

NTIA Established the Innovation Fund Program but Needs a Plan to Ensure That the Program Meets Statutory Objectives

FINAL REPORT NO. OIG-25-017-I

APRIL 9, 2025



U.S. Department of Commerce
Office of Inspector General
Office of Audit and Evaluation



April 9, 2025

MEMORANDUM FOR: Adam Cassady
Acting Assistant Secretary of Commerce for Communications and
Information
National Telecommunications and Information Administration

A handwritten signature in black ink, reading "Analee Striner-Brown".

FROM: Analee Striner-Brown
Acting Assistant Inspector General for Audit and Evaluation

SUBJECT: *NTIA Established the Innovation Fund Program but Needs a Plan
to Ensure That the Program Meets Statutory Objectives*
Report No. OIG-25-017-I

Attached is the final report on our evaluation of NTIA's Public Wireless Supply Chain Innovation Fund program. We will post the report on [our website](#) per the Inspector General Act of 1978, as amended (5 U.S.C. §§ 404, 420).

Within 60 calendar days, please provide an action plan addressing the report's recommendations, as required by Department Administrative Order 213-5.

We appreciate your staff's cooperation and professionalism during this evaluation. If you have any questions or concerns about the report, please contact me at 202-893-8759.

Attachment

cc: Mike Dame, Associate Administrator, NTIA





Report in Brief

April 9, 2025

Background

The Public Wireless Supply Chain Innovation Fund aims to support the United States' leading position in the telecommunications ecosystem. The National Telecommunications and Information Administration (NTIA) awards Innovation Fund grants with the goal of facilitating growth and innovation in the industry.

Congress appropriated \$1.5 billion for the fund on August 9, 2022. NTIA was required to begin issuing grants within a year of receiving this funding. Despite the tight timeline, NTIA issued three grants in August 2023.

As of February 25, 2025, NTIA has issued 35 grants, totaling over \$550 million.

Why We Did This Evaluation

The CHIPS and Science Act requires OIG oversight of the Innovation Fund program's activities. Our objective for this evaluation was to assess NTIA's implementation of the program.

To do this, we reviewed the steps NTIA took to award and disburse funds, the challenges NTIA faced while implementing the program, and the status of Innovation Fund awards and disbursements.

NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

NTIA Established the Innovation Fund Program but Needs a Plan to Ensure That the Program Meets Statutory Objectives

OIG-25-017-I

WHAT WE FOUND

We found that although NTIA has taken steps to mitigate some challenges it faced when implementing the Innovation Fund program, it would benefit from developing a comprehensive strategic plan that would ensure the program's success. We found that NTIA did not have a sufficient strategy for anticipating emerging industry challenges, had not fully developed program goals and strategic objectives that align with the program's statutory objectives, and did not develop a comprehensive staffing plan before it began awarding grants.

The lack of an adequate strategic plan limits NTIA's ability to effectively measure the program's performance and mitigate future challenges. With over \$853 million in grant funds left to award, issues may continue to arise if NTIA does not improve its program planning.

WHAT WE RECOMMENDED

We recommended that the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator:

1. Update and finalize the industry engagement plan to define regularly scheduled opportunities to meet with the technology industry and other stakeholders.
2. Incorporate all known program challenges into the risk assessment and design a comprehensive mitigation plan to address these risks in accordance with departmental requirements.
3. Develop a programmatic plan that includes how the Innovation Fund's statutory objectives will be met and how program performance will be measured.
4. Ensure that program goals addressing each of the statutory objectives have specified targets that align with key attributes of successful performance measures to determine the success of the program.
5. Update and implement a comprehensive staffing plan that includes setting strategic direction; conducting workforce analysis; and developing, implementing, and monitoring the workforce action plan to meet the program's workforce needs.
6. Following the implementation of the staffing plan (described in recommendation 5) and at regular intervals, reassess the staffing plan to ensure that the program office has the personnel needed to monitor and oversee grant recipient performance.

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Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.

Background

The Public Wireless Supply Chain Innovation Fund¹ aims to support the United States' leading position in the telecommunications ecosystem as well as reduce costs, enhance competition, and strengthen the nation's telecommunications supply chain. Specifically, "this critical investment will help drive U.S. wireless innovation, foster competition, and strengthen supply chain resilience. It will also help unlock opportunities for U.S. companies, particularly small and medium enterprises, to compete in a market historically dominated by a few foreign suppliers, including high-risk suppliers that raise security concerns."²

The National Telecommunications and Information Administration (NTIA) awards Innovation Fund grants to promote and deploy an interoperable telecommunications infrastructure known as Open Radio Access Network (Open RAN). In a traditional wireless network, network components come from a consolidated group of vendors. The Open RAN framework, however, facilitates competition, which "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."³ NTIA has noted that new vendors can therefore provide individual components rather than a full network architecture, enabling them to enter the market more easily and facilitating growth and innovation in the wireless industry.

NTIA's Challenge: Creating a Program and Awarding Grants Within 1 Year

The Innovation Fund was authorized on January 1, 2021, under the William M. (Mac) Thornberry National Defense Authorization Act (NDAA) for fiscal year (FY) 2021. Congress appropriated \$1.5 billion to the fund on August 9, 2022, as part of the CHIPS and Science Act.⁴ Of this amount, \$1.4 billion was to be available for grants, up to \$75 million for administering the fund,⁵ and at least \$22 million for our office to complete oversight.

