



DIGITAL
DESIGN
NETWORK
PLUS

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Vision for D2N+

...to create an active digital design community that will define, set and prioritise key Engineering Design challenges and viable solution pathways that will exploit digital design technologies and help UK engineering transition to net zero faster.

Design Faster, Better, with Less

Leadership/membership



QUEEN'S
UNIVERSITY
BELFAST



University of
Sheffield



University of
BRISTOL



University of
Strathclyde
Glasgow

DIGITAL
DESIGN
NETWORK
PLUS



Academia

Edinburgh Napier
UNIVERSITY

Loughborough
University

CARDIFF
UNIVERSITY



Imperial College
London

University
of Exeter



University of
Southampton



The University of
Nottingham

KING'S
College
LONDON

Industry

UK Atomic
Energy
Authority

FRAZER-NASH
CONSULTANCY
— A KBR COMPANY —



Solution providers



AUTODESK

ptc

Founding partners



Solution providers

Industry

RTOs

RTOs

CATAPULT
Digital

NATIONAL
COMPOSITES
CENTRE

AMRC
ADVANCED MANUFACTURING
RESEARCH CENTRE

Academic team



Professor Trevor Robinson, Queen's University Belfast, **Project Lead**



Professor Anja Maier
University of Strathclyde



Professor Ashutosh Tiwari University of Sheffield



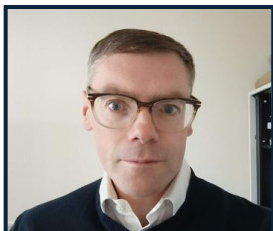
Professor Ben Hicks,
University of Bristol



Dr Yuri Mejia,
University of Sheffield



Professor Mark Price,
Queen's University Belfast



Dr Andrew Wodehouse,
University of Strathclyde,
Case Study 1 Co-Lead



Dr James Gopsill,
University of Bristol, Case
Study 1 Co-Lead



Ejae Perez, University of
Sheffield AMRC, Case
Study 2 Co-Lead



Dr Maryam Farsi, Cranfield
University, Case Study 2
Co-Lead



Lynda Mahon, Queen's
University Belfast, Grant
Manager



Clare Sloan, Queen's
University Belfast, Clerical
Officer



Engineering and
Physical Sciences
Research Council

D2N+ Challenge 2

Re-imagining Design for Circularity

Webinar

Ejae Perez | Senior Theme Lead for Automated Assembly at The University of Sheffield, AMRC

Dr Maryam Farsi | Senior Lecturer in Engineering Optimisation at Cranefield University.

