

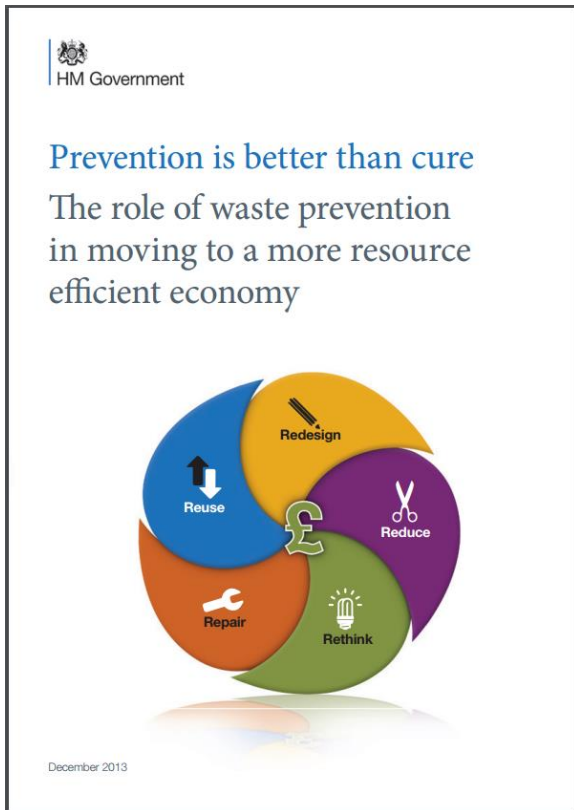
# CIE-MAP

Centre for Industrial Energy, Materials and Products

## **How can material efficiency strategies be adopted by industry and create new business opportunities?**

Tim Cooper, Professor of Sustainable Design and Consumption, Nottingham Trent University

# Context (1): Waste and Resource Efficiency



**“I want businesses to manage all resources more efficiently by using less while creating more.**

**Products should be designed to use fewer resources from the start and with longer lifetimes, repair and reuse in mind.**

Services for householders and businesses should make preventing waste and using reuse and repair services easier.”



**Dan Rogerson**  
Parliamentary Under Secretary of State  
for water, forestry, rural affairs and  
resource management

Foreword, *Prevention is Better than Cure*

# Context (2): The Circular Economy

“Future work on **ecodesign of products** will help to make products more durable and easier to repair...

**Planned obsolescence** practices can also limit the useful lifetime of products. Through an independent testing programme, the Commission will initiate work to detect such practices and ways to address them.

In addition, the revised legislative proposals on waste includes new provisions to boost **preparation for reuse** activities.”



Frans Timmermans, EU Commission vice president, and Jyrki Katainen, Commissioner for Jobs and Growth

