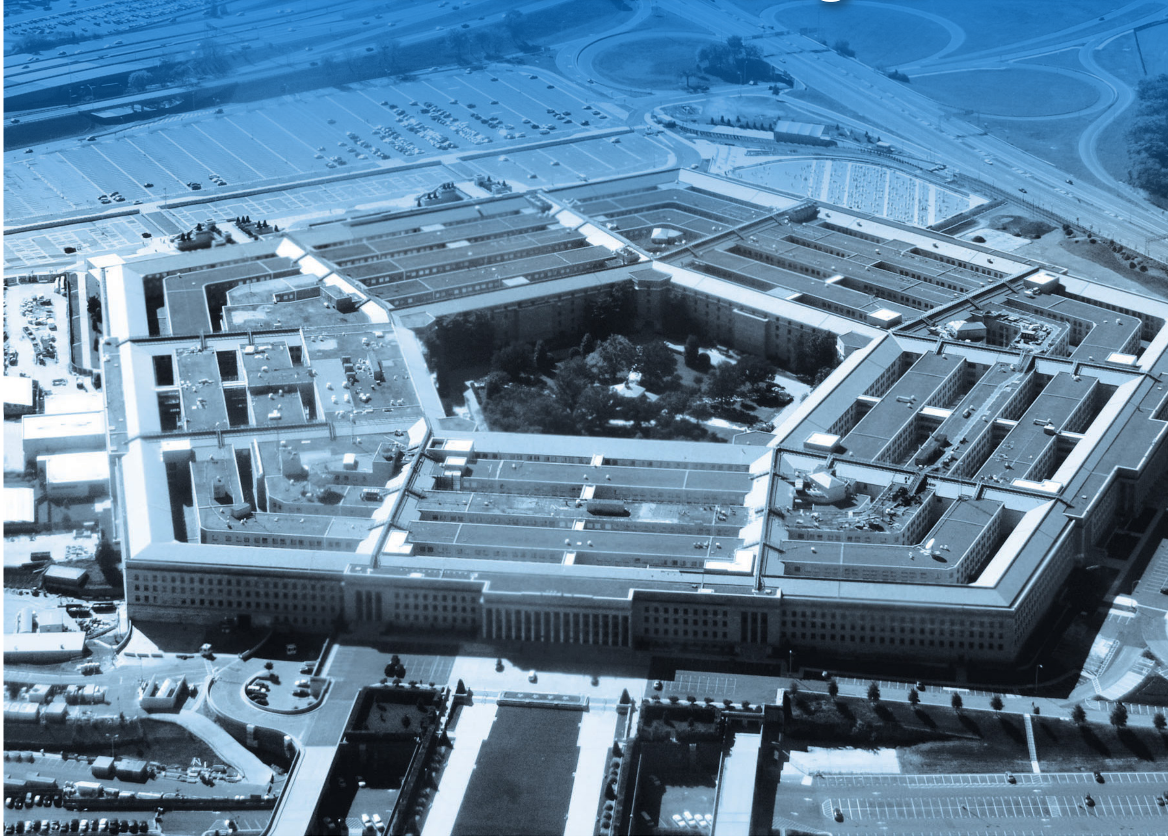
Report No. DODIG-2025-171

INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 29, 2025

Audit of the DoD's Progress in Implementing Secure Fifth-Generation Wireless Communications Technologies



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INSPECTOR GENERAL

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DEPARTMENT OF DEFENSE

Results in Brief

Audit of the DoD's Progress in Implementing Secure Fifth-Generation Wireless Communications Technologies

September 29, 2025

Objective

The objective of this audit was to assess the DoD's progress in implementing its Fifth-Generation (5G) wireless communications technology strategy.

Background

5G is the fifth iteration of wireless communications technology. 5G offers faster data speeds, better connectivity to networks, and reduced latency compared to previous generations. The FY 2020 NDAA directed the Secretary of Defense to develop a DoD 5G strategy and implementation plan. In May 2020, the DoD issued the "Department of Defense (DoD) 5G Strategy." In December 2020, the Office of the Under Secretary of Defense for Research and Engineering (OUSD[R&E]) developed and issued the "DoD 5G Strategy Implementation Plan (5G Implementation Plan)," which identifies 17 components across 4 individual lines of effort (LOE) and describes how the DoD plans to implement the 17 LOE components.

Finding

The DoD initiated actions to address all 17 LOE components in its 5G Implementation Plan. However, we could not fully assess the DoD's progress in implementing the LOE components because the OUSD(R&E) did not include key elements in the 5G Implementation Plan, such as timelines and milestones; roles and responsibilities; and metrics for evaluating and monitoring progress for the 17 LOE components.

Finding (cont'd)

In addition, the OUSD(R&E) did not periodically assess and update the 5G Implementation Plan to address performance gaps or changes to mission needs and priorities. Although it initiated actions to execute its 5G Implementation Plan in 2020, the DoD cannot fully support its progress toward completing the 17 LOE components, which are key to implementing the DoD's 5G strategy.