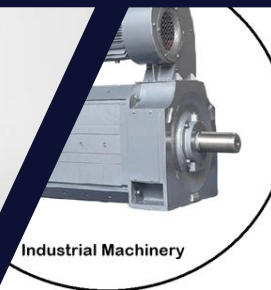
30th March 2026





Designing EV Motors for Net Zero

Faster, Better, With Less

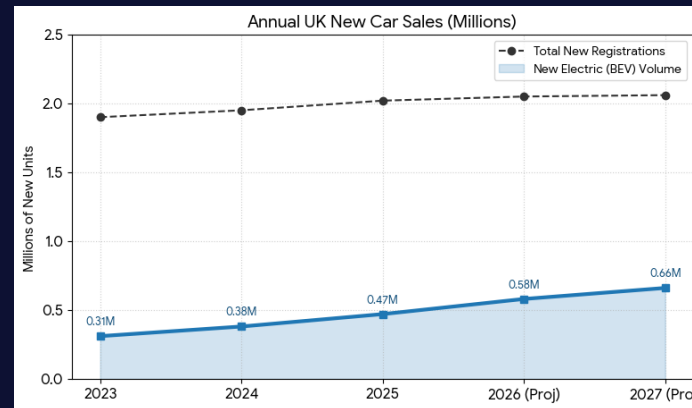
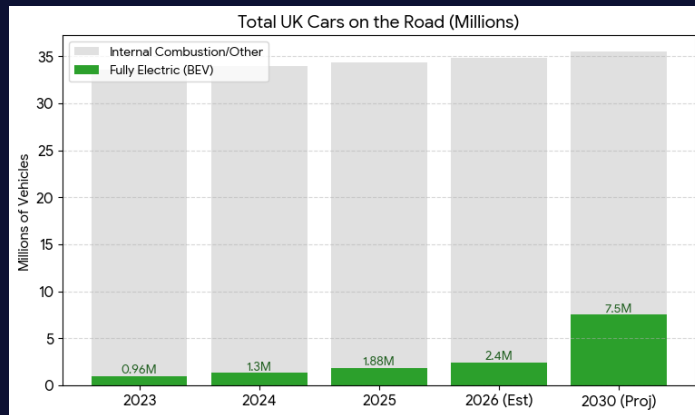
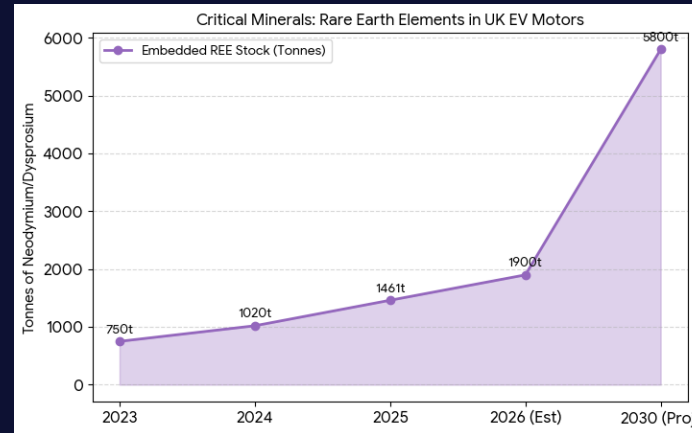
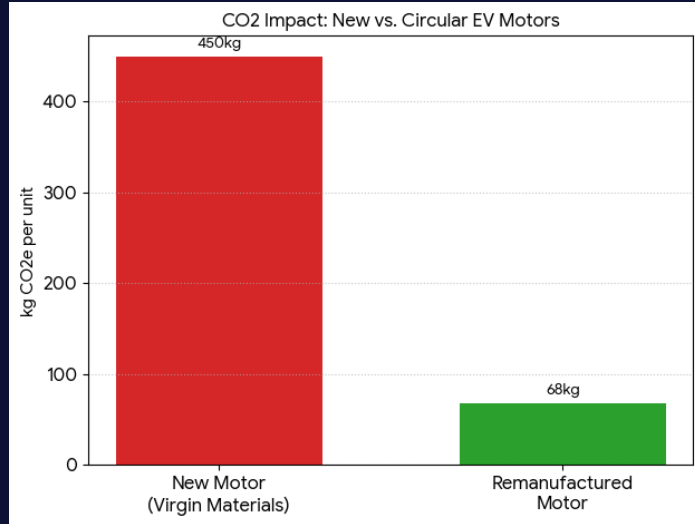


Industrial Machinery



Electric Vehicles





Why This Matters?

- ~1.8 million EVs already on UK roads
- Projected ~11 million by 2035
- First-generation EVs now reaching end-of-life
- Critical materials at risk
- Critical to transport decarbonisation
- Industrial competitiveness
- High energy consumption impact
- Emerging circular economy challenge
- Supply chain resilience
- Opportunity for digital design innovation

- Society of Motor Manufacturers and Traders (SMMT), UK New Car and Van Forecast, January 2026. smmt.co.uk/vehicle-data
- Department for Transport (DfT) / DVLA, Vehicle Licensing Statistics: Annual and Quarterly Series, February 2026 update. gov.uk/government/collections/vehicles-statistics
- Zapmap, EV Charging Infrastructure Statistics, March 2026. zapmap.com
- University of Birmingham (Magnetic Materials Group), Circular Economy for Rare Earth Magnets (RECLAIM Project), 2025–2026 findings. birmingham.ac.uk/research/energy/magnetic-materials
- The Faraday Institution, Critical Materials for the UK's Electric Vehicle Transition, 2025/26 Strategic Report. faraday.ac.uk/research/battery-recycling

Core Problem

Reimagining the design process for the product lifecycle

Design for Circularity

How can design retain value through reuse, repair, remanufacture, and recycling?



Design for Right to Repair

How can design improve repairability, service access, and maintenance information?



Design for Disassembly

How can design move from DfMA to DfMAD to enable efficient disassembly and material recovery?

Better, Faster, with Less

some examples

Faster

- How can digital design accelerate the design process?
- Faster concept generation using **AI & generative design**
- Faster evaluation through **simulation & digital twins**
- Faster iteration by integrating **data across tools & workflows**

Better

- How can digital design improve design quality and lifecycle outcomes?
- Better reparability and maintainability through **human-centred design**
- Better lifecycle decisions using **circularity assessment & disassembly planning**
- Better traceability with **Digital Product Passports**

With Less

- How can digital design reduce lifecycle cost, waste, and complexity?
- Less material waste through **optimised design architectures**
- Less rework and fewer disassembly steps through **design for disassembly**
- Less energy, cost, and resource loss through **improved recovery of material**

What We Are Looking For?

