Brunel University of London Design School

Design for Sustainability

research group

We focus on developing the theory and practice required to design solutions that foster environmental, socio-ethical and economic sustainability in areas ranging from materials to products, services, business models, bottom-up social initiatives and socio-technical systems. Our work supports organisations, communities and practitioners in integrating design for sustainability into their activities.

Content

1 Mission and activities

Mission

The overarching goal of the research group is to **advance the knowledge and know-how in design for sustainability** through generating theories, strategies and methods on how to design solutions that foster sustainability. We focus on different design scales, from materials and products to services, product-service systems, business models, bottom-up initiatives and socio-technical systems.

We address sustainability challenges integrating:

- **environmental aspects**, including efficient use of resources, reduction of environmental impacts, and reduction of consumption levels;
- **socio-ethical aspects**, including equality, justice, cohesion, behaviour change, community empowerment, inclusivity and more in general quality of life;
- **and economic aspects**, including fostering circular economies, innovative business models and related supportive policies.

We promote sustainability at local, national and global scale and tackle sustainability challenges through transdisciplinary and participatory research approaches.

Activities

RESEARCH

We carry out research on a range of sustainability topics, at a national and international level. Our track record includes projects funded by UK Research and Innovation (Engineering and Physical Sciences Research Council, Arts and Humanities Research Council and Natural Environment Research Council), Innovate UK, Newton Fund, and the European Commission. Our group pulls together and integrates design, engineering and sustainability expertise, ranging from material science to biomimetics, product design, product-service system design, design for behaviour change, design for social innovation, design for socio-technical transitions, life cycle assessment, business modelling, creativity, codesign and participatory approaches. Our work is carried out with and for users and communities, and a variety of stakeholders including businesses, consultancies, practitioners, governmental and non-governmental organisations and policy makers.

KNOWLEDGE TRANSFER AND CONSULTANCY

We support businesses and other organisations in adopting the latest academic achievements on design for sustainability, and in enabling them to address specific sustainability challenges. We collaborate with them to co-generate knowledge and know-how, and we support them in integrating design for sustainability principles, frameworks and methods into their mind-set and practice.

Activities

EDUCATION

We develop teaching & learning strategies on how to integrate design for sustainability contents into UG and PG curricula, and we support the Brunel Design School and other universities in implementing these strategies. We link businesses and other organisations with education by supporting collaborative activities (such as collaborative major projects and dissertations) on sustainability topics (in collaboration with Co-Innovate and DesignPlus programmes - Brunel Design School initiatives).

DISSEMINATION

Our publications and research seminars contribute to the national and international academic debate on the present and future of design for sustainability. We have experience in organising national and international conferences, as well as running workshops and training on design for sustainability topics.

PEOPLE DEVELOPMENT

We promote a research culture and environment that support the professional and academic growth and career development of PhD researchers and research fellows, so that they can become future sustainability leaders, in academia, public, private or third sector.

2 Who we are

Academics

Dr Fabrizio Ceschin

Research group lead

Product and product-service system design for sustainability, design for sustainability transitions

Dr Lorna Anguilano

Design for advanced materials and manufacturing

Dr Richard Bonser

Biomimetics, design for advanced materials and manufacturing

Dr Abusselami Selami Cifter

Product design for sustainability

Prof Youngok Choi

Design for social innovation

Prof Hua Dong

Design for social innovation, design for sustainable behaviour

Dr Mohammed Elsouri

Design for advanced materials and manufacturing, product design for sustainability

Prof David Harrison

Product design for sustainability, design for sustainable behaviour

Academics

Prof associate Rob Holdway

Product and business model design for sustainability

Dr Liang Li

Design for advanced materials and manufacturing

Dr Tim Minton

Design for advanced materials and manufacturing, product design for sustainability

Dr Gülşen Töre Yargın

Design for sustainable behaviour

Dr Busayawan Lam

Design for social innovation

Mr Steve McGonigal

Product design for sustainability

Prof Eujin Pei

Design for advanced materials and manufacturing

Research fellows and PhD researchers

Mrs Thanaa Al-Rawashdeh

PhD on natural and bio-based insulation materials for use in buildings in the Middle East

Mr Charlie Bradley

Research group administrative coordinator

PhD on track & trace technologies for reusable packaging systems

Mr Chris Tait

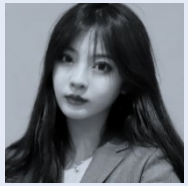
PhD on circular design and AI

Mr Tamba Konteh

PhD on circular design principles for the metal sector

Ms Nevena Balezdrova

PhD on co-design for social care services for elderly immigrants



Mr Yufan Guo

PhD on health literacy

Dr Virginia Martin Torrejon

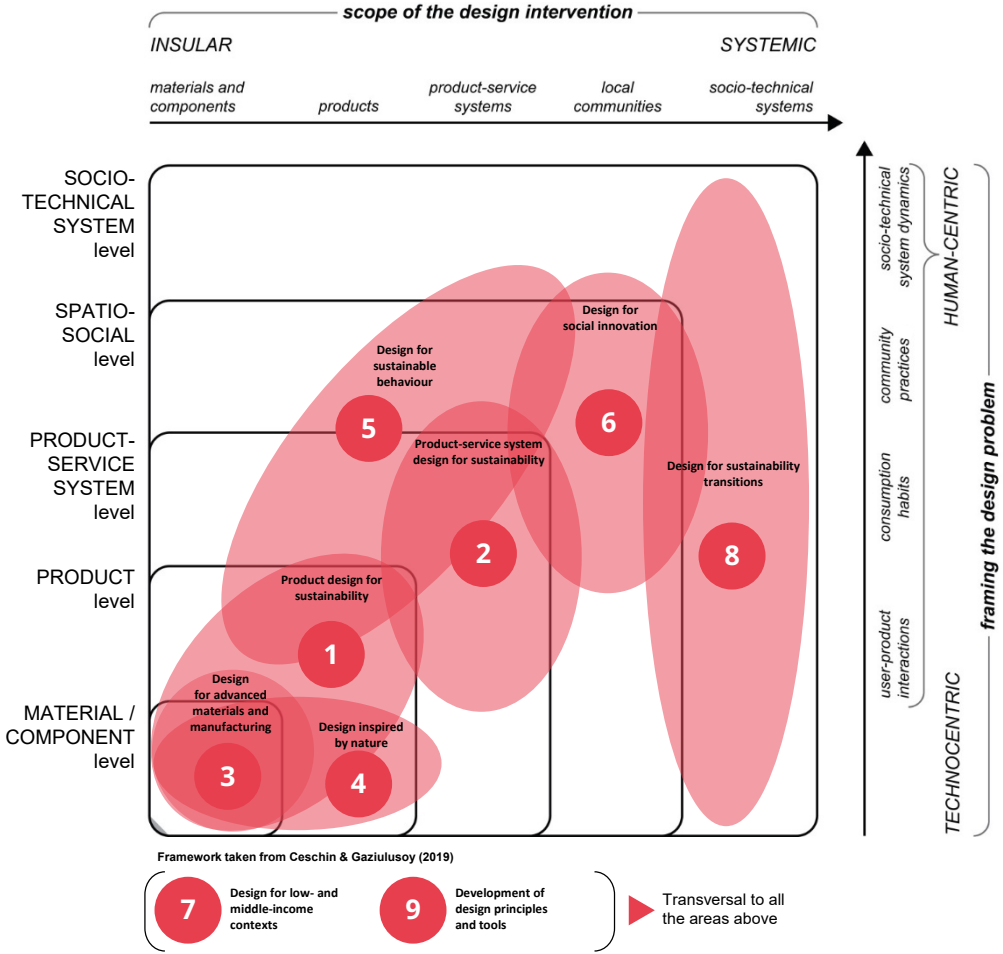
Marie-Curie Research Fellow on biobased materials

