Zimin Institute for Smart & Sustainable Cities
Request for Proposals 2021

Introduction & Background

The *Zimin Institute for Smart & Sustainable Cities* (the 'Institute') at Arizona State University (ASU) is seeking proposals for research and development aimed at rapidly advancing innovative solutions toward practical realization and societal impact in the four priority areas aligned with its Vision and Mission.

Institute VISION

The Zimin Institute for Smart & Sustainable Cities is driving a people-centric vision of future cities. We are creating a world where the rich functionality and power of advanced technologies are seamlessly integrated with the physical spaces where people live, work, learn and play to make them safer and more secure, healthier, more sustainable and resilient, and more personally enriching.

Institute MISSION

The Institute will realize the Vision by initiating, catalyzing, connecting, supporting, leveraging, and growing the smart cities and regions ecosystem. Specifically, we will:

- **Identify** the needs, challenges, and problems in the people-centric Smart Cities and Regions application space and thus effectively target promising, transformative technology designs and solutions
- **Connect** researchers across disparate disciplines and application spaces to catalyze new synergistic collaborations within the academy and beyond, including industry, government, and communities
- **Fund** critical-stage, cutting edge research to break barriers and advance nascent technology solutions
- **Leverage** ASU / local testbeds and innovative regional initiatives, collaboratives, and funding streams
- **Grow** the Smart Cities entrepreneurial ecosystem: *venture funding* → *startups* → *new revolutionary products*
- **Engage** the community and stakeholders to ensure that new integrated solutions realize and deliver genuine and profound social and public value.

The Institute's **Priority Themes** are:

1. Daily Life & Human Connection / Interaction / Engagement
2. Sustainable and Healthy Environments & Spaces
3. Inherent Security, Safety & Public Well-being
4. Infrastructure Surety, Resilience, and Integrated Functionality

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Funding Intent & Project Types

Funding from the Institute is intended to speed technology development and catalyze a path to practical realization and positive societal impact within communities. Although all proposed projects should be use-inspired and application-driven, they may fall anywhere along the early-stage, mid-stage, or later-stage innovation value chain. In this context, compelling new concepts and ideas are sought for which conventional federal, state, or industry funding may be inherently difficult to secure.

Projects may be of one of the following four types:

- *Visioning & Ideation Projects* where stakeholders are directly engaged to identify and prioritize their perceived needs and desires, envision compelling candidate solutions and anticipate both positive and negative impacts, as well as imagine unintended consequences of these innovations.

- *Proof-of-Concept Projects* where novel and high-risk ideas are explored, and innovative concepts are tested and proven in a laboratory environment.

- *Technology Demonstrator Development Projects* where proofs-of-concept are advanced to the creation of physical prototypes that could be tested in a controlled-laboratory or a field test environment. This Technology Demonstrator could represent the forerunner of a Minimum Viable Product (MVP) in the commercial arena.

- *Field Test Projects* where Technology Demonstrators or prototypes are evaluated in a simulated or an actual field environment.

In this we will give priority to Themes 3 & 4 along with the "Healthy" dimension of Theme 2, although we will consider compelling proposals in any category, and especially ideas that cut across the themes. We anticipate funding 3-5 projects with awards ranging from $50K to $150K. Projects should be proposed for a one-year duration. Regardless of the project type, the offerers' should outline critical elements of follow-on projects for potential funding by other sources, and in exceptional cases, by the Institute. Testing and demonstration should ideally be oriented not just around the technical specifications of the underlying technology solutions but also the pursuit of positive societal impact.

Funding Priorities and Characteristics of Competitive Proposals

. Competitive proposals will have the following inherent strengths and characteristics:

- ✓ Tight alignment with the RFP articulated focus theme(s)
- ✓ High promise for transformative impact on city inhabitants' quality of life (healthy, meaningful, joyful, rewarding)
- ✓ Well-defined and innovative approaches and methods that embody use-inspired R&D of the highest quality
- ✓ Explicit cross- or trans-disciplinary approach and team, with appropriate inclusion of the social sciences, design and other relevant expertise to ensure solutions are explored and developed in a comprehensive societal context
- ✓ Identified paths for follow-on funding and transition to real-world application in a time horizon of 3-5 years or less

✓ Funding level request and budget that is consistent with scope, scale, tasks, and deliverables

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Proposal Format & Content

Format: 8.5 x 11 in with 1-inch margins. Single-spaced with Times New Roman 12 pt *or* Arial 11 pt font.

