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Going Full Circle

Six focus areas for shifting Aotearoa New Zealand to a low carbon circular economy

SEPTEMBER 2021

IN PARTNERSHIP WITH





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1

What is a circular economy?





What is a circular economy?

In a circular economy waste is eliminated, resources are kept in use and nature is regenerated.

A circular economy is resilient and inclusive. Economic activity is distributed locally. Resource use is decoupled from economic growth.

A circular economy gives us the power to grow prosperity, jobs, and resilience while cutting greenhouse gas emissions, waste, and pollution.¹

It is a viable alternative to the predominant 'take-make-waste' linear economy.

“Being a circular business is about improving mauri [life-giving essence] in every interaction we have. It’s about enhancing the land, water, and air, as well as the people we interact with. This allows us to build resilience, have a competitive advantage and align our personal values to ‘what we do’.”²

1. [Ellenmacarthurfoundation.org](https://ellenmacarthurfoundation.org)

2. Quote from interviewee



2

Executive Summary





Executive Summary

Aotearoa New Zealand is facing a choice that will determine our economic prosperity, the state of our environment and the wellbeing of our people.

We need to choose whether to cling to the existing 'take-make-waste', linear economy that we have followed for around 80 years. Or to transition to a circular economy, where waste, pollution and greenhouse gases are designed out, materials are kept in circulation and natural systems are regenerated.

The evidence shows there is only one viable option for long-term economic prosperity. A low carbon circular economy means avoiding the costly extraction, creation and disposal of wasted resources. It means stopping current destructive practices and regenerating healthy, natural systems. The benefits are undisputed. However, transitioning to a circular economy involves a significant shift in the way we think, live and work.

The Sustainable Business Network (SBN) has been working to accelerate the transition to a circular economy in Aotearoa New Zealand since 2014. That year, we conducted a qualitative analysis of the status of the circular economy. Since then, we have led a study which quantified the economic benefits of a circular economy for Auckland at an additional \$8.8 billion. We have created a suite of practical circular economy resources; built New

Zealand's first product stewardship directory; created a Climate Action Toolbox; and trained hundreds of businesses in circular economy practices.

Since starting this work, others have joined the growing movement in Aotearoa New Zealand. Interest has been growing from Government agencies, the Climate Change Commission, Ministry for the Environment, Ministry for Business, Innovation and Employment, councils and many in the private sector.

This report assesses the state of the circular economy in Aotearoa New Zealand in 2021. It is the culmination of research, stakeholder interviews and seven years' experience helping Kiwi businesses adapt to a circular economy.

Progress is too slow

The report shows that while there are some signs of change, progress is simply too slow.

The speed of change is not commensurate with the urgency of the challenges facing us. The state of the climate, resource depletion and degradation of nature require immediate action. It requires a system-wide approach.

New Zealand businesses need to move beyond an incremental focus on recycling to much more progressive strategies that enable them to

transition to a circular economy. However they need the right systems in place to make this change easier.

The message to businesses is clear. If they do not start to adjust now, they are putting off the inevitable. They will suffer from rising costs, regulatory pressure, reduced market share, staff disenchantment and tainted brand reputation.

The report examines the state of play in the six areas we first identified in 2014. Progress is still needed in each in order to shift the current, entrenched, economic system to a circular economy:

- **Designing** for circular outcomes
- Stimulating **demand** for more circular solutions
- Adopting **business models** that promote circular practices
- Establishing accessible **infrastructure**
- Embedding new **technology**
- Developing **policy and legislation**



Early signs of progress

There are some early signs of progress of the emerging new economy:

- New procurement policies within corporates and government agencies are facilitating the adoption of more circular practices within businesses
- Increasing numbers of businesses are changing packaging to reduce single-use plastic. Some are taking this a step further to re-design products themselves to cut out unnecessary waste
- Some emerging businesses are adopting innovative business models to eliminate waste from day one
- Consumers are driving change by increasingly choosing products and packaging that won't end up in landfill
- Government is starting to signal and enact legislation as well as increasing investment to incentivise the shift to a low carbon circular economy, such as a phased increase in the waste levy. The incorporation of mātauranga Māori will lead to more progressive circular government activity

However, we need much faster progress. We are currently operating a dying model while doing little to allow the new to break through.

We need to unite behind a vision

If the private and public sectors in Aotearoa New Zealand can agree on a vision for a future circular economy 'end state', we will have a greater chance of achieving it.

A holistic and compelling vision would act as a guiding light for business, government and society. It would help drive action across the six key areas outlined in this report.

The vision and the action that follows should focus on bringing about a fair and equitable society, economic prosperity and regeneration of our natural environment. It should be based on net zero carbon and mātauranga Māori.

By incorporating mātauranga Māori at the heart we have the potential to create an inclusive and unique vision for Aotearoa New Zealand.

No business can make this transition in isolation. Businesses, government and communities need to work in collaboration. Each has an essential role in the transition, whether working on pioneering business models, business guidance, policy and regulation, or community engagement.

Aotearoa New Zealand has the opportunity to be a leader in the transition to a circular economy and provide inspiration and a pathway for other countries to follow.

The choice – and the opportunity – is ours.

A vision of a unique circular economy for Aotearoa New Zealand

In 2050 our economy will have been transformed. It will have achieved net positive carbon. Waste and pollution will have been eradicated. Our environment will have been regenerated. Our people will be thriving. We will be a role model for the world.

This will have been achieved by a fundamental shift by government, business and society to the wholesale adoption of a unique Aotearoa New Zealand circular economy.

Pioneering businesses will have trailblazed the transition by embracing circular business models. Government will have provided incentives. Society will be thriving through full and meaningful employment, and access to products and services that enhance wellbeing.





3

Introduction



Introduction

The global population is growing and we are using the Earth's resources 1.7 times faster than they can be replenished.

In developed countries, like Aotearoa New Zealand, that rate is much higher. Many of the resources we use are not renewable.

The Climate Commission reports show we are generating excessive amounts of harmful greenhouse gas emissions (GHGs) by the way we produce, use and dispose of products.

Ministry for the Environment reports show that our natural environments are being lost or are degenerating at alarming rates. The amount of plastic in our oceans is a visible illustration of the waste that results from a 'take-make-waste' economy.

We are leading in the wrong areas. Aotearoa New Zealand is amongst the highest generators of waste per capita in the Organisation for Economic Co-operation and Development (OECD).

It's clear we need to change the way our economic systems work as the current ways of operating cannot continue. They are failing us and failing the planet.

This change needs to take place rapidly, across all sectors and all parts of the country. We need the essential systems in place by 2030 in order to be among the global leaders.

The benefits of a circular economy have been well documented. Studies by the Ellen MacArthur Foundation indicate a plethora of benefits on a global level. They include an increase in disposable spending of 3000 euros per annum for EU households and a 48% reduction in carbon emissions by 2050.

