WHITE PAPER

Becoming Cloud Smart in the Department of Defense

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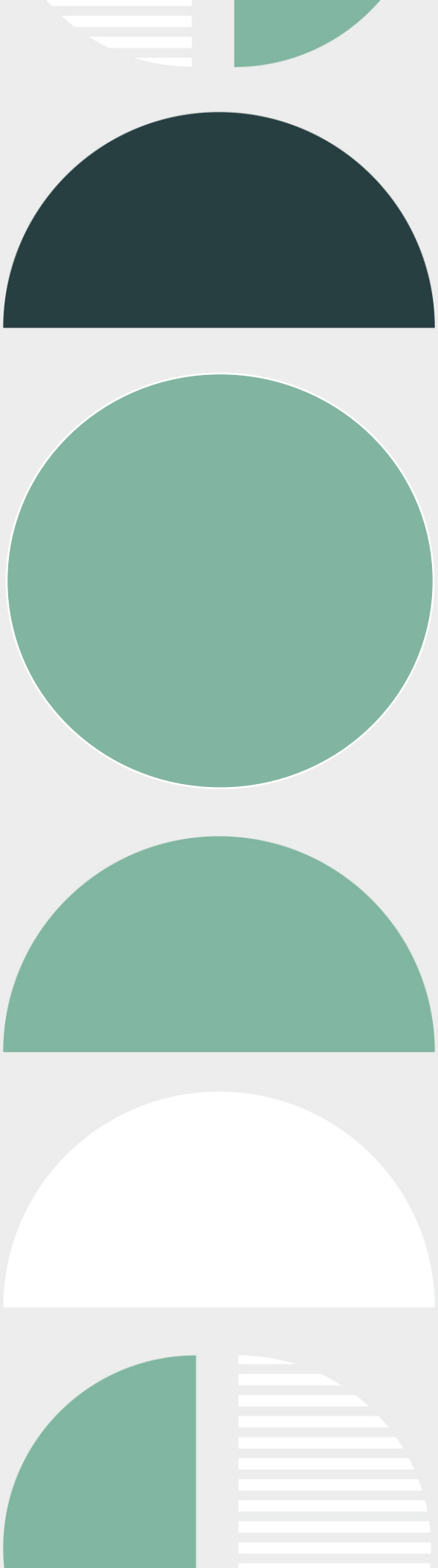
DoD Strategic Solutions Architect



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1. Executive Summary

The US Federal government has, for some years now, promoted a strategy to modernize technology usage, delivery, and operations to improve outcomes to citizens and warfighters while capturing cost efficiencies. This strategy, CloudFirst, was embraced by the US DoD with a mandate to all military departments (MILDEPS) to move to the cloud. This strategy has recently been updated by the US Federal CIO. While CloudFirst focuses on moving everything to the modern-day cloud, CloudSmart emphasizes the consideration of mission readiness, statutory requirements, and practical considerations (operations, cybersecurity, or otherwise) in how resources would be deployed in the move to the cloud:

While the end goal was always to maximize value to the citizen and the warfighter, it has to be considered in the appropriate context so as to make more realistic decisions and appropriately deploy resources. CloudSmart as the next iteration of a continually evolving cloud strategy is designed to modernize and mature the government's workforce, processes, and technologies.

The US DoD, on the other hand, has an improved Digital Modernization Strategy for FY19–23. It is a strategy for lethality, partnership, and reform that has 'Cloud' as its foundation for success. In addition, four key goals that influence all action are innovate, optimize, evolve, and cultivate. For the DoD to achieve its vision of adopting cloud-based solutions and digitally transform itself (and the services) to maintain global dominance as the world's most lethal fighting force, it will require a number of key capabilities—some provided through technologies and others through new ways of approaching implementation of the strategy. These capabilities include:

- An appetite and skill for systems and tools rationalization (Optimize)
- Challenging and updating existing procurement processes, digitizing and automating them while ensuring full auditability (Innovate/Optimize)
- Managing the threat intelligence landscape with automated tools to manage the sheer volume of events (Innovate/Evolve/Cultivate)
- Moving forward to demand proper security and risk management across the enterprise (Evolve/Optimize)
- Developing a decision-making apparatus based on data and its supporting visualizations (Innovate/Optimize/Evolve/Cultivate)
- Developing and implementing a rapid reskilling and self-development program for Civilian and DoD employees, contractors, and partners (Innovate/Optimize/Evolve/Cultivate)
- Implementing pervasive process reduction, improvement and digitization/automation to improve quality of service and meet citizen and warfighter demands (Optimize/Evolve/Cultivate)

How? Principally, by taking the steps to deploying resources and starting this initiative and:

- Prioritizing the widely important activities that would 'move the needle' in this effort, rather than taking steps that simply demonstrate activity. This is the 80/20 rule;*
- Measure progress using lead measures rather than lagging measures;**
- Energize implementors using a compelling, public tracking of progress (a public scoreboard) that demands the best of those helping to implement the change;
- Developing and maintaining a cadence for accountability: demand commitment from participants for that change, and accountability for its successes and failures.

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> CloudFirst, was embraced by the US DoD with a mandate to all military departments (MILDEPS) to move to the cloud.