The NDAA required NTIA to begin awarding Innovation Fund grants within a year of funding being appropriated. Thus, with the August 9, 2022, appropriation from the CHIPS Act, NTIA was required to begin awarding grants by August 8, 2023.

Despite this short time frame, NTIA had to take multiple steps, requiring significant time and resources, to implement the program. These included obtaining contractor support, researching and soliciting feedback for the Innovation Fund's first notice of funding opportunity (NOFO), detailing and hiring government staff to manage the program, establishing processes for reviewing applications, and recommending grants for award. To award grants, NTIA partnered with the National Institute of Standards and Technology (NIST), which serves as the fund's grants office.

¹ Pub. L. No. 116-283, William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, § 9202(a); 47 U.S.C. § 906(a).

² Public Wireless Supply Chain Innovation Fund Implementation, [87 Fed. Reg. 76182](#), 76183 (December 13, 2022).

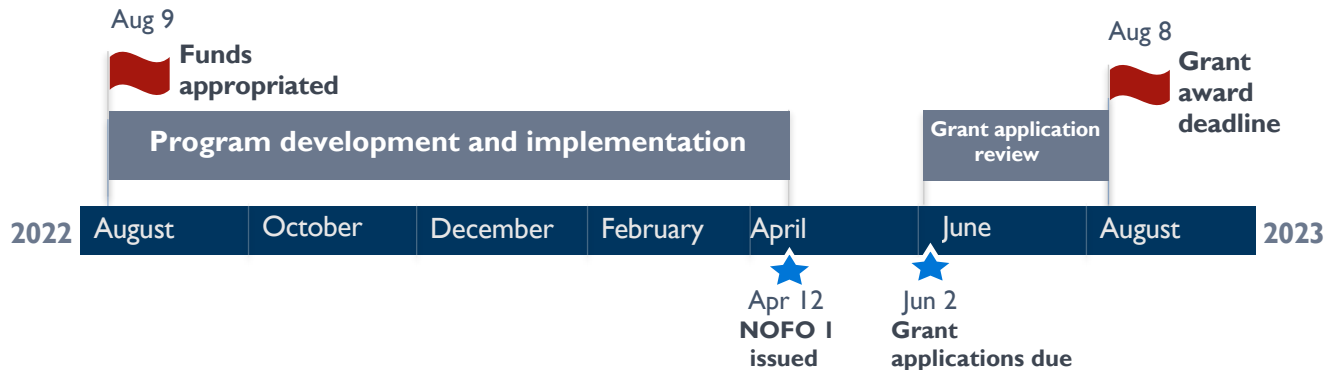
³ 87 Fed. Reg. 76183.

⁴ Pub. L. No. 117-167, Creating Helpful Incentives to Produce Semiconductors for America Fund, §106(a).

⁵ In FY 2022, only \$7.5 million of the appropriated funds were available for program administration. The remaining \$67.5 million did not become available until FY 2023.

NTIA issued NOFO 1 in April 2023. Grant applications were due by June 2, 2023, giving NTIA only 2 months to screen applicants and issue its first round of grants before its August 8 NDAA deadline (figure 1). NTIA received 125 grant applications and met the award deadline by approving three grants, totaling approximately \$5.5 million, in August 2023. By October 16, 2024, NTIA had awarded 17 grants, totaling approximately \$140.5 million, based on NOFO 1.

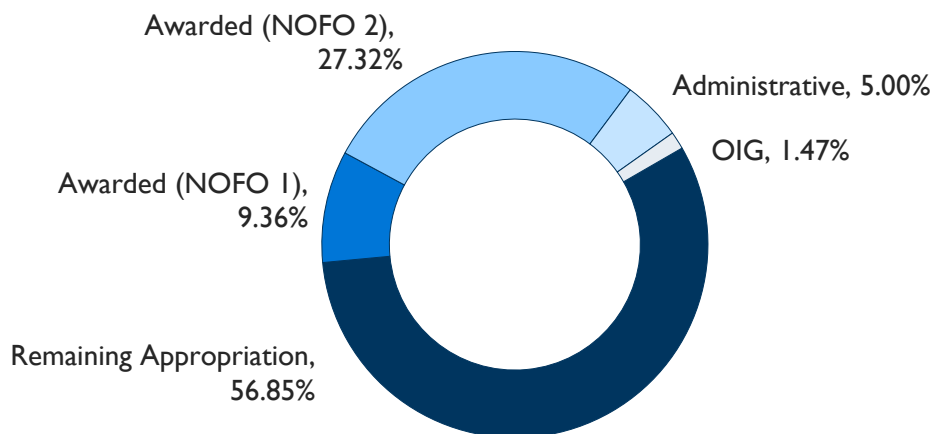
Figure 1. NTIA's Preliminary Innovation Fund Activity



Source: OIG analysis

On May 7, 2024, NTIA announced a second NOFO, which allowed NTIA to award up to \$420 million in grants focused on open radio unit (RU) commercialization and innovation. NTIA plans to issue grants ranging in value from \$25 million to \$45 million to eligible RU commercialization applicants and from \$5 million to \$10 million for RU innovation. NOFO 2 applications were due on July 17, 2024. As of February 25, 2025, NTIA has issued 18 grants, totaling about \$410 million, under NOFO 2. This brings the number of grants awarded under both NOFOs to 35, totaling more than \$550 million. Figure 2 provides a breakdown of funding as of February 25, 2025.