NABC Narrative: (5 pages maximum in length)

Your proposal narrative should be wholly-focused on four fundamental elements of your Value Proposition. Clearly and convincingly describe an important stakeholder, market or client **Need** that you will address by a unique **Approach,** and that will provide compelling and potentially game-changing **Benefits** when compared against the **Competition** and/or existing alternatives.

The first page should of the narrative should start with the below header shown at the top of the next page.

Project Title
Project Director and team members with affiliations
Project Type
Theme

- **Need:** What important stakeholders'/customers'/communities' unmet needs or aspirations are you going to address? What are their "pain points"? What is the potential size or impact of this Smart Cities & Regions opportunity? (Note that the potential impact should be large enough to merit the necessary investment and development time.) Motivate the urgency and timeliness of your project by providing "key insights": what are the reasons that this need has not been previously addressed, and why is it now possible?

- **Approach:** What is your compelling solution to the specific need? Bring-it-to-life: provide a sketch, mockup, or story-board to help convey your vision. Be quantitative: how great of an improvement over the current state will your solution provide? Paradigm-shifting approaches should see at least a 10x improvement. How are your Project Leader and your team uniquely qualified to successfully execute the proposed work? Describe your R&D plan with milestones and critical resources required. For multi-phase, multi-year Projects, briefly describe your follow-on path. Note we expect that practical realization and deployment of your proposed solution could be achieved in a 3-5 year time frame.

- **Benefits:** What are the principal benefits of your approach? Although the full suite of benefits can include intangible and unquantifiable dimensions, inarguable success requires that the benefits be quantitative and substantially better - not just different.

- **Competition/alternatives:** Clearly articulate the competition and alternatives. Why are your envisioned benefits <u>significantly better</u> than the competing alternatives, both existing or proposed? We must be able to tell our sponsor and the community at large why your solution represents the best value. Your answer should be short and memorable, so be sure to identify

any competitive advantage "golden nuggets."

Literature citations and references (does not count against Narrative page limitation)

Budget Section

- **Allowable Cost Categories**

  Costs can be requested for all necessary and typically-allowed sponsored program categories, including salary support for faculty, students, post-docs, technicians, core facility user fees, and supplies, as well as for travel that provides direct value to the project.

  Salaries should include appropriate ERE.

  Apply 6% F&A on the Total Direct Costs (TDC).

  Subcontracts for external partners that are integral to project execution are allowed.

- **Budget Justification** (2 pages maximum)

NABC Quad Chart (template available in the InfoReady portal) that mirrors and highlights critical elements of the Narrative

2021 Timeline and Two-stage Selection Process

Dec 15   RFP released

Jan 13   Proposer's Meeting from 12:00p – 1:30p.
- Zoom link: https://asu.zoom.us/j/85901391538
- Zoom meeting ID: 859 0139 1538

March 5th   Proposals are due by 5:00 PM MST via electronic submission through InfoReady at https://asu.infoready4.com/#competitionDetail/1831045. Include both your integrated proposal document (pdf or Word) and your quad chart (ppt).

March 26   Finalists notified, with direct constructive feedback provided to the offerors from the Institute's Technical Advisory Board (TAB) and Director

March 30-31   Finalists present to the TAB and Director

April 9   Funding recommendations made to Institute's Executive Advisory Board (EAB) for final action

April 23   Award decisions announced

Reporting Requirements

Formally, Grantees will be required to participate in three half-day review meetings per year (summer, fall, and spring; the spring meeting will serve as the Annual Review) in which they will report on project progress and immediate and longer-term plans, including any shifts in approach or direction. Meetings will be conducted in an open NSF-IUCRC style and format, with the audience to include the TAB and interested parties from both within and outside ASU.

A brief written annual report will also be required.

Grantees should also expect fairly regular informal communications with the Institute Director

and/or Project Manager.

We also expect to invite grantees to present at a bi-annual conference in a session focused on the Institute's projects and achievements.

Additional Notes

- Awardees will be asked to provide a percentage of effort for each of the project participants for purposes of awards and expenditures REC (recognition) reporting.

- Because Foundation sourced-funds do not carry full F&A, IIA and RID will not be provided.
- Individuals may participate in more than one proposal, but may serve as PI or Project Director on only one proposal per funding round.

Points of Contact

- Administrative: Lisa Irimata, Insititute Project Manager   lisa.irimata@asu.edu

- Technical: Gregory Raupp, Institute Director   raupp@asu.edu