste delivery box** – development of a purpose-built box that makes it easy for householders and small businesses to recycle their e-waste.

The group was invited back together in November 2016. Approximately 30 stakeholders attended this meeting and formed the Value from Waste network.

The network was renamed to Revamp in February 2017 and now convenes on a quarterly basis with membership increasing to 40 stakeholders.



Five international examples of the circular economy in action.^{10*}



1 Timberland

Timberland has collaborated with tyre manufacturer and distributor Omni United to create tyres designed to be recycled into footwear outsoles after the tyres' journey on the road is complete.¹¹

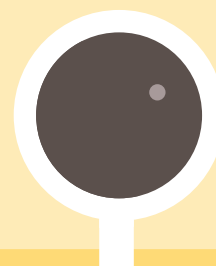


3 Toast Ale

It is estimated that 44% of bread produced in the UK is thrown away. Toast Ale collects unused bread which is then incorporated into the brewing process replacing around one-third of the malted barley used for beer.¹³

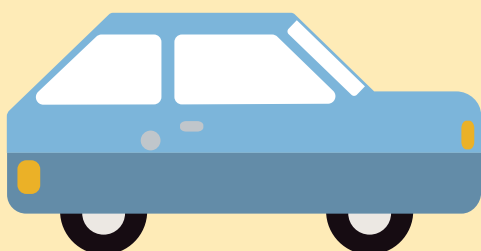
4 Bio Bean

The UK produces 500,000 tonnes of spent coffee grounds every year, most of which is disposed of via landfill. Bio Bean recycles waste coffee grounds into advanced biofuels and biochemicals.¹⁴



2 Renault

Through their 'short-loop recycling' program Renault recycles raw materials such as steel, copper, textiles, and plastics. Currently, 36% of the total mass of a newly produced Renault vehicle in Europe is made from recycled materials, in which the whole recycling loop – from collection to transformation – remains in the automotive sector.¹²



5 Splosh

Splosh sells customers a one-off 'starter box', containing a range of simply designed bottles suitable for washing-up liquid. A sachet of concentrated liquid is added to the bottle. Bottles can be used repeatedly, with refill sachets delivered through the post.¹⁵

* The following international examples have been selected from publicly available information to assist with providing a context for this paper and are not associated with Australia Post in any way.



4 Five insights to transition to a circular economy

In this section, we explore the key drivers consistently rated in the literature and by organisations we interviewed as being essential to the future of the circular economy. These insights serve as sign-posts for people and organisations who are asking how will we transition to a circular economy. The insights are in order of importance.

Insight 1

Collaborate, collaborate, collaborate

Collaboration was the word most often mentioned in the first five minutes of our interviews.

“Connecting people up is essential. It just does not happen without collaboration, with or without government involvement.”



“We love the innovation opportunities the circular economy provides. It is underpinned by collaboration.”

The Ellen MacArthur Foundation, which facilitates a range of circular economy initiatives under its CE100 project, identifies collaboration as a foundation element to developing new circular economy opportunities and enabling the participation of corporations.¹⁶

Similarly social enterprise Circle Economy cites collaboration as one of seven key elements for delivering programs to accelerate circular economy outcomes.¹⁷ Case studies in this area also identify collaboration as a consistent core principle.¹⁸ Various online platforms to promote the circular economy have collaboration as a critical component,¹⁹ and it is one of six core elements for a new standard for implementing principles of the circular economy in organisations.²⁰

In terms of our interviews, a typical comment was “...you cannot build a circular economy alone, you need like-minded partners and you need to jointly work on solutions.” This means finding ways to facilitate collaboration. Conferences, thinktanks, industry associations, cross-industry groups were the most mentioned.

It is also about companies widening their gaze as to who they collaborate with. There is a need to look deep within the supply chain to develop innovative solutions. Material suppliers, manufacturers, distributors, customers all have a role as well as experts and regulators.

Several practitioners in our survey mentioned that you simply cannot be at arms-length in the circular economy. It is a co-designed system with an emphasis on finding synergies and building the connections from the ground up.



NESPRESSO: Co-design for innovation

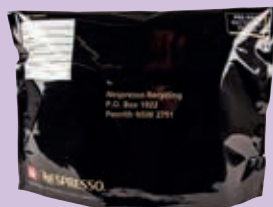
There are some products that Australia's waste systems cannot process, for example used **Nespresso** aluminium capsules cannot be recycled in domestic bins. In addressing this challenge, **Nespresso** partnered with a recycling plant in Nowra, NSW, to put in place a dedicated system to recycle **Nespresso** used aluminium capsules. Once separated, the process sees the residual coffee sent to an industrial composting facility to be transformed into compost, while the capsules are recycled and turned into new aluminium products.

Prior to the launch of the Australia Post Recycling Satchel, recycling options were limited to **Nespresso** Boutiques and collection points located within a network of participating florists.

Since September 2016, **Nespresso** customers can purchase a pre-paid resealable Australia Post Recycling Satchel, which holds up to 130 capsules, for \$1.90 from any **Nespresso** Boutique. They can also be ordered online or through the **Nespresso** Customer Relationship Centre.

This was a world first in innovative design allowing consumers the convenience of recycling coffee capsules using one of Australia Post's 15,000 street posting boxes or 4,000 Post Offices, resulting in a

Nespresso Recycling Satchel holds up to 130 capsules.



truly national recycling program. Australia Post and **Nespresso** collaborated to design the satchel to make it suitable for managing the wet, used products, ensuring the satchels retained liquids to prevent damage to other mail.

The commitment to ensuring all customers have access to convenient recycling solutions for their used aluminium capsules was a key driver. By utilising Australia Post's network of Post Offices and street posting boxes, **Nespresso** has created a program that offers its customers a nationwide recycling option.

The keys to success for this project? Proto-typing and testing in a pilot environment; adjusting the design to feedback; testing the design within the logistics environment (can it successfully get from A to B?); and making it simple for the customer so it fits into their everyday activities.

