

**NOTICE OF FUNDING OPPORTUNITY**  
Public Wireless Supply Chain Innovation Fund (PWSCIF) Grant Program  
NOFO 3 – Software Solutions for Industry Verticals and Integration Automation

**EXECUTIVE SUMMARY**

**A. Federal Agency Name**

National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce

**B. Funding Opportunity Title**

Public Wireless Supply Chain Innovation Fund Grant Program - Software Solutions for Industry Verticals and Integration Automation

**C. Announcement Type**

Amended

**D. Funding Opportunity Number**

NTIA-PWSCIF-24-02

**E. Assistance Listing (CFDA Number)**

11.038 – Public Wireless Supply Chain Innovation Fund

**F. Key Dates**

Complete applications must be submitted through Grants.gov no later than 11:59 p.m. Eastern Time on April 16, 2025.

NTIA expects to make awards on a rolling basis.

**G. Application Submission Address**

Complete application packages must be submitted electronically through the Grants.gov website. Application packages or portions thereof submitted through postal mail, courier, email, facsimile, or other means will not be accepted. See [Section 4](#) of this NOFO for detailed information concerning application submission requirements.

**H. Funding Opportunity Description**

This NOFO is the third in a series that NTIA will issue and administer under the Public Wireless Supply Chain Innovation Fund (Innovation Fund). This NOFO is

divided into two topic areas: Industry Vertical Solutions and Integration Automation Solutions. Throughout this document, Industry Vertical Solutions is referred to as “specific research focus area 1” (SRFA 1) and Integration Automation Solutions is referred to as “specific research focus area 2” (SRFA 2). A brief description of each SRFA follows:

- SRFA 1 (Industry Vertical Solutions): Develop software solutions that leverage data made available through Open RAN interfaces and/or capitalize on Open RAN-specific innovations, such as the RAN Intelligent Controller (RIC), to generate energy efficiencies, cost savings, productivity gains, or other value for industry verticals (e.g., utilities, mining, manufacturing, unmanned aviation).
- SRFA 2 (Integration Automation Solutions): Develop software solutions that reduce the cost and complexity of multi-vendor integration through automation.

A single application may only address one (1) SRFA. If an entity wishes to apply for funding under both SRFAs, separate applications must be submitted. Each application, however, may only contain one (1) project. Applicants may submit a maximum of three (3) applications under SRFA 1 and one (1) application under SRFA 2.

## **I. Funding Instrument**

Grant

## **J. Eligibility**

Eligibility varies for each SRFA. SRFA 1 eligibility is found in [Section 2.2.1](#) and SRFA 2 eligibility is found in [Section 3.2.1](#).

Additional eligibility requirements applicable to both SRFAs can be found in [Section 6.1](#).

## **K. Anticipated Amounts**

NTIA will award up to \$450,000,000 under this NOFO. The amount of funding NTIA expects to award per project differs by SRFA, as follows:

- SRFA 1: NTIA expects to award \$24,000,000-\$50,000,000 per project.
- SRFA 2: NTIA expects to award \$9,000,000-\$18,000,000 per project.

## **L. Cost Sharing/Matching**

There is a 30% minimum cost share requirement for SRFA 1 (Industry Verticals Solutions). See [Section 2.2.3](#) of this NOFO for more information on SRFA 1 cost share. There is a 20%

minimum cost share requirement for SRFA 2 (Integration Automation Solutions). See [Section 3.2.3](#) of this NOFO for more information on SRFA 2 cost share.

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## **Section 1 – Overview**

The National Telecommunications and Information Administration (NTIA) issues this Notice of Funding Opportunity (NOFO) to describe the requirements under which it will continue awarding grants in connection with the Public Wireless Supply Chain Innovation Fund (Innovation Fund).

### **1.1. Program Authority**

The Innovation Fund is authorized by Section 9202(a)(1) of the *William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021*, Pub. L. No. 116-283, 134 Stat. 3388 (Jan. 1, 2021) (*FY21 NDAA*), codified at 47 U.S.C. § 906(a)(1).

The Innovation Fund is appropriated by Div. A, Section 106 of the *CHIPS and Science Act of 2022*, Pub. L. No. 117-167, 136 Stat. 1392 (Aug. 9, 2022).

### **1.2. Program Overview**

The Innovation Fund aims to foster competition and innovation across the global telecommunications ecosystem, lower costs for consumers and network operators, and strengthen the 5G and successor wireless technology supply chains. The program’s objectives include unlocking opportunities for innovative companies, particularly small and medium enterprises, to compete in a market historically dominated by a few suppliers, some of which present a high security risk.

Open and interoperable wireless networks offer numerous benefits over traditional, closed networks and will lower the barriers of entry for new and emerging companies. Using open and interoperable wireless networks allows operators to procure the best solutions for their specific needs by mixing and matching network components, rather than procuring proprietary end-to-end solutions from a single supplier. Open and interoperable networks may also reduce costs for consumers and network operators by increasing competition between 5G and successor radio access network (RAN) suppliers, leading to rapid innovation and/or the potential lowering of capital expenditures and operating expenses. This increased competition will also drive innovation, leading to the development of new and improved RAN features. Ultimately, the increase in competition spurred by the shift to open networks will bolster resilience in the global telecommunications equipment market and enhance 5G and successor wireless technology supply chain security.

Pursuant to the *FY21 NDAA*, the Innovation Fund facilitates the adoption of open and interoperable wireless networks through the following statutory objectives:<sup>1</sup>

- i. Promoting and deploying technology, including software, hardware, and microprocessing technology, that will enhance competitiveness in the 5G and successor wireless

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<sup>1</sup> This list of statutory objectives has been abridged for clarity. The verbatim list of statutory objectives can be found at 47 U.S.C. § 906(a)(1)(C).

- technology supply chains that use open and interoperable interface radio access networks (RAN).
- ii. Accelerating commercial deployments of open interface, standards-based compatible, interoperable equipment.
  - iii. Promoting and deploying compatibility of new 5G equipment with future open standards-based, interoperable equipment.
  - iv. Managing integration of multi-vendor network environments.
  - v. Identifying objective criteria to define equipment as compliant with open standards for multi-vendor network equipment interoperability.
  - vi. Promoting and deploying security features enhancing the integrity and availability of equipment in multi-vendor networks.
  - vii. Promoting and deploying network function virtualization to facilitate multi-vendor interoperability and a more diverse vendor market.

The *CHIPS and Science Act of 2022* provided critical appropriations for the Innovation Fund, investing \$1.5 billion in the program.

The Innovation Fund’s first NOFO laid a foundation for the program by investing in testing and evaluation labs to expand access to Open RAN testing for new and emerging vendors.<sup>2</sup> These activities are providing testing facilities for future NOFO awardees and fostering a robust Open RAN testing ecosystem, building confidence in the viability of Open RAN solutions and thus furthering its deployment.

The program’s second NOFO invested in the commercialization and innovation of open radio units (RUs), the key hardware component for Open RAN.<sup>3</sup> Through these awards, NTIA aims to close the gap between open and traditional RUs in terms of cost, performance, and features, while promoting open RU competitiveness in later 5G and future 6G networks. Advancing the capabilities and cost-effectiveness of open RUs will help drive Mobile Network Operator (MNO) adoption of open RUs in upcoming equipment buying cycles.

Building upon these first two funding opportunities, NTIA’s third NOFO will invest in software solutions to further drive Open RAN adoption. Software design is a specific strength of U.S. innovation, and NTIA hopes that this software-centric NOFO will elicit broad interest from the tech community. Through these awards, NTIA aims to identify and validate new Open RAN-enabled revenue streams, while reducing the cost and complexity of multi-vendor integration. These efforts will help expand market opportunities for suppliers and operators, in turn facilitating Open RAN adoption in upcoming equipment buying cycles and beyond. As such, this NOFO marks a key step in advancing the adoption of open and interoperable wireless networks in line with Innovation Fund program goals, as detailed in the *FY21 NDAA*.

### **1.3. Funding Opportunity Overview**

NTIA will support two (2) specific research focus areas (SRFAs) under this NOFO:

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<sup>2</sup> See NTIA, Notice of Funding Opportunity, “[Research and Development, Testing and Evaluation](#)”

<sup>3</sup> See NTIA, Notice of Funding Opportunity, “[Open Radio Commercialization and Innovation](#)”

- **SRFA 1 (Industry Verticals Solutions):** Develop software solutions that leverage data made available through Open RAN interfaces and/or that capitalize on Open RAN-specific innovations, such as the RAN Intelligent Controller (RIC), to generate energy efficiencies, cost savings, productivity gains, or other value for industry verticals (e.g., utilities, mining, manufacturing, unmanned aviation).
- **SRFA 2 (Integration Automation Solutions):** Develop software solutions that reduce the cost and complexity of multi-vendor integration through automation.

These activities aim to address the complex technical and market challenges hindering Open RAN adoption to better facilitate commercialization. Like NTIA's first and second funding opportunities, this NOFO is responsive to feedback received during NTIA's listening sessions<sup>4</sup> and the Request for Comment (RFC)<sup>5</sup> period and is informed by ongoing market analysis. NTIA plans to publish an additional NOFO that builds upon this work, as well as insights from future engagement sessions and NTIA's forthcoming Innovation Fund Federal Advisory Committee.<sup>6</sup>

### 1.3.1. NOFO Structure

This NOFO is organized as follows:

**Section 1 (Overview)** provides an overview of the Innovation Fund and the focus of this NOFO: Industry Verticals Solutions and Integration Automation Solutions. It then provides background information as to how this NOFO meets the statutory objectives of the Innovation Fund.

**Section 2 (Specific Research Focus Area 1 – Industry Verticals Solutions)** provides the objectives and SRFA-specific requirements for SRFA 1.

**Section 3 (Specific Research Focus Area 2 – Integration Automation Solutions)** provides the objectives and SRFA-specific requirements for SRFA 2.

**Section 4 (Application and Submission Information)** explains the application submission process that all applicants must follow and information that all applicants must provide in their application package, *regardless of SRFA*. This includes application format, instructions for electronic filing, revision process, and other submission requirements.

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<sup>4</sup>See video recordings of NTIA's first and second listening sessions are available on the [NTIA.Gov YouTube channel](#).

<sup>5</sup>See 87 Fed. Reg. 76182, [Public Wireless Supply Chain Innovation Fund Implementation Notice and Request for Comment \(December 13, 2022\)](#); RFC responses are available on the [NTIA website](#).

<sup>6</sup>See 47 U.S.C. § 906(a)(1)(F). NTIA is required to establish a federal advisory committee to help inform (i) the strategic direction of the Innovation Fund, and (ii) efforts of the Federal Government to promote a more secure, diverse, sustainable, and competitive supply chain. Creation of the advisory committee is forthcoming as of the publication date of this NOFO.

**Section 5 (Review Process)** explains each step of application review: Initial, Merit, Programmatic, and Selecting Official Approval. It also includes projected dates for awards and information on the applicant notification process.

**Section 6 (General Requirements, Prohibitions, and Other Information)** offers information related to ineligible entities, allowable costs, intellectual property, awarding agency contact information, and other information. **NOTE:** *The requirements and prohibitions in this section apply to ALL submitted applications, regardless of SRFA.*

### 1.3.2. NOFO Background

This NOFO builds upon the previous two funding opportunities by investing in software solutions that leverage the unique programmable nature of Open RAN architecture to support the long-term business case for Open RAN suppliers and operators. SRFA 1 solutions will advance new market use cases for end-user deployment, while SRFA 2 solutions will reduce the cost and complexity of multi-vendor component integration.

#### **Specific Research Focus Area 1 – Industry Vertical Solutions**

Currently, operators face growing network demands, intense capital expenditure (CAPEX) pressure, and flat-to-decreasing revenues. As a result, many operators are hesitant to invest in new technology, such as Open RAN, without a clear path to revenue generation and cost savings (e.g., lower operating costs and efficiency gains). Networks generate valuable data that could potentially be monetized in different capacities. In a full-stack, closed architecture, this data is typically controlled by the RAN vendors and is not directly accessible to operators or third parties. Open RAN, on the other hand, has unique features (e.g., RAN Intelligent Controller, O1 interface, E2 interface, Service Management and Orchestration) that provide higher visibility into and control of the network and its associated network data.<sup>7</sup>

Access to this data can allow network operators and third parties to build software solutions for industry verticals more efficiently with Open RAN than with full-stack, closed architectures. For example, a third-party software developer could more efficiently build a solution that leverages network data to improve a retail company's inventory management. The majority of speakers at the Innovation Fund's second listening session voiced a need for enterprise solutions to grow the Open RAN market. SRFA 1 aims to address this need.

In SRFA 1, NTIA will fund solutions that utilize Open RAN's unique features to provide value, such as productivity gains and cost reductions, to industry verticals. In other words, SRFA 1 will support solutions that commercialize data or other network features made accessible through Open RAN interfaces. For example, a successful application might propose a solution similar to the following:

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<sup>7</sup> See O-RAN Alliance architecture specifications at <https://www.o-ran.org/specifications> for complete definitions of RAN Intelligent Controller (RIC), O1 interface, E2 interface, and Service Management and Orchestration (SMO).

- A utility solution that uses real-time network data collected via sensors to allocate resources to high priority traffic during emergencies.
- A connected smart agriculture solution that uses network data, user equipment, and specialized monitoring devices, such as Unmanned Aircraft System (UAS), to monitor crop yields.
- A telecom solution that leverages network data and Artificial Intelligence (AI) capabilities via the RAN Intelligent Controller (RIC) and xApps (near real-time)/rApps (non-real-time) to optimize network operations, leading to improved performance and lower costs.

To successfully develop and pilot a solution for an industry vertical, a project must fulfill three different functions.

- 1) First, the project must include the design and integration of a software solution across a network, leveraging Open RAN components to access new or previously untapped sources of data or unique Open RAN innovations, such as the RIC.
- 2) Second, the project must include vertical-specific expertise and requirements related to the use case the solution will address, ensuring the solution meets the business needs of a potential customer.
- 3) Third, there must be a network available for deploying the solution during the pilot phase, with the potential for expansion into additional networks after the period of performance.

SRFA 1 requires an applicant to partner with one or more entities to ensure all three of these functions are fulfilled. For example, a system integrator serving as the applicant could partner with a utility company for vertical-specific expertise and a carrier for network deployment and integration. The system integrator could also partner with a utility and a private network operator, or with a utility that operates its own private network using Citizens Broadband Radio Service (CBRS) spectrum. Collaboration across the value chain is critical to expanding market opportunities for Open RAN suppliers and operators.

A successful SRFA 1 project will accomplish the following goals:

- 1) Develop and integrate a solution that utilizes data or other network features made available by Open RAN components to provide value to an end-customer in a vertical industry; and
- 2) Conduct a pilot in a field environment on a network utilizing Open RAN to demonstrate the solution's technical and market viability, ensuring it effectively addresses the target vertical use case.

### **Specific Research Focus Area 2 – Integration Automation Solutions**

SRFA 2 seeks to fund solutions that significantly reduce the cost and time required to integrate multi-vendor networks. While open and interoperable networks allow operators to procure the best solutions for their specific needs by mixing and matching network components, incorporating multiple vendors adds complexity to network integration and life cycle management. This complexity typically increases the cost of integration relative to full stack architectures and complicates RAN component performance monitoring. Industry stakeholders have highlighted a need for multi-vendor solutions to address this challenge.<sup>8</sup> SRFA 2 aims to develop such solutions.

NTIA will invest in solutions that reduce the cost and complexity of initial multi-vendor network integration and life cycle management by automating processes currently requiring manual input. With automation, operators can set up, interconnect, test, and operate most parts of the network without the need to manually code and configure each component. Automation will help enable rapid, cost-effective Open RAN integration, making adoption more attractive and speeding Open RAN product integration into new and existing networks. Ultimately, through these grants, NTIA aims to accelerate the adoption of open and interoperable networks and increase supply chain diversity in line with the Innovation Fund's statutory objectives.<sup>9</sup> To ensure SRFA 2 solutions are truly capable of multi-vendor integration, applicants are required to partner with at least (3) three different Open RAN vendors.<sup>10</sup>

A successful SRFA 2 project will accomplish the following goals:

1. Develop a solution that automates the process of integrating network elements from multiple vendors, such that the need for manual input is reduced or eliminated; and
2. Test the solution in a lab and/or field environment to demonstrate the technical and market viability of the solution, *i.e.*, that it successfully reduces the cost and complexity of multi-vendor integration.

### **Alignment with Statutory Objectives**

Developing multi-vendor solutions for industry vertical solutions (SRFA 1) and integration automation solutions (SRFA 2) will help achieve the following statutory objectives of the Innovation Fund:

- i. Enhance Supply Chain Competitiveness:** Successful SRFA 1 and SRFA 2 projects will enhance competitiveness in the 5G and successor wireless

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<sup>8</sup> Seventy-six percent (76%) of RFC respondents who directly addressed integration cited the need for investment in multi-vendor solutions.

<sup>9</sup> See 47 U.S.C. § 906 statutory objectives (ii) and (iv): (ii) Accelerating commercial deployments of open interface standards-based compatible, interoperable equipment, such as equipment developed pursuant to the standards set forth by organizations such as the O-RAN Alliance, the Telecom Infra Project, 3GPP, the Open-RAN Software Community, or any successor organizations; (iv) Managing integration of multi-vendor network environments.

