EBIC Environmental Biotechnology Innovation Centre

Guidance for Applicants

EBIC Seed Corn early-stage commercial viability assessment (TI-1)

Prifysgol Bangor University · Brunel University London · Cranfield University · University of East Anglia · The University of Edinburgh · University of Essex · University of Glasgow · Heriot-Watt University · Newcastle University · University of Southampton

EBIC Environmental Biotechnology Innovation Centre

Contents

EBIC Background

EBIC (Environmental Biotechnology Innovation Centre) consists of a consortium of 10 universities and aims to enable the responsible and safe scale up of cutting-edge techniques from synthetic biology, biotechnology, computation modelling and engineering science to develop innovative solutions in bioengineering and bioremediation of air, soils, and air systems. Through collaborative efforts and innovative approaches, EBIC strives to address environmental challenges and foster sustainable solutions for the benefit of society.

EBIC focuses on 3 tangible theme-oriented outcomes to drive impactful research and innovation.

Theme 1: SynBio enabled next generation biosensing for environmental monitoring and surveillance.

Theme 2: Environmental bioremediation of targeted environmental pollutants through SynBio enabled bio sequestration and biodegradation.

Theme 3: SynBio enhanced wastewater and waste management for the circular economy.

TI-1 Objective

We are seeking applications specifically relevant to the **water and waste sectors or the fields of environmental biotechnology, biosensing and environmental remediation**. The focus is on conducting early diagnostic analyses for projects in the TRL 2-3 range. This assessment will help applicants gauge the commercial potential of their projects by evaluating market viability and identifying potential challenges or barriers. By facilitating this "fail fast" approach, projects can either advance with increased confidence or reallocate resources toward more promising ideas.

These assessments will be carried out by an appointed consultant and will consist of a selection of the following or similar activities:

- Patent Landscape Analysis: an early-stage patent search to see if similar environmental biotech solutions are patented, and to determine if the technology can be deployed without infringing on existing IP. Assessment of whether the concept is likely to be able to be protected through intellectual property rights.
- Sector Mapping and Preliminary Market Sizing: identification of key sectors where the biotechnology may have application and estimation of potential market size(s) and likely demand.
- Sustainability Drivers: assessment of the regulatory or market pressure for sustainable solutions in these sectors.
- Regulatory Feasibility: where appropriate identification of relevant regulations and permits governing the likely application to understand key barriers to deployment, and an associated timeline to account for extensive testing and compliance procedures.
- Emerging Competitors: identification of research labs, start-ups, or corporations developing similar environmental biotech solutions, and existing non-biotechnological substitutes that serve the same environmental goals.
- Sustainability Benchmarking: evaluation of how the technology compares in terms of sustainability, carbon footprint, and long-term environmental impact with key competitors.

- Ecological Risks: assessment of the risks that solution could pose to natural ecosystems (such as unintended consequences arising from ecosystem disruption or bioaccumulation of harmful byproducts).

Please note that it will not be possible to look at all these elements and a detailed scope, based on your priorities, will be agreed at a scoping meeting between the applicant, the consultants and a member of the EBIC Operations Group. The final schedule of work will then be attached to an award letter for signature. This will include the activities, final cost and timeline for delivery.

Eligibility

The lead applicant must be from one of the 10 universities within the EBIC consortium. All academics and early career researchers (including PhD students) are welcome to apply.

Applicants must have an innovation at TRL 2-3 and a strong interest in taking the technology or concept through to commercialisation if viable (see Appendix 1 for TRL definitions).

How to apply

To apply for this award, please follow the steps below carefully:

1. Obtain the application form via:
    a. EBIC website members area
    b. EBIC Teams channel under 'Seed Corn Funding SCF' / 'TI-1 Applications and evaluation'
    c. By emailing EBICseedcorn@cranfield.ac.uk
2. Complete all sections of the form
3. Rename the application form to **TI-1_Surname_Project Title**
4. Once complete email your form to EBICseedcorn@cranfield.ac.uk
5. Use the subject line: **TI-1_Surname_Project Title**

Application and evaluation

Applications are accepted on a rolling basis. Reviews will happen approximately every three months, starting in early March. We expect to announce the results about 6-8 weeks after each review. Reviews consist of:

- Eligibility check by the Seed Corn Operations Group
- Initial evaluation and shortlisting by the Co-I filter group
- Review by the SCIAG, consisting of 4 industry experts, two members of the EBIC Operations Board, the ECR Representative and the UKRI Project liaison officer. The SCIAG will make recommendations to the Funding Allocation Group.
- Final decision by the Funding Allocation Group

The Co-I filter group (5 individuals) will initially be drawn at random from the Seed Corn Co-Is (representative of each University) and subsequently rotated annually to ensure all the consortium member universities are involved in the decision making. Applications will be marked by three individuals from the group and Co-Is will not be able to review applications from their own University. Applications that are deemed 'fundable' by all three reviewers will be sent to the SCIAG.