Meanwhile, Auckland could generate an additional \$8.8 billion in economic activity in 2030, while reducing 2,700 ktCO₂e kilo-tonnes of carbon dioxide equivalent, if we shifted to a circular economy. That was the key finding in a 2018 study led by the Sustainable Business Network (SBN).

SBN has been working to accelerate the shift to a circular economy since 2014. Our approach focuses on identifying the most effective ways for introducing change and helping businesses take action. We apply circular economy thinking to help businesses design out waste, regenerate nature and act on climate.

Some of the outcomes of our work on the circular economy are: a suite of practical circular economy resources, a packaging masterclass series for businesses, creation of a product stewardship directory, creation of a Climate Action Toolbox and helping businesses regenerate nature.

Our previous work identified six key areas of action that are required to shift the current economic system to a circular economy:

- Designing for circular outcomes
- Stimulating demand for more circular solutions
- Adopting business models that promote circular practices
- Establishing accessible infrastructure
- Embedding new technology
- Developing policy and legislation

This report outlines the current state of those six key areas, primarily from a business perspective. It also looks at the barriers and business opportunities for increasing the speed and scale of the transition towards a circular economy.

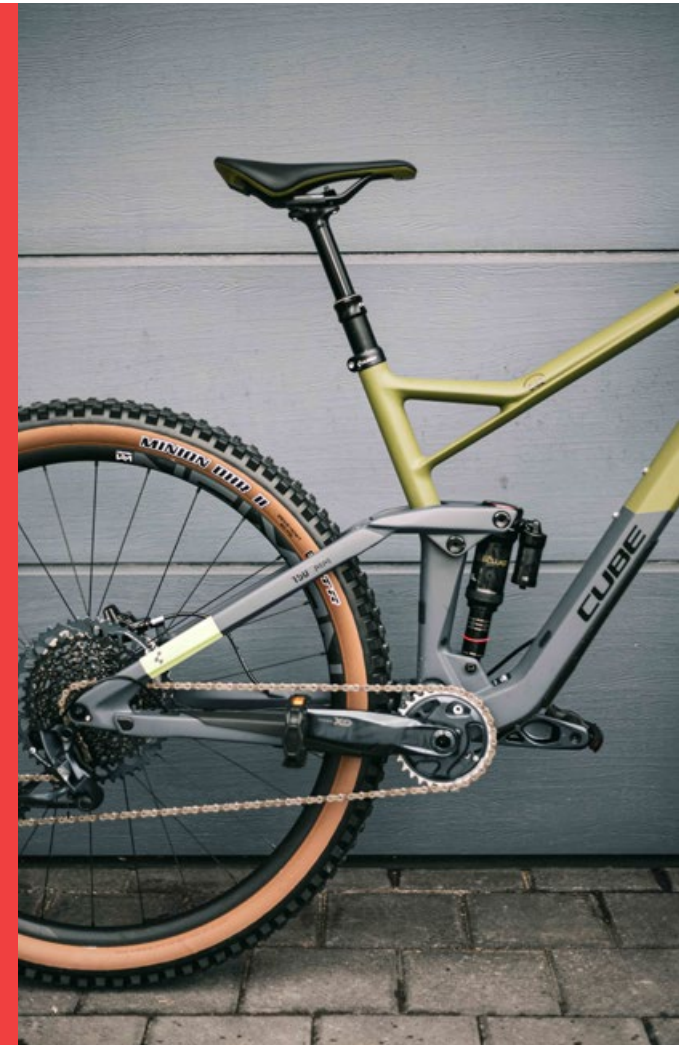


The role of the circular economy in achieving net zero carbon emissions

It is imperative that businesses recognise that circular economy and low carbon actions need to be intrinsically linked and incorporated into their strategies.

A circular economy is fuelled by renewable energy. However, a global study indicates that if we simply relied on a switch to renewable energy, this would only address 55% of global greenhouse gas emissions. A circular economy approach to transform how we design, make and use products and food is fundamental to addressing the other 45% of global emissions required to achieve net zero emissions.³

The Climate Change Commission report, *Ināia tonu nei: a low emissions future for Aotearoa*, recognises that while more data is required, a circular economy “would likely lead to significant emissions reductions”.⁴



3. climate.ellenmacarthurfoundation.org/

4. climatecommission.govt.nz



Methodology

Much of the information in this report has been gained from one-on-one interviews with more than 30 key stakeholders, each with their own networks of customers and suppliers. We have also gained information from the many organisations we have worked with on recent projects. Those projects have focused on product stewardship, plastic packaging and climate action for business. Desk research has also contributed to our knowledge. We have asked both broad and specific questions around the circular economy.

Scope

This study provides a high-level barometer on the current status, challenges and opportunities for Aotearoa New Zealand's transition to a low carbon circular economy from a business perspective. It scans across key sectors rather than going deep into any one.





4

Current status and opportunities for business





FOCUS AREA 1:

Design for circular outcomes

It is estimated that more than 80% of all product-related environmental impacts are determined during the design phase of a product.⁵

Changing how we design and make products is fundamental to the shift to a low carbon circular economy. Of course, we need to design solutions that meet customer needs. Those solutions need to use less resources and focus on materials that are safe, renewable and already in use. Products must be made to last longer and designed so they are easy to repair and, later, reprocessed when they reach end of life.

Status

What happens to a product when it reaches the end of its life continues to be the main focus for many businesses wanting to be more circular. Reinventing products and designing out waste in the first place has yet to become a real consideration. In general, businesses are working to divert waste from landfill. They are not looking further up the value chain at the full range of activities needed to create a product, or service, to tackle the root cause of why waste is being created in the first place.

Multiple businesses are usually involved in designing, making and selling a product. However, it is often the consumer that ends up taking responsibility for what happens to that product when it reaches the end of its life. In most cases the consumer has limited or no connection with the original creator. This 'dissolved' responsibility, as well as a lack of connection across the value chain and to the physical environment in which pollution occurs, are key factors in limiting the shift to a circular economy.

There is a lack of understanding about how a circular economy works. The convenient interpretation is that it is just about recycling. A focus on recycling, often the lowest value element of a circular economy, perpetuates current practices that are still based on a linear model, but with a bit of circularity thrown in.

“Recycling is a get out of jail solution to the linear model.”⁶

Moving beyond recycling and looking at higher value circular solutions, like reuse and repair, has key challenges for businesses. They are likely to involve fundamental changes to product design and material selection as well as production and distribution systems.

Some sectors appear to be slightly more advanced than others in terms of both circular narrative and action. Sectors with products that have shorter life spans, and where consumer pressure

for sustainable options is high, are seen to be demonstrating the greatest advances. We see this in the packaging sector and, to some degree, in the clothing industry. However, industries with products that have long life cycles tend to be focused on managing waste diversion rather than designing waste out from the start. An example is the construction sector.

While lean manufacturing processes are well embedded in some businesses, they focus only on designing out waste from production rather than considering a product's full lifecycle, including what happens to it at the end of its life. Product stewardship offers many businesses a tangible starting point for considering the redesign of their products to reduce waste.