Recommendations

We made four recommendations to the Under Secretary of Defense for Research and Engineering and the DoD Chief Information Officer, including that the Under Secretary of Defense for Research and Engineering develop procedures, or revise existing procedures, to require that implementation plans be developed based on industry best practices and include, at a minimum, timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring progress; and a requirement to update the plans at least once per year.

Management Comments and Our Response

The Under Secretary of Defense for Research and Engineering did not respond to the recommendations in the report; therefore, those two recommendations are unresolved. We request that the Under Secretary of Defense for Research and Engineering provide comments on the final report to address the recommendations.

The official Performing the Duties of the DoD Chief Information Officer agreed with and provided planned actions to address two recommendations; therefore, those recommendations are resolved but open. We will close the recommendations once we verify that management implemented the agreed-upon actions.

Please see the Recommendations Table on the next page for the status of recommendations.

Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Under Secretary of Defense for Research and Engineering	1.a, 1.b	None	None
DoD Chief Information Officer	None	2.a, 2.b	None

Please provide Management Comments by October 29, 2025.

Note: The following categories are used to describe agency management's comments to individual recommendations.

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – The DoD OIG verified that the agreed-upon corrective actions were implemented.

OFFICE OF INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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September 29, 2025

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING
CHIEF INFORMATION OFFICER OF THE DEPARTMENT OF DEFENSE

SUBJECT: Audit of the DoD's Progress in Implementing Secure Fifth-Generation Wireless Communications Technologies (Report No. DODIG-2025-171)

This final report provides the results of the DoD Office of Inspector General's audit. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management's comments on the draft report when preparing the final report. These comments are included in the report.

The DoD Chief Information Officer agreed to address the recommendations presented in the report; therefore, we consider those two recommendations resolved and open. We will close the recommendations when management provides us documentation showing that all agreed-upon actions to implement the recommendations are completed.

This report contains two recommendations that we consider unresolved because the Under Secretary of Defense for Research and Engineering did not provide a response. Therefore, the recommendations remain open. We will track these recommendations until the Under Secretary of Defense for Research and Engineering has agreed to take actions that we determine to be sufficient to meet the intent of the recommendations and management submits adequate documentation showing that all agreed-upon actions are completed.

DoD Instruction 7650.03 requires that recommendations be resolved promptly. For the unresolved recommendations, please provide us within 30 days your response concerning specific actions in process or alternative corrective actions proposed on the recommendations. For the resolved and open recommendations, please provide us within 90 days your response concerning specific actions in process or completed on the recommendation. Send your response to either [redacted] if unclassified or [redacted] if classified SECRET.

We appreciate the cooperation and assistance received during the audit. If you have any questions, please contact me at [redacted]

Sean J. Keaney
Acting Assistant Inspector General for Audit
Cyberspace Operations

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Introduction

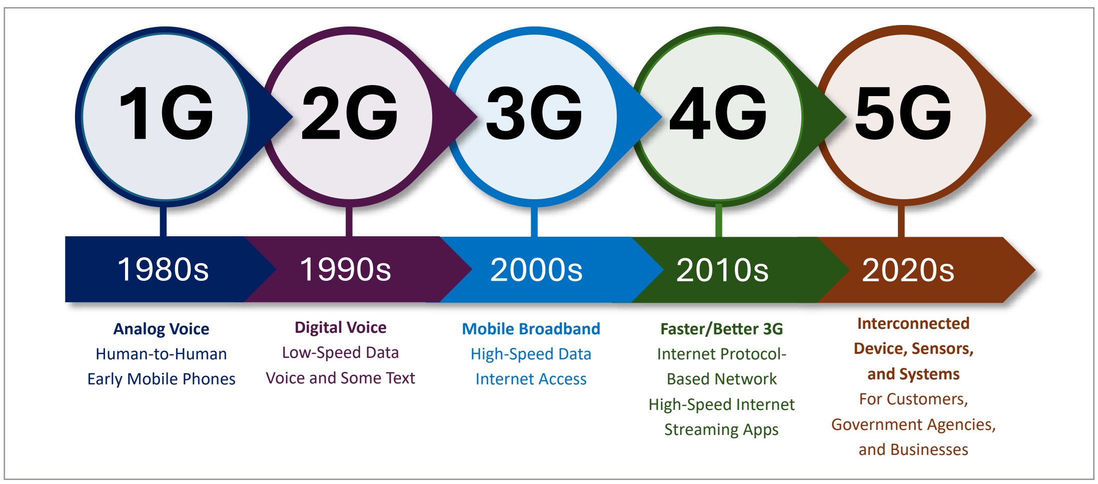
Objective

The objective of this audit was to assess the DoD's progress in implementing its Fifth-Generation (5G) wireless communications technology strategy.[1] See Appendix A for a discussion of the scope and methodology.

