

# Green Economy and Circular Economy Solutions

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**Our mission is to  
accelerate the move to  
a sustainable,  
low carbon economy**

An economy fit for the planet

# The Carbon Trust has global footprint with over 19 years of experience in sustainability

- Independent, mission-driven, not-for-dividend
- Advise businesses, the public sector and governments on their opportunities in a sustainable, low carbon world
- Working every day with new technologies, markets and business models across sectors - Energy Efficiency, Renewable Energy, Energy Access, Green Finance, Clean Tech Innovation, etc.

**180** Employees

**30** Nationalities

Unlimited skills





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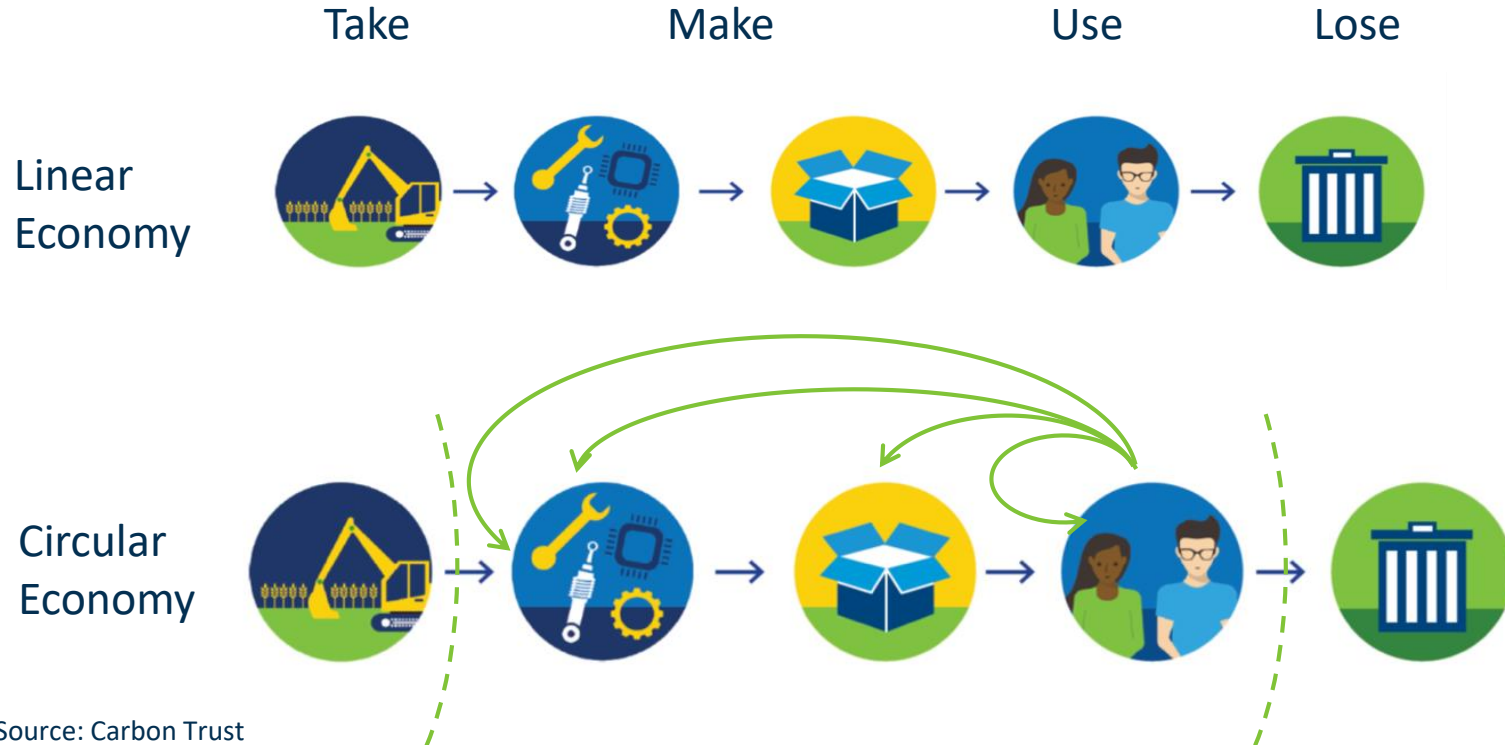
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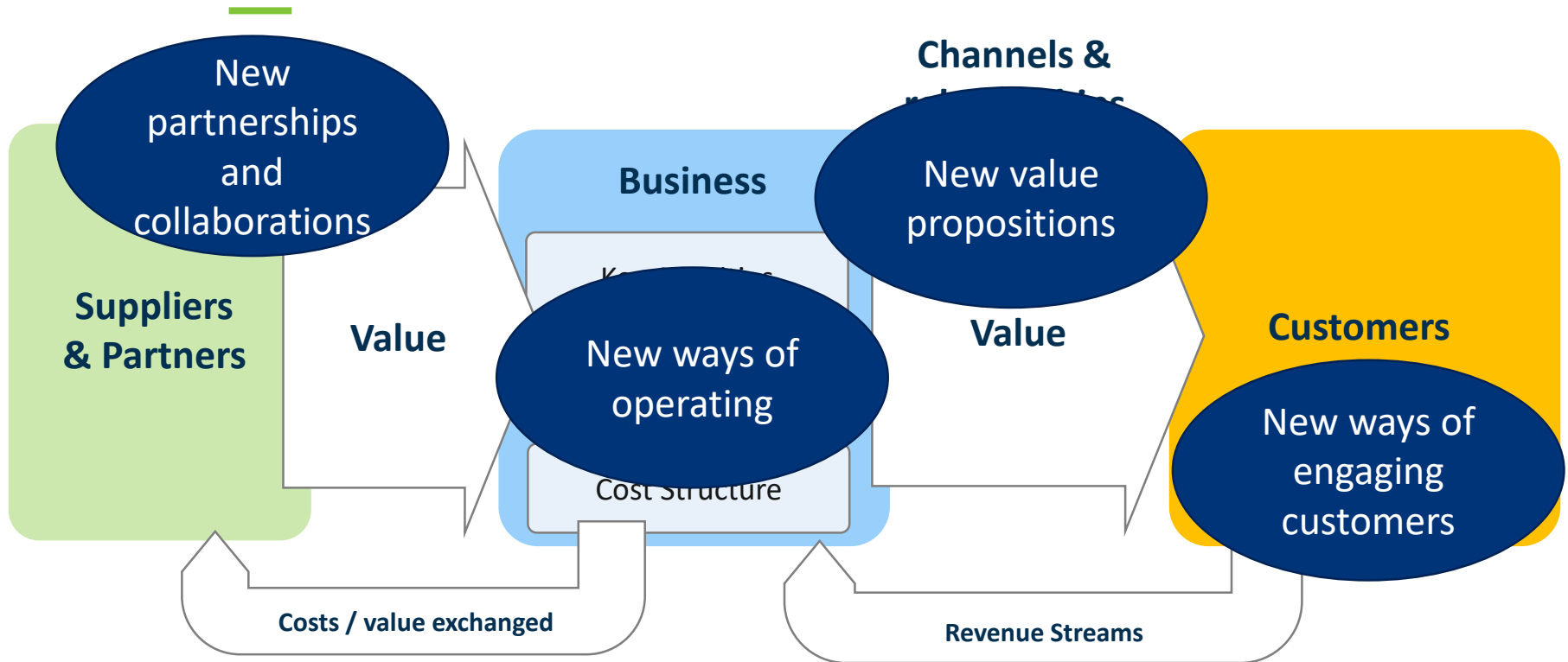
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# Circular Economy retains the value of products and materials within value chains and the economy



