

2019 Call for Seed Funding Proposals at MIT

Summary

The MIT Portugal Partnership 2030 (MPP2030) is inviting submissions of project proposals for one-year seed funding at MIT. MPP2030 is a strategic international partnership between Portuguese universities and research institutions, MIT, the Portuguese government, as well as partners from industry and other non-academic institutions. Launched in June of 2018 and funded by the Fundação para a Ciência e Tecnologia (FCT), its goal is to strengthen Portugal’s knowledge base and international competitiveness through a strategic investment in research, people, and ideas in areas of global relevance and with significant societal impact.

For the 2019 call at MIT, we are seeking outstanding proposals in the following four (4) data-science driven areas, namely (see section “Research Areas” for more information):

- 1) Climate Science & Climate Change
- 2) Earth Systems: Oceans to Near Space
- 3) Digital Transformation in Manufacturing
- 4) Sustainable Cities

Eligible proposals submitted by an MIT Principal Investigator by February 15, 2019, 11:59 pm EST, with a maximum budget of \$90,000, that meet one or more of the following criteria will be considered:

- Carry out early-stage research or exploratory studies within the scope of one or more of the aforementioned data-science driven research areas. Although the different scientific areas can be approached independently, cross-area proposals, which credibly include and combine multiple areas, are highly encouraged.
- Engage in synergistic program activities that increase the impact, sustainability, and visibility of MPP2030, e.g., advancing innovation and entrepreneurship activities beneficial to Portugal; engaging potential industry partners and networks; as well as organizing and supporting workshops and frequent research meetings, e.g., with Portuguese researchers and collaborators in your MPP2030 research area(s).

Call for Proposals: Facts & Highlights

Program: MIT Portugal Partnership 2030

Proposals: Seed projects; early-stage research or exploratory studies

Award: Up to \$90,000

Term: One-year funding; March 15, 2019 to March 16, 2020

Submission deadline: February 15, 11:59 pm, EST, 2019

Eligibility: Only MIT Principal Investigators are eligible to receive funding (please review this document for further details)

Funding areas: Four data-science driven areas (cross-area proposals are highly encouraged):

- 1) Climate Science & Climate Change
- 2) Earth Systems: Oceans to Near Space
- 3) Digital Transformation in Manufacturing
- 4) Sustainable Cities

Specific collaborations with faculty colleagues, industry, and other institutions in Portugal—as well as with MIT colleagues—are highly encouraged and will be part of the evaluation.

Proposal format: See proposal template

Eligibility

The call is open to all MIT Principal Investigators (PIs) from any School, Department, Laboratory, or Center. Only MIT PIs are eligible to receive funding, and PIs are discouraged from being listed on multiple seed grants. We strongly encourage collaborations with faculty colleagues, industry, and other institutions in Portugal—as well as with MIT colleagues.

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Funding & Project Term

The maximum funding for a seed project is \$90,000. Awarded funds must be spent between March 15, 2019 and March 16, 2020.

Application & Evaluation Process

- Applications must be submitted using the **proposal template**.
- **The submission deadline for seed fund applications is February 15, 2019, 11:59 pm EST.**
- Proposals will be **evaluated** based on:
 - **Relevance** of the proposed research for the data-science driven research areas of MPP2030 (see sections Summary and Research Areas in this document)
 - Proposed **synergistic program activities** that increase the impact, sustainability, and visibility of MPP2030 (see section Summary in this document)
 - **Quality, feasibility, and originality of proposed research**
 - **Specific collaborations** with faculty colleagues, industry, and other institutions in Portugal—as well as with MIT colleagues
 - **Funding decisions** will be made by **March 15, 2019**.
- **All proposals and questions** regarding the call should be submitted to mpp2030seedprojects@mit.edu.

Research Areas

The research scope of each area is described below. It is important to highlight that the research topics are not limited to the examples given in the areas' description below. Proposals with different focuses from the ones presented but within the scope of the areas are welcome. Additionally, all research areas should consider data-science integration. The data-science driver should target the development of tools to collect, curate, and synthesize data from public and other repositories, and to make it available more broadly and in more useful forms for public and private use, including but not limited to the public, policy makers, consumers, and businesses.

Area 1: Climate Science & Climate Change

Climate change and global warming are urgent areas of interest to humanity. Climate data, measurements and instrumentation focused on the oceans, atmosphere, climate, and near-space enables the monitoring of Earth systems dynamics. Such data allows the understanding of how climate has changed over time, enables the development of complex climate models and provides the possibility to estimate in advance the impact of different climate control policies and strategies. With special focus on climate science and climate change, scientific Area 1 targets the study, measurement and modeling of the complex interactive system dynamics of climate, weather, atmosphere, ocean, land, and near-space. Integrative models and methods of studying and analyzing enormous volumes of data should be implemented.

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Area 2: Earth Systems: Oceans to Near Space

The capacity to observe Earth in its full verticality (from deep-sea to space) enables the understanding of its subsystems (oceans, land, air, and space) including complex dynamics. In this research area, the focus is on investigating Earth's subsystems, namely its oceans, land masses, atmosphere, and near-space environment, with particular emphasis on measurements, developing technologies and capabilities, and addressing Earth's critical subsystems from oceans to space through technological innovation, big data, autonomy, and comprehensive systems analysis. Related topic areas include the development of ocean monitoring and measurement, ocean research vessel field deployments to demonstrate novel autonomy and human-machine concept of operations (ConOps) to small-satellite technology and launch capabilities, all to enable advances in ocean and earth science measurements, technology advances, and autonomous operations for exploration and science.

Area 3: Digital Transformation in Manufacturing

Today we can imagine-design-make, essentially in real-time. Human-centered design not only has inspirational effects but it also has societal relevance, having a psychological effect, which has changed how design is seen and valued. Technology, particularly digital technology and additive manufacturing are providing a set of valuable tools capable of providing new possibilities. Within this research topic, research includes multiple aspects of the digital transformation that is enabling new integrated approaches for adaptive design, manufacturing and sustainable solutions. Projects to develop cyber-physical products and systems, assuring improved user experience and value creation for society and the economy are sought. In this context, strategies for Designing at the Speed of Thought are solicited. Synergies are encouraged for research in Area 3 and Areas 1 and 2, for example, to design, manufacture and launch revolutionary Wafer Satellites and MicroSat constellations focused on land and ocean use, algae blooms, top soil erosion, and regenerative aqua- and agriculture.

Area 4: Sustainable Cities (Atlantic Interfaces)

Cities have currently the potential to serve as living-labs and as research units for large-scale environments on Earth. Advances in open data platforms, integration and accessibility are needed for "smart, sustainable cities." Within this area context, research involves urban science, design, and engineering with applications in areas such as energy utilization, air quality maintenance, transportation systems, internet-of-things connectivity, and smart cities. Moreover, high priority will be on the ocean-city interface with relevance to Areas 1 and 2, coastal cities are prioritized and relevant climate change, sea-level rise, temperature and natural disaster monitoring, and development of potential solutions to emerging urban problems.