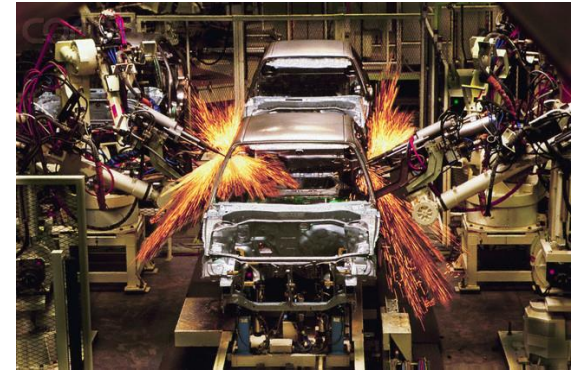


Sustainable Manufacturing Research at Loughborough University

Dr Elliot Woolley

Centre for Sustainable Manufacturing and Recycling Technologies
(SMART)

Loughborough University



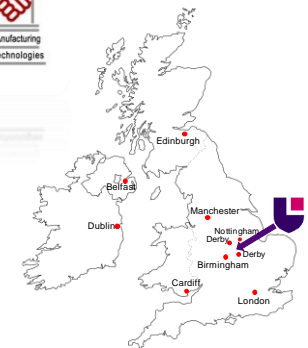
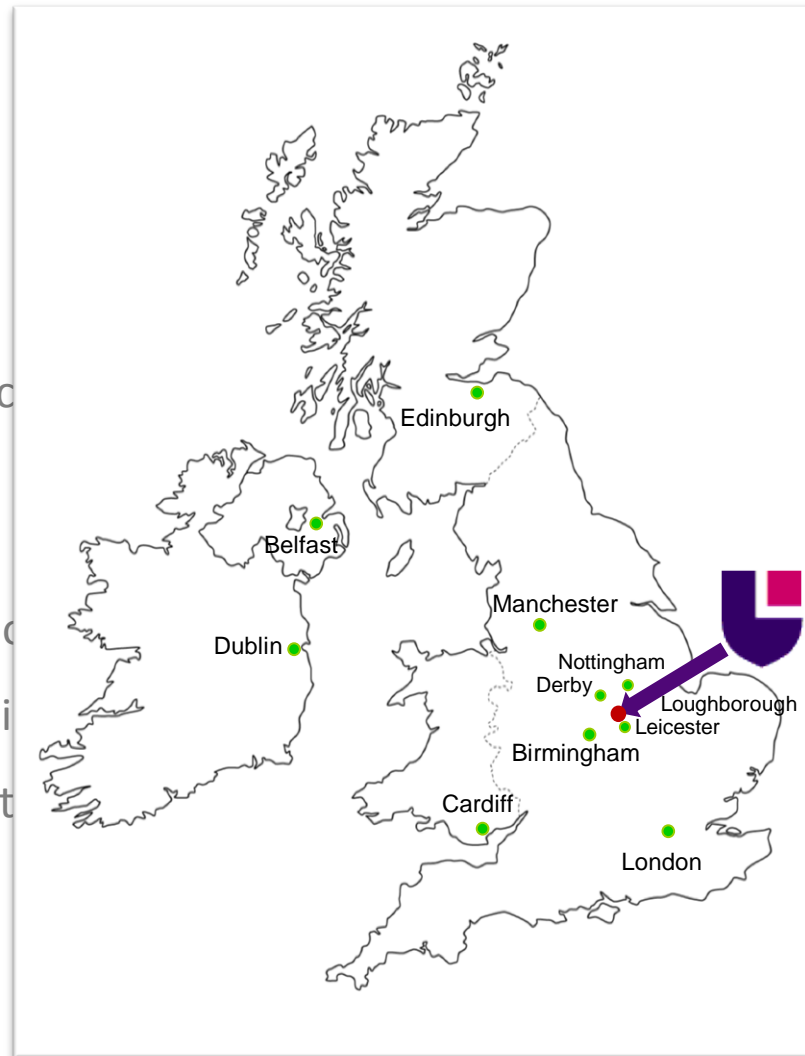
Introduction to SMART and Loughborough

