



CHIEF INFORMATION OFFICER

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MEMORANDUM FOR SENIOR PENTAGON LEADERSHIP
DEFENSE AGENCY AND DOD FIELD ACTIVITY DIRECTORS

SUBJECT: Department of Defense Cloud Financial Operations Strategy

The adoption of commercial cloud-based capabilities across the Department of Defense (DoD) remains fundamental to modernization. As cloud adoption and dependence continue to increase, and with the evolution and maturity of artificial intelligence-based solutions, DoD must improve its cloud management to ensure delivery of services while achieving best fiscal value.

The DoD Cloud Financial Operations (FinOps) Strategy provides direction for enabling cloud cost management and optimization for better investment, budgetary, and architectural decisions. Leveraging industry recognized best practices, the strategy describes a desired outcome, provides a DoD-tailored FinOps framework based on the FinOps Framework from the FinOps Foundation, and identifies strategic imperatives and associated actions to enable an enterprise understanding of cloud costs and impacts. It establishes a way ahead that will allow the Department to be a better user and buyer of cloud services.

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Leslie A. Beavers

Acting

Attachment:
As stated

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DoD CLOUD FINOPS STRATEGY

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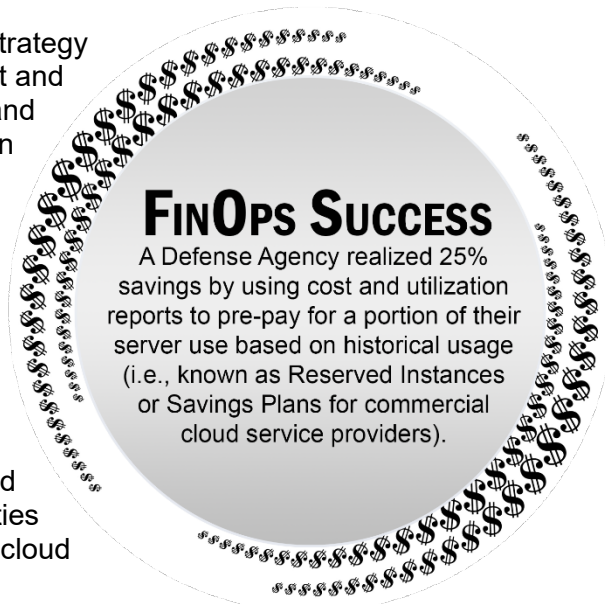
U.S. Department of Defense

Foreword

The Department of Defense (DoD) Software Modernization Strategy emphasizes that DoD's adoption of cloud is fundamental to modernization, and modernization is needed as warfare becomes digitally dependent. Through partnerships with commercial cloud service providers, the Department obtains access to a global compute infrastructure, a continuous pipeline of innovative services, and the processing and storage capacity needed to mature artificial intelligence (AI) capabilities at a pace unachievable alone. As such, DoD's cloud dependence will continue to increase along with the costs; and military budgets will continue to be constrained due to the uncertainty in the balance of world power. This compels the Department to become a smarter user and buyer of cloud, ensuring maximum realization of cloud potential while achieving best value from a fiscal point of view.

DoD began its cloud journey with a focus on cloud adoption over a decade ago. Since then, DoD provided access to various enterprise cloud contracts, established infrastructure to enable cloud connectivity and on-premises capability, and instituted processes to ensure security. Applications and systems migrated to cloud, new capabilities started with cloud, and adoption continues at an increasing pace. Unfortunately, through this progress, DoD did not maintain visibility or manage cloud assets from an enterprise perspective and did not migrate optimally due to lift and shift strategies without consideration for more efficient architectures such as auto-scaling or scheduled availability. As such, it is appropriate to adjust course to reduce capability duplication, optimize spend, and deliver more efficient use of provisioned cloud capabilities.

The DoD Cloud Financial Operations (FinOps) Strategy provides direction for enabling cloud cost management and optimization for better investment, budgetary, and architectural decisions. FinOps is defined as “an operational framework and cultural practice which maximizes the business value of cloud, enables timely data-driven decision making, and creates financial accountability through collaboration between engineering, finance, and business teams.”¹ Leveraging the FinOps Framework of the FinOps Foundation,² the strategy describes a desired outcome, provides a DoD-tailored FinOps framework, and identifies strategic imperatives and associated actions to enable an enterprise understanding of cloud cost and impact. It charts a path forward for capabilities that will allow the Department to become a better cloud consumer.