Product stewardship is a concept where businesses take responsibility for the environmental impacts of the products they make, sell or buy.

This involves all stages of the product's life cycle, including end-of-life management. Product stewardship is growing in New Zealand. In 2020 there were 58 initiatives listed in [SBN's product stewardship directory](#).

5. [Europa.eu](https://europea.eu)

6: Quote from interviewee



Ministry for the Environment figures show more than 350 New Zealand organisations participate in one or more product stewardship schemes that are Government accredited. Collectively, these schemes have diverted more than 1.3 million tonnes of waste from landfill.⁷ However, impacts beyond recycling are yet to be seen at scale.

The circular design approach needs to be applied to the full range of activities needed to create a product. That includes raw materials, usage and end-of-life solutions. The challenge is that the majority of processes have been developed for a linear flow of materials. For example, [Citizen](#), an upcycled food and drink company, would like to use chickpea water (a by-product from making hummus) to make mayonnaise. It is a plentiful resource but production systems are not currently designed to capture it.

It is a similar story for many products that go straight into landfill at the end of their life as there are not enough systems in place to recapture valuable material. Multiple brands are offering return schemes but often the return rates are low. This is due to clunky collection systems that take too much effort and a lack of awareness of available solutions.

While designers may want to create circular products and systems, their brief is usually focused on performance and appeal. This is motivated by the desire to make a profit by gaining market share or establishing new markets.

Product designers will be better able to incorporate circular aspects when they align with these motivations.

Circular solutions are more likely to be adopted if a design change results in superior functionality (e.g. greater strength or less weight), or reduced cost. However, if it costs more, the impact on profit margins can be a stumbling block.

A lack of access to robust data makes it hard for businesses to navigate potential ‘trade-offs’ when considering design changes. For example, there can be a fear of making the wrong decision from an environmental impact perspective and inadvertently increasing carbon emissions. Life Cycle Assessments calculate the environmental impacts of different scenarios, but the cost can be prohibitive, particularly for small businesses.

There are opportunities to work with material suppliers and contracted manufacturers to understand where waste is being created and to improve processes or use obsolete or excess stock. For example, fashion brand [Maggie Marilyn](#) identified that unused fabric within its supply chain was the largest contributor to its waste-related impact. To combat this, the company initiated a recycling project at the end of 2020 and provided manufacturers with old cardboard boxes to collect offcuts. Maggie Marilyn is now collaborating with another clothing company, [Little Yellow Bird](#) (and other businesses), to send organic cotton offcuts overseas for recycling.⁸

Businesses can encounter an innovation gap when the solutions they need are not readily available. For example, there is a desire for packaging materials made from renewable resources. They need to be commercially recyclable and provide the same functionality as traditional plastic packaging. However, there are limited solutions commercially available.

A key limiting factor for transformative design change is that businesses do not perceive there to be a pressing need to change existing practices. The linear economy is still offering short term financial rewards. Furthermore, it is difficult to access advice from traditional business services such as administration, accounting and strategy that support and encourage a circular economy approach. There is an element of businesses being locked into the current system. All of the six action areas in this report need to be acted on simultaneously in order for businesses en masse to be able to take the leap to a circular transformation.

7. [Environment.govt.nz](https://environment.govt.nz)

8. [Cdn.shopify.com](https://cdn.shopify.com)



Opportunities for business

Use packaging as an entry point

The approach we are seeing businesses take to address plastic packaging provides a template for using circular principles. It introduces a range of considerations including business models, data to determine priorities, material choices, functionality, end-of-life processing, collaboration across the wider system in which the packaging interacts and the associated 'trade offs' inevitably required. Insights can then be applied to core areas, such as the actual product being sold.

Share success

Case studies that show how to approach circular economy opportunities can encourage others to take action. It is crucial to highlight how the costs of change are outweighed by the value they generate.

Take a longer-term view

Start thinking in decades rather than years. Design solutions fit for purpose in a new economy where waste is unacceptable, harmful materials are banned and emerging competitors have developed new solutions to address the changing scenario. A Te Ao Māori perspective has intergenerational timelines. All businesses can take inspiration from this.

Go beyond waste diversion

Look at circular economy opportunities as a way to transform business to be fit for the future. Set business goals to make this happen. Go beyond targets for waste diversion or increased recycling rates. Adopt targets that optimise the value derived from materials. Focusing only on waste diversion or recycling targets will limit the opportunity to embrace a circular future.

Simon Widmer, Design Network and Creative Lead at the Ellen MacArthur Foundation suggests three questions to start the circular design process: ⁹

- How might we design in a way that addresses 'user needs' AND that can work in the long term?
- How might we create products and services that fit into our (eco)-systems, and become 'food' rather than waste and pollution?
- How might we use design as a force for positive change and address the big challenges of this century, such as climate change and the loss in biodiversity?

Case Study

X-Frame builds for the future

The building industry is New Zealand's single largest contributor to landfill: buildings generate waste during construction, renovations and at the end of their lives. X-Frame is a structural wall framing system that allows walls to be cost-effectively deconstructed and reused, over and over again.

X-Frame is manufactured from sustainably-sourced (Forest Stewardship Council certified) structurally engineered timber. Precise computer-controlled milling machines shape modular parts that clip together into panels without the need for nails, screws or adhesives. The panels are self-braced and ready to receive building linings. Internal wall linings clip to the panels in an easily reversible manner, as do cladding materials and insulation products. The result is a wall that does not generate waste.

X-Frame aims to make the deconstruction and reuse of building materials standard practice. On construction projects using X-Frame, the quantity of waste sent to landfill is reduced by 86%. Direct material recovery and reuse rates are greater than 96%.

9. [Ellenmacarthurfoundation.org](https://ellenmacarthurfoundation.org)



FOCUS AREA 2:

Stimulate demand for more circular solutions

Increasing demand for more circular solutions is fundamental. This is a role we can all play.

It is also crucial for businesses to stimulate demand for circular solutions. They can do this by making sure their products outperform their 'linear' equivalents on aspects that resonate with consumers, such as functionality or desirability.

Status

In 2020, SBN conducted an online survey to gauge public awareness of product stewardship in Aotearoa New Zealand. It revealed 96% of respondents wanted products to be made from materials that could be repaired, reused or recycled. There was a strong desire (86%) for companies to take products back at the end of their life. It also showed that 96% of respondents would be more likely to buy from a company that offered a product stewardship scheme.

Organisations are certainly responding to that demand. The [SBN product stewardship directory](#) featured 58 product stewardship initiatives and more examples are frequently emerging.

The Better Futures 2021¹⁰ report indicates Kiwis are increasingly looking to repair or maintain products to avoid replacing them with new ones. Theoretically, this is increasing demand for repair services and maintenance materials.

Businesses are reporting an increased focus on sustainability in the procurement policies of larger organisations.

