



Transforming Foundation Industries Network+ Small Project Application General Guidance



TFI Network+ call for small projects on *'Enablers of Transformation'* within the Foundation Industries

What is the TFI Network+

The foundation industries (namely glass, ceramics, metals, paper, cement and chemicals) are worth £52B per annum to the UK's economy, but account for 10% of the UK's total CO₂ emissions. In recognition of the global and national importance of these industries, the Transforming Foundation Industries Challenge, delivered by UKRI, has awarded £2M to form the TFI Network+ to assist the foundation industries to remain competitive whilst simultaneously facing challenges from environmental legislation and the drive towards net-zero carbon 2050.

Scope of the Call

The transformation of the foundation industries will not be possible with a sole focus on technical innovation. It will also require understanding the individual and organisational values, interests and motivations that lead the creation of opportunities for change. Transformation within the foundation industries might require changes in governance, business models and/or organisational culture to achieve ambitious sustainability targets. The TFI Network+ is looking to fund multi-disciplinary projects that investigate challenges which may hinder transformation within the Foundation Industries on their path towards a more sustainable future.

Projects should be short term (maximum 6 months **or** a maximum of £56k at 80% FEC) and low TRL.

We are looking to fund projects which investigate (but are not limited to):

- Non-technical barriers in uptake/implementation of next generation processes
- Transfer or application of knowledge or best practice among sectors
- Barriers to implementing new technologies on a larger scale
- Governance systems and their impact on the implementation of technical and business model innovations
- Management and organisational structures, including new business models, employment structures or digitalisation
- Regulatory constraints (e.g. standards), and policy interventions at local or national level
- Diversification and upskilling of the workforce
- Modernisation of supply chains, such as transitioning to demand led resource efficiency

Example impacts of such projects include (but are not limited to):

- Progress towards equitable and inclusive industries
- Increase industrial productivity and resilience
- Improve profitability of companies
- Provide evidence for future policy interventions
- Transition to industry 4.0

Priority will be given to projects which fit the scope above but we will also consider high quality proposals which are outside the scope of this call.

We will **not** fund projects that:

- do not focus on foundation industries
- are not led by a UKRI- eligible academic
- focus on fuel switching (e.g. combustion of hydrogen, waste or biomass) or development of greenhouse gas capture technology (the 'utilisation' element of carbon capture & utilisation is within scope)
- are related to the pharmaceutical or petrochemical industries
- focus solely on skills
- are capital projects
- fall outside of the Technology Readiness Levels typically funded by UKRI¹ (we are looking for low TRL projects)

Aims of the TFI Network+ and its remit

The core aim of TFI Network+ is to co-create and identify with the Foundation Industries new innovative technologies, and ensure their adoption, to enable transformation toward sustainable practices while optimising performance by coordinating and channelling a wide range of expertise throughout UK academia in themes such as:

i) Energy efficiency: Energy costs in foundation industries are high, and each industry faces its own challenges to improve energy efficiency and reduce greenhouse gas emissions. Through knowledge transfer and cross-fertilisation of ideas, the TFI Network+ will seek opportunities to co-create new concepts and to transfer best practice from one sector to another.

ii) Next generation processes: The fundamental properties of materials, such as their melting point, are often seen as limiting factors in reducing energy and resource usage. Some foundation industries, such as glass and ceramics, are investigating new processes that can significantly reduce the intrinsic energy of production whilst others, e.g. cements, are investigating low carbon footprint material alternatives. The TFI Network+ can help establish the feasibility of these new processes and their impacts on business models in the drive towards greater sustainability.

iii) Manufacturing informatics: The foundation industries have made considerable progress in transitioning business models from historical inwardly focused supplier/customer relationships, to ones that embrace the wider end-to-end supply chain. However, there is still potential for enabling technologies (grouped under the umbrella term of 'Industry 4.0' or 'digital') to help facilitate a step-change in supply chain function in Foundation Industries. The TFI Network+ will investigate the use of AI and digital tools for through process modelling, including real time data capture and management. The mechanisms by which businesses take up these technologies and the necessary behaviour changes of employees and customers is also important

iv) Circular economy: The ability to re-use, recycle or repurpose products and raw materials presents significant challenges and opportunities to the foundation industries, as without careful process analysis this activity can actually increase energy and material costs, or result in inferior products. It is thus necessary to evaluate the properties of recycled and substitute feedstocks through improved