Background

5G is the fifth iteration of wireless communications technology. 5G offers faster data speeds, better connectivity to networks, and reduced latency compared to previous generations.[2] 5G improves digital activities such as messaging, video conferencing, and multi-media streaming, and it allows more devices to connect to advanced technologies and cloud services than previous generations.[3] Since the introduction of 1G in the 1980s, each subsequent generation has introduced new capabilities, improving upon the limitations of its predecessor and laying the groundwork for its successor, as illustrated in Figure 1.

Figure 1. The Five Generations of Wireless Communications Technologies



Source: The DoD OIG.

National Defense Authorization Act Requirements for 5G

The National Defense Authorization Acts (NDAA) for FY 2020, FY 2021, and FY 2023 included requirements for the DoD concerning 5G. Specifically, the FY 2020 NDAA directed the Secretary of Defense (SecDef) to develop a DoD 5G strategy and a

[1] Although the announced objective stated that we would assess FutureG wireless communications technologies, we did not because at the time of the audit, the DoD did not have a strategy for FutureG.

[2] Latency is the delay before a transfer of data begins following an instruction for its transfer.

[3] Cloud services refer to internet-based computing that provides shared resources, data storage, and applications on demand, allowing users and devices to access and process data remotely instead of relying on local servers or personal devices.

plan to implement the strategy.[4] The FY 2021 NDAA directed the Under Secretary of Defense for Research and Engineering (USD[R&E]) to oversee the DoD's implementation of 5G until the oversight responsibility transferred to the DoD Chief Information Officer (CIO) by October 1, 2023.[5] The FY 2023 NDAA directed the SecDef to establish a target date for the DoD's deployment of 5G wireless broadband infrastructure at all military installations and establish metrics to measure the progress toward reaching the target date by July 30, 2023.[6] In April 2024, the DoD CIO submitted a report to Congress establishing December 31, 2028, as the target date for deploying 5G infrastructures at all military installations.[7]

DoD 5G Strategy and Implementation Plan

In May 2020, the DoD issued the "Department of Defense (DoD) 5G Strategy," which includes the DoD's 5G objectives, key outcomes, and lines of effort (LOEs).[8] In December 2020, the USD(R&E) developed and issued the "DoD 5G Strategy Implementation Plan," which is an addendum to the DoD 5G Strategy that identifies 17 LOE components across 4 individual LOEs and describes how the DoD plans to implement the 17 LOE components. See Appendix B for a description of the LOEs and their associated components.

Roles and Responsibilities

On October 18, 2021, the Deputy Secretary of Defense designated the USD(R&E) as the Team Leader of the SecDef 5G Cross-Functional Team to provide governance, guidance, and oversight over 5G capabilities, infrastructure, and development.[9] The 5G Cross-Functional Team is responsible for overseeing implementation of the DoD 5G strategy; advancing adoption of wireless technology by the DoD and the defense industrial base; coordinating research and development; and leading initiatives to advance 5G for the DoD. In accordance with the FY 2021 NDAA requirement, the responsibility to oversee the implementation of the DoD's 5G strategy was transferred from the USD(R&E) to the DoD CIO on October 1, 2023. The DoD CIO received the Team Lead responsibility of the 5G Cross-Functional Team in this transfer.

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[4] Public Law 116-92, "National Defense Authorization Act for Fiscal Year 2020," section 254, "Strategy and Implementation Plan for Fifth-Generation Information and Communications Technologies," December 20, 2019.

[5] Public Law 116-283, "National Defense Authorization Act for Fiscal Year 2021," section 224, "Governance of Fifth-Generation Wireless Networking in the Department of Defense," January 1, 2021.

[6] Public Law 117-263, "National Defense Authorization Act for Fiscal Year 2023," section 221, "Target Date for Deployment of 5G Wireless Broadband Infrastructure at All Military Installations," December 23, 2022. This is a separate requirement and is not addressed in the DoD 5G Strategy or implementation plan.

[7] Report on the Deployment of 5G Wireless Broadband Infrastructure at all Military Installations, January 31, 2024.

[8] DoD, "Department of Defense (DoD) 5G Strategy," May 2, 2020.

[9] Cross-functional teams rely on individuals with different types of expertise to work toward a common, well-defined goal and to deliver better and faster solutions to complex and fast-moving problems.

Finding

The DoD's 5G Implementation Plan Lacked the Key Elements Needed to Measure Effectiveness

The DoD initiated actions to address all 17 LOE components in its 5G Implementation Plan. However, we could not assess the DoD's progress in implementing its secure 5G wireless communications technology strategy because the Office of the Under Secretary of Defense for Research and Engineering (OUSD[R&E]) did not include key elements for measuring progress in the 5G Implementation Plan, such as timelines and milestones; roles and responsibilities; and metrics for evaluating and monitoring progress for the 17 LOE components. In addition, the OUSD(R&E) did not periodically assess and update the 5G Implementation Plan to address performance gaps or changes to mission needs and priorities. Although it initiated actions to execute its 5G Implementation Plan in 2020, the DoD cannot fully support its progress toward completing the 17 LOE components, which are key to implementing the DoD's 5G strategy.

