



The Centre for Sustainable Design®

## Sustainable Innovation 2012

Resource Efficiency, Innovation  
and Lifestyles

Towards Sustainable Product Design: 17th International Conference

29 & 30 October 2012

Alanus University, Bonn, Germany

### Strategic partner

CSCP



### Venue partner

Alanus University



### Partners

Wuppertal Institute  
Borderstep Institute  
Eco-innovation Observatory  
World Resources Forum  
CREATIVE NRW



An initiative of



### Ramon Arratia

Sustainability Director, InterfaceFlor Europe, UK

### Jack de Bokx

Senior Director, Worldwide Environment, Health & Safety, Johnson & Johnson, UK

### Martin Charter

Director, The Centre for Sustainable Design@,  
University for the Creative Arts, UK

### Garrette Clark

Programme Officer – Business & Industry, United Nations Environment Programme (UNEP), France

### Trevor Davis

Futurist, IBM, UK

### Bas De Leeuw

Managing Director, World Resources Forum,  
Switzerland

### Bernd Draser

Lecturer – Philosophy & Cultural Studies,  
ecosign and Akademie für Gestaltung, Germany

### Lorenz Erdmann

Senior Researcher, Fraunhofer ISI – Institute for  
Systems and Innovation Research, Germany

### Søren Femmer Jensen

Director, Co-Creative, Denmark

### Klaus Fichter

Innovation and Sustainability Management, Carl  
von Ossietzky University of Oldenburg, Germany

### Constantin Herrmann

Principal Consultant, PE international, Germany

### Sascha Herrmann

Director, VDI Zentrum Ressourceneffizienz GmbH,  
Germany

### Wouter Kersten

Manager, Research and Innovation, Enviu,  
Netherlands

### Michael Kuhndt

Director, CSCP, Germany

### Harry Lehmann

General Director, Division – Environmental  
Planning and Sustainability Strategies, Federal  
Environmental Agency (UBA), Germany

### Michael Lettenmeier

Consultant, Wuppertal Institute for Climate  
Environment and Energy, Germany

### Christian Löwe

Senior Researcher, Federal Environmental Agency  
(UBA), Germany

### Kerstin Mey

Director, Research & Enterprise, University for  
the Creative Arts, UK

### Nick Morley

Director, Oakdene Hollins, UK

### Frank O'Connor

Director, Ecodesign Centre, Wales

### Jamie O'Hare

Senior Consultant, Granta Design, UK

### Jacquie Ottman

Founder & CEO, J Ottman Consulting, US

### Fabiana Scapolo

Team Leader, Foresight and Horizon Scanning,  
European Commission Joint Research Centre (JRC),  
Belgium

### Ole Schilling

Creative Lead, Product Design, Deutsche Telekom  
AG, Germany

### Stefan Siedel

Deputy Head, PUMA Safe Global, PUMA, Germany

### Maarten Ten Houten

Sustainability Manager, Global Commerce,  
Heineken, Netherlands

### Chris Thorpe

Director, IDeA Limited, UK

### Ursula Tischner

Program Coordinator – Design for Sustainability,  
Savannah College of Art and Design, US

### Luca Venerando Giuffrida

Directorate-General for Environment, European  
Commission, Belgium

### Justus von Geibler

Project Coordinator, Wuppertal Institute, Germany

### Kresse Wesling

Co-founder & Director, Elvis & Kresse, UK

**Contents**

**Biomimicry Sketch Analysis: A Generative Tool for Sustainability in Product Design Education - Yekta Bakırlioğlu, Çağla Doğan ..... 6**

**Objects Of The Forest: An Experimental Design Expedition In The Amazon Region - Andrea Bandoni..... 16**

**Let’s Start With The Rest! - Frank Becker, Johannes Dietrich, Karin Zacharias-Langhans..... 22**

**Green Business Model Innovation: Definition, Next Practice and Nordic Policy Implications - Tanja Bisgaard, Kristian Henriksen, Markus Bjerre ..... 30**

**Resources, Innovation & Lifestyles: Global Business Perspective - Jack De Bokx..... 37**

**Procurement as Driver of Sustainable Product-Service Innovation - Cecilia Bratt, Göran Broman, Karl-Henrik Robèrt ..... 38**

**Product - Packaging Development Process: A Proposal Oriented to Sustainability - Doris Zwicker Bucci, Lorena Benathar Ballod Ta, Fernando Antonio Forcellini ..... 45**

**The ‘Closed Loop’ and Beyond - Martin Charter ..... 53**

**Lessons Learnt Supporting SMEs in Eco-Innovation - Martin Charter, Tim Woolman ..... 55**

**Packaging for a Sustainable Future – the Need to Cost Effectively Design for the End User and the Environment - Richard Coles..... 67**