In June 2017, in Tokyo, Australia Post and its custom **Nespresso** Recycling Postage Satchel won a silver medal at the Stevie Awards for Innovation in Energy & Sustainability.

Insight 2

It's all about the business case

The need for a defensible business case is identified as both the biggest barrier and biggest opportunity facing the success of the circular economy.²¹



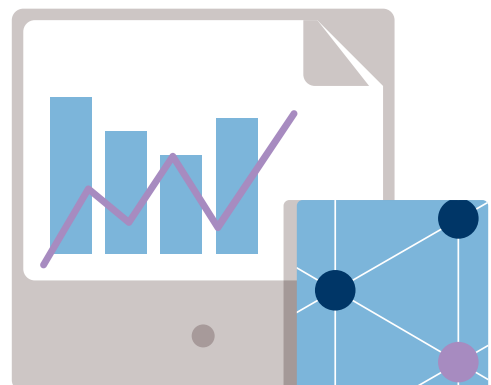
A defensible business case is identified as the key ingredient for the circular economy in the technology sector,²² and business planning and strategy are identified as key new capabilities of organisations adopting a circular approach.²³

More often than not, the focus on business cases is orientated around the supply chain,²⁴ but a question remains as to the role customer demand should play. This also goes for the brand and reputation benefit customers may attribute to companies active in delivering products based on circular economy principles. Additionally there is potential for such activity to increase customer loyalty and acquisition. These are currently underdeveloped drivers compared to the economics of the supply chain.

While the role of the business case was not mentioned up front in our interviews, it became clear that any circular economy initiative needed to stack up commercially in the eyes of the practitioners we surveyed. Without this, an initiative may not be sustainable, it may not grow, and might create a bigger problem down the track (for example if financial incentives were used which could not be sustained).



“At the end of the day it has to stack up commercially. The businesses case is everything. You cannot have a sustainable program without understanding the numbers.”





Insight 3

Make it (very) simple

It is believed that consumer behaviour will play an important, if not the most important role in the shift towards a circular economy.

Long formed habits mean that pure information about the ecological and economic benefits of a circular economy approach will not be sufficient to change the long-learned habits of consumers.²⁵

While our survey pointed to debate around whether behaviour change is more or less important than just tapping into customer expectations (say of millennials), one factor that many identified as key is making the participation of customers in the circular economy as simple as possible.

Principles around behaviour change suggest that once a consumer is aware of the opportunity or is contemplating change, the initial barrier to make the change needs to be as small as possible, and the experience from the change needs to be a more desirable position than before.²⁶

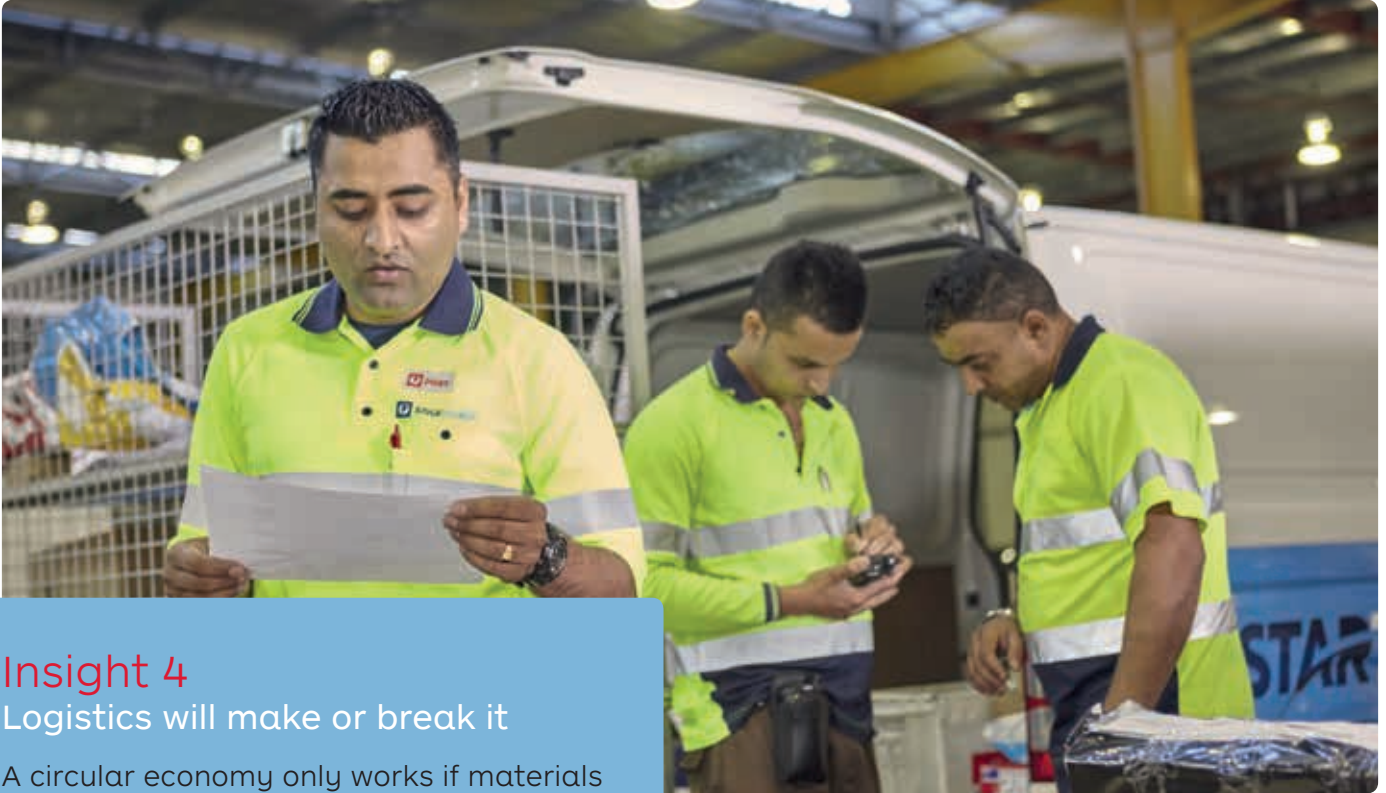
Those that are doing this well are online shopping companies. Our interviews showed they hold a clear understanding of not so much who their customers are, but to their customers' motivations. They live and breathe taking down any barriers for customers and obsess about the end-to-end process. Monitoring and reporting become critical, along with customer feedback and review.

