Funding Opportunity: National Science Foundation Releases New Regional Innovation Engines Competition

Lewis-Burke Associates LLC – April 19, 2024

The National Science Foundation (NSF) has released their second solicitation for Regional Innovation Engines (NSF Engines). The program is a signature initiative from NSF's Technology, Innovation, and Partnerships (TIP) Directorate and supports efforts to accelerate regionally diverse, place-based innovation ecosystems that foster interdependent networks of partners focused on advancing key technologies and addressing pressing regional, national, societal and/or geostrategic challenges. With a potential award size of up to $160 million in funding over 10 years, these are the largest NSF centers to date.

This competition will build upon the 2022 iteration in which NSF awarded 10 inaugural Engines (or "Type 2 Awards" as they were known in that round) to accelerate the development of nascent ecosystems and 58 Engines Development Awards ("Type 1 Awards") to provide additional funding for strategic growth. This competition exclusively calls for full NSF Engines (previously known as "Type 2 Awards") and does not include a call for new Type 1 Engines. Applicants do not need to have a Type 1 award to participate.

The Engines solicitation includes major updates from the initial 2022 competition with new thrusts and clarified expectations around management, partnerships, investment strategy, and region of service. This solicitation has a larger emphasis on community impact within the region of service, including reaching underserved communities. The process has also been changed to be more similar to a typical NSF solicitation, rather than the last iteration which was a Broad Agency Announcement (BAA), including elevating Letters of Intent and pre-proposals. There will also be a down-select at the pre-proposal stage with only a subset of teams being invited to submit a full proposal. Despite these changes, the underlying goals and themes of the Engines program remain consistent. NSF seeks to fund activities that catalyze partnerships and accelerate innovation outcomes in defined regional ecosystems. The program specifically targets geographic areas where capabilities and resources exist but funding from NSF would launch them toward becoming a national leader in their topic area and sustainable vector of inclusive growth and investment.

Foundational Elements: At this stage, applicants must have defined topic areas around key technologies they plan to advance and major challenges they seek to address; a carefully rationalized region of service with competitive advantages that could sustain a long-term innovation economy around the topic area; committed multi-sector partners and other stakeholders (e.g., academia, government, industry, non-profits, capital investors, etc.) led by a CEO and inclusive leading organization; a vision for catalyzing ecosystems of interdependent networks of said regional stakeholders to support research, translation, workforce, capital infusion, and other important actions under the direction of a strategic plan that builds on strengths and addresses ecosystem gaps; clear efforts to attract, leverage, and utilize complementary funding from other sources beyond NSF; and more. Further, Engines are required to incorporate perspectives from diverse communities in planning and execution.

Topic Areas and Challenges: Proposers will identify a topic area and broader regional, national, societal, and/or geostrategic challenges around which to build their Engines. The topic area should sustain future

growth and to an extent, advance key technology focus areas, such as those identified in the *CHIPS and Science Act*.[1]

In general, selected topics advance must:
- "reflect the interests and needs of regional stakeholders;
- have the potential to produce disruptive R&D and technological innovation that can lead to economic growth through the creation of new startups and the expansion of existing small businesses;
- have demonstrated potential to serve as the basis for a financially sustainable innovation ecosystem;
- and offer significantly increased opportunities for the creation and retention of quality jobs and equitable workforce development pathways into careers."

In addition to assessing regional strengths, applicants can review maps and other background[2] on funded NSF Engines to ensure topical and geographic diversity. Note that NSF is willing to fund more than one Engine in a given state as shown by North Carolina winning two awards in the first round, but if proposing for a region that already has an Engine, a proposal must demonstrate that a unique ecosystem exists drawing on distinct partners and funders.

Key Considerations: As alluded, while this solicitation reflects most of the core elements of the 2022 competition, this iteration incorporates lessons learned and provides much more clarification and attention to specific attributes. *As such, even those familiar with the previous competition should read this solicitation very carefully.* For instance, the solicitation places greater emphasis on the community engagement plans to support un-tapped populations and underserved communities, which may have been generally lacking in submissions from the first competition. Also, unlike the previous solicitation, the "regions of service" are expected to be more tightly connected and the solicitation cautions against large regional footprints (ex: states or several major metro areas). Further, the solicitation places greater emphasis on letters of support and commitment from partners, among other areas.

Core Engines Functions: NSF continues to call for strategic and implementation plans, efforts, and initiatives to be centered around a list of core functions. Again reflecting lessons learned, this solicitation expands upon the list of three foci from the previous solicitation (e.g., use-inspired research, workforce development, translation) to include seven "key drivers of ecosystem change" applicants should leverage to transform their regions into national leaders in their topic areas while ensuring equitable economic and societal impacts:

1. **Cross-sector Partnerships and Stakeholder Alignment:** Growth and sustainment of an interdependent network of partners from several types of organizations that are positioned to leverage unique expertise and capabilities to support the development and execution of strategies. Among others, teams are encouraged to include partners that use arts, culture, design, or the humanities to engage diverse communities and develop solutions to research and technology challenges facing the Engine.

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[1] https://new.nsf.gov/focus-areas/technology
[2] https://tableau.external.nsf.gov/views/NSFEnginesPortfolio/Overview?%3Aembed=y&%3AisGuestRedirectFromVizportal=y

2. **Use-inspired Research and Development:** R&D activities that aim to generate technological developments, new innovations, and other impacts that are inspired by current and future societal and technological needs. Additional information desired Technology Readiness Levels is included in the full solicitation.

