Sustainable Innovation: Past, Present & Future

SHIFT Final Conference

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PARADIGM
SHIFT
FIGURE 6  The circular economy—an industrial system that is restorative by design

1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation circular economy team
80%
‘Cradle to grave’ product life thinking (traditional)

Extraction of raw materials → Manufacturing → Packaging and distribution → Use and maintenance → Incineration and disposal
Circular Economy

- plants
- production
- product
- use
- biological degradation
- biological nutrients

- technical nutrients
- return, disassembly
- use

- biological cycle
- technical cycle

The Centre for Sustainable Design®
PSS models are commonly seen as important within the context of product development and service perspective. Fig. 1 provides an example of how PSS models are used to support innovation, with a focus on technical, business, and manufacturing perspectives. These models are part of a new way to make products, which might involve engineers taking a more integrated and sense-making approach to their work. Commonly, practices are seen within distinct situations, and early understanding of new developments is crucial. Thus, the development of different products and service systems is also vital for firms, as they aim to offer innovations and new concepts to their customers.
A Philips Green Flagship product that either

- Has the best environmental performance in the market, or
- Is the most innovative environmental friendly product in its portfolio, or
- Is the best environmental solution in its application area.

A Philips Green Flagship is benchmarked in six green focal areas and must perform significantly better (>10%) in at least three of theses green focal areas:

- Weight
- Recycling and disposal
- Lifetime reliability
- Energy efficiency
- Packaging
- Hazardous substances
Eco-design - Examples

Green Flagship Brightview XCT Scanner

Compared to its predecessor, the Precedence 16, this Green Product’s environmental benefits include:
- 64% reduction in energy use,
- 59% reduction in product weight
zipcar
wheels when you want them
Green product examples

**Opening Night™**
This collection is comprised of InterfaceFLOR hybrid yarn, a blend of nylon bio-based fibre of Polylactic Acid (PLA). PLA fibers are derived from starch based agricultural waste materials such as non food grade corn.

**TacTiles™**
TacTiles contains no liquid components, using them virtually eliminated the issue of Volatile Organic Compounds (VOCs) during carpet installation.

**Rawhide™**
Rawhide offers 4% renewable content (fibre) and 57% total recycled content.

**Chenille Warp™**
Depending on the colourway, Chenille Warp offers 62-65% total recycled content.
Fotosfera.

First carpet with a bio-based nylon
USED PATAGONIA GEAR
POWERED BY eBay
List your used Patagonia Clothing and Gear.
In support of Patagonia's mission.
WE HOLD THESE TRUTHS TO BE SELF-EVIDENT

SELF-REPAIR MANIFESTO:

REPAIR IS BETTER THAN RECYCLING.
Making our things last longer is both more efficient and more cost-effective than mining them for raw materials.

REPAIR SAVES THE PLANET.
Earth has limited resources and we can't run a linear manufacturing process forever. The best way to be efficient is to reuse what we already have.

REPAIR SAVES YOU MONEY.
Fixing things is often free, and usually cheaper than replacing them. Doing the repair yourself saves serious dough.

REPAIR TEACHES ENGINEERING.
The best way to find out how something works is to take it apart.

IF YOU CAN'T FIX IT, YOU DON'T OWN IT.
Repair connects people and devices, creating bonds that transcend consumption. Self-repair is sustainable.

WE HAVE THE RIGHT:

- To open and repair our things without voiding the warranty
- To repair and replace components easily
- To demand a repair manual for guidance
- To choose our own repair technician
- To demand a repair that is done to our specification
- To have repairs covered under warranty

FIGURED BY MUSKO: MAKERS MILL OF RIGHTS AND PLATFORM FOR REPAIR MANIFESTOS

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**HTC Surround**
- Battery is relatively easy to replace.
- Accessing the internal MicroSDHC card voids the warranty.
- Very difficult to access the front panel and LCD for replacement.

**Motorola Droid 4**
- LCD and front glass are not fused and can be replaced individually.
- Tons of adhesive seals the phone and its components.
- Replacing the front glass requires complete phone disassembly.

**Motorola Droid RAZR**
- Battery is relatively easy to replace.
- All plastic frames and casings are incredibly tedious to remove.
- The front panel is adhered to the display.

**Apple iPhone**
- Standard Phillips screws used throughout.
- Hidden clips make it nearly impossible to open rear case without damaging it.
- Soldered battery is very difficult to replace.

**HTC One**
- Solid external construction improves durability.
- Virtually impossible to open without extreme damage to rear case.
- Battery is buried under motherboard and adhered to midframe.
THE BOY & THE BUBBLE
£850.00
Industry 4.0

Yesterday

Tomorrow
CITY 2.0
Re-Industrialisation 1.0

Decentralisation

Low Carbon

Circular
MAKERS

THE NEW INDUSTRIAL REVOLUTION

CHRIS ANDERSON

Author of the bestseller The Long Tail
web 2.0
3D Printing

RepRap

MakerBot Industries

The Centre for Sustainable Design®
SMEs
Eco-innovate!

A guide to eco-innovation for SMEs and business coaches
JRC SCIENCE FOR POLICY REPORT

2035
Paths towards a sustainable EU economy
Sustainable transitions and the potential of eco-innovation for jobs and economic development in EU eco-industries 2035

Foresight Series
Laurent Bontoux
Daniel Bengtsson
2015
BROAD-BASED

MICRO

ISOLATED

START-UPS

PRODUCT-OREINTED

FUNDING

NOT CLEANTECH

NOT DISRUPTIVE

MARKETING

NOT INNOVATIVE
SUPPORT SYSTEMS
CREATE
YOUR
FUTURE
OPEN 24 HOURS
Transition or Transformation

Evolution or (R)evolution
TOP DOWN

BOTTOM UP
SUSTAINABLE FUTURE?
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