The DoD cannot fully support its progress toward completing the 17 LOE components, which are key to implementing the DoD's 5G strategy.

The DoD Initiated Actions to Address the 5G Implementation Plan Components

The DoD initiated actions to address all 17 LOE components in its 5G Implementation Plan. For example, the "Hosting 5G Demonstrations" component in LOE 1 states that the DoD will select military facilities to serve as hosts for 5G industry demonstrations and collaborate with industry partners at those facilities to develop and test military and dual-use 5G technologies, concepts, and applications.[10] Successful applications would be rapidly deployed, with follow-on acquisitions, operations, and sustainment managed through the appropriate DoD organization. To address this component, the DoD initially selected 14 military facilities in the United States to host the 5G demonstrations. The demonstrations included the development and testing of smart warehouses for vehicle storage and maintenance; augmented reality/virtual reality to enhance readiness and tactical training for ground combat training; and command and control for nomadic and mobile-distributed command and control vehicles connected by 5G networks.[11] In August 2024, the DoD CIO reported

[10] Dual-use refers to products, services, standards, processes, or acquisition practices that are capable of meeting requirements for military and nonmilitary applications.

[11] Smart warehouses are warehouses that uses a comprehensive set of software and hardware tools that manage inventory, track shipments, and optimize warehouse operations.

that the 5G smart warehouse system demonstration hosted at Marine Corps Logistics Base Albany was a success, and the system was transitioned to the Department of the Navy.

The "Open Architecture and Virtualization" component in LOE 1 states that the DoD will contribute to the development of advanced 5G network architectures and inform more secure designs for 5G core and edge systems, including open radio access networks (OpenRAN).[12] The component description also states that the DoD is evaluating multiple RAN implementation from industry partners for performance, capabilities, interoperability, and security. To address this component, the DoD collaborated with the National Telecommunications Information Administration, Department of Commerce, in 2023 to sponsor the 5G Challenge prize competition for OpenRAN interoperability. According to a February 2023 DoD press release, the DoD intended to use the solutions and results from the 5G Challenges to determine the ability of OpenRAN to be included in modernization initiatives related to base communications infrastructure. Additionally, in October 2024, the DoD published its "Department of Defense Private 5G Deployment Strategy" for implementing and operating private 5G networks at military installations while maximizing OpenRAN ecosystems.[13]

The "Threat Intelligence" component in LOE 2 states that the DoD must have a comprehensive understanding of systemic vulnerabilities and adversary threats on 5G networks operated by U.S. and coalition partners. The component description outlines the following four tasks.

- Develop techniques to identify, track, and mitigate threats and vulnerabilities that arise from configurations and combinations of network equipment, software components, and deployment environments.
- Provide evidence-based information to regulatory agencies, standards groups, and network operators so they can make informed decisions on network equipment.
- Demonstrate how vulnerabilities in underlying hardware could be exploited by an adversary to impact 5G-enabled capabilities and operations.
- Track how 5G features, such as network slices and spectrum sharing, are being used and identify threats and vulnerabilities associated with these features.

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12 5G core systems are the control center of a 5G network, referred to as "the brain," that manages critical functions such as user authentication, data routing, and policy enforcement. 5G edge systems are a combination of 5G network technology and edge computing that enables near real-time data processing. Edge computing allows data processing to occur closer to the source of where the data is generated. OpenRAN is part of the 5G architecture that is modular, uses open interfaces, and virtualizes functionality on commodity hardware through software.