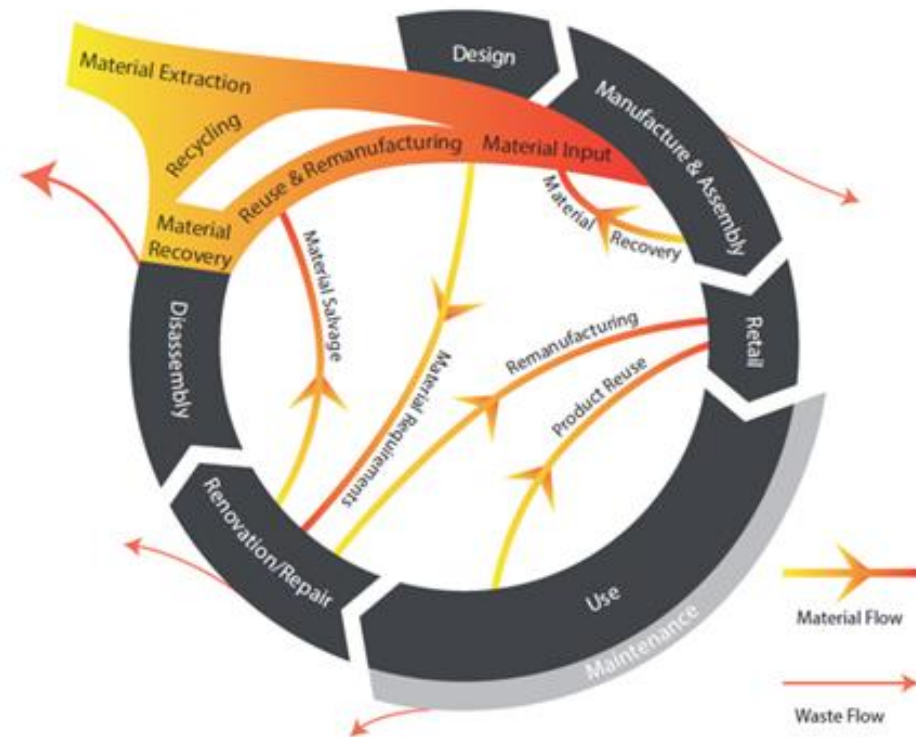
# The Circular Economy

“The circular economy is about reducing waste and protecting the environment, but it is also about a **profound transformation of the way our entire economy works.**

By rethinking the way we produce, work and buy we can generate **new opportunities** and create **new jobs.**

It sets a credible and ambitious path for better waste management in Europe with **supportive actions that cover the full product cycle.”**

Frans Timmermans, speaking at the launch of  
*An EU Action Plan for the Circular Economy*



Source: CIE-MAP

# Current research

- Consumers' **expectations of product lifetimes** for durable and semi-durable goods.
- **Opportunities for increased repair and reuse** of discarded goods, particularly electrical and electronic equipment.
- Design interventions aimed at increased material-efficiency in cars either by **extending lifespans or improving use-intensity**.
- Role of **household upcycling** in reducing material demand.
- **Integrated product-service offerings** and business customers' needs.



-

# Material efficiency: Benefits to business

- A sustainable, low carbon economy
- Increased resilience to resource supply disruption and volatile commodity costs
- Greater brand value and improved customer loyalty
- Reinvigorated UK manufacturing sector with job creation and trade benefits

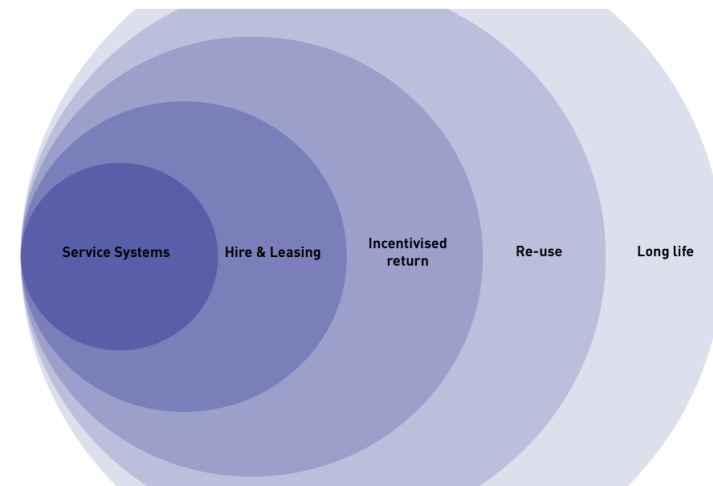
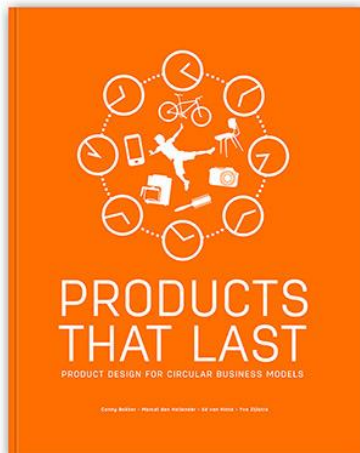


Source: Aileen O'Dochartaigh




# Material-efficient business models

1. Designing/producing goods to last longer
2. Services for more intensive use of products
3. Sharing or swapping goods
4. Return and re-use systems
5. Leasing or renting



Source: WRAP

# Designing/producing goods to last longer



LOVE THINGS THAT LAST








HOME OUR MISSION ARTICLES & TIPS CHALLENGES SHOPPING IN THE NEWS CONTACT

Let's throw away our throwaway culture

BuyMeOnce finds and promotes products that don't break the bank, don't break the planet... that don't break at all!