¹ https://epsrc.ukri.org/epsrc/cache/file/7DC41E72-C05F-40C5-84D2B69524AF3286_featuretwocolumnwide.png

analytical methods, develop processes that are more forgiving of feedstock quality, investigate re-use of feedstocks, and ensure that feedstock supplies are geopolitically secure.

v) Enabling transformation: The process of innovation and its implementation is quite different across foundation industries. The TFI Network+ aims to aid the evolution of business models, markets, supply chains, policies, regulations and legislation, to support transformation throughout the whole value chain and systems, to remove barriers and create markets for the adoption of more sustainable materials and technologies.

Eligibility

1. We will only accept one application per Principal Investigator. There is no limit on the number of projects you can co-investigate
2. Applications will only be accepted from academic staff and research staff working in UK HEIs. Research & Technology Organisations may apply if they are eligible to receive funding from UKRI² ([please check directly with UKRI](#)).
3. We will not accept applications from investigators who, at the time of receipt of funding, will already be benefiting from a TFI Network+ small project grant
4. We will not accept proposals that are a continuation, or build on results, of projects previously funded by the TFI Network+

General Guidance

1. Application form submission: Applications are being accepted from **3rd Oct 2022 to 2nd Dec 2022** via the TFI Network+ website. Please register for an account on www.tfinetworkplus.org in order to upload the completed application form.

2. Document format: You need to register as a member on the TFI Network+ website in order to upload Part A (applicant details) and Part B (case for support) into your membership area. Please use the format of '**Surname, Name PART A**' and '**Surname, Name PART B**' as the file name. Maximum 3MB per file.

3. TFI Relevance: Projects must be relevant to the foundation industries. Ideal projects should demonstrate applicability across two or more foundation industries, but exceptions may be made for excellent projects with expected impact on only one industry.

4. Technology Readiness Level: We will accept projects that are laboratory based or desk based. As funding is from UKRI we expect projects to be of the level that is typically funded by UKRI (low TRL).

5. Industry support: It is strongly recommended that the application is be accompanied by an industry letter of support (signed, dated, on letter headed paper) to demonstrate relevance to the Foundation Industries. **TFIN+ may be able to help to make introductions.** As grants will be blind reviewed, please ask for letters to be addressed to: the TFI Network+ management committee. The letter should articulate the importance and potential impact of the research, as well as state the level of support. There is no need for letters to be more than 1-page long. Industry support (both cash or in-kind) will be taken into account when ranking proposals. Please ensure that the letters do not contain reference to the name of the investigator.

²<https://www.ukri.org/apply-for-funding/before-you-apply/check-if-you-are-eligible-for-research-and-innovation-funding/who-can-apply-for-funding/#contents-list>

Although we encourage industry cash or in-kind support, it is not mandatory. Due to the nature of some projects, industrial contribution to a project may not be possible. However, we would expect the applicant to give a short explanation for this, and to have approached the TFI Network+ who will help applicants seek industry support in advance of submitting their proposal.

Secondments by Postdoctoral Researchers to industrial partners is highly recommended and can be viewed as a suitable in-kind contribution. In this case, the letter of support from the company should include information about the hosting arrangements.

6. Resources requested

- Projects should be costed as for a standard UKRI [proposal](#)
- The costing table should include full economic costs at 100% and the request from the TFI Network+ at 80% FEC.
- Resources can be requested for researcher and technician time, travel, subsistence, consumables and facilities. The TFI Network+ will not fund new equipment above the £10k UKRI threshold (inc. VAT), nor student stipends.
- **Sub-contracting** is allowed but Research Organisations must ensure that expenditure on sub-contracts are subject to [robust controls](#)³ to ensure value for money and propriety
- Additional cash contributions from companies may be used to extend the duration of the project, or reduce the amount being requested from the TFI Network+
- All costs should be fully documented/invoiced and available to UKRI if required.

