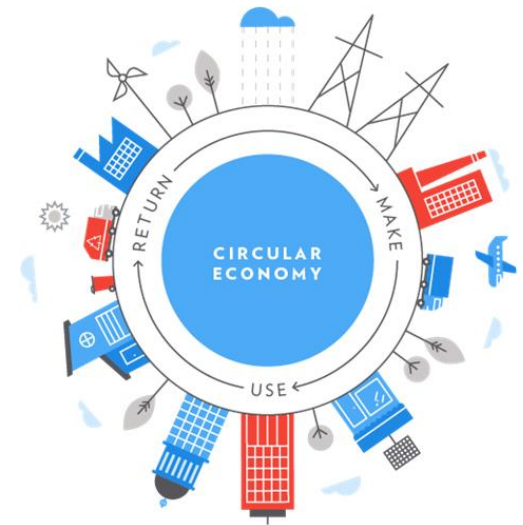




# **Circular Economy Masterclass**

- key concepts and latest developments every Waste & Environmental Manager should know.

With Brian Royson Mayne



## Next Webinar dates for your diary

*17th July 2020 11.00AM*

*Client Webinar RouteSmart Solvers – how to get ... new routes from scratch, balance existing routes, insert new properties/estates into your routes*

*James Baker, Consultant, Integrated Skills*



*21st August 11.00AM*

*Masterclass - How to Set-Up Community Re-Use Shops – Webinar conversation with Liz Behrens, Service Manager, Leeds City Council*



# Circular Economy Masterclass

- key concepts and latest developments  
every Waste & Environmental Manager  
should know.

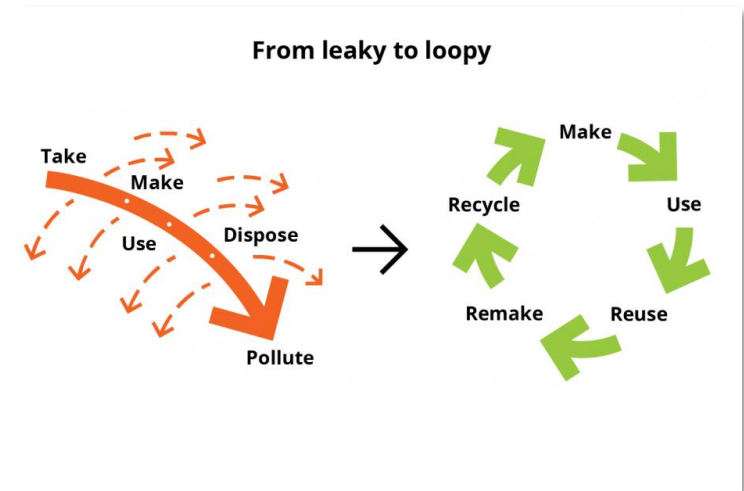
Brian Royson Mayne



# Brian Royson Mayne BA, MA, CEnv, FCIWM, FRSA.



- ⚙️ Fellow of the Royal Society of Arts
- ⚙️ Fellow Chartered Institution of Wastes Management
- ⚙️ Chartered Environmentalist
- ⚙️ International Waste Manager (International Solid Waste Association)
- ⚙️ Visiting lecturer in Environmental Policy and Management at the School of Engineering, Cardiff University.
- ⚙️ Technical lead for the Welsh Governments procurement of a treatment facility (ies) for Absorbent Hygiene Products.



# Topics

1. What is the Circular Economy?
  - ⚙️ Potential challenges
  - ⚙️ Potential benefits
2. How will we deliver a circular economy?
  - ⚙️ Case studies of businesses
3. How will we deliver a circular economy?
  - ⚙️ Government case study (Wales)
4. The role of the waste manager