Mrs Jetmira Uka

PhD on recovery of aluminium swarf

3 Research areas

Research areas overview



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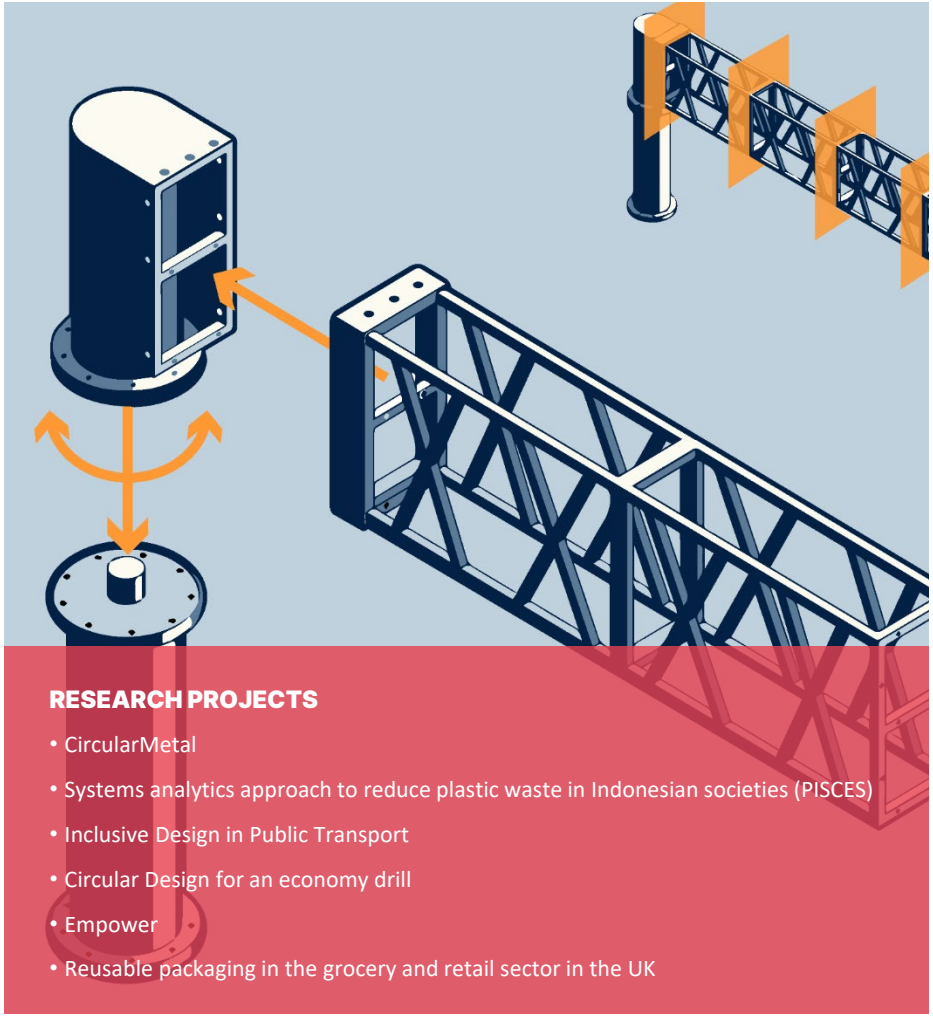
RESEARCH AREAS

Product design for sustainability

We explore the principles and tools to: design products with low environmental impact throughout their entire life cycle (i.e. product ecodesign); design products that support the transition to a circular economy, shifting away from the traditional take-make-use-dispose approach to products that can be repaired, reused, remanufactured, and recycled (i.e. circular product design); and design product that can establish a stronger and longer emotional connection with users (i.e. design for emotional durability).

Research area lead: Dr Mohammed Elsouri



RESEARCH PROJECTS

- CircularMetal
- Systems analytics approach to reduce plastic waste in Indonesian societies (PISCES)
- Inclusive Design in Public Transport
- Circular Design for an economy drill
- Empower
- Reusable packaging in the grocery and retail sector in the UK

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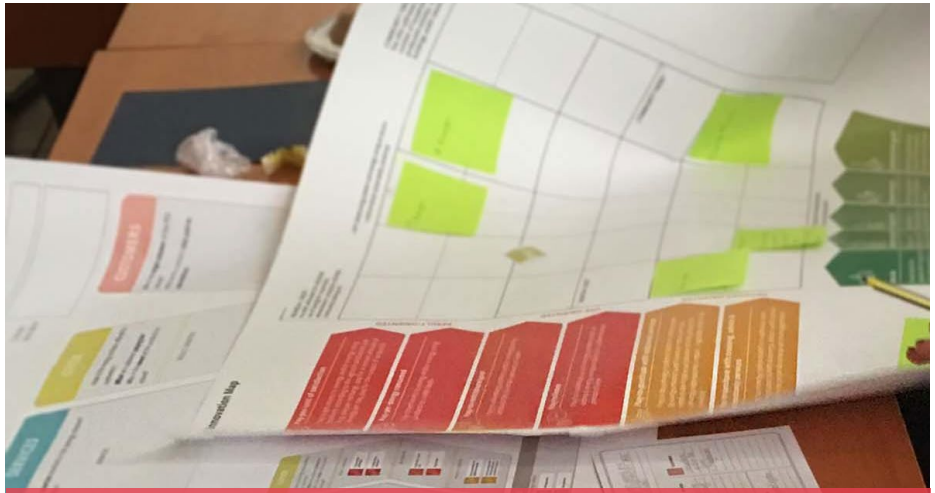
RESEARCH AREAS

Product-service system design for sustainability

We explore the role of design in developing product-service systems, articulated solutions that require the integrated design of products with services, business models and supply chain. In particular we are interested in those product-service systems that can provide sustainability benefits and foster circular economy. This means the design of product-service systems which can create the highest possible value from optimising the use of resources (e.g. selling access to products rather than ownership; offering maintenance, repair, upgrade services etc.).

Research area lead: Dr Fabrizio Ceschin



RESEARCH PROJECTS

- CircularMetal
- Systems analytics approach to reduce plastic waste in Indonesian societies (PISCES)
- Reusable packaging in the grocery and retail sector in the UK
- Lab-grown meat: The future of food?
- Shifting from single-use to reusable packaging systems in India and Indonesia
- Design toolkit to apply distributed manufacturing to product-service systems
- International Learning Network on Sustainability (LeNSin)
- Design tools to develop product-service systems for energy access in African contexts
- Learning Network on Sustainable Energy Systems (LeNSes)

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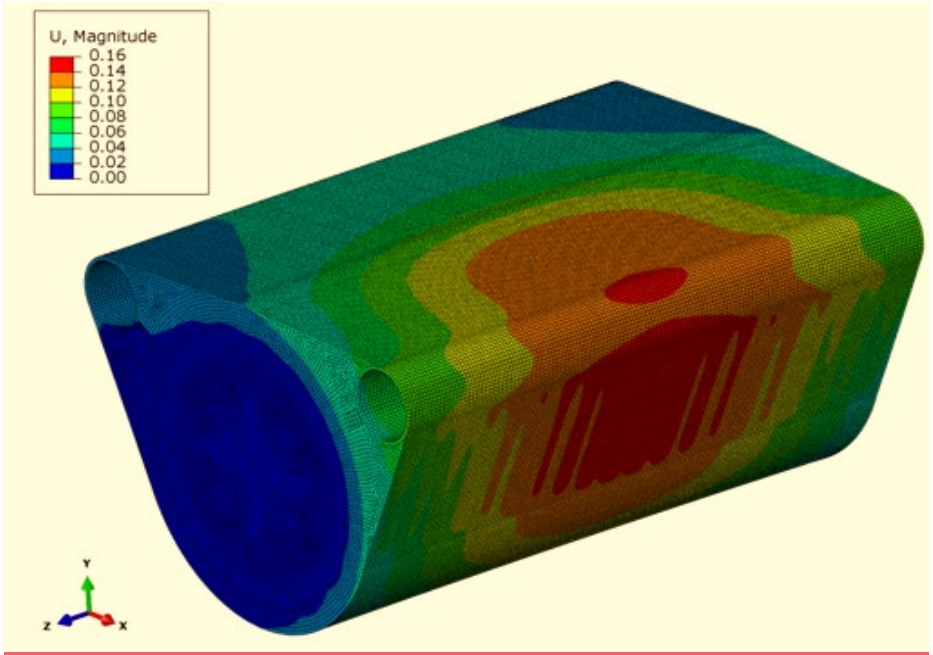
RESEARCH AREAS

Design for advanced materials and manufacturing

We develop innovative materials and manufacturing processes with a focus on reducing environmental impact and optimising resource use.

Research area lead: Dr Tim Minton



RESEARCH PROJECTS

- Enabling a human-centred and digital transition to net zero in UK manufacturing
- Forensic Decommissioning for Tidal Energy Converters (FodTEC)
- Basalt Fibre Reinforced HDPE for renewable marine energy applications
- Specialised Thimbles for Offshore Renewable Marine energy applications (STORM)
- Powerweave
- Innovative Electronics Manufacturing Research Centre (IeMRC)

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RESEARCH AREAS

Design inspired by nature (biomimetics)

We explore how design can take inspiration from nature in order to solve material, manufacturing and product innovation challenges. This can take place bi-directionally, moving from biology to design (solution-driven design) and from design to biology (problem-driven design).