- Background on SMART and Loughborough University
- Need for Sustainability
- Current Research at SMART



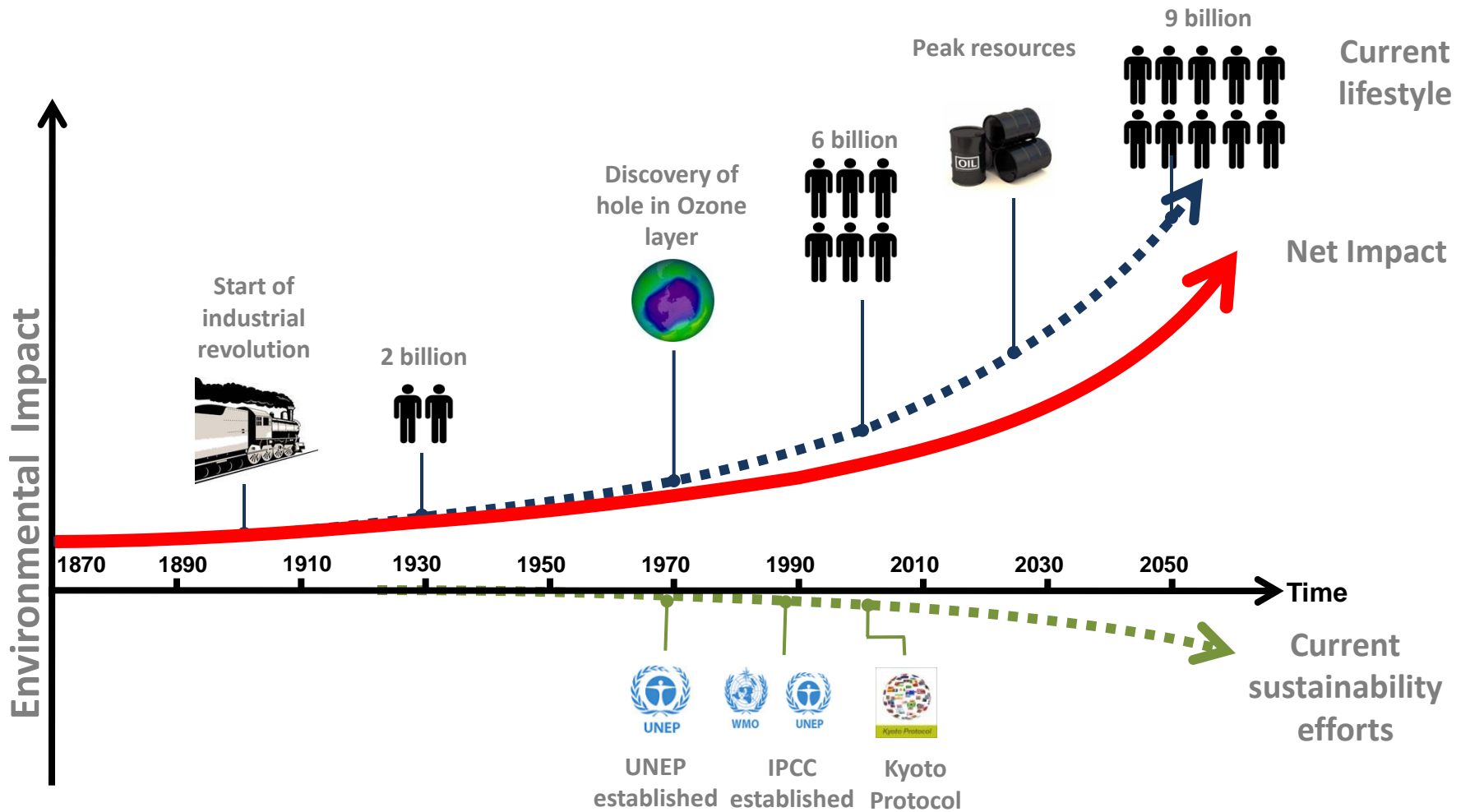
SMART at Loughborough University

- Established in 2004
- Range of R&D projects covering all product lifecycle stages
- Part of the Wolfson School of Mechanical and Manufacturing Engineering at Loughborough University



