What Is Maven Smart System, and What Does It Do?

The Flagship Software Platform of AI-Enabled Warfare, Explained

Photo: Master Sgt. Whitney Hughes/DVIDS

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Published June 2, 2026

Audio Briefs

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During the first 24 hours of the war in Iran, the United States used Maven Smart System (MSS) to help strike more than 1,000 targets, a tenfold increase over what was possible in the pre-MSS era. However, few outside the government and contractor ecosystem involved in creating and using MSS are familiar with what it is, how it works, and the capabilities enabling a revolution in military intelligence and targeting.

Fortunately, a combination of old and newly available public and unclassified information sources allows for a much more complete understanding of MSS. Government and industry partners are sharing more than ever before about the platform, including through video demonstrations of its capabilities. At the same time, Katrina Manson's recently published book *Project Maven: A Marine Colonel, His Team, and the Dawn of AI Warfare* includes interviews with critical stakeholders, many of whom were, until recently, remarkably tight-lipped. Reporting by various news outlets on the war in Iran has also revealed new details.

The following analysis consolidates and organizes this information to answer six key questions about Maven Smart System and its future in the Department of Defense (DOD).

Q1: What is Maven Smart System?

A1: MSS is an output of Project Maven, a Pentagon initiative founded in 2017 to bring AI capabilities to warfighters. Project Maven had a turbulent early history: Google was an early technology partner but withdrew in 2018 following employee protests over the company's involvement in military AI development. Palantir, a data integration and analytics company, stepped in shortly after and has remained Project Maven's primary industry partner. The company's DOD contract ceiling for Maven surpassed $1 billion in May 2025, with MSS work added to that specific contract in fall 2025.

Thus, "Maven" refers to the current DOD program, which includes many other lines of effort and AI activities—such as AI-enabled Automated Target Recognition (ATR)—beyond just MSS. "MSS" refers to DOD's flagship AI-enabled software platform, which draws from many data feeds, including Maven ATR. Palantir is the prime software integrator for MSS and stated in unpublished documentation reviewed by CSIS that "MSS is powered by the Palantir Platform."

MSS is already used by the Joint Staff, Combatant Commands, and various elements throughout the DOD and Intelligence Community, as well as NATO allies. Palantir claims that MSS's user base has doubled every six months for more than two years. In May 2025, MSS reportedly had more than 20,000 users, implying a current user base of roughly 80,000.

MSS provides a graphical user interface (GUI) for military intelligence and targeting purposes as well as a growing list of Combined Joint All-Domain Command and Control (CJADC2) functions. As described in the unpublished Palantir documentation, "MSS interfaces share a live, synchronized view of the Battlespace to imbue Warfighters and decisionmakers with real-time understanding in support of the overall CJADC2 mission." The MSS user interface also allows for user tasking and human validation of AI labeling done by other Maven AI systems. In practical terms, this means that the use of MSS can speed up targeting decisions without sacrificing analytical rigor or judgment quality.

The platform aggregates, organizes, and visualizes vast streams of intelligence, surveillance, and reconnaissance (ISR) data. According to Manson's reporting, CENTCOM's deployment of MSS drew from 179 distinct data sources in 2024, a figure that industry sources told CSIS has increased significantly since. AI models, including those from other Maven data feeds, identify patterns in this data, which MSS visually displays. For example, computer-vision models find and label potential targets in live satellite or drone video feeds, which then appear within a yellow box on a user's screen.

MSS also embeds workflows directly into that interface, allowing operators to move from observation to action without switching systems. The DOD's public demonstrations show that in a targeting scenario, a user can select an AI-detected target, evaluate available strike assets in the vicinity, and compare options using operational constraints such as time to strike, distance, and fuel requirements. Once an asset is selected, the user can order the strike and subsequently monitor its effects using ISR feeds.

Palantir's documentation of MSS provides a nonexhaustive list of six specific baseline capabilities:

- Battlespace management
- Target management
- AI-enabled deliberate planning and execution
- Computer-vision detections
- Machine-assisted disclosure
- Generative AI

Oversight of Project Maven and MSS has shifted locations within the Pentagon several times over the past decade. Project Maven originally sat within the Office of the Undersecretary of Defense for Intelligence and Security before the Biden administration split responsibilities between the National Geospatial-Intelligence Agency (NGA) and the Chief Digital and AI Office (CDAO) in 2022. Under this configuration, the CDAO paid MSS's licenses and managed its text-based functions, while the NGA handled geospatial-intelligence work, including the production of computer-vision models. In March 2026, a memo from Deputy Secretary of Defense Steve Feinberg ordered oversight of MSS to be fully relocated to the CDAO, a decision that this article discusses in greater depth in Q6.

Q2: What problems is MSS designed to address?

A2: Over the past few decades, three major problems have plagued the Pentagon and slowed its ability to strike the right targets quickly enough to matter. MSS's AI capabilities and GUI make a significant impact in addressing these problems.