13 DoD, "Department of Defense Private 5G Deployment Strategy," October 11, 2024.

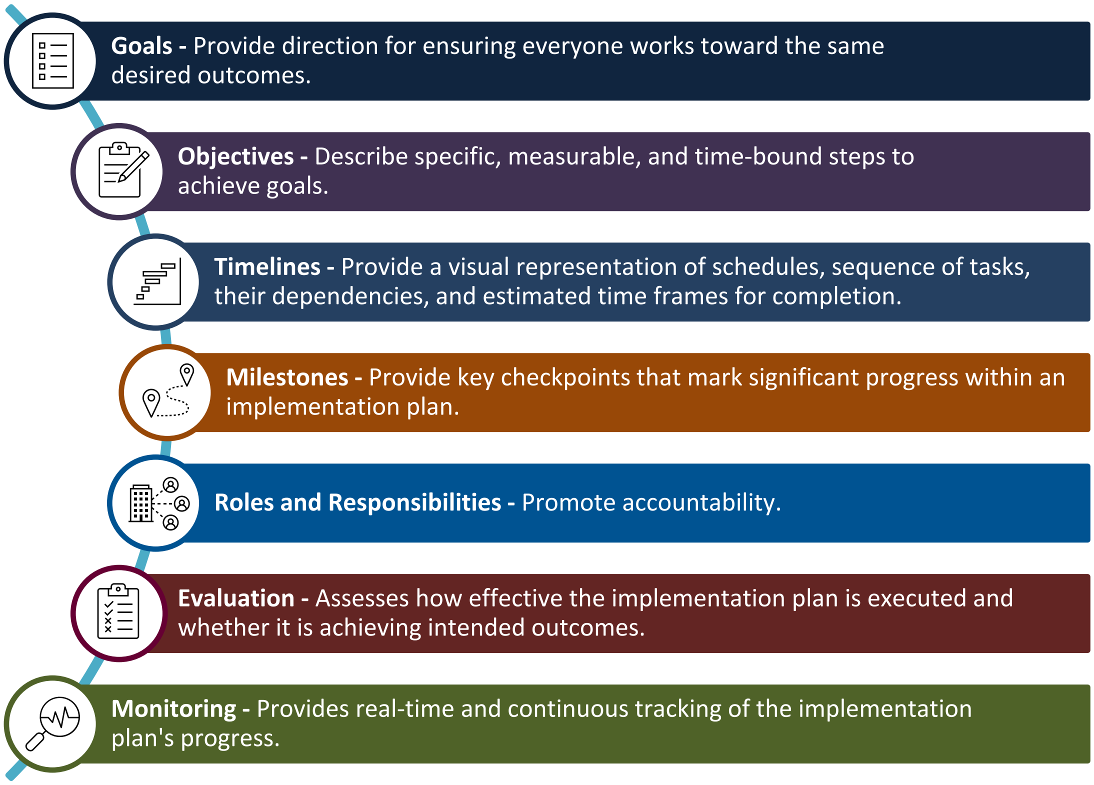
To address this component, the OUSD(R&E) collaborated with MITRE to develop a knowledge base of adversarial tactics, techniques, and procedures for attacking 5G systems, which can be used for risk assessments, technology threat mitigation activities, and cybersecurity activities. In addition, the OUSD(R&E) partnered with the Idaho National Laboratory to develop quarterly reports that summarize publicly available information on vulnerabilities that a malicious actor could leverage related to 5G networks.

The OUSD(R&E) provided additional information that supported actions taken to address the other 14 LOE components in the 5G Implementation Plan. However, we were unable to fully assess the DoD's progress in implementing 5G in accordance with its strategy because the OUSD(R&E) did not include key elements in the 5G Implementation Plan, such as timelines and milestones; roles and responsibilities; and metrics for evaluating and monitoring progress for the 17 LOE components.

Best Practices for Developing an Effective Implementation Plan

Best practices for developing an effective implementation plan have been established by private industry and academia. For example, literature detailing best practices for management planning states that an effective implementation plan should provide a roadmap of the specific actions needed to execute an overall strategy and that the plan should include certain key elements to help guide those executing the plan toward completion. Although the best practices differ on some of the elements that should be included in an implementation plan, Figure 2 identifies the seven elements that were key across multiple best practice guides for developing an effective implementation plan.

Figure 2. Key Elements for Developing an Effective Implementation Plan



Source: The DoD OIG.

According to the best practices, these elements provide the foundation for an effective and measurable strategy execution and including the elements in an implementation plan results in the following benefits.

- Stakeholders have a common understanding of the goals, timelines, and expectations.
- There are clearly defined roles and responsibilities that foster accountability and ownership.
- Stakeholders are informed of the project's progress, which helps to build trust and support for the project.

The best practices also state that trying to implement a strategy without an effective implementation plan often results in a lack of clarity and direction; the inability to determine whether the strategy is working; and missed opportunities to adapt as priorities change.

The DoD 5G Implementation Plan Lacked Key Elements

The OUSD(R&E) included goals and objectives for each of the 17 LOE components in the DoD 5G Implementation Plan, and 2 of the 17 LOE components had specific deliverables that would indicate completion.[14] However, the OUSD(R&E) did not consistently include the other five elements—timelines, milestones, roles and responsibilities, evaluation methods, and monitoring methods. Table 1 organizes the key elements by LOE component and identifies whether or not the key element was included in the plan.

Table 1. Key Elements in the 5G Implementation Plan by LOE Component

LOE Component	Timelines	Milestones	Roles and Responsibilities	Evaluation	Monitoring
LOE 1 – Promote Technology Development					
Hosting 5G Demonstrations	X	X	✓	✓	✓
Radio Frequency Technology	X	X	X	X	X
Dynamic Spectrum Utilization	X	X	X	X	X
Open Architecture and Virtualization	X	X	X	X	X
Workforce Development	X	X	X	X	X
LOE 2 – Assess, Mitigate, and Operate Through 5G Vulnerabilities					
Threat Intelligence	X	X	X	X	X
Minimizing 5G Infrastructure Risks	X	X	✓	X	X
Global Operations	X	X	X	X	X
Security Assessments	X	X	X	X	X
Cybersecurity and Zero-Trust	X	X	X	X	X
LOE 3 – Influence 5G Standards and Policies					
Standards Setting Bodies	X	X	✓	X	X
Advanced Spectrum Management	X	X	X	X	X
5G-Enabled Concepts of Operations	X	X	X	X	X
Technology Control Measures	X	X	✓	X	X

[14] The "Workforce Development" LOE component states that the DoD will develop a human capital plan, and the "Minimizing 5G Infrastructure Risks" LOE component states that the DoD will develop and execute a detailed plan for supply chain risk management.