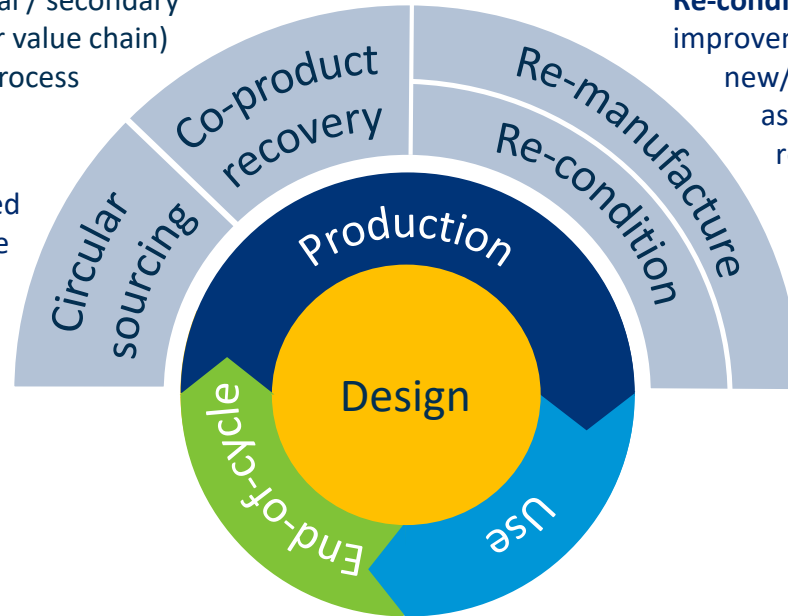
# Innovation is required to transition effectively from the linear to circular business models



# There are several production phase circular business models as illustrated below

**Co-product recovery.** Residual / secondary outputs from one process (or value chain) become inputs for another process (or value chain).

