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**PREPARATION INSTRUCTIONS AND EVALUATION CRITERIA FOR NLRA 2024-9 STEP 1B: TECHNOLOGY ROADMAP**

**Format**

* Technology Roadmaps will be submitted electronically using the online submission portal. A link to the portal is provided on the research announcement webpage accessible to those invited to apply. Offerors must complete all sections of the online submission form and attach the necessary documents.
* The document submission must consist of two parts: a supporting narrative document and a timeline in Gantt chart form.
* The Technology Roadmap narrative must be a single, unencrypted Word document or PDF using at least 12-point font, one-inch margins, and standard letter-sized pages (8 ½ by 11 inches). The response should not exceed five pages (excluding the Gantt chart and budget table).
* The example header and budget table found on page 3 must be at the top of the narrative document. The budget table should be referenced by a figure number chosen by the applicant.
* The Gantt chart should be a separate document and can be submitted in Word, Excel, PDF, or image formats (.jpeg/.png).

**Content**

* Timeline: A Gantt chart must be provided, outlining the start and end dates for each phase, with task-oriented milestones and interdependencies clearly identified. It is recommended to align corresponding budget values with the milestones.
* Supporting narrative must include the below sections:
  + **Abbreviated Abstract** – A short form, or synopsis, describing the problem you are

investigating, why this problem is significant, the hypothesis to be tested, and a

summary of the experiment(s) that you wish to conduct.

* + **Objectives and Impact**: Provide targeted research and business objectives by phase and describe the scientific and economic impact by phase.
  + **Success Criteria**: Provide quantifiable criteria that define readiness to advance to

each successive milestone and/or phase. A competitive roadmap will identify

secondary success criteria to support the overall primary success criteria.

* + **Budget Table and Narrative**: Fill in and insert the example budget table provided at the end of this document into your submission. Use a narrative section to explain major cost elements and funding sources (overall and by phase) in detail as applicable. A competitive narrative will outline costs and sources by phase, as well as by milestone and required resources to complete the same. Matching funds should also be identified.
  + **Assumptions**: Include any underlying assumptions that drive the plan for each phase. Outline the
  + **Beginning and Ending TRL with justification**: Include the beginning and ending technology readiness levels (TRL) by phase. Reference points on the timeline where TRL levels are estimated to change. Justifications should be made when TRL levels increase by 2 or more levels.
  + **Risks**: Provide a list of risks, including probability and impact levels, that covers

cost, schedule, technical, and economic risks. Include mitigation strategies for all

risks with medium and high probability or impact by phase.

**Down-Select Criteria for Step 1B: Technology Roadmap**

* The research objectives are achievable within the allotted time, using the defined technical approach and within the available budget.
* Preliminary data or literature demonstrates the project’s viability or provides reasonable proof of concept.
* Demonstrate availability of organizational, business, and financial resources that would make achievement of the proposed business objectives highly likely.
* The underlying assumptions address the needs of the project, are realistic, and are supported by economic data from market analyses coupled with technical data supporting the elevation of TRL or science outcomes from prior space research.
* Sufficient detail on the complexities of the project is provided to reasonably assess and determine alignment between the technical approach and the estimated cost and schedule.
* Sufficient budget information is provided to verify that the offeror’s organization has or will have sufficient resources available to provide matching funding for the project.
* The risk analysis (for cost, schedule, and technical risks) is sufficiently detailed and includes:
  + A strong understanding of prior research.
  + Relevant expertise and experience of the research team.
  + Risk mitigation through ground testing and/or iterative flights.
* The economic risk analysis is based on specific documentation that demonstrates:
  + A strong understanding of potential customer needs, the market and industry, and the competitive environment.
  + Relevant business and operational execution experience.
  + The offeror’s organizational and financial resources, external commitments, and ability to secure additional funding.
* The roadmap includes a detailed time-phased Gannt chart and:
  + Addresses the research objectives for each project phase.
  + Identifies relevant, progressive milestones for each phase.
  + Contains sufficient slack to accommodate anticipated risks.
  + Defines quantifiable success criteria that validate readiness to move forward for each phase.
  + Includes alternative paths, if applicable, that account for unfulfilled assumptions or unmitigated risks.

**Example narrative submission header**

The following information is the minimum required at the top of the narrative:

|  |  |
| --- | --- |
| **Project Name:** | |
| **Implementation Partner:** | **Submission Date:** |
| **Principal Investigator (PI):** | **Email:** |

**Example Budget Table**

The budget table below provides the minimum required information. Please note that total project costs and total project funds should match. The table includes sum functions for the total costs/funds lines and the line total column. Additional rows may be added to detail specific costs, funding sources, or matching funds.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Line Item | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Line Project totals |
| Project Costs | $500,000 | $100,000 | $100,000 | $50,000 | **$750,000.00** |
| Implementation  Partner Costs | $500,000 | $250,000 | $75,000 | $20,000 | **$845,000.00** |
| Total Project Costs | $1,000,000.00 | $350,000.00 | $175,000.00 | $70,000.00 | **$1,595,000.00** |
| Funds from the PI’s  Organization | $200,000 | $50,000 | $50,000 | $25,000 | **$325,000.00** |
| Funds from  Other Sources | $300,000 | $50,000 | $50,000 | $25,000 | **$425,000.00** |
| Funds Requested  from ISSNL\* | $500,000 | $250,000 | $75,000 | $20,000 | **$845,000.00** |
| Total Project Funds | $1,000,000.00 | $350,000.00 | $175,000.00 | $70,000.00 | **$1,595,000.00** |

Source: Example data for illustrative purposes only. The budget should include a minimum of 2 phases and a maximum of 5.

\* The “Funds requested from ISSNL” cells refer to the portion of the total project costs requested to be funded by ISSNL