EBIC Environmental Biotechnology Innovation Centre

Guidance for applicants

EBIC Seed Corn prototyping and scale up (TI-3)

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

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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-3 Objective

The primary objective of this funding is to support activities that address key barriers to the development and deployment of transformative technologies. Projects should directly contribute to one or more of the following priorities:

1. **Advancing Environmental Monitoring**: Developing SynBio-enabled next-generation biosensing tools to enhance environmental monitoring and surveillance capabilities.
2. **Innovative Bioremediation**: Delivering solutions for the biodegradation or biosequestration of high-priority environmental pollutants, leveraging synthetic biology advancements.
3. **Circular Economy Solutions**: Enhancing wastewater and waste management practices through SynBio innovations, promoting sustainability and resource recovery.

Proposals should demonstrate clear potential to significantly impact these thematic areas while progressing technologies through the TRL levels. The maximum funding of £40,000 is intended to cover activities such as innovation design, prototype development and testing, manufacturing design, and access to scale-up or testing facilities.

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. We anticipate that the academic lead will own the relevant background IP.
- Applications may come from individuals or groups (from one or more universities), but must have a single lead academic contact, as the funds are awarded to a single academic partner.
- Applicants must have an innovation at TRL of 3-4 and be working towards TRL 5-6 and beyond (see Appendix 1 for TRL definitions).

Application

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.
Applications are submitted in the form of a slide deck pitch using the template provided.

If you are unsure about the remit or scope, please contact EBICseedcorn@cranfield.ac.uk with a brief title and summary to seek informal feedback.

Final applications should be submitted to EBICseedcorn@cranfield.ac.uk, alongside an email providing approval from a senior member of staff within your school/faculty and your institution's Technology Transfer Office.

All information you supply on the application is treated as confidential. It will be made available only to the scheme administrators, evaluators and the BBSRC (if requested). It will be used only to the extent necessary for processing the application and for required activities by the BBSRC (see Data Protection below). By making the application, you agree that, if an award is made, the following information may be placed on the EBIC or partner university web or social pages: the project title; your name; your department; your HEI, and a non-confidential project summary.

Evaluation process

The Co-I Filter Group, the Seed Corn Industry Advisory Board and the Funding Allocation Group will have the responsibility of evaluating applications for scheme awards, as below.

- 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.

Shortlisted applications will be invited to pitch to the Seed Corn Industry Advisory Group. The date for the pitching sessions will be communicated well in advance of each evaluation period. Please keep these free if you have a proposal for evaluation. Pitches will consist of a 15-minute presentation (based on your proposal slide deck) and 10 minutes for questions. You will be asked to provide a final, approved costing within this presentation, as well as a more detailed project plan (including tasks and deliverables) and associated gantt chart.

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 HEIs 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 Universities. Applications that are deemed 'fundable' by all three reviewers will be sent to the SCIAG. Each application for an award will be approved or declined according to the majority decision of the SCIAG, but the final decision will rest with the Funding Allocation Group.

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.

The decision of the Funding Allocation Group will be communicated to the applicant within 7 days of the Group sitting. In the case of an application that is declined, feedback will be provided to the applicant along with the evaluators' decision. An application to the scheme that is declined may be re-submitted for consideration once and once only.

Lobbying of evaluators by applicants is strictly forbidden. Applicants suspected of lobbying evaluators of the scheme will be denied access to the scheme in the current and the following funding year.

Value and duration of award

EBIC will provide a maximum of £40k funding for prototype development and scaleup. Awards will run for a maximum of 12 months and will be funded at 100 % FEC (full economic costing). Eligible costs include staff time, consumables, equipment (below £10k inc VAT), subcontracting (max 20%, but with possible exceptions if strong justification is made) and costs associated with travel and attendance at relevant events. All costs should be justified and align with goals of the project. **It is recommended that up to £5000 is put aside for support with development of a market assessment or business case.**

Prospective applicants should speak to their own institution and include a full costing within their application pitch with the following headings:

Directly Incurred

- Other costs (consumables, equipment (below £10k inc VAT), and subcontracting – please list separately)
- Staff
- Travel and subsistence

Directly Allocated

- Investigators

Please note Staff and Investigators will need to be listed in full (individual name, time and role on the project) at interview stage if you are shortlisted. Projects will aim to start within 30 days after the confirmation of the award has been communicated and will have up to 1 year duration period.

Guidance on application questions

Below are the core questions from the slide deck and guidance on what the reviewers are looking for.

