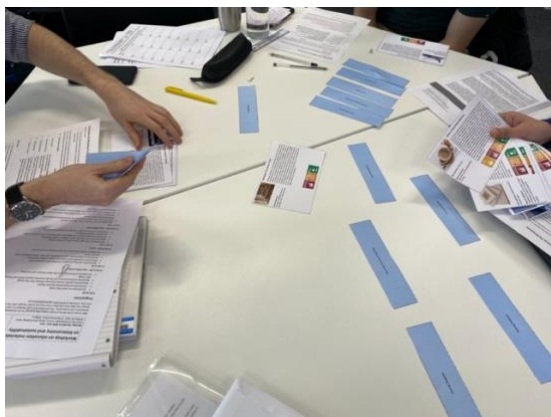


Annex XV Workshop and Card Game “Business Match”



In this workshop participants play the game “Business Match”. The workshop was developed to inspire participants about the innovativeness of emerging circular business models and the possibilities created by circular economy concepts. It aims to familiarise the participants with various types of circular business models and enable them to recognise these in daily life by using 25 company case studies. Plus, shows links to the UN Sustainable Development Goals (SDGs).

The game “Business Match” has 25 cards with brief descriptions on companies which offer their products and services using one of these five circular business models (identified by Accenture 2015):

- | | |
|------------------------------------|-------------------------|
| 1. Circular Supplies | 4. Sharing Platforms |
| 2. Resource Recovery and Recycling | 5. Product as a Service |
| 3. Product Life Extension | |

Game can be played individually or in groups. Game takes 15-30 minutes depending how game is played and amount of discussion. Before starting the game, workshop leader could briefly introduce and explain the circular business models in a presentation.

Two different ways to play game:

- A. Walk to answer.** The titles of the five circular business models can be written in large font and be distributed in a room. Each participant is given one of the cards and must walk to the designated areas for the correct circular business model that they think their cards belong to. They can see other students' cards there and discuss with them about the cards they have. Or they can also explain to the class why they think their cards belong to a particular circular business model.
- B. Compete individually or in groups.** An equal number of cards is distributed to each person/team and each person/team must match the cards with correct circular business models. Person/team with higher number of correctly categorised cards wins the game. Activity takes 10-30 minutes depending number of cards per person/team and amount of discussion among team members.

Advanced discussion - What other business models may be suitable for each company?

Using the “information for further study on the 25 companies”, discuss what other business models may be suitable for each company. Although the majority of the 25 companies were selected because they clearly use or highlight the use of one of the circular business models, the reality is that business models are not clear cut and some businesses adopt multiple circular business models. For example, product-as-a-service system retains the ownership of the products which they could repair or recycle when the products are no longer suitable for leasing. Some companies use a combination of new biological resources and waste materials from other industries to make products. Also some business models themselves could overlapped. For example, both the sharing platforms and product-as-a-service system involve the concept of sharing the same products with multiple users.

Accenture (2015) Accenture Strategy. Executive Summary of “Waste to Wealth” book by P. Lacy and J. Rutqvist, <https://thecirculars.org/content/resources/Accenture-Waste-Wealth-Exec-Sum-FINAL.pdf>



Instructions for the “Business Match” Game

1. Three people or three teams should compete to get the highest number of points. If working in teams, start by grouping yourself into three small teams.
2. Each team takes five blue title cards with different circular business model titles. The descriptions below have highlighted key words to clearly differentiate these models:

Circular Business Models	Description
Circular Supplies	The use of biological raw materials which are fully renewable, recyclable OR biodegradable
Recovery and Recycling	Valorising the waste materials or by-products to repurpose and produce new products
Product Life Extension	Extending the working lifecycle of the existing products by repairing, upgrading, remanufacturing and reselling
Sharing Economy	The platform which helps the consumers share under-utilized products and assets or eliminate the need to buy more assets
Product as a Service	The access over ownership model which rents the products through lease or pay-per-use arrangements rather than selling them

3. Mix and shuffle all the 25 company cards with pictures.
4. Randomly distribute 8 cards with company descriptions to the three person/team, with image face down. So 24 cards will be distributed, and the 25th final bonus card is placed in the centre of the table.
5. Once each person/team have 8 cards each and are ready to play, game can start. All groups should **start at the same time**.
6. Read the cards and place them into one of the five circular business models.
7. The bonus point card should be taken by the first team which completes the grouping of the first 8 cards. (Grabbing the last card in advance before you are done with the grouping of the first 8 cards will result in a deduction of 2 points.)
8. Check correct answer. Each card each person/team has categorised correctly, will earn one point.
9. The person/team which earns the higher points wins the game.

Instructions can be given to participants or can be explained verbally by workshop leader.

