

Ecodesign
Centre Wales

Canolfan
Ecoddylunio
Cymru



Ecodesign
Centre Wales

Canolfan
Ecoddylunio
Cymru



Embedding ecodesign in mainstream design education

Simon O'Rafferty, Frank O'Connor

agenda

introduce centre

introduce education activities

highlight some challenges

ask some questions

Ecodesign Centre Wales
Sophia House
28 Cathedral Road
Cardiff CF11 9LJ

+44(029)20660147
info@ecodesigncentrewales.org
www.ecodesigncentrewales.org



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Ecodesign
Centre Wales

Canolfan
Ecoddylunio
Cymru



Ecodesign Centre Wales

funded by Welsh Assembly Government

our role

build capacity and capabilities in **industry, public sector organisations** and **higher education** so that effective ecodesign can happen in Wales

4 staff



Ecodesign Centre Wales
Sophia House
28 Cathedral Road
Cardiff CF11 9LJ

+44(029)20660147
info@ecodesigncentrewales.org
www.ecodesigncentrewales.org



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

1) Industry: enabling ecodesign

encouraging the development of environmentally conscious products and services.

2) Education: embedding ecodesign

providing specialist support to Welsh Universities currently offering product design degrees.

3) Research: international best-practice

sharing ecodesign knowledge and experience through a programme of continuous research and international scanning.

4) Communication: positioning & promoting ecodesign

raising the profile of ecodesign. This is supported by a clear brand strategy.



embedding ecodesign

*"in 5 to 10 years all design graduates in Wales will be **literate in sustainability and ecodesign thinking and practice**"*

EDC Business Plan 2006

- work with the **4 universities in Wales** offering product design degrees
- make sustainability and ecodesign and **integral** part of design education – not add-on or separate module
- extend to other disciplines in time (business, marketing, graphic design/branding etc.)



policy

WAG

DELLS, HED

HEFCW, ELWα

ESD & GC

HE corporate strategies

curriculum
(business case)

product design curriculum

accreditation

continuous professional development

research

EDC support

student / teaching resources

trainer training

support

delivery



activity

**student / teaching resources -
inter/intranet based**

**trainer training -
(involving external practitioners)**

support

output

set of 9 key learning objectives and topics
content for a range of suggested lectures
powerpoint presentations and supporting
documents

“capacity building” days
“knowledge transfer” days

guest lecturing
on-line resources
tracking/measurement
research



resources

- text, images and graphics (discussion starters), key quotes, industry supported case examples, videos, weblinks – other options!!
- slides supported by notes for tutor and student
- flexible number of slides (extra research resources)
- exercises e.g.
 - sustainable development
 - life cycle thinking
 - design for durability
 - ecodesign strategies





key learning objectives

1. **understand sustainable development**
 - a. key definitions
 - b. context (personal, commercial)
-

2. **understand social, environmental and economic drivers of innovation**
-

3. **understand systems and life-cycle thinking**

suggested topics

sustainable development, ecological limits, systems thinking, motivation, definitions, issues, stakeholder impacts e.g.

eco-innovation, social change (ageing, population growth, services etc.), CO₂, climate change, resource efficiency (waste), product service systems, sustainable consumption

product life-cycle stages, system life-cycles (cradle to cradle)





key learning objectives

possible topics = core

-
- 4. understand ecodesign**
a. definitions
b. history

Ecodesign, sustainable design, LCA, SLCA, LCI, DFX's: DFMA, DFE, DFD, DFR, EOL

-
- 5. understand ecodesign tools**

checklists / matrices, guidelines / standards / technical reports / handbooks, simplified assessment techniques, LCA

-
- 6. understand ecodesign strategies**

3 R's, six 'RE' philosophy, 'biothinking', benchmarking tools, strategy wheels, ecological footprinting, design for durability, ISO TR 14062





key learning objectives

possible topics = core

-
7. understand ecodesign in the context of business
 - a. business drivers
 - b. links to CSR/ branding and green marketing

 8. understand environmental product policy

 9. understand how ecodesign can be applied

internal / external / emerging business drivers, green marketing, sustainability reporting

international policy, IPP, Producer Responsibility (WEEE, RoHS, EuP, REACH), Packaging Regulations