<sup>10</sup> Typically, two vendors interoperate, with a main supplier and a backup supplier providing specific components. However, a three-vendor minimum facilitates true interoperability, as it requires a network to shift its current operating model to be more open to other vendors.

technology supply chains by driving demand for Open RAN and reducing the cost of integration.<sup>11</sup>

- ii. **Accelerate Commercial Deployments:** Successful SRFA 1 and SRFA 2 projects will accelerate commercial deployments of open interface, standards-based compatible, interoperable equipment by driving demand for this equipment and making integration easier and less costly. Moreover, requiring SRFA 1 and SRFA 2 applicants to demonstrate a commercialization plan for their solutions establishes a more efficient path to mass deployment.<sup>12</sup>
- iii. **Promote Forward Compatibility of Equipment:** Solutions (and associated subsystems) developed under this NOFO must employ unique attributes of Open RAN architecture (i.e., open interfaces).<sup>13</sup>
- iv. **Manage Network Integration:** Successful SRFA 2 (Integration Automation Solutions) projects will reduce the cost and complexity of multi-vendor integration.<sup>14</sup>
- v. **Standards Compliance:** The minimal network configurations to support solutions developed under this NOFO must be compliant with 3GPP and O-RAN Alliance specifications.<sup>15</sup>
- vi. **Enhance Security:** Given the impact on future critical infrastructure information technology (IT) and operational technology (OT), all SRFA 1 and SRFA 2 recipients and sub-recipients must integrate cybersecurity into the design, development, operation, and maintenance of solutions (security by design), consistent with best practices and standards.<sup>16</sup>
- vii. **Promote Network Virtualization:** Open RAN virtualization allows for greater flexibility in the development of software solutions.<sup>17</sup>

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<sup>11</sup> See 47 U.S.C. § 906 statutory objective (i): (i) Promoting and deploying technology, including software, hardware, and microprocessing technology, that will enhance competitiveness in the fifth-generation (commonly known as “5G”) and successor wireless technology supply chains that use open and interoperable interface radio access networks.

<sup>12</sup> See 47 U.S.C. § 906 statutory objective (ii): (ii) Accelerating commercial deployments of open interface standards-based compatible, interoperable equipment, such as equipment developed pursuant to the standards set forth by organizations such as the O-RAN Alliance, the Telecom Infra Project, 3GPP, the Open-RAN Software Community, or any successor organizations.

<sup>13</sup> See 47 U.S.C. § 906 statutory objective (iii): (iii) Promoting and deploying compatibility of new 5G equipment with future open standards-based, interoperable equipment.

<sup>14</sup> See 47 U.S.C. § 906 statutory objective (iv): (iv) Managing integration of multi-vendor network environments.

<sup>15</sup> See 47 U.S.C. § 906 statutory objective (v): (v) Identifying objective criteria to define equipment as compliant with open standards for multi-vendor network equipment interoperability.

<sup>16</sup> See 47 U.S.C. § 906 statutory objective (vi): (vi) Promoting and deploying security features enhancing the integrity and availability of equipment in multi-vendor networks.

<sup>17</sup> See 47 U.S.C. § 906 statutory objective (vii): (vii) Promoting and deploying network function virtualization to facilitate multi-vendor interoperability and a more diverse vendor market.

### **Public Input Received**

NTIA’s Innovation Fund RFC highlighted the need to invest in “real world” field trials for specific use cases or sectors to confirm the commercial opportunity of Open RAN solutions. Moreover, participants in NTIA’s second Innovation Fund listening session cited the complexity of multi-vendor integration and the limited number of buyers as key barriers to Open RAN adoption. Participants encouraged the program to promote automation and address industry use cases.<sup>18</sup>

### **Technical Maturity Level**

Projects funded under this NOFO must meet certain technical maturity criteria upon entering and exiting the period of performance (POP). At a minimum, SRFA 1 and SRFA 2 projects shall begin the POP with defined functional requirements.

By the end of the POP, SRFA 1 and SRFA 2 projects shall, at a minimum, have a working prototype, as defined in Appendix A. This prototype should represent an initial product version that has undergone testing to evaluate its functionality, effectiveness, and commercial viability. Projects may exit at a higher maturity.

These criteria will facilitate investments that support the promotion and deployment of Open RAN technologies in alignment with statutory objectives (i), (ii), and (vii).<sup>19</sup> NTIA will not fund proposals that do not meet the desired maturity criteria (e.g., products that are already widely deployed, proposals too speculative to be commercially feasible, or basic research that is outside the scope of this statutory authority). See [Section 2.3.1](#) and [Section 3.3.1](#) for more information regarding the SRFA 1 and SRFA 2 technical maturity criteria, respectively.

### **Open-source Software**

NTIA encourages, but does not require, the use or development of open-source software in the solutions developed under this NOFO.

### **Place of Performance**

NTIA recognizes that for the Innovation Fund to be successful in meeting statutory objectives, global commercial adoption is necessary. As such, NTIA is allowing applicants flexibility to perform project activities in the United States (U.S.), or overseas, excluding covered nations that pose national security concerns as described in [Section 6.1.3](#) and defined in [Appendix A - Glossary of Terms](#) (see “Covered Nation”).

In Merit Review, NTIA will evaluate the degree to which an application contributes to the economic security of the U.S., such as through job creation, work done in the U.S.,

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<sup>18</sup> See video recording of NTIA’s September 2024 listening session on the [NTIA.Gov YouTube channel](#).

<sup>19</sup> See footnotes 11, 12 and 17 of this NOFO.

inclusion of U.S. partners, post-Period of Performance commercial plans, and support for U.S. innovation in software development (see [Section 2.5](#) and [Section 3.5](#) respectively).

**Maximum Number of Applications per Applicant**

A single application may only address one (1) SRFA and may only contain one (1) project. Applicants may submit a maximum of three (3) applications under SRFA 1 and one (1) application under SRFA 2. This helps NTIA efficiently review applications and encourages entities to submit high-quality applications.

**Period of Performance (POP)**

The POP also varies by SRFA. The POP of SRFA 1 is expected to be 18-36 months. The POP of SRFA 2 is expected to be 12-18 months.

**1.3.3. Available Funding**

NTIA may award up to \$450,000,000 in total funding under this NOFO.

1.3.3.1. Anticipated Award Amounts

The amount of funding anticipated for individual awards varies by SRFA, as follows:

SRFA	Federal Funding Range (per award)
1 – Industry Vertical Solutions	\$24,000,000-\$50,000,000
2 – Integration Automation Solutions	\$9,000,000-\$18,000,000

The award amount ranges for each SRFA are not mandatory minimums or maximums. Applicants requesting funding amounts outside the anticipated SRFA award ranges must provide a reasonable explanation for the variance; however, applicants ***may not*** request more than \$50,000,000 per SRFA (see [Section 1.3.3.2](#) regarding statutory limitation on award amounts). Relative cost effectiveness will be considered in the Selecting Official criteria (see [Section 5.1.4](#)).

1.3.3.2. Statutory Limitation on Award Amounts

In accordance with 47 U.S.C. 906(a)(1)(B)(ii), the cumulative amount of federal funding awarded to a single awardee for a single SRFA may not exceed \$50,000,000. Applications requesting more than \$50,000,000 in federal funding for a single SRFA ***will be disqualified***.

There is no statutory limitation on the amount of cost share provided by an applicant. Applications with a total project cost exceeding \$50,000,000, but that request less than \$50,000,000 in federal funding remain eligible.

1.3.3.3. Cost Share

Cost sharing is mandatory for both SRFAs. SRFA 1 applicants must include a minimum cost share of 30% of the total project cost (*i.e.*, the combined total of the federal share and non-federal share of costs). See [Section 2.2.3](#) of this NOFO for more information on SRFA 1 cost share.

SRFA 2 applicants must include a minimum cost share of 20% of the total project cost (*i.e.*, the combined total of the federal share and non-federal share of costs). See [Section 3.2.3](#) of this NOFO for more information on SRFA 2 cost share.

**Section 2 – SRFA 1 – Industry Verticals Solutions**

**2.1. Overview**

The Innovation Fund aims to facilitate the adoption of open and interoperable wireless networks. NTIA seeks to achieve this by investing in projects that drive demand for Open RAN equipment, including enabling network operators to commercialize data captured through Open RAN equipment. For example, in full stack, closed deployments, operators and third parties typically do not have direct access to valuable network data, making such data difficult to commercialize. Open RAN deployments, on the other hand, have unique features (e.g. RIC, O1 interface, E2 interface, SMO) that enable operators and third parties to more easily access network data, such as low-level radio parameters and network scheduling metrics, which they can then commercialize. Unique features, such as the RIC, can also drive efficiencies for end customers by optimizing RAN functions.

However, efforts to commercialize data from Open RAN deployments are still nascent. SRFA 1 aims to advance commercialization by investing in software solutions that leverage benefits from Open RAN interfaces – in turn providing value to industry verticals.<sup>20</sup> To this end, applicants must develop a multi-vendor prototype and demonstrate its technical and commercial viability in a field environment.

**2.1.1. Requirements Summary**

Description	Requirement
<b>Eligible Entities</b>	Any entity capable of developing, integrating and commercially selling and/or deploying software solutions that leverage data and/or features made accessible through Open RAN interfaces for vertical industry customers is eligible. The applicant must partner with at least one entity. The applicant and partners collectively must be capable of fulfilling the software, vertical, and network functions. Either the applicant or at least one partner must hold Ultimate Beneficial Ownership (UBO) in the U.S. (See <a href="#">Section 2.2.1</a> for additional requirements).
<b>Anticipated Award Range</b>	\$24,000,000-\$50,000,000
<b>Cost Share</b>	Minimum 30% of total project cost.
<b>Place of Performance</b>	Activities involving or occurring within an entity described in <a href="#">Section 6.1.3</a> are not permitted. Otherwise, there are no specific place of performance requirements. However,

<sup>20</sup> See O-RAN Alliance, [O-RAN Empowering Vertical Industry: Scenarios, Solutions and Best Practice](#), December 2023, pgs. 6-14 for a non-exhaustive list of examples of vertical industry use cases and opportunities enabled by Open RAN.

	an application’s benefit to U.S. economic security (including work conducted in the U.S.) will be evaluated in Merit Review.
<b>Anticipated Period of Performance</b>	18-36 months
<b>Minimum Technical Maturity for Entry</b>	Have defined functional requirements for the proposed project.
<b>Minimum Technical Maturity for Exit</b>	Achieve a working prototype that serves as an initial version of the funded product and has undergone testing to evaluate its functionality, effectiveness, and commercial viability. Applicants should consider a solution’s adaptability in the long-term, such that it is not overengineered for a single industry vertical.

## 2.2. Eligibility Requirements

### 2.2.1. Eligible Entities

SRFA 1 applicants must meet the following requirements:

- a) The applicant must be capable of developing, integrating, and commercially selling and/or deploying software solutions that leverage data and/or features made accessible through Open RAN interfaces for use by vertical industry customers. This capability must be demonstrated in application materials.
- b) The applicant must partner with at least one entity to facilitate collaboration across the value chain. This collaboration is critical to expanding market opportunities for Open RAN suppliers and operators.
- c) The applicant and their partner(s) must collectively be capable of fulfilling the three functions described below (also see [Section 1.3.2](#)). This capability must be demonstrated in application materials.
  - **Software Function:** The project must include the design and integration of a software solution across a network, leveraging Open RAN components to access new or previously untapped sources of data or unique Open RAN innovations, such as the RIC.
  - **Vertical Function:** The project must include vertical-specific expertise and requirements (i.e., for the use case that the solution will address) to ensure the solution meets the business needs of a potential customer.
  - **Network Function:** The project must include a network in which the solution can be deployed to demonstrate its technical and commercial viability, with the potential for expansion into additional networks after the period of performance.

- d) The applicant and partner(s) can be based in the U.S. or abroad. However, either the applicant or at least one partner must hold Ultimate Beneficial Ownership (UBO) in the U.S., its territories, and possessions. UBO will be validated by the SAM Registration or SF-328 of each party. If neither the applicant nor any partners meet the UBO requirement, the application **will be disqualified**.

Eligible entities may submit no more than three (3) applications under this SRFA proposing no more than one (1) project per application.

### **2.2.2. Anticipated Award Range**

NTIA anticipates awards under SRFA 1 will range between \$24,000,000-\$50,000,000.

Federal funding requests below \$24,000,000 may be considered, but the application must include a reasonable explanation for why the request falls below the anticipated award range. Applications with federal funding requests over \$50,000,000 **will be disqualified**, as there is a \$50,000,000 statutory limit on federal funding under each SRFA.

### **2.2.3. Cost Share**

Applicants should structure the finances of their projects in a way that maximizes private sector contributions and minimizes the need for government incentives. NTIA will evaluate the degree to which an applicant, through its funding request, leverages private investment, cash and in-kind contributions, and other sources of funding as a means of demonstrating its commitment to project success. NTIA expects that both the applicant and partner(s) will commit project resources.

To ensure the efficient use of taxpayer dollars, SRFA 1 applicants must provide a minimum of 30% of the total project cost as cost share. This can include cash or in-kind contributions. All contributions to cost share must meet the requirements in [2 C.F.R. § 200.306](#)<sup>21</sup> and other allowable cost requirements of this NOFO.

Cost share percentage will be calculated based on information provided in the SF-424, Section 18, as follows:

- All non-federal sources of funding will be summed (18b through 18e).
- Cost share percentage will be calculated by dividing the non-federal funding by the total project cost (18g).
- Calculated cost share percentage will be *rounded down* to the nearest integer value (e.g., a cost share of 35.8% will be rounded down to 35%).

SRFA 1 applications that do not include the minimum 30% cost share, as calculated above, **will be disqualified**. Applicants should not rely on funding from this NOFO to

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<sup>21</sup> [2 CFR § 200.306](#).

displace private capital or enable outsized returns relative to commercially reasonable expectations for similar projects.

#### **2.2.4. Period of Performance**

The POP of SRFA 1 awards is expected to be 18-36 months. The POP may be fewer than 18 months but shall not exceed 36 months from the date of award.

While extensions are possible under this NOFO (see [Section 6.2.1](#)), the application will be assessed for risk of exceeding the mandated POP. Per Department of Commerce policy, the POP, inclusive of all extensions, shall not exceed five (5) years.<sup>22</sup>

#### **2.2.5. Place of Performance**

Activities involving or occurring within an entity described in [Section 6.1.3](#) are not permitted under any circumstances. Otherwise, there are no specific place of performance requirements. However, NTIA will evaluate an application's contribution to U.S. economic security, including work conducted in the U.S., in Merit Review (see [Section 2.5](#)).

### **2.3. Technical Scope Requirements**

#### **2.3.1. Technical Maturity**

At a minimum, SRFA 1 projects shall begin the POP with defined functional requirements for their proposed project. For example, a project could begin with documentation detailing the performance and feature requirements that are integrated into a hardware platform. A project could also begin with software plans that include sub-systems with features/functions for a solution that can scale to multiple hardware endpoints during production (*e.g.*, vehicles).

At a minimum, SRFA 1 projects shall exit the POP with a working prototype that serves as an initial version of the funded product and has undergone testing to evaluate its functionality, effectiveness, and commercial viability. Applicants should consider a solution's adaptability in the long-term, such that it is not overengineered for a single industry vertical.

For example, a project could exit the POP with a working prototype for a connected automotive solution featuring non-specialized sensors and endpoints bolted to a vehicle that are not yet ready for mass production (*i.e.*, producing a fully integrated connected vehicle that is not ready to be produced at scale). This working prototype could include software with pre-production code and may require manual data pulls (or other steps) for functionality before the fully-tested and commercially-viable solution is ready for licensing and production.

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<sup>22</sup> See U.S. Department of Commerce, [Federal Financial Assistance Manual \(October 1, 2024\)](#), Section 9.I.2.a.1.

NTIA may fund compelling projects that advance the solution beyond a working prototype, up to and including initial commercial deployment. For example, a project may include activities to further develop the solution to a point where it is fully stable and to test and integrate the solution in a customer’s network.

### **2.3.2. Performance and Interoperability Requirements**

The application shall identify and include all performance and operational requirements, including the key performance indicators (KPIs) that will be used to measure the effectiveness of the project.

The minimal 5G Open RAN network configuration to support the proposed solution shall, at a minimum, be compliant with 3GPP 5G NR Release 16 specifications and the latest releases of the O-RAN Alliance specifications per the July 2024 Specification Train (Release 4), as applicable to the proposed solution and prototype.<sup>23</sup> If an applicant chooses to use a later 3GPP 5G NR release or O-RAN Alliance specification, it should be documented in the Technical Proposal.

## **2.4. Specific Application Requirements**

This section describes the application document requirements unique to SRFA 1. A comprehensive list of required application materials can be found in [Section 4.1](#).

### **2.4.1. Technical Proposal**

*Note: Technical Proposals must not exceed 20 pages in length (excluding cover page and references).*

This section describes the specific content that applicants must include in their Technical Proposals for SRFA 1. Technical Proposals that do not include one or more of the elements listed below may not move forward to Merit Review and may not be considered for award.

The Technical Proposal shall include the following content:

#### **a) Executive Summary (max 1 page)**

Provide a short executive summary of the proposed project. It is important that the executive summary focuses only on salient aspects of the broader Technical Proposal, as the executive summary will be considered during the initial scope

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<sup>23</sup> See O-RAN Alliance specifications at <https://specifications.o-ran.org/specifications>. Examples of specifications that could apply to solutions developed under this NOFO include but are not limited to the O-RAN Fronthaul Interoperability Test Specification (IOT) 12.0 (O-RAN.WG4.IOT.0-R004-v12.00), O-RAN Conformance Test Specification 11.0 (O-RAN.WG4.CONF.0-R004-v11.00), O-RAN Stack Interoperability Test Specification 11.0 (O-RAN.WG8.IOT.0-R004-v11.00), and O-RAN End-to-end Test Specification 6.0 (O-RAN.TIFG.E2E-Test.0-R003-v06.00).

review. If the executive summary does not demonstrate that the proposed project falls within the scope of SRFA 1, as described in this NOFO, the project may be removed from further consideration.