Tip: The brief company descriptions on the case study cards were written by making use of the key words highlighted above in the description of the circular business models, and by drawing attention to more prominent features if the company uses multiple business models.

Circular Business Models Title Cards – Print and cut along dotted line to create five title cards. One set of the five title cards is needed for each person/team.



Circular Supplies



Resources Recovery & Recycling



Product Life Extension



Sharing Platforms



Product as a Service



Company Description Cards - print & cut along dotted line to create 25 individual cards



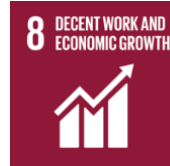
Spinnova (Textile fibres)

This company manufactures 100% biodegradable textile fibres using renewable biological resources, the wood pulp from sustainably managed forests. Spinnova's mechanical processes enable wood pulp to be grounded into a gel-like material called micro-fibrillated cellulose which flow through the patented machinery to be spun into fibres. This natural fibre is an ecofriendly alternative to cotton or synthetic fibres, as its production process consumes 99% less water than cotton value chain. No toxic chemical is used at any stage of manufacturing of these fibres compared to other textile fibres manufactured using conventional technology which uses a range of toxic chemicals during fibre production, bleaching, dyeing, printing and finishing of cloth or fabric. Most human-made synthetic fibres are considered a source of various negative environmental consequences, as they use limited fossil fuels and release microfibrils, polluting the water bodies and ecosystems. These natural fibres do not contribute to microplastic pollution.

Raw materials: Wood pulp

Special attributes:

100% biodegradability,
0% harmful chemicals,
0% microplastic pollution,
99% less water usage
compared to cotton value chain



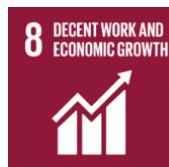
Vollebak (T-shirt)

This company makes fully biodegradable t-shirts made from pulped eucalyptus and beech from sustainably managed forests and algae grown in bioreactors. Its fabric comprises 70% lyocell from trees and 30% linen from plants, and the print on t-shirts is also made with algae ink. Algae could be grown successfully at high speed as it only needs light, carbon dioxide and water. In order to make a printable ink from algae, the water from bioreactor is passed through a filter to separate the algae paste, which is then dried to create a fine powder. This powder is then be mixed with a water-based binder to turn it into algae ink which is used to print the front of this t-shirt instead of dye. Unlike other t-shirts, this t-shirt is completely biodegradable in just 12 weeks, turning into worm food, if it is buried in the soil at the end of its life.

Raw materials: Eucalyptus, beech and algae

Special attributes:

100% biodegradability in 12 weeks





Biotrem (Disposable tableware)

The Zambrow-based company manufactures biodegradable disposable tableware. These products are environmentally-friendly alternatives to single-use plastic tableware which takes centuries to degrade and pollutes the ecosystems in the process. Wheat bran and a small amount of water is used to make edible and compostable plates, bowls and cutlery under high pressure and high temperature using patented technology. Biotrem mentioned that its production process does not require significant amount of water, minerals resources or chemical compounds. 10,000 units of dishes could be produced using 1 ton of wheat bran. The robust and stable wheat bran tableware could hold both hot and cold meals, and can be used in ovens or microwave ovens. These products are edible after use or fully compostable within 30 days, compared to 6 months for paper disposable products and hundreds of years for plastic disposable tableware.

Raw materials: Wheat bran

Special attributes:
Edible after use and
biodegradability in 30 days

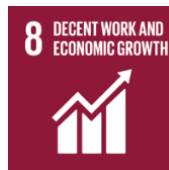


Ecovative (Packaging)

This company produces sustainable and environmentally-friendly alternatives to styrofoam packaging, skincare accessories, textiles, apparel and meat, using mushroom, renewable biological raw materials. These products are made of mycelium which is the roots of mushroom, together with hemp. All the products are completely biobased, and the packaging and skincare accessories such as make-up sponge, eye mask, make-up removers are 100% biodegradable. In order to make the packaging, the reusable or recyclable growth trays of any shape are filled with a mixture of hemp, flour and mycelium, sealed to grow for 4 days. After that, the parts are pop out of the moulds to grow for another 2 days to attain velvety layer of overgrowth. Those parts are then dried to prevent future growth to get final fully compostable packaging.

Raw materials: Mushroom and
hemp

Special attributes:
100% biodegradable packaging
alternatives to styrofoam





Huski Home (Straws)

This company produces completely edible and biodegradable straws, made from renewable biological resources of bull rush grass. These straws do not go mushy or soggy mid-drink like paper straws. They are fully food-safe, gluten-free, non-toxic, preservatives-free, colourings-free, odourless and flavourless. They are environmentally-friendly alternatives to plastic straws, which takes few hundred years to decompose and often end up in the seas and oceans, harming the marine animals.