Research area lead: Dr Richard Bonser

RESEARCH PROJECTS

- Octopus project
- EngD projects with Buro Happold

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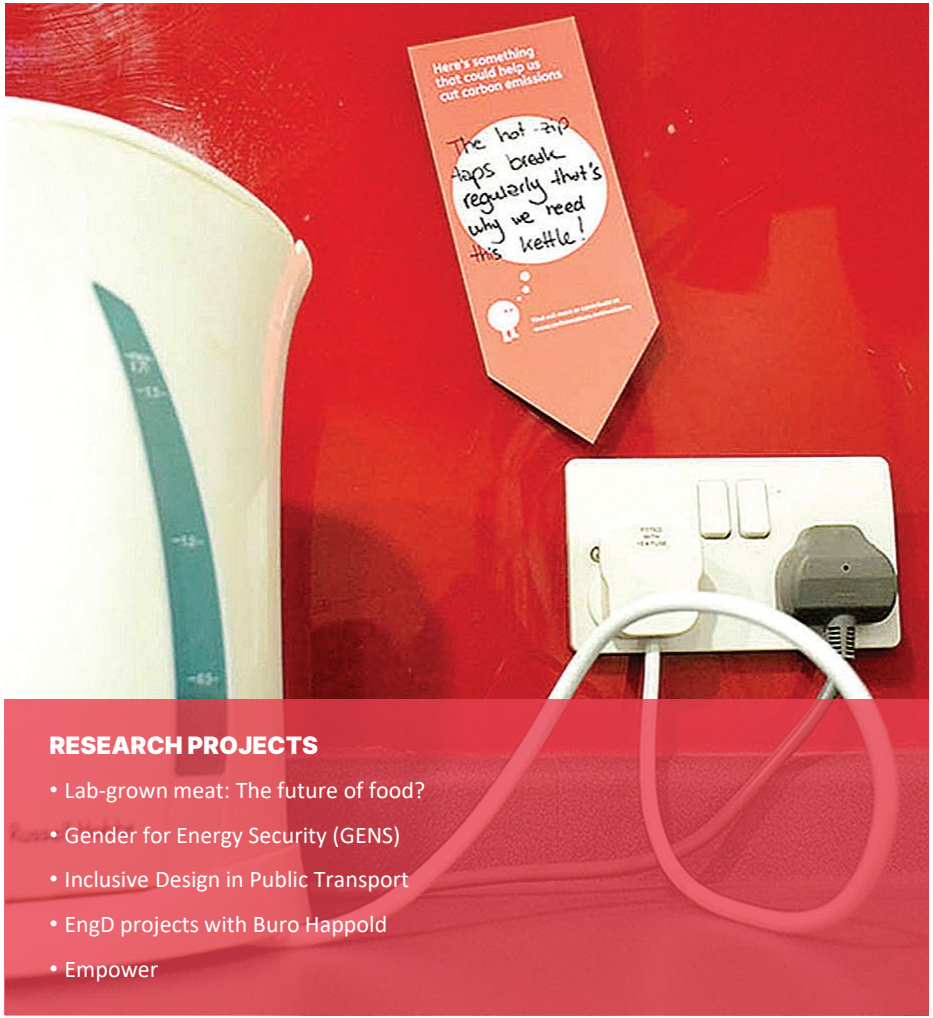
RESEARCH AREAS

Design for sustainable behaviour

We study how the design of products, services and digital artefacts can shape or influence human behaviour for environmental and socio-ethical purposes. This means: making people want to perform a desired behaviour and not want to perform an undesired behaviour; making it easier for people to adopt a desired behaviour and making it harder to perform an undesired behaviour. We develop design principles and tools to support designers in shaping human behaviour.

Research area lead: Dr Gülşen Töre Yargın



RESEARCH PROJECTS

- Lab-grown meat: The future of food?
- Gender for Energy Security (GENS)
- Inclusive Design in Public Transport
- EngD projects with Buro Happold
- Empower

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RESEARCH AREAS

Design for social innovation

We investigate how design can support people and communities to address socially relevant issues, with a particular emphasis on enabling them to create change within their own local environment (i.e. bottom-up community-based innovations). Even if social innovations are often driven by communities, we explore how professional designers can play a role in promoting and supporting these innovations, by making them more visible, effective, attractive, and by supporting their replication.

Research area lead: Dr Busayawan Lam

RESEARCH PROJECTS

- Gender for Energy Security (GENS)
- Creative Makerspaces
- OpenFood: Prototyping Open Innovation Models in Food Packaging
- City Visionaries: design and entrepreneurship skills in Brazilian slums
- Unearth Hidden Assets
- Social Value of Design (SVOD)

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RESEARCH AREAS

Design for low- and middle-income contexts

We explore the role of design in addressing the needs of those people and communities living in low- and middle-income contexts. In particular we have built a track record on projects on two main areas: energy access and tackling plastic waste.

Research area lead: Dr Fabrizio Ceschin

RESEARCH PROJECTS

- Systems analytics approach to reduce plastic waste in Indonesian societies
- Gender for Energy Security (GENS)
- Shifting from single-use to reusable packaging systems in India and Indonesia
- International Network on Sustainability (LeNSin)
- City Visionaries: design and entrepreneurship skills in Brazilian slums
- Design tools to develop product-service systems for energy access in African context
- Learning Network on Sustainable Energy Systems (LeNSes)

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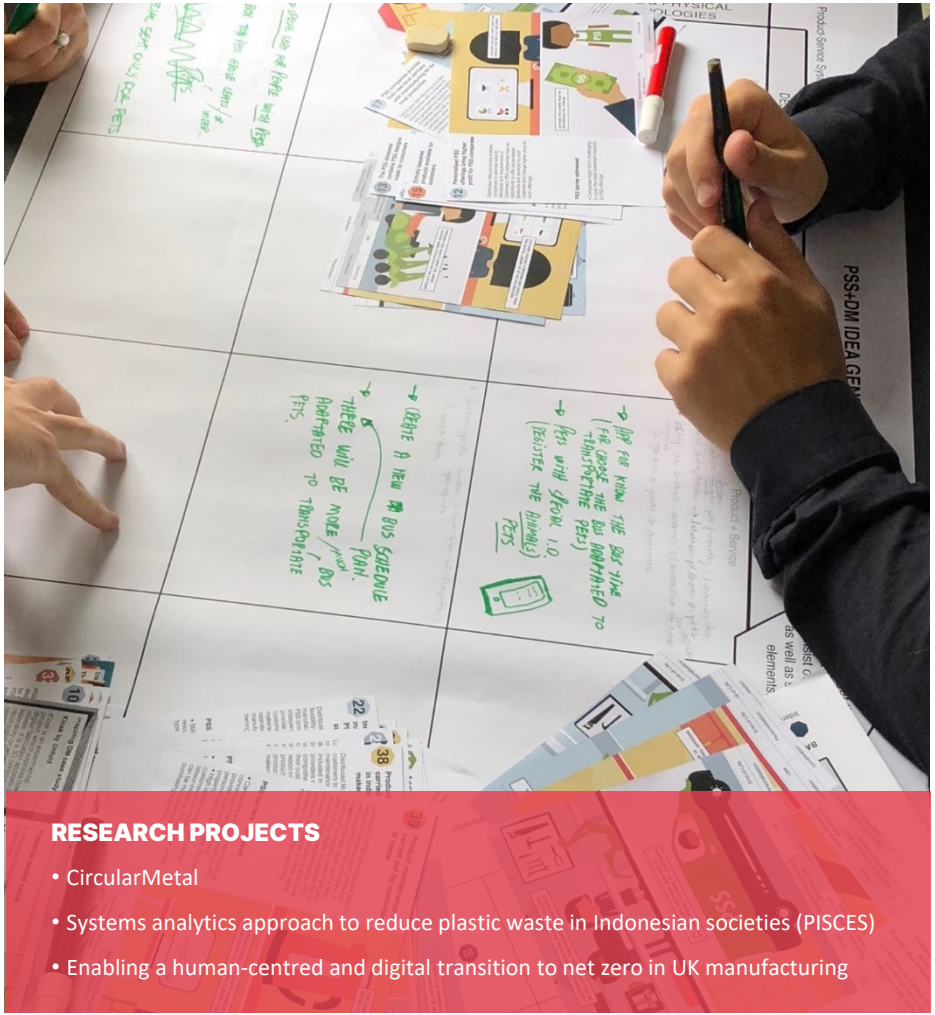
RESEARCH AREAS

Design for sustainability transitions

We investigate the role of design in supporting the transformation of socio-technical systems through the integration of technological, social, organizational and institutional innovations. This includes exploring how design can support multi stakeholder processes to envision sustainable futures and to create transition pathways.