** The Pareto principle (also known as the 80/20 rule, the law of the vital few, or the principle of factor sparsity) states that, for many events, roughly 80% of the effects come from 20% of the causes. ** While a lag measure tells you if you've achieved the goal, a lead measure tells you if you are likely to achieve the goal.*

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2. Understanding Cloud Smart

CloudSmart is a strategy with 3 pillars. It is focused on the workforce, security, and procurement. Each pillar depends on and reinforces the others as shown below:

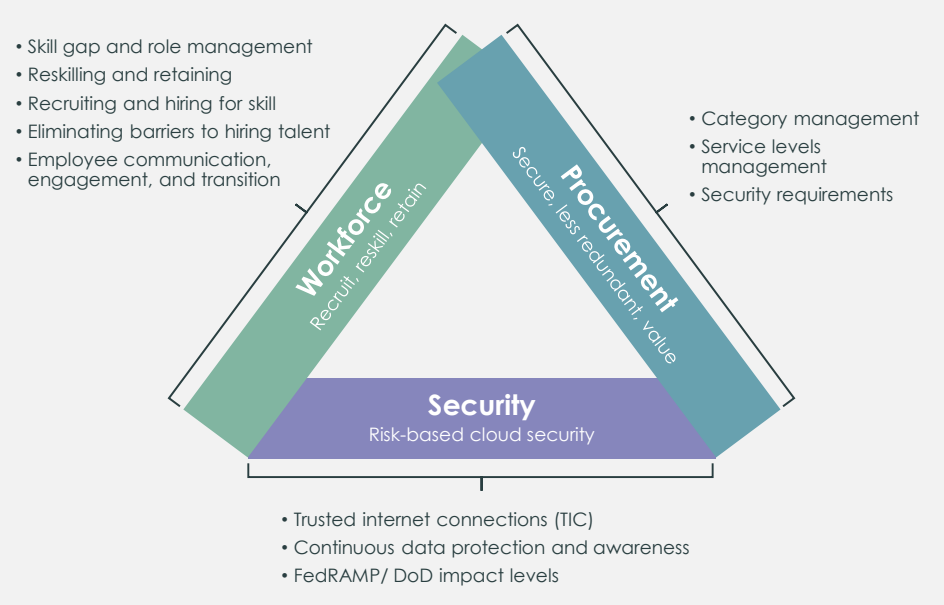

Figure 1: The 3 Pillars of the Cloud Smart Strategy

CloudSmart is a flexible strategy for aligning to the overall vision, in the DoD of achieving global dominance as a fighting force. It is tied to focusing on and improving the classic trifecta of people, processes, and technology. The US DoD is special in the attention that Security (including Cyber, OPSEC, Physical, and other). Each pillar has focus areas:

- **Security:** Focused on ensuring that the number of edge-of-the-network connections are minimized but also upgraded to become truly Trusted Internet Connections; continued awareness of the security threat while practicing good data security management.
- **Workforce:** Focused on addressing the skills gap in understanding and proficiency in cloud technology and operations; removing barriers to developing and bringing in the best talent into the DoD to grow the new thinking in the department.
- **Procurement:** Acquisition processes need to be modernized and digitized to improve the service levels to the warfighter and manage the cost by leveraging many more contracting vehicles that reduce risk while supporting access.

> “
>
> CloudSmart is a flexible strategy for aligning to the overall vision.

3. Alignment of DoD digital modernization strategy to the CloudSmart strategy

3.1 Background

To appropriately contextualize CloudSmart, we must place it in the context of the vision and strategy of the DoD and determine how it aligns to the desired outcomes and the capabilities that would support those outcomes. The DoD CIO has articulated the digital modernization strategy for FY19-23 and it is based on 4 pillars:

- Artificial Intelligence
- Cloud
- Command, Control, and Communications modernization
- Cybersecurity
- Key support to these focus areas is the pursuit of four goals, namely:
  - Innovate—Goal: Achieve a competitive advantage
  - Optimize—Goal: Efficiency and improved capability
  - Evolve—Goal: Cybersecurity for an agile, resilient defense posture
  - Cultivate—Goal: A ready workforce

This strategy is encapsulated in the following illustration:

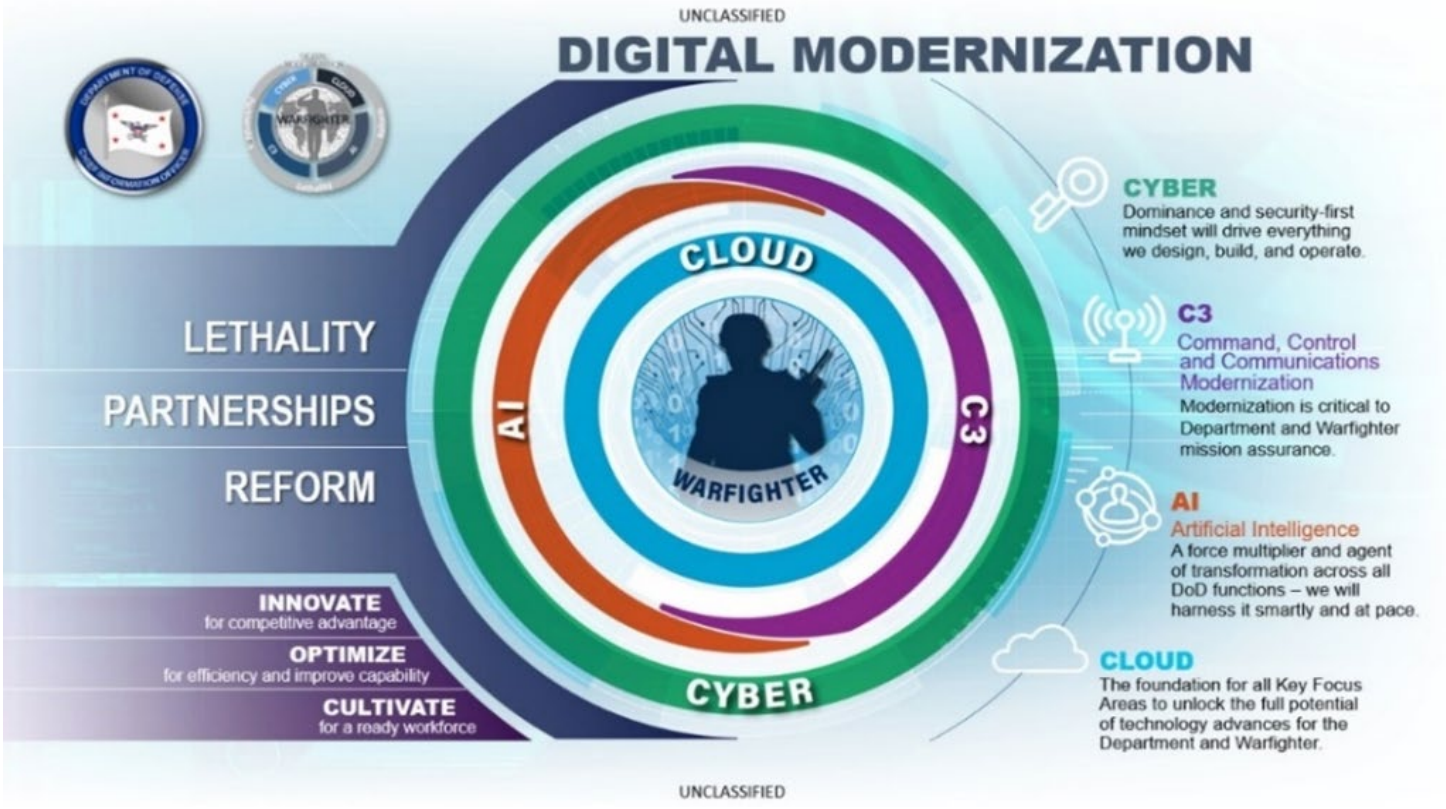

Figure 2: DoD vision for Digital Modernization

A particular point of interest is that Cloud is specifically identified as "...the foundation for all key focus areas to unlock the full potential of technology advances for the Department and the warfighter..."

Broken down further, this strategy and its objectives are illustrated below:

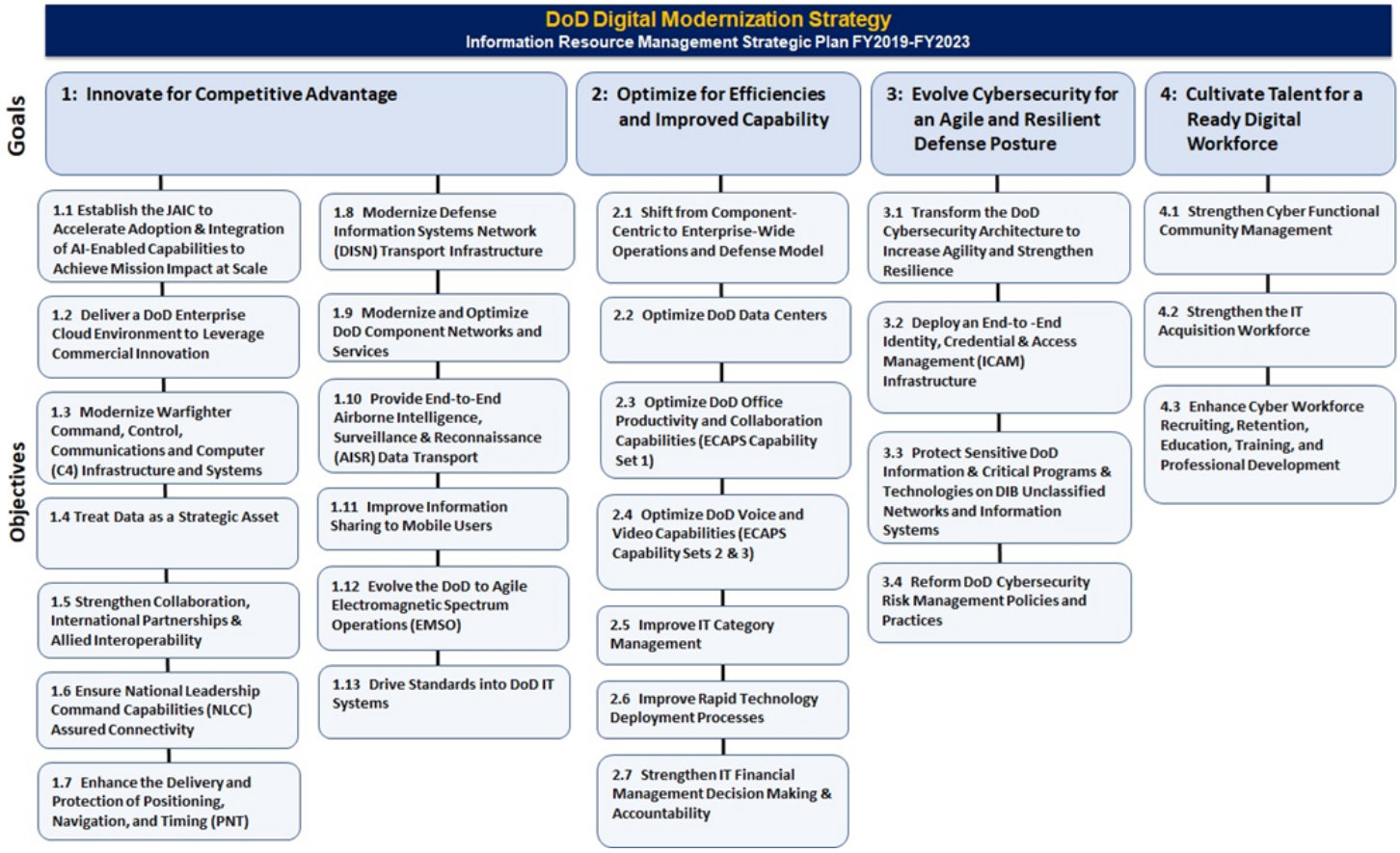

Figure 3: Goals and Objectives of the DoD Modernization Strategy

3.2 Managing Digital Modernization

To support the process of modernization and transformation, the Department took into account the decentralized nature of its operations and the critical need to coordinate activity. To this end, the Department is also implementing a new set of management system to provide continual, comprehensive Department-wide IT modernization in a common and coordinated manner to accelerate transition to foundational enterprise capabilities and services that will free up DoD components to focus on their mission capabilities and services. Commonality and co-ordination demand consistency—of vision, goals, values, shared vocabularies, skills, C4, processes, interfaces and their underlying platforms.*

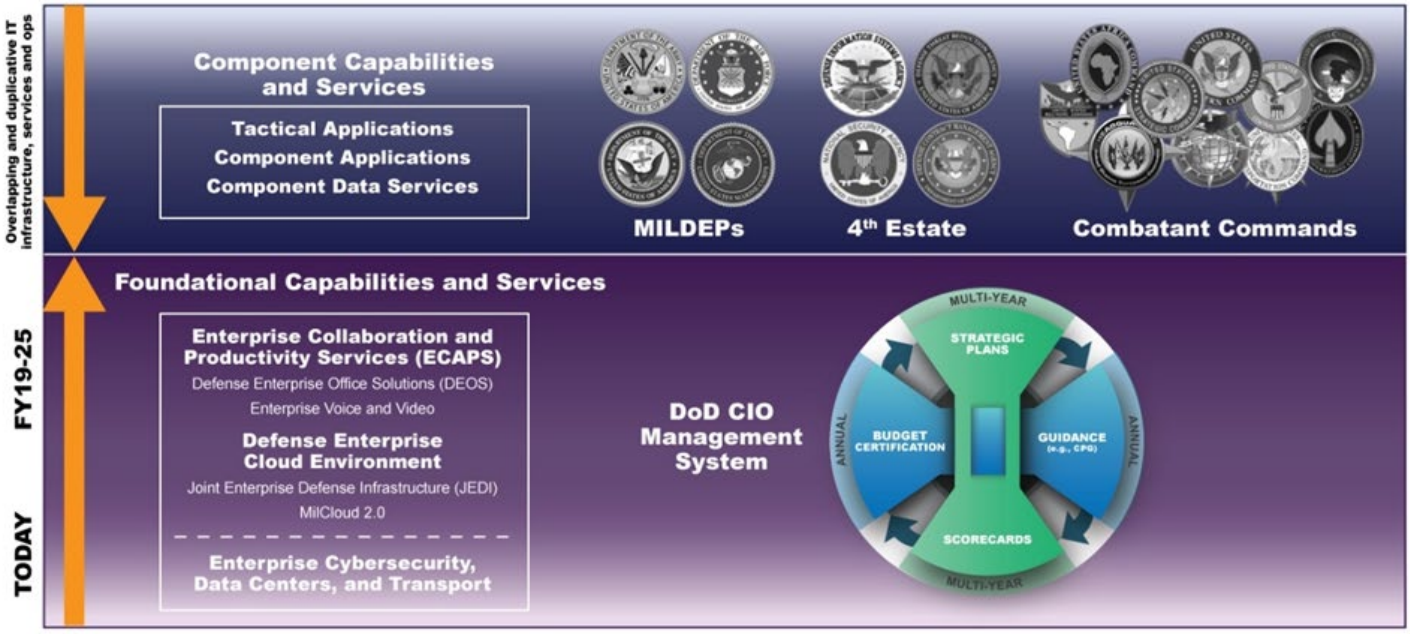

Figure 4: Shift to Foundational Enterprise Capabilities and Services

Today, these 'foundational enterprise capabilities and services' are built on modern cloud services and delivered through modern cloud platforms**. Clearly aligning the vision, goals & objectives and desired outcomes of the strategies is critical to achieving them.

