30 IDEAS

TO KICKSTART YOUR CIRCULAR BUSINESS

ZERO WASTE SCOTLAND

ABOUT THIS TOOL

This is a tool to aid businesses (large and small) to design, develop and evaluate the business models of the future.

Thirty 'what if' questions challenge the status quo and inspire new solutions to today's problems. Each card showcases a successful business profiting by moving towards a circular economy.

Zero Waste Scotland have developed this updated toolkit, based on the Knowledge Transfer Networks (Innovate UK's network partner) original resource.

Zero Waste Scotland exists to lead Scotland to use products and resources responsibly, focusing on where we can have the greatest impact on climate change.

THE LINEAR ECONOMY

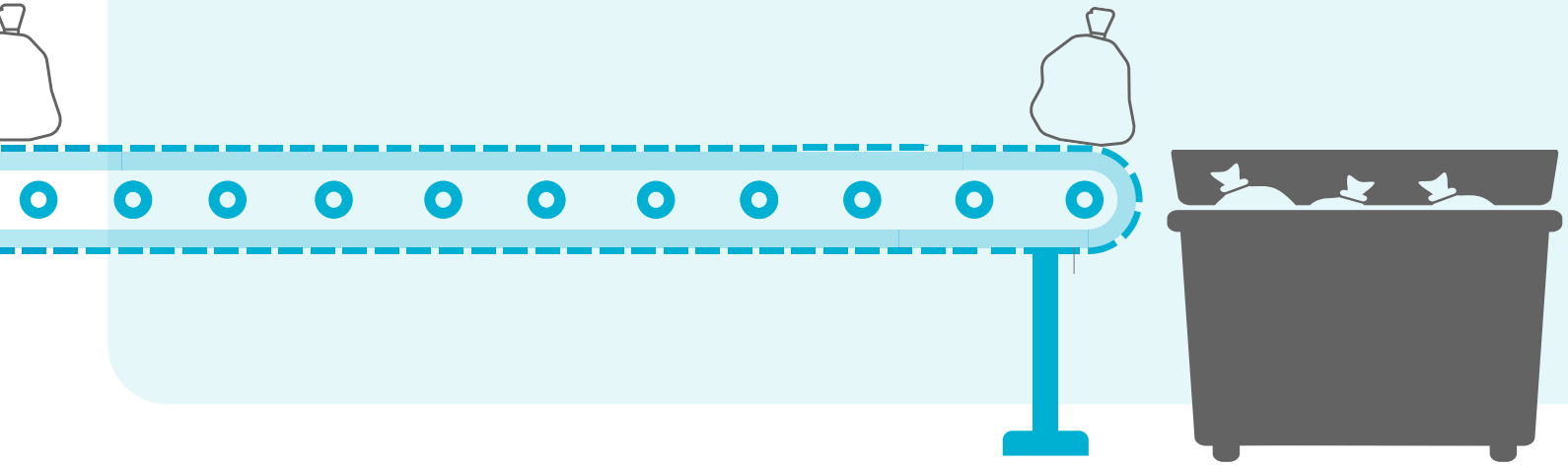
Our current economy is a one way flow of materials, from extraction, manufacturing, use and ultimately disposal. This model relies on **cheap flows of energy and materials**.