If the project is selected for funding, the executive summary may be used by NTIA in award announcement materials and posted on the public NTIA.gov website. Therefore, applicants should ensure that no proprietary or business confidential information is included in the executive summary.

## b) Technical Objectives

Describe in detail the technical objective of the project including, at a minimum, the following information:

- The technical requirements of the proposed solution necessary to support the relevant business applications and services, and the elements, features, and/or interfaces of the Open RAN architecture employed by the solution.
- The architecture of the solution, including the network configuration (logical and physical) and the required network performance parameters to support the solution (e.g., capacity, throughput, coverage, latency).
- How the performance and interoperability requirements in [Section 2.3.2](#) will be addressed.
- Definition of the vertical-specific End Points to be controlled/deployed by the solution, including their source, form factor, availability, and integration into the network.
- Description of how the prototype demonstration meets the following requirements:
  - **Environment:** The prototype must be demonstrated in a field environment that is the same as or very similar to the projected commercial deployments (e.g., farm, factory, medical campus).
  - **5G Open RAN Network:** The prototype demonstration must use over-the-air transmissions via a multi-vendor 5G Open RAN network.
  - **Scale:** The pilot must demonstrate the prototype's applicability to more customers in the industry vertical beyond the initial partner. NTIA encourages applicants to demonstrate the prototype's adaptability to other industry verticals as well.

- **End Points:** The prototype demonstration must employ End Points that are highly representative of the user equipment (UE) expected in the commercial deployments.
- **Data Collection:** Quantitative and qualitative data points collected from the prototype demonstration must confirm operational and business targets. SRFA 1 targets should demonstrate the solution’s capability to create value (*i.e.*, efficiencies) for one or more industry use case(s).
- Detailed plans for the prototype demonstration, including, but not limited to, location (with maps and other depictions necessary to fully describe the environment), architecture (physical and logical), equipment and vendor(s), interfaces, projected coverage, methods of testing, and success criteria.
- Specification of the frequency ranges, power levels, channel bandwidth(s), carrier aggregation supported (if any), multiplexing method, and multiple input, multiple output (MIMO) configuration of the prototype demonstration, as applicable.
- Description of the relevance, scale, and representation of the prototype demonstration relative to the industry vertical and its applicability to the Commercial Transition Plan (see [Section 2.4.3](#)).

**c) Work Plan Summary**

While a separate, detailed work plan is required (see [Section 2.4.2](#)), the Technical Proposal must include a summary of the work plan that ensures reviewers can understand the scope of work proposed by the applicant, including major milestones and deliverables.

**d) Qualification of Applicant and Unique Aspects of Proposal**

Explain how the applicant is qualified to develop, integrate, and commercially sell and/or deploy software solutions that leverage data and/or features made accessible through Open RAN interfaces to provide value to industry verticals. Provide examples of past success of relevant products.

Describe the unique aspects of the work proposed and how it differs from presently available solutions. The unique aspects described shall also be reflected in the Commercial Transition Plan (see [Section 2.4.3](#)).

**e) Facilities and Equipment**

Provide a description of, and information regarding the availability and location of, instrumentation and physical facilities used for project activities, including manufacturing. Any new facility or equipment costs, including software and services, should be itemized and justified.

#### **2.4.2. Work Plan**

*Note: Work Plans must not exceed 20 pages in length (excluding cover page).*

Provide a work plan detailing how the development and demonstration of the prototype will be conducted. The work plan shall include a project roadmap and a detailed milestone and deliverable schedule covering the POP.

The work plan shall also include all applicable testing phases, decision points, and milestones where technology readiness is expected to improve.

Applications that do not include one or more of the aforementioned elements may not move forward to Merit Review and may not be considered for award.

#### **2.4.3. Commercial Transition Plan**

SRFA 1 applicants shall submit a Commercial Transition Plan. See [Section 4.1.1\(l\)](#) for details.

#### **2.4.4. Product Security and Cybersecurity Management Plan**

SRFA 1 applicants shall submit a Product Security and Cybersecurity Management Plan. See [Section 4.1.1\(m\)](#) for details.

#### **2.4.5. Letter of Partnership Intent**

Applicants must partner with one or more entities and demonstrate that they and their partners collectively can: 1) design and integrate software solutions across the network, 2) provide vertical-specific expertise and requirements, and 3) operate a network. The applicant must submit a Letter of Partnership Intent, signed by all partners, demonstrating the existence of the partnership and explaining the roles and responsibilities of the partner(s) and applicant. This letter by itself is sufficient to demonstrate that a partnership exists for purposes of the application; however, a more formal demonstration of the partnership will be requested post-award. Although a partner may also be a subrecipient or contractor of the applicant, neither of these relationships is a requirement for a partnership to exist. Examples of strong partnership archetypes include, but are not limited to, the following:

1. An applicant that develops software and operates a network (e.g., private or public MNO) partnered with a single industry vertical subrecipient (e.g., an automotive company)

2. An applicant that develops software partnered with an industry vertical subrecipient that operates a private network (e.g., a utility company that owns a private network, or a manufacturer building a private 5G network to serve a campus)
3. An applicant that develops software partnered with both a network operator subrecipient and an industry vertical subrecipient

An SRFA 1 Letter of Partnership Intent must include the following information:

- **A brief explanation of the form of the partnership.** Why have the partners chosen to work together? What benefits will each partner bring to the partnership and for how long?
- **A demonstrable commercial need for the technology from the perspective of each partner.** How does this solution fill a critical gap? How will this benefit the partner's business?
- **Resources invested by all parties.** NTIA expects that both the applicant and partner(s) are committing project resources. How is the partner supporting development and demonstration of the prototype? How will the applicant and partner(s) work together to create a market-ready product?
- **Project commitment.** A statement that the partner(s) has read the application and is committed to executing its roles, responsibilities, and/or commitments related to the project.
- **Proportion of federal funding to the partner(s).** The proportion of federal funding that would be utilized by the partner(s) (if applicable).
- **Point of Contact.** A designated Point of Contact at each partner organization for any inquiries regarding the partnership and/or the Letter of Partnership Intent. Applicants must also provide contact information for key personnel as part of the Technical Proposal (see [Section 4.1.1 \(g\)](#)).

The Letter of Partnership Intent must be signed by senior representatives of the applicant and each partner. Note that material discrepancies and omissions between a Letter of Partnership Intent and the associated Technical Proposal (e.g., incomplete or missing cost information, missing point of contact information) may result in additional curing requirements or disqualification of the application. Failure to respond to requests for curing within seven (7) business days, or failure to appropriately cure deficiencies within that timeframe, could lead to de-prioritization in the review process and/or disqualification of the application.

NTIA does not require that the Letter of Partnership Intent legally commit the partner(s) to purchasing and/or deploying solutions developed under this NOFO. However, NTIA

expects the Letter of Partnership Intent to demonstrate the partners' *intent* to purchase and/or deploy the solutions following completion of the grant.

If there is a change in the status of a partner's proposed participation for any reason after the award is made, the applicant must notify NTIA immediately and explain the reason for the change. If there are no partners by the time the POP begins or at any point during the POP, the award will be subject to the remedies for noncompliance specified in 2 C.F.R. § 200.339,<sup>24</sup> up to and including award termination. If a partner included in the Technical Proposal is replaced with a different entity at any point after the award is made, the applicant must present a Letter of Partnership Intent signed by the new entity and the new partnership must be approved by NTIA before work resumes.

Applicants are ultimately accountable and responsible for the work each partner delivers under any award provided under this NOFO.

## 2.5. Merit Review Criteria

This section describes the Merit Review process and criteria for SRFA 1. Applications submitted under SRFA 2 are subject to a separate Merit Review process with their own distinct criteria (see [Section 3.5](#)). The Merit Review process and criteria described in this section do not affect the scoring or selection of SRFA 2 applications.

During SRFA 1 Merit Review, applications will be evaluated by a panel of at least three (3) independent reviewers composed of government staff or non-federal experts in accordance with the following criteria for a maximum of 100 points. Reviewers may discuss the applications with each other but will assign scores on an individual basis. The reviewers will evaluate applications against the criteria described below.

### a) Project Purpose and Benefits (65 points)

1. **Technical Approach and Deployment Readiness:** The applicant demonstrates a clear technical understanding of how to advance their solution from the entry stage (e.g., a set of defined functional requirements) into a working prototype, ready for commercial deployment. The scope of work meets the technical maturity requirements discussed in [Section 2.3.1](#). (25 points)
2. **Multi-vendor Solution Advancement and Industry Vertical Approach:** The applicant clearly and credibly describes how their project addresses an industry vertical use case by developing a multi-vendor solution (prototype) that meets the performance and interoperability requirements in [Section 2.3.1](#). (25 points)
3. **Security:** The applicant clearly and credibly describes how their project advances the security of open and interoperable architecture and meets the cybersecurity requirements in [Section 4.1.1\(n\)](#). (8 points)

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<sup>24</sup> [2 CFR § 200.339](#).

4. **Economic Security:** The applicant demonstrates a commitment to U.S. economic security as described in [Section 4.1.1\(l\)](#). (7 points)

**b) Commercial Transition Plan, Competence, Partnerships, and Budget (35 points)**

1. **Commercial Transition Plan:** The applicant demonstrates an ability to transition the project to the commercial market beyond the award period. (15 points)
2. **Competence:** The applicant demonstrates competence (skill, expertise, experience) and organizational capability (personnel and facilities) to complete the specific project proposed. (10 points)
3. **Partnership:** The application materials demonstrate that all parties in the partnership are committed to project success, as evidenced, for example, by the level of project resources committed by each partner and the depth of each partner's participation. The application materials demonstrate the partners' ability to work together to create a market-ready product and a commercial need for the solution, and the ability of each partner to contribute to the development/demonstration of the prototype. (5 points)
4. **Budget:** The applicant demonstrates reasonableness of its proposed budget. (5 points)

**Section 3 – SRFA 2 – Integration Automation Solutions**

**3.1. Overview**

The complexity of multi-vendor integration is a key challenge to the adoption of open and interoperable networks. Integrating network components from multiple vendors requires manual input that can be costly and time intensive. SRFA 2 (Integration Automation Solutions) seeks to address this challenge by funding innovative projects that significantly lower the time and cost associated with Open RAN integration. Reducing integration complexity through automation addresses a key barrier to Open RAN adoption – in turn accelerating commercial deployments.

To this end, SRFA 2 applicants must develop a solution that reduces the required time and cost of Open RAN integration into new and/or existing networks and streamlines ongoing network modifications. To ensure these solutions support a broad array of RAN suppliers, applicants must partner with at least three different RAN suppliers to develop a prototype and demonstrate its technical and commercial viability.

**3.1.1. Requirements Summary**

Description	Requirement
<b>Eligible Entities</b>	Any entity capable of developing and commercially selling and/or deploying integration automation prototypes is eligible. Additionally, the entity must partner with a minimum of three (3) different RAN suppliers. The applicant must also demonstrate that the applicant and partners collectively are capable of designing, developing, and testing integration automation prototypes. At a minimum, the prototype must automate integration between an open RU from one supplier and an open Distributed Unit (DU)/Central Unit (CU) from another supplier. Either the applicant or at least one partner must hold UBO in the U.S.
<b>Anticipated Award Range</b>	\$9,000,000-\$18,000,000
<b>Cost Share</b>	Minimum 20% of total project cost.
<b>Place of Performance</b>	Activities involving or occurring within an entity described in <a href="#">Section 6.1.3</a> are not permitted. Otherwise, there are no specific place of performance requirements. An application’s benefit to U.S. economic security (including work conducted in the U.S.) will be evaluated in Merit Review.

<b>Expected Period of Performance</b>	12-18 months
<b>Minimum Technical Maturity for Entry</b>	Have defined functional requirements for the proposed prototype.
<b>Minimum Technical Maturity for Exit</b>	Achieve a working prototype that serves as an initial version of the funded product and has undergone testing on a smaller scale to evaluate its functionality, effectiveness, and commercial viability.

### 3.2. Eligibility Requirements

#### 3.2.1. Eligible Entities

SRFA 2 applicants must meet the following requirements:

- a) Applicants must be capable of developing and commercially selling and/or deploying RAN network integration automation prototypes.
- b) Applicants must partner with a minimum of three (3) different RAN suppliers.<sup>25</sup> The applicant must demonstrate that the applicant and partners collectively are capable of designing, developing, and testing integration automation prototypes. At a minimum, the prototype developed under this NOFO must automate integration between an open RU from one supplier and an open DU/CU from another supplier. NTIA encourages applicants and their partners to develop solutions that enable functionality across additional interfaces.<sup>26</sup>
- c) The applicant and partner(s) can be based in the United States or abroad. However, either the applicant or at least one partner must hold UBO in the U.S., its territories, and possessions. UBO will be validated by the SAM Registration or SF-328 of each party. If neither the applicant nor any partners meet the UBO requirement, the application ***will be disqualified.***

Eligible entities may submit no more than one (1) application under this SRFA proposing no more than one (1) project.

#### 3.2.2. Anticipated Award Range

Anticipated federal funding is \$9,000,000-\$18,000,000 per award.

<sup>25</sup> In a traditional network, two vendors typically interoperate – one vendor acts as the main supplier, while the second serves as the “backup” for specific components. A three-vendor minimum facilitates greater interoperability, since it requires a network to shift its current operating model to be more open and flexible.

<sup>26</sup> Examples of additional interfaces include, but are not limited to, the following: 1) Open backhaul between CU and Core network; 2) A1 interface between Near-Real-Time (RT) RIC and Non-RT RIC; 3) E2 interface between CU/DU and Near-RT RIC; O1 interface between DU and SMO; and O2 interface between Cloud and SMO.

Applications requesting federal funding outside of this range, whether higher or lower, must provide a reasonable explanation for the variance.

### 3.2.3. Cost Share

SRFA 2 applicants should structure the finances of their projects in a way that maximizes private sector contributions and minimizes the need for government incentives. NTIA will evaluate the degree to which an applicant, through its funding request, leverages private investment, cash and in-kind contributions, and other sources of funding as a means of demonstrating its commitment to project success. NTIA expects that both the applicant and partner(s) will commit project resources.

To ensure the efficient use of taxpayer dollars, SRFA 2 applicants must provide a minimum of 20% of the total project cost as cost share. This can include cash or in-kind contributions. All contributions to cost share must meet the requirements in 2 CFR § 200.306<sup>27</sup> and other allowable cost requirements of this NOFO.

Cost share percentage will be calculated based on information provided in the SF-424, Section 18, as follows:

- All non-federal sources of funding will be summed (18b through 18e).
- Cost share percentage will be calculated by dividing the non-federal funding by the total project cost (18g).
- Calculated cost share percentage will be rounded down to the nearest integer value (*e.g.*, a cost share of 19.8% will be rounded down to 19%).

SRFA 2 applications that do not include the minimum 20% cost share, as calculated above, ***will be disqualified***. Applicants should not rely on funding from this NOFO to displace private capital or enable outsized returns relative to commercially reasonable expectations for similar projects.

### 3.2.4. Period of Performance

The POP of SRFA 2 awards is expected to be 12-18 months. The POP may be fewer than 12 months but shall not exceed 18 months from the date of award.

While extensions are possible under this NOFO (see [Section 6.2.1](#)), the application will be assessed for risk of exceeding the mandated POP. Inclusive of all extensions, the POP shall not exceed five (5) years.<sup>28</sup>

### 3.2.5. Place of Performance

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<sup>27</sup> See [2 CFR § 200.306](#).

<sup>28</sup> See U.S. Department of Commerce [Federal Financial Assistance Manual \(October 1, 2024\)](#) Section 9.I.2.a.1.

Activities involving or occurring within an entity described in [Section 6.1.3](#) are not permitted under any circumstances. Otherwise, there are no place of performance requirements. However, NTIA will evaluate an application’s contribution to U.S. economic security, including work done in the U.S., in Merit Review (see [Section 3.5](#)).

### **3.3. Technical Scope Requirements**

#### **3.3.1. Technology Maturity**

At a minimum, SRFA 2 projects shall begin the POP with defined functional requirements for their proposed project. For example, a project could begin with software plans that include identification of fault, configuration, accounting, performance, and security (FCAPS) variables and the related sub-systems and features/functions necessary for a solution to seamlessly integrate.

At a minimum, SRFA 2 projects shall exit the POP with a working prototype that serves as an initial version of the funded product and has undergone testing on a smaller scale to evaluate its functionality, effectiveness, and commercial viability.

For example, a project could exit the POP with a working software prototype that features pre-production code; it may require manual data pulls (or other steps) for functionality before the fully-tested and commercially-viable solution is ready for licensing and production.

NTIA may fund compelling projects that advance the solution beyond a working prototype, up to and including initial commercial deployment. For example, a project may include activities to further develop the solution to a point where it is fully stable and to test and integrate the solution into a customer’s network.

#### **3.3.2. Performance and Interoperability Requirements**

The application shall identify and include all performance and operational requirements, including minimum target KPIs, cost targets, and any other success criteria required to support the proposed solution and its application in the network.