** A platform is the environment in which a piece of software is executed. It may be the hardware or the operating system (OS), even a web browser and associated application programming interfaces (APIs), or other underlying software, as long as the program code is executed with it. Computing platforms have different abstraction levels, including a computer architecture, an OS, or runtime libraries or an entire work environment like ServiceNow. Platforms are a principal abstraction/datum for the executing digital transformation in advanced information processing environments.*
*** Platforms like ServiceNow are an example of such platforms, designed for and run securely in the cloud for DoD entities.*

3.3 Aligning the two Strategies

The DoD Modernization Strategy and the Cloud Smart Strategies are compatible and share overlapping concerns. If we put together the key themes of the strategy together with the detailed goals expressed in the digital modernization strategy, we propose the following alignment:

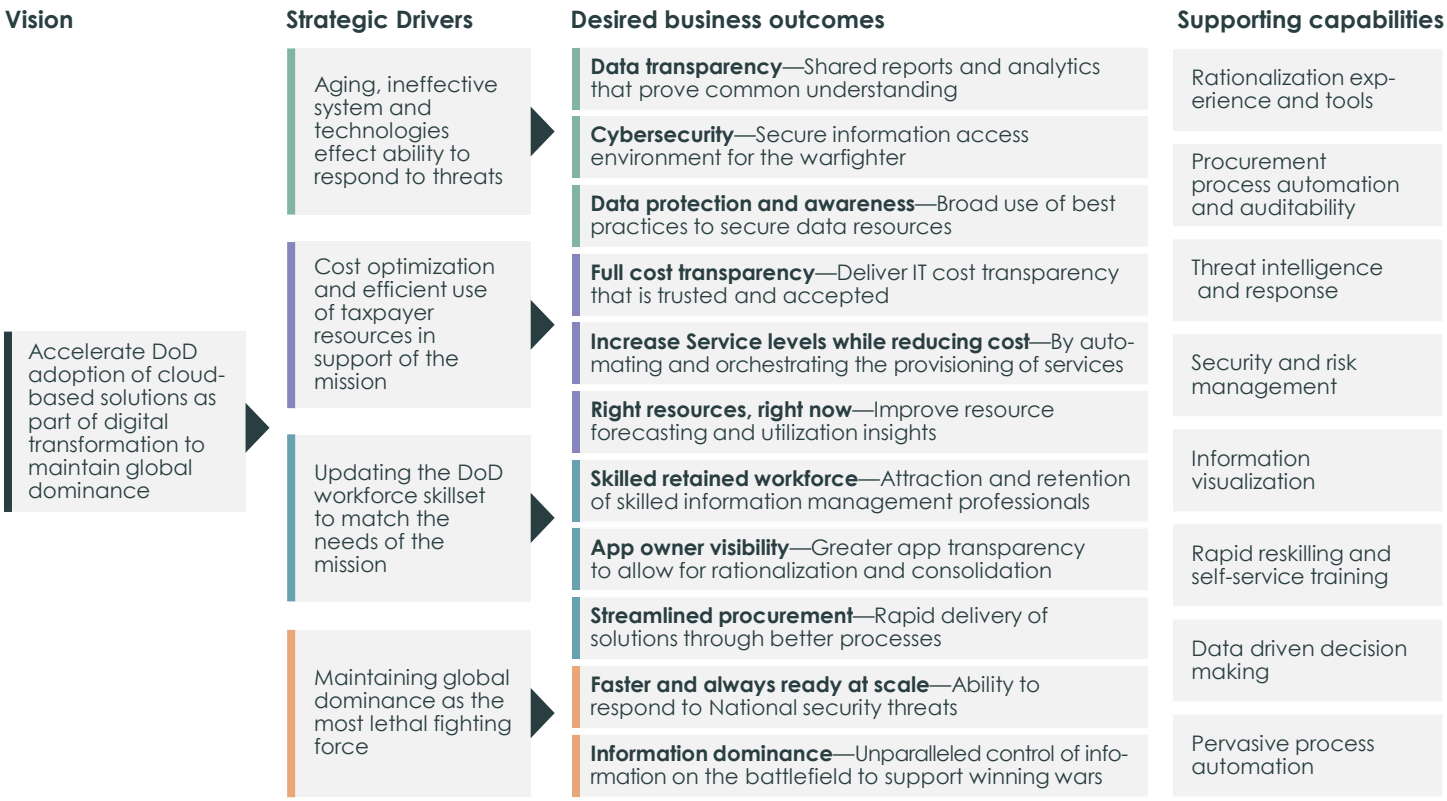

Figure 5: CloudSmart—DoD Strategic Alignment

The elements of the desired business outcomes for the DoD touch on the 3 pillars of the Cloud Smart strategy. We can drilldown further into each CloudSmart pillar and tie it back to the specific challenges faced and solutions we propose to meet the mission.