Raw materials: Bull rush grass

Special attributes:
Edible after use and
biodegradability



Toast Ale (Beer)

Globally, over one third of food produced is wasted. One of the most common wasted food is bread due to its relatively cheap price with a short shelf life. In UK alone, about 44% of all bread produced was thrown away into bin. In order to tackle food waste problem, this UK company collects the bread waste from bakeries and sandwich makers to divert them from landfills and give a second life as a beer. These surplus breads can be incorporated into the normal brewing processes together with the usual ingredients of malted barley, hops, yeast and water without the need for any new technology, by simply replacing up to one third of the required malted barley amount.

Raw materials: Bread waste
with conventional inputs

Special attributes:
Diverting huge amount of bread
waste from landfills





Raw materials: Elephant dung and recycled paper

Special attributes:
Valorising dung, saving trees, creation of local jobs, protection of elephants, reduction in humans-elephants conflicts



Ellie Pooh (Paper)

This Sri Lanka based company turns the elephant dung into a paper, mixing 30% dung with 70% recycled paper. The elephants can produce up to 180 – 200 kg of manure, which is normally regarded as wastes without any value. Elephant dung consists 50% to 60% undigested plant fibres. The dung is collected, washed to get the fibres, boiled to disinfect, blended with recycled paper before it is moulded into submerge screens to be compressed and sun dried to make paper. By valorising this waste, this paper production not only brings positive environmental impacts, by saving trees, reducing carbon footprint and using less water, energy and chemicals, but also protects elephants and creates jobs for local community. Elephants, generally seen as nuisance and threat by farmers as they disturb the crops, are sometimes shot and killed. Provision of sustainable papermaking jobs helps change the perceptions of elephants as economic assets, rather than threats.



Raw materials: Citrus juice by-products

Special attributes:
Valorising of citrus waste, flexibility of fabric features



Orange Fibre (Fabrics)

This Italian company valorised and repurposed the citrus juice by-products, which are normally thrown away, by turning them into sustainable fabrics for scarfs or clothes. Up to 700,000 tonnes of wastes are produced from citrus production in Italy alone annually. With the patented technology and process, the citrus cellulose is extracted from recovered citrus wastes. The extracted silk-like cellulose yarns are spun into fabrics by blending with other materials. The fabric is also enriched with citrus fruit essential oil by using nanotechnology techniques. The resulting citrus textile is soft and silky to the touch, light weight and could be made opaque or shiny based on production needs.





Raw materials: Fish skins

Special attributes:

Use of by-products of fishing industry and comparable good features of fish skin leather



Nanai (Leather)

This company valorised the fish skins, by-products of smoked salmon industry, by turning it into high-quality leather. The natural structure of the skin is preserved in the production processes. The resulting leather is tanned in a 100% chrome-free eco-friendly process using vegetables such as chestnut and mimosa. The fish skin leather is strong, durable, lightweight, tear-resistant and water repellent. The finish can be glossy or natural, with the soft and comfortable touch. The fish skin is sourced from certified organic salmon farms, which are subject to stringent regulations regarding care and breeding. This leather is an alternative solution to conventional leather and other exotic species like crocodile, stingray, ostrich or snake. It has been used to make a lot of products such as fashion clothing, shoes, accessories, etc.



Raw materials: Waste coffee grounds and other plant-based materials

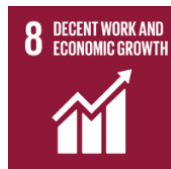
Special attributes:

Valorising of waste coffee grounds which are normally thrown away



Koffeeform (Coffee Cups)

This berlin-based company Koffeeform gives a second life to the used/ waste coffee grounds by transforming them into reusable, durable coffee cups with marbled surface appearance. The products are made of used coffee grounds and other renewable plant-based materials, hardened with biopolymers. This company partners with bicycle courier collective to recover the used coffee grounds from partnered cafes and roasteries in Berlin. The collected coffee grounds are dried and preserved in a local social workshop, before being sent to small plants in Germany, where the mixture of raw materials are transformed into coffee cups. These cups receive the final polish when they are back in the social workshop, before being packaged for deliveries to cafes, shops and customers.