**Circular sourcing.** Sourcing recycled or renewable materials that can be returned to either the technical or biological cycle.



**Re-condition.** Fixing of a fault / aesthetic improvement of a product, but with no new/additional warranty on the product as a whole. Includes repair and refurbishment.

**Re-manufacture.** Manufacturing steps acting on warranty to match. an end-of-life part or product in order to return it to like-new or better performance, with





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# There are several circular economy initiatives on the continent

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- GreenCape Circular Economy Unit- market intelligence, business support, various programmes (WISP, Plastics PACT, etc)
- The African Development Bank (AfDB)'s African Circular Economy Alliance (ACEA), whose secretariat is hosted by Dalberg
- The Africa Circular Economy Network (ACEN) aims to promote and mainstream African Circular Economy expertise.
  - ACEN has a network of 33 countries
  - ACEN Vision statement is to ***“Build restorative African economies that generate well-being and prosperity inclusive of all its people through new forms of economic production and consumption which maintain and regenerate its environmental resources”***

**SENEGAL**

- Odissi - refill 10L water bottle at mini-filtration stations in through existing retail networks in Dakar at 50% of the original price
- SeTIC, Proplast (Recuplast), Jokko Sante, E-Cover
- Theogaz - bio industrial waste

**MOROCCO**

- Tawafouk waste valorization
- SDDN – sustainable development road map
- L'Orange Bleue – first residential food garden shared between 100 families

**ALGERIA**

- Large renewable energy projects
- Unilever strategy

**EGYPT**

UpFuse - upcycles plastic bags into fashionable accessories. It has recycled 50,000 plastic bags since 2013. Each UpFuse tote bag is made using 30 plastic bags.

**ETHIOPIA**

Co-ordinated approach to green growth based on economic development to achieve middle-income country status by 2025. Focus on agriculture, energy and water.

**UGANDA**

- Mazzi Can – see Tanzania
- Sugar industry waste to energy
- Solar based products
- Biogas
- Waste water car wash recycling

**IVORY COAST**

- Lono – permaculture where nutrients return to local farmers avoiding the use of expensive imported fertilisers
- AfDB is assisting to setup a plastic waste collection & recycling scheme that will employ 2,000 people
- Coliba – mobile app to manage and monetise waste
- Abidjan FabLab
- Domaine Bini – ecotourism

**GHANA**

- Suame / Kumasi vehicle repair cluster of 12,000 firms and 200,000 workers
- Coliba – mobile app to manage and monetise waste
- AMP (Agriculture Makerspace Platform) – creating value from e-waste
- Organic food on Katemfe leave
- Koko King 6 food redistributed to farmers for animal feed
- Environment 360 – cooperative waste valorization model

**NIGERIA**

Hello Tractor – tractor services via SMS and mobile money  
Abuja biomimicry urban design

**CAMEROON**

Ke;it Organic Charcoal – clean energy, safe cooking  
Start-up transforming tires into carpets

**KENYA**

- Eco Post – biomass and recycled plastic to make plastic and lumber
- Well known for its 2<sup>nd</sup> hand clothing market

**RWANDA**

E-waste recycling facility which takes 15 types of electronic and electrical equipment dismantled and recycled. In first six months the facility had collected 120 tonnes of e-Waste and recycled 400 computers

**BENIN**

- Songhai Farm uses traditional permaculture farming where one resource is a nutrient for another plant cycle
- Les Jardins de l'Espoir – Agro-Bootcamp (Djouman)

**ZAMBIA**

Lilongwe Composting Project (ICLET)

**TANZANIA**

- Mazzi Can – durable plastic container for milk to reduce cost and spoilage
- Government & World Bank water efficiency project for small-holder farms
- Dutch government provided assistance to municipal governments to improve waste management

**ANGOLA**

AmbiReciclo – recycled tires and cooking oils

**NAMIBIA**

- Biomass – Collection to combat bush and tree encroachment on 30 to 45 million hectares to use as biomass material