The 5G Open RAN network configuration to support the proposed solution shall, at a minimum, be compliant with 3GPP 5G NR Release 16 specifications and the latest releases of O-RAN Alliance specifications per the July 2024 Specification Train (Release 4), as applicable to the proposed solution and prototype.<sup>29</sup> If an applicant chooses to use a

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<sup>29</sup> See O-RAN Alliance specifications at <https://specifications.o-ran.org/specifications>. Examples of specifications that could apply to solutions developed under this NOFO include, but are not limited to, the O-RAN Fronthaul Interoperability Test Specification (IOT) 12.0 (O-RAN.WG4.IOT.0-R004-v12.00), O-RAN Conformance Test Specification 11.0 (O-RAN.WG4.CONF.0-R004-v11.00), O-RAN Stack Interoperability Test Specification 11.0 (O-RAN.WG8.IOT.0-R004-v11.00), and O-RAN End-to-end Test Specification 6.0 (O-RAN.TIFG.E2E-Test.0-R003-v06.00).

later 3GPP 5G NR release or O-RAN Alliance specification, it should be documented in the Technical Proposal.

Project activities must include demonstration of multi-vendor interoperability, *i.e.*, that the proposed solution is capable of automating integration between Open RAN components from at least three (3) different vendors. Applicants must also confirm how the proposed solution will be readily applicable to Open RAN suppliers beyond the selected partners.

### **3.4. Specific Application Requirements**

This section describes the application document requirements unique to SRFA 2. A comprehensive list of required application material can be found in [Section 4.1](#).

#### **3.4.1. Technical Proposal**

*Note: Technical Proposals must not exceed 20 pages in length (excluding cover page and references).*

This section describes the specific content that applicants must include in their Technical Proposals for SRFA 2. Applications that do not include one or more of the elements listed below may not move forward to Merit Review and may not be considered for award.

The Technical Proposal shall include the following content:

##### **a) Executive Summary (max 1 page)**

Provide a short executive summary of the proposed project. It is important that the executive summary focuses only on salient aspects of the broader Technical Proposal, as the executive summary will be considered during the initial scope review. If the executive summary does not demonstrate that the proposed project falls within the scope of SRFA 2, as described in this NOFO, the project may be removed from further consideration.

If the project is selected for funding, the executive summary may be used by NTIA in award announcement materials and posted on the public NTIA.gov website. Therefore, applicants should ensure that no proprietary or business confidential information is included in the executive summary.

##### **b) Technical Objectives**

Describe, in detail, the technical objective of the project including, at a minimum, the following information:

- The technical requirements of the prototype software solution to enable multi-vendor integration automation, and the elements, features, and/or interfaces of the Open RAN architecture employed by the solution.
- The architecture of the solution, including the network configuration (logical and physical) and the required network performance parameters to support the solution (e.g. capacity, throughput, coverage, latency).
- How the performance and interoperability specifications required by this NOFO (see [Section 3.3.2](#)) will be addressed.
- The role of the RAN supplier partners and their equipment to be integrated, and how the solution will support a broad range of RAN suppliers beyond these partners.
- Description of how the prototype demonstration meets the following requirements:
  - **Environment:** The prototype must be demonstrated in a lab and/or field environment that is very similar to or the same as the projected commercial deployments.
  - **5G Open RAN Network:** The prototype demonstration must include a multi-vendor Open RAN network.
  - **Scale:** The scale must be sufficient to demonstrate the viability of the solution when scaled to the projected commercial deployments.
  - **Data Collection:** The prototype demonstration must collect sufficient data to confirm operational and business targets. SRFA 2 targets should demonstrate the solution’s capability to reduce multi-vendor network integration costs.
- Detailed plans for the prototype demonstration including, but not limited to, architecture (physical and logical), equipment (and vendor), interfaces, methods of testing, and success criteria.
- Description of the relevance, scale, and representation of the prototype demonstration relative to the solution function and its applicability to the Commercial Transition Plan.

### c) Work Plan Summary

While a separate, detailed work plan is required (see [Section 3.4.2](#)), the Technical Proposal must include a summary of the work plan that ensures reviewers can

understand the scope of work proposed by the applicant, including major milestones and deliverables.

**d) Qualification of Applicant and Unique Aspects of Proposal**

Explain how the applicant is qualified to develop and commercially sell network integration software solutions that leverage Open RAN’s unique interoperability capabilities. Provide examples of past success of relevant products.

Describe the unique aspects of the work proposed and how it differs from presently available solutions. The unique aspects described shall also be reflected in the Commercial Transition Plan (see [Section 3.4.3](#)).

**e) Facilities and Equipment**

Provide a description of, and information regarding the availability and location of, instrumentation and physical facilities used for project activities. Any new facility or equipment costs, including software and services, should be itemized and justified.

**3.4.2. Work Plan**

*Note: Work Plans must not exceed 20 pages in length (excluding cover page).*

Provide a work plan detailing how the development and demonstration of the prototype will be conducted. The work plan shall include a project roadmap and a detailed milestone and deliverable schedule covering the POP.

The work plan shall also include all applicable testing phases, decision points, and milestones where technology readiness is expected to improve.

Applications that do not include one or more of the aforementioned elements may not move forward to Merit Review and may not be considered for award.

**3.4.3. Commercial Transition Plan**

SRFA 2 applicants shall submit a Commercial Transition Plan. See [Section 4.1.1\(k\)](#) for details.

**3.4.4. Product Security and Cybersecurity Management Plan**

SRFA 2 applicants shall submit a Product Security and Cybersecurity Management Plan. See [Section 4.1.1\(l\)](#) for details.

**3.4.5. Letter of Partnership Intent**

SRFA 2 applicants must partner with at least three (3) different RAN equipment suppliers. Applicants must submit a Letter of Partnership Intent, signed by all partners, demonstrating the existence of the partnership and explaining the roles and responsibilities of the partners and applicant. This letter by itself is sufficient to demonstrate that a partnership exists for purposes of the application; however, a more formal demonstration of the partnership will be requested post-award. Although a partner may also be a subrecipient or contractor of the applicant, neither of these relationships is a requirement for a partnership to exist.

An SRFA 2 Letter of Partnership Intent must include the following information:

- **A brief explanation of the form of the partnership.** Why have the partners chosen to work together? What benefits will each partner bring to the partnership and for how long?
- **A demonstrable commercial need for the technology from the perspective of each partner.** How does this product fill a critical gap? How will this benefit the partner's business?
- **Resources invested by all parties.** NTIA expects that both the applicant and partners are committing project resources. How is each partner supporting development of the solution? How will the applicant and partners work together to create a market-ready product? What resources, if any, will each party contribute to the applicant's cost share, including in-kind contributions?
- **Project commitment.** A statement that each partner has read the application and is committed to executing its roles, responsibilities, and/or commitments related to the project.
- **Proportion of federal funding to the partner.** The proportion of federal funding that would be utilized by each partner (if applicable).
- **Point of Contact.** A designated Point of Contact at each partner organization for any inquiries regarding the partnership and/or the Letter of Partnership Intent. Applicants must also provide contact information for key personnel as part of the Technical Proposal (see [Section 4.1.1 \(q\)](#)).

The Letter of Partnership Intent must be signed by senior representatives of the applicant and each partner. Note that material discrepancies and omissions between a Letter of Partnership Intent and the associated Technical Proposal (*e.g.*, incomplete or missing cost information, missing point of contact information) may result in additional curing requirements or disqualification of the application. Failure to respond to requests for curing within seven (7) business days, or failure to appropriately cure deficiencies within that timeframe, could lead to de-prioritization in the review process and/or disqualification of the application.

If there is a change in the status of a partner’s proposed participation for any reason after the award is made, the applicant must notify NTIA immediately and explain the reason for the change. If there are less than three (3) partners by the time the POP begins or at any point during the POP, the award will be subject to the remedies for noncompliance specified in 2 C.F.R. § 200.339,<sup>30</sup> up to and including award termination. If a partner included in the Technical Proposal is replaced with a different entity at any point after the award is made, the applicant must present a Letter of Partnership Intent signed by the new entity and the new partnership must be approved by NTIA before work resumes.

Applicants are ultimately accountable and responsible for the work each partner delivers under any award provided under this NOFO.

### 3.5. Merit Review Criteria

This section describes the Merit Review process and criteria for SRFA 2. Applications submitted under SRFA 1 are subject to a separate Merit Review process with their own distinct criteria (see [Section 2.5](#)). The Merit Review process and criteria described in this section do not affect the scoring or selection of SRFA 1 applications.

During SRFA 2 Merit Review, applications will be evaluated by a panel of at least three (3) independent reviewers composed of government staff or non-federal experts in accordance with the following criteria for a maximum of 100 points. Reviewers may discuss the applications with each other but will assign scores on an individual basis. The reviewers will evaluate applications against the criteria described below.

#### a) Project Purpose and Benefits (65 points)

1. **Technical Approach and Deployment Readiness:** The applicant demonstrates a clear technical understanding of how to advance their solution from the entry stage (e.g., a set of defined functional requirements) into a working prototype, ready for commercial deployment. The scope of work meets the technical maturity requirements criteria discussed in [Section 3.3.1](#). (25 points)
2. **Multi-vendor Integration Automation Solution Advancement:** The applicant clearly and credibly describes how their project reduces the required time and cost of Open RAN integration by advancing development of a multi-vendor integration automation solution (prototype) that meets the performance and interoperability requirements in [Section 3.3.2](#). (25 points)
3. **Security:** The applicant clearly and credibly describes how their project advances the security of open and interoperable architecture and meets the cybersecurity requirements in [Section 4.1.1\(n\)](#). (8 points)
4. **Economic Security:** The applicant demonstrates a commitment to U.S. economic security as described in [Section 4.1.1\(l\)](#). (7 points)

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<sup>30</sup> [2 CFR § 200.339](#)

**b) Commercial Transition Plan, Competence, Partnerships, and Budget (35 points)**

1. **Commercial Transition Plan:** The applicant demonstrates an ability to transition to the commercial market beyond the award period. (15 points)
2. **Competence:** The applicant demonstrates competence (skill, expertise, experience) and organizational capability (personnel and facilities) to complete the specific project proposed. (10 points)
3. **Partnership:** The application materials demonstrate that all parties in the partnership are committed to project success, as evidenced by, for example, the level of project resources committed by each partner and the depth of each partner's participation. The application materials demonstrate the partners' ability to work together to create a market-ready product and a commercial need for the solution, and the ability of each partner to contribute to the development/demonstration of the prototype. (5 points)
4. **Budget:** The applicant demonstrates reasonableness of its proposed budget. (5 points)

## **Section 4 – Application and Submission Information**

This section describes the application submission process that all applicants must follow, regardless of SRFA, and information required for the application package.

***NOTE:** Applicants submitting multiple proposals must submit a separate application for each proposal, regardless of SRFA. Individual submissions containing multiple proposals will be disqualified.*

### **4.1. Content and Form of Applications**

Each application requires the following documentation:

- a) [SF-424, Application for Federal Assistance](#)
- b) [SF-424A, Budget Information for Non-Construction Programs](#)
- c) [SF-424C, Budget Information for Construction Programs](#) (if applicable)
- d) [Project/Performance Site Locations Form](#)
- e) [CD-511, Certification Regarding Lobbying](#)
- f) [SF-LLL, Disclosure of Lobbying Activities](#) (if applicable)
- g) [SF-328, Certification Pertaining to Foreign Interests](#)
- h) Budget Narrative and Justification
- i) Indirect Cost Rate Agreement (if applicable)
- j) Technical Proposal
- k) Work Plan
- l) Commercial Transition Plan
- m) Intellectual Property Plan (if applicable)
- n) Product Security and Cybersecurity Management Plan
- o) Letter(s) of Commitment for Consultants, Contracts, and Subawards
- p) Letter of Partnership Intent
- q) Resumes of Key Personnel
- r) Domestic Content
- s) Other Materials (Optional)

Items ‘a’ through ‘f’ listed above are part of the standard application package in Grants.gov and can be completed through the download application process in Grants.gov.

Additional attachments, including but not limited to the items found in ‘g’ through ‘s’ above, must be uploaded to Grants.gov as attachments to field 15 of the SF-424 form by clicking on “Add Attachment”.

#### **4.1.1. Instructions for Application Documentation**

This section contains additional details and instructions for each of the application components listed above.

**a) SF-424, Application for Federal Assistance**

The SF-424 must be signed by an authorized representative of the applicant organization.

- Item 8.d. Zip/Postal Code field, shall reflect the Zip code + 4 (#####- ####) format.
- Item 12 shall list the NOFO number NTIA-PWSCIF-24-02
- Item 13 shall list the SRFA number.
- Item 15 shall list the title of the proposal.
- Item 18 shall list the total budget information for the duration of the project.
- The list of certifications and assurances referenced in Item 21 is contained in the Federal Financial Assistance Certifications and Representations (Certs and Reps) as part of the SAM.gov entity registration.

**b) SF-424A, Budget Information for Non-Construction Programs**

The budget shall reflect anticipated federal and non-federal expenses for the entire project, considering all potential cost increases and cost of living adjustments.

- The applicant shall include each year of the project, up to the first three (3) years, on the SF-424A form that appears as part of the mandatory forms in the Grants.gov application package.
- Section A:
  - Line 1, column (a) shall be entered as Public Wireless Supply Chain Innovation Fund – Software Solutions for Industry Verticals and Integration Automation, CFDA 11.038, or an abbreviation thereof.
  - Line 1, Column (b) shall enter the CFDA number of “11.038”
  - Line 1, Column (e) shall list the total federal budget amount requested for the term of the award.
  - Line 1, Column (f) shall list the total non-federal cost share amount
- Section B:
  - Column (1) shall reflect the federal and non-federal costs for each object class category, to include indirect charges, for the first year of the award.
  - Column (2) shall reflect the costs for each object class category, to include indirect charges, for the second year of the award, if applicable.
  - Column (3) shall reflect costs for each object class category, to include indirect charges, for the third year of the award, if applicable.
- Section C shall list the sources and amount of non-federal cost sharing.
- Section D requires a breakdown of the first year’s federal share and non-federal share of the budget by quarter.

- Section E, Line 16 requires the budget estimate of federal funds needed for each year of the project.
  - Column (b) shall be the budget estimate for the first year
  - Column (c) shall be the budget estimate for the second year, if applicable
  - Column (d) shall be the budget estimate for the third year, if applicable

**c) SF-424C, Budget Information for Construction Programs (if applicable)**

Applications involving construction-related projects must complete this form to provide information on the specific costs related to construction.

**d) Project/Performance Site Locations Form**

Applications shall include the location of all places of performance for both the applicant and any subgrantees (*i.e.*, partners). This does not include contractor work locations, unless a contractor facility is used to complete work specified in the work plan.

- For U.S. locations, the following is required:
  - ZIP + 4 code format (#####-####)
  - 6-character congressional district format (AA-####)
- For non-U.S. locations, select the country first to update the required fields
- Additional locations must be added using the “Next Site” button, which will generate additional site fields/locations. Location information added using the “Add Attachment” feature is not allowed.

**e) CD-511, Certification Regarding Lobbying**

Enter “NTIA-PWSCIF-24-02” in the Award Number field. Enter the title of the application, or an abbreviation of that title, in the Project Name field.

**f) SF-LLL, Disclosure of Lobbying Activities (if applicable)**

Click the hyperlink in [Section 4.1](#) to access instructions.

**g) SF-328, Certification Pertaining to Foreign Interests**

Click the hyperlink in [Section 4.1](#) to access instructions. Additional instructions will be provided for academic institutions.

**h) Budget Narrative and Justification**

Each applicant must submit a Budget Narrative and Justification spreadsheet through the Application Portal. The spreadsheet is available in the Package section of the Application Portal. All information included in the budget narrative and justification must support the

dollar amounts identified in the SF-424 and SF-424A and demonstrate that the project or activity meets the eligible use requirements as per this NOFO.

The budget narrative and justification shall include the necessity and the basis for the cost, as described below. Proposed funding levels must be consistent with the project scope, and only allowable costs should be included in the budget. Federal project funding should not substitute private capital or enable outsized returns relative to commercially reasonable expectations for similar projects. NTIA will evaluate whether project costs align with relevant market benchmarks to ensure that taxpayer dollars are efficiently spent. Information on cost allowability is available in the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*,<sup>31</sup> which apply to awards in this program.

The budget narrative and justification must explain the rationale for the applicant's proposed cost share. As part of this explanation, the applicant should directly show how the funding requested will incentivize the applicant to make investments in the proposed solution(s) that would not occur in the absence of the incentives. The application should also explain why their funding request is appropriate based on expected risks and returns of the project, historical projects of similar nature, or other relevant market benchmarks.

The budget narrative and justification must indicate if the applicant is seeking the 5% Programmatic Review Score bonus, awarded during Programmatic Review, for applications where 40% or more of the requested federal funding will be granted to, or sub-granted to, a business that meets the definition of a small business.

This section will be reviewed to determine if all costs are reasonable, allocable, allowable, and necessary as defined in 2 C.F.R. Part 200 Subpart E, Cost Principles.

Information required for each budget category is as follows:

- 1) **Personnel** – At a minimum, the budget narrative and justification for all personnel shall include the following: job title, commitment of effort on the proposed project in terms of average number of hours per week or percentage of time, salary rate, total personnel charges for each identified position on the proposed project, description of the role of the individual on the proposed project, and the work to be performed. The budget narrative and justification shall include a description of the applicant's investments in employee training, education, and recruitment, as well as other efforts to build a skilled and diverse workforce, if the applicant makes such investments in their proposal.<sup>32</sup>
- 2) **Fringe Benefits** – Fringe benefits for each position shall be identified separately from salaries and wages and based on rates determined by organizational policy.

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<sup>31</sup> See [2 C.F.R. § 200](#).