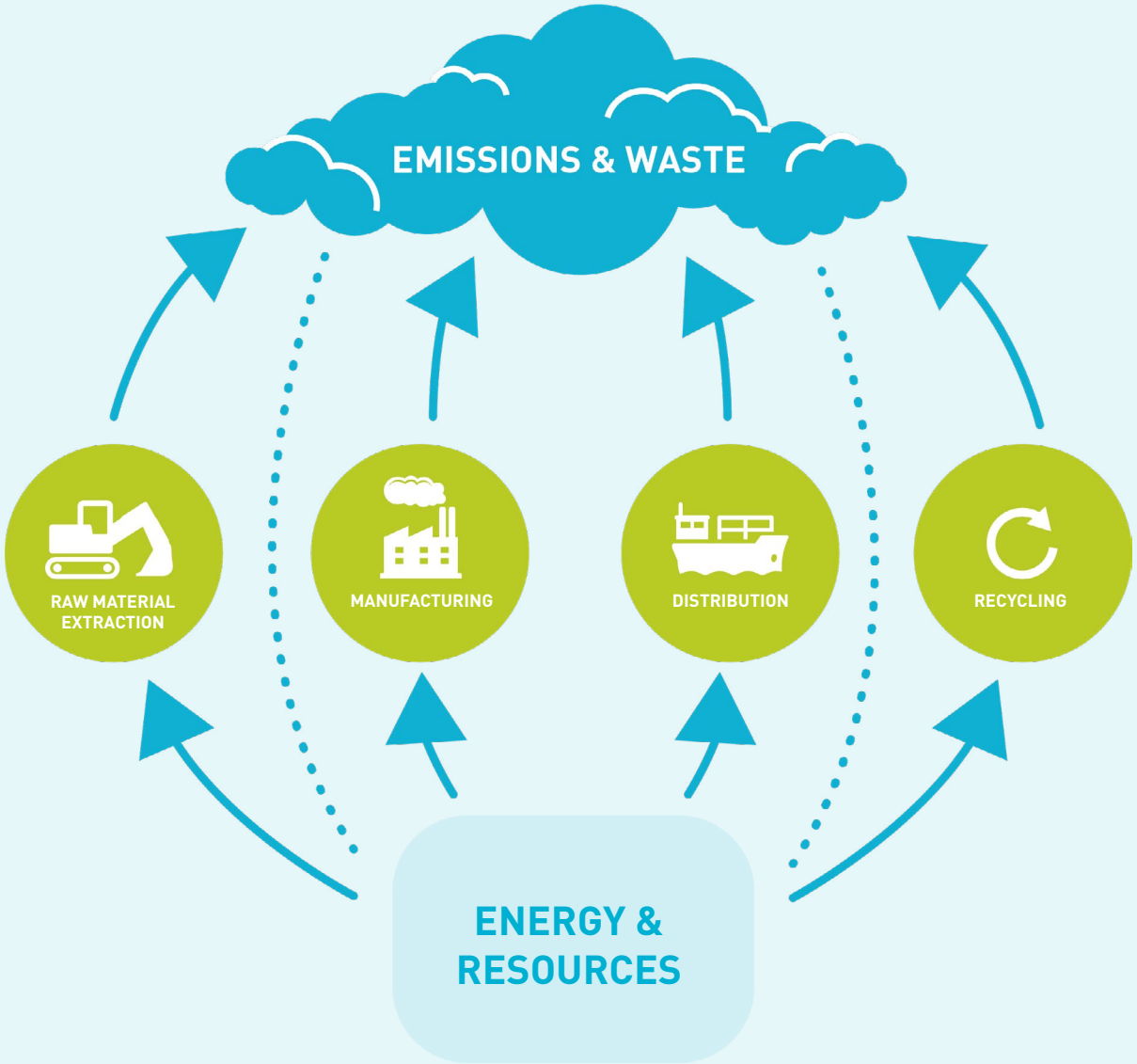
The linear economy has been extraordinarily successful at bringing affordable products and material prosperity to billions of people.

Whilst there is space for this model to grow and find efficiencies, it is **impossible to have infinite growth on a finite planet**.

The global middle class will double by 2030, with 3 billion more consumers creating an unprecedented demand for resources. Huge increases in resource demand, with limited supplies, creates huge price volatility for business.

Using less, recycling more and being more efficient will **not solve the problem. A fundamental rethink** of business structures, finance models and government policy is necessary to find an economy that can work in the long term.





Around four fifths (80%) of Scotland's carbon footprint comes from all the goods, materials and services which we produce, use and often throw out after just one use. This is the single greatest cause of the climate crisis.

As a society we are over-using our planet's resources. **The average Scot consumes 18.4 tonnes of materials every year. Academics agree that a sustainable level of material use, is about 8 tonnes per person per year.**

Our linear economic model leaks endless value through the poor management of products and resources. We have an opportunity to create a stronger and more resilient economic system, whilst saving the planet.