Table 1. Key Elements in the 5G Implementation Plan by LOE Component (cont'd)

LOE Component	Timelines	Milestones	Roles and Responsibilities	Evaluation	Monitoring
LOE 4 – Engage Partners					
International Allies and Partners	X	X	X	X	X
Industry Engagement	X	X	X	X	X
Congressional Engagement	X	X	X	X	X

LEGEND

X Missing key element

✓ Included key element

Source: The DoD OIG.

Without those key elements, we could not measure the DoD's progress toward implementing the DoD's 5G strategy. For example, DoD CIO officials stated that for the "Hosting 5G Demonstrations" component in LOE 1, they considered a demonstration successful when prototypes or use cases were transitioned to a DoD Component for deployment and that prototypes that did not perform well provided lessons learned to share 5G knowledge and skills. As discussed previously, the DoD CIO considered the 5G smart warehouse a success in August 2024 and transitioned the prototype to the Department of the Navy for deployment. However, the OUSD(R&E), DoD CIO, and 5G Implementation Plan did not provide the timelines and milestones needed to measure the progress of the remaining active 5G demonstrations or a summary of lessons learned from the terminated 5G demonstrations. As an additional example, the 5G Implementation Plan for the "Threat Intelligence" component in LOE 2 did not include key elements, such as timelines, milestones, roles and responsibilities, evaluation methods, or monitoring methods, that would aid in measuring the progress made in developing techniques for identifying and mitigating threats and vulnerabilities and sharing information with stakeholders.

Because the progress made toward completing the 5G Strategy is contingent upon completing the LOE components, we could not determine the overall progress made toward implementing the DoD's 5G Strategy. Incorporating industry best practices for developing, initiating, and updating implementation plans could bring benefits to current and future strategic plan projects and ensure that the plans will translate into tangible results when executing a strategy. Therefore, the DoD CIO should review and update the 5G Implementation Plan to include timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring the DoD's progress toward implementing 5G.

We could not determine the overall progress made toward implementing the DoD's 5G Strategy.

As the OUSD(R&E) develops other strategies and their corresponding implementation plans, the use of industry best practices would provide a clear and consistent methodology for developing those plans. Therefore, the USD(R&E) should develop or revise its existing procedures to require that implementation plans be developed based on industry best practices and include, at a minimum, timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring progress.

The DoD Did Not Periodically Review or Update the 5G Implementation Plan

The DoD issued its 5G Implementation Plan in December 2020; however, the plan was not periodically reviewed or updated. Industry best practices state that implementation plans should be updated regularly as the plans are based on a snapshot in time. Reviewing and updating implementation plan timelines, milestones, roles and responsibilities, evaluation methods, and monitoring methods ensure that strategic objectives remain aligned with changing circumstances and priorities and identifies gaps in implementation. The DoD CIO and the USD(R&E), at a minimum, should have reviewed the plan when 5G responsibilities transitioned to the DoD CIO to determine whether a revision was necessary. Industry best practices state that implementation plans should be reviewed at least annually, updated, and adapted based on progress, feedback, and changing priorities. Technology is not static and continues to evolve quickly. As technology evolves, the DoD must keep pace with changing priorities by reviewing and revising its implementation plans accordingly. Therefore, the DoD CIO should periodically reassess and update the 5G Implementation Plan, as needed. In addition, the USD(R&E) should include in the procedures developed in accordance with Recommendation 1.a, a requirement to review and update implementation plans, at a minimum of once each year.

As technology evolves, the DoD must keep pace with changing priorities by reviewing and revising its implementation plans accordingly.

Strategy Implementation Starts with an Effective Plan

Although it initiated actions to execute its 5G Implementation Plan starting in 2020, the DoD cannot fully support its progress toward completing the 17 LOE components, which are key to implementing the DoD's 5G strategy. An implementation plan that requires detailed documentation to support progress and establishes measurable milestones and metrics; realistic timelines and deadlines; and a monitoring and evaluation process is critical to the successful execution of a strategy. Not including those elements in an implementation plan can lead to wasted resources, inconsistent decision-making, a lack of direction and progress, and ultimately, delay implementation of the strategy.

Recommendations, Management Comments, and Our Response

Recommendation 1

We recommend that the Under Secretary of Defense for Research and Engineering:

a. Develop or revise their existing procedures to require that implementation plans be developed based on industry best practices and include, at a minimum, timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring progress.

b. Include in the procedures developed in accordance with Recommendation 1.a, a requirement to review and update implementation plans, at a minimum of once each year.

Management Comments Required

The Under Secretary of Defense for Research and Engineering did not respond to the recommendations in the report. Therefore, the recommendations are unresolved. We request that the Under Secretary of Defense for Research and Engineering provide comments on the final report.

