

A Roadmap for Sustainable Manufacturing in Europe

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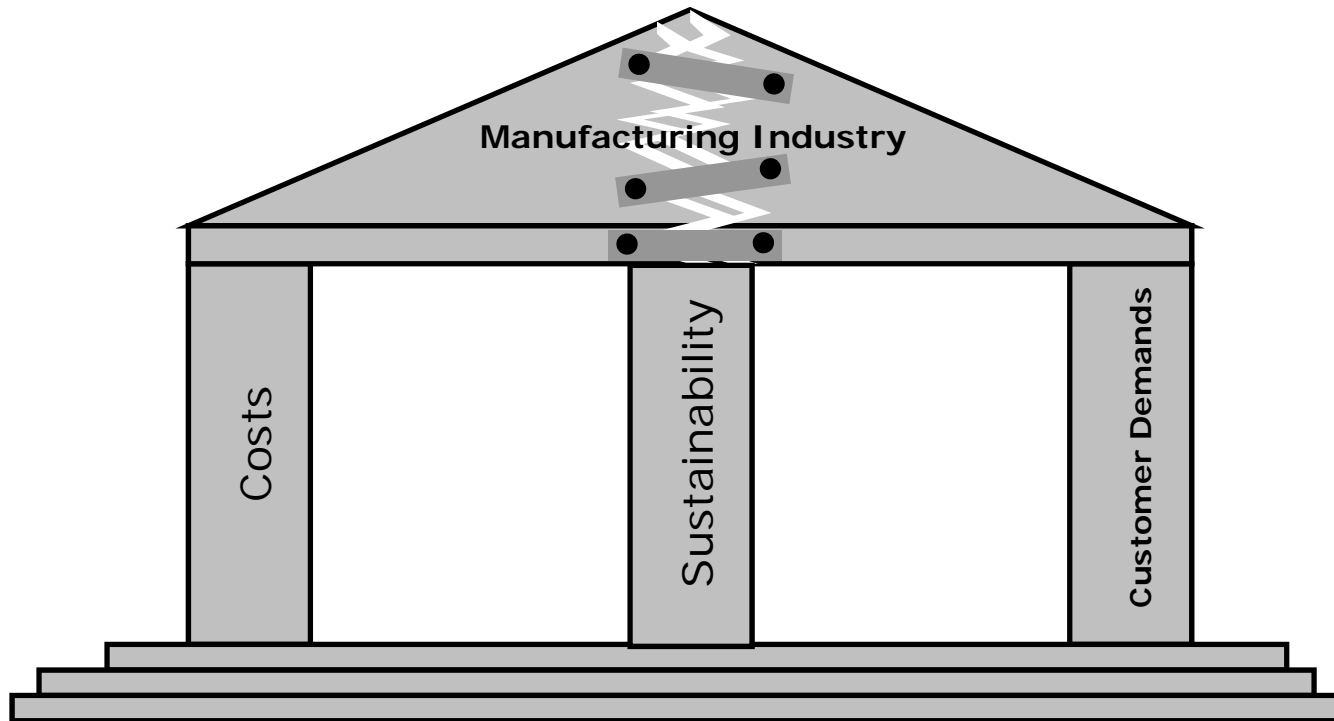
Centre for Sustainable *MA*nufacturing and *Re*use/*Re*cycle Technologies (*SMART*)

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Fundamental Assertion



*Current patterns of **Mass Production of Cheap Goods** and **Over Consumption** of Products with a Short Use Life Cycle **cannot be SUSTAINED**, and hence :*

- Future Revenue and Wealth Generation** → **Sustainable Business Models**
- Future Marketing, Sales, and Maintenance of products** → **Sustainable Consumption Models**

Principal Challenge in Sustainable Development

“Breaking the link between economic growth and environmental degradation whilst safeguarding social/ethical standards”



These photos from photographer Peter Menzel's innovative work *Material World*, show two families, one from Thailand and one from the US, in front of their homes with all of their possessions on display.