Question	Guidance
Problem and impact	Clearly define the specific problem or unmet need your innovation addresses, emphasising its significance and impact. Provide any data or validation that supports the existence and relevance of this problem. Ensure you explicitly link the innovation to the relevant EBIC themes, demonstrating how it aligns with EBIC priorities.
The solution	Describe your innovation clearly, highlighting its unique aspects and how it addresses the identified problem. Specify the Technology Readiness Level (TRL) your innovation is currently at and provide supporting evidence or data validation, such as test results or prototypes, to demonstrate the solution's current status, effectiveness and potential.
Market opportunity	Identify the target market, providing details on its size, demographics, and potential market share you aim to capture. Include any evidence you have for the future demand of your product and discuss the likely first target customers.
Competitor analysis	Describe how the identified need is currently being addressed in the market, including existing solutions. Identify any competing technologies or alternatives, providing a clear comparison. Highlight the unique advantages of your solution, emphasising what differentiates it from the competition in terms of performance, cost, or other key factors.

IP strategy	Describe the current and planned protection of your IP, together with the most significant regulations you are likely to have to meet as you commercialise. Do these and associated standards exist today?
Exploitation plan	Outline how you plan to commercialise the innovation beyond the project. Include any current external partners or potential target partners who could help accelerate the commercialisation process, detailing their roles and contributions; outline your likely commercialisation approach (licensing, direct sales etc) and describe how you intend to generate income (one-time purchases, subscriptions etc).
Project plan	Provide details of the activities you wish to undertake that will help accelerate your technology towards commercialisation and deployment. Explain why these activities are important in advancing your technology.

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.

- Has clearly illustrated the problem or opportunity this project will address, and this relates to an EBIC priority
- The solution identified is credible and will have significant impact (scientific merit). The TRL level is at 3-4 and is well justified
- Has identified and quantified a target market (industrial relevance)
- Has shown clear understanding of competing technologies and why this solution may be preferable.
- Has shown a clear IP strategy for the project and for the ongoing commercialisation of the innovation
- There is a credible exploitation plan
- Has produced a feasible action plan with credible milestones, that will advance technology's TRL.
- Spending plan is clear, and applicant has considered value for money.

Successful applicants

Projects that are awarded funding under the EBIC Prototyping and Scale-up Award will receive a formal funding agreement outlining the terms and conditions of the award, the total funding awarded, the key delivery milestones and the reporting requirements. This agreement must be signed by an authorised representative of the applicant's institution.

The award will be transferred to the University/school/unit in which the successful applicant works that is, the award remains the property of EBIC and is deployed to a suitable budget code under the control of the applicant and the relevant institution management accountant. Cranfield University will raise a PO, and transfer funds on receipt of an invoice.

Funding will be disbursed quarterly in arrears. The final payment will depend on approval of the final report. Award recipients are required to submit an interim progress report at the mid-point of the project. If progress is deemed insufficient at this stage, such as failure to meet critical milestones or demonstrate substantial advancement towards the completion of the goals of the project, the project may be terminated. In this case, any remaining funds will be reallocated to other initiatives.

The Final Report should include a brief publishable summary and, as a separate attachment, high-resolution, copyright-free images or photographs, if possible.

Both interim and final reports will be reviewed and approved by the Funding Allocation Group to ensure compliance with project objectives and deliverables.

Any applicant failing to abide by the terms of an award will be denied access to the scheme in the current and the following funding year.

Should the project be a collaboration, there must be a Collaboration Agreement in place. The Collaboration Agreement should be created between the project participants, and it should incorporate the operation and exploitation of the outcomes of the project. EBIC does not need to see a copy, but you are required to state that you have in place a document specifying the relative contributions to, and IP ownership issues regarding, the project.

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.

Data protection

The PI of the EBIC Seed Corn grant has the responsibility for keeping data relating to the grant secure and safe. If requested, copies of the applications may be made available to the BBSRC, who will use this information for research related activities, including but not limited to, transfer of funds, statistical analysis, study of trends and policy and strategy studies.

Copies will also be made available to reviewers and the Seed Corn Operations Group for the purpose of assessment and evaluation, and for the payment, maintenance and review of the grant.

They will be expected to adhere to the highest standards of scientific integrity as laid down by the BBSRC. These include guidelines for data sharing: https://bbsrc.ukri.org/about/policies-standards/data-sharing-policy/ and good scientific practice: https://bbsrc.ukri.org/about/policies-standards/good-scientific-practice/.

To meet the Research Councils' obligations for public accountability and the dissemination of information, details of funded awards may also be made available on the Research Councils' websites and other publicly available databases, and in reports, documents and mailing lists.

Contact details

For any queries, please email EBICseedcorn@cranfield.ac.uk.

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.