<sup>32</sup> The Departments of Commerce and Labor have identified eight principles, known as the "[Good Jobs Principles](#)", that create a framework for workers, businesses, labor unions, advocates, researchers, state and local governments, and federal agencies for a shared vision of job quality.

The items included in the fringe benefit rate (*e.g.*, health insurance, parking, etc.) shall be charged under another cost category.

- 3) **Travel** – For all travel costs, the budget narrative and justification for travel shall include the following: destination; names or number of people traveling; dates and/or duration; mode of transportation, lodging, and subsistence rates; and description of how the travel is directly related to the proposed project. For travel that is yet to be determined, please provide best estimates based on prior experience. If a destination is not known, an approximate amount may be used with the assumptions given for the location.
- 4) **Equipment** – Equipment is defined as an item of property that has a useful life of more than one year and a per-unit acquisition cost of \$10,000 or more (unless the organization has established lower levels). The budget narrative and justification shall list each piece of equipment, the cost, and a description of how it will be used and why it is necessary to the successful completion of the proposed project. Please note that any general use equipment (computers, etc.) charged directly to the award should be allocated to the award according to expected usage on the project.
- 5) **Supplies** – Supplies are defined as all tangible personal property other than that described as equipment. Provide a list of each supply, and the breakdown of the total costs by quantity or unit of cost. Include the necessity of the cost for the completion of the proposed project.
- 6) **Contractual (*i.e.*, Contracts or Subawards)** – Each contract or subaward shall be treated as a separate item. Identify the cost and describe the services to be provided and the necessity of the subaward or contract to the successful performance of the proposed project. Contracts are for obtaining goods and services for the applicant’s own use and create a procurement relationship with the contractor. A subaward is for the purpose of carrying out a portion of a federal award and creates a federal financial assistance relationship with the subrecipient.
- 7) **Construction** – Construction costs are allowed under this NOFO for SRFA 1 only. Construction may be considered as an eligible cost for SRFA 1 projects if it directly supports the goal of the project. Examples of eligible construction activities include, but are not limited to, the following:
  - RAN equipment structures, including major tower reinforcement or modifications to the construction of radio towers (*e.g.*, size of tower, tower design, tower foundations, guy wires)
  - Cabinets for radio equipment and power supplies/batteries
  - Radio unit antenna installation
  - Tower foundation drawings/inspection and installation
  - Foundation and power infrastructure installation, including installation of cement pad and power infrastructure (*i.e.*, cost of parallel/New 200A service)

- Radio frequency engineering tasks to ensure radio propagation sufficiently covers the pilot area (*i.e.*, validating that the sweeps are correct)

For any NTIA-funded project resulting in ground disturbance and/or modification to a building or structure greater than 50 years old, further environmental review may be required.

- 8) Other Direct Costs** – For costs that do not easily fit into the other cost categories, please list the cost, and the breakdown of the total costs by quantity or unit of cost. Include the necessity of the cost for the completion of the proposed project. Only allowable costs can be charged to the award. Training and education for employees that are clearly relevant to the project, including retraining for Open RAN skills (*i.e.*, software development), and recruitment of such employees are direct, allowable costs per 2 C.F.R. § 200.473, and must be itemized. Costs for independent validation and verification of the solution are also allowable and must be itemized if incurred.
- 9) Indirect Costs** – Commonly referred to as Facilities and Administrative Costs, Indirect Costs are defined as costs incurred by the applicant that cannot otherwise be directly assigned or attributed to a specific project. The justification shall include a cost calculation that reflects the applicable indirect cost rate. Additionally, applicants are required to clearly break out if non-federal funds will be used to cover indirect costs and the dollar amounts of non-federal funds used to cover indirect costs. The applicant should clearly state whether or not they plan to use non-federal funds to cover indirect costs in the budget narrative and justification under this category.

**i) Indirect Cost Rate Agreement (if applicable)**

If indirect costs are included in the proposed budget, provide a copy of the approved negotiated agreement if this rate was negotiated with a cognizant federal audit agency. If the rate was not established by a cognizant federal audit agency, provide a statement to this effect. If a successful applicant includes indirect costs in the budget and has not established an indirect cost rate with a cognizant federal audit agency, the applicant will be required to obtain such a rate in accordance with Section F.06 of the [\*Department of Commerce Financial Assistance General Terms and Conditions\*](#), dated October 1, 2024.

Alternatively, in accordance with 2 C.F.R. § 200.414(f), applicants that do not have a current negotiated (including provisional) indirect cost rate (except for those non-federal entities described in [\*Appendix VII, paragraph D.1.b. of 2 C.F.R. § 200\*](#)) may elect to charge a de minimis rate of 15 percent of modified total direct costs (MTDC).<sup>33</sup> Applicants proposing a 15 percent de minimis rate, pursuant to 2 C.F.R. § 200.414(f), shall note this election as part of the Budget Narrative and Justification and an Indirect Cost Rate Agreement is not required.

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<sup>33</sup> Note that effective October 1, 2024, the definition of MTDC has been updated from 10 percent to 15 percent.

**j) Technical Proposal**

See [Section 2.4.1](#) for SRFA 1 and [Section 3.4.1](#) for SRFA 2.

**k) Work Plan**

See [Section 2.4.2](#) for SRFA 1 and [Section 3.4.2](#) for SRFA 2.

**l) Commercial Transition Plan**

*Note: Commercial Transition Plans must not exceed 10 pages in length (excluding cover page).*

Applicants shall provide details about their plan to commercialize and scale their product after the POP. A strong Commercial Transition Plan will provide specifics on the following:

- **Customer and end-market demand**, such as an agreement with one or more partner(s) for marketing, sales and deployment of the solution, or an agreement with a partner or initial customer indicating that the product (if it meets specifications agreed upon at the outset of the award) can or will be leveraged in their business operations.
- **An assessment of market position**, including estimated pricing strategy (*i.e.*, sales and distribution model). For SRFA 1, this assessment should include any plans to expand the customer base for the product beyond the initial customer or industry vertical. For SRFA 2, this assessment should include any plans to expand the customer base for the product beyond a single network, leveraging opportunities across public and private networks. For both SRFAs, this assessment should include details on market dynamics (*e.g.*, potential competitors and/or product substitutes), target customers, sales capabilities in target geographies, on-site technical assistance, and integration.
- **Deployment plan** specifying possible timing to move from working prototype to commercial-scale deployment, including further work to achieve break-even with target customer base, as well as any relevant standards and regulatory compliance.
- **Financial plan** outlining the business case on the solution's benefits across the value chain (*e.g.*, revenue projections, cost savings) and the proposed revenue model (*i.e.*, licensing).
- **An analysis of a project's commercial risks**, and the applicant's strategies for mitigating them.
- **A description of the project's benefit to U.S. economic security**. This may include contributions to job creation in line with the Good Jobs Principles; U.S. economic productivity; U.S. innovation in software development, 5G, or other areas; U.S.

wireless supply chain competitiveness; partnerships with U.S. stakeholders; expanding market opportunities for U.S. wireless industry stakeholders; U.S.-based deployment plans; U.S.-based work or investments; or other contributions.<sup>34</sup>

**m) Intellectual Property Plan (if applicable)**

*Note: The Intellectual Property Plan must not exceed 10 pages excluding cover page.*

If the applicant contemplates retaining intellectual property rights related to work conducted under this NOFO or anticipates using federal or matching funds to pay IP royalties, IP filing fees, and/or costs related to counsel for patent and copyright matters, the applicant shall provide an IP plan describing any IP considerations anticipated during the POP. This includes, but is not limited to:

- Anticipated patent filings from the federally funded work.
- Rationale for any anticipated royalty expenses using federal funds during the POP, including to which entities royalties will be paid.
- Rationale for any other IP-related costs (e.g. filing costs, IP attorney fees, etc.) included in the project budget.
- Any standards-related activities contemplated in the proposal and rationale for how such activities further the goals of the Technical Proposal and this program.
- Any IP-sharing provisions with proposed partners.
- Any IP management or protection plans proposed.
- Any plans to make software open-source.

See [Section 6.4.10](#) for more details.

**n) Product Security and Cybersecurity Management Plan**

*Note: The Product Security and Cybersecurity Management Plan must not exceed 10 pages excluding cover page.*

It is the policy of the U.S. to strengthen the security and resilience of its critical infrastructure against all hazards, including physical and cyber risks. Entities receiving funds through this program must ensure that cybersecurity is integrated into the design, development, operation, and maintenance of solutions developed through this program given the impact on future critical infrastructure information technology (IT) and operational technology (OT).

- 1) All projects shall incorporate “security-by-design” principles<sup>35</sup> in their scope, following industry best practices, as well as hardware security principles where appropriate.

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<sup>34</sup> The Departments of Commerce and Labor have identified eight principles, known as the “[Good Jobs Principles](#)”, that create a framework for workers, businesses, labor unions, advocates, researchers, state and local governments, and federal agencies for a shared vision of job quality.

<sup>35</sup> See [CISA Security by Design Principles](#)

- 2) Software security development and management best practices shall be used in projects, such as a development, security, and operations (DevSecOps) approach to software design, implementation, and maintenance. Software products developed under this NOFO shall also develop a Software Bill of Materials (SBOM) in accordance with NTIA minimum requirements.<sup>36</sup>
- 3) All hardware deliverables under this NOFO shall develop a Hardware Bill of Materials (HBOM)<sup>37</sup>. Both the SBOM<sup>38</sup> and HBOM shall include a corresponding Vulnerability Exploitability eXchange (VEX) for any known vulnerabilities.
- 4) Additionally, all projects must ensure that practices are consistent with current industry best practices for cybersecurity, such as the NIST Cybersecurity Framework 2.0 and Cybersecurity and Infrastructure Security Agency (CISA) Cybersecurity Performance Goals (CPGs).<sup>39,40</sup> These performance goals provide a baseline set of cybersecurity practices broadly applicable across critical infrastructure with known risk-reduction value, a benchmark for critical infrastructure operators to measure and improve their cybersecurity maturity, and a combination of recommended practices for IT and OT owners, including a prioritized set of security practices.

The Product Security and Cybersecurity Management Plan shall address the objectives outlined above, in addition to describing any efforts the applicant will take to assess the security of work performed during the POP. This includes, but is not limited to, vulnerability scans, third party security assessments, etc.

At the government’s discretion, complex projects may be required to develop a detailed Project Cybersecurity Plan outlining how the recipient will ensure security throughout all project activities, not just the product. This requirement will be identified through a Special Award Condition (SAC) at time of award and is not required to apply to this funding opportunity. Such a plan will require detailed information on topics including (but not limited to):

- High-level description of the plan for overall management of cybersecurity for the project;
- Inventory of project IT/OT assets;

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<sup>36</sup> See U.S. Department of Commerce, [The Minimum Elements For a Software Bill of Materials \(SBOM\)](#), which is a formal record containing the details and supply chain relationships of various components used in building software.

<sup>37</sup> See [CISA Hardware Bill of Materials Framework \(HBOM\) for Supply Chain Risk Management](#)

<sup>38</sup> See [NIST Software Security in Supply Chains: Software Bill of Materials \(SBOM\)](#)

<sup>39</sup> See [NIST Cybersecurity Framework 2.0](#), which provides guidance to industry, government agencies, and other organizations to manage cybersecurity risks. It offers a taxonomy of high-level cybersecurity outcomes that can be used by any organization — regardless of its size, sector, or maturity — to better understand, assess, prioritize, and communicate its cybersecurity efforts.

<sup>40</sup> See [Cybersecurity and Infrastructure Security Agency \(CISA\) Cybersecurity Performance Goals \(CPGs\)](#), which are a subset of voluntary cybersecurity practices aimed at meaningfully reducing risks to both critical infrastructure operations and the American people by prioritizing investment in a limited number of essential actions with high-impact security outcomes.

- Cybersecurity risk assessment; and
- List of cybersecurity risk mitigation actions with a target implementation date for each mitigation activity.

**o) Letters of Commitment for Consultants, Contracts, and Subawards**

Letters of Commitment must be submitted by all funded and unfunded entities that will have an active role in executing the activities outlined in the Technical Proposal, **excluding** entities with which the applicant has signed a Letter of Partnership Intent pursuant to the requirements in [Section 2.4.5](#) (SRFA 1) and [Section 3.4.5](#) (SRFA 2). Therefore, any entities that have signed a Letter of Partnership Intent need not submit a Letter of Commitment. All other consultants, subrecipients, or subcontractors must submit a Letter of Commitment.

Letters of Commitment must address the following:

- Entity’s role in the project and overall level of participation
- Qualifications of personnel actively involved
- Share of federal funding for the entity (if applicable)
- Voluntary committed cost-share (if applicable), including what specific services and/or products will be provided for any in-kind match
- Point of Contact at the entity for any inquiries regarding the Letter of Commitment
- If the applicant seeks additional weighting in Programmatic Review for facilitating market access and competition (see [Section 5.1.3](#)), the entity should demonstrate that it meets the definition of a small business as defined in *Appendix A* of this NOFO and indicate the small business’s share of federal funding as a percentage of total federal funding requested.

Letters of Commitment must be signed by a senior representative of the entity on the participating entity’s letterhead.

**p) Letter of Partnership Intent**

See [Section 2.4.5](#) for SRFA 1 Letter of Partnership Intent details.

See [Section 3.4.5](#) for SRFA 2 Letter of Partnership Intent details.

**q) Resumes of Key Personnel**

Provide one-page resumes of key personnel involved in the project. Resumes must include contact information for the personnel. The total number of resumes provided must not exceed five (5), and the number of pages per resume must not exceed one (1). Any information beyond one (1) page for each resume and any additional resumes beyond five (5) will not be considered.

**r) Domestic Content**

Non-federal entity recipients and subrecipients must comply with the *Build America, Buy America Act (BABA)*, if applicable to their project, which was enacted as part of the *Infrastructure Investment and Jobs Act §§ 70901-70927, Pub. L. No. 117-58 (2021)*; and *Executive Order 14005, Ensuring the Future is Made in All of America by All of America’s Workers*.

The term “non-federal entity” for purposes of *BABA* includes States, local governments, territories, Indian tribes, Institutions of Higher Education (IHE), and nonprofit organizations. It does not include for-profit organizations.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

It is NTIA’s expectation that *BABA* requirements will not apply to the majority of applicants, given that most are expected not to meet the definition of a non-federal entity. Nevertheless, applicants who are non-federal entities or who have non-federal entities included in their application as subrecipients, contractors or partners must describe how they plan to meet any applicable legal requirements to utilize iron, steel, manufactured products and construction materials produced in the United States pursuant to *BABA §§ 70901-27*, or explain why such requirements do not apply.

#### **s) Other Materials (Optional)**

Any additional material the applicant seeks to include to demonstrate fulfillment of the eligibility criteria, Merit Review criteria, and Programmatic Review criteria set forth in this NOFO can be included in the application.

## **4.2. Application Document Format**

All application documents, except those using prescribed forms, must meet the formatting and length requirements described in this section.

### **4.2.1. Document Format**

Application documents must meet the following formatting requirements:

- a) Figures, graphs, images, and pictures – Should be of a size that is easily readable or viewable and may be presented in landscape orientation
- b) Font – Easy to read font (11-point minimum). Smaller type may be used in figures and tables but must be clearly legible.

- c) Line spacing – Applicants may use single spacing or double spacing.
- d) Margins – One inch top, bottom, left, and right margins.
- e) Page Layout – Portrait orientation, except for figures, graphs, images, and pictures. Paragraphs are to be clearly separated from each other by double spacing, paragraph formatting, or equivalent.
- f) Page Numbering – Number pages sequentially.
- g) Page Size – Pages must be 8½ inches by 11 inches, excluding network or system diagrams.
- h) Application Language – English.<sup>41</sup>
- i) Typed Document – All applications, including forms, must be typed.
- j) Document Format – Documents must be submitted in a DOCX or PDF format.

#### 4.2.2. Page Limits

The following documents are subject to page limits, excluding the cover page:

- a) Technical Proposal – 20 pages
- b) Work Plan – 20 pages
- c) Commercial Transition Plan – 10 pages
- d) Intellectual Property Plan – 10 pages
- e) Security Management Plan – 10 pages

#### 4.3. Application Submission

NTIA will only accept applications submitted electronically via Grants.gov. Other methods of submission, including paper, email, and facsimile submissions, **will not be accepted.**

##### 4.3.1. Register to Apply through Grants.gov

Read the instructions below about registering to apply for Innovation Fund grants. Applicants should read the registration instructions carefully and prepare the information requested before beginning the registration process.

Organizations must have an active System for Award Management (SAM) registration, which provides a Unique Entity Identifier (UEI), and Grants.gov account to apply for grants. If individual applicants (those submitting on their own behalf) are eligible to apply for this funding opportunity, they need only refer to steps 2 and 3 below.

Creating a Grants.gov account can be completed online in minutes, but SAM registration may take weeks. Therefore, an organization’s registration should be done in sufficient time to ensure it does not impact the entity’s ability to meet required application submission deadlines. **Application period extensions will not be provided due to delayed SAM registration.**

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<sup>41</sup> See [2 C.F.R. § 200.111\(a\)](#).