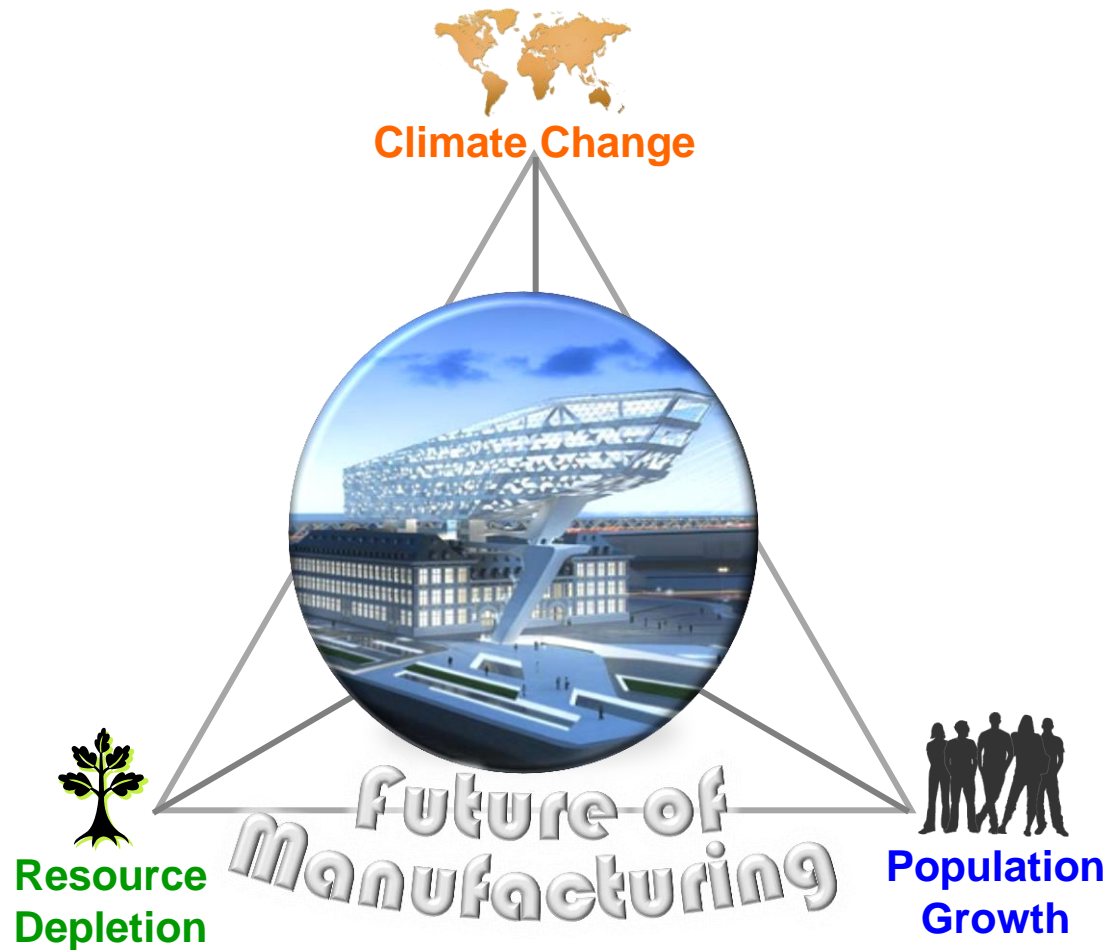
[reforsmart.co.uk/](http://www.loughborough.ac.uk/research/researchcentres/smart/reforsmart.co.uk/)

Why is sustainability so important?