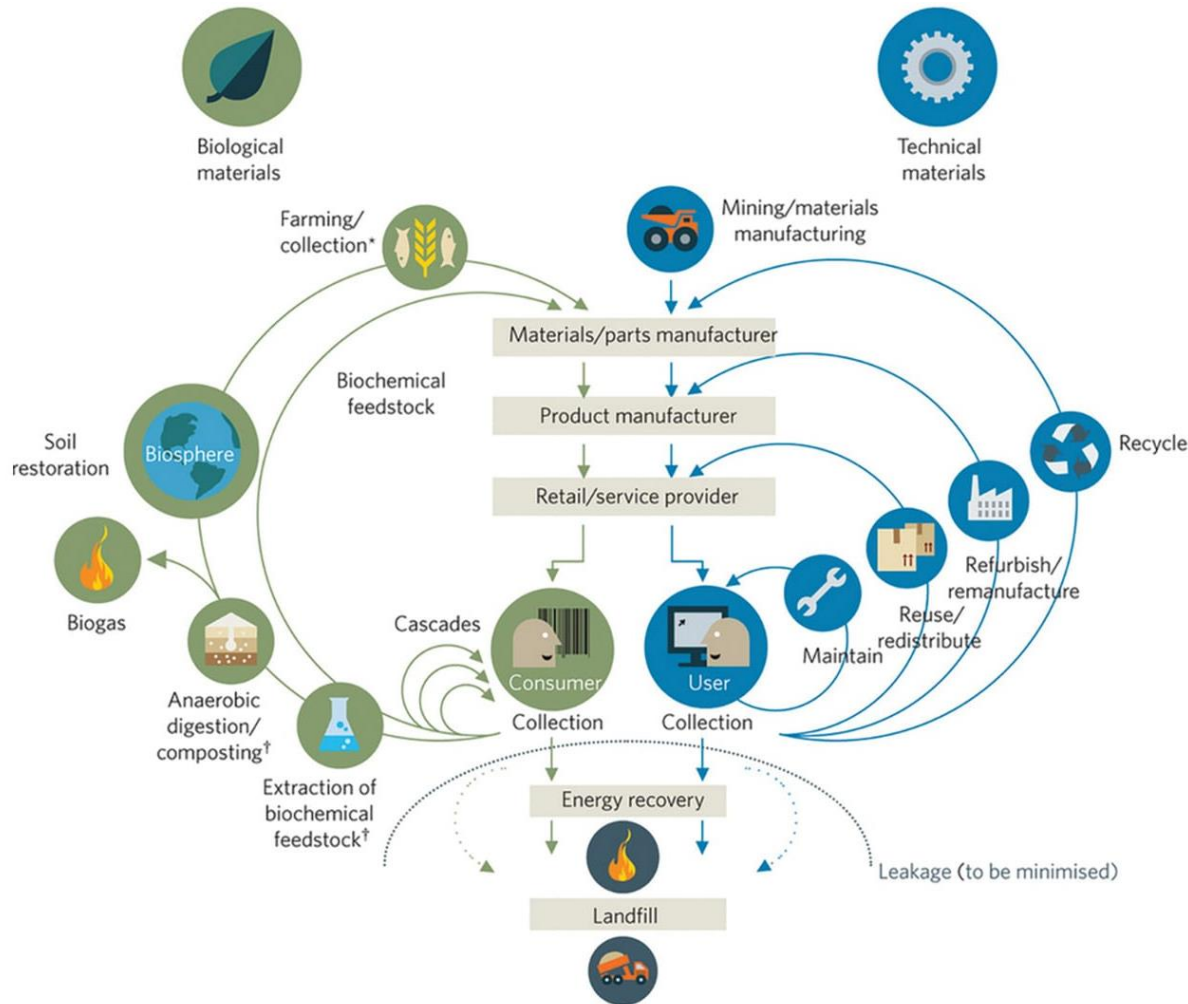
# What is the Circular Economy?



The concept of a circular economy is associated with concepts such as 'industrial ecology' (popularised in 1989), 'cradle to cradle' and 'biomimicry' (popularised in 2002).



# What is the Circular Economy?



Source: Ellen MacArthur Foundation, 2015. Reproduced by permission of the copyright owner.







# Potential benefits of a circular economy?

A more circular economy will:

- 🌀 create new opportunities for growth through the development of new services
- 🌀 reduce waste
- 🌀 drive greater resource productivity
- 🌀 deliver a more competitive UK economy
- 🌀 position the UK to better address emerging resource security/scarcity issues in the future.
- 🌀 help reduce the environmental impacts of our production and consumption in both the UK and abroad



# Circular economy – benefits

Benefit	Description
<b>Enhanced value</b>	Extending the initial and/or subsequent service life of a product or commodity will increase the value (to the business) that can be derived from the product's embedded content..
<b>Cost avoidance</b>	Avoiding unnecessary or costly procurement, process costs, transfer costs, inventory management costs, waste and utility costs.
<b>Enhanced resource efficiency</b>	Reducing resource inputs either through waste reduction or greater efficiency.
<b>Economic enhancement</b>	Improving productivity, creating new jobs, education and skills, opening up new markets and improving the resilience of businesses to supply constraints.
<b>Security of supply</b>	Improving security of supply of critical products or commodities. By keeping products and materials in use in a country longer , the economy (and businesses) will be more resilient to global resource pressures. Remanufactured products can have reduced or negligible lead times, minimising disruption to services due to failure of key systems.