case-studies, projects

Ecodesign
Centre Wales

Canolfan
Ecoddylunio
Cymru



sample slides

Ecodesign Centre Wales
Sophia House
28 Cathedral Road
Cardiff CF11 9LJ

+44(029)20660147
info@ecodesigncentrewales.org
www.ecodesigncentrewales.org



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

designers **interact**
between industry and
consumers

industry

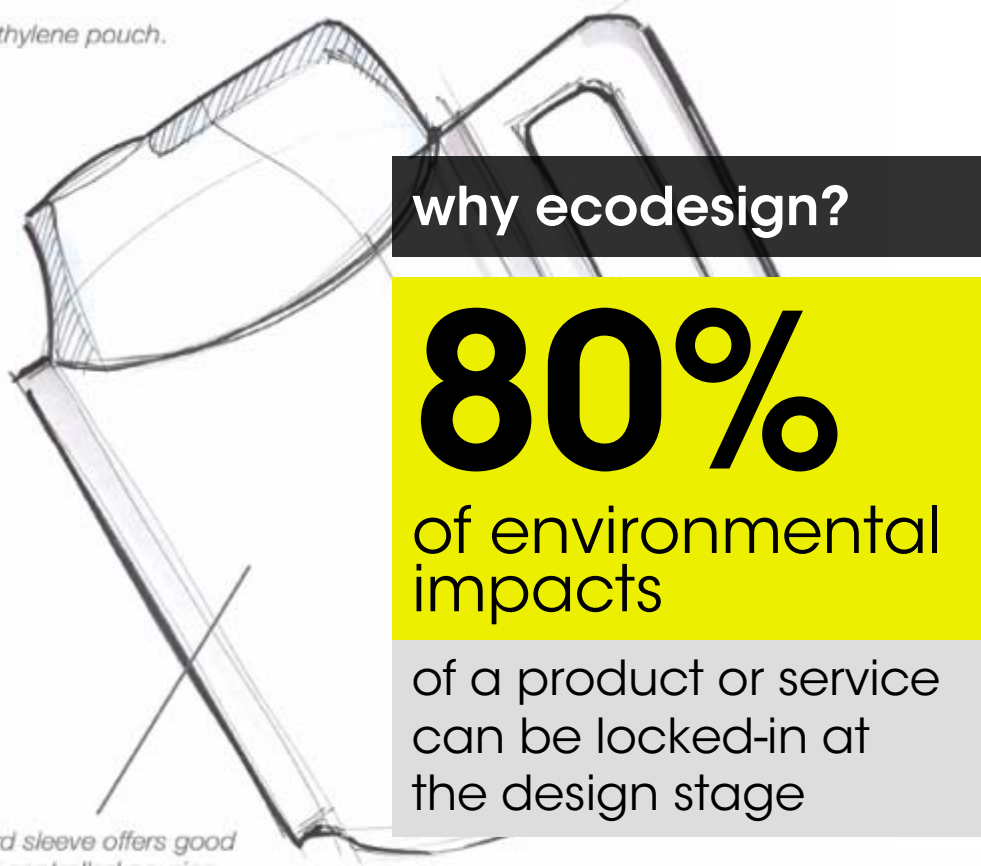


design

consumers



Light weight polyethylene pouch.



Carton board sleeve offers good stability and controlled pouring.

why ecodesign?

80%
of environmental impacts

of a product or service can be locked-in at the design stage



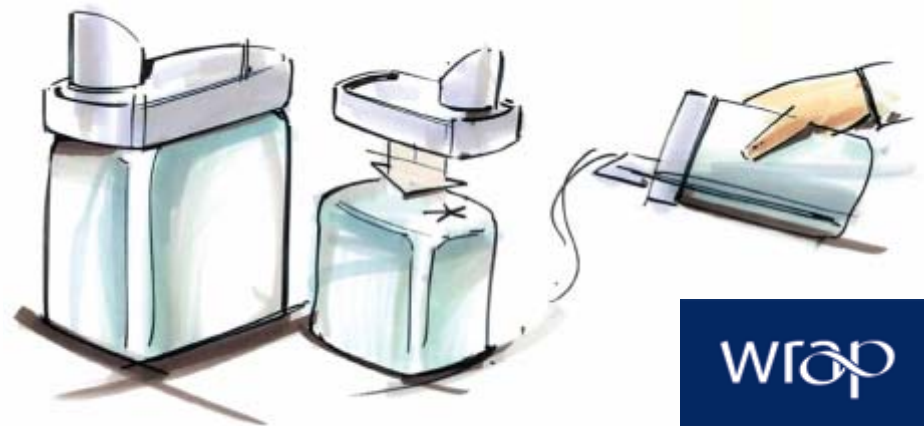
Material optimised handled bottle with minimal neck to reduce weight.



Light-weight re-close plug.



Screw on pouring spout provides control and re-close.