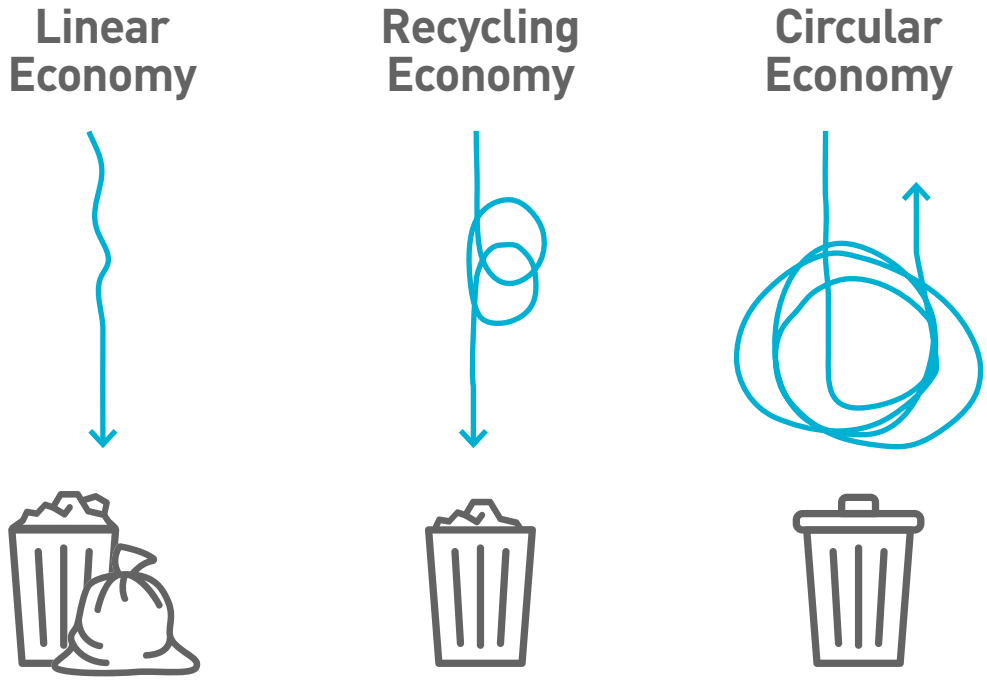
THE CIRCULAR ECONOMY

The circular economy is a practical framework for creating an economy which is sustainable by design. It aims to keep products, components and materials at their highest quality and value at all times. Crucially, **growth is decoupled from scarce resource use.**

Material use is of two types: biological (renewable) materials, designed for reuse and ultimate return to the earth; and technical (non-renewable) materials, designed to move back and forth between production and consumption with **minimal loss in quality or value**.

New business models question the ownership of products, with services offering access to better products, at lower price points. Businesses retain ownership of valuable products, materials and components, increasing profitability and resilience. These new **priorities design out product obsolescence**.

Scotland now has the world's third greenest grid. Renewable energy production will not solve the climate crisis alone, but provides strong foundations to build a sustainable circular economy, allowing us to collectively meet the Scottish Government pledge to end Scotland's contribution to the climate crisis by 2045



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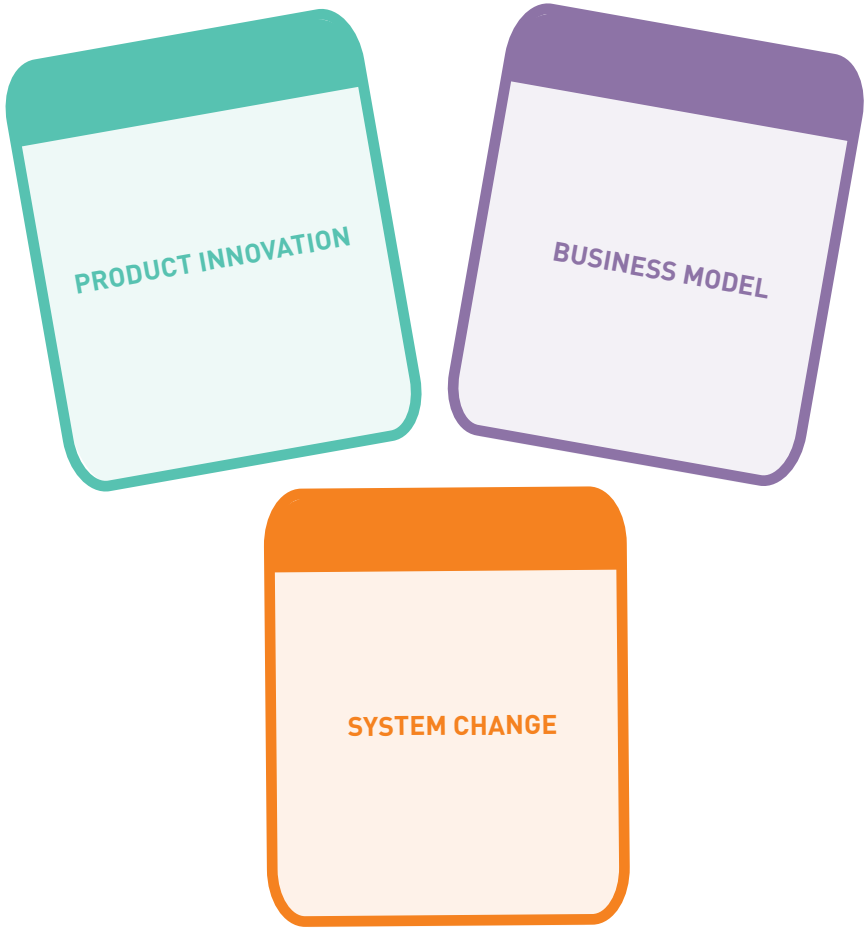
INSTRUCTIONS

The ideas are divided into three categories to help you navigate the deck and to stimulate ideas:



As you look at the ideas, **consider how these concepts could be used to make your business more circular, or generate new business opportunities**. Keep in mind that circular economy isn't just about changing individual business models, how could these concepts be used to create more sustainable supply chains or influence change across sectors and geographical areas.

Pick out any ideas that present an opportunity to your business, have a think about how you could implement a similar model. What are the main opportunities and challenges?

BRAINSTORMING RULES

NO JUDGEMENT

Make everyone feel like they can say the idea that's on their mind. No negativity at the idea generation stage.

THINK EXTRAORDINARY THOUGHTS

No idea is too crazy. Think beyond material or technical constraints.

USE EACH OTHER'S IDEAS

Re-interpretations are crucial to get to ideas that you couldn't reach on your own.

KEEP FOCUSED ON THE TASK

Try to keep the discussion on target, and in scope.