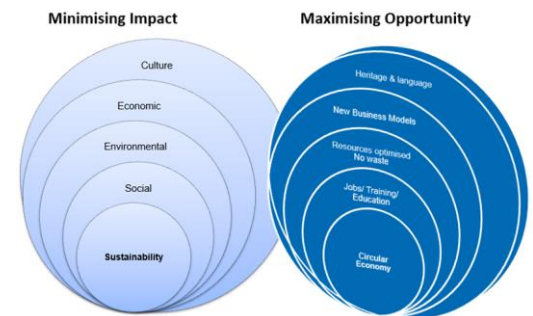
# Circular economy – benefits

Benefit	Description
<b>Cost savings</b>	Refurbished and remanufactured products can cost less than new products. The cost differential varies from sector-to-sector and also within product lines but, usually, a remanufactured product is between 50% and 90% of the cost of a new product.
<b>Environmental improvement</b>	Waste prevention, less waste to landfill, less material consumption and fewer carbon emissions. Increasing the utilisation of a product (including re-using products or components) can reduce the demand for physical products along with the associated material, energy and water needs of production.
<b>Socio-economic</b>	Supporting the repair and re-use sector which is often dominated by Small and Medium Enterprises (SMEs) and third sector organisations with social, economic and environmental objectives. Enhancing the skills and employability of those involved in relevant supply chains by creating training and employment for marginalised people. Product service systems that promote repair, refurbishment and remanufacturing rather than disposal, tend to lead to better relationships with customers and a more skilled and adaptable workforce. This can also lead to a reconfiguration of the supply chain to service the new business model.
<b>National and organisational outcomes</b>	Delivering policy outcomes – such as National Outcomes, Circular Economy outcomes, organisational sustainable procurement objectives, meeting regulatory requirements.



# How will we deliver a circular economy?

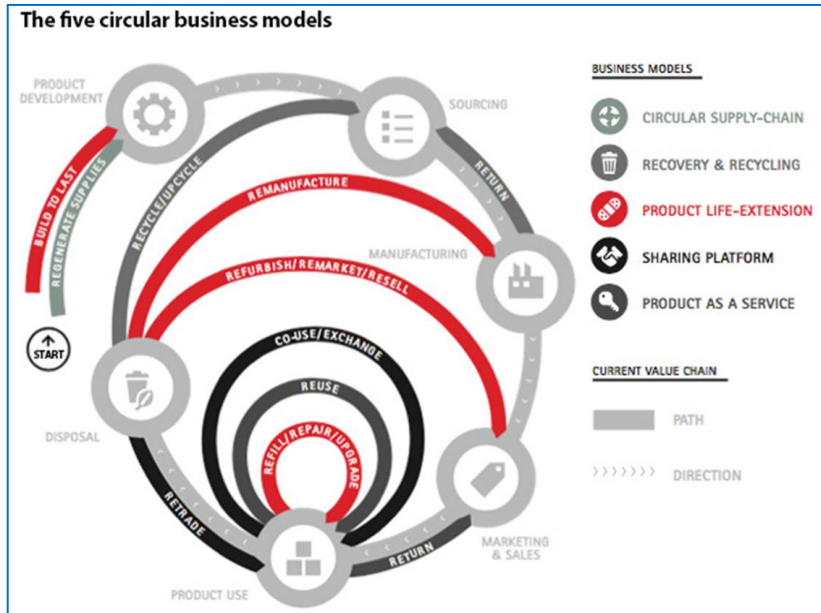
- Develop and deliver new policies
- Ensure stakeholders are engaged
- Adopt circular procurement to drive markets for products and services
- **Change the way we do business (public & private) and provide business support**
- Embrace technology and encourage innovation
- Gather data and share information and good practice
- Encourage collaboration and partnerships



*New tools such as artificial intelligence, the internet of things, and biomimicry mean our design ambitions are limited only by our imagination.*



# How we will we deliver a circular economy?



<p><b>1</b> Circular supply chain</p>	<p><b>2</b> Resource recovery and recycling</p>	<p><b>3</b> Product life extension</p>	<p><b>4</b> Sharing platforms</p>	<p><b>5</b> Product as a service</p>
<p>Bio-based or renewable materials are used as inputs instead of non-renewable resources</p>	<p>Recover useful resources from waste or by-products</p>	<p>Extend the lifecycle of products through repair, upgrade or remanufacture</p>	<p>Maximise the use of underused assets by sharing use, sharing access or sharing ownership</p>	<p>Move away from product ownership and offer paid access to products</p>

<https://www.accenture.com>



**1**  
**Circular supply chain**

**2**  
Resource recovery and recycling

**3**  
Product life extension

**4**  
Sharing platforms

**5**  
Product as a service



**Industrial Nature**  
Hemp construction block



**Argent Energy**  
Converting waste fats and oils to biodiesel



**Aurora Sustainability**  
Growing mushrooms on coffee grounds

## **Circular supplies**

Manufacturing products from bio-based or renewable materials?