Special attributes:

Repairing and reselling unwanted furniture to keep them in use for longer



Kaiyo (Furniture)

Kaiyo aims to save the unwanted high-quality durable furniture from landfills and keep them in productive use for longer. This platform allows the owners, workers or students on the move to recoup some values out of their unwanted furniture, instead of simply disposing which could also be costly. The furniture owners could contact Kaiyo who reviews the furniture, collects it from the owner, cleans and repairs if necessary, lists it on the website, stores it in Kaiyo warehouses for free of charge until it is sold and delivered to the buyers. Kaiyo is responsible for all the necessary work to get the most value out of the unwanted furniture and it pays the donors a commission of up to 40% once those items are sold. The buyers also benefit from discounts on high-quality pre-loved furniture. Kaiyo takes care of delivery and setting up the furniture.



Special attributes:

Offering refurbished or remanufactured furniture option, and remaking of existing products to as-if-new conditions



Rype Office (Office Furniture)

Rype office offers office furniture – new, refurbished or refreshed, and remanufactured furniture to suit different customer types and their preferences. If the customers prefer new furniture, they sell it with options of buy-back scheme or rent it, so that they could recover all used furniture at the end of its first life for refurbishing and remanufacturing to extend the working lives. For those customers who want a fresh look of their current office furniture, Rype office offers customised refurbishment and resizing options to remake existing furniture to as-if-new products to suit customers' specifications and their office at about 30% of the cost of buying new.





Special attributes:
Cheaper options of used or remanufactured vehicles, extension of vehicle lifespan



Refuse Vehicle Solutions (Refuse Vehicles)

This company offers a cost-effective alternative for new, quality used or remanufactured refuse vehicles. It aims to extend the operational life of refuse vehicles to longer than 15 years, about three times longer than typical operational lifespan through mid-life overhaul and remanufacturing processes. It sources the vehicles using its long experience in the industry and robust inspection processes. It undertakes major modifications through stringent quality controls to resell these high-quality refuse vehicles, providing the same operation lifetime of a new vehicle and a savings of up to 50% to the customers. It offers after-sales sales support of product and equipment training, field service repairs or preventative maintenance. It also leases these vehicles for short or long term hire.



Special attributes:
Repairing and redistribution of defective electronic appliances



CoreCentrics Solutions (Appliances)

Rapid technological advancements and product designs with shorter lifecycles make repair services increasingly scarce for customers. Hence, they mostly end up disposing defective electrical and electronic consumer appliances and get replacements. CoreCentrics Solutions has developed a business model and repair/redistribution infrastructure to recoup values from returned or defective appliances, collected through both its own system and collaborations with largest retailers and manufacturers. It provides product returns management, repairs and remanufacturing services that remake the damaged or returned parts/products to as-if new conditions for original equipment manufacturers and parts wholesalers. Its services and infrastructure extend the effective lives of those products, enabling higher utility and value and saving them from landfills.





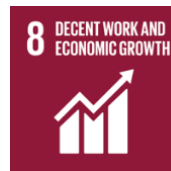
Special attributes:

Durability, offer of repair services, product warranty, repair and care guides for customers, recommerce



Patagonia (Outdoor Clothing)

Patagonia makes high-quality outdoor clothing that lasts for many years and could be repaired so that the customers do not need to buy more. It also provides Ironclad guarantee that allows customers to return the products to Patagonia for a repair, replacement or refunds if they are not satisfied with the performance of the products. The customers can also send the damaged products due to wear and tear for repair services at reasonable fee. They could also trade in used Patagonia clothing in good functional conditions for credits toward new purchases. Patagonia then partners with Yerdle to recommence those pre-loved quality products. Besides, it has also created partnership with iFixit to provide repair and care guides for various damages or general maintenance on its website to enable the customers to repair Patagonia products by themselves. Patagonia has put in huge effort to keep its products in use for longer and out of landfill.



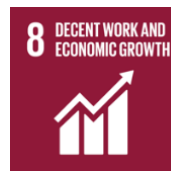
Special attributes:

Sharing of spare or underutilised room, apartment or house



Airbnb (Lodging)

Airbnb is an online platform that matches the apartment or house owners who want to rent a spare room or the whole place to visitors or travellers who are looking for short term lodging, allowing home sharing in many cities worldwide. The company does not own any of those properties and its earns the commission on each booking completed. It is beneficial to both the house owners and the guests, as it provides the property owners additional income stream by renting a space which has been less utilised. The travellers and guests could also live like locals during their visits to those cities, having access to bigger spaces, kitchen, home appliances and amenities, and at a cheaper cost compared to hotels.





Special attributes:
Sharing of bikes and other sport equipment among consumers



Spinlister (Bikes)

Spinlister is a peer-to-peer sharing platform that allows bike owners to list their bikes available for renting and renters to search for a bike to rent in whatever area they are in by city, zip code, available date and ride types. Its primary market is bikes with listing in 63 countries. However, they are also expanding into other markets, enabling sharing of surfboards, Stand up Paddle boards (SUPs), ski equipment and snowboards etc. The company also offers coverages for damages and theft protection in selected areas for a fee. Bike owners could make some money by sharing their underutilised bikes, and travellers and active people could get the flexibility of having access to nearby bikes located throughout different cities when they need.