Figure 2. NTIA's Use of the \$1.5 Billion Innovation Fund Appropriation



Source: OIG review of the CHIPS Act, NIST's Grant Management Information System, and NTIA press releases.

NTIA also announced a third NOFO on December 17, 2024. Based on NOFO 3, NTIA plans to award up to \$450 million in grants for the development of software solutions that validate new Open RAN-enabled revenue streams (industry vertical solutions) and reduce the complexity and cost of multi-vendor integration (integration automation solutions). NTIA plans to issue grants ranging in value from \$24 million to \$50 million for industry vertical solutions and from \$9 million to \$18 million for integration automation solutions. NOFO 3 applications are due by April 16, 2025. NTIA also plans to announce one more NOFO.

Why We Did This Review

Congress established the enhancement of supply chains for 5G⁶ and successor technology as a national priority, and the CHIPS Act specifically requires OIG oversight of the program's activities. In addition, this is a new program in a fast-changing area, which could increase the risk of mismanagement of government funds. Establishing and implementing a comprehensive control framework consistent with Innovation Fund objectives is essential for the program's success.

⁶ According to the Federal Communications Commission (FCC), 5G is the fifth generation of mobile technology, with greater capacity for a more efficient and flexible network to support future services and applications. 5G promises faster data rates and lower latency, or delays, in data transmission. FCC, May 2021. [5G FAQs](#). Accessed January 13, 2025.

Objective, Findings, and Recommendations

Our evaluation's objective was to assess NTIA's implementation of the Innovation Fund program. We determined the steps NTIA took to award and disburse funds, the challenges NTIA faced while implementing the program, and the status of awards and disbursements. See appendix A for a detailed description of our scope and methodology.

We found that NTIA and NIST put measures in place to mitigate some challenges that arose while implementing the Innovation Fund program. However, NTIA lacked an adequate strategic plan to ensure the program's success. We identified several key challenges related to managing industry risks, meeting statutory obligations, and achieving necessary staffing levels; we discuss these challenges in detail in section II.

Without an adequate plan, NTIA risks exhausting the program's funds without achieving statutory or programmatic objectives. Additionally, because NTIA is awarding Innovation Fund grants without a fully staffed program office, NTIA may not be able to properly monitor grant recipients.

I. NTIA Mitigated Some Challenges That Arose During Innovation Fund Program Implementation

We found that NTIA took proactive steps to implement the Innovation Fund program and expedite the deployment of funds for NOFO I. Specifically, NTIA:

- hired a director, policy staff, and federal program officers;
- retained contractors to provide technical support for the program;
- initiated research and solicited feedback from industry, academia, experts, and the public to develop NOFO I;
- leveraged the skills of a seasoned grants management specialist to manage the NOFO I development process;
- reviewed 125 applications; and
- approved 17 grants, totaling more than \$140 million.

NTIA awarded four rounds of grants based on NOFO I from August 7, 2023, to January 31, 2024. Table I shows award dates, projects, and funds awarded for each round.






Table I. Notice of Funding Opportunity I Awards

| Grant Awards | Obligation Date | Projects Awarded | Funds Awarded |
|---------------------------------|-------------------|------------------|------------------------|
| Round 1 | August 7, 2023 | 3 | \$5.5 million |
| Round 2 | November 21, 2023 | 7 | \$13 million |
| Round 3 | January 3, 2024 | 6 | \$79.7 million |
| Round 4 | January 31, 2024 | 1 | \$42.3 million |
| Approximate NOFO I Total | | 17 | \$140.5 million |

Source: OIG analysis of Innovation Fund grant information in the Grant Management Information System

NTIA and NIST experienced several challenges while implementing the Innovation Fund program and awarding funds under NOFO 1.⁷ We found, however, that the bureaus took action to mitigate these challenges (see table 2 for details).