THINK QUICK

The best way to have a good idea is to have lots.

KEEP TO TIME

Keep an eye on the clock. Make sure everyone gets a chance to share ideas.

WHAT IF YOU SOLD OUTCOMES, RATHER THAN PRODUCTS?

Does a customer want lightbulbs or the light that they provide?

Could you be better meeting needs by delivering a service rather than selling a product?

Would this change the design of products?

CASE STUDY

EGG Lighting

EGG Lighting operate under a model that lighting should last as long as buildings. Their lighting is provided as a service, the LED smart technology is modular built so it can be repaired easily. If parts of the lighting system need removed the materials are refurbished, keeping them in the cycle.

This ‘product as a service’ and circular design model allows EGG to build a strong customer base and a steady source of revenue. Customers save energy and benefit from lights that can be simply upgraded with the latest technology.

WHAT IF YOU CHARGED PER MONTH FOR YOUR PRODUCT?

How could offering customers access to products rather than ownership create a more compelling customer experience?

Would a subscription model allow you to track a products quality and upgrade them over time?

CASE STUDY

Graceful Changes

Graceful Changes are an Edinburgh based ethical and environmentally conscious kids clothing company. Their aim is to help reduce waste, whilst saving parents time and money.

Their clothes are offered on a subscription basis, allowing parents to rent clothes for babies and children instead of buying. Subscribers get a chosen package of clothes, which can be exchanged when the child grows, for special occasions or for seasonal changes.

WHAT IF HIRING WAS MORE DESIRABLE THAN BUYING?

Could hiring products deliver better value to your customers?

Could it allow people to access better products at a lower price?

Would customers value the flexibility and choice that comes with hiring?

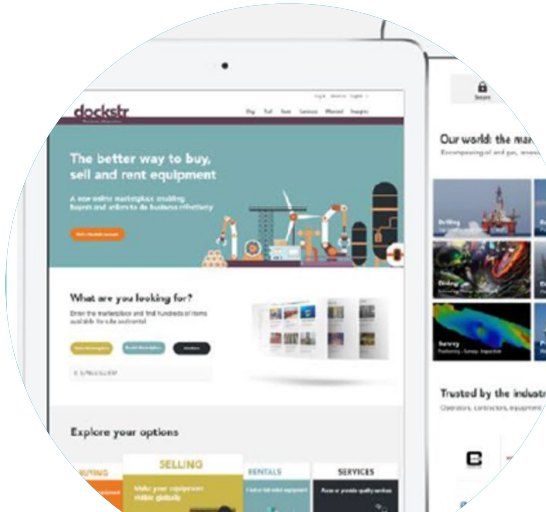
CASE STUDY

Dockstr

Dockstr is a digital tool that allows customers to buy, sell and rent equipment and inventory within the oil and gas sector.

With one of the main barriers to reuse within the industry being visibility of available items, Dockster developed an online marketplace to enable buyers and sellers to do business effectively.

Leasing is actively encouraged in the tool and Dockstr offers transaction services to make it easier for clients to do business.



WHAT IF YOU CHARGED PER USE OF YOUR PRODUCT?

Could you shift to a pay per use model that charges per unit of use e.g. miles driven, hours used?

Would this engage new customers at lower price points?

Would it change design priorities?

CASE STUDY

Sioda

Based in Stirling, Sioda believe every woman should be able to access high quality clothes and experience the joy of wearing them, without having to wade through the mass of low-quality clothes on the market.

Sioda want to empower a community of women, giving them the choice of high quality brands, on a rotational basis, at competitive pricing.

Customers can rent clothes for a period of 4 weeks, they are then returned to Sioda for cleaning before being rented to another customer – tackling inequality and unsustainable shopping-patterns

WHAT IF YOU SHARED YOUR SUSTAINABILITY AMBITIONS AND JOURNEY WITH YOUR CUSTOMERS?

Would this strengthen your brand?

Could it build trust with customers?

Could it help track and drive forward operational efficiencies?

CASE STUDY

Brewdog

Brewdog has committed to becoming a Net Zero company, being completely transparent and open with their customers (the good and the bad) as they transition.

The company implemented a fast track plan to reduce the carbon footprint of their operations, this includes using green energy, installing anaerobic digestors, electrifying their vehicle fleet and capturing C02 from their fermentation process.

Brewdog will remove twice as much carbon from the air each year than they emit, creating 1,500 acres of broadleaf native woodlands and an ecosystem with the Woodland Carbon Code accreditation program.

WHAT IF YOU MADE MONEY FROM OTHERS UNUSED ASSETS?

Could you maximise the productivity of vehicles, properties, tools, workforces or infrastructure which currently sits idle?

How could they better be used, more of the time?

CASE STUDY

John Lawrie Group

John Lawrie Group is an Aberdeen based company, with sites across Scotland. They are a metals reuse and recycling specialist, dedicated to creating conditions for a more circular economy.

