THE UNIVERSITY OF NORTH CAROLINA SYSTEM
RESEARCH OPPORTUNITIES INITIATIVE
REQUEST FOR PROPOSALS

February 23, 2018

University of North Carolina System
Chapel Hill, North Carolina

UNC SYSTEM ROI REQUEST FOR PROPOSALS

Introduction

The University of North Carolina System Research Opportunities Initiative (ROI; https://roi.northcarolina.edu/index.html) provides targeted funding for innovative and potentially game-changing research projects. Funded by a recurring annual appropriation from the North Carolina General Assembly, the ROI represents a significant financial investment in the UNC System's strategic goals.

Priority research areas eligible for ROI funding include advanced manufacturing; marine and coastal science; defense, military, and security; pharmacoengineering; energy; and data science. ROI awards demonstrate North Carolina's growing appreciation of the role that university research can play in supporting economic development across our state.

UNC System ROI accepts pre-proposals from any institution (or collection of institutions) in the 17-campus UNC System. Pre-proposals and Invited full proposals will be reviewed externally through a process defined by the UNC System Office and administered by the American Association for the Advancement of Science (AAAS).

Priority Areas for Funding

The UNC System is home to world-class researchers across many fields. The University benefits the state of North Carolina by working in partnership with each other and with businesses, foundations, nonprofits, and others. The research areas identified as strategically important for North Carolina are the following:

Advanced manufacturing

Advanced manufacturing integrates information technology, design methodology, rapid prototyping, automation, computation, software, sensing, networking, and new materials in the production of products as well as the systems that support and enable them. Examples include robotics and other automation; additive and traditional machining; computation; and visualization equipment.

Advanced Manufacturing approaches and techniques can apply to cutting-edge technical fields such as aerospace, nanotechnology, and biopharmaceuticals as well as to traditional industries such as furniture, textiles and motor vehicles, all of which are part of the North Carolina manufacturing economy.

Coastal and marine science

North Carolina has hundreds of miles of ocean beaches, thousands of miles of estuarine coastline, and millions of acres of sounds, creeks, and marshes. As such, coastal and marine-related activities are important to the State's economy, both in traditional sectors (e.g., tourism, fisheries, hazard resilience, and marine heritage), and in emerging areas (e.g., ocean energy and marine biotechnology).

UNC System researchers are leaders in areas such as coastal hazards modeling and protection, marine biotechnology, seafood technology, ocean energy, and others. It is incumbent on UNC institutions to be at the forefront of coastal and marine science research.

Data science

The volume of data available for making decisions has increased dramatically in the recent past, creating a corresponding need to make sense of and take advantage of that vast data to inform decision-making in fields including scientific research, homeland security, defense, energy management, and many more.

Nearly every sector of the U.S. economy struggles with growing data volumes, resulting in "big data" becoming an increasingly important research field. The data management and data analytics sectors are

worth $125 billion and are growing rapidly. Other big data markets include health care genomics, the financial sector, emergency management, climate, and agribusiness. The UNC System has strengths in big data that, if collectively harnessed, can provide national leadership in this important sector.

Defense, military, and security
North Carolina has a robust and growing military community, with the third-largest military population in the United States distributed among six military installations. North Carolina also is home to more than half of all U.S. Special Operations Forces, including three of the five subordinate commands of the U.S. Special Operations Command.

The UNC System has distinct talents and cutting-edge technology that can be coupled with our strong relationships with these operational end users. These relationships, along with having the U.S. Army Research Office located in Research Triangle Park, offer a distinct advantage: face-to-face interactions with military customers, combat developers, and program managers to help us better understand DOD and Homeland Security research & development needs, programs, and processes.

Energy
Energy touches the lives of every North Carolinian every day. Critical activities ranging from transportation to operation of factories and offices to heating and cooling our homes hinge on our ability to produce and consume energy. Recognizing that most sources of easily accessible energy are limited and many are non-renewable, the UNC System must be at the forefront in making discoveries that will fuel our state and the world in the future.

ROI investments will take advantage of the wide array of energy research, development, outreach, and training provided by these and other programs, in collaboration with both private and nonprofit organizations and will yield scientific advances in the field and economic advances for the state.

Pharmacoengineering
Pharmacoengineering is the science behind the development of materials and technologies to improve the delivery of therapeutic and diagnostic agents. Advances in this field can lead to new generations of drugs, drug delivery systems, and novel means to assess drug safety and efficacy through imaging and biosensing.

ROI investment in pharmacoengineering within the UNC System will build on the success of institutions with established joint programs as well as UNC Institutions that have collaborations between colleges, other UNC institutions, private companies and non-profits.