Sourced from www.menzelphoto.com



Presentation Objectives

Highlight the needs :

- To develop **holistic sustainable solutions** based on Economical, Environmental and Ethical considerations,
- To adopt a **life cycle thinking** in development of such solutions,
- To implement **an integrated approach** for planning of Economical, Environmental and Ethical requirements of a manufacturing business, and finally



The Need for Holistic Sustainable Solutions

Economic Issues

- Short and long-term profitability
- Legislation costs
- Total life cycle costing
- Materials, energy and labour costs
- Financial vs technological feasibility

Financially Sensible

Environmental Issues

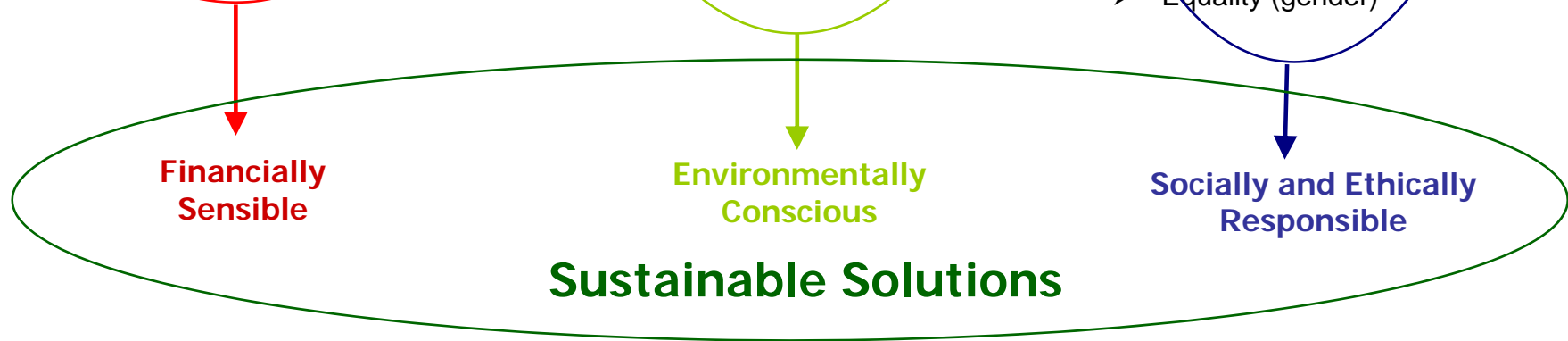
- Waste minimisation
- Cleaner manufacturing
- Cleaner materials
- Eco-efficiency
- Less materials and energy
- Renewable resources
- Renewable energy
- Recycling
- Product Service Systems