Research area lead: Dr Fabrizio Ceschin



RESEARCH PROJECTS

- CircularMetal
- Systems analytics approach to reduce plastic waste in Indonesian societies (PISCES)
- Enabling a human-centred and digital transition to net zero in UK manufacturing

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RESEARCH AREAS

Development of design principles and tools

Transversally to the previously described areas, a strong emphasis of the group is on developing principles, frameworks and tools to enable organisations, communities and practitioners to integrate design for sustainability into their processes and practices. Most of our research projects lead to the development of new design principles and tools.

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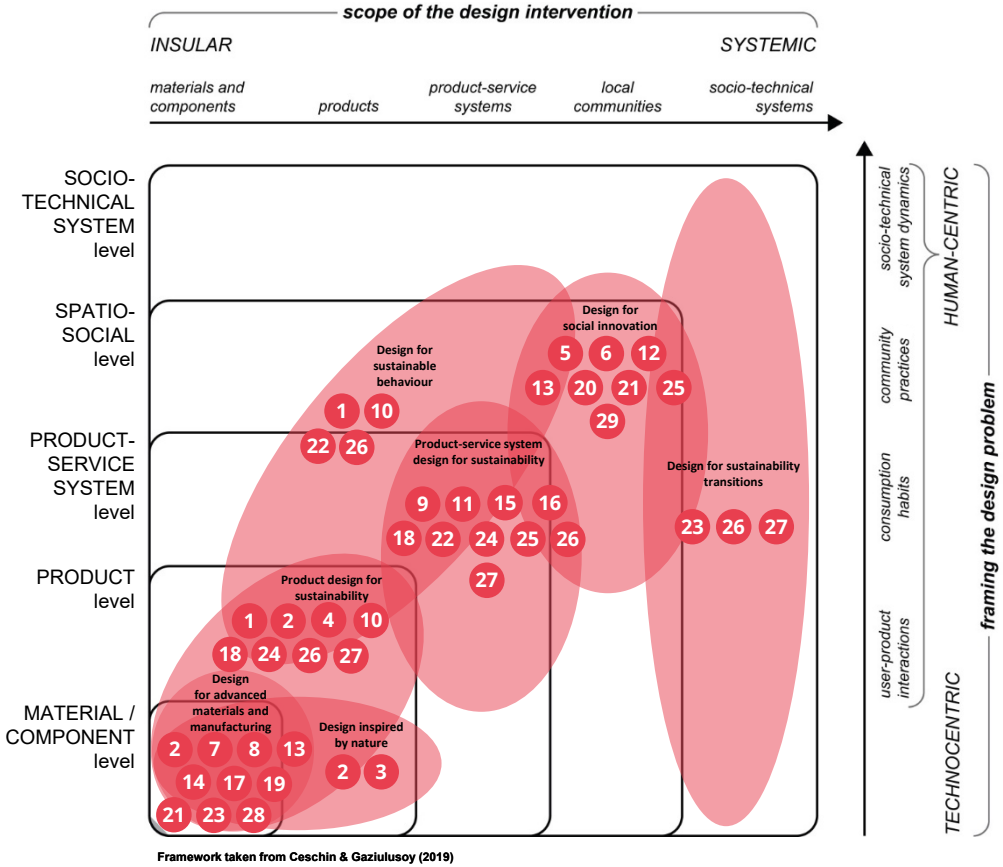
4 Research projects

Research projects overview (in chronological order)

1. Empower
2. EngD projects with Buro Happold
3. Octopus
4. Circular Design for an economy drill
5. Unearth Hidden Assets
6. Social Value of Design (SVOD)
7. Innovative Electronics Manufacturing Research Centre (IeMRC)
8. Powerweave
9. Learning Network on Sustainable Energy Systems (LeNSes)
10. Inclusive Design in Public Transport
11. Design tools to develop product-service systems for energy access in African contexts
12. City Visionaries: design and entrepreneurship skills in Brazilian slums
13. OpenFood: Prototyping Open Innovation Models in Food and Packaging
14. Specialised Thimbles for Offshore Renewable Marine energy applications (STORM)
15. International Learning Network on Sustainability (LeNSin)
16. Design toolkit to apply distributed manufacturing to product-service systems
17. Basalt Fibre Reinforced HDPE for renewable marine energy applications
18. Shifting from single-use to reusable packaging systems in India and Indonesia
19. Forensic Decommissioning for Tidal Energy Converters (FodTEC)
20. Creative Makerspaces
21. Respect, Regenerate, Revalue
22. Lab-grown meat: The future of food?
23. Enabling a human-centred and digital transition to net zero in UK manufacturing
24. Reusable packaging in the grocery and retail sector in the UK
25. Gender for Energy Security (GENS)
26. Systems analytics approach to reduce plastic waste in Indonesian societies (PISCES)
27. CircularMetal
28. CORAL: Compostable Foams from Renewable Algae Sources
29. VOICE: Valorising Artist-led Innovation through Citizen Engagement



Framework taken from Ceschin & Gaziulusoy (2019)

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RESEARCH PROJECTS

VOICE: Valorising Artist-led Innovation through Citizen Engagement

VOICE uses a new approach where artists take the lead, bringing together different communities to address environmental and ecological issues in their area. They work together to create green and digital solutions, making the ecosystem stronger and more resilient.

Research group members involved: Prof Hua Dong

Project partners: INOVA+, Brunel University of London, WAAG FutureLab, University College Dublin, European Research and Project Office GmbH, Future Focus21c, Research and Innovation Services Croatia, Royal College of Arts

Funded by: UKRI, European Union

Duration: 2024-2026

Research areas: Design for social innovation

Project website: https://voice-community.eu/

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RESEARCH PROJECTS

CORAL: Compostable Foams from Renewable Algae Sources

CORAL combines cutting-edge science with practical solutions to develop compostable materials from seaweed. Our mission is to redefine the future of packaging materials, reducing environmental impact while inspiring sustainable innovation across industries. Our objectives are: (1) Develop Seaweed-Based Materials; (2) Innovate scalable production; (3) Promote circularity and sustainability; (4) Engaging stakeholders and communities.

Research group members involved: Dr Virginia Martin, Dr Lorna Anguilano

Project partners: Brunel University of London

Funded by: UKRI Guarantee Fund for Horizon Europe MSCA Postdoctoral Fellowship

Duration: 2024-2026

Research areas: Design for advanced materials and manufacturing

Project website: https://www.coralbioplastics.com/

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RESEARCH PROJECTS

CircularMetal

CircularMetal is a UKRI research centre dedicated to exploring how the UK metal sector can shift towards a carbon-neutral, circular economy by 2050. The DfS group coordinated the codesign process that led to the 2050 circular metal visions and related transition roadmaps. In addition developed understanding on how to design metal-related solution integrating business model, supply chain and product design.

Research group members involved: Dr Fabrizio Ceschin, Prof David Harrison, Dr Alessio Franconi, Mr Tamba Konteh, Mr Chris Tait, Mr Damienmarc Ford

Project partners: Brunel University of London, University College London, University of Warwick, Loughborough University

Funded by: UK Research and Innovation

Duration: 2021-2025

Research areas: Product design for sustainability, product-service system design for sustainability, design for sustainability transitions

Project website: https://www.circularmetal.co.uk/

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RESEARCH PROJECTS

Systems analytics approach to reduce plastic waste in Indonesian societies (PISCES)

The focal point of this research programme is to understand and manage the risks posed by plastic pollution in Indonesian contexts by providing evidence-based solutions and system change interventions to reduce the impacts of plastic waste under a circular economy framework. Within this programme, the DfS group led the Design Work Package.

Research group members involved: Dr Fabrizio Ceschin, Dr Nazli Terzioglu, Dr Anouk Zeew van der Laan, Mrs Yueyun Fan

Project partners: Brunel University of London (Prof Jobling), University of Leeds, University of Plymouth, Plymouth Marine Laboratory, Institut Teknologi Bandung, Institut Teknologi Sepuluh Nopember, Universitas of Essa Unggul, University of Airlangga, University of Udayana

Funded by: UK Research and Innovation NERC

Duration: 2021-2025

Research areas: Product design for sustainability, product-service system design for sustainability, design for sustainable behaviour, design for low- and middle income contexts, design for sustainability transitions

Project website: https://www.piscespartnership.org/

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RESEARCH PROJECTS

Gender for Energy Security (GENS)

GENS aimed at understanding energy needs and constraints in African poor informal urban environments, and exploring how to support Arican energy companies in designing energy access solutions for those context, taking into account gender equity and equality.