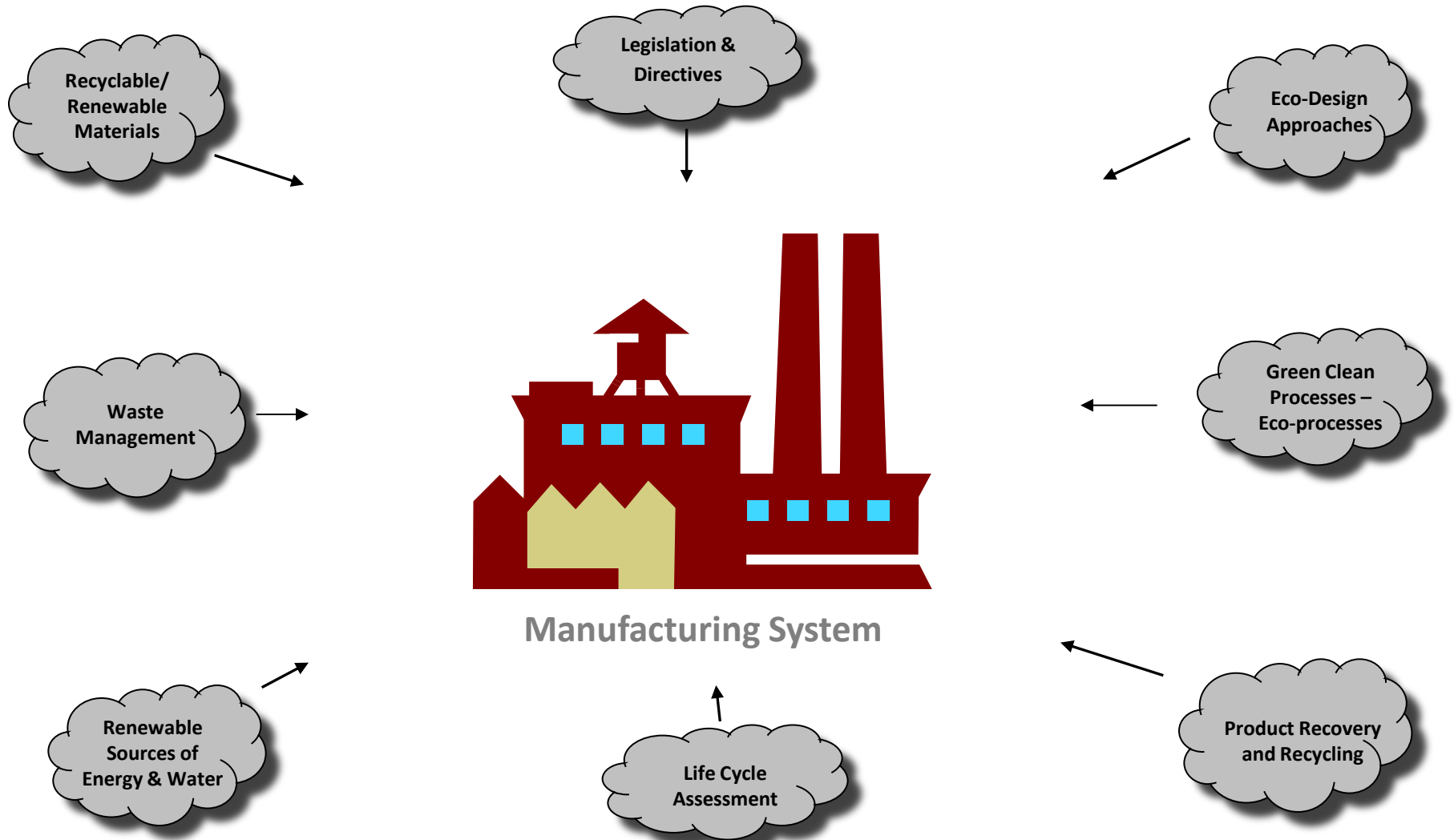


Drivers for Improvements in Sustainability

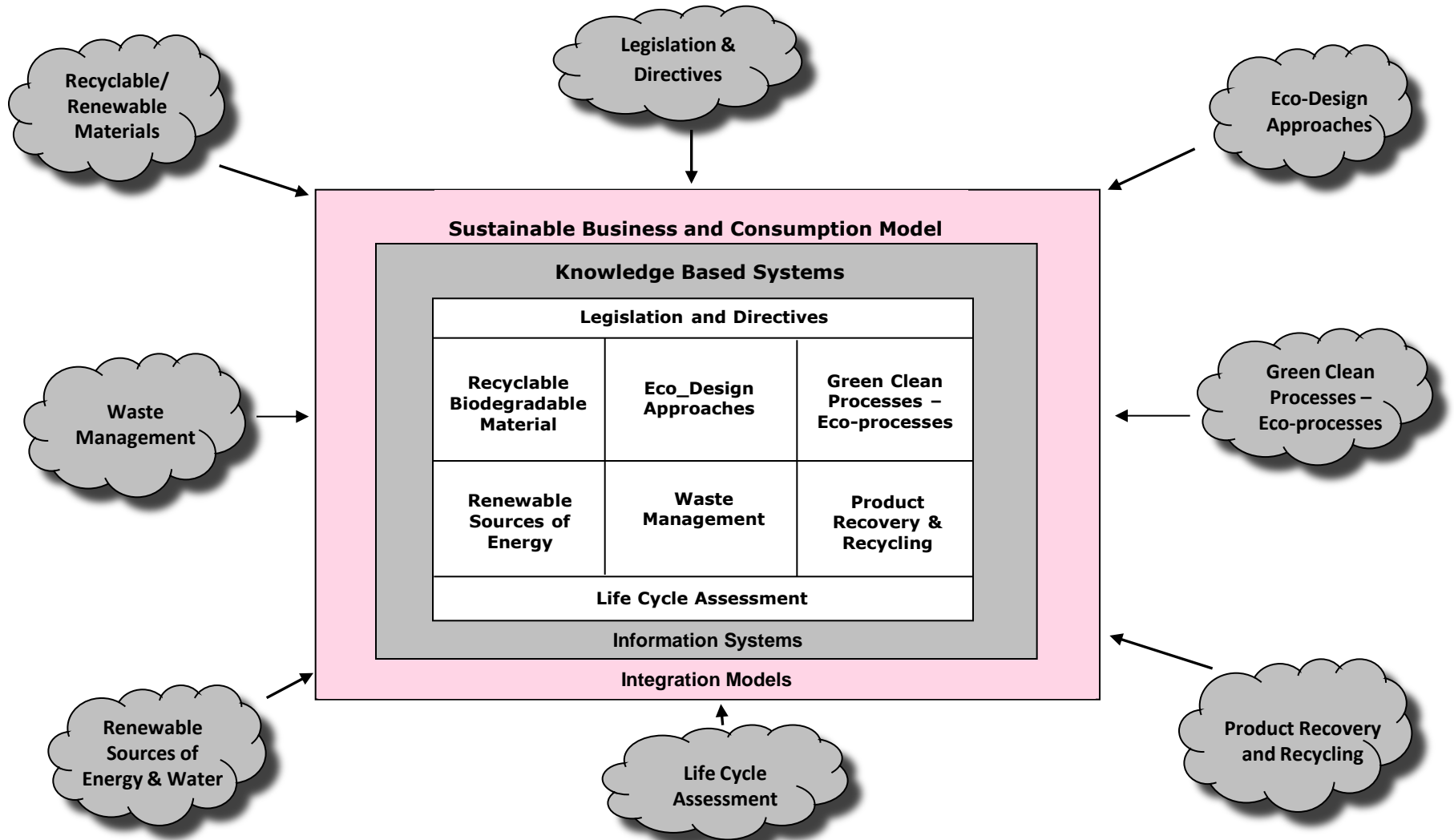
- **Population Growth**
Population, Demographic, Geographic, Labour
- **Climate Change**
Greenhouse Gases, Legislation, Economy
- **Resource Depletion**
Water, Land, Materials