Environmentally Conscious

Social/ethical issues

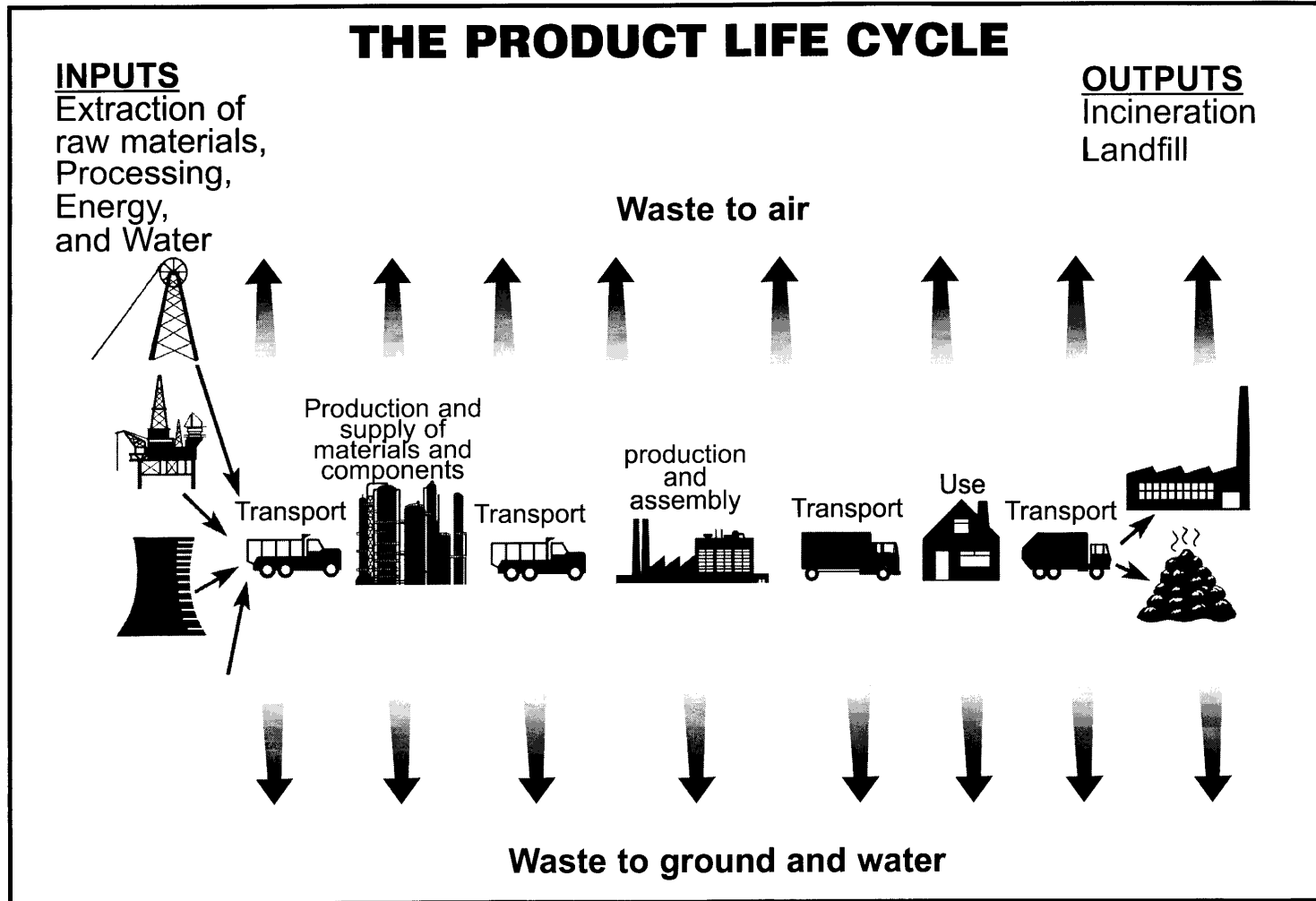
- Fair trade
- Equitable policies
- 'Good' employment
- Investment in communities
- Support for regional economy
- Cruelty-free
- Satisfaction of real needs
- More customer value
- Equality (gender)