Table 2. Innovation Fund Program Challenges and Mitigating Actions Taken

| Challenge | Mitigating Actions |
|--|---|
|  <p>Staffing shortages and more applications than anticipated impacted NTIA's ability to review applications in a timely fashion.</p> | <ul style="list-style-type: none"> • NTIA used personnel from other NTIA offices. • NTIA modified a blanket purchase agreement with one of its vendors to retain contractors to complete application reviews. |
|  <p>The timing of the funding appropriation limited NTIA's ability to initiate all NOFOs and award grants.</p> | <ul style="list-style-type: none"> • NTIA reviewed applications in batches based on categories, starting with research and development (which requires less funding than testing and evaluation). Reviewing applications by category allowed the reviewers to focus on only one set of requirements to increase the efficiency of the review process. |
|  <p>Due to the larger-than-expected number of applications, merit review was a particularly expensive contract cost to the program.</p> | <ul style="list-style-type: none"> • NTIA eliminated applications that were incomplete and could not be cured to minimize unnecessary effort on merit review. |
|  <p>NTIA needed to coordinate with other agencies and the private sector to avoid duplicate research or funding.</p> | <ul style="list-style-type: none"> • NTIA held interagency meetings and provided proposals to interagency groups to avoid duplications. • NTIA held listening sessions with stakeholders and issued a request for comments before posting NOFO 1. • NOFO 1 required applicants to include current or pending federal funding support and explain how the proposed work would complement federal or private sector work or fill a critical gap. |
|  <p>NTIA's reviews took longer than expected. According to NIST employees, this did not leave them enough time to finish reviewing the first round of applications.</p> | <ul style="list-style-type: none"> • NIST used grant specialists from other programs to assist with the grant review process. • NIST began its review process while NTIA was still finalizing its approval of the application packages it had selected. |

Source: OIG interviews of NTIA and NIST personnel and reviews of documentation

⁷ While our evaluation focused on NTIA's implementation of the Innovation Fund program, we interviewed NIST staff to determine challenges from the grant office's perspective.

II. NTIA Lacked an Adequate Strategic Plan to Ensure the Program's Success

Although NTIA has taken steps to mitigate some challenges it faced while implementing the Innovation Fund program, it would benefit from developing a comprehensive strategic plan that would ensure the program's success. We specifically found that NTIA did not:

- have a sufficient strategy for anticipating emerging industry challenges;
- fully develop program goals and strategic objectives that align with the program's statutory objectives; and
- develop a comprehensive staffing plan before awarding grants.

The lack of an adequate plan limits NTIA's ability to effectively measure the Innovation Fund program's performance; moreover, a comprehensive plan would help NTIA mitigate challenges and make better investment decisions. For example, a comprehensive plan would specify the types of projects to be funded to meet statutory requirements and the amount allocated for each funding category, which would set firm guidelines for investing program funds. The program still has about \$853 million to award under current and future NOFOs, and issues may continue to arise if NTIA does not improve its program planning.

A. *NTIA did not have a sufficient strategy for staying ahead of emerging industry challenges*

Although NTIA considered industry challenges as it planned the program, it has not formalized a strategy to ensure that the challenges are addressed during the program's duration.

While developing NOFOs 1 and 2, NTIA identified four industry challenges that could affect the Innovation Fund program:

1. **Integrating multiple technical components into an Open RAN framework.** According to NTIA, compatibility issues may arise as specialized components from different vendors are integrated into Open RAN.
2. **Technical maturity of the market.** According to NTIA, demand for new suppliers is low, and new entrants to the market often do not have the financial resources or ability to demonstrate their technical qualifications. For Open RAN-capable products, some suppliers are more technologically advanced than others.
3. **Accelerating competitiveness in 5G and 6G technology spaces.** According to NTIA, most mobile network operators around the world express concern that 5G creates additional spectrum and infrastructure costs without creating new sources of revenue. Operators are also reluctant to adopt 5G when customers are sufficiently supported with existing 4G infrastructure.
4. **Accelerating commercial deployment.** Individual Innovation Fund program awards are statutorily limited to \$50 million, with a total grant funding pool of \$1.4 billion to be used over a 10-year period. According to NTIA, these financial

constraints limit NTIA's ability to mandate industry adoption of Open RAN, allowing it only to encourage its use.

NTIA chose a unique approach for addressing the industry challenges. Instead of issuing one NOFO to include all grant funds, which is the typical method of issuing grants, NTIA decided to develop four NOFOs and issue them approximately 6 to 12 months apart. With this approach, NTIA plans to cover a wide range of focus areas that are designed to address differing obstacles to Open RAN adoption.

For example, NOFO 1 focuses on research and development (R&D) and testing and evaluation (T&E). For equipment, components, and software from different manufacturers and vendors to operate as Open RAN, T&E applications must address one or more of the following: component interoperability, system performance, and system security. The T&E research focus area helps address the first industry challenge (integrating technical components). According to NTIA, issuing multiple NOFOs allows NTIA the flexibility needed to address changes in the marketplace.

In addition to the multi-NOFO approach, NTIA took steps to partially mitigate the industry challenges by engaging contractors to assist with stakeholder outreach to determine areas of interest, and by developing an industry engagement plan. However, NTIA did not finalize the engagement plan before awarding grants under NOFO 1.

After we met with NTIA on July 11, 2024, to discuss our preliminary findings, NTIA personnel said they would provide additional engagement plan documentation. On August 20, 2024, NTIA provided an engagement plan, but the plan was still a draft and did not include certain details. For example, the draft plan focuses on addressing the industry challenges by attending conferences or collaborating with Open RAN industry groups but does not define how often to meet with industry while the program is active. Additionally, while NTIA requested comments and held listening sessions to learn about the industry before issuing NOFO 1, NTIA did not follow the same process before issuing NOFO 2. NTIA stated that it chose the multi-NOFO approach to allow flexibility in the program in response to the changing industry; however, NTIA lacked an engagement plan that specified how and when it would engage with the industry before issuing each NOFO, which would have allowed it to adjust the program based on stakeholder feedback if necessary.

