

## MIT Portugal Partnership 2030

### 2021 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, and 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 with significant societal impact.

For the 2021 call at MIT, we are seeking outstanding proposals in the following four **data-science driven** areas:

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

*\*Proposals in Climate Science & Climate Change are strongly encouraged for this round of seed funding.*

Eligible proposals will be considered if they are submitted by an **MIT Principal Investigator** by **Friday 19 March 2021, 11:59 pm EST** with a maximum budget of \$90,000.00 USD and meet one or more of the following criteria:

- Carry out early-stage research or exploratory studies within the scope of one or more of the research areas; cross-area proposals, which credibly include and combine multiple areas, are highly encouraged
- Create critical momentum and synergies among Portuguese and MIT faculty colleagues and engage in collaborative program activities

#### Eligibility

The call is open to all MIT Principal Investigators (PIs) from any School, Department, Laboratory, or Center.

**Only official MIT PIs are eligible to receive funding.**

All proposals **MUST have a Portuguese collaborator to be considered for funding**. We strongly encourage collaborations with faculty colleagues, industry, and other institutions. *Priority will be given to seed projects that incorporate the work of funded [Portuguese Exploratory Projects](#) (use this link to see the "Funded Projects" tab for more information).*

While this funding is exclusively for MIT PIs, a 2021 exploratory call will be opening this Spring for Portuguese-only funding and collaborative efforts are ideal. See the MPP2030 website for more details on [the exploratory call](#).

#### Call for Proposals: Summary

**Program:** MIT Portugal Partnership 2030

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

**Award:** Up to \$90,000.00 USD (inclusive of overhead fees)

**Term:** One-year funding

**Submission deadline:** Friday 19 March 2021, 11:59 pm EST

**Eligibility:** Only MIT Principal Investigators are eligible to receive funding. A coordinated "exploratory" call is opening soon for Portuguese PIs

**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 is *mandatory* and will be part of the evaluation.

**Proposal format:** See [proposal template](#)

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#### Funding & Project Term

- The maximum funding for a seed project is \$90,000.00 USD
- Awarded funds are inclusive of MIT overhead fees
- Project child accounts are set up in the PIs' DLC and managed by the financial officer in that DLC
- Funded PIs will have the option to start in June or September 2021
- Awarded funds must be spent by the Program-designated completion date
- Awarded project teams must participate in ad-hoc meeting or workshop requests, as well as the MIT Portugal Annual Conference, which is typically held at the end of September in Portugal
- Project team will be required to submit a final report within 30 days of the project end date (report template is provided by the MIT Portugal Program)
- Project teams will be required to report all publications and conference papers that result from their research to [mitportugal@mit.edu](mailto:mitportugal@mit.edu)

#### Application & Evaluation Process

- Applications must be submitted using the **proposal template**
- Current seed fund awardees are also eligible to receive funding with the application of a new proposal for 2021
- **The submission deadline for seed fund applications is Friday 19 March 2021, 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 the first week of **April 2021**
  - All proposals will be assessed based on scientific merit and relevance
  - Proposals with PT Exploratory funded partners will be prioritized
- **All proposals and questions** regarding the call should be submitted to [mitportugal@mit.edu](mailto:mitportugal@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

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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.

#### **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. We solicit projects that enable advances in ocean and earth science measurements, technology, 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 currently have 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.