John Lawrie Group buy and repurpose oil and gas tubulars, recycle scrap metal, and have been decommissioning for nearly 30 years, dismantling at quayside and efficiently processing oilfield structures to maximise reuse and recycling of materials.

From their UK bases, they are pushing the boundaries to reimagine how metals can deliver new value whilst helping to reduce the impact on the planet.

WHAT IF YOU TOOK BACK YOUR OLD PRODUCTS?

Could taking back old products lead to a higher quality material recovery?

Could it enable remanufacturing of products?

Would it encourage repeat custom?

CASE STUDY

Renewable Parts Ltd

Based in Argyll, Renewable Parts Ltd owns and operates a refurbishment centre for wind turbine components. Their services enable parts to be recycled and reused.

This provides for a steady, long-term income flow and long-term relationship with customers. The customer has access to spare parts at lower cost and with shorter lead times.

Reverse logistics is a key part of the service, making it easy for customers to return used parts.

WHAT IF YOU FACILITATED SHARING OF OTHER PEOPLE'S PRODUCTS?

Could you generate revenue from helping others to share?

How could digital technologies make this possible?

Could products be better designed for sharing?

CASE STUDY

Edinburgh Tool Library

Edinburgh Tool Library offers customers across the city the opportunity to borrow from thousands of tools, sharing skills and knowledge as they lend.

The tool library means that individuals can access a range of tools without having to purchase them, cutting down on waste and helping people to live more responsibly.

As well as building things, the tool library is about building community. The library also runs employability programmes, volunteer build projects and a residency programme for young makers.

WHAT IF YOUR PRODUCT COULD LAST 50 YEARS?

Could products be made to be extremely durable?

Could you find new customers looking for quality and longevity?

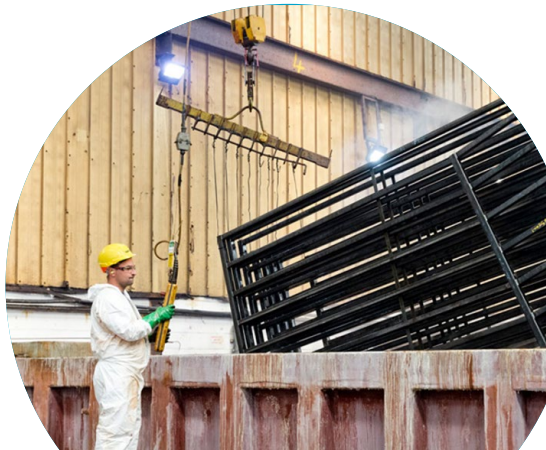
Would this mean that income would need to be generated in different ways?

CASE STUDY

Highland Galvinisers

Highland Galvanisers, based in Elgin, have developed a pioneering way of extending the lifespan of motorway crash barriers. Traditionally steel barriers get a protective galvanised coating of zinc alloy which lasts around 25-30 years at which point rusts sets in and the steel is scrapped.

The company has developed a way of re-coating before rust sets in, meaning the barrier can last for an additional 25 years with the same strength and safety properties as a new barrier. The process creates a massive 89% reduction in $C0^2$ through recoating rather than scrapping.



WHAT IF THE CUSTOMER COULD REPAIR YOUR PRODUCTS?

Could products be designed to be easily repaired by the customer?

Would this create greater brand loyalty?

Could additional revenue be generated from selling spare parts?

CASE STUDY

Solariskit

Solariskit has developed a portable solar thermal collector, for the direct supply of hot water. The collector is flat pack, it can be transported anywhere in the world cheaply and easily, and it can be handled safely by one person.

The solar thermal collector can be built, maintained and repaired on site.

The materials used for the collector are fully replaceable and the system has a modular design for easy repair.

WHAT IF YOU COULD SELL THE SAME PRODUCT AGAIN AND AGAIN?

Could old products be taken back and restored to a like new state?

Could refurbished products allow a lower price point with a larger margin?

Could products be re-sold to a different market?

CASE STUDY

Patagonia

Worn Wear is a program set up by the outdoors brand Patagonia. It aims to keep clothing and gear in action for longer by means of repair, recycling garments beyond repair, and by creating a market for second-hand Patagonia garments on their online store.

Those clothes that once sat idle in closets can make their way back into circulation and out of landfill.

What's more, if you return used Patagonia gear in good condition, they'll give you credit that can be used in Patagonia retail stores, on WornWear.com or Patagonia.com.

WHAT IF A CUSTOMER COULD UPGRADE OR CUSTOMISE YOUR PRODUCT?

Could products be designed to be modular?

How could a product adapt and change with customer needs?

Could new features or functions be added without replacing the whole product?

CASE STUDY

Sofa ForLife

Sofa ForLife is the world's first portable, modular and sustainable sofa.

The Scottish company recognised that trends and needs change over time. Their sofa ForLife can grow with the customer through add ons and adjustable covers. No need for a couch to go to landfill again!