Beyond an engagement plan, NTIA developed a risk assessment for the program, but the assessment was not detailed or comprehensive. For example, it named "industry adoption of Open RAN," "lack of buy-in/alignment with industry," and "failure to agree on minimum standards to ensure interoperability" as risks (covering three of the four technology industry challenges listed above), but NTIA did not sufficiently identify all known program risks. A Departmental Administrative Order (DAO) states, "Identification of potential risks and avoidance or mitigation of those risks is a critical management responsibility to have informed business decisions."⁸

⁸ DAO 216-20, March 2014. *Enterprise Risk Management*, section 4.02.

NTIA also did not develop an adequate plan to ensure that mitigating actions are fully integrated into all aspects of the program. As NTIA continues to issue NOFOs, having an action plan will ensure that these risks do not hinder expected program performance.

As the 5G technology ecosystem rapidly evolves, frequent contact with stakeholders, industry assessment, and risk assessment are needed to mitigate challenges and help ensure that funding is used as intended. A formal industry engagement plan and a comprehensive risk assessment would help NTIA remain current with the industry, mitigate risks associated with the diverse maturity levels of industry stakeholders, and meet the program's objectives.

B. NTIA did not fully develop goals and strategic objectives that align with the program's statutory objectives

We found that NTIA did not fully complete the required strategic planning or develop comprehensive program performance metrics before issuing NOFO I. Specifically, NTIA did not:

- document how the four NOFOs it plans to issue will collectively address the NDAA's statutory objectives; or
- finish developing its plan for evaluating program performance before it began awarding grants.

Strategic plan did not show how all NOFOs would meet statutory objectives.

The regulation that was in effect when the first NOFO was issued required a federal awarding agency to plan and develop a program before announcing NOFOs.⁹ The regulation also stated that "the program must be designed with clear goals and objectives," must measure program performance based on those goals and objectives, and must "facilitate the delivery of meaningful results consistent with the federal authorizing legislation of the program."

In November 2023, after NOFO I had been published and three grants had been awarded, NTIA outlined the program schedule for NOFOs 1 through 3 and created slides for a strategy briefing to the Department's Office of Policy and Strategic Planning. NTIA submitted these documents to us as its strategic plan, but neither includes NOFO 4, clearly establishes how the NOFOs address the program's statutory objectives, or demonstrates how each NOFO contributes to and aligns with the NDAA's strategic goals and objectives. (See appendix B for a list of the objectives.)

When we asked NTIA for additional documentation, NTIA could not provide a formal comprehensive plan that showed it was aligning the NOFOs to statutory objectives. NTIA provided three more PowerPoint presentations detailing its vision for the program and aligning NOFOs 1 and 2 with the objectives, but the presentations did not

⁹ 2 C.F.R. §200.202, as of July 18, 2023. A revised regulation went into effect in October 2024, after the initial Innovation Fund grants were awarded.

cover NOFOs 3 and 4. After we met with NTIA on July 11, 2024, to discuss our preliminary findings, NTIA personnel said they would provide additional documentation. On August 20, 2024, NTIA provided a draft plan for NOFO 3, but although the plan included information about how NOFO 3 will align with the statutory objectives, it was designated as pre-decisional and included no information about NOFO 4. Because the NOFO 3 plan was not yet approved, it did not qualify as a plan within the meaning of departmental and regulatory guidance.

Performance measurement planning was not completed until well after the program began awarding grants. NTIA was still finalizing its evaluation plan for performance measurement in May 2024, even though it had issued 17 grants by the end of January 2024. The U.S. Government Accountability Office (GAO) reported in 2020 that “effective organizations establish performance measures that clearly link with the performance goals.”¹⁰ More recently, GAO has noted that the Office of Management and Budget requires the establishment of performance goals and measures during planning and design.¹¹ Effective performance measurement enables NTIA to ensure that program goals and objectives are achieved and to identify where improvements are needed.

NTIA personnel told us they discussed the program’s goals and strategic objectives before drafting NOFO 1. However, as previously noted, NTIA had a 1-year statutory deadline for issuing awards after the program was funded, which did not happen until August 2022. Additionally, according to NTIA, its planning was limited due to the lack of availability of administrative funds, which were not available in full until FY 2023.¹² Therefore, instead of comprehensively planning the program to ensure that the multi-NOFO approach would meet statutory objectives, NTIA prioritized drafting and issuing NOFO 1 with the resources it had available while establishing the program office.¹³ Once the program office was established and a director hired, the office moved ahead with its plan to develop one NOFO at a time.

Although the multi-NOFO approach helps mitigate some challenges, it also increases the risk that NTIA will run out of funds before achieving the program’s statutory objectives. For example, if NTIA had planned to award all funds based on a single NOFO, it would have a comprehensive, across-the-board perspective on where and how the funding would be used. Conversely, NTIA’s multi-NOFO approach allows NTIA to adjust the project focus and total amount of grant funds available per NOFO. NTIA processed NOFO 1 applications in batches and awarded grants on a rolling basis, but with multiple

¹⁰ GAO, October 2020. *FCC Should Enhance Performance Goals and Measures for Its Program to Support Broadband Service in High-Cost Areas*, [GAO-21-24](#), 9. Accessed November 12, 2024.