We also challenge manufacturers to break their habits and build stuff that really lasts – we know they can.

Twitter Instagram Facebook



Cookie Policy | Feedback | Like | 3.9k | Follow @femal | DailyMail

Friday, May 6th 2016 10:00 19°C @ 1PM 19°C @ 5-Day Forecast

**MailOnline** femal

Home | News | U.S. | Sport | TV&Showbiz | Australia | Femal | Health | Science | Money | Video | Travel | Fashion Finder

Latest Headlines | Femal | Fashion Finder | Food | Femal Source | Beauty | Gardening | Deals | Shops | Daily Mail

Login

## Woman who was 'sick of throwing things away' sets up a shopping website for products that will last a LIFETIME

- Tara Button, 33, from London recently launched website Buy Me Once
- Features fashion, kitchenware, furniture, toys, tools and beauty products
- All items selected for being durable or easily repairable
- Also contains tips for making clothes last longer and decluttering



Cookie Policy | Feedback | Like | 3.9k | Follow @femal | DailyMail

Friday, May 6th 2016 10:00 19°C @ 1PM 19°C @ 5-Day Forecast

**MailOnline** femal

Home | News | U.S. | Sport | TV&Showbiz | Australia | Femal | Health | Science | Money | Video | Travel | Fashion Finder

Latest Headlines | Femal | Fashion Finder | Food | Femal Source | Beauty | Gardening | Deals | Shops | Daily Mail

Login

## This is the Queen Mum's fridge. It's lasted 62 years. So why will yours only last for SIX? We all suspect it. But here's proof today's gadgets really are DESIGNED to go wrong

By LORRAINE FISHER FOR THE DAILY MAIL

PUBLISHED: 01:44, 19 April 2016 | UPDATED: 11:56, 22 April 2016

Facebook | Twitter | Pinterest | Google+ | Email | RSS | 809 shares | 1k View comments

Last week it was revealed that the Queen Mother's fridge in her former home at the Castle of Mey in Scotland had turned 62, yet is still in perfect working condition.

Perhaps it's no wonder — the Frigidaire, made by General Motors, was built to last, with six-inch thick doors.



# Services for more intensive use of products

## The Telegraph

Home Video News World Sport Business Money Comment Culture Travel Life Wo

HOME » FINANCE » NEWS BY SECTOR » **TRANSPORT**

### Enterprise drives off with City Car Club

World's largest car hire business buys British car sharing company which has over 800 vehicles across the country