3.4 Security

Security

Challenge

DoD has a range of legacy applications that it needs to modernize and transition to the cloud securely, effectively while delivering additional value and future flexibility for the warfighter

Solution

ServiceNow provides an applications/workflow platform for managing newly migrated legacy applications or licensed capabilities on a single secure platform that keeps up with DoD information security requirements and statutes.

"Take a risk-based approach to securing cloud environments"

Desired Outcomes

Assurance of **confidentiality**, **integrity** and availability of **information** on the network

Effective use of a multi-layered defense-in-depth strategy to deliver **information security** & **data protection**

Cost effective management of the attack surface for information warfare purposes

How

Rationalize existing applications on to the platform with reduced time to value

Configure new application quickly leveraging built in platform security capabilities like encryption and AI

License existing applications to reduce risk by rebuilding capabilities already strengthened in industry.

Our Solutions

Now Platform | Security Operations Suite | Role Based Access | ITOM & AIOPS

3.5 Procurement

Procurement

Challenge

Slow processes that do not leverage the bulk buying power of the government leading to redundant purchases, poor security requirements and poor service levels

Solution

Use ServiceNow to digitize and transform business processes around procurement of services, gaining control and visibility into the quality of cloud capabilities purchased and delivered

"Leverage buying power to gain value while meeting contractual requirements"

Desired Outcomes

Economies of Scale in purchasing resources, **reduced waste** and better **fiduciary custody** of taxpayer funds

Consistent, **reliable** service level agreements that meet the needs of the **warfighter**

Generate value by improving the **number** of cloud solutions and offerings that can be brought through the contracting lifecycle

How

Digitize business processes, **automate** tasking and notifications to **improve speed** of decision making

Leverage new contract vehicles, **score** & **managed** vendors as part of the procurement lifecycle with a vendor management platform

Manage demands like projects: each with a budget, resource, business case and a delivery and operational life cycle.

Our Solutions

Vendor Management | Workflow & Orchestration | SLA Mgmt | PPM

3.6 Workforce

Workforce

Challenge

The DoD's workforce needs to continually upskill, reskill and remain vigilant to repel new and continually evolving threats in the information warfare battlespace

Solution

Provide a platform with a consistent, modern and easy to understand user experience then enables and empowers users to configure their own solutions as their needs change and mature.

"Develop a skilled and vigilant workforce, that can use the tools of the cloud to repel the threat"

Desired Outcomes

Cloud Smart workforce that can leverage modern technologies to meet the mission faster & cost effectively

Strong retention incentives and **continued availability of advanced learning** opportunities in DoD that **keep top talent** motivated.

Create a pipeline of future leaders to guide the DoD in its journey of digital transformation to a more lethal and dominant force in the world

How

Provision a range of training options, delivered in many modes to DoD employees and contractors

Prioritize systems and platforms that utilize common, reusable capabilities that can be learned once but flexibly used across the enterprise

Procure & Pilot use cases with DoD teams, contractors, partners and industry on modern platforms so as to gain experience and knowledge

Our Solutions

AppEngine | Reporting/Dashboarding | Studio | Now Mobile | APIs | Training

4. Executing the strategy

For DoD agencies to execute on the strategy, they will need to rely on a methodology of action that can keep their activity focused, productive, and measurable. We propose a four-part discipline methodology called the CloudSmart Discipline to achieve success.

1. Prioritize the widely important
2. Develop/use lead measures as opposed to lag measures
3. Energize with compelling scoreboards
4. Develop a cadence for accountability

The key points for each area are summarized below:

1. Prioritize the widely important	2. Develop/use lead measures	3. Energize with compelling scoreboards	4. Develop a cadence for accountability
• Choose activities that contribute to meeting **widely effective goals** first • **Gain focus** by emphasizing on **similar approaches** with shorter resource requirements • **Set ambitious goals** with **motivational** characteristics • Avoid analyzing and **begin**	• Measure behaviors **leading to achieving the goals** set out not improving your existing measures • **Resist** the urge to use existing metrics without identifying if they lag or lead • Lead measures focus **on activity leading to** the goal not the goal itself • Lead measures allow you to **pivot if you need to**	• **Visualize and chart** your journey • **Transparently** display your progress, or lack of it • **Seize and encourage** momentum as it appears • **Pay attention to** and **remove barriers** to achieving micro-results • **Celebrate** small successes often	• **Commit** to courses of action and **hold teams/ groups accountable** • **Confront the scoreboard** daily or weekly • **Address** barriers to progress **before meeting** again • **Develop sensitivity** to **repeating patterns** • **Maintain scope** to the **widely important**

Figure 6: The CloudSmart Discipline (Methodology for Beginning)

4.1 Applying the Methodology—Example—Application Rationalization/Migration

To provide a notional example, consider one of the very likely projects a dedicated agency will undertake as part of its CloudSmart journey—Rationalizing and Migrating legacy applications.

The common challenge here is:

- Determining how to start
- Classifying the systems in consideration
- Producing objective criteria for measuring usefulness.