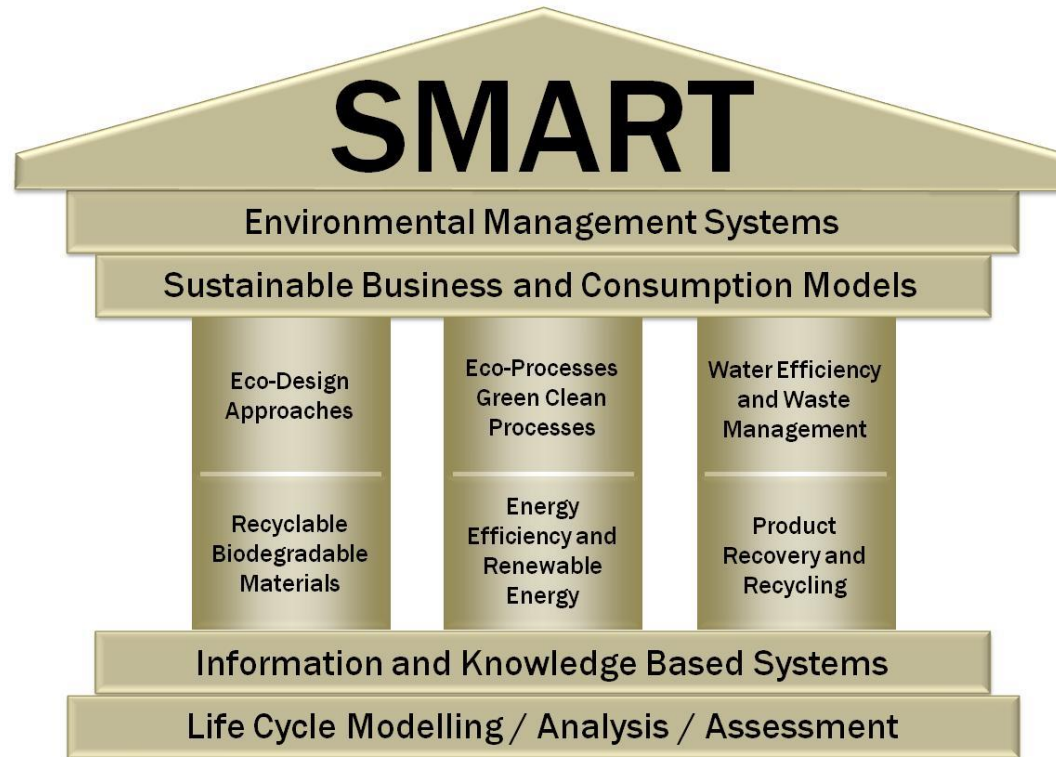
The Existing R&D Activities in the Centre for SMART