Research group members involved: Dr Fabrizio Ceschin, Dr Aine Petrulaityte, Mr Charles Bradley

Project partners: Stellenbosch University, University of Nairobi, Brunel University of London

Funded by: National Research Foundation (NRF) of South Africa and the Newton Fund through the British Council

Duration: 2019-24

Research areas: Design for low- and middle income contexts, product-service system design for sustainability, design for social innovation

Project website: gens.sun.ac.za, Brunel project webpage

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RESEARCH PROJECTS

Reusable packaging in the grocery and retail sector in the UK

This project aims to support the implementation and scale-up of reusable packaging systems in the grocery and retail sector. It examines the potential social, economic and environmental sustainability impacts of transitioning from single-use to reusable packaging systems, and how they can be designed to maximise sustainability benefits.

Research group members involved: Dr Lucia Corsini, Mr Charles Bradley, Dr Fabrizio Ceschin,

Project partners: Brunel University of London

Funded by: Brunel Research Development Fund, Brunel Public Engagement Fund, Brunel Interdisciplinary Research Initiative Fund

Duration: 2021-23

Research areas: Product design for sustainability, product-service system design for sustainability

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RESEARCH PROJECTS

Enabling a human-centred and digital transition to net zero in UK manufacturing

The project explored how design thinking methods can support a digitally enabled and human-centred transition to net zero, in collaboration with stakeholders from industry, academia, policy and government. The project studied how key digital technologies under the Made Smarter innovation challenge (e.g. artificial intelligence, additive manufacturing; the Industrial Internet of Things (IIoT) and connectivity (5G, LPWAN)) can help to accelerate net zero in UK manufacturing.

Research group members involved: Dr Lucia Corsini

Project partners: Brunel University of London

Funded by: UKRI ESRC InterAct

Duration: 2022-23

Research areas: Advanced materials and manufacturing, design for sustainability transitions

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RESEARCH PROJECTS

Lab-grown meat: The future of food?

This project aimed at building up an understanding of the holistic sustainability benefits and limitations of lab-grown meat, in comparison to alternative proteins. It conducted a stakeholder mapping of the lab-grown meat value chain and host a multidisciplinary stakeholder workshop to define the major challenges for scaling up lab-grown meat solutions.

Research group members involved: Dr Lucia Corsini

Project partners: Brunel University of London

Funded by: Brunel Research Interdisciplinary Labs

Duration: 2022

Research areas: Design for sustainable behaviour, product-service system design for sustainability

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RESEARCH PROJECTS

Respect, Regenerate, Revalue

A collaboration to explore phytoremediation as a way of decontaminating land in Salford which was a sewage plant and is proposed for use as allotments

Research group members involved: Dr Lorna Anguilano

Project partners: Salford Allotment Federation, Salford City Council, Brunel of University

Duration: 2022

Research areas: Design for social innovation, advanced materials and manufacturing

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RESEARCH PROJECTS

Creative Makerspaces

This project sought to develop a novel combination of 1) design interventions, 2) public makerspaces and 3) online design resources as a means of fostering creative citizens in China in an inclusive and bottom-up manner.

Research group members involved: Dr Busayawan Lam, Prof Youngok Choi

Project partners: Brunel University of London, Tongji University, The Glass-House Community-led Design, Engine and Tangerine

Funded by: UKRI AHRC and Newton Fund

Duration: 2018-21

Research areas: Design for social innovation

Project website: creativemakerspace.org , Brunel project webpage

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RESEARCH PROJECTS

Forensic Decommissioning for Tidal Energy Converters (FodTEC)

The project conducted forensic analysis of sub-sea energy generation assets, to understand end-of-life condition and long-term effect of deploying components in the sea. This included microstructural and topological investigation into a pylon (submerged for 10 years) carrying a tidal energy turbine.

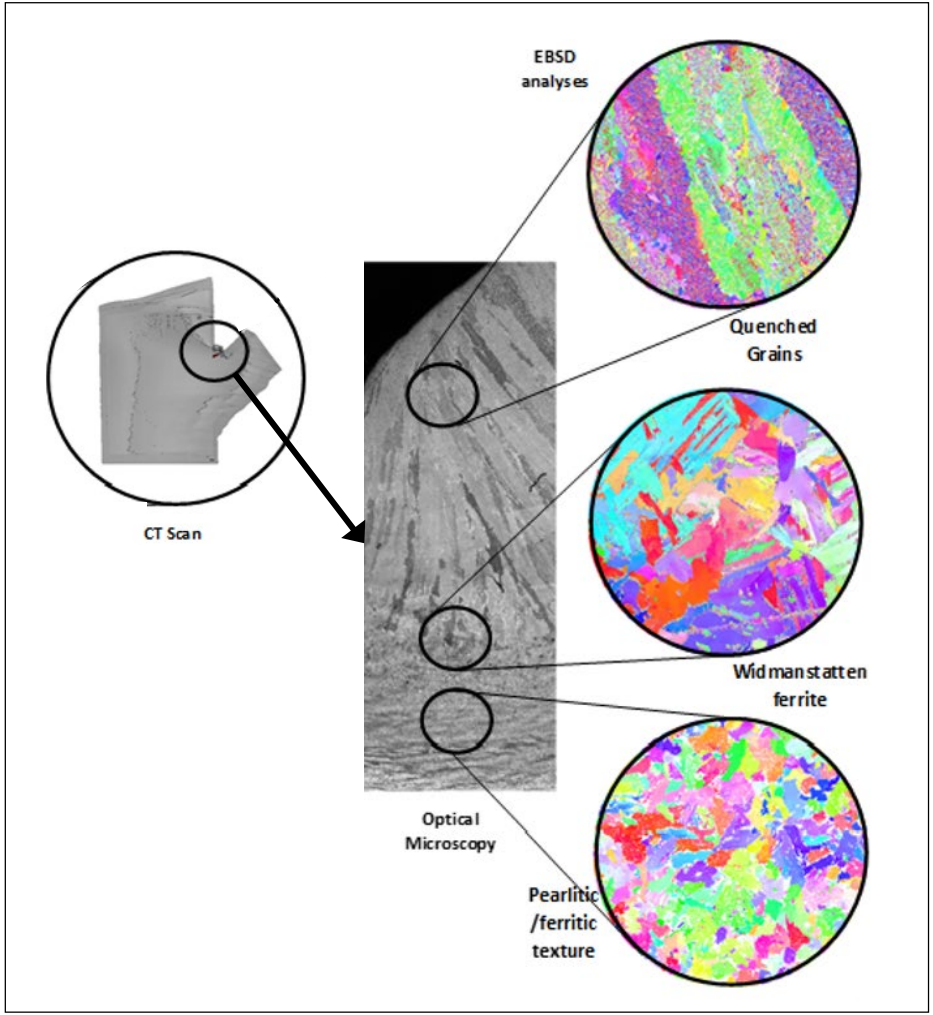
Research group members involved: Dr Timothy Minton, Dr Lorna Anguilano

Project partners: Brunel University of London, Blackfish Engineering Design Ltd, EMEC

Funded by: European Marine Energy Centre

Duration: 2017-19

Research areas: Design for advanced materials and manufacturing



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RESEARCH PROJECTS

Shifting from single-use to reusable packaging systems in India and Indonesia

The project investigated the opportunities, barriers and drivers, for businesses in India and Indonesia, to innovate towards reusable-refillable-returnable packaging systems in the food and homecare product sectors, as a strategy to tackle plastic waste and pollution.