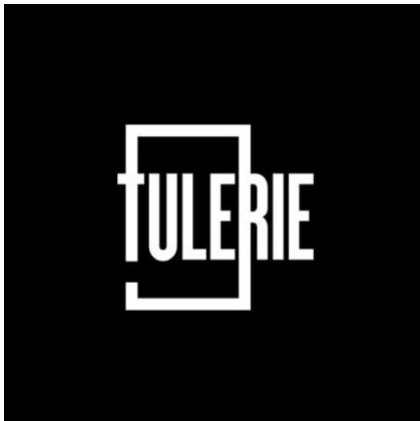
Special attributes:
Peer-to-peer rental platform to share underutilised private cars



GetAround (Cars)

GetAround is peer-to-peer car renting platform where the private car owners can rent their cars when they are not in use. People who want to rent a car can find, book on demand, rent and unlock different types of cars all from the mobile phones instantly near their locations or cities they are at. The borrowers have to pick the cars up at their home locations and need to pay by hour (but only for the time they actually use the cars) and by additional mileages if it exceeds the daily limits. Borrowers are responsible for refuelling before they return the cars to original locations. The 24/7 roadside assistance and insurance for drivers and vehicles are covered by Getaround's insurance policy during an active trip. This service is available in 300 cities worldwide. It allows private car owners earn some money for their car when they are not using it and the borrowers to have access to cars without the need to buy.

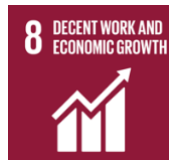




Special attributes:
Peer-to-peer renting platform to share underutilised clothing

Tulerie (Clothing, Shoes, Accessories)

Tulerie is peer-to-peer platform that allows lending and borrowing high-end women clothing, shoes and accessories to each other. In order to join this platform, the users go through the face-time interviews to ensure the trust within this community that rented clothing would be treated and cared as if they were their own. Borrowers can browse and request the clothing of their choices, by choosing delivery date and rental period. Once the request is approved, the items are delivered via postal service to their preferred locations by the lenders and those could be returned in original packaging with pre-paid return labels. The lenders should have it cleaned to get it ready for the next rental. Tulerie enables the women to have access to designers clothing without the commitments and the investments while reducing their environmental footprints. It also allows the owners to earn the money out of underutilised expensive clothing.



Special attributes:
Sharing of underutilised tools and elimination of the need to buy tools

Edinburgh Tool Library (Tools)

Edinburgh tool library is the first tool library in the UK, to lend tools for its members for do-it-yourself projects, gardening, decorating, machine repairs etc. This organisation promotes sharing of tools to reduce the environmental impacts, recognising the underutilisation patterns for most tools. The average utilisation rate of a power drill is estimated as 13 minutes in total during its entire life time. This tool library accepts donations of good quality tools which have been built to last a lifetime. The members of the tool library pay a small fee per year to have access to over 1,000 tools without the need to store, maintain or buy them. It also runs guided workshops on woodworking, tool maintenance and bike repairs for its members.





Philips (Light)

Philips provides 'pay-per-lux' lighting services to the business customers who wants to purchase light, but not the associated lighting infrastructure. Philips retains the ownership and is responsible for designs, installation, operation, monitoring, maintenance, upgrades and recovery throughout the lifecycle. It incorporates the use of the natural light resources in a more effective way, motion sensor and LED lighting technology with better performance, longer life and energy efficiency. Customers do not need to invest upfront and own the lighting infrastructure which eventually needs to be discarded for replacement. Instead, they just need to pay for the optimal amount of light they require and use. This arrangement could also result in receiving better services, as the light provider has incentives to provide long-lasting lighting infrastructure.

Special attributes:

Pay-per-lux arrangement instead of buying the whole lighting infrastructure



Run the Runway (Clothing)

The company offers the fixed monthly subscription rental plans which allow the customers to lease a fixed number of designers clothing from various brands at a time. The selected items would be delivered to the customers in two days with prepaid shipping labels and reusable garment bags to return the clothing when they are ready to swap for new items. The monthly rental fee includes insurance for general wear and tear and minor spills, and covers shipping and dry cleaning of the garments. This model increases the utilisation rate of the clothes by renting to multiple users, and ensures the collections of old clothing for recycling or upcycling at the end of the useful life by retaining the ownership. Customers have the benefits of being able to experiment different styles and brands without the need to invest in the purchases, having always-rotating selection of designer clothing without taking up the space, and not having to deal with the disposal.