Digital Design for Circularity

We welcome innovative proposals that demonstrate how improved digital design processes will enable DfMAD that is Faster, Better and with less.



Interdisciplinary
collaboration



Integrate technical,
human, and
systemic
perspectives



novel ideas,
methods, or
frameworks



Existing designs,
publicly available
data, or relevant
published research.



IP-free reference
design of an EV
motor

- Digital twins & lifecycle simulation
- Generative design & optimisation
- AI/ML for design exploration
- Data integration & transformation
- Digital Product Passports
- Disassembly planning & circularity assessment
- Circular, Human-centred design process
- Behavioural and decision-support approaches
- Creative technologies (CreaTech), e.g. AR/VR and immersive environments

Timeline



Application Process

Deadline: 21 Apr. 2026



How to Apply?

Please submit your applications online via provided link

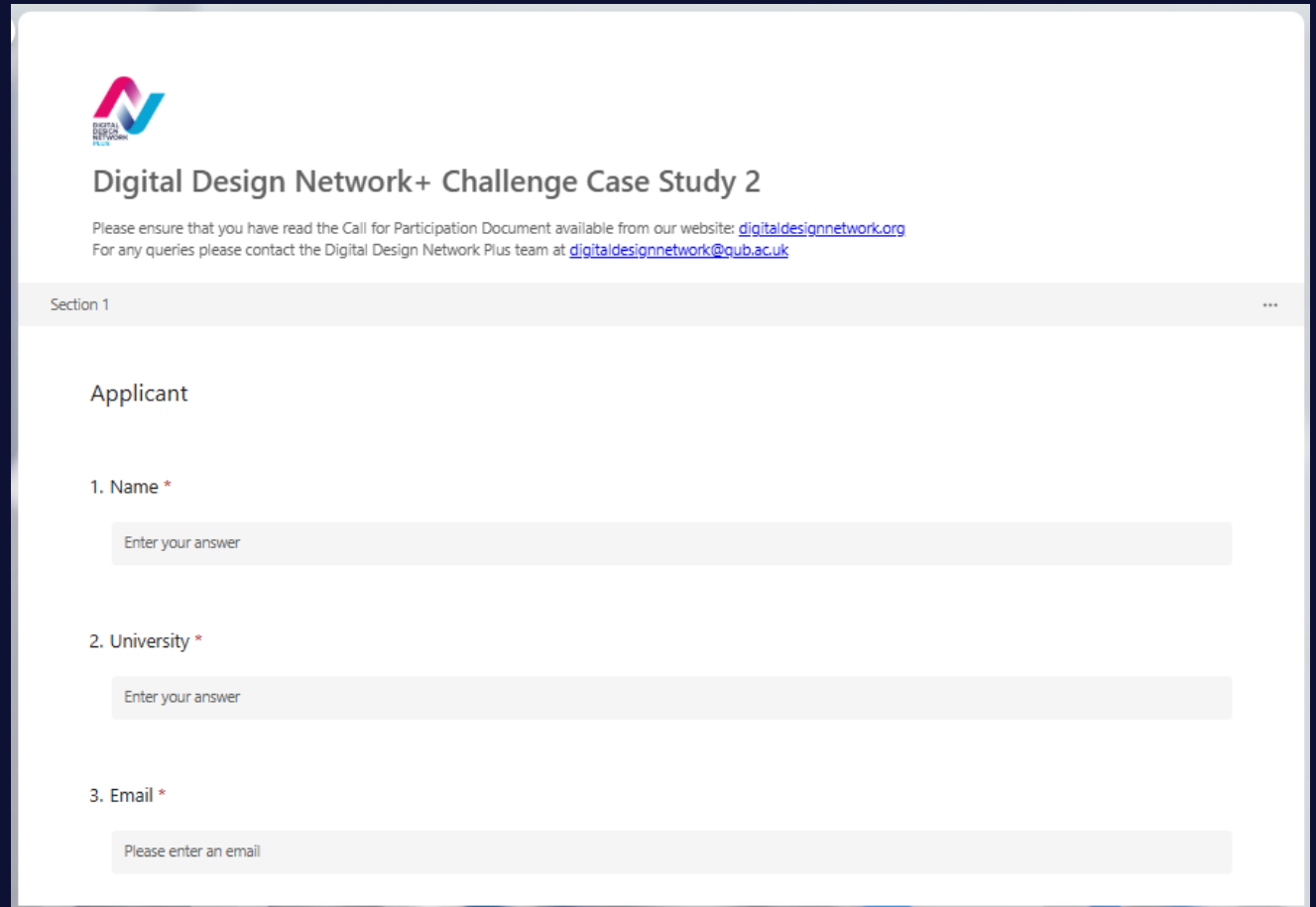
Applicants are invited to apply via the link below, including the following:

- Curriculum Vitae (maximum 2 pages)
- Relevant publications or outputs (maximum 1 page)
- Institutional letter of support (from Head of Department or equivalent)

Please email your documents to digitaldesignnetwork@qub.ac.uk before the closing date

Application Form (Part 1)

- The call is open to **all UK academics** whose institutions are **eligible to receive EPSRC funding**.
- Funding allocation criteria will prioritise **Early-Career Researchers (ECR)** with high-quality ideas from a variety of disciplines.
- **Approximately 15 awards are available.**

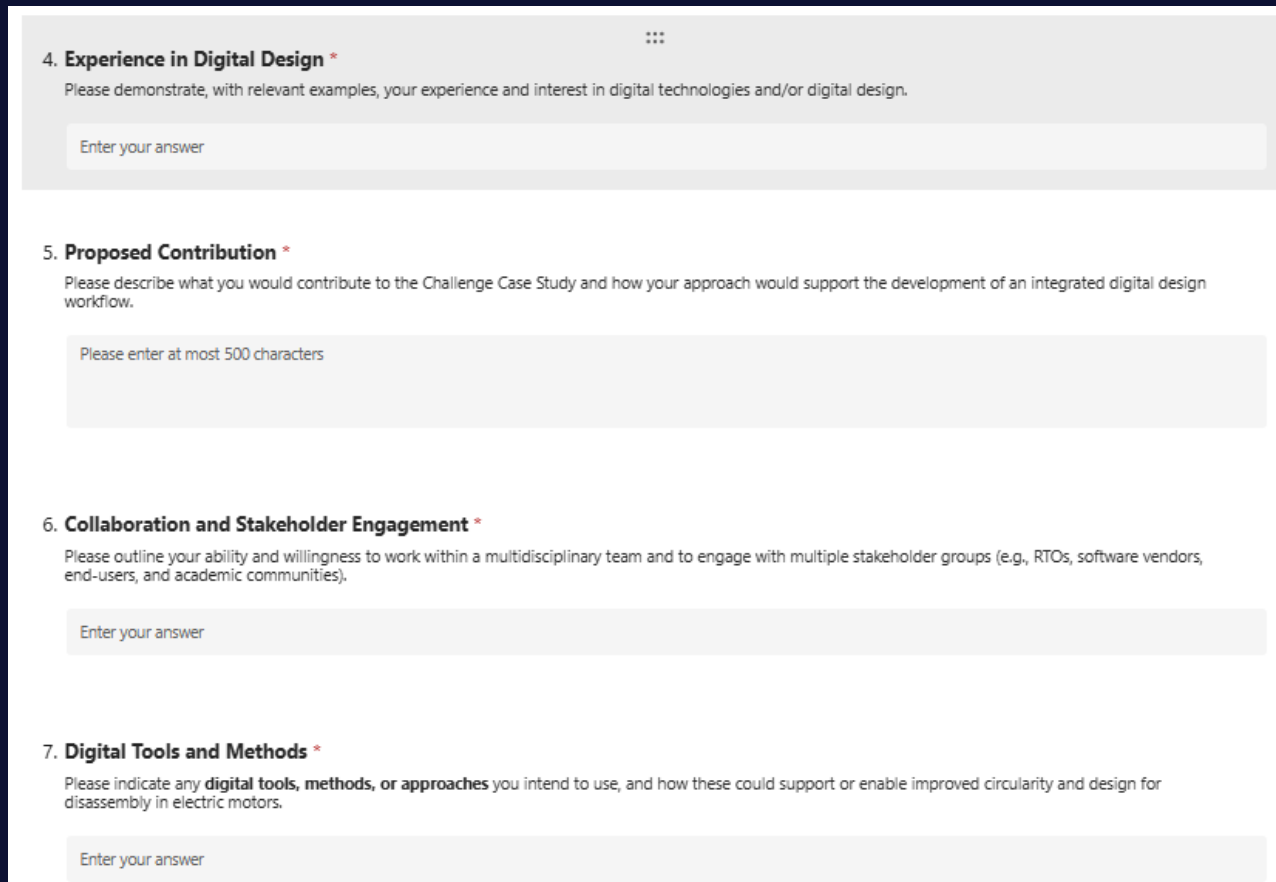


The screenshot shows the application form for the Digital Design Network+ Challenge Case Study 2. At the top left is the Digital Design Network Plus logo. The title "Digital Design Network+ Challenge Case Study 2" is centered. Below the title, a note states: "Please ensure that you have read the Call for Participation Document available from our website: digitaldesignnetwork.org. For any queries please contact the Digital Design Network Plus team at digitaldesignnetwork@qub.ac.uk". The form is divided into sections, with "Section 1" indicated by a grey bar. The first section is titled "Applicant". It contains three numbered questions, each with a text input field: "1. Name *" with a placeholder "Enter your answer", "2. University *" with a placeholder "Enter your answer", and "3. Email *" with a placeholder "Please enter an email".

Application Form (Part 2)

Applicants are required to respond to the following questions (maximum 250 words each):

- Experience in Digital Design
- Proposed Contribution
- Collaboration and Stakeholder Engagement
- Digital Tools and Methods



The screenshot displays a digital application form with a light gray background. It contains four question sections, each with a title, a descriptive instruction, and a text input area. Question 4 is 'Experience in Digital Design', Question 5 is 'Proposed Contribution', Question 6 is 'Collaboration and Stakeholder Engagement', and Question 7 is 'Digital Tools and Methods'. Each section has a three-dot menu icon in the top right corner. The input areas are light gray boxes with placeholder text: 'Enter your answer' for questions 4, 6, and 7, and 'Please enter at most 500 characters' for question 5.

4. **Experience in Digital Design ***
Please demonstrate, with relevant examples, your experience and interest in digital technologies and/or digital design.
Enter your answer

5. **Proposed Contribution ***
Please describe what you would contribute to the Challenge Case Study and how your approach would support the development of an integrated digital design workflow.
Please enter at most 500 characters

6. **Collaboration and Stakeholder Engagement ***
Please outline your ability and willingness to work within a multidisciplinary team and to engage with multiple stakeholder groups (e.g., RTOs, software vendors, end-users, and academic communities).
Enter your answer