Evaluations and decisions of the scheme shall be anonymous: that is, no decision or comment concerning any application to the scheme will be attributable to any individual.

Guidance on application questions

Below is a preview of the questions that will be included in the simple online application form:

Question	**Max Word Limit**
Please provide an overview of your innovation and its potential impact in addressing environmental challenges.	400
Describe in more detail how your idea works and explain why it is distinctive and novel compared with alternative solutions.	300
Which TRL are you currently at (i.e. have completed)? Please provide a short justification.	250
Please describe the market for your solution (which sectors and end users you are targeting).	400
Describe the scalability of your concept and a potentially viable route to market.	400

Each application will be reviewed and scored according to the criteria listed below. The evaluation will consider how effectively your project aligns with each criterion and the quality of evidence provided to support your claims.

1. Potential impact in addressing specific environmental challenges within an EBIC theme
2. Idea distinctiveness and credibility
3. Alignment with TRL 2-3
4. Articulation of the market and end user potential (relevance to industry)
5. Scalability and viable route to market

Intellectual property

Unless agreed in writing by the Technology Transfer representative, all intellectual property rights in all materials created as a result of activities funded by the award shall vest with the institution who created it. Exception to this will only be made if special circumstances apply, for instance if the concept arose from collaborative research and is subject to existing intellectual property agreements with third parties. This will need to be evidenced at the time of application.

Tips for a strong application

Reviewers have overlapping expertise in Environmental Biotechnology but may not be specialists in your field – therefore make sure that the context and relevance of your bid is clearly understandable to a non-specialist to enable a wide discussion of its merit. Acronyms should be clearly defined.

- Be clear and concise: use straightforward language and avoid unnecessary jargon. Reviewers need to understand your project quickly and clearly.
- Provide evidence: use data, examples, or preliminary research wherever possible to support your statements wherever possible.
- Showcase what's unique: emphasise what makes your project innovative and valuable to the market.

Appendix 1 – Technology Readiness Levels (TRLs)

	Description	Defining activities	TRL achieved when
TRL 1	Basic principles observed and reported: Transition from scientific research to applied research.	Basic scientific principles observed. Research Hypothesis formulated. Scientific background and rationale for the research. Fundamental scientific investigation within an academic environment.	Potential outcomes and use of research is defined (e.g. clear elevator pitch).
TRL 2	Technology concept and/or application formulated: Applied research. Theory and scientific principles are focused on specific application area to define the concept.	Applied scientific investigation within an academic environment. Preparation for technology needs (market dependant). Analytical techniques to test reproducibility of research. Practical concepts or applications are formulated, markets identified. Patent applications filed to protect invention. Basic process/product specifications drawn up.	The relevance of the research to an application has been proven. The value of the technology to a customer is defined.
TRL 3	Analytical and experimental critical function and/or characteristic proof-of concept: Proof of concept and demonstration of technical feasibility.	Technology development within an academic environment. Demonstrate reproducibility of technique and or technology. Analytical studies to predict the performance of separate elements of the technology in appropriate context. Patent applications filed to protect invention. Preliminary techno-economic modelling. Explore commercial partnerships or collaboration opportunities. Data collection in line with industry expectations.	The technology concept has been proven but process components have not been integrated. The value of the technology to a customer is confirmed (e.g. market need and opportunity).
TRL 4	Component/subsystem validation in laboratory environment.	Technology development within an industrial (or industry simulated) environment. Bench scale validation. Basic technological components are integrated to provide evidence that the concept will work. Build data on reproducibility of process. Implementation of GLP processes. Understand the impact of the regulatory impact on the process. Scale up issues are understood, and mitigation plans developed. Initial techno-economic analysis using process data. Market analysis performed.	The technology concept has been proven with basic component integration. An investment case to attract private investment has been developed.
TRL 5	System/subsystem/component validation in relevant environment.	Technology development within an industrial environment. Basic technological components are integrated with reasonably realistic supporting elements. End to end process validation to provide evidence that the concept will work. Pilot scale experimentation. Detailed techno-economic analysis. Detailed market analysis performed.	The technology transferred to an industrial environment. A refined investment case to attract private investment has been developed.