Special attributes:

Fixed monthly subscription payment plan to lease without the need to purchase





Bundles (White Goods)

Bundles provides high-end and energy efficient washing machines, tumble dryers, coffee machines or dishwashing machines from Miele on monthly subscription plans. The customers do not need to purchase these products. They are only required to pay a one-time small refundable deposit, fixed monthly fees and few cents per cycle of use for each product they have chosen to rent. Bundles provides free delivery, installations, removal of old appliances, insights about the usage and personalised tips, maintenance and repairs. The customers would receive monthly invoice with cost of usage and they can cancel the contract at any time. The smart tools measure the energy use, recognise opportunities to decrease consumption and improve design, monitor the appliance performances and prevent the functional problems. Customers also benefits by not having to invest large upfront cost in these high quality appliances, saving money through smarter use tips provided and pay per use.

Special attributes:

Monthly fixed rental fee and pay-per-use fee structure, instead of large upfront cost



Xerox (Printers)



Xerox allows business customers lease the printers, copiers, multifunction devices and product equipment over a specified contract period from a few days to years. The rental comes with supplies, reliable support, delivery, installation and removal. The customers do not need to bear the burden of a large capital outlay and can distribute the cost over longer period. The rental model is also suitable for temporary offices, sales offices, short-term needs, special events requiring large amount of printed materials and peak periods of increased workload.

Special attributes:

Leasing over a specified period with regular interval rental fees

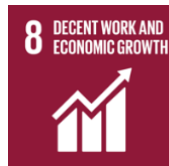




IKEA (Furniture)

Special attributes:
Subscription-based furniture
leasing

IKEA has announced in 2019 about its plan to test subscription-based furniture leasing offers in 30 markets throughout 2020 in respond to its consumer research. This would enable its products to be more affordable, accessible and sustainable, while helping the consumers move away from the wasteful and unsustainable consumption behaviours. Its research has identified the key consumer groups such as university students, expatriate workers and small enterprises. These customer segments want to have access to the home furnishing products with little emotional connection and less importance on ownership due to the temporary nature of needs, the need to move frequently and the desire to distribute the investment in furniture over a longer period of time. This model would also allow the company to retain the ownership of the furniture which can be fed back into the loop through reuse and repairs before finally recycling the materials and parts at the end of useful life.



Answer Sheet for Workshop Participants (to show participants at the end of the game)

Circular Supplies	Resources Recovery & Recycling	Product Life-Extension
Spinnova (Textile fibres)	Toast Ale (Beer)	Kaiyo (Furnitures)
Vollebak (T-shirt)	Mr Ellie Pooh (Paper)	Rype Office (Office Furnitures)
BioTrem (Tableware)	Orange Fibre (Fabrics)	Refuse Vehicle Solutions (Refuse Vehicles)
Ecovative (Packaging)	Nanai (Fish skin leather)	CoreCentrics Solutions (Appliances)
Huski Home (Straws)	Kaffee foam (Coffee Cups)	Patagonia (Clothing)

Sharing Platforms	Product-as-a-Service
AirBnB (Lodging)	Philips (Light)
Spinlister (Bikes)	Rent the Runway (Fashion Clothing)
GetAround or Turo (Cars)	Bundles (White Goods)
Tulerie (Clothing)	Xerox (Printers)
Edinburgh Tool Library (Tools) – <i>could also be Product as a Service</i>	IKEA (Furniture)



Workshop leader can read out the correct answers. Or correct answers could be projected on the screen/board. Or answer sheet could be provided in an envelope which would only be opened after individuals/teams have completed grouping all cards.

Information for further study on the 25 companies, used in “Business Match”


