f 173    t 0    p 0    in 216    389    Email



Leeds-based City Car Club was founded in 2005



By Ashley Armstrong, M&A Reporter

12:32PM BST 01 Apr 2015

Follow 2,852 followers

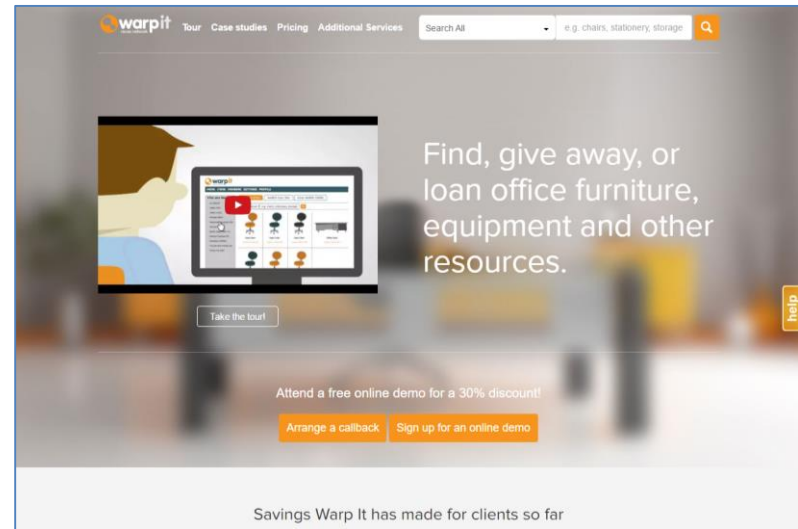
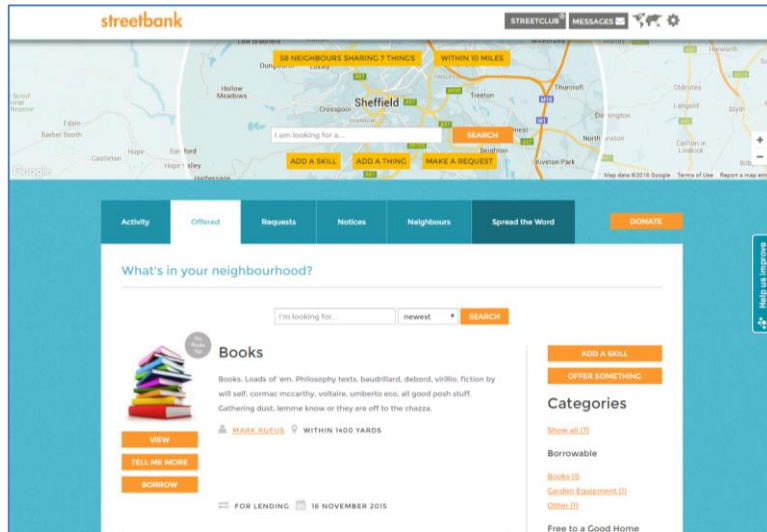
City Car Club, the UK's biggest independent car sharing company, has been snapped up by Enterprise Rent-A-Car, the world's biggest car hire business.

“According to a new study by Frost and Sullivan, car club (car sharing) membership is expected to reach 5.5 million in Europe and 4.4 million in North America by 2016.

Given a programme of support for car clubs, there **could be in excess of one million people in Britain opting to pay by the hour to drive a car**, rather than own a car, by 2020.”

*Carplus, A Cost-effective Route to a Low Carbon Britain*

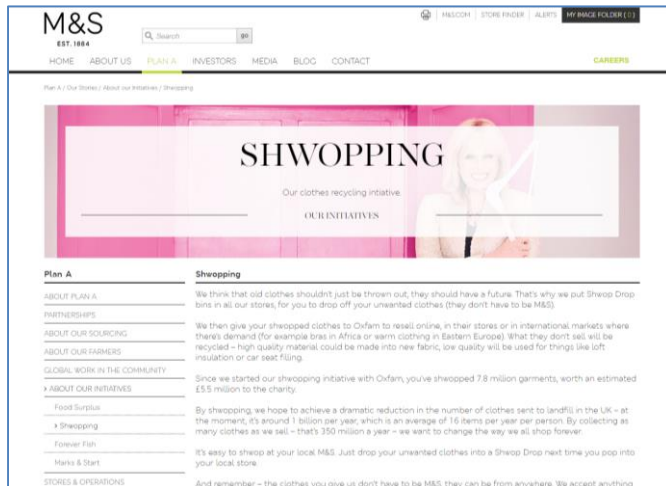
# Sharing or swapping goods



“PwC has calculated that on a global basis, the **sharing economy** is currently worth £9bn – with this **set to rise to a massive £230bn** by 2025... Five sectors of the sharing economy in the UK are worth around £500m now, and could be worth up to £9bn a year by 2025.”

