

SSTI Grand Challenge development

Step 3: call for Grand Challenge Notices of Intent

Deadline: Jan 29, 2017

About the Sustainability Science and Technologies Initiative

The McGill *Sustainability Sciences and Technologies Initiative (SSTI)* creates a centre of expertise and excellence at McGill in the field of sustainability sciences and technologies. It will provide support and seed funding for transdisciplinary teams to address some of the most complex problems facing humanity as we strive to create a world that ensures the prosperity of people today without endangering the well-being of our neighbours or our future generations. These problems, which are far too complex and too wide in scope and scale to be addressed by existing discipline-based research structures, are sustainability's 'Grand Challenges'. Answering these questions required working across disciplines in new institutional configurations.

Following the Lightning Talk events, the SSTI is now soliciting suggestions for SSTI Grand Challenges. The current document describes the Grand Challenge NOI submission process and ends with a synopsis of the revised schedule for the full Grand Challenge development process.

Grand Challenges in the SSTI context

McGill SSTI Grand Challenges are those in which McGill expertise, grounded in science and technology, can make a tangible and significant impact. The SSTI will provide funding for unique and original research carried out by trans-disciplinary research teams under each Grand Challenge research theme. This research is expected to be eligible for significant long-term funding and to place McGill at the forefront of sustainability research on the Canadian and international stage.

Areas of strength in science and technology at McGill include the development of innovative materials and technologies to replace those whose production or use is unsustainable, redesign of existing technologies to eliminate negative impacts on Earth's natural capital, and research on ways to increase food production while maintaining or restoring ecosystem services. Advances in areas of science and technology are, however, insufficient unless they are framed within a societal context, and consider aspects such as human and environmental health, social and economic wellbeing, and legal and geopolitical implications. Only by taking into consideration the interrelated yet often poorly understood and shifting relationships between the many aspects of development will the implementation of complex scientific and technological advances succeed. The aim of the McGill SSTI Grand Challenges is to provide support for McGill researchers from both the sciences and humanities to work together to develop significant, impactful and socially acceptable advances that move society towards a more sustainable model of existence.

Grand Challenge solicitation

The SSTI is seeking notices of intent (NOI) that propose sustainability Grand Challenges that are grounded in areas of science and technology in which McGill has strong existing expertise. These Grand Challenges will provide the overarching themes for the main SSTI research effort and should have the potential to generate long-term fundable research that will elevate McGill into a position of national and international prominence in sustainability research.

NOIs should be pitched at a high level. They will, if selected, be further developed by teams of McGill researchers into Grand Challenge proposals and, potentially, research program components that address the Grand Challenge.

NOI format

The NOI should be a short (**maximum 1.5 pages**) high-level outline of the Grand Challenge. It should include the following information:

- A short (1/4 page) description of a recognised sustainability Grand Challenge in the area of sciences and technologies;
- A short (1/4 page) description of the long-term vision for this Grand Challenge, the overall research goals and why addressing this Grand Challenge requires a trans-disciplinary approach;
- Description of unique avenues of research that will contribute to tackling the Grand Challenge. High level suggestions rather than specific project descriptions are sought at this stage. The NOI should briefly demonstrate that these research avenues:
 - Are feasible and addressable within the McGill research context;
 - Are within the SSTI funding capacity (circa \$400K per annum for 3 years);
 - Require a trans-disciplinary team effort;
 - Are likely to attract significant external funding.
- A short and non-exhaustive list of McGill researchers or departments that can contribute to addressing this Grand Challenge. For reference, it might be useful to refer to the attached list of researchers who presented during the SSTI Lightning Talks. Abstracts and recordings of their presentations can be found on the SSTI website <http://www.mcgill.ca/ssti/> (note that some abstracts and videos are still to be loaded).

SSTI assistance during NOI development

The SSTI can provide a small budget to cover meeting costs (e.g., space, coffee) during the NOI and Grand Challenge development stage. It can also circulate NOI descriptions to other members of the McGill community and assist in connecting NOI teams with researchers with specific interests. Requests (in advance for assistance with meetings) can be sent by email to info.ssti@mcgill.ca.

Next steps

The SSTI Executive Committee will evaluate the NOIs and select those with the potential to become Grand Challenges. The NOI leads will form teams to develop the NOIs into Grand Challenge proposals which will be presented to the McGill community. The strongest proposals will be selected for development into full Grand Challenges.

Updated Jan 23, 2017