Award Focus and Scope
The UNC System ROI awards are designed to build capacity in research areas that are strategically important to North Carolina. The intent of this funding is not to establish a research program *de novo*; rather it is to provide the needed boost to propel a team to national or international prominence. Successful proposals will fully describe how the research aligns with the ROI priority areas described above and will outline how the research will have positive short-term and long-term impact on the State. Proposals that demonstrate strong commercialization potential and collaboration with other universities and with the private and not-for-profit sectors will be viewed favorably.

Proposers should describe how this ROI funding would make them more competitive for follow-on funding from various funding sources. Facilities and Administrative (F&A) costs are not allowed. Investigators who have submitted proposals in previous rounds may submit *new* proposals in response to this call that offer a significantly new direction from the previous ROI-funded research. Recipients of

past ROI and Institutional Planning Grants are also eligible to apply. Proposers may request from one to three years of funding at a maximum of $700,000/year.

We encourage proposers to carefully consider an appropriate scope for their project given the amount of available yearly funds and goals for the project. In previous rounds of ROI funding, proposals were most successful when they demonstrated how ROI funds would help to position teams for 1) short- and long-term impact on the state (e.g., recruiting top faculty, building specialized instrumentation or research expertise, setting up North Carolina as a hub within a given field), 2) success in obtaining follow-on funding from other agencies, 3) successfully commercializing technologies, and 4) enhancing collaboration with other institutions.

For examples of projects selected in the first round of ROI awards, please visit https://roi.northcarolina.edu/awardees.html.

Guidelines for Proposal Submission
The UNC System ROI accepts pre-proposals from any institution in the 17-campus UNC system. Although inter-institutional collaboration is not a requirement, pre-proposals that significantly involve two or more UNC Institutions are desirable. **The Chief Research Officer of the primary institution must provide a ranking of pre-proposals when submitting multiple pre-proposals from his/her institution. A maximum of four pre-proposals may be submitted per institution. Pre-proposals will be accepted only from the Chief Research Officer**. The period of performance is one to three years. Funding may commence as early as August 1, 2018.

Pre-proposals
Pre-proposals may be reviewed by individuals both inside and outside of the specific discipline(s); therefore, pre-proposals should use language that can be understood by those lacking expertise in the specific research area(s). Pre-proposals must be submitted electronically as a single PDF **by March 23, 2018**.

The application form may be accessed using the URL below:

https://app.smartsheet.com/b/form?EQBCT=4bb808ee1d65461e831f266fc132c923

While more than one institution may be involved, a single institution must be identified as the primary (lead) institution. Please name your file as follows:

Institution_Lead PI Name_RG

(RG = Research Grant).

Example:

Professor Smith from UNC Wilmington submits an ROI research grant. The pdf should be named UNCW_Smith_RG

The pre-proposal must contain the following (minimum 11 point font):

- Front matter (1 page) including the title of the project, a list of 5 key words, principal investigator contact information, other key personnel and their campus affiliations, a 100-word synopsis of the proposed project, total amount requested, and anticipated duration of project.

- Project description (2 pages maximum) that specifically addresses how the proposed activities align with the goals of this RFP (see Proposal Review and Evaluation section). The description should include sufficient detail that reviewers can evaluate the goals and scientific approach of your proposed project.

- Preliminary combined budget and justification, including a brief timeline for usage of funds (1 page). **Facilities and Administrative costs (F&A; also known as indirect costs or overhead) is not allowed**. Cost-matching is not required, but if it is part of the proposed budget it must be included in this document.

Pre-proposals and invited proposals will undergo review based on the criteria outlined in the Proposal Review and Evaluation section.

Full Proposals

Invited full proposals must be submitted electronically **by May 25 2018**. Investigators who are invited to submit a full proposal will be provided with instructions on how to apply online. While more than one institution may be involved, a single institution must be identified as the primary institution. The Chief Research Officer of the primary institution (home campus of the principal investigator) must be the submitter; proposals from other individuals will not be accepted.

Proposals must contain the following (minimum 11 point font):

- Front matter (1 page) including the title of the project, a list of 5 key words, principal investigator contact information, other key personnel and their campus affiliations, a list of any collaborating institutions/entities, synopsis of the proposed project appropriate for general readership (maximum of 200 words), total amount requested, and anticipated duration of project.

- Project description (12 page maximum) that specifically addresses how the proposed activities align with the goals of this RFP (see Proposal Review and Evaluation section). The description should include sufficient detail that reviewers can evaluate the appropriateness and feasibility of the proposed plans. This section must outline a clear set of goals that are aspirational yet attainable, an outline of the plan of work with milestones and a timeline, and a clear set of metrics.

- A sustainability plan (1 page maximum) that describes how the project will be sustained following the ROI funding period.

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- A management plan (1 page maximum) is required. This section describes the roles of the various team members and the plans for how the team will function as a unit. If applicable, provide evidence for prior partnership.