If we apply the methodology, we could prepare a discipline chart like this one:

1. Prioritize the widely important	2. Develop/use lead measures	3. Energize with compelling scoreboards	4. Develop a cadence for accountability
• Identify 2 or 3 **small** systems that make sense for the cloud • **Choose 1 of 3 for migration** • **Declare a path—total rewrite** or retrofit for use in the cloud (e.g., in a container) • Kickoff the project within a week if the decision and form a team • **Reduce regular team demands by 20%**	• Measure number of subsystems refactored each week • **Ignore financial cost** predictions for the new solution • Add new subsystems to the list if needed to support the goal • **Leave no technical debt behind** and complete work fully • **Reject** optimizations in favor of code requirements	• **Create a public chart** of the project, subsystems and schedule • **Regularly mark progress including failures** • **Document as you build** • **Prepare** training material as you go • **Celebrate** daily and acknowledge successful teams • **Demo often**	• **Daily or weekly** account ability meetings • **Confront the scoreboard** and address failures only with solutions not excuses • **Address** barriers to progress **before meeting** again • **Document successful patterns** • **Reject** inflight requirements creep

Figure 7: System Rationalization Example using the CloudSmart Discipline

For each area, we can also prepare a success resources mapping to highlight the key inputs into each area in order to achieve success.

1. Prioritize the widely important	2. Develop/use lead measures	3. Energize with compelling scoreboards	4. Develop a cadence for accountability
• Current application inventory • Quantification of business value provided by each system • Development of criteria for sustain/invest/divest decision • Business user and mission perspective narratives • Budget/implementation team	• Narrative of what good looks like • Alignment of future to be with mission • Documented KPIs that will measure progress • Nominated metric counter and counting process	• Public compelling scoreboard • Failures/solution pairings • Publicly/internally accessible documentation and training materials • Celebrate daily celebrations and acknowledge successful teams • Demo HRs/access to demos	• Regular standups or accountability meetings • Barrier elimination team separate from implementation team • Additional discussion capturing behaviors that proved widely important • No new requirements policy or charter

Figure 8: CloudSmart Execution—Success Resources

5. Supporting Platforms and Resources

Undoubtedly, the DoD has numerous tools and applications that can support its transformation effort. ServiceNow is one of the most important platforms the DoD already uses and can further prioritize as it modernizes. ServiceNow can support both strategies to achieve their goals and desired outcomes securely and cost efficiently.

5.1 How and where does the ServiceNow platform deliver the value?

ServiceNow is a flexible service management platform that can be operated on-premise in secure enclaves and datacenters. It leverages existing tools and systems by integrating with them through file-based integration or APIs (REST/SOAP). This integration can be configured by either business or IT users. This intuitive capability allows rapid tie-ins to existing data sources and immediately bringing the platforms capabilities to bear on that data. A few other important capabilities and illustrations of that flexibility include:

- ServiceNow supports an architecture where multiple instances can be stood up in support of different groups or all groups can use a single instance to support their missions. It provides the flexibility required for the DoD MILDEPS to make this choice based solely on their mission's needs. Each instance would provide the complete capabilities of the platform (command) to each customer and give them control of their own environments.
- ServiceNow delivers many capabilities out-of-the-box. While licensed separately or in packages, the maintenance cost profile is extremely attractive relative to that of competitors. This would support cost avoidance by requiring less training to manage the software and fewer unique resources or requirements to support client partners.
- ServiceNow has a many capability for synchronizing between instances and providing a shared data environment across customers if they would like the capability, even across sensitive networks.
- ServiceNow capabilities are delivered on-premise (afloat or ashore), and in our DoD Impact Level (IL) 2 (in process for IL-4 environments. Through our partnerships with Microsoft and AWS, we can support DoD customers looking to host their cloud migrated applications in DoD IL 4, 5, and 6.
- ServiceNow patching and upgrading for these instances is significantly simplified because with licensing, there are no additional upgrade costs and each client partner in the MDA would be able to enjoy the benefits of patches and new releases of functionality

	ServiceNow	Competitors
License structure	Tiered License: Single license to match user needs	Fixed/Concurrent: Assumes everyone is equal
Upgrades	All inclusive, no additional cost, minimal to no downtime	Long and difficult upgrade cycles
Solution operation	On Premise, Commercial Clouds or ServiceNow Cloud	May not support on premise, not cloud native, treat cloud as pure hosting
Data Segregation	Supports a multi-instance configuration even on premise, that keeps customers data from intermingling	Mostly support a multi-tenant installation, with intermingled data
Security	Field level data encryption support as well as customer delegated key management	Varying solutions inconsistently implemented.

Figure 9: Platform comparisons summarizing the benefits of our licensing structure relative to competitors

5.2 Here to There—Get started today

ServiceNow's unique architecture provides an opportunity to get to value very rapidly. This is enabled by the configuration capabilities of the platform as opposed to customization requirements on other platforms. This is made possible by treating configuration items as data on the platform. Configuration changes can be made by changing data in drop-down selections, lists, forms. etc.

Legacy and competitor platforms would instead require significant customization because they do not have this architectural construct.