Socially and Ethically Responsible



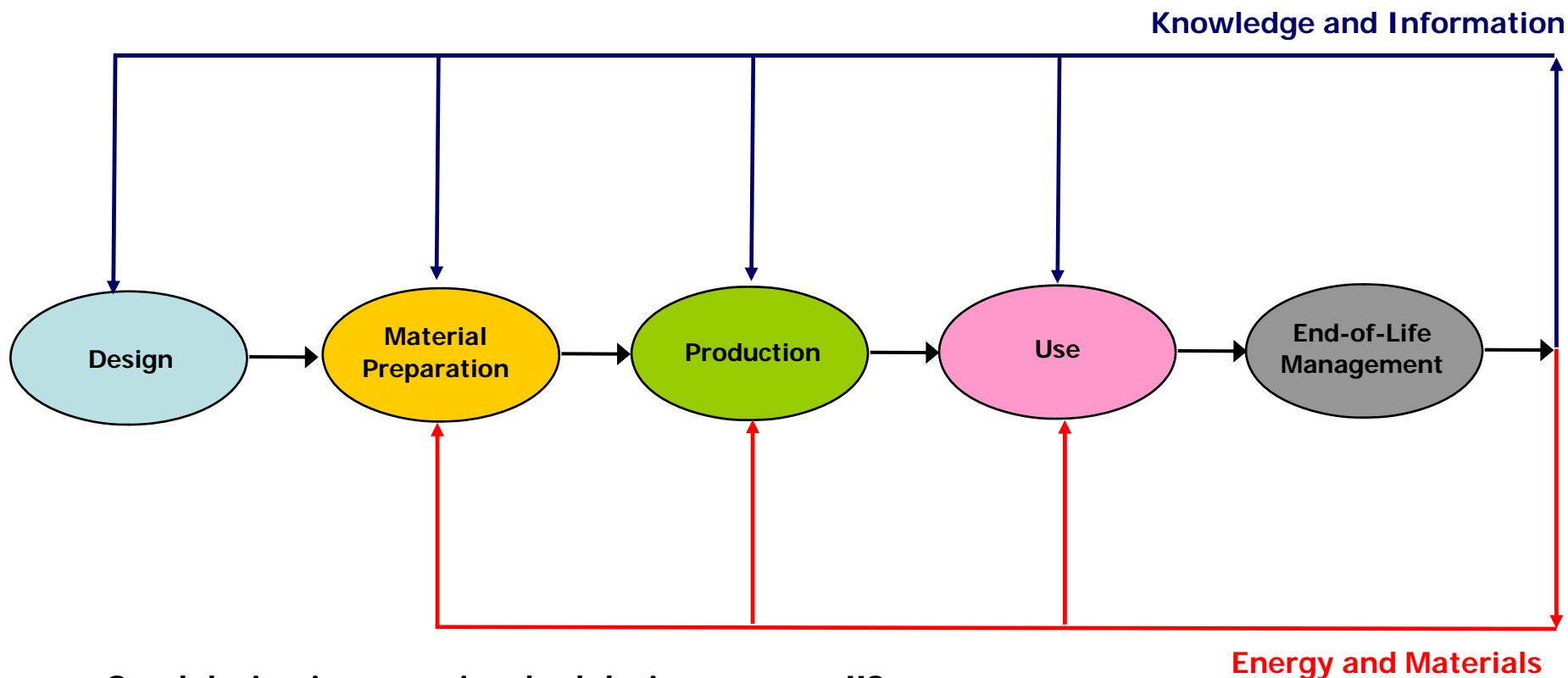
Sustainable Solutions

Product Life Cycle Impact





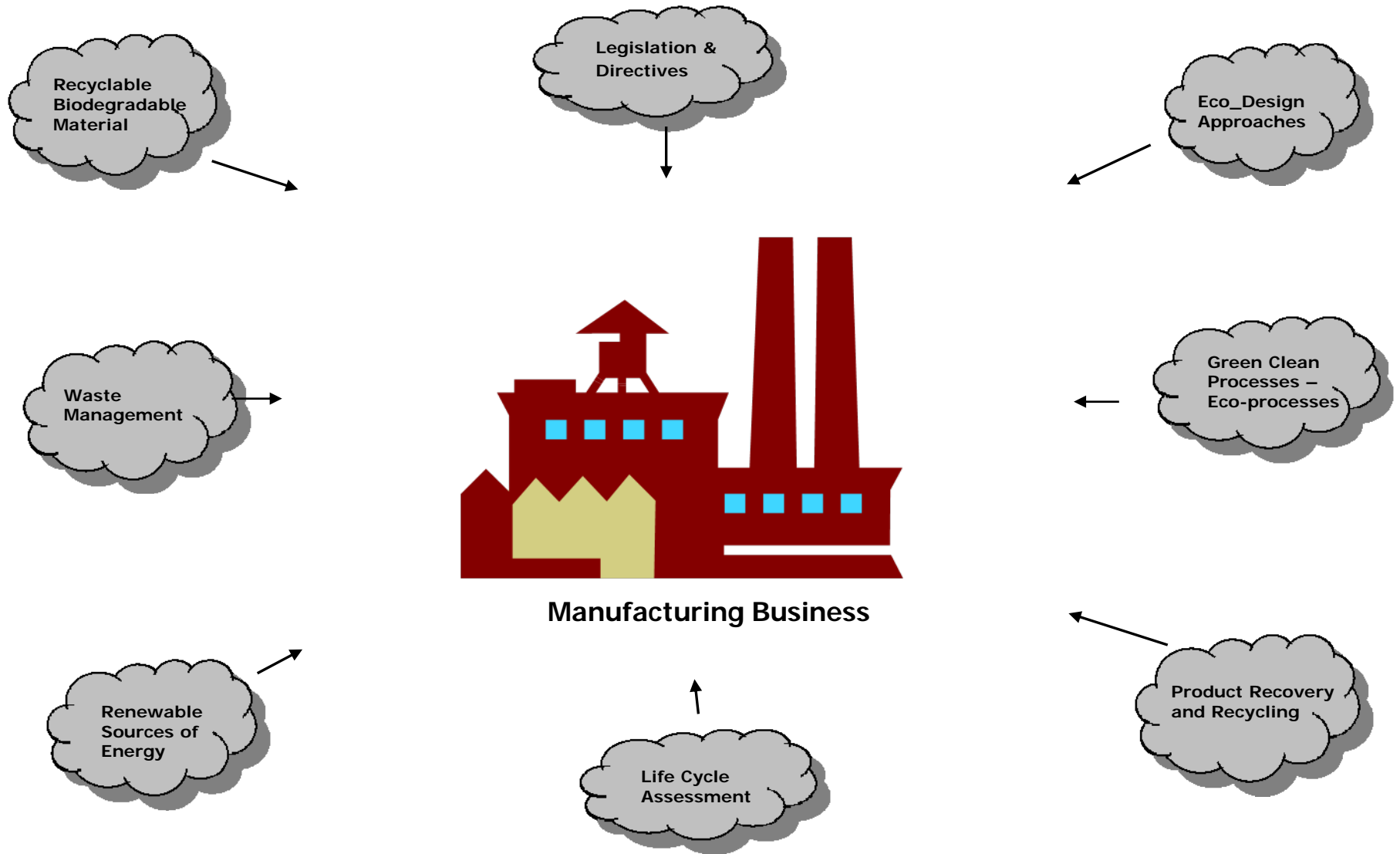
The Need for Life Cycle Thinking