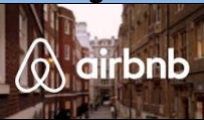




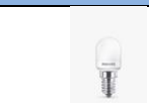



Circular Business Models Examples	Corresponding References, Sources or Links for Further Information
Circular Supplies	
Spinnova (Textile fibres)	<ul style="list-style-type: none"> • https://spinnova.com/our-method/fibre/ • https://www.fastcompany.com/90208791/this-startup-wants-to-your-next-t-shirt-to-be-made-from-wood • https://materialdistrict.com/article/wood-based-textile-fibre/ • https://www.worldofchemicals.com/448/chemistry-articles/chemistry-of-textile-manufacturing.html
Vollebak (T-shirt)	https://www.vollebak.com/product/plant-and-algae-t-shirt/
Biotrem (Disposable tableware)	https://biotrem.pl/en/
Ecovative (Packaging)	<ul style="list-style-type: none"> • https://ecovatedesign.com • https://www.businessinsider.com/ecovative-turns-mushrooms-into-packaging-ikea-dell-2016-8?r=US&IR=T#this-is-styrofoam-it-doesnt-break-down-in-the-environment--at-least-not-for-more-than-a-million-years-literally-yet-we-use-it-in-tons-of-different-types-of-packaging-from-cups-to-building-materials-1
Huski Home (Straws)	https://www.huskihome.co.uk/home/products/huski-home-100-natural-grass-straws
Resources Recovery & Recycling	
Toast Ale (Beer)	<ul style="list-style-type: none"> • https://www.ellenmacarthurfoundation.org/case-studies/brewing-beer-from-surplus-bread • https://www.toastale.com
Mr Ellie Pooh (Paper)	<ul style="list-style-type: none"> • https://mrelliepooh.com • Farah, N. et al. (2014) ‘Processing of Elephant Dung and its Utilization as a Raw Material for Making Exotic Paper’, <i>Research Journal of Chemical Sciences Res. J. Chem. Sci</i>, 4(8), pp. 2231–606. Available at: http://www.isca.in/rjcs/Archives/v4/i8/15.ISCA-RJCS-2014-134.pdf. • https://thekidshouldseethis.com/post/84437356027 • https://www.bbc.co.uk/news/business-36162953
Orange Fibre (Fabrics)	<ul style="list-style-type: none"> • http://orangefiber.it/en/ • http://orangefiber.it/en/how-to-turn-citrus-waste-into-a-sustainable-fabric/
Nanai (Fish skin leather)	https://www.salmo-leather.de
Kaffeeform (Coffee cups)	https://www.kaffeeform.com/en/
Product Life-Extension	
Kaiyo (Furniture)	<ul style="list-style-type: none"> • https://www.ellenmacarthurfoundation.org/case-studies/the-final-stop-for-quality-furniture • https://kaiyo.com/how-it-works#do-you-allow-local-pickups
Rype Office (Office Furniture)	<ul style="list-style-type: none"> • https://www.rypeoffice.com • https://www.ellenmacarthurfoundation.org/case-studies/circular-economy-options-in-office-furnishing
Refuse Vehicle Solutions (Refuse Vehicles)	<ul style="list-style-type: none"> • https://www.ellenmacarthurfoundation.org/case-studies/remanufacturing-of-refuse-vehicles • https://www.refusevehiclesolutions.co.uk

Circular Business Models Examples	Corresponding References, Sources or Links for Further Information
CoreCentrics Solutions (Appliances)	<ul style="list-style-type: none"> • https://www.ellenmacarthurfoundation.org/case-studies/a-second-life-returns-management-parts-recovery-and-product-repairs • https://www.corecentricsolutions.com
Patagonia (Outdoor Clothing)	https://eu.patagonia.com/gb/en/worn-wear-repairs/
Sharing Platforms	
Airbnb (Lodging)	<ul style="list-style-type: none"> • https://www.airbnb.co.uk • https://www.mccooltravel.com/8-great-airbnb-advantages/ • https://en.wikipedia.org/wiki/Airbnb
Spinlister (Bikes)	<ul style="list-style-type: none"> • https://www.spinlister.com/about • https://www.forbes.com/sites/carltonreid/2019/01/03/airbnb-style-bicycle-rental-platform-spinlister-relaunches-via-oprahs-favorite-bike-firm/#3d10742f538f • https://en.wikipedia.org/wiki/Spinlister
GetAround (Cars)	https://www.getaround.com
Tulerie (Clothing, Shoes, Accessories)	https://tulerie.com
Edinburgh Tool Library (Tools)	https://edinburghtoollibrary.org.uk
Product-as-a-Service	
Philips (Light)	<ul style="list-style-type: none"> • https://www.ellenmacarthurfoundation.org/case-studies/selling-light-as-a-service • https://www.greenbiz.com/article/how-philips-became-pioneer-circularity-service • https://www.lighting.philips.co.uk/cases/cases/office/edge
Rent the Runway (Clothing)	https://www.renttherunway.com
Bundles (White Goods)	https://bundles.nl/en/
Xerox (Printers and Copiers)	https://www.xerox.co.uk/en-gb/office/printer-copier-rental
IKEA (Furniture)	<ul style="list-style-type: none"> • https://www.ikea.com/us/en/this-is-ikea/newsroom/ikea-will-test-furniture-leasing-in-30-markets-during-2020-pub1ae9e5e1 • https://uk.reuters.com/article/uk-ikea-sustainability-cities/ikea-to-test-furniture-rental-in-30-countries-idUKKCN1RF1ST