7. Project duration: projects are expected to run for a maximum of 6 months or £56k at 80% FEC. All approved grants are expected to start in April 2023. Grants that are not making progress as planned, or at any time subsequently, will have their funding allocation reviewed, and may be withdrawn. All funded projects must end **6 months** after their start date in order to meet the objectives of the funding call. All projects MUST be completed by Oct 2023 in order to allow timely invoicing. This is due to the current tranche of Network+ funding ending in Dec 2023. All funding is subject to UKRI standard T&Cs and the additional conditions for the TFIN+ (available upon award of the funding).

9. EDI section: The TFI Network+ is committed to supporting and promoting equality, diversity and inclusion in all of its practices and activities. We aim to establish an inclusive environment and welcome diverse applications from all protected characteristics. We particularly encourage applications from women, as this cohort is under-represented in engineering across academia and industry.

10. Guidance on Part B case for support:

- A. Please limit the industry partner description (Sections I & II) to 1 page
- B. Please limit the Project Description (Sections III-VIII) to 2 pages, font size 11. There is no word limit for each section. References may be added to a third page, Section IX
- C. The applications will be blind reviewed so please keep Part B (the case for support section) anonymous

³<https://epsrc.ukri.org/funding/applicationprocess/fundingguide/resources>

D. Individual sections:

I&II) Please describe the level of industry support, if any

III) SUMMARY & MULTI-SECTOR IMPACT ON FOUNDATION INDUSTRIES: If the application is successful, this section will be published on the Network+ website. Please provide a general summary of no more than 200 words, and the potential impact of a successful project.

IV) AIMS AND OBJECTIVES (WITH INDICATIVE TIMESCALES): Explain the overall aim of the project, and list some key objectives. Accompany objectives with probable timelines, e.g. Objective 1: Month X

V) SCIENTIFIC & TECHNICAL DESCRIPTION: the case for support will be reviewed by a broad range of reviewers with differing expertise. Please ensure your project can be understood by well-informed non-subject matter experts. You may include images or diagrams.

VI) RISK MITIGATION: If there are any technical or non-technical risks, please explain how these will be mitigated. Take into account issues related to access to laboratories. Briefly describe your ability to readily access the necessary equipment or facilities.

VII) PLANS FOR FOLLOW-ON ACTIVITIES: how will the results of this project be progressed further up the Technology Readiness Levels? Is there a clear strategy?

VIII) SUMMARY OF FUNDS REQUESTED AND JUSTIFICATION: Summarise the need for direct costs. Any requests for small items of equipment (<£10k) must be closely aligned to the aims and objectives of the project.

IX) REFERENCES: May be included on a third page.

X) INDUSTRY LETTERS OF SUPPORT: Must be attached to the end of Part B. The simplest option is to use the snipping tool to create a JPEG of the letter and insert it as an image. Please ensure that letters do not refer to you or your institution directly, to maintain anonymity for the applicant.

Timeline

- Call opens **3rd Oct 2022**
- Deadline for applications: **16:00, 2nd Dec 2022**
- Funding decision: **20th Jan 2023**
- Project start date: **3rd April 2023** or earlier if possible
- End date: max 6 months from start date

Assessment Criteria

Projects will be scored on the basis of:

1. Scientific excellence. This is the primary criteria and projects must demonstrate scientific excellence, novelty and potential impact.
2. Multi-sector applicability & impact. Single industry applications will be accepted but cross-sector applicability will be favoured as part of the assessment.

3. Applicant's ability to deliver the project. This is particularly important considering the current issues surrounding laboratory access.
4. Industrial (cash or in-kind) support. This is not mandatory but desirable. Where we have a large selection of excellent projects to choose from, levels of industry contribution will be taken into account.

Selection Process

1. Blind peer review by Scientific Advisory Panel and the wider industrial and academic community.
2. Ranking based on score.
3. In the event of two or more projects being equally ranked, special consideration will be given to under-represented groups. Please contact Neil Lowrie if you qualify for EDI⁴ consideration. This information will be treated as confidential and, in line with GDPR requirements, your information will not be shared outside of the review process.

Contacts

If you have any questions about the TFI Network+ call for mini-projects, please contact tfinetworkplus@sheffield.ac.uk

⁴<https://www.ukri.org/our-work/supporting-healthy-research-and-innovation-culture/equality-diversity-and-inclusion/addressing-under-representation-and-active-participation>