Two key questions asked by companies we interviewed were: how do we make it super convenient to get the product to where it can be reused or recycled? And how do we add value to the process either to delight customers, or for them to value the recycling / return / reuse process? Putting the customer first is often cited as the key to success in the linear economy. Should it be any different in a circular economy?



“Make it easy for the customer, make customer service a priority, and understand your customer’s day to day life.”

“At the end of the day, the consumer will decide.”



Insight 4

Logistics will make or break it

A circular economy only works if materials can get to their next most valuable use. This is clearly a role for any logistics provider including Australia Post.

Returning products, or reverse logistics involves:

- ✓ Understanding requirements for return management and reverse logistics for different product types
- ✓ Assessing the maturity of planned or existing return management processes
- ✓ Improving reverse logistics to increase efficiency and enable optimised recovery and remarketing
- ✓ Establishing integrated logistics and increasing supply chain resilience as a result
- ✓ Increasing transparency on returned products and related secondary markets demand
- ✓ Strengthening and scaling-up a company's circular approach to leverage market potential.²⁷

Our interviews pointed to the primary challenge of dispersed collection points and the need to bring products for reuse to central processing points. Such logistics are significant in terms of cost and convenience for customers. There is also the challenge of setting up the collection point itself.

Logistics has a link with 'making it very simple' for consumers. The pathway for circular use of materials relies on making it fit within the everyday activities of the household or business. Logistics becomes the connecting point for where the consumer comes in contact with a collection point as they go about their daily activities. Collection points need to be ubiquitous. This is a point that is well explored by others in the logistic field.²⁸



“Logistics costs are increasing year on year and will become more important and more interesting on the innovation front.”

“The biggest thing is how you are going to get it back from the consumer in a way that matches how people currently behave.”



MobileMuster: Voluntary participation with high consumer demand

MobileMuster is the government accredited mobile phone recycling program, funded voluntarily by its members which include handset manufacturers and the network providers. The program was established in 1998 by industry to provide a free take back scheme for the end of life management of mobile phones and their accessories, preventing them from ending up in landfill.

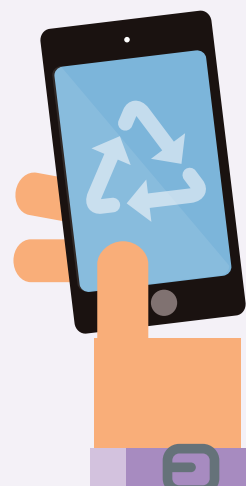
MobileMuster provides an extensive collection network of over 3,500 public drop off points including all major mobile phone retailers and over 360 participating local councils. These collection points make it easy and accessible for all mobile phone users to recycle mobiles. Alternatively, mobiles can be posted back to MobileMuster by picking up a reply-paid satchel from participating Australia Post outlets.

In addition, over 2,000 workplaces across the country participate by running internal collection drives.

The program accepts all brands of mobile phones along with their batteries, chargers and accessories. Everything collected is recycled to the highest environmental standards, with over 96% resource recovery through the recycling process. Any data left on devices is destroyed in the recycling process.

MobileMuster continues to invest in raising awareness on how and where to recycle mobile phones. The effect has seen a drop from 9% to 2% of people throwing mobiles out into landfill, plus an increase in the available collection rate by the program from 14% to 53%. In FY2017 the program collected 79 tonnes of mobile phone components.

Telstra is a member of MobileMuster and plans to reuse or recycle 60 tonnes of mobile phones and accessories over the next three years.



Insight 5

Getting all the way around the loop

In our interviews we examined the relative importance of different cycle types: recycle vs refurbish vs reuse vs redesign (for longevity or repair) as circular economy priorities.

There are six well accepted action areas for businesses wanting to move towards the circular economy:

- 1 Regenerate (for example through use of renewable energy and resources)
- 2 Share (which includes reuse)
- 3 Optimise (remove waste, improve product efficiency)
- 4 Loop (includes recycling materials)
- 5 Virtualise (dematerialising products)
- 6 Exchange (replace old with advanced new non-renewable materials).²⁹

Interestingly it is reuse which emerged as the most important driver in our interviews. One company has built reuse into the purchase options for its customers. They can now lease the product as opposed to making an outright purchase. Outright purchase adds to the perceived value of the product and hoarding behaviour when upgrading, as opposed to handing the leased product back for its next most valuable use.

Few in our survey had experience with refurbishing and redesign as cycle types but acknowledged that it was only a matter of time for these to become more prominent.

Recycle and reuse are the most common parts of the circular economy to date according to our interviews and are likely to be where scale can be delivered at least in the short term.



“Life extension is what we are talking about in this organisation. The discussion is moving beyond recycling.”

“There is a need to sort out short-term wins and medium-term wins. Recycle and reuse are the short-term ones.”

Case Study



PLANET ARK: Innovation in reuse of base materials with scale

Australians throw away more than 18 million printer cartridges every year.

More than 5,000 tonnes of material, including laser toner cartridges, inkjet cartridges, photocopier toner bottles and drums will eventually end up in landfill.

‘Cartridges 4 Planet Ark’ is a recycling program that provides Australians with a free environmentally-accredited way to recycle their used printer cartridges. The cartridges are collected and recycled by Close The Loop who also look after customer registration and reporting.

Close The Loop has created a unique reuse application for toner, through a partnership with infrastructure company Downer. Toner is used as an additive to asphalt to create a lower cost asphalt with a lower carbon footprint.