Web links for Images used in the “Business Match” game



Circular Business Models Examples	Sources or Links for Images used in ‘Group the Circular Business Models’ Game
Circular Supplies	
	Spinnova (Textile fibres) https://spinnova.com/wp-content/uploads/2018/11/Spinnova-Fibres-1024x684.jpg
	Vollebak (T-shirt) https://dyk8bhziatzfed.cloudfront.net/wp-content/uploads/2019/08/plant-and-algaet-300-1376-1376x776.jpg
	Biotrem(Disposable tableware) https://industry europe.com/downloads/4481/download/biotrem1.jpg?cb=493b12efb431dff28baf3fa3af9563a0&w=640
	Ecovative (Packaging) https://pbs.twimg.com/media/B8TCwCSCUAAA1vQ.jpg
	Huski Home (Straws) https://www.huskihome.co.uk/application/files/8515/5741/7446/Huski-Home-Grass-Straws.jpg
Resources Recovery & Recycling	
	Toast Ale (Beer) https://www.iamrenew.com/wp-content/uploads/2019/07/Toast-Ale-Banner.jpg
	Mr Ellie Pooh (Paper) https://www.paperhigh.com/media/catalog/product/cache/1/thumbnail/600x600/9df78eab33525d08d6e5fb8d27136e95/e/l/ele-dung-group-note-books-_9.jpg
	Orange Fibre (Fabrics) http://orangefiber.it/wp-content/uploads/2017/04/8_noframe-900x900.jpg
	Nanai (Fish skin leather) https://i.pinimg.com/originals/b8/00/71/b80071aeae24b0b47ad73260628fe47f.jpg
	Kaffeeform (Coffee cups) https://www.packaging-gateway.com/wp-content/uploads/sites/2/2019/10/Kaffeeform-Tassen-aus-Kaffeersatz-1.jpg
Product Life-Extension	
	Kaiyo (Furniture) https://moneydotcomvip.files.wordpress.com/2019/09/aklnwpua.jpeg?quality=85

Circular Business Models Examples	Sources or Links for Images used in 'Group the Circular Business Models' Game
	Rype Office (Office Furniture) https://lh3.googleusercontent.com/proxy/NL9naTWzDW16kcEQcNBn-BMwIH2dVjT1ikGeNMiidE2Cd_15cpXw2xyLioRjbC6hm8yK8w8p-gmtrDEdveUsNQ59puls3872dSWNgj88BTdutzhiM9BphF5BMJNhXPXzTum0Q
	Refuse Vehicle Solutions (Refuse Vehicles) https://www.epicmediagroup.co.uk/wp-content/uploads/2017/01/DSC_0546.jpg
	CoreCentrics Solutions (Appliances) https://wwwcdn.corecentricsolutions.com/wp-content/uploads/2018/09/p2.jpg
	Patagonia (Outdoor Clothing) https://www.patagonia.com/static/on/demandware.static-/Sites/default/dweb60e6f/images/seo/1920x1080_patagonia_fitzroy_P6.jpg
Sharing Platforms	
	Airbnb (Lodging) https://hackernoon.com/hn-images/1*yZ1LPicXnnW6Ubmp2M-0rQ.png
	Spinlister (Bikes) https://www.netted.net/wp-content/uploads/sites/14/2015/02/Spinlister_1000x563_2.6.15.png
	Getaround (Cars) https://la.streetsblog.org/wp-content/uploads/sites/2/2019/02/Getaroundlogo.jpg
	Tulerie (Clothing, Shoes, Accessories) https://is2-ssl.mzstatic.com/image/thumb/Purple123/v4/c8/b4/ef/c8b4efc9-af99-f6c3-e801-4f8e87c3b08d/source/512x512bb.jpg
	Edinburgh Tool Library (Tools) https://edinburghtoollibrary.org.uk/wp-content/uploads/2013/04/edinburgh-tool-library-banner.jpg
Product-as-a-Service	
	Philips (Light) https://johnlewis.scene7.com/is/image/JohnLewis/237006205?\$rsp-plp-port-320\$
	Rent the runway (Clothing) https://media.glamour.com/photos/582f27050700a182135fdead/16:9/w_1280,c_limit/rent-the-runway-store.jpeg
	Bundles (White Goods) https://lh3.googleusercontent.com/proxy/b1tGHoX0B9IIVwGFLonGRQilo-FPc1GKBK_TtdIFUdz6w2798-LHFUtSmtl3Xbndq-efYzjYkb5xV4xQzxzmFLPIT1YWRG8
	Xerox (Printers and Copiers) https://3.imimg.com/data3/TD/CU/MY-3885680/xerox-work-center-500x500.jpg
	IKEA (Furniture) https://www.ikea.com/images/66/2d/662d5bb982c13e4b0336f75c08f9f263.jpg?f=s