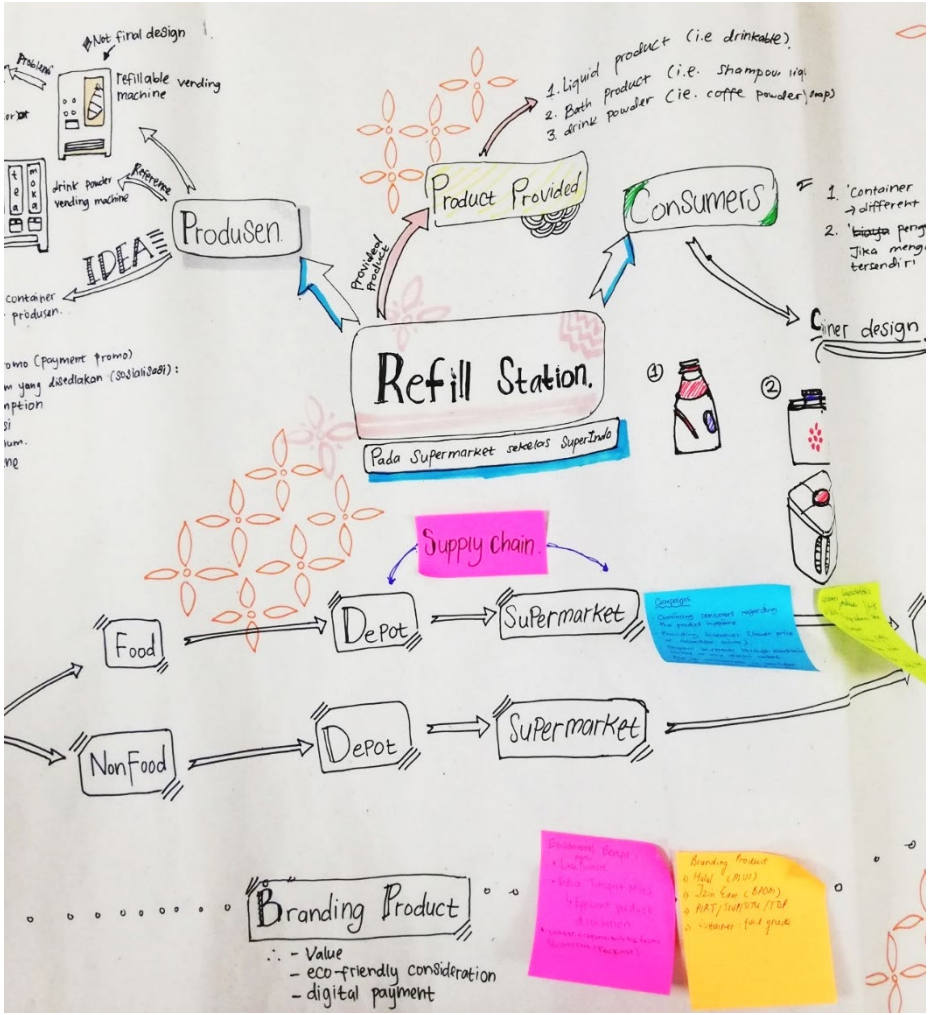
Research group members involved: Dr Fabrizio Ceschin

Project partners: Brunel University of London, Bandung Institute of Technology, Indian Institute of Science

Funded by: UKRI Global Challenge Research Fund - Mobility and Networking grant

Duration: 2019

Research areas: Product-service system design for sustainability, design for low- and middle-income contexts



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RESEARCH PROJECTS

Basalt Fibre Reinforced HDPE for renewable marine energy applications

Development of basalt fibre reinforced HDPE composite for the fabrication of large buoyant structures for marine energy applications.

Research group members involved: Dr Timothy Minton, Dr Lorna Anguilano

Project partners: Brunel University of London, Asset International, SeaEnergies

Funded by: UKRI Innovate UK/EPSRC

Duration: 2018-19

Research areas: Design for advanced materials and manufacturing

Project website: Brunel project webpage

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RESEARCH PROJECTS

Design toolkit to apply distributed manufacturing to product-service systems

The project aimed at investigating the potential applications of distributed manufacturing (DM) to improve product-service systems (PSS) development and supporting companies, design practitioners, and students designing PSS solutions through the application of DM.

Research group members involved: Dr Fabrizio Ceschin, Dr Aine Petrulaityte

Project partners: Brunel University of London, Politecnico di Milano, Tsinghua University, Federal University of Parana, Srishti Institute of Art, Design and Technology, Autonomous Metropolitan University

Funded by: EU Commission Erasmus+ programme

Duration: 2015-19

Research areas: Product-service system design for sustainability

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RESEARCH PROJECTS

International Learning Network on Sustainability (LeNSin)

The project created an international network of more than 100 universities aiming at developing, promoting and diffusing the teaching of product-service system design for sustainability (with a focus on distributed economies) in design schools through a decentralised and collaborative production and fruition of teaching contents.

Research group members involved: Dr Fabrizio Ceschin, Prof David Harrison, Dr Aine Petrulaityte, Prof Eujin Pei

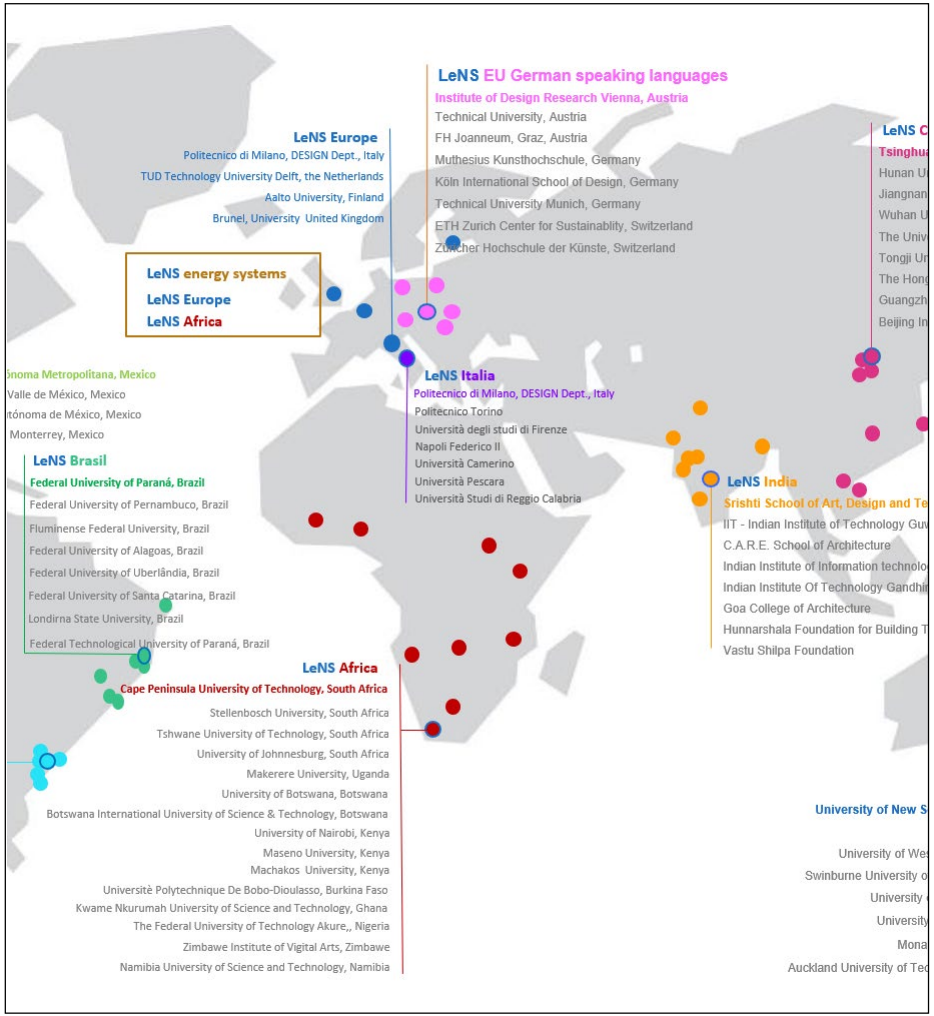
Project partners: Brunel University of London, Politecnico di Milano, Tsinghua University, Federal University of Parana, Srishti Institute of Art, Design and Technology, Autonomous Metropolitan University

Funded by: EU Commission Erasmus+ programme

Duration: 2015-19

Research areas: Product-service system design for sustainability, design for low- and middle-income contexts

Project website: https://lens-international.org/, Brunel project webpage



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RESEARCH PROJECTS

Specialised Thimbles for Offshore Renewable Marine energy applications (STORM)

Development of novel light-weight corrosion resistant mooring connectors using an advanced Aluminium Matrix Composite.

Research group members involved: Dr Timothy Minton, Dr Lorna Anguilano

Project partners: Brunel University of London, TTI, Nylacast

Funded by: UKRI Innovate UK/EPSRC

Duration: 2015-18

Research areas: Design for advanced materials and manufacturing

Project website: Brunel project webpage

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RESEARCH PROJECTS

OpenFood: Prototyping Open Innovation Models in Food and Packaging

The project built new ICT platforms and tools, as well as analogue approaches, to enable the food industry to crowdsource sensory and experiential perceptions and attributes of food products and to translate those into customer requirements for new products, integral packaging and manufacture.