The furniture is made from high quality and sustainable materials. Cut from fast growing, sustainable birch plywood. The design ensures as close to zero waste as possible.

WHAT IF YOUR PRODUCT WAS REUSABLE RATHER THAN CONSUMABLE?

Could products or their components be designed to be reusable?

Would this generate more repeat custom?

Would this enable products to be shared?

CASE STUDY

Beauty Kitchen

Beauty Kitchen create 100% natural and sustainable beauty products in Scotland.

In the UK over 95% of beauty packaging is thrown away after just one use. Beauty Kitchen are determined to change that.

They have pioneered a ground-breaking • RETURN • REFILL • REPEAT programme, where customers can send back their empty packaging. Beauty kitchen then wash and reuse it - much better than recycling!

This closed loop model sets them apart from other beauty companies on the market.

WHAT IF YOUR PRODUCT WAS REUSABLE RATHER THAN CONSUMABLE?

Would this make repair more cost effective?

Who would be disassembling the product?

Could products be updated and upgraded cost effectively?

CASE STUDY

Rhinowash

Rhinowash is a family run company that provides Scottish made power washers across the country, with robust quality, durability and serviceability imbedded into both product and service.

Rhinowash partner with a network of national and international SMEs and blue-chip customers to help deliver positive, innovative and sustainable change to their product, creating products that satisfy the demands of the commercial and industrial user.

Their unique quick swap modular design allows them to remove a power wash module and replace with a new one, guaranteeing a 1st time fix, every time. The modular system means there is no wait for spare parts to arrive.

WHAT IF YOUR CUSTOMERS NEVER WANTED TO THROW YOUR PRODUCT AWAY?

Could you foster more attachment and trust in your product?

Could you celebrate the products age?

Would this build a stronger relationship with the customer?

CASE STUDY

Rocio Handbags

Rocio is a luxury eco-fashion label founded and based in Scotland. The handbag designs are individually created from solid blocks of aged harvested acacia wood by Rocio artisans.

Their bags take time to make and are designed to last a lifetime. Given this, every Rocio product comes with a lifetime guarantee.

Their commitment to exceptional quality and craftsmanship extends not only in the creation of the bags, but also to the service customers and products receive after initial purchase.

WHAT IF YOUR PRODUCT WAS ONLY MADE FROM RENEWABLE MATERIALS?

Could non-renewable materials be replaced with renewable alternatives?

Can the materials make it back to natural systems at the end of their life?

CASE STUDY

The East Africa Sisal Ltd

The Scottish company buys sisal, a super-strong and highly sustainable fibre crop from farmers in East Africa. They then process it into strong but biodegradable fabrics for a variety of environmental applications, and export them to the UK.

The company is ethical in everything they do. They encourage the growing of sustainable crops. Pay farmers a fair price, contributing to poverty reduction. They help generate employment. Ship by the lowest carbon method. Plus, their products compete with and displace the use of non-renewable alternatives.

WHAT IF YOU TOOK IDEAS FROM NATURE?

Nature has been generating and testing ideas for 3.6 billion years, there's a wealth of solutions and no patent lawyers.

Could nature inspire new solutions for products and services?

CASE STUDY

Xanthella

Oban based Xanthella are working to create a method for producing micro algae that can work across multiple sites and locations. Once perfected, it will make it possible for businesses with nutrient rich by-products, such as whisky distilleries, to generate revenue by growing and selling micro algae.

Micro algae is pretty special stuff, whatever you can make with fossil fuels you can make with algae, this includes bio based plastics, pigments and biofuels.

It is a great example of a company using nature-based solutions to add value to by-products and co-products.

WHAT IF YOUR PRODUCT WAS ONLY MADE FROM ONE MATERIAL?

Could the number of materials be radically reduced within products?

Would this enable products to be used for longer and in different ways?

How could a business profit from this?

CASE STUDY

Hey Girls

On average, one woman will dispose of around 11,000 period products in her lifetime. It's not just the plastic applicators and packaging that are causing a problem - the single-use period products contain plastics and synthetic materials themselves.

Even worse, one pad can take as long as 500 years to breakdown.

Hey Girls provide reusable alternatives. Menstrual cups are made of medical-grade silicon and can last up to 10 years. Based on a typical period scenario, a woman would have spent £440 on single-use period products in 10 years, but only £20 on average for two menstrual cups, a total saving of £420 over that time!

WHAT IF THERE WERE NO TOXINS IN YOUR PRODUCT?

Could all toxins be removed from a product or safer materials be used?

Would this make it safer and cheaper to remanufacture or recycle?

CASE STUDY

The Highland Soap Company

The Highland Soap Company create ethical soaps and skincare products in the Highlands of Scotland.

The soap is handmade by a centuries-old, traditional process. In this slow method of soap production, it takes us around four weeks to cure each carefully prepared batch.

They use organic and natural ingredients and sustainable packaging in a small-scale batch process.

They only buy from suppliers who are transparent, whose supply chains they can verify, and that they can trust to be kind to the environment and caring towards people.