Recommendation 2

We recommend that the DoD Chief Information Officer:

a. Review and update the 5G Implementation Plan to include timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring the DoD's progress toward implementing 5G.

DoD Chief Information Officer Comments

The official Performing the Duties of the DoD Chief Information Officer agreed with the recommendation, stating that they will review the 5G Implementation Plan to determine appropriate modification to both address best practices and meet current 5G implementation requirements.

Our Response

Comments from the DoD Chief Information Officer addressed all specifics of the recommendation; therefore, the recommendation is resolved but open. We will close the recommendation once the DoD Chief Information Officer provides documentation verifying that the 5G Implementation Plan was updated to include timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring the DoD's progress toward implementing 5G.

b. Periodically reassess and update the 5G Implementation Plan, as needed.

DoD Chief Information Officer Comments

The official Performing the Duties of the DoD Chief Information Officer agreed with the recommendation, stating that they will periodically reassess the 5G Implementation Plan to meet current 5G implementation requirements and update the plan to keep pace with changing priorities.

Our Response

Comments from the DoD Chief Information Officer addressed all specifics of the recommendation; therefore, the recommendation is resolved but open. We will close the recommendation once the DoD Chief Information Officer provides documentation verifying that at least one reassessment occurred and the 5G Implementation Plan was updated.

Appendix A

Scope and Methodology

We conducted this performance audit from June 2023 through June 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

To assess DoD's progress in implementing its secure 5G wireless communications technologies strategy, we reviewed the public laws to understand the DoD's 5G requirements, including the development of a strategy and implementation plan, and assessed actions taken for each LOE component. We reviewed the DoD 5G Strategy Implementation Plan to determine whether it included specific measures, such as milestones, assigned tasks, and allocated resources, to track progress toward meeting the requirements of the 4 LOEs and their associated 17 LOE components. We researched and reviewed best practices for developing an effective and measurable implementation plan to determine key elements. We met with OUSD(R&E) officials to understand how they tracked their progress with implementing secure 5G. We analyzed the documentation OUSD(R&E) officials provided to determine the actions taken for each of the 17 LOE components. We also met with DoD CIO officials to understand their roles and responsibilities for implementing secure 5G wireless technologies after the SecDef transitioned the oversight for the 5G implementation to the DoD CIO on October 1, 2023.

Internal Control Assessment and Compliance

We assessed internal controls and compliance with laws and regulations necessary to satisfy the audit objective. We identified deficiencies in the underlying principles of implementing control activities and compliance with the public laws and DoD Instructions. Specifically, we identified several internal control deficiencies related to the implementation of secure 5G wireless technologies. However, because our review was limited to these internal control components and underlying principles, it may not have disclosed all internal control deficiencies that may have existed at the time of this audit.

Use of Computer-Processed Data

We did not use computer-processed data to perform this audit.

Use of Technical Assistance

The Quantitative Methods Division Technical Director of the DoD OIG assisted in developing a nonstatistical sample methodology that we used to select the 5G test sites to visit.

Prior Coverage

No prior coverage has been conducted on implementing a 5G strategy during the last 5 years.

Appendix B

The DoD 5G Strategy Implementation Plan

In December 2020, the DoD issued the DoD 5G Strategy Implementation Plan, which specifies how the DoD will implement its 5G strategy. The 4 LOEs and their associated 17 LOE components are described in Table 2.[15]

Table 2. The DoD 5G Strategy Implementation Plan's LOEs and LOE Component

Lines Of Effort	LOE Components
LOE 1 – Promote Technology Development The DoD will promote technology development by facilitating the advancement and adoption of 5G technology and identifying new uses for 5G systems, subsystems, and components.	**Hosting 5G Demonstrations** Select test sites to host 5G demonstrations to develop, test, and evaluate 5G technologies and deploy any successful demonstrations through appropriate DoD organizations.
	Radio Frequency Technology Support policies that foster shared radio frequency wavelengths and promote national and international standards related to millimeter-wave technologies.
	Dynamic Spectrum Utilization Develop technologies and capabilities needed for near-real-time sharing to enable military operations in congested spectrum environments.
	Open Architecture and Virtualization Contribute to the development of advanced 5G network architectures and inform more-secure designs for 5G core and edge systems, including Open Radio Access Networks and network slicing.
	Workforce Development Collaborate with academia, industry, and interagency partners, and identify the necessary skills and develop a human capital plan that leverages the DoD's Science Technology, Engineering, and Mathematics programs and partnerships with universities and laboratories.

[15] DoD, "DoD 5G Strategy Implementation Plan," December 15, 2020.