Research group members involved: Dr Fabrizio Ceschin, Dr Aine Petrulaityte

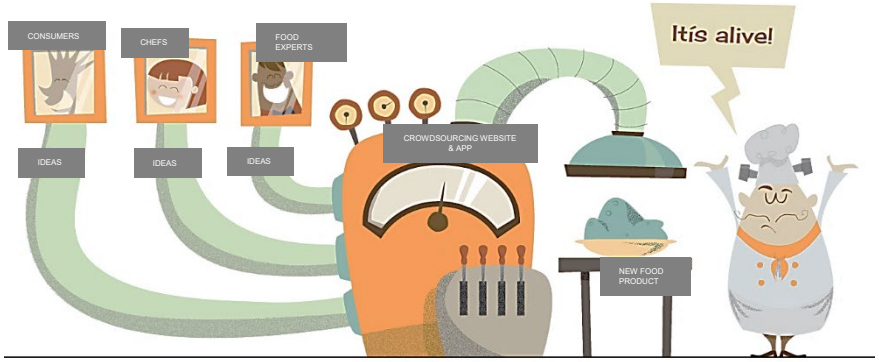
Project partners: Royal College of Arts, Brunel University of London, Nottingham University, Cranfield University

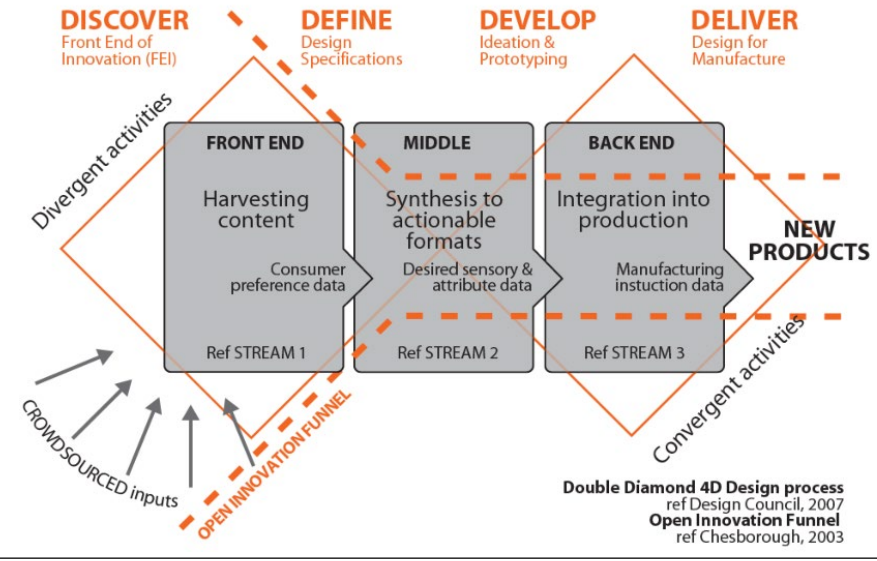
Funded by: UKRI EPSRC

Duration: 2013-18

Research areas: Design for advanced materials and manufacturing, product-service system design for sustainability

Project website: Brunel project webpage





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RESEARCH PROJECTS

City Visionaries: design and entrepreneurship skills in Brazilian slums

The project aimed at fostering social entrepreneurship among young residents of fragile Brazilian urban contexts - such as favelas. It led to the development of an educational practice-based course to be applied within favelas to co-create with local young people social entrepreneurship projects.

Research group members involved: Dr Fabrizio Ceschin, Dr Busayawan Lam, Dr Chiara Del Gaudio

Project partners: TransLAB, Brunel University of London

Funded by: Newton Fund through the British Council

Duration: 2016-17

Research areas: Design for low- and middle income contexts, design for social innovation

Project website: https://visionariosdacidade.com.br/ Brunel project webpage

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Design tools to develop product-service systems for energy access in African contexts

This project aimed at improving the ability of African SMEs in the energy sector to design and innovate distributed renewable energy systems adopting a product-service system approach, thus integrating product/technology innovation with service and value chain innovation.

Research group members involved: Dr Fabrizio Ceschin, Prof David Harrison, Dr Silvia Emili

Project partners: Brunel University of London, University of Botswana, University of Nairobi

Funded by: UKRI EPSRC Global Challenge Research Fund

Duration: 2016-17

Research areas: Design for low- and middle income contexts, product-service system design for sustainability

Project website: Brunel project webpage

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Inclusive Design in Public Transport

The project aimed to identify key indicators for developing inclusive design guidelines and checklists to improve public transport accessibility in Seoul through understanding targeted users' experiences of UK public transport. This was part of the 'Research on Inclusive Design for Public Transport in Seoul' led by Professor MinYoung Choi, Sungshin Women's University, South Korea.

Research group members involved: Prof Youngok Choi

Project partners: Brunel University of London, Sungshin Women's University

Funded by: Seoul Design Foundation (SDF)

Duration: 2016

Research areas: Design for sustainable behaviour, product design for sustainability

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Learning Network on Sustainable Energy Systems (LeNSes)

LeNSes addressed the topic of energy access in rural African contexts, by exploring business model innovation for Distributed Renewable Energy systems. The project led to a new design approach and tools to develop sustainable business models for energy access, as well as an open learning e-package.

Research group members involved: Dr Fabrizio Ceschin, Prof David Harrison, Dr Silvia Emili

Project partners: Politecnico di Milano, TU Delft, Brunel University of London, University of Botswana, University of Nairobi, Makerere University, Cape Peninsula University of Technology

Funded by: European Commission, EduLink II

Duration: 2013-16

Research areas: Design for low- and middle income contexts, product-service system design for sustainability

Project website: Brunel project webpage

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Powerweave

The project aimed to develop weavable energy storing threads and photovoltaic threads to create a fabric which could generate and store energy from sunlight.

Research group members involved: Prof David Harrison

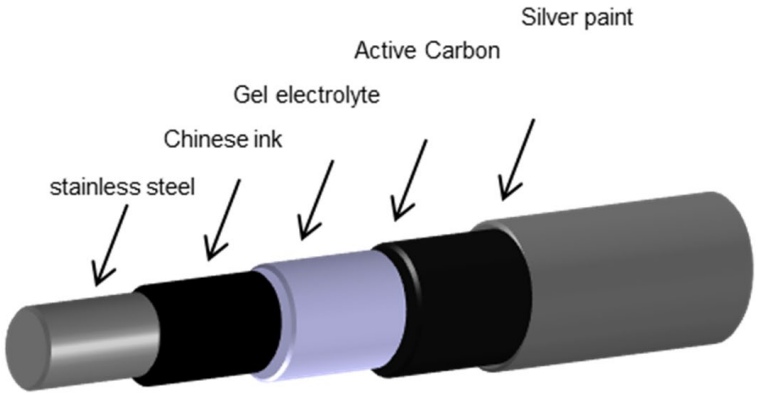
Project partners: TWI Ltd, Ecole Polytechnique Federale De Lausanne, Centre Scientifique & Technique de L'industrie Textile Belge, Brunel University of London, Centro de Nanotecnologia e Materiais Tecnicos Funcionais e Inteligentes Associacao, Ohmatex ApS, Bonar NV, VdS Weaving NV, Lindstrand Technologies Ltd, SEFAR AG, Fundacio Eurecat, Peerless Plastics & Coatings Ltd

Funded by: European Commission, FP7

Duration: 2012-16

Research areas: Design for advanced materials and manufacturing

Project website: Cordis project website



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Innovative Electronics Manufacturing Research Centre (IeMRC)

The IeMRC was one of 16 Innovative Manufacturing Research Centres (IMRCs) set up and supported by EPSRC, focussing on the electronics manufacturing sector. The centre aimed at to providing the UK's electronics manufacturing sector with access to worldclass academic research. The Brunel team contributed towards the 'sustainable manufacturing' aspects of the centre.