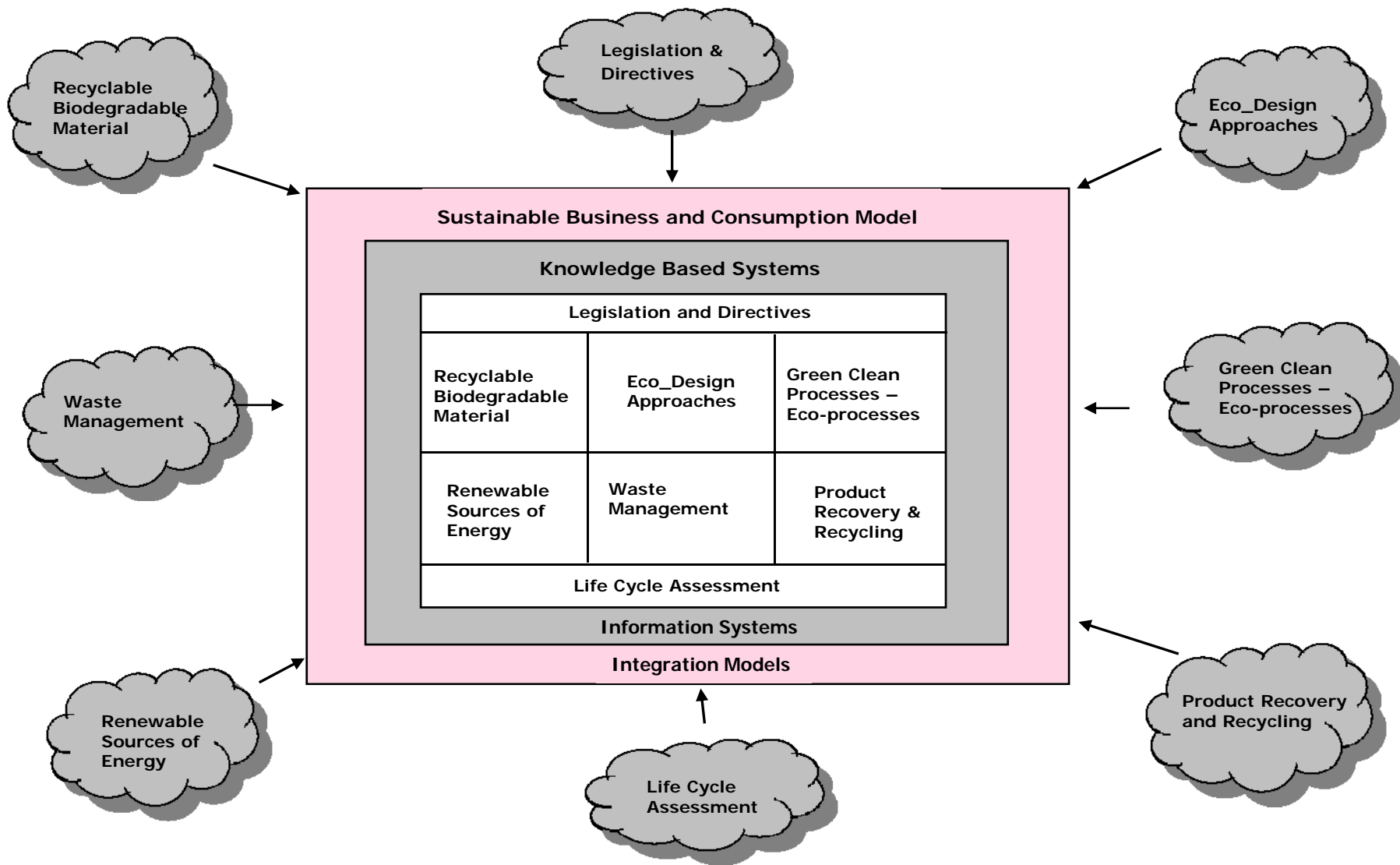
- Good design is expensive, bad design more so !!?
- Design is an investment, not a cost !
- if current design is unsustainable, then future design must embrace sustainability.