  - A single budget and justification, including projected expenditures by quarter (no page limit). Cost-matching is not required, but if it is part of the proposed budget it must be included in this section. **Facilities and administrative costs (F&A; also known as indirect costs or overhead) are not allowed.** Budget must adhere to the ROI budget template, which is posted on the ROI website https://roi.northcarolina.edu/info.html. Proposers selected for funding will be required to submit an Excel version (rather than pdf) of the final budget document.

- One to two page biosketches of the principal investigator and all key personnel. There is no limit on the number of biosketches.

- Letters of support from key collaborators and/or partnering organizations. There is no restriction on the number of support letters that may be submitted.

While not a requirement, proposals that significantly involve two or more UNC institutions are desirable. The American Association for the Advancement of Science (AAAS) will manage the review of the invited full proposals. Each full proposal will be assigned to three highly qualified third-party reviewers from outside the state of North Carolina, selected based on their expertise in the particular technical area(s) of the proposal. A full list of review criteria is provided in the Proposal Review and Evaluation section.

The period of performance for Research Grants may range from one to three years. Funding may commence as early as August 1, 2018. Annual reports on the activities and progress will be due at the end of each fiscal year, and additional interim reports may be requested on an as-needed basis. Awardees will be expected to respond to occasional ad hoc requests for information as needed.

Timeline

February 23, 2018: Solicitation release
March 2, 2018 at 9:30 am: Q&A teleconference call (to cover this UNC ROI RFP and the UNC Inter-institutional Planning Grant Program; 701-801-1230, access code 600444)
March 23, 2018: Pre-proposals due
April 27, 2018: Pre-proposal decision
May 25, 2018: Proposals due
August 1, 2018: Earliest funding start

Proposal Review and Evaluation
Pre-proposals will be evaluated through an external review process managed by AAAS. Invited full proposals will be evaluated through an external review process also managed by AAAS. The AAAS scoring is as follows:
- Excellent (very impressive proposal; deserves high priority)
- Very Good (high quality proposal; no serious concerns)
- Good (average proposal; some doubts or concerns)
- Fair (some deficiencies; needs improvement to meet the objectives of the UNC ROI)
- Poor (serious concerns or some conceptual flaws)

ROI Research Grants are awards to support research projects. Investigators who intend to create a new center or research consortium are encouraged to apply for a UNC System Inter-institutional Planning

Grant (separate RFP). Centers and consortia will be considered as candidates for ROI grants, but any research projects subject to ROI funding must be specifically described in the proposal (i.e., proposals that request funds to be distributed to unnamed investigators/projects will not be considered). Proposals may request from one to three years of funding at a maximum of $700,000/year.

Proposed activities may include, but are not limited to the following:

- Shared equipment, core facilities, and lease/upfit of research space (labs, shops, studios). (Funds are not to be used for capital expenditures.)
- Student (graduate and undergraduate) and postdoctoral support (tuition is unallowable)
- Support for faculty (e.g., startup packages or release time; ROI funds cannot be used to support faculty beyond the defined funding period)
- Workshops/conferences on emerging multidisciplinary research areas or seminar series to promote networking for innovative project formation (food for meetings and conferences is unallowable)
- Pilot or feasibility studies; proof-of concept funding for early data collection
- Domestic Travel
- Identification and recruitment of partners (industrial, academic, not-for-profit, or government)
- Creation and support of resources such as websites, research collaboration sites, or other social networking tools to facilitate large scale research projects

Pre-proposal criteria:

- Project fit and feasibility
  - Does the project target one or more of the six priority areas?
  - Is project completion feasible based on the proposed timeline and budget?
- Intellectual merit
  - Will the project significantly advance knowledge or understanding in the discipline or across disciplines?
  - Is the scientific approach sound?
  - Does the scientific approach capitalize upon or build on existing expertise and strength?
- Broader Impact
  - What is the potential for major follow on funding from federal agencies, industry, or non-profits? (e.g. large-scale federal funding such as STC or MRSEC grants)

Full proposal criteria:

- Intellectual merit
  - Importance of the project to advancing knowledge or understanding in its own discipline or in other disciplines
  - Originality of the proposed project. Does the project have the potential to change a paradigm in the discipline or open up new and unexpected channels of collaboration?
  - Qualifications of the principal investigator and team to carry out the project, including strength of the Management Plan.
  - Is the scientific approach sound?

- Project fit and feasibility
  - Clear targeting of one or more of the six priority areas
  - Clear description and feasibility of the milestones, metrics and anticipated project deliverables
  - Reasonableness of the budget
  - Realistic nature of the long-term sustainability plan

- Broader Impact
  - The potential that the project will result in major research funding from federal agencies, industry, or non-profits. Special consideration will be given to proposals that position NC to be competitive for large-scale federal funding such as STC or MRSEC grants.
  - The extent to which the project builds on existing expertise and strengths
  - Potential for commercialization via patents, licensing, spin-offs, and/or investment from the private sector
  - Short-term (~1 year) and long-term impact on North Carolina

Inquiries

Questions regarding this solicitation may be directed to:

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