The ‘Cartridges 4 Planet Ark’ program has recycled more than 35 million cartridges via 30,000 businesses and over 3,000 retail outlets since 2003, and more recently has set a target to recycle 37 million printer cartridges before the end of March 2018.

TonerPave® asphalt has been laid in most Australian States and has become a mainstream product purchased by many councils across the country.

In all approximately 1,000km of suburban roads have been laid since the product was brought to market in late 2013.





Six key areas of debate

There are natural areas of tension or debate as to what is going to drive the future of the circular economy. We have identified six areas of ongoing discussion. Each was explored through our interviews with practitioners in the field. These are not either – or choices. It is about getting the balance right. Transitioning to a circular economy means working on all fronts.

1	Looking at the system	VS	Addressing the components
2	Supply of materials for reuse		Demand for materials
3	Behaviour change		Customer expectations
4	Policy		Regulation
5	Incentives		Self-sustaining programs
6	Business drivers		Cultural drivers

1

Systems view vs component view

If we are to transition to a circular economy it becomes a matter of where to start. Do we begin to fundamentally shift the way we look at the entire consumption cycle of a product or are we to look at how we can improve just part of that cycle?

A challenge put to us during the review phase of this paper was to ask: what is required to fully close the loop and create a true circular economy, one where components of a product can be completely used as the components of the next without the need to use new resources?

Put another way, how do we move from thinking about individual components of the cycle, for example recycling, to a systems view which looks at how one part of a system relates or interacts with the rest? A systems view, for example, would look at how a product would need to be redesigned so it could be fully recycled, or redesigned so it could be built out of recycled content. It would also look at how this could be done with minimal use of energy and where that energy comes from.

The point of debate which emerges is, are we better to start with what we can, for example a program to collect and recycle electronic goods, and then find ways to reuse these materials? Or do we start by looking at the system as a whole to maximise the chances of success for building a closed loop system?

This debating point is put forward first in this paper as each of the five other topics are components of creating a circular economy. What is clear is that if we are to realise the ambition of a circular economy, linking up the entire component parts will be required.

Supply of materials for reuse vs demand

The circular economy has been identified as a \$4.5 trillion opportunity.³⁰ But if this target is to be reached, how will demand be built and supply developed?



A 2016 study by the Australian not-for-profit e-waste collection and recycling service TechCollect found that 96% of Australians agree that recycling of used electronic goods is important, however 45% of the public do not currently recycle.³¹ A more recent survey by Australia Post echoed these results finding that across nine household and personal item categories, about 49% of respondents said they last disposed of these types of items via recycling or donations, 51% did not.³²

These results point to a gap between what could be recycled and what is being recycled. There is a significant gap in the supply of materials.

We explored supply issues in our interviews. A commonly identified problem was hoarding behaviour of electronic goods. The lack of supply was also identified by practitioners as being associated with a lack of collection points and the costs of logistics.

On the demand side, our interviews identified the lack of involvement by some large sectors of the economy in building new markets, for example in purchasing recycled goods. The demand side critics also identified a significant level of consumer behaviour change as being required as a precursor to building demand for reused or recycled products.

As discussed above, the circular economy will only fulfil its definition if we can move beyond recycling to proper closed loop systems where materials are fully recovered and reused in products needed by society. Steel, aluminium and copper are readily recovered and reused in new products. Some plastics can be recycled and reused for packaging or clothing, but other plastics are hard to separate or have no second reuse opportunity. There needs to be a home for all recovered materials in a manufacturing context.

Finding a home for recovered materials is a challenge. Consumers need to be willing to buy products with recycled or reused content - that is consumers need to be willing to go beyond just recycling to be willing to purchase products with that recycled content.

The use of recycled paper is a good example. Consumers recycle such materials and demand recycled paper back for everyday use.

For the circular economy to take off there is a need to build demand by creating accessible, desirable propositions that appeal to consumers. For this to happen, sellers and advertisers must be part of the journey too.³³

Either way – whether it is a supply or demand problem – market development requires a push and pull from both directions. Some of the precursors to creating demand and supply are examined further in the following debate points.



“Where governments can take a lead is with their procurement of recycled products. This will create markets.”

Behaviour change vs customer expectations

There is a point of debate about whether consumers need to change their behaviour about recycling or reuse of products (as examples), or whether companies and other organisations need to better anticipate consumer expectations.

The barriers to recycling have been well identified in several Australian studies. A 2016 survey by Australia Post identifies factors like having no recycling facilities close, a lack of information on where or how to recycle, and understanding what can be recycled. These are barriers for around 1 in 4 people.³⁴ This is also reflected in the work by TechCollect with 'I don't know where to start' identified by 46% of respondents and 'worried about personal data' identified by 38% of respondents as barriers to e-waste recycling.³⁵

At the same time there are expectations about organisations doing more. Around 17% of the Australian public can identify brands or organisations who should be doing more about recycling by providing a recycling service for their products.³⁶

The balance of the debate however appears to sit more towards the behaviour change end of the equation. Research quickly identifies emotional and motivation factors behind why consumers recycle or reuse or don't.³⁷ Why do people hoard? What role does guilt play in disposing of a product? Why do people place value in a product when it will soon have no value? These are emotional motivational drivers that need to be unpacked by those wishing to understand barriers for the consumer.

Unexplored areas in these surveys are consumer attitudes to other circular economy outcomes, for example take-back services, purchase of used goods, or purchase of more expensive goods which have been redesigned for environmental benefit.

There is also an overlap between what may be considered as a behaviour change versus the role of more effective marketing. One of our interviewees pointed to the role of marketing campaigns which led to a spike in reuse-type activity in their business. These campaigns focused on informing the consumer about the value of their used product, and about the need to spring clean — two key decision points for consumers.

In fact, out of the interviews we conducted, it was those whose business model operated entirely in the online world such as GlamCorner who had the most sophisticated view of their customer and motivations to reuse or recycle. Arguably it is this group who has their brand and reputation more closely linked to circular economy activities and expectations of their customers.