“...sustainable procurement is reaching a tipping point.”¹¹

Those organisations are increasingly asking their suppliers: How can you help us reduce our environmental impact? While this approach is helping to drive change, the reality is that the lowest cost frequently wins.

However, suppliers wanting to meet demand for circular economy solutions often face additional costs. Decisions need to be made if those costs can be absorbed, shared or recuperated. For example, some of the costs of [Resene's](#) Paintwise product stewardship scheme are paid by customers via a visible surcharge per litre.¹² [All Birds](#) sources shoe laces made from recycled plastic. While contributing to the brand's sustainability ethos they cost three times as much as the alternative. By making them an add-on product, the company can recoup some of the additional cost.¹³

[Victoria University of Wellington](#) committed to reducing the use of plastic milk bottles in its staff kitchens. It sourced a local supplier that provided a reusable glass bottle system. While the cost increased by 30%, the university now uses 30% less milk. This saving has come about from greater visibility of milk usage. Staff no longer take half empty bottles home at the weekend to prevent wastage. The switch to a reusable packaging system has essentially been a cost neutral exercise.

Government agencies must take steps to transition to a net zero emissions economy. Under government procurement requirements they must also design waste out of their systems. For example, with office supplies they need to purchase items that produce low amounts of waste and / or are recyclable.¹⁴

The crown entity Kāinga Ora has a target to reuse or recycle up to 80% of the building materials used on large scale development projects. This was recently extended to include small to medium-sized public housing developments in Auckland. Diversion targets will follow in other regions.¹⁵ Such targets are being included in procurement requirements.

Although crucial, an increased focus on sustainability when businesses procure products is only ever going to get us part way towards

10. [Colmarbrunton.co.nz/better-futures-report](https://colmarbrunton.co.nz/better-futures-report)

11. Quote from interviewee

12. [Resene.co.nz](https://resene.co.nz)

13. [Forbes.com/sites/christophermarquis](https://forbes.com/sites/christophermarquis)

14. [Procurement.govt.nz](https://procurement.govt.nz)

15. [Kaingaora.govt.nz](https://kaingaora.govt.nz)



a circular economy. The culture of mass consumerism needs to be confronted head on. Primarily, this needs to be done by making circular solutions more desirable and accessible than their linear counterparts.

For example, [Ethique](#) makes solid beauty products providing its customers with a plastic-free packaging solution. [BLUNT](#) builds umbrellas that are designed to last and can be repaired. [Ecostore](#) makes household cleaners and hygiene products using biodegradable ingredients and recyclable packaging. [Wishbone Design Studio](#) produces a children's bike that grows with the rider, reducing the need to purchase new bikes as they age.

[Maggie Marilyn](#) is working hard to break down the over-consumption culture created by the fast fashion industry. It has removed the business from wholesale traders. It now takes a seasonless approach and ignores the time pressures of the fashion calendar. This allows for the slow development of garments which are designed and marketed to be bought thoughtfully and kept forever. Clothing is never put on sale and garments continue to be advertised after they have sold. This helps reassure customers that those garments are still desirable and hold equal value to the day they were bought.

There are some issues around stimulating demand. We are starting to see new environmental claims being made as businesses begin to design products based on their understanding of the circular economy.

Making claims of products being 'circular' should be approached with caution, so as not to overstate or dilute the term. For example, there has been a boom in compostable / biodegradable products. Businesses using these terms without substantiation are creating confusion for consumers about what they actually mean. They also put themselves at risk of breaching the Fair Trading Act 1986. The [Commerce Commission](#) highlights these challenges and has put together some useful guidelines on environmental claims to help businesses get it right.

Another issue is that businesses are often unaware of the full availability of solutions other organisations can provide to help them increase their circular performance. To help address this SBN plans to expand its work on connecting circular solution seekers with providers.





Opportunities for business

Look at wider value rather than just the price

Understand how a sourcing decision can support the brand offering. Leverage the positive social and environmental impacts.

Embed circular principles into procurement policy

Stipulate elements such as durability and repairability. Ensure end-of-life solutions are provided by suppliers. Specify that, where feasible, items are made from safe and renewable materials. Make sure suppliers are not passing on a waste problem.

Consider whole-of-life implications

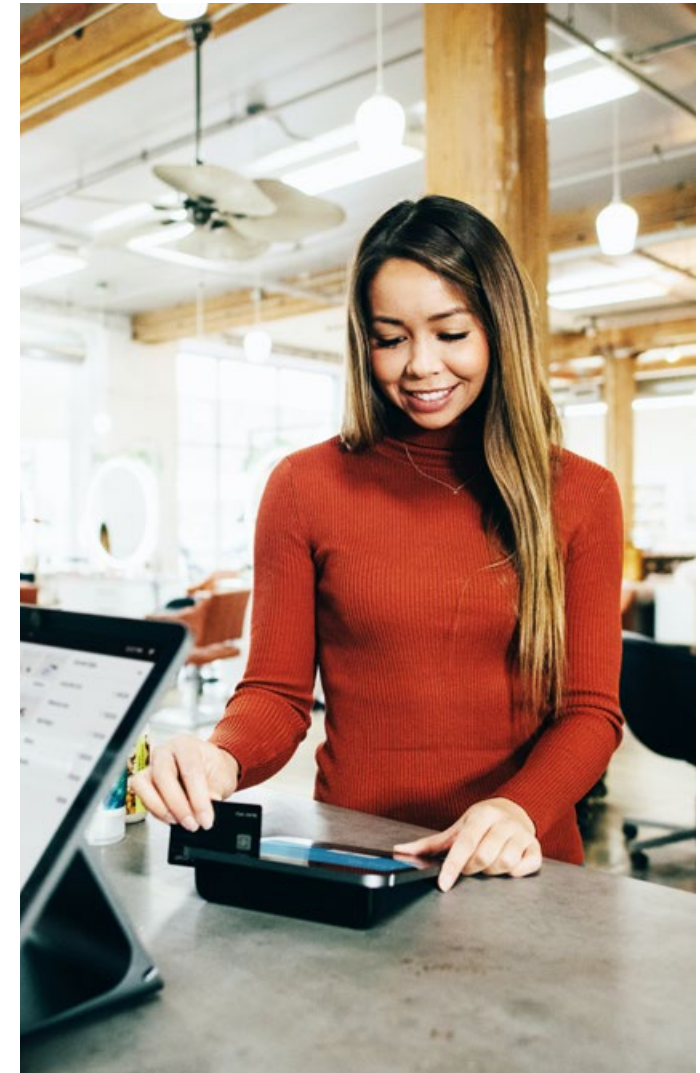
Cost, of course, is crucial. Analyse the total cost of ownership rather than just the purchase price. A product with a short life span may be cheaper. However, a longer lasting circular solution may provide better value when factoring in the whole-of-life costs. This can provide a strong financial incentive.

Respond to consumer signals

Consumer research consistently indicates a growing desire among consumers to make more sustainable purchasing decisions. Use circular design as a foundation to meet this demand in ways that are desirable to your target consumers

Work with other organisations

It is difficult for businesses to transition to more circular practices on their own. Early next year SBN will launch an online directory of businesses offering circular economy-based products and services.