¹¹ GAO, October 2023. *Middle-Mile Grant Program Lacked Timely Performance Goals and Targeted Measures*, [GAO-24-106131](#), 13–14. Accessed July 3, 2024.

¹² As previously noted, in FY 2022, only \$7.5 million of the appropriated funds were available for program administration. The remaining \$67.5 million did not become available until FY 2023.

¹³ The initial team comprised a program lead, technical lead, and policy lead. NTIA established the program office within the Office of International Affairs; the program office had interim directors and front office personnel that helped facilitate the program until NTIA hired a program director in mid-February 2023.

NOFOs planned, NTIA may find it difficult to ensure that enough funds exist to award the approved grant amounts to each grant recipient throughout the program's duration.

As part of a complete, effective program strategy, NTIA should demonstrate that the multi-NOFO approach fully aligns with statutory objectives. Because NTIA develops each NOFO separately and does not have a strategic plan that collectively outlines statutory compliance for the entire program, NTIA risks overlooking a statutory objective using the multi-NOFO approach. The program strategy must also support and enhance performance measurement, management, and reporting and ensure that the program's objectives are achievable.

C. NTIA did not develop a comprehensive staffing plan before awarding grants

Ensuring adequate staffing to meet a program's objectives and needs is an integral part of program planning. However, NTIA developed the Innovation Fund program and awarded grants before developing a staffing plan, and the plan it eventually developed was not comprehensive enough to address staffing risks.

Staffing constraints have been a persistent issue during the program's implementation. NTIA stated that the initial program funding, though partially appropriated in FY 2022, was not received until November 2022. In addition, the program was not fully appropriated until FY 2023. According to NTIA, both issues limited its ability to hire staff. While implementing the program, NTIA mainly relied on detailed employees and other short-term staffing options. A grants management specialist on a detail led NOFO I's draft development process; NTIA also used internal staff from other offices and did not hire a program director until mid-February 2023.

Although NTIA developed a staffing plan, the plan consisted of an Excel spreadsheet, and we determined that the plan was not detailed enough to provide meaningful projections for staffing to meet the Innovation Fund program's needs. The Office of Personnel Management (OPM) provides guidance for developing a workforce action plan,¹⁴ which should capture intended actions for areas such as position classification, position management, workforce design, recruiting, and hiring. OPM's guidance also states that in implementing a workforce action plan, leadership and stakeholders are to define roles, responsibilities, and expectations and to ensure that resources are made available.¹⁵ Because NTIA did not follow OPM's guidance, the staffing plan was not effective to properly staff its program office.

According to NTIA's organization chart and statements made by NTIA program staff, the program office is still understaffed—2 years after funds were appropriated for the program. For example, NTIA hired more federal program officers after the first two rounds of grants under NOFO I were awarded, but as of May 2, 2024, NTIA still had one vacancy for a federal program officer. NTIA also relied on one federal program manager on an extended detail to oversee the initial grants awarded while also managing

¹⁴ OPM, November 2022. [Workforce Planning Guide](#), 17. Accessed July 24, 2024.

¹⁵ OPM, *Workforce Planning Guide*, 18.

the grant award process, hiring and onboarding federal program officers,¹⁶ developing a position description for a program manager, and developing additional NOFOs.¹⁷ NTIA's lack of a comprehensive workforce action plan, which would define roles, responsibilities, expectations, and strategy for hiring staff, increases the risk that NTIA will not meet program needs without overburdening existing staff. The time that will be needed to fill open positions and onboard and train new employees increases the risk that NTIA will not meet its grant program oversight duties.

In addition, the program office's reliance on a small number of employees may mean that duties are not sufficiently segregated and organizational knowledge may be lost if key individuals leave the organization. GAO's *Standards for Internal Control in the Federal Government* states, "Management considers segregation of duties in designing control activity responsibilities so that incompatible duties are segregated and, where such segregation is not practical, designs alternative control activities to address the risk."¹⁸ The standards also state, "As part of its human capital planning, management also considers how best to retain valuable employees, plan for their eventual departure, and maintain a continuity of needed skills and abilities."¹⁹ Lastly, the standards state that internal control documentation "provides a means to retain organizational knowledge and mitigate the risk of having that knowledge limited to a few personnel."²⁰

The program office's responsibilities will continue to grow as NTIA makes awards based on NOFOs 2 and 3, and as NOFO 4 is issued. This makes the need for a comprehensive staffing plan even more urgent.

Recommendations

We recommend that the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator:

1. Update and finalize the industry engagement plan to define regularly scheduled opportunities to meet with the technology industry and other stakeholders.
2. Incorporate all known program challenges into the risk assessment and design a comprehensive mitigation plan to address these risks in accordance with departmental requirements.
3. Develop a programmatic plan that includes how the Innovation Fund's statutory objectives will be met and how program performance will be measured.
4. Ensure that program goals addressing each of the statutory objectives have specified targets that align with key attributes of successful performance measures to determine the success of the program.