On the other side is customer expectations. Millennials (approximately 25 to 37-year olds) were singled out as where such expectations already exist: they were most mentioned as being an audience who expect companies to provide options around recyclability. They are also more likely to participate in the 'sharing economy' and pursue options to reuse products. This is not a small audience for some in our survey which led several to openly question whether behaviour change is really a core focus for the future of the circular economy.

And finally there is the issue of transparency. Our interviews highlighted that to build trust with consumers in the circular economy, greater transparency is needed on where recycled products go and how they are being used for the benefit of the environment. Better statistics, tracking and reporting are needed.

“Customers are simply expecting us to act – not all customers – but enough to start to build a business case. It extends into a useful marketing proposition.”

“It is not so much a case about behaviour change but tapping into moments when consumers are thinking about what to do with that used product.”



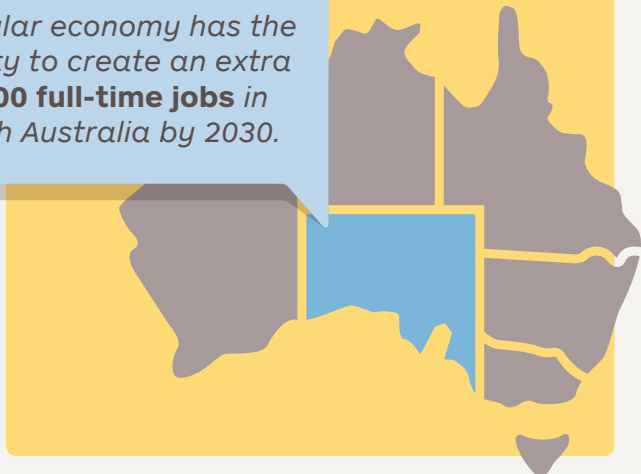
Policy vs regulation

Is a carrot or stick approach required to deliver change in this area? This was one of the more debated questions from our interviews, even from organisations which would traditionally be more carrot, less stick.

Multiple studies have demonstrated how the circular economy can help generate economic growth, create jobs, and reduce environmental impact. In the list of positive impacts identified across studies in various European economies, circular economy initiatives forecast the capacity to grow GDP by 0.8–7%, adding 0.2–3.0% in jobs, and reducing carbon emissions by 8–70%.³⁸

The “Creating value: the potential benefits of a Circular Economy for South Australia” study highlights how a more circular economy can achieve economic growth while reducing carbon emissions. According to the study, the circular economy has the ability to create an extra 25,700 full-time jobs in South Australia by 2030 in areas such as design and technology industries, services (including logistics), sharing (rental and leasing), reuse (repair, sales of second-hand goods) and recycling activities, whilst reducing South Australia’s greenhouse gas emissions by 27%.³⁹

*Circular economy has the ability to create an extra **25,700 full-time jobs** in South Australia by 2030.*



With such opportunity at stake it is clear that government policy and regulation has a role to play. Research out of Europe identifies two broad, complementary policymaking strategies to help accelerate the circular economy. The first focuses on fixing market and regulatory failures. The second is to stimulate market activity through targets,

new government procurement policy, creating collaboration platforms and providing financial technical support to businesses.⁴⁰

In our interviews, those who were more against regulation and more for a policy / carrot approach pointed to successful initiatives already underway, for example mobile phone recycling, where regulation was not required. Several were quick to add that it worked for them but is perhaps not working elsewhere, for example with plastic bags.

Those more in favour of a regulatory approach talked about a ‘free-rider’ problem where the activities (and costs) of acting are borne by the high profile and market leading companies with others being able to get away without having to invest in circular economy activities.

Most could see it would take a mixture of policy and regulation. Some rated policy and regulation as equally important.

Developing appropriate policies and regulation to support the circular economy is a well identified problem. In their 2016 study of the plastics economy, McKinsey & Company found that policy makers and regulators needed more up-to-date tools, data, and insights, and could benefit from a methodology for assessing opportunities, barriers, and policy options related to the transition to a new plastics economy.⁴¹ This appears no easy task: the circular economy policy toolkit prepared by the Ellen MacArthur Foundation runs to 50 pages of detailed assessment frameworks and processes.⁴²



“There is no doubt that for some forms of reuse or recycling that legislation is needed, but on others voluntary involvement seems to work.”

Incentives vs self-sustaining programs

This area of debate is about whether incentives are required to run the circular economy or whether it can get there through ‘social’ incentives, such as it becoming a societal norm to recycle or reuse, for example.

According to MobileMuster, financial incentives, awareness and access to recycling points continue to be the three main drivers which encourage people to recycle, with personal financial rewards continuing to be the primary motivation.⁴³

In a 2014 survey of waste management and recycling in European Union countries, several differences appear when looking at the socio-demographic profiles:

- ✓ Women are more inclined than men to take steps to reduce their household waste, especially avoiding buying over-packaged goods (65% vs. 59%), drinking tap water to avoid packaging waste (62% vs. 56%), and donating or selling items for reuse (70% vs. 63%).
- ✓ Age also has an impact on the type of actions to reduce household waste. People aged 55 and over are the most likely to avoid waste by buying exactly what they need (87% vs. 77% for 15-24 year-olds) and to avoid buying over-packaged goods (68% vs. 48% for 15-24 year-olds).
- ✓ People aged 55 and over are the least likely to make an effort to stop receiving unwanted mail (50% vs. 61% for 25-39 year-olds) and to donate or sell items for reuse (62% vs. 72% for 25-39 year-olds).⁴⁴



Various social changes are however underway when we look across demographics.

The results in the box to the left are interesting from the point of view of the lesser role played by younger generations in terms of actions around recycling and reuse. It is evident from some practitioners interviewed for this paper that incentives are needed to support recycling and reuse activities across these groups.

Those on the incentive side see the government, or manufacturers, paying the incentive (to recycle or reuse). Such incentives are viewed as an important primer for action.