FOCUS AREA 3:

Adopt business models that promote circular practices

Alternative business models offer opportunities to move away from individual ownership and single-use products.

These models include 'product as a service' where the consumer buys a service provided by a product rather than the product itself. This puts the responsibility for maintenance and end-of-life considerations onto the manufacturer rather than the customer. Incorporating the 'reuse' of products and materials into the business model, by definition, increases usage rates. The 'sharing economy' model can increase the use of assets by allowing them to be accessed by multiple users.

Status

There are a number of sectors where 'product as a service' offerings are the norm, such as software and office equipment, like photocopiers. In other sectors, such as transport, the model is emerging. However, we are yet to see significant new movement across the majority of sectors.

Commercial lighting, for example, has been

heralded as a sector suitable for a 'product as a service' model. The supplier retains ownership of the lighting fixtures and charges for the amount of light (lux) that the customer uses. As the supplier maintains ownership, it is incentivised to keep the lighting assets in use for as long as possible, rather than selling replacement units. The customer is incentivised to use less light, and therefore power. Plus, there are no upfront costs.

Despite the theoretical benefits, this 'pay per lux' model has not been adopted in Aotearoa New Zealand. One contributory reason for this is the business accounting system. Companies prefer to place assets on a balance sheet to be depreciated, rather than increasing operating costs.

Transport is one area of growth in the 'product as a service' model. Multiple car 'subscription' services are now available in New Zealand. [Ubco](#) offers a subscription service for its electric utility motorbikes. The business retains ownership and responsibility for the vehicle, including what happens to it at the end of its life.

Sharing platforms have emerged with varying degrees of success. [Mutu](#), a platform to share household goods, has recently gained funding.¹⁶ Meanwhile, the YourDrive platform for personal car sharing closed in 2020 after five years of operation.

Reuse, or the secondhand market, is gaining momentum in sectors such as clothing and office furniture. Trade Me is experiencing increased volume and value for second-hand goods being sold via its platform.¹⁷ This has been driven by a

number of factors including the impact of the Covid-19 pandemic and international logistics issues making it more difficult to source new products.

Multiple initiatives are in play for increasing reusable packaging. These include coffee cups, such as [Again Again](#) and [NZ KeepCup](#), and takeaway containers, like [Reusabowl](#) and bring-your-own container initiatives.

Barriers for reuse still exist, particularly when associated with performance or health and safety issues. The Building Code, for example, prohibits the reuse of materials in buildings for structural reasons. Safety priorities also hinder the reuse of materials in areas such as food preparation and healthcare.

Businesses, like [MedSalv](#), are emerging that overcome some of these regulatory barriers.

16. [Teohaka.co.nz](#)

17. [Stuff.co.nz/business](#)



Opportunities for business

Embrace reuse

Maximising product reuse makes financial sense for businesses. Customers are increasingly adopting reuse models, particularly in the areas of packaging and secondhand goods. Reuse also helps promote the need to design and use products that are more robust and last longer.

Expand the 'product as a service' model across new sectors

This is already working in sectors such as office equipment, software and transport. This model encourages the supplier to maximise the value of the asset across its life cycle, including what happens to it when it reaches the end of its life.

Case Study

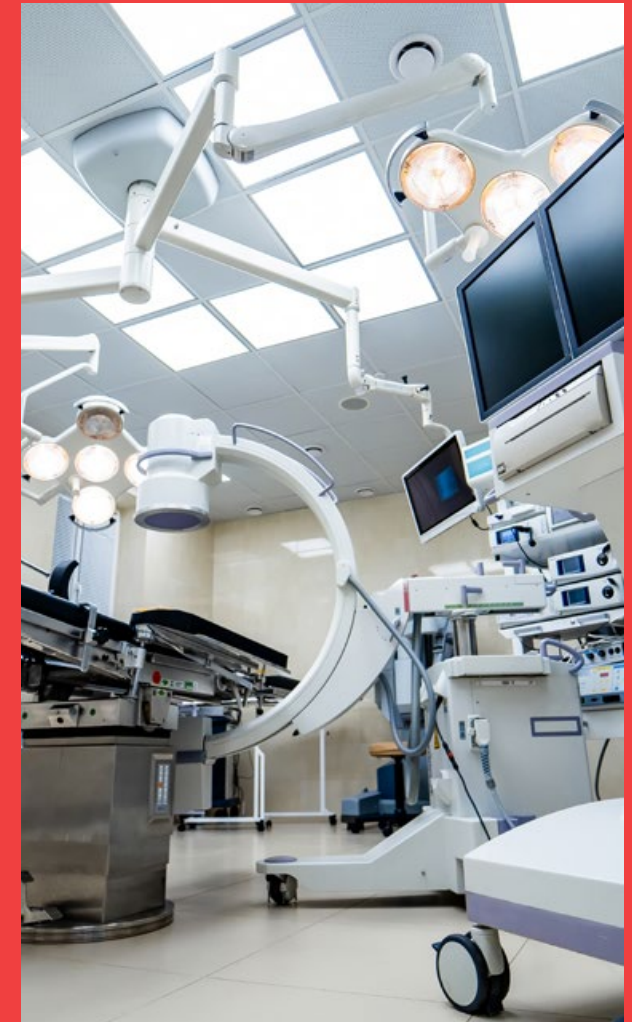
Medsalv injects new life

Medsalv reprocesses single-use medical devices, to reduce both the alarming waste associated with healthcare, and the costs.

It takes medical devices that would ordinarily be destined for landfill after one use, checks them, cleans them, inspects and repackages them, and sells them back to hospitals at a fraction of the cost of new. It uses reusable bags and cartons to collect and deliver the devices and recycles devices that are beyond repair.

Medsalv has increased the resource efficiency for devices it processes by 500% (five additional uses) and diverted almost all rejected device materials (those that cannot be reprocessed) away from landfill and into recycling. It has reduced the potential waste generated by more 84%.

The service also reduces the number of medical devices manufactured and shipped to New Zealand, reducing carbon emissions. High fidelity tracking systems have been implemented to monitor impact and improve efficiency.





FOCUS AREA 4:

Establish the infrastructure that enables a circular economy

Access to the infrastructure that enables the reprocessing and redistribution of goods and materials is a fundamental requirement for the transition to a low carbon circular economy.

It incorporates hard infrastructure, such as reprocessing plants. It also includes logistics options as well as soft infrastructure, such as data capture.

Status

New Zealand has a small population base that is geographically dispersed. This, perhaps, puts us at a disadvantage compared to other countries that have the scale to establish the required infrastructure and make it accessible on a national level. The investment we make in infrastructure today will establish the systems we have in place for the next 30 years or more. Establishing a circular economy requires a rethink of our current waste infrastructure so materials can be reused, repaired, refurbished and recycled.