Table 2. The DoD 5G Strategy Implementation Plan's LOEs and LOE Component (cont'd)

<table>
<tr><th>Lines Of Effort</th><th>LOE Components</th></tr>
<tr><td rowspan="5">LOE 2 – Assess, Mitigate, and Operate Through 5G Vulnerabilities

The DoD will utilize a risk-based framework to ensure the confidentiality, integrity, and availability of our 5G networks, devices, weapon systems, and applications and encourage its partners and allies to do likewise.</td><td>Threat Intelligence
Obtain a clear and comprehensive understanding of 5G threats and vulnerabilities, including how adversary military and intelligence forces may leverage 5G-enabled capabilities to impact operations, and use the results of these evaluations to leverage U.S. allies and partner collaborations to the maximum extent possible.</td></tr>
<tr><td>Minimizing 5G Infrastructure Risks
Develop and execute a detailed supply chain risk management plan which includes suppliers adhering to controls that reduce 5G infrastructure supply chains risks to operate around the world, even within regions with networks that have been compromised.</td></tr>
<tr><td>Global Operations
Develop and deploy techniques and technologies across DoD devices and infrastructure that ensure protected and resilient utilization of 5G networks globally, even in denied, degraded, intermittent, and limited environments.</td></tr>
<tr><td>Security Assessments
Conduct security assessments to discover, assess, and mitigate 5G vulnerabilities, to include identifying vulnerabilities during development, deployment, and sustainment of 5G-enabled networks, platforms, and systems.</td></tr>
<tr><td>Cybersecurity and Zero Trust
Develop and validate a zero-trust model for 5G which will allow the DoD to manage risk, while operating within untrusted network environments by utilizing encryption and fine-grained management of authorities and information access.</td></tr>
<tr><td rowspan="4">LOE 3 – Influence 5G Standards and Policies

The national and international standards to which 5G systems are designed will impact which companies and countries are best-positioned to provide those capabilities.</td><td>Standards Setting Bodies
Fully implement its Standards Engagement Plan and actively participate in the 3rd Generation Partnership Project organization to strengthen U.S. influence in key standards setting organizations and promoting high-quality American 5G and beyond technologies.</td></tr>
<tr><td>Advanced Spectrum Management
Work closely with National Telecommunication and Information Administration and the Federal Communication Commission to develop new policies for sharing spectrum, including dynamic spectrum sharing and bidirectional sharing of existing bands.</td></tr>
<tr><td>5G-Enabled Concepts of Operations
Explore, develop, and integrate 5G-enabled capabilities into the Military Departments so that military operations can achieve objectives in contested and congested spectrum environments.</td></tr>
<tr><td>Technology Control Measures
Support, review, and update efforts to protect 5G-enabling technologies from potential U.S. adversaries, to include reviewing foreign investments in U.S. companies and updating and reviewing export controls—while not compromising the DoD's ability to acquire next-generation technologies.</td></tr>
</table>

Table 2. The DoD 5G Strategy Implementation Plan's LOEs and LOE Component (cont'd)

Lines Of Effort	LOE Components
LOE 4 – Engage Partners The DoD must engage with interagency, international, and industry partners proactively to shape 5G outcomes.	**International Allies and Partners** Engage with interagency, international, and industry partners proactively to shape 5G outcomes through positive, prioritized, and coordinated dialogue in support of our shared interests with each of these partners.
	Industry Engagement Engage in dialogue with our global industry partners, including 5G microelectronics manufacturers, telecommunications companies, and application developers.
	Congressional Engagement Work with interagency partners to identify and recommend specific legislative proposals to strengthen 5G standards and security, incentivize deployment, and offset distortions to the open market.

Source: The DoD OIG.

Management Comments

DoD Chief Information Officer

DEPARTMENT OF DEFENSE
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WASHINGTON, D.C. 20301-6000

AUG 15 2025

MEMORANDUM FOR INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE

SUBJECT: Review and Comment of DoD Inspector General "Audit of the DoD's Progress in Implementing Secure Fifth-Generation Wireless Communications Technologies" (D2023-D000CX-0131.000) Draft Report

This is the Department of Defense (DoD) Chief Information Officer (CIO) response to the DoD Inspector General Report, "Audit of the DoD's Progress in Implementing Secure Fifth-Generation Wireless Communications Technologies" (D2023-D000CX-0131.000) Draft Report.

DoD IG RECOMMENDATION: The DoD Chief Information Officer will:

a. Review and update the 5G implementation plan to include timelines with specific milestones, roles and responsibilities, and metrics for evaluating and monitoring the DoD's progress towards implementing 5G.

b. Periodically reassess and update the 5G implementation plan, as needed.

DoD CIO RESPONSE: DoD CIO agrees with the DoD IG recommendation. DoD CIO will review the 5G implementation plan, and periodically reassess, to determine appropriate modification to both address best practices as well as match current 5G Implementation requirements.

A security review to verify "CUI" markings in the report has been completed and there are no additional recommendations, and the report is appropriately marked.

The point of contact for this matter is [redacted]

Katherine Arrington
Performing the Duties of the
Chief Information Officer of the
Department of Defense

Acronyms and Abbreviations

5G	Fifth Generation
CIO	Chief Information Officer
LOE	Lines of Effort
NDAA	National Defense Authorization Act
OpenRAN	Open Radio Access Network
SecDef	Secretary of Defense
USD(R&E)	Under Secretary of Defense for Research and Engineering

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