**MOZAMBIQUE**

Regenerative thinking qt Açureira de Xinavane, Mozambique

**MAURITIUS**

Belle Verte - A closed-loop waste management system providing waste management solutions. Works with local artisans to create, market and sell upcycled waste materials;

**ZIMBABWE**

Biomimicry at East Gate Shopping Mall that mimics a termite mount air cooling system

**SOUTH AFRICA**

- Sustainable heating – biomass burned for energy & fertiliser
- Barloworld Equipment – repairing and refurbishing Caterpillar machinery parts with manufacturer's guarantee
- Genius of Place Project – using biomimicry principles to clean grey water, storm water and solid waste in informal settlements
- Three facilitated industrial symbiosis programmes operating in Gauteng, KwaZulu Natal and the Western Cape provinces
- Agriprotein – nutrient recycling of organic waste via fly larvae to produce protein for animal feed
- ACA Threads – collects used thread cones from customers for re-use
- The Clothing & Appliance Bank – creating micro-enterprises to sell clothes that can no longer be sold by the retailer and repairing electrical appliances for re-sale to a second hand market
- African Reclaimers Association (WIEGO) – waste valorisation

**SOURCE: ACEN**

**SEVERAL COUNTRIES:**

- Sustainability and/or environmental road maps
- Single use plastic ban
- E-waste decrees
- Green economy plans

# The circular economy is key to enabling inclusive green growth, and reducing carbon intensity in value chains

CE opportunities will increasingly evolve from end of pipe to innovative business models

- Based on ACEN's database, the majority of CE projects on the continent tend to focus on solutions for end-of life and/or resource recovery of high value materials such as plastics, e-waste, organic wastes, metals, etc.
- Below is a non-exhaustive list of examples of projects/programmes in South Africa



The Western Cape Industrial Symbiosis Programme (WISP) is a free facilitation service that seeks to create a circular economy.

Benefits: Reduced costs, Increased Revenues /increased profits, streamlined business processes, jobs created, Tons of waste diverted, and CO2 reduced



• nutrient recycling of organic waste via fly larvae to produce protein for animal feed



• repairing and refurbishing Caterpillar machinery parts with manufacturer's guarantee



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# EU Horizon2020: Developing circular business models

Developing approaches to business model innovation and policy frameworks to enable the transition towards circular economy




**SEB**

- End of life product take-back
- Closed loop material supply chain



**PHILIPS Healthcare**

- Lifecycle value enhancement
- Refurbishment and end-of-life recovery



**Canon**

- Refurbishment and remanufacturing models
- 'Print-as-a-service'



**Rolls-Royce®**

- Product-service system, offering 'turbines-as-a-service' model

A key challenge to scaling up the circular economy is understanding how to embed it within business models – in particular how it influences and enhances value creation, and approaches to delivering and capturing this value.

The Carbon Trust was a key partner EU Horizon 2020 project which addresses circular economy from a business model perspective. This included:

- Working with businesses in the EU and Israel to identify and establish successful approaches to embedding circular economy within business models
- Developing methods, tools, and case studies for business model innovation
- Developing policy recommendations for the EU

# Circular London Accelerator

Designing and delivering a start-up incubation and acceleration programme to address circular economy 'grand challenges' for London



### Bespoke support

Designed to accelerate your business growth with no equity or fees.



### Access to finance

Investment readiness support, connections to investors and other sources of funding.



### Mentoring

Access to expert mentors who will guide your personal and professional growth.



### Access to market

Facilitated introductions to potential customers and market validation from industry leaders and supporters of the programme.



### Workspace

Access to free desk space and meeting rooms, and benefit from peer collaboration in LWARB's new circular office in Shoreditch.



### Network

Access to LWARB's extensive network of built environment, circular economy, public sector, and policy connections.


- Designing and delivering an accelerator for start-ups to support the commercialisation and scaling of innovative solutions.
- Focus on start-ups providing solutions to circular economy challenges relevant to London, but with potential to scale internationally
- Providing a bespoke programme of technical and commercial support for start-ups to take ideas from prototype stage to market and investment readiness. Services include:
  - Technology and business model development
  - Developing go-to-market strategies and business development
  - Intensive mentoring and coaching
  - Raising investment

**Start-up cohort**



- Advanced manufacturing models
- Asset lifecycle performance management
- Enabling technology (IoT, blockchain, AI)
- New materials
- New business models