This strategy aligns with the DoD Software Modernization Strategy and Implementation Plan. Governance of this strategy will fall under the Enterprise Cloud Management Board (ECMB). The ECMB will facilitate DoD Component participation in strategy implementation and will integrate the FinOps framework into relevant enterprise decisions. Through this strategy, DoD aims not only to adopt cloud faster but to use and buy cloud smarter.

¹ “What is FinOps,” FinOps Foundation, <https://finops.org/introduction/what-is-finops/>

² FinOps Foundation, FinOps Framework, <https://finops.org/framework>

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1 Introduction

1.1 Purpose

On February 1, 2022, the Deputy Secretary of Defense signed the Department of Defense (DoD) Software Modernization Strategy, setting DoD on a path to deliver resilient software capability at the speed of relevance with cloud functioning as the foundation for this modernization. Subsequently, the Office of the DoD Chief Information Officer (CIO) published the DoD Software Modernization Implementation Plan to identify and prioritize software modernization activities to include maturing cloud service brokering functions and accelerating cloud adoption. In executing the implementation plan, DoD Components migrated many workloads to cloud; however, these migrations used cloud services purchased through various mechanisms (e.g., cloud service provider resellers, other available enterprise cloud contracts, and existing contracts via other direct costs) and/or migrated to cloud while maintaining a legacy data center procurement model. This led to unique service pricing across DoD Components, inconsistent terms and agreements, various approaches to managing provisioned cloud resources, and inefficient uses of those resources, which, ultimately, hindered an enterprise understanding of cloud cost and impact, and potentially resulted in excessive costs, wasteful spend, and delays in mission attainment.

The DoD Cloud FinOps Strategy aims to enable enterprise visibility and understanding of cloud cost and impact to better inform cloud investment, budgetary, and architectural decisions. Per the FinOps Foundation Technical Advisory Council, FinOps is an operational framework and cultural practice which maximizes the business value of cloud, enables timely data-driven decision making, and creates financial accountability through collaboration between engineering, finance, and business teams.³ The strategy charts a path forward for enabling cloud financial management and optimization based on mission impact, allowing DoD to become a smarter consumer of cloud. The strategy describes a desired outcome, provides a DoD-tailored FinOps framework, and identifies strategic imperatives and associated actions for achieving the desired outcome.

1.2 Scope

The DoD Cloud FinOps Strategy provides guidance and direction for achieving Department-level cloud cost management and optimization for Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) services. It addresses terminology as it applies to the DoD Enterprise Cloud Environment and identifies actions associated with achieving DoD enterprise-level capabilities. It is intended to drive the alignment of DoD Component activities along a common path but does not prohibit DoD Components from pursuing their own efforts to better manage cloud costs by identifying opportunities to reduce expenses through workload optimizations, rate optimizations, and implementing commitment-based discounts.

1.3 Intended Audience

The intended audience of this strategy includes those responsible for implementing a cloud strategy for their DoD Component, mission owners acquiring and managing cloud, and engineers

³ FinOps Foundation, "What is FinOps?" December 2023, <https://www.finops.org/introduction/what-is-finops/>

working to properly tag and select cloud services for compliant efficient systems. Upon reading the strategy, the audience should have a general understanding of FinOps as applied to DoD, an awareness of the actions to be taken to achieve the desired outcome, and a feeling of personal responsibility for the smart management of cloud costs.

2 Desired Outcome

Through implementation of the DoD Cloud FinOps Strategy, DoD intends to achieve a single pane of glass that intuitively illustrates cloud cost, usage, and impact across DoD Components by leveraging industry standards. This single pane of glass, a capability that integrates data across different sources and presents them in a meaningful view, will allow both leadership and individual DoD Components to track cloud cost in relationship to utilization; visualize consolidated enterprise-level trends in cloud spend; and foster collaboration between finance, operations, and engineering teams to align cloud spending with business priorities and optimize costs collectively. As a result of this alliance, DoD will be able to identify areas of potential optimization; thereby, improving transparency, accountability, negotiating power, and rationalization efforts.