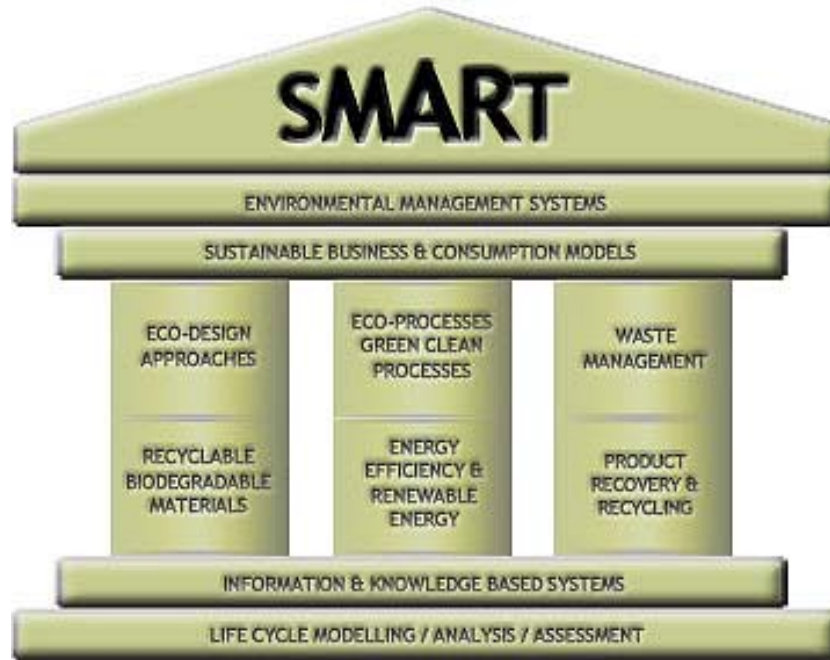
The Existing R&D Activities in Sustainable Manufacturing



Research Strategy



Centre for SMART Roadmap for Sustainable Manufacturing



“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 manufacturing businesses”



In Summary

A vision (roadmap) for achieving Sustainable Manufacturing in Europe should address the need for :

- Breaking the link between economic growth and environmental degradation whilst safeguarding social/ethical standards .
- Developing holistic sustainable solutions based on Economical, Environmental and Ethical considerations,
- Adopting a life cycle thinking in development of such solutions,
- Implementing an integrated approach for planning of Economical, Environmental and Ethical requirements of a manufacturing business.

Concluding Remark

“ Man is a user of tools. Those who recognise the tools of tomorrow and learn to use them today, assure themselves of a place in tomorrow’s prosperity ”

William Luggan,
Computer Numerical Control,
Delmar Publisher, 1997

Need to make brave decisions !!?

“ We should embrace the fundamental concept of Sustainable Development as if our life is dependent on it,

because

the quality of life of our future generation will depend on our decisions made today !”

*Shahin Rahimifard
CleanProd Meeting
October 2008, Brussels.*



Thank you