Replacing non-renewable resources with bio-based or renewable materials?



**1**  
Circular  
supply chain

**2**  
Resource recovery  
and recycling

**3**  
Product life  
extension

**4**  
Sharing  
platforms

**5**  
Product as  
a service



**Macrebur**  
The plastic road  
company



**Arbikie Vodka**  
Vodka from surplus waste  
potatoes



**Deepdale Hire**  
Barrier block  
from recycled glass

## Recycle / upcycle

Collect or recover materials from end of life products and re-use them in new products?

## Return

Return wasted parts or materials to the source?



1

Circular supply chain

2

Resource recovery and recycling

3

Product life extension

4

Sharing platforms

5

Product as a service



**Circulogic**  
Golf take back scheme



**Ministry of Furniture**  
Recycle and upcycle  
Used office furniture



**Greenstream carpets**  
Used and reused carpet tiles

Build to Last  
Repair, maintain and upgrade  
Resell  
Remanufacture





1

Circular supply chain

2

Resource recovery and

3

Product life extension

4

Sharing platforms

5

Product as a service



Olio  
Sharing surplus food



Newtown Tool Library  
a lending library for tools



Tayforth Machinery Ring  
Sharing agriculture  
Equipment and labour

## Sharing platform

Develop solutions that enable the increased use of capacity use, access or ownership)?



1

Circular  
supply chain

2

Resource  
recovery and

3

Product life  
extension

4

Sharing  
platforms

5

Product as  
a service



**EGG lighting**  
Pay per lux



**Rype Office**  
Leasing office  
furnishings



**Desso**  
Leasing carpets to  
commercial customers

## Product as a service


Offer customers to use your product against a subscription fee or a usage based charges instead of owning it?


## Performance as a service

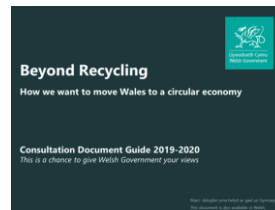
Offer customers to buy a pre-defined service and quality level, and commit to guaranteeing a specific result?



# How can we deliver a circular economy- Wales as a case study

 Wales is different to other nations because sustainable development is the central organising principle that shapes what it does and how it works.

 **The Well-being of Future Generations (Wales) Act 2015** puts in place a ‘sustainable development principle’ which tells organisations how to go about meeting their duty.



## Our Core Themes

Guided by the five ways of working of the Well-being of Future Generations Act these are the 6 core themes that will lead us towards a more circular economy:

- Build on our recycling record**
  - Become zero-waste by 2050
  - 100% recycling rate from all sectors including household, construction, business etc.
  - Fully utilise the infrastructure in Wales to reduce food waste
- Supporting prevention and reuse**
  - Reduce the amount of waste from households, and the industrial and commercial sectors
  - Promote repair, re-use and remanufacture to communities and businesses
- Driving innovation and material use**
  - Reduce the amount of materials we use, and move away from using materials with a high carbon footprint
  - Increase use of recycled and remanufactured content.
  - Support innovation in areas like bioplastics
- Investing in infrastructure**
  - Additional waste management infrastructure to ensure maximum return from collected materials
  - Infrastructure to support reuse, repair and remanufacture
  - Decarbonise current infrastructure
- Enabling communities and businesses**
  - Bring communities together to develop initiatives to promote re-use and repair.
  - Support businesses to save and make money, and become resilient through using local and regional supply chains.
- Using government levers**
  - Build on schemes like our Landfill Disposals Tax Communities Scheme, to deliver innovative projects
  - Use government funding, legislation, taxation and purchasing to drive Wales to a circular economy



# Wales- achievements so far?



# Where Wales wants to be

Current



Future



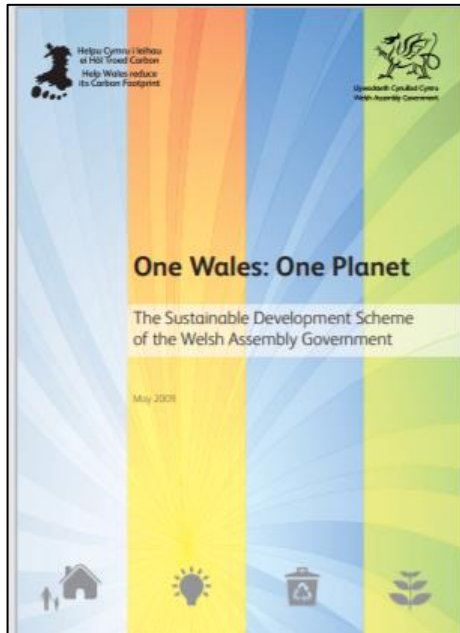
*Welsh Governments aim is to move to a circular economy in Wales. Where waste is avoided and the things we use are kept in use as long as possible.*