The desired outcome follows the same design pattern being employed across many data-driven decision making capability initiatives. It begins with the consolidation of data under the umbrella of established standards, Operational Security (OPSEC), and tags and ends with the visualization of metrics and trends that allow for meaningful decision making, affording the organization opportunities for continuous improvement (i.e., regularly assessing, reviewing, and refining FinOps practices to adapt to changing business needs, OPSEC, and evolving cloud services). Figure 1 displays the conceptual desired outcome.



Figure 1: Cloud Cost Management and Optimization Single Pane of Glass

3 DoD FinOps Framework

The DoD FinOps Framework is based on the FinOps Framework from the FinOps Foundation.⁴ The FinOps Framework from the FinOps Foundation establishes common terminology for describing cloud cost management and optimization activities in alignment with community best practices. It represents a cultural practice as discussed in the DoD Software Modernization Strategy,⁵ modernizing how DoD operates by instituting a way for cross-functional teams to manage and take accountability for cloud costs.

The sections that follow tailor the FinOps Framework from the FinOps Foundation for DoD. The FinOps Foundation licenses their publications and works under the Creative Commons Attribution 4.0 International License and compliance with the FinOps Foundation Terms of Use.⁶

3.1 Principles

The DoD FinOps Framework principles closely align with those of the FinOps Framework from the FinOps Foundation. They function as guideposts to ensure maintained alignment with the intent of this strategy, smarter use and buying of cloud, and are tailored to reflect the Department’s unique mission focus and implementation environment.



- **Collaboration and Ownership Required:** Successful implementation of FinOps requires a Whole-of-Department approach with everyone, from software developers to budget planners, taking ownership of cloud use and spend. This requires accountability and empowerment pushed to the edge with all stakeholders having decision making authority at their level of implementation.



- **Decisions Driven by Mission Value:** Investment decisions associated with cloud are based on value to the mission, both at the DoD Component and enterprise levels. This requires achieving a balance across cost, quality, and speed.



- **Accessible and Timely FinOps Data:** Managing cloud use and spend requires consistent visibility of FinOps data at all levels of the organization. This visibility may vary depending on the level of the organization.

⁴ The FinOps Foundation was founded in 2019 as a project under The Linux Foundation dedicated to advancing people who practice the discipline of cloud financial management through best practices, education, and standards. As an organization with a large membership, the Framework and other collateral are provided for use and referencing under The Linux Foundation license. <https://www.finops.org/introduction/how-to-use/>

⁵ DoD Software Modernization Strategy, <https://media.defense.gov/2022/Feb/03/2002932833/-1/-1/1/DEPARTMENT-OF-DEFENSE-SOFTWARE-MODERNIZATION-STRATEGY.PDF>

⁶ “How to Attribute the FinOps Framework and Foundation Content”, FinOps Foundation, <https://www.finops.org/introduction/how-to-use/>



- **An Enterprise Champion a Must:** FinOps is successful when it actually impacts decisions, and the Department realizes improved cloud use and cost trends. This must be driven at the enterprise level with the enterprise being not just a champion for the effort but a FinOps practitioner.



- **Cost Model Creativity Encouraged:** DoD cannot be constrained by the traditional ways of doing business. Although limited by law and policy, DoD must continue to push the envelope in exploring and exercising new ways to pay for cloud taking advantage of various cost models offered by providers.

3.2 Phases

The FinOps Framework Phases by FinOps Foundation⁷ provide the organizing construct for the Department’s FinOps strategic imperatives and actions. Modeled to be incremental, the FinOps Framework Phases form an “infinite loop” and are intended to improve with each successive iteration. The phases include the following:

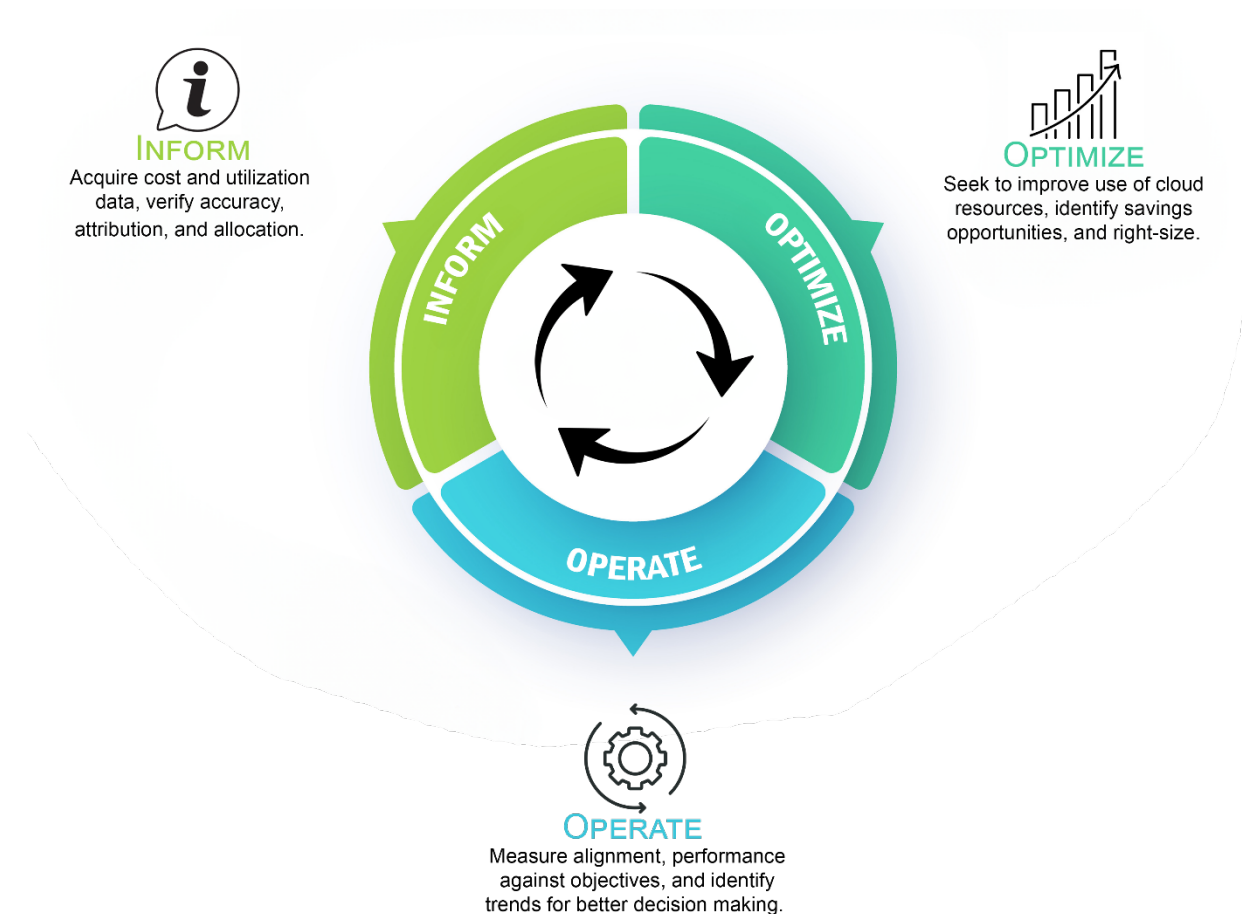

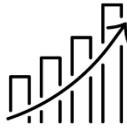


Figure 2: FinOps Framework Phases

⁷ <https://www.finops.org/introduction/how-to-use/>

For the purposes of DoD, FinOps Framework Domains and Capabilities by FinOps Foundation are mapped to each FinOps Framework Phase to further describe the scope and alignment of activities that may occur during each phase. The activities may also occur during other phases, as appropriate.