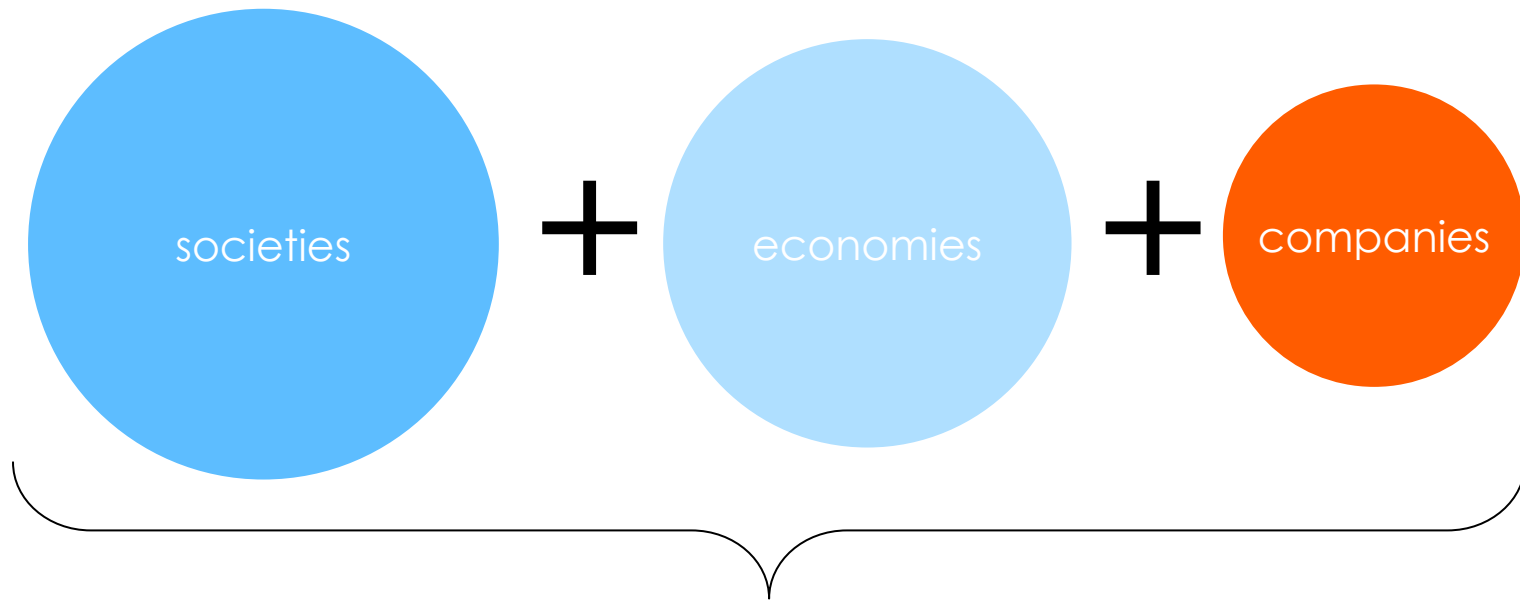
urbanisation

3.3 billion

people are living in urban areas. By 2030, this will rise to 5 billion



it is about developing



that can be sustained on **social**, **economic** and **environmental** terms



design for.... recycling/reuse

disassembly, servicing, upgrade, reduced material mix

design for.... low impact materials

recycled, recyclable, bio materials, compatibility, compostable, renewable, sustainable

image source: inhabitat, Worn Again, Moscardino, Remarkable, Sony





think chair

Steelcase

Life cycle assessment

End of life

Think is up to 99% recyclable by weight. The chair can be easily disassembled in about 5 minutes, using ordinary hand tools. Parts weighing more than 50g are clearly labeled for recycling.

Use

Designed for long life, Think is easy to repair, reconfigure and upgrade. Seat and back cushions, arms, headrest and lumbar adjustments can be easily added, changed or replaced.

Transport

To reduce shipping, chairs are manufactured close to customers in Europe and North America, and beginning 2005 in Asia. Because the Think chair is lightweight, it requires less energy for shipping. Think is available to ship ready-to-assemble, which uses less packaging and allows more chairs per shipment.

Materials

To reduce overall material usage, Think weighs only 32 pounds — a fraction of the weight of comparable chairs. It contains up to 44% recycled materials, and absolutely no PVCs, CFCs, solvents, benzene, chrome, lead or mercury.

Production

Think was designed to be made with minimal waste, energy consumption and environmental impact. Powder-coat painting is VOC-free and free of heavy metals. No gluing processes are used in assembly.





Acetal



Aluminum



Nylon



PolyEthylene



Polyurethane



Polypropylene



Steel





our main challenges

- embedding!! not add-on
- different institutional competencies, culture, assessment criteria etc.
- facilitating ownership
- creating viable and effective linkages (triple helix)
- making resources relevant, engaging and adaptable (while orientated towards industry and policy)
- providing co-operative platforms
- measurement and evaluation
- convincing policy makers of strategic merit



our main challenges

- how do we facilitate ownership of SD and the resources we create to allow for longevity?
- how do we provide co-operative platforms for the open sharing of knowledge and experiences?
- how do we know where we are, where we are going and when we have got there?



Ecodesign
Centre Wales

Canolfan
Ecoddylunio
Cymru



any questions?

Ecodesign Centre Wales
Sophia House
28 Cathedral Road
Cardiff CF11 9LJ

+44(029)20660147
info@ecodesigncentrewales.org
www.ecodesigncentrewales.org



Llywodraeth Cynulliad Cymru
Welsh Assembly Government