



## Soils and Digital Technology: Call for Seed-Funding (guidance notes)

### Summary

Ensemble invites applications from organisations or individuals eligible for UKRI funding (UK Research and Innovation) for two grants of up to £7,500 for a project relating to digital technology and soils; our hope is that organisations would partner with individuals, community groups and other organisations.

This call provides an opportunity for Ensemble to encourage the development of innovative ideas from the wider community and to extend the impact of its research. Successful projects may develop into future collaboration with the Ensemble team.

### About Ensemble and our project goals

Ensemble is an umbrella initiative examining the role of digital technology in supporting open, integrated and collaborative environmental science. One of the major projects operating within Ensemble is Prof. Gordon Blair's DT/LWEC Senior Fellowship (Digital Technology and Living With Environmental Change), funded by EPSRC (EP/P002285/1). We recognise that digital technologies have a crucial role to play in helping scientists and other key stakeholders to more deeply understand the natural environment and its complex web of interconnected ecosystems. This deeper understanding also supports the development of well-founded mitigation and adaptation strategies.

Ensemble is investigating the role of digital technology in supporting open science, and in understanding the complexities and uncertainties associated with the natural environment, particularly related to decision making. Ensemble is also strongly motivated to raise the level of abstraction of the underlying technological platforms thus allowing end users (scientists, policy makers, public) to focus on their realm of expertise rather than wrestle with the complexities of the underlying complex infrastructure.

The five-year research project will specifically research into the themes of flooding, bio-diversity, soils and eco-system services, with the focus of the upcoming year being soils.

### Funding details

**Award:** The indicative budget is £15,000. In this call there are two grants available on the theme of soils and digital technology, each for £7,500. Subsequent calls will offer grants for the other themes detailed above.

All costs should be inclusive of VAT and/or any other applicable tax.

**Duration:** Two grants of £7,500 will be awarded to start in Autumn 2019 and ideally funds will be spent by June 2020.

**Applicants:** All proposals must meet UKRI eligibility criteria (<https://www.ukri.org/funding/how-to-apply/eligibility/>). In this case, this translates to: i) all proposals must be led by an organisation that is eligible for UKRI funding; ii) the staff member leading the bid must have a contract that exceeds the length of the proposed research.

Whilst match funding is not required, it is beneficial.

**Eligible costs:** Please note that for applications from universities, only directly incurred costs will be funded. Costs may include staff time for postdoctoral research associates (PDRA), travel and subsistence, and consumables and equipment for the project. Details on how to access the funding will be provided to those that receive the award.

### Potential topics for projects

Before applications are submitted we would strongly encourage engaging with our research team to develop a project aligned with the goals of the Senior Fellowship. Ideas for projects include, but are not limited to:

- How can we use soil data to gain a better understanding of droughts and other extreme events?
- What data science techniques can we use to identify potential tipping points in soil ecosystems?
- Can we combine data on differing spatial and temporal scales to improve estimations of agricultural yield?
- What is the respective role of process models and data models in understanding and managing our soils?
- How can different data sources be usefully combined to enhance this understanding, for example satellite data, citizen science data and/or data from sensors in the ground?
- Can we apply techniques such as sentiment analysis on citizen science data to reduce uncertainty?
- What does an environmental Internet of Things look like? And what does a virtual lab for soils look like? Can these systems be usefully combined in a single 'systems of systems' architecture?
- How can we exploit computational biological approaches (DNA, eDNA) as an aid to understanding soil science processes?
- How do we visualise and communicate the complexities and uncertainties associated with soils data?
- How do we encourage digital naturalists of the future through our means of communication and presentation of STEM?

### Application process

- Completed applications must be submitted by 5pm on 28<sup>th</sup> June 2019 to [e.carrington@lancaster.ac.uk](mailto:e.carrington@lancaster.ac.uk).
- The electronic application submission must be a single document. Applicants must ensure their proposal conforms to the format and the word limits specified on the application form.
- Proposals must be costed and approved by the applicants' organisation authority before submission.

Activity	Date
Call launched	May 2019
Closing date to submit proposals	28 <sup>th</sup> June 2019
Funding decision	Mid July 2019
Expected start date of awarded projects	Autumn 2019
Funding to be used by	June 2020

## Assessment criteria

All applications will be reviewed on an individual basis by a panel of academics and domain experts. Decisions are expected to be announced by mid July 2019.

Criteria for assessment include:

- Alignment with the goals of Ensemble and of the DT/LWEC Senior Fellowship;
- Added value to the research goals of these projects;
- Demonstrable added impact beyond the normal academic impact, incl. community impact;
- Broader engagement with communities around the public understanding of science;
- Lead contact is eligible for UKRI funding.

Substantial engagement with the Ensemble team through the development of the application must be demonstrable.

## Conditions

- The Ensemble team is hosting a workshop to launch the soils sprint in autumn 2019 and we would require a representative from the project teams to attend. The workshop will provide an opportunity for the funded projects to be refined and become more closely connected with the wider work of Ensemble. The event will be in the North West, date TBC. We will also require a representative to attend the closing workshop in June 2020. (Travel expenses will be covered by Ensemble).
- The grant funds may not be used for capital expenditure, i.e. no single items of equipment of high value are permitted.
- If research involves the public, the project must adhere to the appropriate ethics procedure at your organisation.
- The applicant shall ensure that it complies with all relevant legislation, rules, regulations and codes of practice relating to the conduct of their project.
- Any employment or visa compliance implications are entirely the responsibility of the project leader and their organisation.
- Within 30 days of the end of the funding period, Ensemble needs to be provided with:
  - a public-facing blog article (250-500 words) that can be displayed on the Ensemble website.
  - a summary of any papers or reports in preparation, and any plans for follow-up research funding.
  - a financial statement.
- Any publication resulting from the project must acknowledge EPSRC funding via the DT/LWEC Senior Fellowship. The recommended text to be used is as follows: "This work has been funded by the UK EPSRC as part of the Senior Fellowship in the Role of Digital Technology in Understanding, Mitigating and Adapting to Environmental Change grant no: EP/P002285/1"

## Contact details

Please contact [e.carrington@lancaster.ac.uk](mailto:e.carrington@lancaster.ac.uk) if you have any questions about the application.