*This is an important part of the action needed on climate change. It also brings many new economic opportunities as part of the move to a low carbon economy.*





# When will they get there?



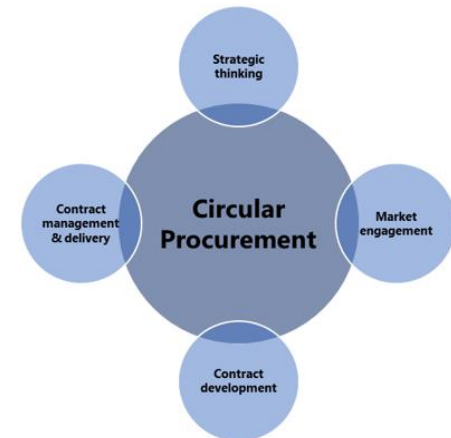
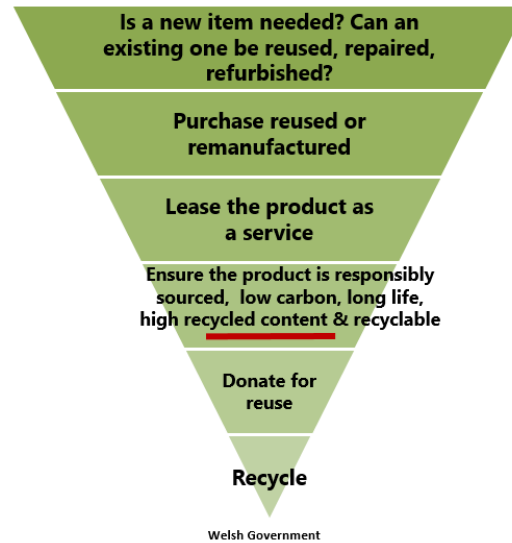
# I'm a Waste Manager – what's my role in CE?

## Waste Manager as ....

- Buyer,
- Facilities User,
- Vehicle Fleet User,
- Waste Stream(s) Carrier,
- Awareness Raiser.



- Circular procurement
  - *Refurbishing equipment (containers/ equipment)*
  - *Using workwear from recycled materials*
  - *PPE as a service?*
- Facilities
  - *Collaboration between local authorities/other businesses - buildings, equipment*
  - *Sharing depots/facilities with neighbouring authorities*



WRAP Cymru



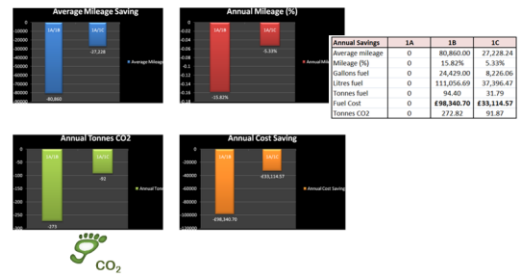


- Vehicles

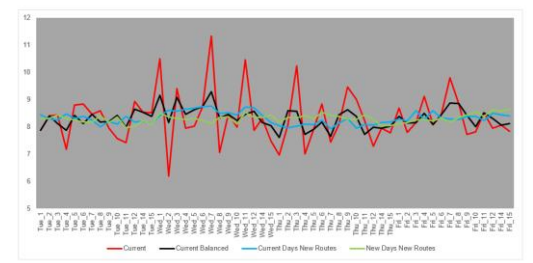
- *What is the footprint of my fleet?*
- *Fuel/carbon/mileage use – review fuel use/type? Electric pros/cons, bio diesel in vehicles?*
- *Number of vehicles – can I do the same with less vehicles working smarter?*



Comparing Mileage, CO2 and Costs



Current Routes v. Optimised – 3 Scenarios



## Waste Stream

- *Recycling/ reuse collections providing feedstock to companies – could there be new local routes?*
- *New materials: Absorbent Hygiene Products/ Mattresses/ Carpets*
- *Organics- use compost in parks/ Depot/ offices using upcycled/ refurbished / recycled rather than new*



## Awareness raising

- *Do I know the life cycle of each of my material stream?*
- *Who/where is the end-processor*
- *What are their social conditions?*



# Delivering the circular economy



With thanks to.....



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