Table 1: FinOps Phases, Domains, and Capabilities

FinOps Framework Phases	FinOps Framework Domains & Capabilities <i>(Summarized and tailored for the purposes of DoD)</i>
 <p>INFORM</p> <p>Acquire cost and utilization data, verify accuracy, attribution, and allocation.</p>	<p>Understand Cloud Usage and Cost – The outcome of this domain is better understanding of an organization's use of the cloud. Within this domain, organizations work to gather all the information required to perform FinOps. This includes direct and imputed cloud cost, cloud usage, observability, utilization, and sustainability data, and other datasets required by any FinOps domain. Activities in this domain also define the organizational metadata to categorize, allocate, and summarize cloud cost and usage, identify Key Performance Indicators (KPIs), and define the reporting and analytics processes making that data available for use by all FinOps stakeholders.</p> <p>Capabilities: Data Ingestion, Allocation, Reporting & Analytics, and Anomaly Management</p>
 <p>OPTIMIZE</p> <p>Seek to improve use of cloud resources, identify savings opportunities, and right-size.</p>	<p>Quantify Business Value – Organizations develop capabilities in this domain to connect the usage and cost data with the business value it creates, helping ensure value is transparent and within expectations. Within this domain, organizations map monetary and non-monetary cloud costs to budgets, use historical information and future plans to forecast, establish and measure technical and organizational KPIs, and perform benchmarking across teams, business units, and with other organizations.</p> <p>Capabilities: Planning & Estimating, Budgeting, Unit Economics, Forecasting, and Benchmarking</p> <p>Optimize Cloud Usage and Cost – This domain focuses on cloud efficiency, ensuring organizations only use cloud assets when they provide value to the organization; and that cloud assets used are purchased at the lowest acceptable cost and impact to meet the organization's goals. Organizations will measure efficiency in a variety of ways, including monetary cost, carbon usage, or more traditional IT operational efficiency measures. Capabilities in this domain allow the organization to manage the types, timing and amounts of cloud assets used, and the rates that are paid for those cloud assets. Capabilities in this domain also address architecture</p>

modernization, sustainability considerations for FinOps teams, and the use of licensed and consumption-based SaaS products.

Capabilities: Architecting for Cloud, Rate Optimization, Workload Optimization, Cloud Sustainability, and Licensing & SaaS



Manage the FinOps Practice – This domain enables continuous improvement to change and align the entire organization - its people, processes, and technology - to adopt FinOps and use cloud in ways that create value for the organization. Capabilities here are centered on effective FinOps operation, enablement of the whole organization, and improved interaction with all other personas and business functions to support and represent cloud use more effectively.

Capabilities: FinOps Practice Operations, Cloud Policy & Governance, FinOps Assessment, FinOps Tools & Services, FinOps Education & Enablement, Invoicing & Chargeback, Onboarding Workloads, and Intersecting Disciplines

4 Strategic Imperatives

This section describes the strategic imperatives for achieving the desired outcome of the DoD Cloud FinOps Strategy. Strategic imperatives are organized by the DoD FinOps Framework Phases and begin to address the capabilities under the domains. Each strategic imperative includes a set of actions to clearly define what needs to be done.

4.1 Inform: Obtain Visibility of Cloud Cost and Utilization Data

There is currently no consistent method for reporting cloud cost and utilization data across DoD Components. Cloud account holders may receive different levels of data in different formats. Several data capture activities exist or are underway to further DoD understanding of cloud cost (e.g., annual budget reporting) but additional rigor is required to enable true FinOps.

Actions:

1. **Establish Cloud Cost and Utilization Reporting Standard.** Engage DoD Components, and relevant industry partners to establish a standard data format in alignment with the FinOps Cost and Usage Specification (FOCUS) project, coupled with standard user-defined tags to identify systems, workloads, and environments, enabling meaningful visibility and analysis

into cloud costs and utilization. At a minimum, collected data must identify mission owner, cloud provider, service type, and resource utilization.

2. **Define and Implement Data Tagging and Collection Approach.** Define and implement a data tagging, collection, and normalization approach for cloud-related data, leveraging data sources where they exist, aligning and supporting Records Management requirements & practices, and protecting the data in alignment with Cyber Security, OPSEC, and classification. Collect data on a schedule that permits identification and investigation of anomalous conditions with sufficient time to formulate and initiate corrective actions while also reducing the burden placed on reporting organizations. Establish criteria to normalize data for effective ingestion, aggregation, and analysis.
3. **Require Reporting via Policy.** At present, there is no requirement to report details of cloud usage to the Office of the DoD CIO. Cost Assessment Data Enterprise (CADE) Cost and Software Data Reporting (CSDR) Reporting Policies⁸ may be insufficient for effective FinOps (i.e., DoDM 5000.04). To ensure availability of required data and allow for enduring cloud management, issue policy whether in the form of an issuance or DFARS clause to provide the authority needed to enforce data reporting by DoD Components and commercial cloud service providers.