*BIS, Unlocking the Sharing Economy: An independent review*

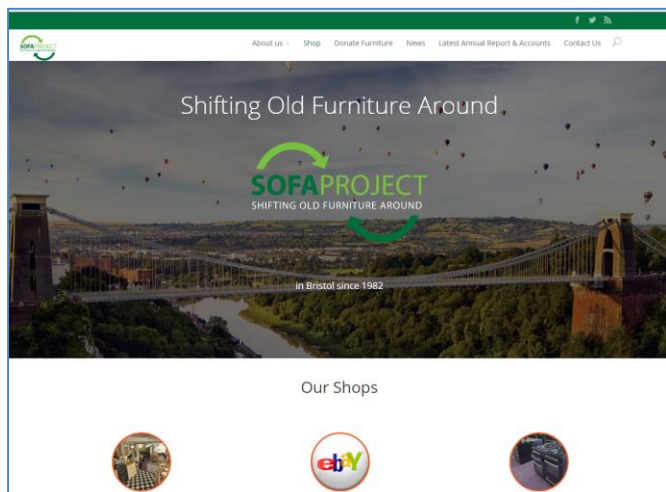
# Return and re-use systems



“There is **significant untapped potential to increase reuse**. Nearly 615,000 tonnes of material that currently finds its way to landfill or incineration could instead be repaired, resold or donated.

As well as the social and environmental benefits there is a strong economic business case...

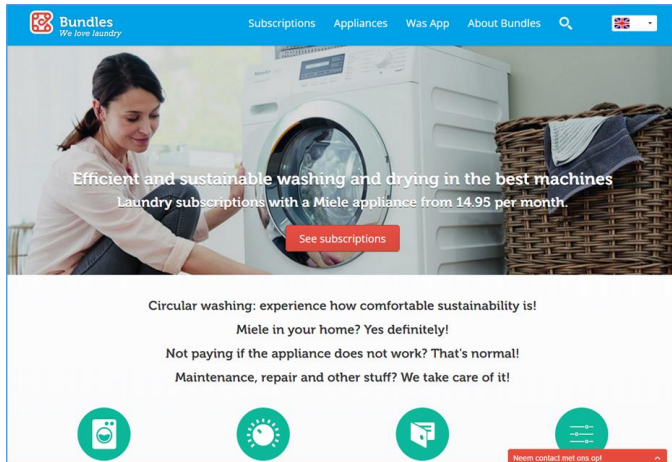
The resale value of these goods, and those recycled which could be reused, is approximately £375 million.”



Local Government Association, *Routes to Reuse*



# Leasing or renting systems



**Bundles**  
We love laundry

Subscriptions Appliances Was App About Bundles

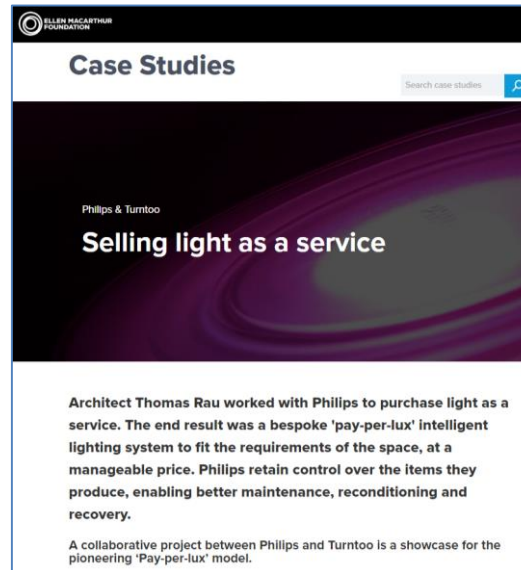
Efficient and sustainable washing and drying in the best machines  
Laundry subscriptions with a Miele appliance from 14.95 per month.