WHAT IF YOUR PRODUCT WAS DESIGNED TO GO THROUGH A LETTER BOX?

Could products be redesigned to better fit logistics systems?

Would this make it easier to recover at end of life?

Could it also mean easier delivery to a second customer?

CASE STUDY

Prickly Thistle

Prickly Thistle are the only tartan weaving mill in the Highlands of Scotland. They are committed to creating sustainable, high quality garments using only natural fibres.

In 2020 Prickly Thistle launched the Mask of Integrity, a 100% natural fibre fabric, tailored to fit, reusable mask, that is filtration and face-fit tested.

They offer a user-customised subscription service, delivering re-usable masks to the customers door. This provides the customer with two reusable masks and a regular replacement schedule dependent on usage habits. A great example of extended producer responsibility.

WHAT IF YOUR PRODUCT WAS DESIGNED TO FIT RECYCLING SYSTEMS?

Could materials be chosen that maintain their quality through the recycling system?

Could you minimise the number of materials in a product?

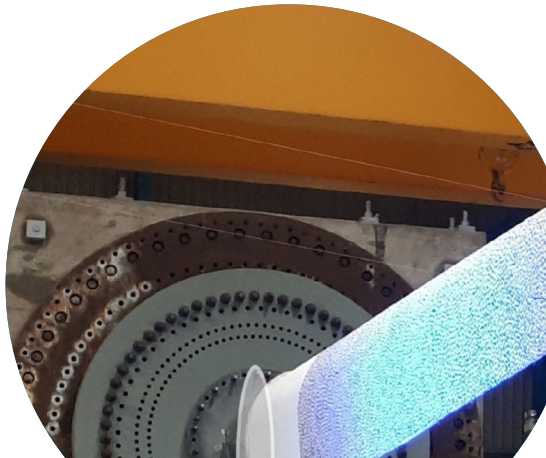
CASE STUDY

ACT Blade Ltd

Edinburgh based ACT Blade Ltd are developing and testing next generation engineered textile wind turbine blades.

Their construction is 50% lighter and 30% stronger than current equivalents, which are made from fiberglass and cannot be recycled.

The blade is 100% recyclable and circularity is embedded throughout the entire manufacturing process.



WHAT IF YOU SHIFTED TO RENEWABLE ENERGY?

How could investing in energy sources save money in the future?

Would powering a business with clean energy appeal to new customers?

CASE STUDY

Glenuig Inn

The Glenuig Inn, located on the Sound of Arisaig, is a great example of a company looking at all operational aspects to improve resource use and efficiency. Since February 2015, they have operated using 100% renewable energy from biomass for heating and hot water and 100% green electricity sourced as locally as possible from hydro schemes.

Alongside 100% renewable energy use, they use no single use plastics, have reduced waste to landfill by 98.5% and no food waste leaves site nor is it composted. Their practices have also positively influenced their wider supply chain.

WHAT IF WASTE WAS ILLEGAL?

What materials in products would need to change?

Could waste be designed out through supply chains, customer use and end of life?

Could waste be used as a resource?

CASE STUDY

Locavore

Locavore, an innovative 'super' market in Glasgow's Southside. Customers can come in and buy a huge range of items without also picking up the guilt of getting single-use packaging.

Locavore have been working since 2011 to develop ideas and practical solutions which can be used to deliver a better food network. Over this time they have opened a zero waste shop, developed a market garden, established a veg box scheme and got lots of people more engaged in thinking about issues around food, where it comes from, and the fairness and sustainability of mainstream supply chains.

WHAT IF YOUR PRODUCT COULD BE TRACKED, LOCATED AND UPDATED REMOTELY?

Could asset tracking enable more circular products and business models?

Could updates keep products in use for longer?

Would preventative maintenance extend product life?

CASE STUDY

Reath

Reath are an Edinburgh based technology firm on a mission to empower more companies and organisations to embrace circular economy models. The company is committed to developing the digital infrastructure needed to help the shift to a circular economy.

Their system allows businesses to give items they want to reuse (from packaging to PPE) a unique identity – this is its "digital passport". Every time the equipment or packaging is used, filled, refilled or cleaned; it is given another "stamp" in its passport. This creates a digital ledger that gives a complete history of that products life cycle.

WHAT IF YOUR PRODUCT WAS MADE LOCALLY?

Could your product be manufactured near to customers?

Would it enable cost effective to remanufacture?

Could it allow for more customised, on-demand manufacture?

CASE STUDY

Britwind

Based in the UK, Britwind designs and manufactures two types of wind turbine for microgeneration.

The company is a subsidiary of Ecotricity and is focusing on making more sites viable for wind power, using low-cost, small turbines. Each small turbine can power three homes: the larger models up to 12.

All components including the tower, blades, generators and electronics are manufactured in Gloucestershire.

WHAT IF YOU COULD USE YOU YOUR NEIGHBOURS WASTE?

Could someone's waste become your raw material?