Positive evidence about the role of incentives comes from container deposit recycling schemes. A review of 47 container deposit schemes around the world shows that on average they recover 76% of drink containers. In South Australia, one of the longest-running schemes in the world, recycle rates are 84%, 74% and 85% for cans, plastic and glass compared with national averages of 63%, 36% and 36%.⁴⁵

A more accurate way to look at such schemes could be to view them as transferring the cost burden of recycling the containers from local government back to the companies putting the products on the market in the first place. As such it is a commercial mechanism to create a stable marketplace as opposed to an incentive for improved consumer behaviour.

The question remains though how to move beyond incentives when a market for a product has been established. Most in our survey ultimately pointed to the need for such initiatives to stand on their own two feet.



“It is about education at a young age that we cannot live in a disposable economy. How can we instil that there is always another use?”

Business vs cultural drivers

In assessing their role in the circular economy, businesses are likely to look at both the risks of getting involved or not getting involved, balanced against the commercial opportunities.

The World Business Council for Sustainable Development identifies the primary risk for business from not actively pursuing the circular economy as increased resource scarcity and resulting fluctuating commodity prices. They identify the primary opportunity as tapping into GDP growth as sectors transition to a circular economy.⁴⁶

The Ellen MacArthur Foundation extends this list to include economic losses and structural waste (essentially costs associated with poor resource use), price risks (from volatile raw materials), supply risk (less resources) and regulatory trends, among others.⁴⁷

While these business drivers represent a rational set of drivers, it will rest with individuals to start the change within organisations. The important role corporate culture will play is recognised by some writers in this field.⁴⁸ In our interviews however, business drivers emerge more often than not as a leading factor of change to build a circular economy as opposed to it being in the culture of the organisation.

Many interviewees considered it as a mixture of both culture and a sound business case, that is it takes those with a leaning towards circular economy outcomes to educate an organisation and lead the business case development. The fact that a business case exists and delivers change in the organisation was cited by others as being a cultural change agent in itself.

Whatever the genesis, business cases are a must-have for any successful circular economy initiative, both in terms of risk assessment and in the opportunity to build new markets.



“

“Some companies were just not interested in how to reuse our products in theirs, but we found a like-minded person in that one company that made all the difference.”





To realise the commercial and environmental benefits from the circular economy we require a full understanding of the barriers affecting its growth.

Our examination of what is needed to transition to a circular economy identifies areas of ongoing debate as to where growth is going to come from as well as areas where effort is already delivering results.

A transition to the circular economy is most likely to be achieved through collaboration, transparent business cases, and making it simple for customers to participate in the circular economy. Logistics needs to be front and centre while focusing on reuse and recycling are likely to be the source of early wins.

In terms of areas where debate is still open we see value in encouraging greater systems thinking, initiatives to increase the supply of used goods as well as activities to support behaviour change as important drivers. These need to be matched with a balance of government policy and regulation to

set the rules and to encourage participation both by industry and the consumer. There needs to be limited reliance on commercial incentives and a recognition that cultural change combined with a focus on commercial outcomes is the best path for organisations.

In practical terms, we all need to be more willing to buy products with recycled or reused content. We may be active recyclers, but are we willing to buy products made with that recycled content? The circular economy needs a closed loop mentality.

Our interviews demonstrate there is no shortage of enthusiasm for the circular economy. They've also shown that there are sustainable business models in operation today. And while there is some way to go, there is growing clarity around how to effectively transition to a circular economy.

Participants in the interviews held by Australia Post on the circular economy and in the review of this paper.

Jean Bailliard

General Manager, TerraCycle

Britta Baumann

eBay, Head of C2C, eBay Australia & New Zealand

Jodie Bricout

Circular Economy Manager, Lifecycles

Matt Davis

CEO, Salvos Store

Carmel Dollisson

CEO, ANZRP

Michael Ebert

Environmental Specialist, Nespresso

Graz van Egmond

CEO Banksia Foundation

John Elliot

Managing Director, TOMS Australia

Marc Gauci

Head of eCommerce Business Development, Australia Post

Dean Jones

Co-Founder & CEO GlamCorner

Spyro Kalos

Manager – Recycling, MobileMuster

Megan McDonald

Senior Policy Officer, Climate Change, Department of Environment, Land, Water and Planning (VIC)