- 1) *Register with SAM:* All organizations (entities) applying online through Grants.gov must register with the System for Award Management (SAM). Failure to register with SAM will prevent your organization from applying through Grants.gov. SAM registration must be renewed annually.
- 2) *Create a Grants.gov Account:* The next step is to register an account with Grants.gov. Follow the on-screen instructions provided on the registration page.
- 3) *Add a Profile to a Grants.gov Account:* A profile in Grants.gov corresponds to a single applicant organization the user represents (*i.e.*, an applicant) or an individual applicant submitting on their own behalf. If you work for or consult with multiple organizations, you can have a profile for each organization under one Grants.gov account. In such cases, you may log in to one Grants.gov account to access all your grant profiles. To add an organizational profile to your Grants.gov account, enter the UEI (Unique Entity Identifier) for the organization in the UEI field. If you are an individual applicant submitting on your own behalf, you do not need a UEI to add the profile.
- 4) *Electronic Business Point of Contact (EBiz POC) Authorized Profile Roles:* After you register with Grants.gov and create an Organization Applicant Profile, the applicant's request for Grants.gov roles and access is sent to the EBiz POC. The EBiz POC is then expected to log in to Grants.gov and authorize the appropriate roles, which may include the Authorized Organizational Representative (AOR) role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role.
- 5) *Electronic Signature:* When applications are submitted through Grants.gov, the name of the organization applicant with the AOR role that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC of the organization must authorize people who are able to make legally binding commitments on behalf of the organization as a user with the AOR role; this step is often missed, and it is crucial for valid and timely submissions.

#### **4.3.2. Submit an Application for this NOFO via Grants.gov**

Grants.gov applicants can apply online using Workspace. Workspace is a shared, online environment where members of a grant team may simultaneously access and edit different webforms within an application. For each NOFO, you can create individual instances of a workspace.

Applicants should be aware that the process of completing the Workspace can take some time. Therefore, applicants should budget enough time to prepare and submit the application before the package closing date.

- 1) *Create a Workspace:* Creating a workspace allows you to complete an application online and route it through your organization for review before submitting.
- 2) *Complete a Workspace:* Add participants to the workspace to work on the application together, complete all the required forms online or by downloading PDF versions, and check for errors before submission. The Workspace progress bar will display the state of your application process as you apply. As you apply using Workspace, you may click the blue question mark icon near the upper-right corner of each page to access context-sensitive help.
  - a. *Adobe Reader:* If you decide not to apply by filling out webforms, you can download individual PDF forms in Workspace. The individual PDF forms can be downloaded and saved to your local device storage, network drive(s), or external drives, then accessed through Adobe Reader.

*Note:* Visit the [Adobe Software Compatibility page](#) on Grants.gov to download the appropriate version of the software.
  - b. *Mandatory Fields in Forms:* In the forms, some fields are marked with an asterisk and a different background color. These fields are mandatory fields that must be completed to successfully submit your application.
  - c. *Complete SF-424 Fields First:* These forms are designed to fill in common required fields across other forms, such as the applicant name, address, and SAM UEI. Once it is completed, the information will transfer to the other forms.
- 3) *Submit a Workspace:* An application may be submitted through Workspace by clicking the “Sign and Submit” button on the “Manage Workspace” page, under the “Forms” tab. Grants.gov recommends submitting your application package **at least 24-48 hours prior to the close date** to provide you with time to correct any potential technical issues that may disrupt the application submission.
- 4) *Track a Workspace Submission:* After successfully submitting a workspace application, a Grants.gov Tracking Number (GRANTXXXXXXXX) is automatically assigned to the application. The number will be listed on the Confirmation page that is generated after submission. Using the tracking number, access the “Track My Application” page under the “Applicants” tab or the “Details” tab in the submitted workspace.

For additional training resources, including video tutorials, refer to:  
[grants.gov/applicants/applicant-training](https://grants.gov/applicants/applicant-training)

*Applicant Support:* Grants.gov provides applicants 24/7 support via the toll-free number 1-800-518-4726 and email at [support@grants.gov](mailto:support@grants.gov). For questions related to the specific grant opportunity, contact the number listed in the application package of the grant you

are applying for. If you are experiencing difficulties with your submission, it is best to call the Grants.gov Support Center and get a ticket number. The Support Center ticket number will assist NTIA with tracking and understanding background information on the issue.

#### **4.3.3. Submission Dates and Times**

Complete applications must be received through Grants.gov no later than 11:59 p.m. Eastern Time on April 16, 2025. Complete applications or portions thereof submitted by postal mail, courier, email, or by facsimile will not be accepted. All application forms and documents must be included with an applicant's complete application package submission through Grants.gov.

When developing the submission timeline, each applicant should keep in mind that: (a) all applicants are required to have current registrations in the electronic System for Award Management (SAM.gov); and (b) the free annual registration process in SAM.gov may take weeks. Please note that a federal assistance award cannot be issued if the designated recipient's registration in SAM.gov is not current at the time of the award. **Application period extensions will not be provided due to delayed SAM registration.**

#### **4.3.4. Timely Receipt Requirements and Proof of Timely Submission**

All applications must be received by 11:59 p.m. Eastern Time on April 16, 2025. Proof of timely submission is automatically recorded by Grants.gov. An electronic date/time stamp is generated within the system when the application is successfully received by Grants.gov. The applicant's Authorized Official Representative (AOR), who submitted the application, will receive an acknowledgement of receipt and a tracking number (GRANTXXXXXXXX) from Grants.gov with the successful transmission of their application. The AOR will also receive the official date/time stamp and Grants.gov Tracking number in an email serving as proof of their timely submission.

When NTIA successfully retrieves the application from Grants.gov, and acknowledges the download of submissions, Grants.gov will provide an electronic acknowledgment of receipt of the application to the email address of the applicant's AOR. Again, proof of timely submission shall be the official date and time that Grants.gov receives your application. Applications received by Grants.gov after the established due date for the program will be considered late and will not be considered for funding by NTIA.

Grants.gov will provide either an error or a successfully received submission message in the form of an email sent to the applicant's AOR.

#### **4.3.5. Material Revisions**

An applicant shall not be permitted to make any material revision to its application after the submission deadline. NTIA may, however, request or accept clarifications, revisions

or submissions for completeness that are non-material. It is at the Assistant Secretary's sole discretion whether a revision is material or not.

#### **4.3.6. Amendments**

Any amendments to this NOFO or additional program guidance will be announced on Grants.gov and NTIA.gov. Applicants using Grants.gov Workspace will see an alert on the Manage Workspace page to update their application. Applicants who have signed up for email notifications will be automatically notified of the changes via email.

#### **4.3.7. Material Representations and False Statements**

Any statement made on any form or supporting document submitted as part of the complete application package will be treated as a material representation of fact upon which NTIA will rely in awarding grants.

It is a crime to knowingly make false statements to a federal agency. Misrepresentation of material facts may be the basis for denial of an application. Penalties upon conviction may include fine and imprisonment. For details concerning fraud, please refer to 18 U.S.C. § 1001.<sup>42</sup>

#### **4.3.8. Public Disclosure of Applications**

Applicants should be aware that NTIA may make all or portions of their applications for grants under the Innovation Fund Program publicly available as required under applicable federal laws. (See [Section 6.4.9](#) of this NOFO for additional information concerning the confidentiality of information contained in an application.)

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<sup>42</sup> See [18 U.S.C. § 1001](#).

## **Section 5 – Application Review Process**

### **5.1. Review Process for Innovation Fund Program**

All applications will be evaluated on a competitive basis. Applications will be initially screened to determine eligibility, completeness, and responsiveness to this NOFO.

Applications passing initial screening (Initial Administrative and Eligibility Review) will move on to Merit Review. In this phase, the application will be assigned to at least three independent reviewers, who will evaluate the merits of the proposals and will individually score Technical Proposals in accordance with the evaluation criteria. Each application will be judged on its own merit.

Once the Merit Review phase is complete, NTIA staff will conduct a Programmatic Review for applications passing Merit Review, beginning with the highest scoring applications and continuing until all funding has been awarded. Programmatic Review is conducted to ensure that the proposed activities align with the program requirements, that the budget and budget narrative are complete, and that costs appear allowable, allocable, and reasonable. NTIA is under no obligation to fund any application. NTIA may elect to fund several or none of the applications that are similar in scope.

NTIA reserves the right at any time during the Merit and Programmatic Review processes to negotiate with the applicant relative to specific modifications to the application, including, but not limited to, the resolution of any differences that may exist between the applicant's original request and NTIA's determination of eligible costs and Innovation Fund Program funding priorities. Upon completion of the Programmatic Review, NTIA Program Staff will summarize their analysis for each application reviewed.

#### **5.1.1. Initial Administrative and Eligibility Review of Complete Applications**

NTIA will download applications from the Grants.gov portal and conduct an initial review of applications to determine eligibility, completeness, and responsiveness to the programmatic requirements, including a review of the project narrative and budget justification.

Applications submitted by any entity other than an eligible applicant will be eliminated from further review, as will any applications that fail to meet any of the requirements set forth in [Section 4](#) and any applications outside of the application limits established in [Section 1.3.2](#). NTIA may elect to continue the initial administrative review process for an application that is submitted in a timely manner by an eligible applicant, but that is missing non-material documentation required by this NOFO. The applicant will have up to seven (7) calendar days to submit materials responsive to the feedback provided by NTIA, unless this period is extended by NTIA. An eligible applicant's failure to remedy deficiencies in a timely manner may result in NTIA's denial of the application.

A high-level scope review of Technical Proposals will be conducted. Technical Proposals determined to not meet the technical maturity, scope, and requirements outlined in [Sections 2.3](#) and [2.4.1](#) for SRFA 1 and [Sections 3.3](#) and [3.4.1](#) for SRFA 2 will be excluded from further review and will not receive awards. Applications that satisfy the Initial Administrative and Eligibility Review will be sorted by like-focused project type before proceeding to Merit Review.

### 5.1.2. Merit Review

During Merit Review, applications will be evaluated by a panel of at least three (3) independent reviewers composed of government staff or non-federal experts with relevant experience in accordance with the criteria discussed in [Section 2.5](#) (SRFA 1) and [Section 3.5](#) (SRFA 2). Reviewers may discuss the applications with each other but will assign scores on an individual basis.

Applications that receive a mean score of 80 points or higher during Merit Review will move to Programmatic Review, beginning with the highest-scoring applications and proceeding until all available funding is awarded. In the event the list of proposed projects does not account for the entirety of the funding available, applications that attained a mean score of between 70 and 79 during Merit review may move to Programmatic Review, beginning with the higher-scoring applications.

### 5.1.3. Programmatic Review

#### a. Prioritization

Applications will be prioritized for Programmatic Review as follows:

1. **First**, NTIA will begin by reviewing the highest-scoring applications that received a mean score of 80 or higher during the Merit Review, combining like-scoring projects within each SRFA together. Applications with Merit Scores within a 5 - 10 point range within each SRFA will be organized into groups that will proceed through Programmatic Review and Selecting Official consideration together, beginning with the highest-scoring applications. Once awards have been recommended for funding from the top-scoring group, NTIA will move on to the next group of applications under Programmatic Review, continuing this process until all funding under this NOFO has been allocated. If an application in a higher scoring group is not selected for an award during its initial consideration, that application will be included for consideration in the next highest scoring group within each SRFA.
2. **Next**, in the event the list of proposed projects does not account for the entirety of the funding available, NTIA program team may review, in rank order, applications that attained a mean score of between 70 and 79 during Merit review.

b. Process

Programmatic Review will involve three steps:

**First**, for all applications under SRFA 1 and SRFA 2, NTIA may ask applicants to submit supplemental information, as appropriate, to clarify or to further substantiate the representations made in their applications. This includes documentation required for environmental or legal compliance. NTIA program staff will review the supplemental information, along with all information submitted with the application, to confirm eligibility and completeness of the application. Applicants will have up to seven (7) calendar days to submit supplemental information responsive to the feedback provided by NTIA, unless this time period is extended by NTIA. Applicants whose supplemental information is not complete, accurate, and submitted in a timely manner or does not adequately substantiate the representations in their applications may be denied.

**Second**, for all applications under SRFA 1 and SRFA 2, NTIA will conduct a detailed review to verify that all proposed activities align with the objectives of this NOFO, overall Innovation Fund Program goals, and statutory requirements as outlined in the *FY21 NDAA*. NTIA will also conduct a detailed budget review to verify that the proposed budget, including any cost share, appears allowable, allocable, and reasonable. NTIA will review Commercial Transition Plans and Product Security and Cybersecurity Management Plans for completeness, accuracy, and risk.

**Third**, for all applications under SRFA 1 and SRFA 2, NTIA will evaluate which applications facilitate increased market access and competition by supporting small businesses. An application will receive a 5% bonus during Programmatic Review if it demonstrates that 40% or more of the requested federal funding will be granted or sub-granted to a business concern that meets the definition of a small business (as described in Appendix A of this NOFO). Specifically, NTIA will multiply the application's mean Merit Review score by 1.05 to generate a Programmatic Review score.

Applicants that expect to receive a 5% bonus for market access and competition as described above must provide evidence in their application that supports its position with respect to the above criterion. Programmatic reviewers will consider the evidence presented on its own merit and will not seek out or consider material not included in the application except insofar as they request additional information to clarify or to further substantiate representations made in an application.

Following the completion of the Programmatic Review for each group, NTIA program staff will summarize their analysis for each application reviewed and provide a ranked list of proposed projects within the reviewed group, based on

each project's weighted score in their like-focused project lists, to the Innovation Fund Director.

#### **5.1.4. Selecting Official Approval**

The Innovation Fund Director will provide packages of recommended awards to the Selecting Official, the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator. Each package provided by the Innovation Fund Director will include a list of recommended awards, based on each project's merit and weighted score. In addition, each list will include recommendations from the Innovation Fund Director to the Selecting Official on application of the selection factors below, where applicable.

The Selecting Official has final determination over whether and how to apply the selection factors and, after doing so, the Selecting Official will make a final award recommendation to the National Institute of Standards and Technology (NIST) Grants Officer. The Selecting Official retains discretion to select and recommend an application for funding that was not recommended by the Innovation Fund Director and/or not to select an application that was recommended for funding by the Innovation Fund Director, based upon the following selection factors:

- a. **The Availability of Funding.**
- b. **Sector Diversity.** The Selecting Official may consider the diversity of types of awardees (*e.g.*, university, non-profit, private enterprise) to ensure awardees represent varied aspects of the telecom ecosystem.
- c. **Geographic Diversity.** NTIA may give preference to applications from different geographic areas to support geographic diversity. Therefore, the Selecting Official may select a lower scoring application from a different region before selecting a second applicant within the same region.
- d. **Diversity in Scope.** The Selecting Official may select lower scoring applications with diverse project focuses to allow for varied approaches and a broader range of projects.
- e. **Relative Cost Effectiveness.** To maximize impact of grant funds and ensure prudent investments, NTIA may prefer projects that exercise cost reasonableness. The Selecting Official may:
  - Select a lower scoring application that requests less federal funding than a similarly scoped project that requests greater funding; or
  - Pass over applications that the Selecting Official determines do not provide sufficient public benefit, in accordance with the goals and objectives of this NOFO, relative to the costs incurred.

The Selecting Official retains discretion to select and recommend an application for funding out of rank order based upon one or more of the selection factors listed above. The Selecting Official will submit the applications recommended for funding, along with the basis for the selection decisions, to the NIST Grants Officer, who serves as the Grants Officer for the Innovation Fund Program. The final approval of selected applications and issuance of awards will be by the NIST Grants Officer. The award decisions of the NIST Grants Officer are final.

#### **5.1.5. Grants Office Action – Federal Awarding Agency Review of Risk Posed by Applicants**

NTIA has contracted with the NIST Financial Assistance Agreements Management Office (FAAMO) to be the servicing grants office for this program. After applications are proposed for funding by the Selecting Official, the NIST FAAMO performs pre-award risk assessments prior to final award, in accordance with 2 C.F.R. § 200.206.

Where the total Federal share is expected to exceed the Simplified Acquisition Threshold (currently \$250,000),<sup>43</sup> NIST FAAMO will review and consider the publicly available information about that applicant in SAM.gov under the “Responsibility/Qualification” (R/Q) section, previously known as the Federal Awardee Performance and Integrity Information System (FAPIIS). An applicant may, at its discretion, review and comment on information about itself previously entered into FAPIIS/SAM.gov R/Q by a Federal awarding agency. As part of its review of risk posed by applicants, NIST FAAMO will consider any comments made by the applicant in SAM.gov R/Q in making its determination about the applicant’s integrity, business ethics, and record of performance under Federal awards. Upon completion of the pre-award risk assessment, the Grants Officer will make a responsibility determination concerning whether the applicant is qualified to receive the subject award and, if so, whether appropriate specific conditions that correspond to the degree of risk posed by the applicant shall be applied to an award.

The final approval of selected applications and the issuance of awards will be made by the NIST Grants Officer. The award decisions of the NIST Grants Officer are final. All awards are subject to the availability of Federal award funds at the time of award. Unsuccessful applicants will be notified in writing after all selections are finalized. (See [Section 5.2.1](#)).

### **5.2. Federal Award Notices**

A grants officer from the NIST FAAMO will serve as the Grants Officer for awards issued pursuant to this NOFO. An applicant will be notified in writing by the NIST Grants Officer if its application is selected for an award. If the application is selected for funding, the NIST Grants Officer will issue the grant award (Form CD-450), which is the authorizing financial assistance award document. By signing the Form CD-450, the recipient agrees to comply with all award provisions, terms, and conditions.

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<sup>43</sup> See [FAR 2.101 \(effective August 29, 2024\)](#).

If an applicant is awarded funding, neither NTIA nor NIST is under any obligation to provide any additional future funding in connection with that award or to make any future award(s). Amendment of an award to extend the POP is at the discretion of NTIA and the NIST Grants Officer, in accordance with DOC Policy.