4.2 Optimize: Define and Display Metrics for Optimization

Once cloud cost and utilization visibility is obtained, decision makers need to understand if the data is trending good or bad (e.g., good when percent utilization fluctuates with demand; bad when paying for unused server time). For the Department, this is not a simple cloud cost versus business value such as revenue. DoD must measure value in mission impact and determine price targets leveraging trends and benchmarks. These measures must be conveyed via visuals that highlight the holistic cloud impact on the DoD mission.

Actions:

1. **Develop Key Performance Indicators and Metrics.** Identify key cost optimization drivers to develop indicators and metrics for evaluating and comparing cloud cost and utilization trends across DoD Components and with industry. Establish efficiency benchmarks, budget alerts, and forecasting practices to inform investment and budgetary decisions. Leverage the GAO key characteristics of good performance metrics. These indicators and metrics should drive data collection and reporting requirements.
2. **Define Pricing Models and Targets.** Use historical data and forecasted future cloud consumption to develop pricing models and based on those models, promote behaviors such as avoiding unnecessary expenditures, improving architectural designs, and releasing unused or unneeded cloud capability. Identify targets to drive better cost management and optimization behavior.
3. **Deploy an Enterprise-Level Capability to Share Optimization Insights.** Deploy necessary tools to enable the analysis, sharing, and use of cloud cost and utilization data for better Department-wide cost management and optimization. Tools should allow for the analysis of billing and cost data in near-real time, provide a reporting dashboard to track and convey

⁸ Cost Assessment Data Enterprise CSDR Reporting Policies, <https://cade.osd.mil/policy/csd-r-timeline>

trends, including alerts when anomalies occur for further investigation, and support the discovery of optimization opportunities.

4.3 Operate: Integrate Insights into Decision Making

Access to data, flashy visualizations, and interesting metrics are meaningless if not used to shape and influence decisions at both the leadership and user levels. For leadership, insights gained must be integrated into appropriate governance forums and decision making processes to transition from passive cloud cost tracking to proactive cost management and optimization. Cloud users must be able to make real-time decisions to efficiently optimize their cloud environments. Proactive cost management and optimization position the Department to stay ahead of need and in a state of continuous cloud readiness in support of modern warfare requirements.

Actions:

1. **Increase DoD FinOps Knowledge and Training.** Increase Department-wide understanding of FinOps and cloud management principles. Leverage existing training and educational resources provided by the FinOps Foundation to educate DoD personnel. Implement periodic FinOps maturity assessments to guide planning and process improvements.
2. **Integrate Insights into Governance.** Develop and integrate FinOps insights into a formal governance construct to appropriately inform decisions. Establish a means for educating, communicating, and obtaining buy-in for cloud optimization opportunities. Areas of decision impact include price negotiation, reservation of capacity, and establishment of additional cloud service providers.
3. **Integrate Insights into Processes.** Integrate FinOps with processes like IT portfolio management, IT category management, cybersecurity, budgeting, and Defense Business Systems investment management to inform rationalization and investment decisions and to leverage those processes' influence over budget and acquisition. Incorporate FinOps insights into DoD CIO's budget certification to ensure appropriate funding of cloud services in the out years.

5 Conclusion

Maturing FinOps across the Department starts with awareness. This strategy serves as a communication piece to provide a common understanding of FinOps and the actions necessary to make FinOps a reality. It leverages the FinOps Framework by the FinOps Foundation, keeping DoD current with industry best practices and standards, and ensuring consistency in terminology and approach between the public and private sectors.

Successful FinOps requires a sound data foundation to thoroughly understand how DoD buys cloud. This is critical as reliance on cloud to enable the delivery of software capabilities performing offensive and defensive functions continues to grow. This growth comes with spend and DoD cannot afford to let that spend go unchecked as complicated world events and geopolitics continue to tax DoD resources.

Realization of FinOps comes when FinOps insights are integrated into enterprise decision making, leading to changes in behavior. This requires DoD Component engagement. DoD will drive engagement from the top through the Enterprise Cloud Management Board (ECMB) and energize engagement from the bottom by working closely with early FinOps adopters to implement their approaches and capabilities enterprise wide.

The DoD Cloud FinOps Strategy is not a new, separate effort. It aligns with the overarching vision of the DoD Software Modernization Strategy and Implementation Plan and complements existing cloud activities. It is another critical piece in the puzzle of maintaining an always ready modern information enterprise.