Sean O'Malley

Head of Research, Planet Ark

Troy Powell

Senior Advisor – Global Environment Strategy, Telstra

Peter Tamblyn

Sales & Marketing Manager, Close The Loop

Andrew Sellick

Head of Environmental Sustainability, Australia Post

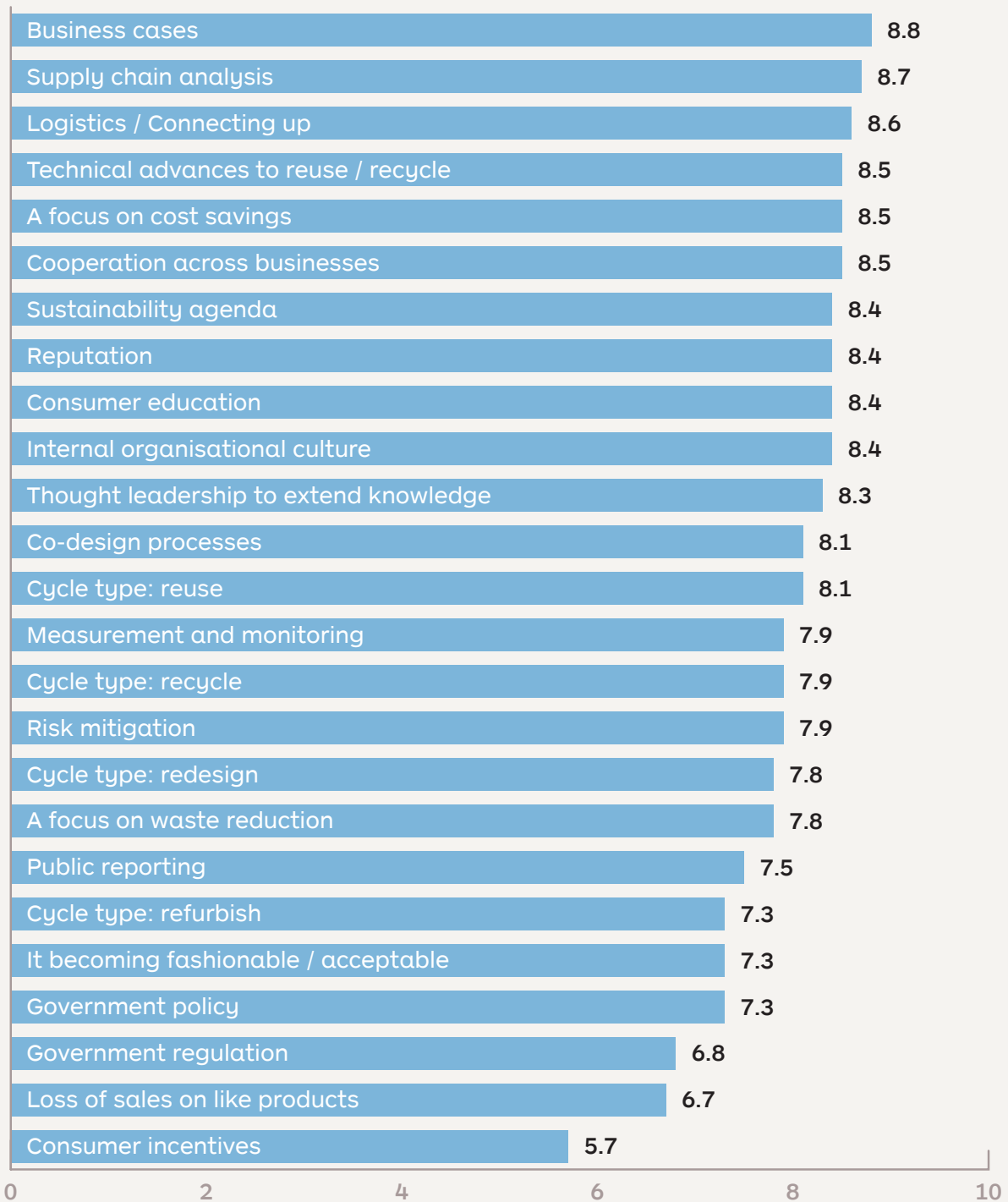
Amrik Sohal

Professor of Management, Monash Business School



Results from a discussion survey with participants during interviews on the role of different drivers in the circular economy.

Results rated from 1 (minor role) to 10 (essential role).



About the Revamp Network

The Revamp Network was established in November 2016 to provide a collaborative forum for stakeholders to share ideas and participate in opportunities that help drive better circular economy outcomes.

The primary focus of Revamp is to support opportunities - and in particular projects or research - that deliver both commercial value to participants and environmental or social benefit by reducing waste to landfill.

The Revamp Network operates in an open and transparent manner to ensure:

- Projects adopt a shared value approach – there must be commercial value for participants as well as environmental and/or social benefit (ie reduce waste to landfill)
- All stakeholders are equal – it's pre-competitive and non-exclusive
- Piloting and testing of ideas and projects is collaborative and iterative
- Information and knowledge is proactively shared
- Stakeholder diversity and relevance – a wide range of interests and points of view are represented and stakeholders can join and leave the group at any time.

Revamp is made up of a wide range of stakeholders. These stakeholders include (but are not limited to): corporates, not-for-profits, government (Local, State and Federal), community organisations, industry and peak bodies and academics.

Participating stakeholders have a shared interest and desire to co-create solutions that help Australia transition to a circular economy.

Members meet on a quarterly basis to share thinking, progress projects and research initiatives and identify new business opportunities.

Australia Post operates as 'the backbone' of Revamp by helping facilitate, host and coordinate Revamp activities and stakeholders.

Specifically Australia Post is operating in this role to leverage its assets and capabilities to help drive environmental, social and commercial value.



Other circular economy activities of Revamp members

Victorian landfill e-waste ban

Acknowledging the risks and opportunities associated with e-waste, the Victorian Government has committed to banning e-waste from landfill in Victoria. The e-waste ban will be designed to achieve a range of positive outcomes for the Victorian environment, community and industry.

Consultation on the e-waste ban is continuing with the preferred approach to the ban in place with some operational elements phased in as appropriate in early 2018.

For more information:

<https://www.environment.vic.gov.au/sustainability/e-waste-in-victoria>

Australian and New Zealand Recycling Platform (ANZRP) white paper

In response to the Australian Government's five year review of the Product Stewardship Act and subordinate legislation, ANZRP has released a white paper calling for modifications to improve the legislation.

ANZRP undertook research across all aspects of e-waste generation and disposal, and identified a number of matters to be addressed in the review.

The fundamental problem the paper seeks to address is Australia's increasing level of waste along with the fact that businesses and consumers know very little about existing e-waste collection systems.

For more information: <http://anzrp.com.au/wp-content/uploads/2017/08/ANZRP-NTCRS-and-PS-Act-Review-White-Paper-FINAL-Aug-secured.pdf>

Planet Ark small appliance study

Planet Ark is conducting research, commissioned by Australia Post, to better understand the opportunity to support collection of small appliance e-waste.

The research scope includes:

- Defining small appliance e-waste
- Legislation and controls/guidelines on e-waste collection and storage in Australia
- Existing e-waste schemes
- Identifying what products are suited to a recovery program
- Role of retailers, manufacturers and consumers
- E-waste recycling industry and capacity to manage extra volume
- Market for small e-waste (recovery and repair / reuse models)
- Potential business models to evaluate or pilot.

This research will be completed late 2017 with results made available early 2018.