### **5.2.1. Notification to Unsuccessful Applicants**

Unsuccessful applicants will be notified in writing by e-mail and will have the opportunity to receive a debriefing after the final award decisions have been announced. Applicants must make a request within ten (10) business days of the email notification to receive a debrief from NTIA. NTIA will then work with the unsuccessful applicant in arranging a date and time for the debrief.

### **5.2.2. Retention of Unsuccessful Applications**

Unsuccessful applications will be retained in accordance with NTIA recordkeeping requirements.<sup>44</sup>

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<sup>44</sup> See Department of Commerce [Grants and Cooperative Agreements Grants Manual](#)

## **Section 6 – General Requirements, Prohibitions, and Other Information**

### **6.1. General Eligibility**

#### **6.1.1. Past Innovation Fund Award Recipients**

Entities that have received funding from past Innovation Fund grants are eligible to receive funds under this NOFO, if the entity otherwise meets the appropriate eligibility requirements defined in the NOFO.

#### **6.1.2. Future Eligibility**

Awards made under this NOFO will not impact a recipient's ability to apply for grants in future Innovation Fund NOFOs, if the recipient otherwise meets the NOFO- or SRFA-specific eligibility criteria in the future NOFO.

#### **6.1.3. Ineligible Applicants and Participants in Grant-Funded Activities**

As described below, certain entities are not eligible to receive grants or participate in grant-funded activities under the Innovation Fund. Ineligible applicants and participants include, but are not limited to, any applicant, sub-applicant, participant, or other entity that is owned or controlled by an organization that is:

- a) A foreign entity of concern;<sup>45</sup>
- b) Identified on the [People's Republic of China \(PRC\) Military Companies List](#) established in accordance with Section 1260H of the *FY21 NDAA*;
- c) Included on the [System for Award Management \(SAM\) Exclusion List](#);
- d) Included on the International Trade Administration's [Consolidated Screening List \(CSL\)](#);<sup>46</sup> or

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<sup>45</sup> See [15 U.S.C. § 4651\(8\)](#) and [15 C.F.R. § 231.104](#), subject to any further rulemaking promulgated by the Department of Commerce.

<sup>46</sup> The Consolidated Screening List (CSL) is a consolidation of multiple export screening lists of the Departments of Commerce, State, and the Treasury. The CSL may be used as an aid in conducting electronic screens of potential parties to regulated transactions; however, applicants should be aware that the underlying lists, not the CSL, provide the authoritative information for determining eligibility under this NOFO. Ineligible entities for this NOFO include any applicant, sub-applicant, participant, or other entity that is owned or controlled by an organization included in any of the lists that comprise the CSL, including but not limited to the Bureau of Industry and Security's Entity List (15 CFR part 744, supplement no. 4) and the Department of the Treasury's list of Non-SDN Chinese Military Industrial Complex Companies (NS-CMIC List). In the event that a company, entity, or person on the list appears to match a party potentially involved in an export transaction, additional due diligence should be conducted before proceeding. Prior to taking further action, to ensure full compliance with all of the terms and conditions of the restrictions placed on the parties on this list, the applicant must check the official publication of restricted parties in the Federal Register. They should also check the official lists of restricted parties maintained on the websites of the Departments of Commerce, State, and the Treasury.

- e) Identified as a provider of covered equipment and services in the Federal Communications Commission’s list of [Equipment and Services Covered by Section 2\(a\) of the Secure and Trusted Networks Act of 2019](#).

NTIA will review applications for involvement of such entities and will not approve any applications that raise unacceptable concerns with respect to promoting a more secure, diverse, sustainable, and competitive wireless technology supply chain. For example, an entity—through control, access to information, or other mechanisms— may pose an undue risk to a project or U.S. national security interests. ***All applicants are required to provide information via the Standard Form (SF)-328 at the time of application to enable an initial assessment of these issues.*** Additional information, beyond the scope of the SF-328 form, may be required during Programmatic Review to further identify and, if necessary, mitigate potential concerns and risks to national security. NTIA may also require additional information to enable identification and mitigation of other concerns and national security risks posed by involvement of certain entities that may arise after an application is approved.

For example, NTIA may request records about participants in Innovation Fund awards in the course of monitoring and/or audit activities to ensure compliance with this requirement, in accordance with [Section 6.4](#). Awardees shall be prepared to provide records demonstrating ownership and control and shall obtain sufficient information from participants for NTIA to understand the ownership and control of participants in grant-funded activities.

## 6.2. General Period of Performance Requirements

### 6.2.1. POP Extensions

A grant recipient may submit a request for an extension of the POP, which must include the justification for such an extension and describe all relevant circumstances. The Assistant Secretary may recommend that the NIST Grants Office extend the POP by not more than one (1) year if the grant recipient certifies to the Assistant Secretary’s satisfaction that:

- a) The grant recipient has a plan for use of the grant funds; and
- b) Work completed during the extended time would provide sufficient value to advancing goals outlined in the NOFO and accepted proposal, as determined by the government.

Requests for extensions will be granted at the sole discretion of the Assistant Secretary or their designee. Per Department of Commerce policy, the POP, inclusive of all extensions, shall not exceed five (5) years.<sup>47</sup>

### 6.2.2. Reversion of Funds

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<sup>47</sup> See U.S. Department of Commerce, [Federal Financial Assistance Manual \(October 1, 2024\)](#), Section 9.I.2.a.1.

Any remaining unspent funds at the end of a grantee's POP, inclusive of any extensions granted, will be de-obligated and will be made available for future funding opportunities.

### **6.3. Funding Restrictions**

#### **6.3.1. Eligible Uses of Funds for the Innovation Fund Program**

Grant recipients may only use Federal award funds and any non-federal cost share committed by the recipient to pay for allowable costs under the Innovation Fund Program. Allowable costs are determined in accordance with the Federal cost principles identified in 2 C.F.R. Part 200, Subpart E. In addition, costs must be reasonable, necessary, allocable, and allowable for the proposed project, and must conform to generally accepted accounting principles as defined in 2 C.F.R. Part 200, Subpart E.

#### **6.3.2. Ineligible Costs**

Ineligible costs include those costs that are unallowable under the applicable Federal cost principles. If costs do not satisfy the criteria of reasonableness, necessity, allocability, and allowability, they are unallowable. Please note that costs ineligible for this NOFO may not be paid for with the non-federal cost share committed to an award. In addition, the following costs are specifically identified as prohibited:

##### **6.3.2.1. Profit and Fees**

A profit, fee, or other incremental charge to the government above actual cost incurred by an award recipient or subrecipient is not an allowable cost for activities funded under this Program.

##### **6.3.2.2. Use of Grant Funds to Support or Oppose Union Organizing**

An award recipient or any subrecipient may not use grant funds, whether directly or indirectly, to support or oppose union organizing.

##### **6.3.2.3. Equipment, Supplies, and Services from Untrusted Vendors**

Award recipients are prohibited from using grant funds for certain telecommunications and video surveillance services and equipment in accordance with 2 C.F.R. § 200.216. Additionally, ineligible costs include costs from vendors (for example, for equipment, supplies, and services from vendors) found in registries listed in [Section 6.1.3](#).

Award recipients shall be prepared to provide documentation that allows NTIA to verify that its vendors, equipment, or services do not pose an undue risk to promoting a more secure, diverse, sustainable, and competitive wireless technology supply chain.

#### 6.3.2.4. Activities Providing Direct Benefit to the United States Government

In accordance with 31 U.S.C. § 6304, federal grants are generally required to carry out a public purpose of support or stimulation and are not to be used to perform work for the direct benefit of the United States Government. As such, any costs for work where the principal beneficiary is one or more U.S. Government agency are unallowable (*e.g.*, work to develop a prototype that only meets the requirements of a single U.S. Government agency).

However, costs related to work where the U.S. Government is an indirect beneficiary are allowable. For example, a prototype developed for the commercial market that also may be used by U.S. Government customers. Any determination of the principal beneficiary is at the sole discretion of NTIA.

#### 6.3.2.5. Other

As a condition of receiving a grant under the Innovation Fund Program, an entity that is receiving the grant is prohibited from using grant amounts:

- a) As collateral for a loan made by any public or private lender;
- b) For pre-application expenses, including previously incurred administrative costs or previously purchased supplies or equipment; and
- c) For any other activity listed in this NOFO as ineligible or unallowable.

### **6.4. Administrative and National Policy Requirements**

#### **6.4.1. Uniform Administrative Requirements, Cost Principles, and Audit Requirements**

Through 2 C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Please note that 2 C.F.R. 200 was updated on October 1<sup>st</sup>, 2024. The updated version of 2 C.F.R. 200 will apply to all awards under this NOFO.

#### **6.4.2. Department of Commerce Financial Assistance General Terms and Conditions**

The Department of Commerce will apply the Financial Assistance General Terms and Conditions to each award in this program on the date of award. The current version, dated October 1, 2024, is accessible at [Department of Commerce Financial Assistance General Terms and Conditions](#).

### **6.4.3. Pre-Award Notification Requirements**

The Department of Commerce will apply the Pre-Award Notification Requirements for Grants and Cooperative Agreements dated December 30, 2014 accessible at [79 FR 78390](#).

### **6.4.4. Property Trust Relationship and Public Notice of Filings for Grant-Acquired Property**

In accordance with 2 C.F.R. § 200.316, any real property, equipment, and/or intangible property, acquired or improved with a Federal award must be held in trust by the recipient or subrecipient as trustee for the beneficiaries of the project or program under which the property was acquired or improved. This trust relationship exists throughout the duration of the property's estimated useful life, as determined by the Grants Officer in consultation with the Program Office, during which time the Federal government retains an undivided, equitable reversionary interest in the property (Federal Interest). In this connection, NTIA may require the grantee to record liens or other appropriate notices of record to indicate that personal or real property has been acquired or improved with a Federal award and that use and disposition conditions apply to the property.

Awards issued pursuant to this NOFO may contain specific award conditions pertaining to the use and disposition of grant-acquired property and to a requirement that the recipient or subrecipient file certain public notices (*e.g.*, UCC-1, Covenant of Purpose, Use and Ownership, etc.) with respect to grant-acquired property. NTIA may provide information regarding the useful life schedules associated with assets acquired with grant funds.

### **6.4.5. Reporting**

The Department of Commerce understands the importance of undertaking systematic data collection and other rigorous evaluative activities to assess the outcomes related to funds awarded under this NOFO. NTIA and the NIST Grants Office are committed to this goal, and all applicants should expect this will be a requirement of all awards. This data will be instrumental in understanding the effects of individual funded projects and will enable NTIA to assess the extent to which the strategic objectives have been achieved.

All award recipients will be expected to comply with any reporting requirements, as well as any program evaluation activities. More detail regarding reporting requirements will be included in the terms and conditions.

The following is a list of standard documents that will enable NTIA and NIST Grants Office to collect information about program activities that grantees should expect to prepare:

#### **a) Baseline/Expenditure Plan**

Within forty-five (45) calendar days of the award date, the grantee shall submit to the NIST Grants Office a Baseline Report for the entire performance period that will include planned activities and major milestones and spending by quarter for the period of performance.

**b) Federal Financial Report**

Grantees must report on obligations and expenditures using the Federal Financial Report (Standard Form 425) semi-annually. The report is submitted to the NIST Grants Office and is due 30 calendar days following the end of quarters ending in March and September. A report must be submitted for each calendar quarter that the grant is active, including partial calendar quarters or when no financial activity occurs.

**c) Semiannual Performance Progress Reporting**

All grantees must submit Performance Progress Reports (PPR) on a semiannual basis. PPRs must contain the following information:

- a. A comparison of actual accomplishments during the reporting period with the goals and dates established in the Baseline/Expenditure Plan for the reporting period;
- b. A description of any problems that have arisen or the reasons why established goals have not been met;
- c. Actions taken to remedy any failures to meet goals; and
- d. A description of risks that may prevent the grantee from achieving goals in future reporting periods.

Reports must be submitted to the NIST Grants Office and are due 30 calendar days following the end of quarters ending in March and September.

**d) Final Report and Closeout Reporting**

In addition to the above requirements and those reporting requirements found in 2 C.F.R. Part 200, any entity that receives an award will be required to submit a final report as a part of the grant close-out process that describes the programmatic objectives achieved through the funding and completion of the grant-funded project, including those elements collected in the semiannual PPR.

**6.4.6. Recipient Integrity and Performance Matters**

In accordance with 41 U.S.C. § 2313, if the total value of a recipient's currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds \$10,000,000 for any period of time during the POP of an award made under this NOFO, then the recipient shall be subject to the requirements specified in Appendix XII to 2 C.F.R. Part 200, for maintaining the currency of information reported

to SAM that is made available in the Federal Awardee Performance and Integrity Information System (FAPIIS) about certain civil, criminal, or administrative proceedings involving the recipient.

#### **6.4.7. Audit Requirements**

The grant regulations in 2 C.F.R. Part 200, Subpart F, adopted by the Department of Commerce through 2 C.F.R. § 1327.101, require any non-federal entity that expends Federal awards of \$1,000,000 or more in the recipient’s fiscal year to conduct a single or program-specific audit in accordance with the requirements set out in the Subpart.

Additionally, unless otherwise specified in the terms and conditions of the award, entities that are not subject to Subpart F of 2 C.F.R. Part 200 (*e.g.*, commercial entities) that expend \$1,000,000 or more in grant funds during their fiscal year must submit to the Grants Officer either:

- a) A financial audit of each DOC award or subaward in accordance with Generally Accepted Government Auditing Standards;<sup>48</sup> or
- b) A project specific audit for each award or subaward in accordance with the requirements contained in 2 C.F.R. § 200.507.

Applicants are reminded that NTIA, the Department of Commerce Office of Inspector General, or another authorized Federal agency may conduct an audit of an award at any time.

#### **6.4.8. Federal Funding Accountability and Transparency Act of 2006**

In accordance with 2 C.F.R. Part 170, all recipients of a federal award made on or after October 1, 2010, are required to comply with reporting requirements under the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282). In general, all recipients are responsible for reporting sub-awards of \$30,000 or more. In addition, recipients that meet certain criteria are responsible for reporting executive compensation. Applicants must ensure they have the necessary processes and systems in place to comply with the reporting requirements should they receive funding.

#### **6.4.9. Protected and Proprietary Information**

The applicant acknowledges and understands that information and data contained in applications for financial assistance, as well as information and data contained in financial, performance, due diligence, and other reports submitted by the applicant (together, “applicant information and data”), may be used by the Department of Commerce in conducting reviews and evaluations of its financial assistance programs and for statistical purposes. Applicant information and data may also be used for the purposes of this NOFO and carrying out the government’s responsibilities in connection with the

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<sup>48</sup> See U.S. Government Accountability Office, [GAO-21-368G, \*Government Auditing Standards\*](#) (April, 2021).

Innovation Fund, or as otherwise required by law. For these purposes, applicant information and data may be accessed, reviewed, and evaluated by Department of Commerce employees, other federal employees, federal agents and contractors, and/or by non-federal personnel, all of whom enter into appropriate confidentiality and nondisclosure agreements covering the use of such information. As may be provided in the terms and conditions of a specific financial assistance award, applicants are expected to support program reviews and evaluations by submitting required financial and performance information and data in an accurate and timely manner, and by cooperation with the Department of Commerce and external program evaluators. In accordance with 2 C.F.R. § 200.303(e), applicants are reminded that they must take reasonable measures to safeguard protected personally identifiable information and other confidential or sensitive personal or business information created or obtained in connection with a Department of Commerce financial assistance award. By submitting applicant information and data, the applicant, potential applicant, or an entity submitting the information consents to the disclosure of such applicant information and data to consultants and contractors for these purposes, consistent with federal law.

NTIA will protect confidential and proprietary information from public disclosure consistent with applicable law, including the Trade Secrets Act, as amended (18 U.S.C. § 1905) and the Economic Espionage Act of 1996 (18 U.S.C. § 1831 et seq.). In the event that a submission contains information or data deemed to be confidential commercial information or that otherwise shall not be publicly disclosed, that information shall be identified, bracketed, and marked as Privileged, Confidential, Commercial or Financial Information. Based on these markings, the confidentiality of the contents of those pages will be reviewed for protection consistent with applicable law.

#### **6.4.10. Intellectual Property Rights, Royalties, And Restrictions**

In accordance with the Bayh-Dole Act (35 U.S.C. § 200 et. seq.), 37 C.F.R. § 401, and 2 C.F.R § 200.315, recipients of federal grant funds can retain rights to any intellectual property developed during the grant. NTIA encourages Innovation Fund grantees to leverage this ability to the maximum extent practical.

Costs relating to royalties for patents and copyrights necessary for the performance of the federal award<sup>49</sup> and costs related to counsel for patent and copyright matters<sup>50</sup> are allowable costs as long as they meet requirements of the applicable provisions related to the allocation of costs under federal awards (see [Section 6.3](#)). However, grantees under this award are not authorized to use federal funds for royalty costs paid to ineligible entities listed in [Section 6.1.3](#).

NTIA recognizes that voluntary consensus standards are important to economic growth and furtherance of the Innovation Fund objectives.<sup>51</sup> As such, costs related to

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<sup>49</sup> See [2 C.F.R. § 200.448\(b\)](#).

<sup>50</sup> See [2 C.F.R. § 200.448\(a\)\(1\)\(iii\)](#).

<sup>51</sup> See [47 U.S.C. § 906\(a\)\(1\)\(C\)](#). Standards activities are particularly conducive to advancing objectives (ii) and (iii).

participation in relevant standards activities to further the objectives of this NOFO are allowable.