Organisations operating circular business models, where the aim is to extend product life, often have to absorb the collection and processing costs. On the other hand, businesses operating a linear 'take, make, waste' model pay no costs for recycling or waste disposal. Instead, those costs are paid by our communities. This provides those businesses with a financial incentive to stick with the status quo.

In 2018 China banned the import of low-quality materials for recycling. This was a catalyst for all countries to start processing more of their own packaging waste. In New Zealand we do not have the infrastructure, like collection and washing facilities, that is needed to support reusable packaging. Instead, businesses are redesigning their packaging for recyclability. This is putting more pressure on our recycling and landfill infrastructure.

A container return scheme could be an initial step to creating infrastructure for reusable drink packaging in New Zealand. This is being investigated by the Government.¹⁸ Every year Kiwis use 2.36 billion single-use drink containers made out of glass, plastic, aluminium and paperboard. Many end up in landfills, or littering our streets, streams, beaches and other public spaces.

Container return schemes work by incentivising consumers and businesses to return drink containers for recycling and / or refilling. They do this by including a refundable deposit (e.g. 10 cents or more per container) in the price of purchase.

Consumers get their deposit refunded when they return their empty container(s) to a designated drop-off point for recycling.

The Government has made an effort to reduce waste to landfill and boost funding for waste minimisation programmes across Aotearoa New Zealand. It is doing this by increasing the municipal waste levy from \$10 to \$60 per tonne by 2024.¹⁹ Funds generated by the waste levy will be invested in waste management and recycling infrastructure and waste minimisation projects across the country.

Unlocking government funding, via the Waste Minimisation Fund, for waste infrastructure is a lengthy process. However, there are plenty of opportunities for private investment. While there has been a boom in the number of local and international investment funds for climate related projects, only a few have targeted circular economy / waste management projects.

To identify where to focus resources we need transparent and reliable data. Public data on material flows in recycling and waste volumes at a national level is extremely limited and often lacks detail. Even rarer is data that helps us to value solutions such as reuse, remanufacturing, and repair.

18. [Environment.govt.nz/what-government-is-doing/areas-of-work/waste/container-return-scheme-reducing-waste-landfill/](https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/container-return-scheme-reducing-waste-landfill/)

19. [Environment.govt.nz/what-government-is-doing/areas-of-work/waste-disposal-levy-expansion/](https://environment.govt.nz/what-government-is-doing/areas-of-work/waste-disposal-levy-expansion/)



Measuring the type and amount of materials we use and discard is a prerequisite for appropriate management and monitoring. It is also vital to helping us make evidence-informed decisions around where we direct resources to improve our use and management of materials, and to track their effectiveness.

Now is a critical time to initiate the collection of high-quality data on materials to better understand the baseline. That will show us where we can improve. It will also inform practical and meaningful decisions in the short-term.

Digital infrastructure plays a crucial role in New Zealand's transition to a circular economy. Digital platforms make it easy to share goods and services and enable efficient forms of data capture. This can further inform investment into hard infrastructure. For example, [GS1 New Zealand](#) is currently working with retailers and brands to identify how to incorporate packaging information into barcodes. This will create a better understanding of the volumes of packaging in use. It will also enable more accurate infrastructure investment and policy decisions.

Accessing underutilised capacity within existing infrastructure is an opportunity. Digital platforms, like [FreightHub](#), can enable the aggregation of any spare capacity and co-ordinate demand. Meanwhile, [CivilShare](#) links businesses to excess materials and spare machinery in the civil construction sector.





Opportunities for business

Collect, aggregate and open source data

Increasing our understanding of the type and volume of waste created in Aotearoa New Zealand will help us make the right decisions for investment in infrastructure. Also, greater transparency of what and where waste materials are being produced creates more opportunities for businesses to use those resources.

Don't lock in a linear system

Recycling and composting could be made more efficient and accessible in Aotearoa New Zealand with investment. Before we race ahead, we need to rethink how we can systemically shift away from creating products that are designed to be used for a short period of time and then recycled or composted. This means we need to be investing in infrastructure that allows us to operate higher up the waste hierarchy, enabling products to be reused or repaired rather than focusing on recycling. For example, investing in centralised washing and distribution infrastructure would encourage businesses to start using reusable packaging. This would reduce the quantity of packaging that needs to be composted or recycled.

Case Study

Foodprint puts icing on the cake

Foodprint is an app. It connects consumers with eateries that have surplus and imperfect food that would otherwise be thrown out.

The app is a two-sided marketplace: each day eateries list and discount unsold food or food unlikely to sell. Via the app, users purchase that food and collect it in-store.

The pick-up model encourages customers to eat locally and connects them to the kitchens and eateries preparing their meals. The benefit for participating eateries is that they can monetise what would otherwise become food waste – a circular solution.

In Aotearoa New Zealand, cafés, restaurants and supermarkets produce more than 50,000 tonnes of food waste annually. Over 60% of that waste is avoidable because the food is still fit for human consumption.

Food waste is hugely damaging to the environment and expensive to the hospitality industry. Eateries that use Foodprint are clawing back up to \$10,000 per annum.





FOCUS AREA 5:

Embed new technology to enable a circular economy

The marriage of physical and digital technologies, such as artificial intelligence (AI), robotics, Internet of Things (IoT) and 3D printing, is enabling a technological revolution that is fundamentally altering the way we live and work.

It has been called the Fourth Industrial Revolution, also referred to as Industry 4.0. These technologies increase efficiency and productivity and will help the shift to a circular economy. For example, AI can be used to predict when machinery will need maintenance. Blockchain technology can track materials across their life cycle and help increase rates of recovery.

Status

Embedding new technology starts with early adopters and more niche applications. New technology-based solution providers are emerging.

They include businesses like Hamilton-based company [QOROX](#) that provides 3D printing solutions for concrete structures²⁰ and [Mint Innovation](#) that refines precious metals from e-waste. Existing businesses are often slower to adopt these types of technology. [Lion](#) is one company that is embracing new opportunities. It is piloting predictive analytics technology to improve the monitoring of the centrifuges, pumps and motors that underpin its beer-brewing operations.²¹

International studies by Deloitte found that “executives have yet to recognise or embrace the potential of Industry 4.0 technologies to advance societal or environmental issues”.²² Two-thirds of the organisations surveyed had no formal strategies, or were taking an ad hoc approach to Industry 4.0 technologies. Meanwhile, businesses with comprehensive strategies were seen as far more successful and were innovating and growing faster. They were also doing a better job of attracting and training the people they will need in the future.

The Deloitte reports show that many industries and sectors in New Zealand are wary of emerging technology and early adoption. Despite recognition of the need to invest in technology to drive new business models there can be a lack of internal strategic alignment. There also appears to be a bias towards focusing on what is working well today rather than planning for the long term.²³

Opportunities for business

Take a strategic approach to implementing technology

Start by determining requirements to remain competitive in a rapidly changing business environment. This will help reveal if new technologies can play a role. Clearly define goals and prioritise actions to increase circular economy related competitiveness in alignment with core business strategies. Consider areas where technology can help, such as improving process efficiency, user experience, product quality, asset and product management across the life cycle and new revenue streams via enhancing existing and new business models.