**Corporate sponsors**



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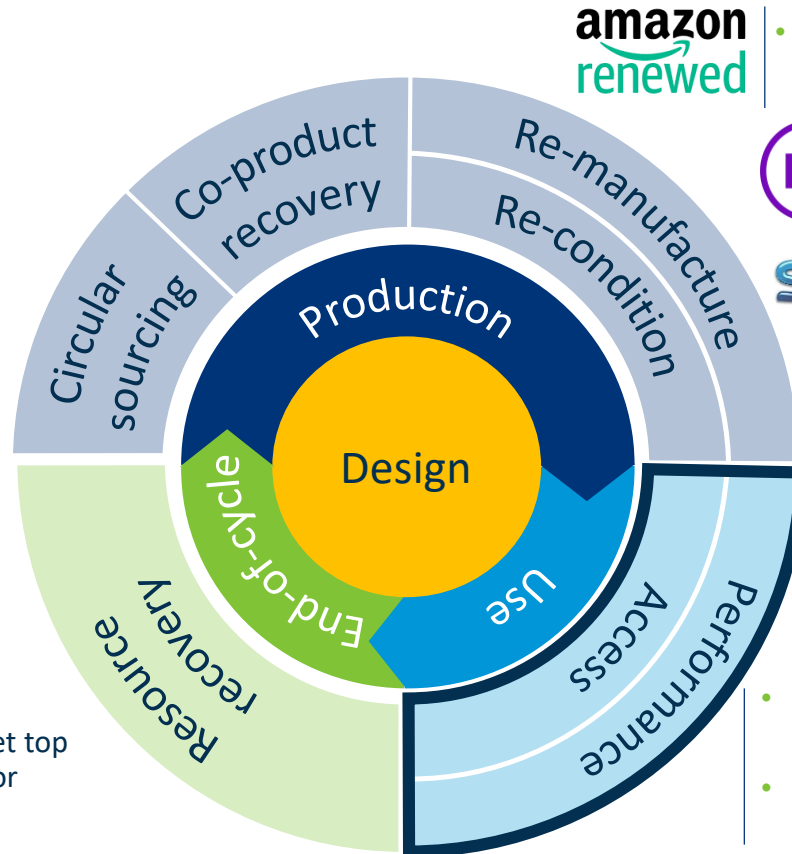
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# Telco and tech sector examples



**amazon**  
renewed

- Certified refurbished products.



- Refurbishing used equipment.



- Design improvements enabling product refurbishment of set-top boxes.



vodafone

- 2025 goal to reuse, resell or recycle 100% of network waste.
- Building a circular economy model for devices (trade-in, buy-back, repair services).



vodafone

- Strategic relationship with Fairphone.
- Group policy to prioritise reuse or recycling of unwanted equipment.



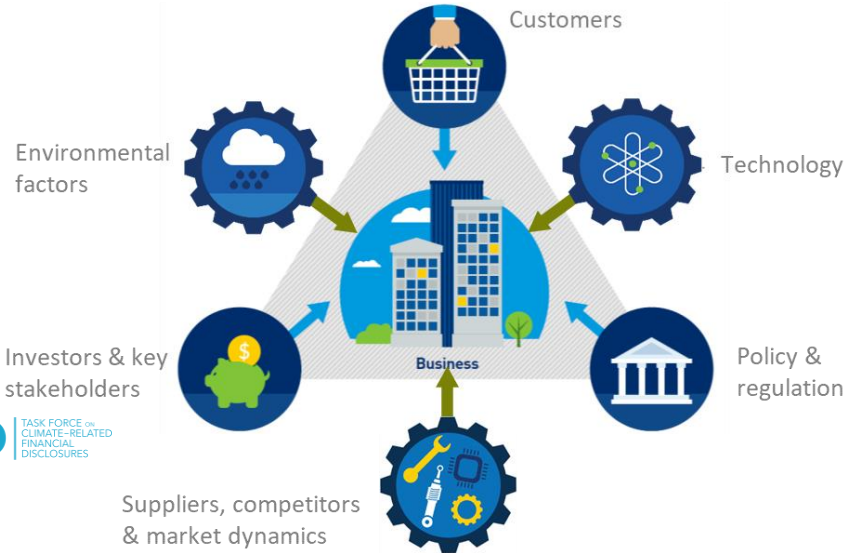
- Customers incentivised to return home hubs and TV set-top boxes at the end of their contract.
- EE Recycle & Reward programme.



- Customers can return old set top boxes and other products for refurbishment or recycling.

- Asset sharing economy (enabling PAYG / product-as-a-service).
- Life extension through remote diagnostics and more effective maintenance.

# There are several factors driving climate action



## Benefits of action:

- New business opportunities
- Better business
- Better risk management
- Increased resilience
- Innovative business models