Additionally, informational sharing, licensing, or other knowledge transfer of intellectual property developed under this grant to an ineligible entity is prohibited, except when required for a standards-related activity, as defined in 15 C.F.R § 772.1 (*e.g.*, as a standards-essential patent).<sup>52</sup> This does not apply to publicly published open-source intellectual property.

#### **6.4.11. Funding Availability and Limitation of Liability**

Funding for the program listed in this NOFO is contingent upon the continued availability of appropriations. In no event will NTIA, NIST, or the Department of Commerce be responsible for application preparation costs, including, but not limited to, if the program is amended or cancelled by governing law. Publication of this NOFO does not oblige NTIA, NIST or the Department of Commerce to award any specific project or to obligate any available funds. NTIA will fund only projects that are deemed likely to achieve the Innovation Fund Program’s goals and for which funds are available.

#### **6.4.12. Third Party Beneficiaries**

The Innovation Fund Program is not intended to and does not create any rights enforceable by third party beneficiaries.

#### **6.4.13. Environmental and Historic Preservation**

NTIA-funded awards must comply with Environmental and Historic Preservation (EHP) laws, including the National Environmental Policy Act (NEPA).<sup>53</sup> Application submittals shall identify projects that may impact sensitive environmental and historic resources and describe how the applicant will comply with EHP and NEPA requirements.

It is the applicant’s and subgrantee’s responsibility to obtain all federal, state, local, and Tribal permits, authorizations, and approvals necessary to conduct the proposed work. All NTIA-funded activities should be designed to minimize the potential for adverse impacts on the environment. Applicants proposing projects and other eligible activities with potentially adverse environmental impacts will be required to assist NTIA in identifying and implementing measures to avoid, minimize, or mitigate such impacts.

NTIA will review applications to ensure that they contain sufficient information to: support a preliminary NEPA analysis; to identify what (if any) further NEPA-related review and documentation will need to be submitted to NTIA; and to recommend funding for the selected projects or other eligible activities. Relevant project information that would assist NTIA in making a preliminary determination of the level of NEPA analysis

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<sup>52</sup> See [15 C.F.R § 772.1](#).

<sup>53</sup> See National Environmental Policy Act (NEPA) ([42 U.S.C. 4321 et seq.](#)) and the National Historic Preservation Act (NHPA) ([54 U.S.C. 300101 et seq.](#)).

required includes a detailed description of all proposed project activities, the extent of proposed ground disturbance, a description of the land uses and natural features at the proposed site and its immediate surroundings, and maps and photographs.

NTIA can withhold funds under a special award condition if additional analyses or information are necessary for the agency to assess the environmental impacts of a potential award.

#### **6.4.14. Research Activities Involving Human Subjects, Data, or Recordings Involving Human Subjects, Including Software Testing**

Any application that includes research activities involving human subjects or data or recordings from or about human subjects must satisfy the requirements of the Common Rule for the Protection of Human Subjects (“Common Rule”), codified for the Department of Commerce at 15 C.F.R. Part 27.<sup>54</sup> Research activities involving human subjects that fall within one or more of the classes of vulnerable subjects found in 45 C.F.R. Part 46, Subparts B, C and D must satisfy the requirements of the applicable subpart(s). In addition, any such application that includes research activities on these subjects must comply with all applicable statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other federal agencies, all regulations, policies and guidance adopted by DHHS, the Food and Drug Administration (FDA), and other federal agencies on these topics, and all Executive Orders and Presidential statements of policy on applicable topics. The website of the Office of Human Research Protection (OHRP) in the DHHS contains the applicable regulatory, policy and guidance and (includes links to FDA, but may not include all applicable FDA regulations and policies).

While unlikely that the kinds of research envisioned in this NOFO will trigger the Human Subject Common Rule, all grantees conducting research must consider the types of activities to be conducted and will be required to affirmatively certify, by separable task, all research activities believed to be exempt or non-exempt research involving human subjects, and if non-exempt, the expected institution(s) where the research activities involving human subjects may be conducted, and the institution(s) expected to be engaged in the research activities. This certification must be submitted to the Federal Program Officer within 30 days of award.<sup>55</sup>

#### **6.4.15. Paperwork Reduction Act**

This NOFO contains an information collection requirement subject to the Paperwork Reduction Act (PRA) (44 U.S.C. § 3501 et seq.).<sup>56</sup> The PRA requires each federal agency to seek and obtain OMB approval before collecting information from the public. Federal agencies may not collect information unless it displays a currently valid OMB control number. For purposes of the Innovation Fund Program, NTIA will use Standard Forms

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<sup>54</sup> NTIA uses the Common Rule definitions for research and human subjects research contained in .

<sup>55</sup> See NIST, [NIST Notice of Funding Opportunity Requirements Human Subjects and Live Vertebrate Animal](#).

<sup>56</sup> See [44 U.S.C. § 3501 et seq.](#)

424 (Application for Federal Assistance), 424A (Budget Information for Non-Construction Programs), 424C (Budget Information for Construction Programs), Budget Narrative and Justification, Project/Performance Site Location(s), 425 (Federal Financial Report), 328 (Certificate Pertaining to Foreign Interests), and LLL (Disclosure for Lobbying Activities) under the respective control numbers 4040-0004, 4040-0006, 4040-0008, 0660-0053, 4040-0010, 4040-0014, 0704-0579, and 4040-0013.

#### **6.4.16. Transparency, Accountability, and Oversight Required**

NTIA, recipients, and subrecipients have a critical role to play in ensuring that the Innovation Fund Program is implemented in a manner that ensures transparency, accountability, and oversight sufficient to, among other things:

- a) Minimize the opportunity for waste, fraud, and abuse;
- b) Ensure that recipients of Innovation Fund grants use grant funds to further the overall purpose of the Program in compliance with the requirements of this NOFO, 2 C.F.R. Part 200, and other applicable law; and
- c) Allow the public to understand and monitor grants and subgrants awarded under the program.

To that end, NTIA shall:

- a) Conduct such monitoring activities as are necessary and appropriate;
- b) Develop monitoring plans, subject to the approval of the Assistant Secretary or their designee, that may include site visits or desk reviews, technical assistance, and random sampling of compliance requirements; and
- c) Impose specific conditions on grant awards designed to mitigate the risk of nonperformance where appropriate.

Each award recipient shall:

- a) Comply with the reporting requirements set forth in [Section 6.4.5](#); and
- b) Comply with the obligations set forth in 2 C.F.R. Part 200 and the Department of Commerce's Financial Assistance General Terms and Conditions.

NTIA may also recommend to the NIST Grants Office enforcement action related to applicable rules and laws. The NIST Grants Office may impose penalties for failure to meet statutory obligations, or wasteful, fraudulent, or abusive expenditure of grant funds. Such penalties include, but are not limited to, imposition of additional award conditions,

payment suspension, award suspension, grant termination, de-obligation/clawback of funds, and debarment of organizations and/or personnel.

#### **6.4.17. Contracting With Small and Minority Businesses, Women’s Business Enterprises, and Labor Surplus Area Firms**

Minority Businesses Enterprises (MBEs) and Women’s Business Enterprises (WBEs) are major catalysts for economic growth and job creation. However, data shows that MBEs and WBEs historically face significant contracting disparities compared to other businesses. Pursuant to 2 C.F.R. § 200.321,<sup>57</sup> applicants that are non-federal entities should take affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

Affirmative steps include, but are not limited to:

- a) Placing qualified small and minority businesses and women’s business enterprises on solicitation lists;
- b) Assuring that small and minority businesses, and women’s business enterprises are solicited whenever they are potential sources;
- c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women’s business enterprises;
- d) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women’s business enterprises;
- e) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
- f) Requiring subgrantees to take the affirmative steps listed above as it relates to its subcontractors.

#### **6.4.18. U.S. Department of Commerce, Office of Inspector General**

The U.S. Department of Commerce Office of Inspector General (OIG) seeks to improve the efficiency and effectiveness of the Department’s programs, including deterring and detecting fraud, waste, abuse, and mismanagement. The OIG accomplishes this mission primarily through investigations, audits, and inspections of Department activities, including grants, cooperative agreements, loans, and contracts.

##### **6.4.18.1. Disclosures**

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<sup>57</sup> [2 C.F.R. § 200.321](#).

Recipients of financial assistance originating from the Department of Commerce, which includes NTIA and NIST, shall timely disclose, in writing, to the OIG and awarding agency, whenever, in connection with the award, performance, or closeout of this grant or sub-award thereunder, the recipient has credible evidence that a principal, employee, agent, or sub-recipient has committed:

- a) A violation of federal criminal law involving fraud, conflict of interest, bribery, or gratuity violations found in Title 18 of the United States Code; or
- b) A violation of the civil False Claims Act (31 U.S.C. §§ 3729-3733).

#### 6.4.18.2. Reporting

The OIG maintains a hotline to receive allegations of fraud, waste, or abuse. To report such allegations, please visit <https://www.oig.doc.gov/Pages/Hotline.aspx>. Upon request, the OIG will take appropriate measures to protect the identity of any individual who reports misconduct, as authorized by the Inspector General Act of 1978, as amended. Reports to the OIG may also be made anonymously.

#### **6.4.19. Waiver Authority**

It is the general intent of NTIA not to waive any of the provisions set forth in this NOFO. However, under extraordinary circumstances and when it is in the best interest of the federal government, the Assistant Secretary or their designee, upon their own initiative or when requested, may waive any provision in this NOFO. Waivers may only be granted for requirements that are discretionary and not mandated by statute or other applicable law. Any request for a waiver must set forth the extraordinary circumstances for the request.

#### **6.4.20. Whistleblower Protection**

Recipients, sub-recipients, and employees working on this grant award will be subject to the whistleblower rights and remedies established under 41 U.S.C. § 4712.<sup>58</sup> An employee of a recipient or sub-recipient may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing information that the employee reasonably believes is evidence of: gross mismanagement of a federal contract or award; a gross waste of federal funds; an abuse of authority (*i.e.*, an arbitrary and capricious exercise of authority that is inconsistent with the mission of NTIA or the Department of Commerce or the successful performance of a contract or grant awarded by NTIA or the Department) relating to a federal contract or award; a substantial and specific danger to public health or safety; or a violation of a law, rule, or regulation related to a federal contract (including the competition for or negotiation of a contract) or grant. The recipient or sub-recipient shall inform its employees and contractors, in writing, in the

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<sup>58</sup> See [41 U.S.C. § 4712](#).

predominant language of the workforce or organization, of employee whistleblower rights and protections under 41 U.S.C. § 4712,<sup>59</sup> as described above and in the OIG’s Whistleblower Protection Program.<sup>60</sup>

**6.4.21. Enforcement**

NTIA shall take enforcement action against recipients as necessary and appropriate. A recipient (or applicable subrecipient) that fails to comply with any requirement under the *FY21 NDAA* or this NOFO shall be required to return up to the entire amount of the award at the discretion of the Assistant Secretary (or, in the case of a subrecipient, the Assistant Secretary or the recipient).

**6.4.22. Unauthorized Use of Funds**

To the extent that the Assistant Secretary or the Inspector General of the Commerce Department determines that an Innovation Fund Program recipient or subrecipient has expended grant funds received under the Innovation Fund Program in violation of the requirements set forth in 47 U.S.C. § 906<sup>61</sup> and 2 C.F.R. Part 200,<sup>62</sup> the terms and conditions of the award, or other applicable law, the Assistant Secretary shall, if appropriate, recover the amount of funds that were so expended.

**6.4.23. Federal Awarding Agency Contact(s)**

Questions should be directed to:

Subject Area	Point of Contact
Programmatic and Technical Questions	Lynn Bagorazzi Grants Lead, Innovation Fund <a href="mailto:InnovationFund@ntia.gov">InnovationFund@ntia.gov</a>
Technical Assistance with Submission	Grants.gov Help Desk 1-800-518-4726 <a href="mailto:support@grants.gov">support@grants.gov</a>
Grants Rules and Regulations	Calvin Mitchell Grants Office Team Lead <a href="mailto:Calvin.d.mitchell@nist.gov">Calvin.d.mitchell@nist.gov</a>
Media Inquiries	Charles Meisch NTIA Director of Public Affairs <a href="mailto:press@ntia.gov">press@ntia.gov</a>

<sup>59</sup> *Id.*

<sup>60</sup> See [OIG Whistleblower Protection Program](#)

<sup>61</sup> See 47 U.S.C. § 906.

<sup>62</sup> See [2 C.F.R. Part 200](#).

## **Appendix A – Glossary of Terms**

**3PP** – The term “3PP” means 3rd Party Product.

**5G New Radio (NR)** – The term “5G New Radio (NR)” means specifications developed by the 3rd Generation Partnership Project (3GPP) for 5G technology. For the purposes of this NOFO, this is 3GPP Release 16 and later 5G NR specifications.

**Assistant Secretary** – The term “Assistant Secretary” means the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator, or the individual who holds any equivalent or successor position. The terms “Assistant Secretary” and “NTIA Administrator” refer to the same position.

**Central Unit (CU)** – The term “central unit”, or “CU”, means the logical element of a radio access network that provides higher-layer processing for radio signals and coordinates traffic handover with other base stations.

**Construction** – The term “construction” means construction, rehabilitation, alteration, conversion, extension, repair, or improvement of buildings, highways, or other real property. For the purposes of this NOFO, construction is limited to SRFA 1 (See ***Section 4.1.1.h.7***)

**Cost Share** – The term “cost share” means the non-federal portion of a project budget, also known as “match”.

**Covered Nation** – The term “covered nation” as defined in 10 U.S.C. § 4872(d)(2)<sup>63</sup> means the Democratic People’s Republic of North Korea, the People’s Republic of China, the Russian Federation, and the Islamic Republic of Iran.

**Distributed Unit (DU)** – The term “distributed unit”, or “DU”, means the logical element of a radio access network that provides lower-layer processing for radio signals.

**End Point** – The term “End Point” means the physical equipment employed by the user to connect to the Open RAN network via the radio signals (also known as User Equipment (UE)). Examples of End Points include connected tractors, sensors, and mobile devices.

**Foreign Entity of Concern** – The term “foreign entity of concern” is defined in 15 U.S.C. §4651(8)<sup>64</sup> and 15 C.F.R. § 231.106,<sup>65</sup> subject to any further rulemaking promulgated by the Department of Commerce.

**Industry Vertical** – The term “industry vertical” means an industry sector (e.g. manufacturing, agriculture, automotive) with a unique set of requirements and use cases.

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<sup>63</sup> See [10 U.S.C. § 4872\(d\)\(2\)](#).

<sup>64</sup> See [15 U.S.C. §4651\(8\)](#).

<sup>65</sup> See [15 C.F.R. § 231.106](#).

Key Performance Indicator (KPI) – The term “key performance indicator”, or “KPI”, means a quantifiable measure of performance over time for a specific objective, typically a Key Performance Parameter (KPP).

Key Performance Parameter (KPP) – The term “key performance parameter”, or “KPP”, means a vital characteristic, function, requirement or design basis that, if changed, would have a major impact on the system performance, scope, schedule, cost and/or risk, or the ability of an interfacing project to meet its mission requirements. A parameter may be a performance, design, security, or interface requirement.

NIST Grants Office – The term “NIST Grants Office” means the National Institute for Standards and Technology Grants Office, which serves as the official certified Grants Officer for the Innovation Fund.

NTIA – The term “NTIA” means the United States Department of Commerce, National Telecommunications and Information Administration.

NTIA Administrator – The term “NTIA Administrator” means the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator, or the individual who holds any equivalent or successor position. The terms “Assistant Secretary” and “NTIA Administrator” refer to the same position.

Open Radio Access Network (Open RAN) – The term “open radio access network”, or “Open RAN”, means an approach to radio access network design that leverages open, interoperable, and standards-based RAN elements to form a virtualized and disaggregated RAN.

Prototype – The term “prototype” means a software solution that can be piloted, is developed as a part of a target product, and may evolve into an operational product. Prototypes that have been successfully validated through a pilot must be ready for deployment in an operational commercial system for testing.

Radio Access Network (RAN) – The term “radio access network”, or “RAN”, means the network of elements providing over-the-air radio access to devices in mobile networks. In 5G New Radio (NR) networks, this includes the Radio Unit (RU), Central Unit (CU), and Distributed Unit (DU).

Radio Unit (RU) – The term “Radio Unit”, or “RU”, means the physical element of a radio access network that provides over-the-air radio access to a 5G system.

Specific Research Focus Area (SRFA) – The term “specific research focus area”, or “SRFA”, means a topic area funded by the Innovation Fund to a recipient, each of which is subject to a maximum award amount of \$50,000,000, as required by 47 U.S.C. § 906(a)(1)(B)(ii).<sup>66</sup>

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<sup>66</sup> See [47 U.S.C. § 906\(a\)\(1\)\(B\)\(ii\)](#).

Small Business – The term “small business” means an independent business having fewer than 500 employees.<sup>67</sup>

Ultimate Beneficial Owner (UBO) – The term “Ultimate Beneficial Owner”, or “UBO”, means the person, or entity, that ultimately owns or controls a company and that derives the benefits associated with ownership or control. The UBO is that person, or entity, proceeding up a chain of majority-ownership (where the entity above owns more than 50 percent of the entity below) that is not owned more than 50 percent by another person, or entity.

Vulnerability Scans – The term “vulnerability scans” means an automated process that determines whether software/equipment contain any pre-defined vulnerabilities, including but not limited to insecure protocols, known vulnerable software libraries, and use of common or default authentication credentials.

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<sup>67</sup> See U.S. Small Business Administration Office of Advocacy [“Frequently Asked Questions”](#).