A Framework for an Integrated Approach to Sustainable Engineering

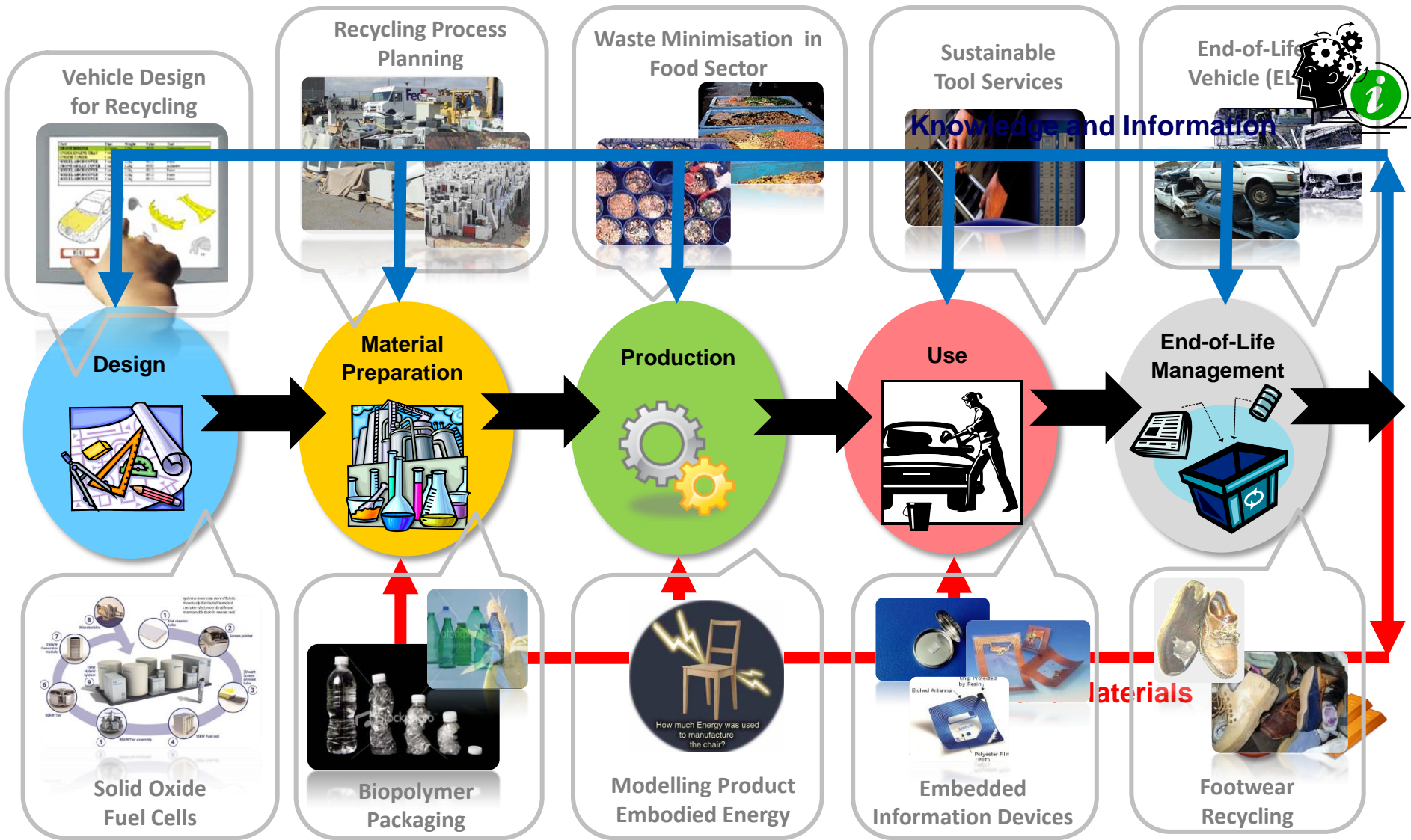


Strategic Goals of the Centre for SMART



“To develop **strategies, methodologies and supportive technologies** for a sustainable approach to **design, production, consumption and disposal** of products that meets the customers needs as well as **legislative, environmental and ethical standards** while safeguarding the future prosperity of businesses”

The Need for Life Cycle Thinking – will need new examples here



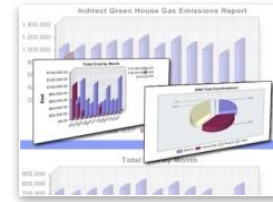
Research Slides

Centre for SMART Research Strategy (3-5 Years)

Life-Cycle Analysis & Sustainable Design



Sustainable Business & Consumption Models



Energy & Resource Efficiency



Waste Management & Product Recovery /Recycling



National Centre

- EPSRC Funded Centre for Innovative Manufacturing in Industrial Sustainability
- 4.5m investment over 5 years



- Includes three grand challenges:
 - Eco-efficiency
 - Eco-factories
 - Sustainable industrial systems
- Supported by IBM, Toyota, GM, Unilever

Summary of SMART

- Established to help improve environmental performance in manufacturing, whilst safeguarding the future prosperity of businesses
- Large project portfolio
- Cover full life-cycle of products
- Developed strategy for future areas of activity