Research group members involved: Prof David Harrison

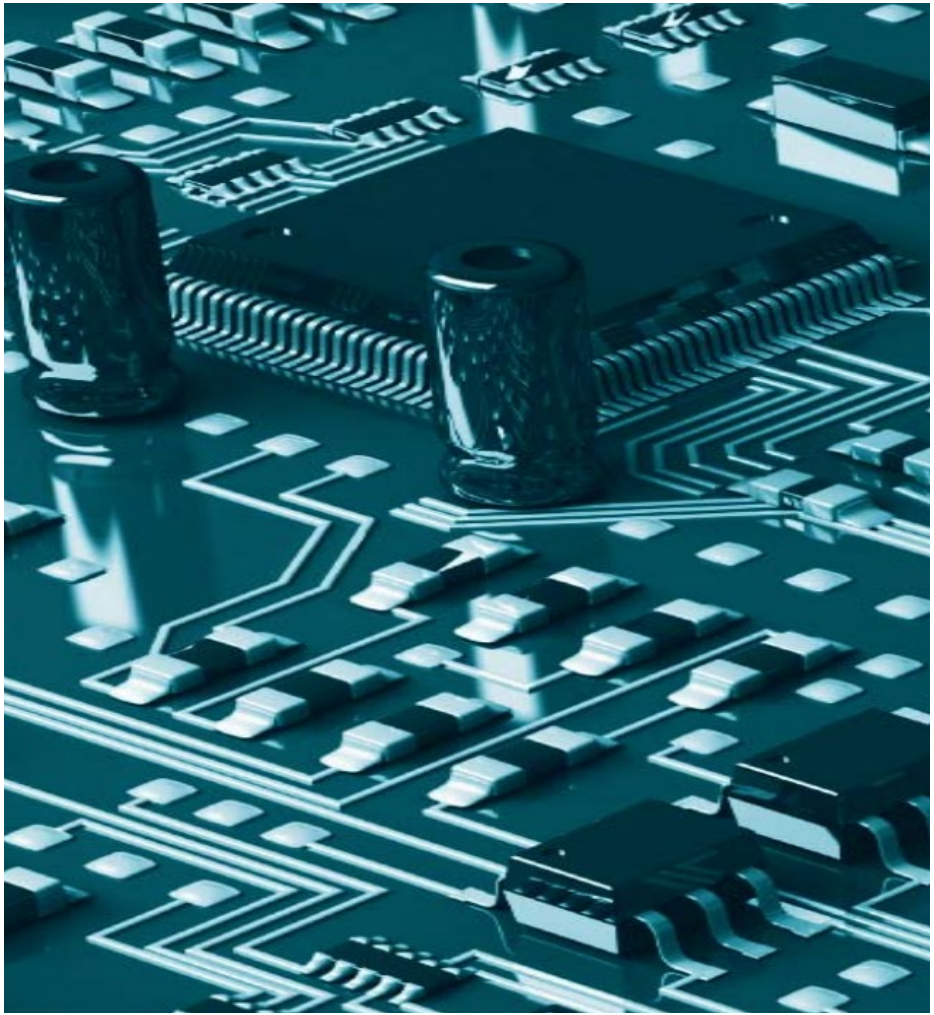
Project partners: Loughborough University, University of Bath, Brunel University of London, Greenwich University, Lancaster University, University of Nottingham, Heriot Watt University

Funded by: UKRI EPSRC

Duration: 2010-15

Research areas: Design for advanced materials and manufacturing

Project website: www.lboro.ac.uk/microsites/research/iemrc/



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Social Value of Design (SVOD)

SVOD aimed to understand the meaning of social value, especially in corporate social responsibility (CSR) practices, and explore contextual issues, value and means of measuring social impact of design.

Research group members involved: Prof Youngok Choi, Dr Busayawan Lam

Project partners: Brunel University of London, British Industrial Design Association (BIDA), Design Management Europe (DME), Design Pus

Funded by: UKRI AHRC

Duration: 2014

Research areas: Design for social innovation

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Using co-design to unearth Hidden Assets

The co-design and co-production approach has potential to assist communities in discovering hidden assets and putting them into good use in the way that match their needs and aspirations.

Research group members involved: Dr Busayawan Lam, Prof Youngok Choi

Project partners: Brunel University of London, Keele University, University of Leicester, The Open University, Community Development Consultant, Wokingham Borough Council, Shinfield Parish Council, The Churches' Regional Commission in the North East, Army Welfare Service, Kindle Partnerships, Wiltshire Council, HealthWORKS Newcastle, The Glass-House Community Led Design, New Vic Borderlines, New Vic Theatre and Tidworth Mums

Funded by: UKRI AHRC

Duration: 2013-14

Research areas: Design for social innovation

Project website: Brunel project webpage

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Circular Design for an economy drill

The project aimed to redesign an economy drill in order to facilitate disassembly to fit a more circular economy model. Concept directions were explored a final concept generated and approved for prototyping. The prototype achieved a 1-minute disassembly time, compared to 9 minutes of the existing product.

Research group members involved: Prof David Harrison, Dr Fabrizio Ceschin

Project partners: Brunel University of London, Kingfisher

Funded by: UKRI InnovateUK

Duration: 2013

Research areas: Product design for sustainability

Project website: Youtube video summaring the project

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Octopus

The OCTOPUS project investigated the principles that give rise to the octopus sensory-motor capabilities and incorporated them in new design approaches and ICT and robotics technologies to build an embodied artefact, based broadly on the anatomy of the 8-arm body of an octopus, and with similar performance in water, in terms of dexterity, speed, control, flexibility, and applicability.

Research group members involved: Dr Richard Bonser

Project partners: Scuola Superiore Sant'Anna, Brunel University of London Hebrew University of Jerusalem, Weizmann Institute of Science, University of Zurich, Italian Institute of Science, University of Reading, Foundation for Research and Technologies

Funded by: European Commission, FP7

Duration: 2009-13

Research areas: Design inspired by nature

Project website: www.octopus-project.eu

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EngD projects with Buro Happold

A range of engineering doctorate (EngD) projects looking at aspects of sustainable design and construction. For example, Mark Dowson designed, built and tested novel environmental retrofit technologies to reduce energy consumption in existing buildings, and Nicola Combe investigated and designed and prototyped an inclusive heating control interface prototype (background image), in particular people over 50 years old.

Research group members involved: Prof David Harrison, Prof Hua Dong

Project partners: Brunel University of London

Funded by: UKRI EPSRC, Burohappold

Duration: 2007-13

Research areas: Design for sustainable behaviour, design for advanced materials and manufacturing, design inspired by nature

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Empower

EMPOWER's mission is to integrate creative, empathic user-centred design techniques with genuinely novel product design innovation. The current problems are:(i) users feel disengaged with the bland, utilitarian, and non-user friendly design of many existing energy control and feedback interfaces which could impact upon their general disengagement with energy efficiency; (ii) users are not aware of the connections between their decisions and energy use; (iii) designers do not know enough about user behaviour in the context of energy usage.

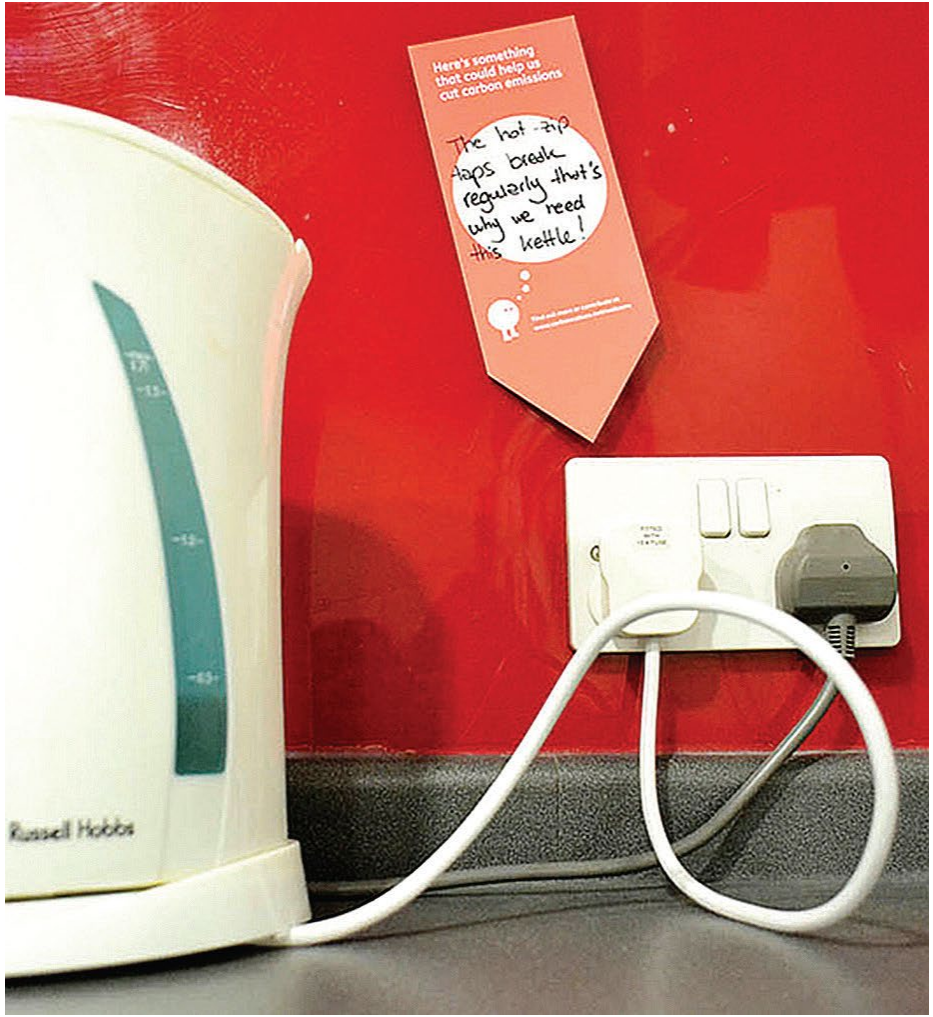
Research group members involved: Prof David Harrison

Project partners: Brunel University of London

Funded by: UKRI EPSRC, InnovateUK

Duration: 2010-12

Research areas: Design for sustainable behaviour, product design for sustainability



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