See subscriptions

Circular washing: experience how comfortable sustainability is!  
Miele in your home? Yes definitely!  
Not paying if the appliance does not work? That's normal!  
Maintenance, repair and other stuff? We take care of it!

Sign up Log in

Neem contact met ons op



**ELLEN MACARTHUR FOUNDATION**

Case Studies

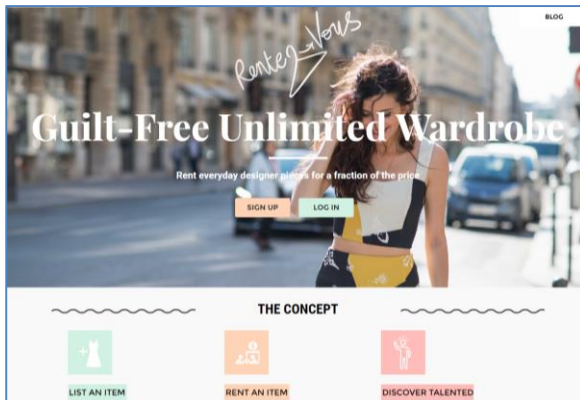
Search case studies

Philips & Turntoo

## Selling light as a service

Architect Thomas Rau worked with Philips to purchase light as a service. The end result was a bespoke 'pay-per-lux' intelligent lighting system to fit the requirements of the space, at a manageable price. Philips retain control over the items they produce, enabling better maintenance, reconditioning and recovery.

A collaborative project between Philips and Turntoo is a showcase for the pioneering 'Pay-per-lux' model.



**Rent-A-View**

## Guilt-Free Unlimited Wardrobe

Rent everyday designer pieces for a fraction of the price

Sign up Log in

**THE CONCEPT**

List an item Rent an item Discover talented



**Rolls-Royce**

630.00 GBX -15.00

ABOUT PRODUCTS & SERVICES INVESTORS SUSTAINABILITY CAREERS MEDIA

Media

Home | Media | Press releases | 2012 | Rolls-Royce celebrates 50th anniversary of Power-by-the-Hour

Press releases  
Media contacts  
Images & videos  
Social media  
Insights

### Rolls-Royce celebrates 50th anniversary of Power-by-the-Hour

Tuesday, 30 October 2012

Rolls-Royce, the global power systems company, today celebrated the 50th anniversary of 'Power-by-the-Hour', its pioneering approach to engine maintenance management that forms the basis of the company's market-leading CorporateCare® service.

'Power-by-the-Hour', a Rolls-Royce trademark, was invented in 1962 to support the Viper engine on the de Havilland/Hawker Siddeley 125 business jet. A complete engine and accessory replacement service was offered on a fixed-cost-per-flying-hour basis. This aligned the interests of the manufacturer and operator, who only paid for engines that performed well.

Rolls-Royce CorporateCare®, launched in 2002, added a range of additional features. These include Engine Health Monitoring, which tracks on-wing performance using onboard sensors; lease engine access to replace an operator's engine during off-wing maintenance, thereby

"I told Philips, 'Listen, I need so many hours of light in my premises every year. If you think you need a lamp, or electricity, or whatever – that's fine. But I want nothing to do with it."

**I'm not interested in the product, just the performance. I want to buy light, and nothing else."**

Thomas Rau, architect

## Questions for discussion

1. Which of the business models appear the **most promising**, and how could they be marketed most effectively?
2. What are the **primary obstacles** to the development and uptake of new business practices?
3. What **further knowledge** is needed to develop and implement business models suited to lower materials consumption?
4. How able and willing are **consumers** to change their attitudes and behaviours towards consumption, ownership and product replacement cycles?

CIE-MAP Co-Director - Professor Tim Cooper

## Research staff

Dr Christine Cole

Dr Alex Gnanapragasam

Dr Ana Mestre

## PhD students

Patrick Keen

Alex Rodrigues

Kyungeun Sung

Contact: [t.h.cooper@ntu.ac.uk](mailto:t.h.cooper@ntu.ac.uk)