20. [Stuff.co.nz/business](https://stuff.co.nz/business)

21. [Callaghaninnovation.govt.nz](https://callaghaninnovation.govt.nz)

22. [Deloitte.com/insights](https://deloitte.com/insights)

23. [Deloitte.com/technology](https://deloitte.com/technology)



FOCUS AREA 6:

Develop policy and legislation to direct, support and enforce the transition

Policy and legislation set the rules that will enforce a circular economy.

Detailed policy recommendations are, however, outside the scope of this report. Work has been done by other organisations and governments that provides detailed frameworks and examples. We consider policy and legislation primarily from a business perspective.

Status

There has been an increase in policy signals and legislation over the past couple of years. This is positive, although long overdue. Those moves have included funding for infrastructure, plans to ban problematic materials, regulated product stewardship and an increase in the waste to landfill levy.

They provide an increased level of certainty around a direction of travel for Aotearoa New Zealand, and a promise of targeted investments. They also improve the prospect of a more even playing field where more progressive businesses do not

have to subsidise ‘free riders’. Regulated product stewardship will put the onus on all businesses in a sector to take responsibility for the products they make, sell or buy. However, there is a sense that significantly more needs to be done to speed up the circular economy transition.

“The current rate of incremental change is death to a circular economy. We need boldness to shift the system.”²⁴

For example, the waste levy increases are not predicted to significantly drive behaviour change as they will not dramatically change the cost of sending waste to landfill. The government’s national waste strategy, currently under development, will help if it focuses on designing waste out of the system rather than managing it. The rūpū of Māori experts guiding the strategy²⁵ according to mātauranga Māori has the opportunity to establish more transformational outcomes.

However, at a more fundamental level, a coordinated and bold approach across government agencies is essential if we are to maximise the policy opportunities to make a significant difference.

Increased levels of coordination with Crown Research Institutes, such as Scion and Callaghan Innovation, and partnerships with relevant business organisations, will also provide more coordinated support to enable the transition to a circular economy.

Opportunities for business

Tune into and start adapting to signals from government

Disposing of waste will become more expensive. Taking responsibility for goods will become increasingly regulated, both in Aotearoa New Zealand and in export markets. Start adapting to become more circular. Do not wait to be forced. Avoid the risk of falling behind competitors.

24. Quote from interviewee

25. [Environment.govt.nz](https://environment.govt.nz)



Considerations for exporters

Aotearoa New Zealand is certainly not leading the transition to a circular economy on a global scale at present. As a result, exporters are facing overseas markets that have increased expectations for circular solutions. They are also responding to new rules encouraging the shift away from linear economy practices, like mandatory product stewardship packaging and 'right to repair' legislation.

The European Union, for example, approved the Circular Economy Action Plan in March 2020. This provides measures for business, public authorities and the consumer to adopt a more circular model.²⁶ The Dutch Government has a programme in place to achieve a circular Dutch economy by 2050.²⁷ In July 2021 China released the Development Plan for the Circular Economy as part of its 14th five-year plan. This aims to develop the circular economy through multiple initiatives such as product design, remanufacturing, increased use of renewable energy as well as increasing recycling levels.²⁸

It is difficult for exporters to navigate these issues from afar when local knowledge and

networks are often the key to providing solutions. Furthermore, the circular solutions in export markets are still emerging and are not widespread. Distance also means that getting products back from overseas markets for repair or end-of-life processing is unlikely to be viable. Solutions to these issues are needed.

Developing more distributed manufacturing and local servicing options in key markets is an obvious strategy to help overcome these geographic challenges plus unlock other circular economy benefits.

Prioritising key markets to grow knowledge and strengthen relationships is an alternative starting point. Of course, differences in culture, infrastructure and legislation mean strategies are likely to differ between locations.

To navigate these challenges, businesses should work with organisations in key markets that can help them to understand and connect with local support infrastructure.

26. [Europa.eu/environment/strategy](https://europea.eu/environment/strategy)
27. [Government.nl/topics/circular-economy](https://government.nl/topics/circular-economy)

28. [China-briefing.com/news/chinas-circular-economy](https://china-briefing.com/news/chinas-circular-economy)



The impact of Covid-19

Issues with supply chains and logistics, as a result of the disruption caused by the Covid-19 pandemic, are a key challenge for businesses right now. Products and materials are slow to source and prices are increasing. International freight costs have grown exponentially.

“Shipping is our single biggest headache.”²⁹

For many New Zealand manufacturers and suppliers, dealing with these critical supply issues is the top priority that eclipses longer term strategies for improvement and growth.

However, a shortage of materials is forcing businesses to look at more circular solutions to some degree. This includes reducing the number of components that a product requires, investigating the use of more durable components, and looking at opportunities for sourcing more materials in Aotearoa New Zealand.



29. Quote from interviewee

A large, bold, white number '5' is positioned on the left side of the page. To its left, a large red circle is partially visible, and at the bottom left, there are three vertical red bars of varying heights.

SBN ongoing action areas



SBN ongoing action areas

Based on the work we have done over the last few years, and the findings in this report, SBN is working on a number of initiatives to help accelerate Aotearoa New Zealand's shift to a low carbon circular economy.

These are all carried out in partnership with our collaborators and programme investors.

- Go Circular 2025 is a new initiative to provide practical tools and inspiration for businesses to implement circular economy practices. Partners include the Ministry for the Environment, New Zealand Trade and Enterprise, Waste Management and Ōhakiwio Aotearoa.
- A business-to-business directory of organisations that provide circular-based products and services will be launched in 2022. It will include practical information and case studies.
- A Circular Economy Cluster of businesses will share knowledge and investigate collaborative opportunities to increase collective competitive advantage.
- A digital platform where consumers can send products back to manufacturers to be repaired, reused or recycled is being developed by SBN and NZ Post.
- The Packaging Masterclass series helps businesses navigate packaging challenges so they can become more circular. The 2021 Masterclass is scheduled for 19 November (Covid-permitting).
- The Going Circular category of the Sustainable Business Awards features organisations successfully using circular economy principles. The finalist stories are widely promoted to inspire others. In 2021 there are 11 finalists in this category.
- The [Climate Action Toolbox](#) helps businesses reduce their carbon emissions. It includes advice on designing products so they last longer or get a second life.
- The [Sustainable Procurement Leaders Group](#) includes 37 of Aotearoa New Zealand's biggest procurers. Together they have defined best practice for sustainable procurement and its implementation.
- Our work in regenerating nature has grown with significant funding from the Government's Covid relief programme, Jobs for Nature. The aim over the next five years is to create meaningful circular economy jobs, led by mana whenua and communities, that build a workforce skilled in low carbon, regenerative and circular practices.