¹⁶ In December 2023, NTIA onboarded two federal program officers using Schedule A and is in discussions to obtain another federal program officer through a detail.

¹⁷ As of October 2024, the federal program manager position was vacant.

¹⁸ GAO, September 10, 2014. *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#), 50. Accessed July 27, 2023.

¹⁹ GAO, *Standards for Internal Control in the Federal Government*, 46–47.

²⁰ GAO, *Standards for Internal Control in the Federal Government*, 29.

5. Update and implement a comprehensive staffing plan that includes setting strategic direction; conducting workforce analysis; and developing, implementing, and monitoring the workforce action plan to meet the program's workforce needs.
6. Following the implementation of the staffing plan (described in recommendation 5) and at regular intervals, reassess the staffing plan to ensure that the program office has the personnel needed to monitor and oversee grant recipient performance.

Conclusion

The Innovation Fund represents a significant investment in the nation's telecommunications infrastructure, and NTIA has played a central role in developing a grant program that will meet the fund's statutory objectives. But despite meeting its grant award deadline and mitigating challenges it experienced while implementing the program, NTIA has not developed an adequate plan to ensure the program's ongoing success.

As of February 25, 2025, NTIA still has about \$853 million to award under the Innovation Fund. As more awards are made, NTIA's ongoing grant management and oversight responsibilities will continue to grow. Without an adequate plan—one that addresses the issues we discuss in this report—NTIA risks difficulties in anticipating and addressing industry challenges, meeting the program's objectives, and monitoring grant recipients as required. NTIA must promptly address these challenges and avoid exhausting the program's funds before achieving its larger objectives of reducing costs, enhancing competition, and strengthening the nation's telecommunications supply chain.

Summary of Agency Response and OIG Comments

NTIA reviewed a draft version of this report and responded to our findings and recommendations. In its response, NTIA concurred with all of our recommendations and described actions it has taken or plans to take to address them. NTIA also provided technical comments on the draft report, and we made minor changes to the final report where appropriate. NTIA's complete response is included in this report as appendix C.

We are pleased that NTIA concurs with our recommendations. We look forward to receiving NTIA's action plan, which will provide details on its corrective actions.

Appendix A: Objective, Scope, and Methodology

The objective of our evaluation was to assess NTIA's implementation of the Innovation Fund program. We reviewed documentation from the inception of the Innovation Fund to August 2024. To accomplish our objective, we did the following:

- Reviewed the following laws, regulations, policy, and guidance:
 - NDAA for FY 2021, Pub. L. No. 116-283
 - CHIPS and Science Act, August 2022, Pub. L. No. 117-167
 - 2 C.F.R. part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*
 - *Federal Register*, Volume 87, *Public Wireless Supply Chain Innovation Fund Implementation*, December 2022
 - *Department of Commerce Grants and Cooperative Agreements Manual*, April 2021
 - GAO, *Standards for Internal Control in the Federal Government*, September 2014
 - OPM, *Workforce Planning Guide*, November 2022
 - NOFO 1, *Public Wireless Supply Chain Innovation Fund Grant Program – Expanding Testing and Evaluation*
 - NOFO 2, *Public Wireless Supply Chain Innovation Fund Grant Program – Open Radio Commercialization and Innovation*
 - NOFO 3, *Public Wireless Supply Chain Innovation Fund Grant Program – Software Solutions for Industry Verticals and Integration Automation*
 - DAO 216-20, *Enterprise Risk Management*, March 2014
- Interviewed officials from the Department's Office of Acquisition Risk Management, NTIA, and NIST to determine:
 - the steps taken to implement the Innovation Fund program and award grants;
 - the challenges faced and how they were mitigated; and
 - the status of awarding and disbursing funds.
- Obtained and reviewed NTIA and NIST documentation, including standard operating procedures, interagency meeting minutes, contracts, task orders, and statements of work.
- Reviewed the internal control procedures related to NTIA's monitoring of grant recipients and assessed the risk of fraud, waste, and abuse.

We gained an understanding of the internal controls significant to our evaluation objective by interviewing NTIA personnel and reviewing policies and procedures. We did not rely solely on computer-processed data to perform this evaluation and satisfy our objective. We used NIST's Grants Management Information System to determine the number and dollar amounts of the funded awards for NOFOs 1 and 2, and the data did not materially affect our findings, conclusions, or recommendations. In our judgment and based on GAO's data reliability criteria, it is neither practical nor necessary to conduct a data reliability assessment. We identified weaknesses in internal controls as described in the "Objective, Finding, and Recommendations" section of this report.

We conducted our evaluation from November 2023 through January 2025 under the authority of the Inspector General Act of 1978, as amended (5 U.S.C. §§ 401–424), and Department Organization Order 10-13, as amended October 21, 2020.

We conducted this evaluation in accordance with Quality Standards for Inspection and Evaluation (December 2020) issued by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that evidence must sufficiently and appropriately support evaluation findings and provide a reasonable basis for conclusions and recommendations related to the objective. We believe that the evidence obtained provides a reasonable basis for our findings, conclusions, and recommendations based on our review objective. We will post this report on our public website.