Could waste streams have value if the right customer was found?

Could processes be changes to add value to waste?

CASE STUDY

Revive Eco

In the UK, we drink 55 million cups of coffee each day, leading to over half a million tonnes of coffee grounds being generated and wasted. Revive Eco strive to radically change mindsets, and show that materials can still possess huge value, even after being used for their primary purpose.

The business collects used coffee grounds from cafés, restaurants and offices. They are then processed at a used coffee grounds recycling plant in Scotland. Then the grounds are used to create a range of high value natural chemicals and soil amendment products.

WHAT IF RENEWABLE MATERIALS COULD HAVE MULTIPLE LIFE CYCLES?

Could renewable materials be cascaded by using them multiple times in different uses?

Could energy be created from anaerobic digestion, or extract biochemicals from organic waste?

CASE STUDY

Illicit Gin

Glasgow based Illicit Spirits have found a novel way to add new life to the botanical by-products from their gin distilling process.

Illicit Spirits take the residue left in their gin still, filter out the solids (which are composted), before reducing the leftover liquid into a syrup to concentrate the essential oils. This is then mixed with argan oil, shea butter and beeswax to create a natural beard balm.

An innovative way of cascading materials so they can be used multiple times.

WHAT IF YOU SWITCHED TO USING RECYCLED AND RECYCLABLE MATERIALS?

Could new recycling technologies be used to maintain material quality?

Could components be made from a single material to aid efficient recycling?

CASE STUDY

Dunnet Bay Distillers

To reduce the number of ceramic bottles being used to send gin to customers Dunnet Bay Distillers offer their Rock Rose gin in fully recyclable pouches.

These can be returned to Dunnet Bay Distillery by freepost. This is the first gin available in returnable, recyclable packaging. Once back at the distillery, the pouches will be passed on to be upcycled into new items.

The sustainable packaging also significantly reduces the energy spent in shipping Rock Rose Gin to customers and is now available on a subscription.

WHAT IF YOU GREW MORE MATERIAL THAN YOU USED?

Would this protect from future price shocks?

Would it guarantee the supply of key raw materials for manufacture?

CASE STUDY

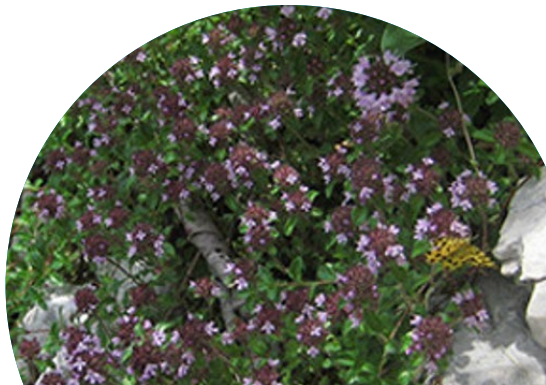
Scrumptious Garden

Imagine if we could all buy fruit and veg, freshly picked, from market gardens on our own streets and run by our neighbours.

Scrumptious Garden, based on the shores of Loch Tay, turn vacant city plots into attractive market gardens. Because they grow among their customers, they can focus on flavour over shelf life.

Scrumptious gardens look more like cottage gardens than farms. They are open and welcoming to people and wildlife, delivering community benefits. They even help manage water and capture carbon.

As a social enterprise, all profits are reinvested to create healthy food, accessible to all.



WHAT IF YOU EMBRACED NEW DIGITAL FABRICATION METHODS?

Could digital fabrication help create more personalised products?

Could manufacture be distributed? Would it allow for improvements and updated designs to be implemented more quickly?

CASE STUDY

Angus 3D Solutions

Brechin based Angus 3D Solutions provide 3D printing manufacturing services that allow for potentially obsolete equipment to be brought back into use.

Their services include metal 3D printing with aluminium, steel, copper, and titanium.

They offer a range of applications, including repair of complex parts such as gear teeth, or making new parts which are no longer available or only available overseas.

REFERENCE CARDS

The information sourced for the 30 Ideas is available in the public domain. To find out more about each company featured, please follow the links to their websites. Images are credited to the relevant business website.

EGG Lighting - https://www.egglighting.com/

Graceful Changes - https://www.graceful-changes.co/

Dockstr - https://www.dockstr.com/

Sioda - https://siodauk.com/

Brewdog - https://www.brewdog.com/uk/

John Lawrie Group - https://www.johnlawrie.com/

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Edinburgh Tool Library - https://edinburgh-toollibrary.org.uk/

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Solariskit - https://solariskit.com/

Patagonia - https://eu.patagonia.com/gb/en/home/

Sofa For Life - https://www.sofaforlife.co.uk/

Beauty Kitchen - https://beautykitchen.co.uk/

Rhinowash - https://www.rhinowash.com/

Rocio Handbags - https://rocio.co.uk/

East Africa Sisal Ltd - http://www.eastafrica-sisal.com/

Xanthella - https://xanthella.co.uk/


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