- ¹For more information on the rate of consumption of the earth's natural resources see: <http://www.overshootday.org/>, <http://www.footprintnetwork.org/>, <http://www.stockholmresilience.org/research/planetary-boundaries.html>. For more information on climate change from an Australia perspective see: <https://www.climatechangeinaustralia.gov.au/en/>
- ²Murray, Skene and Haynes (2017): The circular economy: An interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics* 140:369-380.
- ³Lewandowski (2016): Designing the business models for circular economy – towards the conceptual framework. *Sustainability* 8(43).
- ⁴Geissdoerfer, Savaget, Bocken and Hultnik (2016): The circular economy – a new sustainability paradigm? *Journal of Cleaner Production* 143:757-768.
- ⁵World Business Council for Sustainable Development (2017): CEO guide to the circular economy.
- ⁶Scott 2015, in Lewandowski (2016): Designing the business models for circular economy – towards the conceptual framework. *Sustainability* 8(43).
- ⁷World Business Council for Sustainable Development (2017): CEO guide to the circular economy.
- ⁸Lewandowski (2016): Designing the business models for circular economy – towards the conceptual framework. *Sustainability* 8(43).
- ⁹<https://www.creatingvalue.net.au/>
- ¹⁰The following international examples have been selected from publicly available information to assist with providing a context for this report and are not associated with Australia Post in any way.
- ¹¹<https://www.timberland.com/modertrail/timberland-tires.html>
- ¹²<https://www.ellenmacarthurfoundation.org/case-studies/short-loop-recycling-of-plastics-in-vehicle-manufacturing>
- ¹³<https://www.ellenmacarthurfoundation.org/case-studies/brewing-beer-from-surplus-bread>
- ¹⁴<http://www.bio-bean.com/about-us/>
- ¹⁵<https://www.ellenmacarthurfoundation.org/case-studies/how-re-thinking-the-business-model-for-cleaning-products-can-influence-design>
- ¹⁶<https://www.ellenmacarthurfoundation.org/ce100/the-programme/enabling-collaboration>.
- ¹⁷The 7 being: prioritise regenerative resources; preserve and extend what's already made; use waste as a resource; design for the future; collaborate to create joint value; rethink the business model; incorporate digital technology. www.circile-economy.com
- ¹⁸Christiaan Kraaijenhagen, Cécile van Oppen and Nancy Bocken 2016 *Circular Business: Collaborate and Circulate*. 2nd Edition.
- ¹⁹See for example: <https://www.clustercollaboration.eu/tags/circular-economy/>; <https://connect.innovateuk.org/web/collaborations-circular-economy/>; <http://www.upm.com/circulareconomy/Pages/collaboration-and-partnerships.aspx>
- ²⁰BS 8001 - a new standard for the Circular Economy; <https://www.bsigroup.com/en-GB/standards/benefits-of-using-standards/becoming-more-sustainable-with-standards/Circular-Economy/>.
- ²¹UPS/GreenBiz Research Study (2016) The growth of the circular economy.
- ²²Tech UK (2015) The Circular Economy: A perspective from the technology sector.
- ²³Accenture (2015) Circular advantage: Innovative business models and technologies to create value in a world without limits to growth.
- ²⁴See for example Weetman, C (2016) *A Circular Economy Handbook for Business and Supply Chains*.
- ²⁵Planing P (in press) Business Model Innovation in a Circular Economy: Reasons for Non-Acceptance of Circular Business Models. *Open Journal of Business Model Innovation*.
- ²⁶For examples of behaviour change in an environmental context see <http://communitychange.com.au/what-are-the-best-theories-of-environmental-behaviour-change.html>.
- ²⁷CE100 (2016) Waste Not, Want Not: Capturing the value of the circular economy through reverse logistics.
- ²⁸The companies that we have come across with studies in this area include DHL and UPS.
- ²⁹www.ellenmacarthurfoundation.org ReSOLVE model: Ellen MacArthur Foundation, SUN and McKinsey Center for Business and Environment, Growth Within: A Circular Economy Vision for a Competitive Europe (2015). Based on S. Heck, M. Rogers, P. Carroll, Resource Revolution (2015).
- ³⁰Lacy P and Rutqvist J (2015) Waste to Wealth – The circular economy advantage, in WBCSD (2015) CEO Guide to the circular economy.
- ³¹TechCollect (2016): www.techcollect.com.au/the-e-waste-knowledge-gap-a-growing-epidemic/.
- ³²Australia Post Consumer Omnibus Survey, March 2017, Recycling results (national survey of 2345 respondents).
- ³³Fiona Bennie (2014) Circular economy needs consumer demand to gain momentum <https://www.theguardian.com/sustainable-business/circular-economy-consumer-demand-momentum-argos-primark>. This article is part of a circular economy hub funded by Phillips and hosted by The Guardian.
- ³⁴Australia Post Consumer Omnibus Survey, March 2017, Recycling results (national survey of 2345 respondents).
- ³⁵TechCollect 2016: www.techcollect.com.au/the-e-waste-knowledge-gap-a-growing-epidemic/.
- ³⁶Of the 17% who say 'yes' most in fact went on to identify local councils and government, followed by supermarkets. Australia Post Consumer Omnibus Survey, March 2017, Recycling results (national survey of 2345 respondents).
- ³⁷MobileMuster (2010) Australia: A nation of hoarders.
- ³⁸Ellen MacArthur Foundation (2015) Delivering the circular economy: A toolkit for policymakers.
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- ⁴⁰These factors are taken from and expanded in detail in Ellen MacArthur Foundation (2015) Delivering the circular economy: A toolkit for policymakers.
- ⁴¹McKinsey & Company (2016) The Circular Economy: Moving from theory to practice.
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- ⁴⁴Flash Eurobarometer 338 (2014) Attitudes of Europeans towards waste management and resource efficiency.
- ⁴⁵<https://theconversation.com/container-deposit-schemes-work-so-why-is-industry-still-opposed-59599>
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- ⁴⁸Valeria Guerrieri (2015) Culture as the caveat towards a circular economy, Worldwatch Institute Europe <http://www.worldwatch-europe.org/node/312>.



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