Appendix B: Innovation Fund Program Objectives

The following objectives for the Innovation Fund program are excerpted from the NDAA for FY 2021:²¹

- 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.
- 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.
- 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.

²¹ Pub. L. No. 116-283, § 9202(a)(1)(C); 47 U.S.C. § 906(a)(1)(C).

Appendix C: Agency Response

NTIA's response to our draft report begins on the following page.



UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

DATE: February 27, 2025

TO: Arthur L. Scott Jr.
Assistant Inspector General for Audit and Evaluation
Office of Inspector General

FROM: Karin O'Leary
Deputy Assistant Secretary for Operations and Administration performing the
non-exclusive functions and duties of the Assistant Secretary for Communications
and Information and NTIA Administrator

SUBJECT: Response to Draft Audit Report entitled *NTIA Established the Innovation Fund
Program but Needs a Plan to Ensure That the Program Meets Statutory
Objectives*, January 28, 2025

Thank you for the opportunity to respond to the Department of Commerce Office of Inspector General (OIG) draft audit report referenced above on the Public Wireless Supply Chain Innovation Fund (Innovation Fund) program. NTIA appreciates OIG's engagement on this important program and is committed to ensuring the Innovation Fund program's integrity, efficiency, and success.

NTIA concurs with all of the recommendations in the draft report, with the comments noted below, and is already taking steps to address the issues raised therein. We have included technical corrections from the Innovation Fund as an attachment to our response. We will prepare a formal action plan upon issuance of OIG's final report. NTIA welcomes continued engagement with OIG to continue to ensure that the Innovation Fund operates at the highest levels of integrity while administering grants that further U.S. technological leadership and facilitate the adoption of open and interoperable wireless networks in line with the program's statutory objectives outlined in the *William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (FY21 NDAA)*.

RECOMMENDATIONS

Per the draft report, OIG recommends that the Assistant Secretary of Commerce for Communications and Information and NTIA Administrator:

OIG Recommendation #1: “Update and finalize the industry engagement plan to define regularly scheduled opportunities to meet with the technology industry and other stakeholders.”

RESPONSE: Concur. NTIA views stakeholder engagement as an important mechanism to stay abreast of market dynamics, understand industry needs, and identify key challenges to the adoption of open and interoperable networks. As such, NTIA developed an industry engagement plan which sought to provide a framework for soliciting public input, developing a minimum viable profile, and participating in key events. NTIA is updating and finalizing this engagement plan and will provide OIG with this plan upon completion.

OIG Recommendation #2: “Incorporate all known program challenges into the risk assessment and design a comprehensive mitigation plan to address these risks in accordance with departmental requirements.”

RESPONSE: Concur. NTIA views risk mitigation as critical to the success of the Innovation Fund. NTIA developed a risk assessment matrix covering national security equities, budget, personnel, pre- and post-award procedures, intra-departmental clearance requirements for all information released to the public (e.g., documents, talking points, articles), interagency coordination, metrics for program success, awardee vetting (e.g., to identify foreign entities of concern), and mitigation measures. NTIA is updating this risk assessment to identify all known program risks and will develop a comprehensive mitigation plan to address those risks.

OIG Recommendation #3: “Develop a programmatic plan that includes how the Innovation Fund’s statutory objectives will be met and how program performance will be measured.”

RESPONSE: Concur. The statutory objectives outlined in the FY21 NDAA have guided NTIA’s implementation of the Innovation Fund. As such, NTIA developed a strategic plan to meet the statute’s objectives and mitigate industry challenges, including by using a multi-NOFO approach. NTIA will build on this plan to develop a new programmatic plan that demonstrates how the four NOFOs address the statutory objectives and how program performance will be measured going forward.

OIG Recommendation #4: “Ensure that program goals addressing each of the statutory objectives have specified targets that align with key attributes of successful performance measures to determine the success of the program.”

RESPONSE: Concur. Through the development of a programmatic plan, NTIA will ensure that program goals addressing each of the statutory objectives have specified targets that align with key attributes of successful performance measures, thereby allowing the Innovation Fund to determine the success of the program.

OIG Recommendation #5: “Update and implement a comprehensive staffing plan that includes setting strategic direction; conducting workforce analysis; and developing, implementing, and monitoring the workforce action plan to meet the program’s workforce needs.”

RESPONSE: *Concur. Recognizing that an effective workforce is essential to the success of the Innovation Fund, NTIA developed a staffing plan that correlates personnel support to program execution requirements. NTIA will update and build out this staffing plan as well as ensure its implementation.*

OIG Recommendation #6: “Following the implementation of the staffing plan (described in recommendation 5) and at regular intervals, reassess the staffing plan to ensure that the program office has the personnel needed to monitor and oversee grant recipient performance.”

RESPONSE: *Concur. NTIA will reassess the staffing plan at regular intervals to ensure that the program office has the personnel needed to monitor and oversee grant recipient performance.*

Sincerely,

**KARIN
O'LEARY**

Karin O’Leary

Deputy Assistant Secretary for Operations and
Administration Performing the non-exclusive functions and
duties of the Assistant Secretary for Communications &
Information and NTIA Administrator

Digitally signed by KARIN
O'LEARY
Date: 2025.02.27 14:02:41
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REPORT

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