Below is a notional example of an out-of-the-box implementation of the ServiceNow platform with minimal configuration of a request management and tracking capability. This short time-to-value is possible because ServiceNow comes with many KPIs, executive dashboards, applications, rules, SLAs, and much more, out of the box.

National timeline for a rapid out of the box ITSM implementation

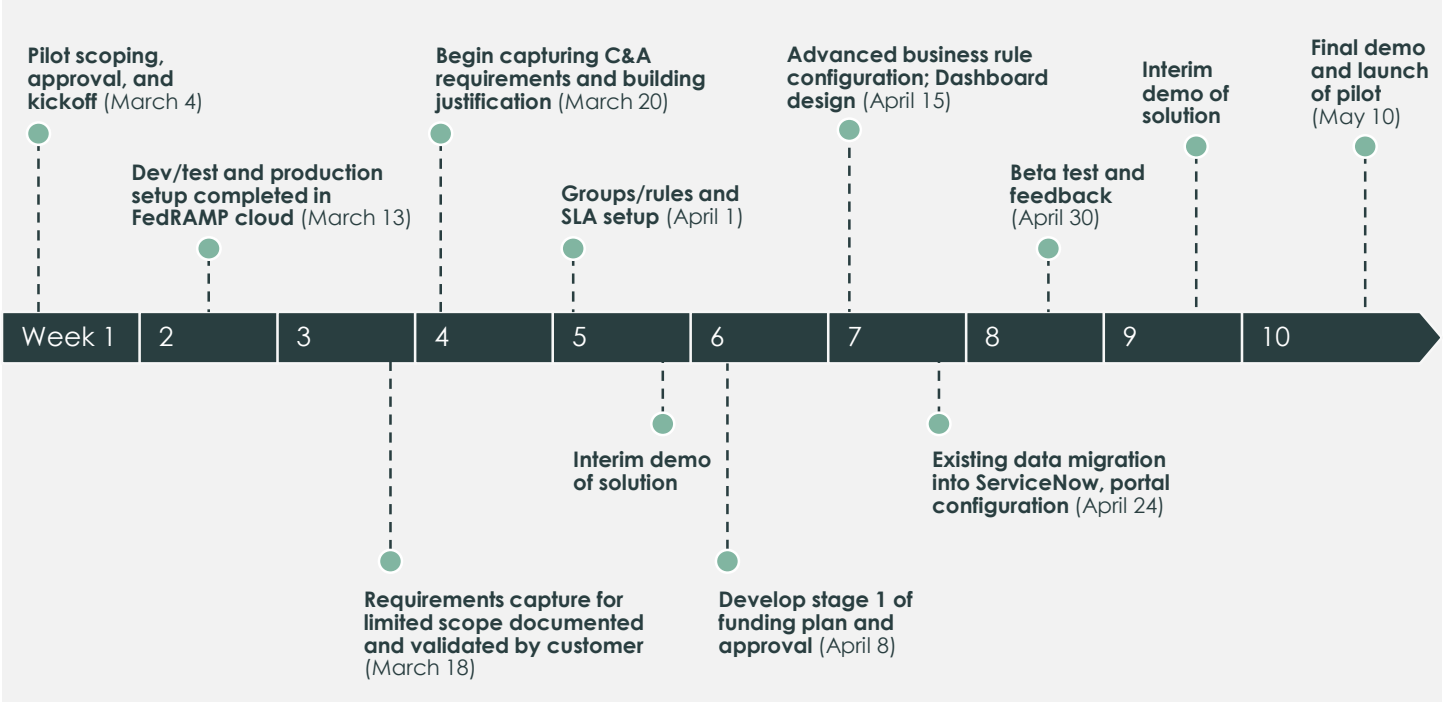

Figure 10: Getting to Value with ServiceNow Today!

5.3 Conclusion

CloudSmart is the next evolution of the CloudFirst strategy proposed by the US Federal Government. The DoD's strategy for digital modernization is a complementary strategy with many of the same visional and strategic objectives as the CloudSmart strategy. In this whitepaper, we have demonstrated their intersection and the benefits that can be derived from pursuing the goals of a joint strategy:

- Visibility into activity for purposes of control and to avoid duplicative effort
- Efficiency in the use of resources deployed in service to the mission and the warfighter
- Convergence of cost through better stewardship of deployed resources by utilizing a critical underpinning of the strategy—the cloud
- Consistency and standardization on tools and technologies on platforms, leading to better overall coordination of effort under the new modern management systems of the DoD
- Workforce and Cybersecurity readiness for a more agile defense posture

To achieve these benefits however, an important underpinning is the choice of platforms used to transform. ServiceNow is one of the most important platforms in use at the DoD today as part of its digital modernization and transformation journey. The trend in industry is to centralize around 2 or 3 advanced, multi-capability, cloud native platforms for the delivery of services to the business and mission user. Many customers are turning to ServiceNow as such a platform. They can execute on a host of powerful capabilities immediately by leveraging the out-of-the-box capabilities while being able to continue to operate in a C4 governance structure and still realize the mission outcomes implied by their strategic goals.

Many organizations in the DoD are already taking up the mantle and operating CloudSmart and beginning their journey to digital modernization.

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