7. **Digital Tools and Methods ***
Please indicate any **digital tools, methods, or approaches** you intend to use, and how these could support or enable improved circularity and design for disassembly in electric motors.
Enter your answer

Costing

Costs

Up to £14,000 at 80% FEC (funding = £11,200) to cover academic staff time, consumables and travel. Funding for RA, PhD students or equipment is not available.

8. Researcher Time [£] *

The value must be a number

9. Consumables [£] *

The value must be a number

10. Travel and Subsistence [£] *

The value must be a number

11. Indirect [£] *

The value must be a number

- **Up to £14,000 at 80% FEC (funding = £11,200) to cover academic staff time, consumables and travel.**
- Funding for Research Assistant time, PhD students, or equipment is not available.
- Budgets should include costs of attending a **two-day network workshop to be held in Sheffield, on 1st and 2nd December 2026.**

Successful Applications

Announcement by 5 May 2026



Assessment of Applications

Applications will be assessed based on:

Alignment with **career stage eligibility**

Demonstrated **experience** and interest in **digital design and technologies**

Clarity and strength of the proposed **contribution** to the challenge

Potential to contribute to an **integrated, collaborative solution**

Feasibility and appropriateness of the proposed approach within the **scope of the challenge**



Successful applicants will be allocated to **multidisciplinary teams**, designed to ensure complementary expertise and the development of **cohesive, integrated solutions**.

Challenge Period (6 Months)

From 1st June to 30th November 2026



Expected Outcome



A digital demonstrator or prototype illustrating the improved design process.



Evidence of measurable improvement in at least one of the three criteria (Faster / Better / With Less).



(could include) A framework or workflow for applying DfMAD principles using digital tools.



(could include) Recommendations, dissemination & innovation: roadmap for integrating digital solutions into circular design.
Circularity scoring tool

Participants will be expected to:

- Work constructively with other participants during the Challenge period
- Attend D2N+ online meetings while the Case Study is active to report on progress
- Attend the D2N+ workshop
- Report on the solutions and findings of the Challenge Case Study

Final Workshop & Presentations

**1 Dec. 2026 and 2 Dec. 2026
@ AMRC Sheffield**



Contact

Challenge Case Study 2 team

Digital Design Network Plus (D2N+)

Website

<https://digitaldesignnetwork.org/>



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Q&A





<https://digitaldesignnetwork.org/>



Project Code: UK1394
**Engineering and
Physical Sciences
Research Council**



**QUEEN'S
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BELFAST**



University of
BRISTOL



University of
Sheffield



University of
**Strathclyde
Glasgow**