**The integration of Cradle-to-Cradle Principles in Building Practices in Flanders: An Assessment of the Current Situation - Wim Debacker, Nele D’Haese, Karl Vrancken ..... 76**

**The Circular Economy and Responsible Leasing Within the Fashion & Textile Industry - Fatemeh Eskandarypur..... 82**

**Sustainability Self-Assessment and Business Model Design - César Levy França, Göran Broman, Karl Henrik Robèrt, Louise Trygg..... 89**

**Sustainable Innovations in Living Labs: Exploring the Potential of a German Research Infrastructure for User-Lead Product and Service Innovations - Justus von Geibler, Simon Berner, Lorenz Erdmann..... 101**

**Eco-Innovation and Resource Efficiency - Luca Venerando Giuffrida ..... 107**

**Resource Management and Technological Innovation - Sascha Hermann..... 108**

**A Business Model Framework for Product Life Extension - M.C. den Hollander, C.A. Bakker ..... 110**

<b>Life Cycle Thinking and Integrated Product Deliveries in Renovationp Projects: Extending the Concept of Integrated Product Deliveries with Product Service Systems - Jan Schipull Kauschen .....</b>	<b>119</b>
<b>A Guiding Tool for the Selection of Fish from Sustainable Fisheries for Food Industry, Food Retail and Consumers - Manfred Krautter .....</b>	<b>129</b>
<b>Design for Sustainable Solutions: The Need for Action Beyond Green Design - Dr. Markus Kretschmer .....</b>	<b>133</b>
<b>Resources, Innovation and Lifestyles - Michael Kuhndt.....</b>	<b>140</b>
<b>Resource Efficient Europe - Dr Harry Lehmann .....</b>	<b>141</b>
<b>Sustainable LivingLabs – European Research Infrastructure For The User-Integrated Development Of Sustainable Product And Service Innovation (SusLabNWE) - Christa Liedtke, Carolin Baedeker, Holger Rohn, Marco Hasselkuß, Viktor Grinewitschus.....</b>	<b>142</b>
<b>Offer Characteristics Determining Perceived Usefulness Of Environmental Communication - Marcus Linder.....</b>	<b>153</b>
<b>Integrating Thermodynamics and Biology for Sustainable Product Lifecycle Design - Victor Martinez, Stuart English, Matteo Conti, Kevin Hilton .....</b>	<b>163</b>
<b>The Requirements Management Framework as a Support Tool for Designing Sustainable Product-Systems - Ângela Maria Marx, Istefani Carísio.....</b>	<b>171</b>
<b>Developing An Organization Culture To Facilitate Radical Innovation - Dr Patrick McLaughlin.....</b>	<b>179</b>
<b>The Role of Connections and Users’ Involvement in Designing Sustainable and Longer Lasting Artefacts - Massimo Micocci, Giuseppe Salvia, Francesca Ostuzzi, Valentina Rognoli, Marinella Levi .....</b>	<b>188</b>
<b>Building Materials With Low Embodied Energy in Their Life-Cycle - Martino Milardi.....</b>	<b>199</b>
<b>Materials Security, Productivity and New Business Models - Nicholas Morley .....</b>	<b>205</b>
<b>Waste: Not! Turning Refuse into Quality Products - Emer O’Connell .....</b>	<b>206</b>
<b>How Design Relates to Waste: A Categorization of Concrete Examples - Isabel Ordoñez, Professor Ulrike Rahe.....</b>	<b>213</b>
<b>Investigating The Life-Span of Cork Products and Appropriate Use Of The Material – Advanced Results Of A Longitudinal Study With Users - Ana Carina Pereira, Han Brezet, Helena Pereira, Joost Vogtländer.....</b>	<b>223</b>
<b>Standardization of Life Cycle Assessment to Ensure Transparency in Product Labeling - Tobias C. Schultz.....</b>	<b>236</b>

<b>Benefits and Difficulties for Industry when Designing for Sustainable Behaviour - Anneli Selvefors, Sara Renström, Anna Viggedal, Rebecka Lannsjö, Ulrike Rahe .....</b>	<b>242</b>
<b>The PUMA Environmental Profit &amp; Loss Account – Taken to the Next Level - Stefan Siedel .....</b>	<b>250</b>
<b>SUSTAINABILITY@P&amp;G - About Sustainable Product Design, Driving Sustainable Consumer Behaviour and Winning Through Partnerships - Dr. Mark Stalmans .....</b>	<b>252</b>
<b>Is E-Media More Sustainable Than Print? - Michael Sturges, Malin Kronqvist, Anita Teleman, Cathrine Löfgren .....</b>	<b>257</b>
<b>New Business Models for Sustainable Solutions - Ursula Tischner.....</b>	<b>268</b>
<b>Trash to Treasure - Kresse Wresling .....</b>	<b>275</b>