6

Conclusion





Conclusion

There are some signs of progress in Aotearoa New Zealand's transition towards a low carbon circular economy.

There is evidence of progress in procurement. The Ministry for the Environment is taking the proactive step of integrating mātauranga Māori into its wider work programme. In particular a rōpū of Maori experts is providing guidance on the National Waste Strategy in development. It has introduced new policies that are increasing the adoption of more circular business practices. The Government has signalled that further policy changes are on the way.

An encouraging number of emerging businesses are incorporating circular economy thinking into their business models. Such models include 'product as a service' where consumers buy the service provided by a product, rather than the product itself, and the sharing economy, where assets can be accessed by multiple users.

As demand increases, a growing number of businesses are improving their packaging, reducing the amount of single-use plastic ending up in landfill.

People are increasingly choosing products that don't contribute to Aotearoa New Zealand's waste volumes.

And the term 'circular economy' itself has gained traction and is more widely used, albeit not fully understood.

However, progress is too slow.

The speed of change is not commensurate with the urgency of the challenges facing us. The state of the climate, resource depletion and degradation of nature require immediate action.

In response, some businesses have translated 'circular economy' to mean simply 'recycling' but these are different concepts. Businesses need to implement much bolder strategies that enable them to transition to a circular economy. This may involve some short-term pain but if businesses do not start to adjust now they are putting off the inevitable. They will suffer from rising costs, regulatory pressure, reduced market share, staff disenchantment and tainted brand reputation.

To remain relevant, businesses need to act now. This report outlines practical steps and opportunities businesses can take across six key action areas.

Aotearoa New Zealand's opportunity

There was a time when Aotearoa New Zealand was recognised on the global stage as a leader in waste minimisation. But then progress came to a standstill. The time to start transitioning to a circular economy was 10 years ago, so we have ground to make up. We have a choice. We need to decide if we want to embrace the opportunities offered by a circular economy and proactively transition to a prosperous, equitable and regenerative future. Or do we want to continue

clinging to an economic model that is no longer fit for purpose and be dictated to by overseas markets, supply chain issues and a rising climate?

The businesses consulted as part of this report are overwhelmingly in favour of the former.

To make this transition, we need a holistic and compelling vision of an 'end state' for Aotearoa New Zealand. It should include a fair and equitable society, economic prosperity, regeneration of our natural environment, and mātauranga Māori.

From here, we should focus on enhancing the six key areas in this report:

- Designing for true circular outcomes and not just focusing on recycling
- All of us stimulating demand for more circular solutions by purchasing products and services that support a circular economy
- Adopting and supporting business models that are inherently circular
- Establishing accessible infrastructure through targeted investment that enables more than just recycling
- Embedding new technology to make the transition faster
- Developing bold policy and legislation to incentivise and enforce the scale of transformation we need



This vision needs to act as a guiding light for businesses, government and society to coordinate actions across the six key areas outlined in this report.

It should focus on using our abundant natural resources, so we can innovate to make new products and materials fit for a circular economy.

It should enhance our reputation on the global stage. This vision needs to act as a guiding light for businesses, government and society to coordinate actions across the six key areas outlined in this report.

It should focus on using our abundant natural resources, so we can innovate to make new products and materials fit for a circular economy.

It should enhance our reputation on the global stage.

SBN has long since believed Aotearoa New Zealand can lead the global transition to a circular economy. This report marks the launch of a campaign to embark on that goal. Go Circular 2025 is a significant public-private partnership to create the tools and resources necessary to help businesses make the urgent changes required.

Aotearoa New Zealand can be a leader in the transition and provide inspiration and a pathway for other countries to follow. The choice – and the opportunity – is ours.

A vision of a circular economy for Aotearoa New Zealand

In 2050 our economy will have been transformed. It will have achieved net positive carbon. Waste and pollution will have been eradicated. Our environment will have been regenerated. Our people will be thriving. We will be a role model for the world.

This will have been achieved by a fundamental shift by government, business and society to the wholesale adoption of a unique Aotearoa New Zealand circular economy.

Pioneering businesses will have trailblazed the transition by embracing circular business models. Government will have provided incentives. Society will be thriving through full and meaningful employment, and access to products and services that enhance wellbeing.



7

Acknowledgements





Acknowledgments

Thank you to everyone who collaborated on this report and for the great work you are all doing to contribute to Aotearoa New Zealand's low carbon circular future:

Adam Weller, Tyron Hartle	WASTE MANAGEMENT
Alan Adams	SEALED AIR
Alan Sutcliffe	SOLO PLASTICS
Amelia Meadowcroft	MAGGIE MARILYN
Amy Whetu	WHETU CONSULTANCY GROUP
Barbara Nebel, Jim Goddin	THINKSTEP-ANZ
Ben Crawford	LIBBY & BEN
Ben Gill	SYNLAIT
Bernadette Casey	USEDFULLY
Blythe Rees Jones	VIRTUO DESIGN
Braden Loveridge, Monique Parsler	CALLAGHAN INNOVATION
David Benattar	THE WAREHOUSE GROUP
Donald Shepherd	CITIZEN
Emma Lewisham	EMMA LEWISHAM SKINCARE
Elisha Watson	NISA
Evan Thomas	BLENDER
Fionna Gotts	JUNK RUN
Florian Graichen	SCION
Hannah Blumhardt	THE RUBBISH TRIP
Ian McGrath	GALLAGHER

Janine Bickerton	MARX DESIGN
Joe Youssef	ALL HEART NZ
Jon Earnshaw	EASI RECYCLING
Lily Jones, Michael Burgess, Nicola Tagiston	FLETCHER BUILDING
Louise Nash	CIRCULARITY
Lucy McKenzie	AUT
Mark Moran	CHUNKY
Matt Whyte	RESERO GROUP
Michael Lewis	CHEP NEW ZEALAND
Nick Morrison	GO WELL CONSULTING
Paul Frasca	SUSTAINABLE SALONS
Rui Peng	CRITICAL DESIGN
Saia Latu	TROW GROUP
Sarah Bowman	AOTEA BREWING
Scott Noyes	SIGNIFY
Serena Maitland	GEORGE WALKERS OFFICE FURNITURE
Shaun Sievwright	TRIMAX
Talei Kitchingman	NEW ZEALAND RED CROSS
Tamoko Ormsby	KA AWATEA

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DISCLAIMER: This report has been produced by a team at the Sustainable Business Network by analysing contributions from key stakeholders, many of whom are listed in the acknowledgements. Their contribution does not equate to endorsement of the report's contents or conclusions.



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Kate is passionate about inspiring the business community to look for new ways to innovate towards a circular economy. She has a Master's in Environmental Science from The University of Auckland and completed her Bachelor's degree at Otago University.

Going Full Circle

Six focus areas for shifting Aotearoa New Zealand to a low carbon circular economy

SEPTEMBER 2021

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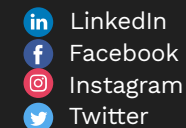
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