3. **Translation of Innovation to Practice:** Efforts to support tangible, translational outcomes such as products, businesses, services, and the development of new policies or regulations. This solicitation directly expects Engines to create "multiple entrepreneurial pathways and these pathways will not be limited to the work of a single incubator/accelerator or ventures emerging from a single organization."

4. **Workforce Development:** Cultivation of a diverse, highly- skilled workforce through education, training, retention, and workforce development programs that bolster an inclusive innovation ecosystem. Engines should have clear commitments from the Engine partners (ex: an industry-funded training/certification program). Unlike the last solicitation, this iteration calls for workforce development plans around quality, accessible jobs, as outlined by the Department of Labor and Department of Commerce's Good Jobs principles.[3]

5. **Inclusive Engagement:** Proactive strategy and actions to ensure everyone in a region participates in and benefits from Engine activities. This should include deep commitment to building teams, leadership structures, and activities that support the inclusion and advancement of different communities (e.g., difference races, ethnicities, socioeconomic groups, rural partners, and more).

6. **Strategic Regional Investment and Demonstrable Sources of Sustainable Capital:** Plans and activities to garner new investment in the region and direct investment in the Engine's proposed topic area and activities beyond NSF funding. Throughout the life of NSF's investment, the agency will require evidence of new commitments and co-commitments from a diverse range of regional and national co-investors, including but not limited to, "operating and project-specific funds" from government at all levels, philanthropy, private sector, universities, capital markets, and more. There should be plans for attracting additional actionable and timebound commitments and consideration for shared revenue models to complement the proposed strategy.

7. **Governance and Management:** An engaged, inclusive leadership team to set goals and oversee activities that maximize impact for a cross-section of regional stakeholders. This includes the development of policies, practices, and formal agreements (e.g., partnership, data, and intellectual property agreements) to facilitate new partnerships and drive innovation.

Relative emphasis and activities around each area should align with ecosystem needs. For instance, if a region has powerful use-inspired R&D, it should place greater emphasis on capital investment, workforce, community engagement, and other activities. NSF will also require an associated evaluation plan with goals and milestones to be continually assessed throughout the 10-year duration of the Engine.

Eligibility: Proposals may be submitted by U.S. based institutions of higher education (IHEs); non-profits; non-academic, non-profit organizations; and for-profits. Unlike the first solicitation, state and local government and Tribal Nations may also lead proposals. In addition to the organizational types eligible to submit proposals, federally funded research and development centers (FFRDCs) and national

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[3] https://www.dol.gov/general/good-jobs

laboratories can receive subawards. *An entity can only submit one proposal as a lead organization under this solicitation.* However, there are no limits on serving as a subrecipient.

Of note, in this solicitation, NSF makes clear that proposals that may "impact the resources or interests of a federally recognized American Indian or Alaska Native Tribal Nation (Tribal Nation) will not be awarded by NSF without prior written approval from the official(s) designated by the relevant Tribal Nation(s)."

Award Information: All funding is contingent upon appropriations. Each Engine can receive $15 million for a two-year ramp-up period en route to a maximum $160 million investment over 10 years. After the first two years, funding can reach up to $15 million per year in years three through five and up to $20 million per year in years six through ten. The overall number of awards will be determined by the number of high-quality proposals received and available funds.

Any Engine funded beyond the first year will be subject to an annual assessment of performance, which will inform further funding. In addition, NSF will conduct reviews to assess each Engine's tangible accomplishments and future goals, which will involve program directors and a site visit team. A determination that the Engine has failed to perform could result in withholding funding and the potential termination of the award if issues are unable to be resolved.

NSF provides additional details about in-house co-founding opportunities, in which NSF will seek to partner with other interested agencies and organizations. If there is alignment between an Engine proposal and a potential co-funder, NSF could offer Engine leads the opportunity to opt-in to an optional process in which potential partners could have access to the proposal, sit in on NSF's reviews of the proposal, and discuss them with program directors. Once NSF makes funding decisions, relevant partners can choose to co-fund awards submitted for their consideration.

Submission Information: This solicitation calls for brief Letters of Intent (LOIs), rather than the Concept Outline and LOIs called for in the first competition, as well as a short preliminary proposal. LOI information will be posted online to encourage formation of teams within overlapping regions. After review of preliminary proposals, NSF will invite applicants to submit full proposals.

Key Dates: LOIs are due June 18, 2024; preliminary proposals are due August 6, 2024; teams are expected to receive invitations to submit full proposals in mid-October 2024; and full proposals from invited applicants are expected to be due February 11, 2025. The timeline for feedback on preliminary proposals is subject to change. An informational webinar will take place on April 25, 2024 at 2:00 PM EST.

Sources and Additional Information:
- Additional information on this funding opportunity can be found at https://new.nsf.gov/funding/opportunities/nsf-regional-innovation-engines-nsf-engines-0?utm_medium=email&utm_source=govdelivery
- Additional information on the NSF Engines program and previous awardees can be found at https://new.nsf.gov/funding/initiatives/regional-innovation-engines.
- Registration information for the webinar can be found at https://new.nsf.gov/events/webinar-introduction-new-nsf-engines-funding/2024-04-25

- Lewis-Burke's summary of the 2022 NSF Engines competition can be found at https://old.lewis-burke.com/sites/default/files/funding_opportunity-_nsf_releases_solicitation_for_regional_innovation_engines-_may_4_2022_1.pdf.
- A map by Lewis-Burke featuring NSF Engine awards, finalists from the first competition, and Regional Tech Hubs from the Economic Development Administration can be found here: https://old.lewis-burke.com/sites/default/files/map_1_-_tech_hubs_and_engines_winners_and_finalist_with_topics.pdf