1. **Inadequate analytic capacity relative to collected data**

   During the wars in Iraq and Afghanistan, aerial drone surveillance was ubiquitous, but there were consistently more cameras recording video than there were trained analysts available to watch them. In some cases, drones collected footage around the clock that went entirely unreviewed.

   While precise data on the pre-Maven military situation is not publicly available, an example from the commercial satellite remote sensing company Maxar

Technologies illustrates the scale of the problem: In 2022, Maxar's chief technology officer told CSIS that a single analyst would need 85 years to review a single day's worth of imagery from Maxar's satellites alone, and the number of Maxar reconnaissance satellites in orbit has expanded significantly in the years since. The DOD's drones and satellites collect far more data than Maxar's.

MSS addresses this problem by using AI to perform initial analysis and flag objects of interest, allowing analysts to focus their attention where it matters most. Tasks like counting vehicles or people in an image can be largely automated. While human analysts remain responsible for reviewing and validating AI-generated labels, MSS makes that process quick and straightforward.

2. **Difficulty integrating diverse data sources in real time**

The range of sensor types potentially relevant to a targeting decision is vast—including drone video, synthetic aperture radar, ground-based radar, signals intelligence, and documents—and many of these platforms were built with custom data formats that do not easily communicate with one another. Before MSS, analysts might consult outputs from multiple disconnected systems, including literal printouts from terminals in different locations. MSS replaces this with a single map-based interface that fuses all available sources, making it easy to move between sensor types without leaving the platform.

Before MSS, aggregating the relevant data sources was a major tax on analyst time. Drew Cukor, the retired Marine colonel who served as the founding director of Project Maven, stated in a March 2026 interview that in the "world before these technologies, humans were scraping together all of these [data] points, making sense out of it, and we were spending like 3 percent of our time actually analyzing it because 97 percent of the time was just to get the damn data together."

3. **Difficulty connecting target identification to weapons employment**

Effective targeting decisions require more than sensor data. Decisionmakers also need visibility into the locations, capabilities, and constraints of all friendly forces and civilian populations in the region. MSS brings this information into the same interface, pairs it with a recommendation algorithm that can propose and rank

candidate assets for a given strike, and allows users to order and review the strike. As Cameron Stanley, Chief Digital and AI Officer of the DOD, put it during a March 2026 presentation:

> We've gone from identifying a target to now coming up with a course of action, to now actioning that target. All from one system. This is revolutionary. We were having this done in about eight or nine systems, where humans were literally moving detections left and right.

The most striking publicly available measure of MSS's productivity gains comes from an assessment of the system's impact in the U.S. 18th Airborne Corps' 2023–2024 Scarlet Dragon exercise series:

> Using MSS, the 18th Airborne has demonstrated an ability to match the performance of the time-critical targeting cell in Operation Iraqi Freedom, a targeting cell that is widely viewed as the most efficient in U.S. military history. What is even more impressive, however, is that the 18th Airborne achieved this milestone with roughly 20 people in its targeting cell, whereas the OIF cell benefitted from more than two thousand staff members.

By all accounts, MSS's performance has improved dramatically since that assessment, and features that were in development in 2024 are now in widespread use across every military service.

Q3: What capabilities do large language models (LLMs) provide in MSS?

A3: While computer-vision systems are often trained or fine-tuned on domain-specific datasets to perform specific tasks, LLMs are trained on much broader, cross-domain datasets, including web text, books, code, and other sources, giving them more general-purpose capabilities. In Manson's book, *Project Maven*, an anonymous NGA official said that such capabilities produce a fivefold increase in targeting speed, adding to the tenfold increase that computer vision already provides.

Two key capabilities LLMs appear to add to MSS are natural-language interaction and broader pattern analysis. Sean Batir, who served as the Maven chief technology officer

at the National Geospatial-Intelligence Agency before leaving government in 2025, told Manson that LLMs can interact with human analysts, helping them interpret adversary intent and develop possible courses of action. He said LLMs can also absorb thousands of detections generated by computer-vision models and identify patterns across time.

Palantir has described its Artificial Intelligence Platform (AIP) as the layer through which MSS leverages LLMs. According to unpublished Palantir documentation reviewed by CSIS, AIP provides several LLM-powered tools. For example, Maven Threads "enables MSS users to accomplish a variety of tasks and ad hoc analyses with user-uploaded documents," and Maven Agent Studio "provides users with interactive assistants equipped with enterprise-specific information and tools." A third tool, Maven Logic, provides a "no-code development tool for building, testing, and releasing functions powered by LLMs."

Palantir's published demonstrations on AIP and MSS offer a glimpse of what these tools might look like in practice. In a 2023 AIP for Defense demo, Palantir depicted a notional workflow in which an analyst queries an AI assistant in natural language about battlefield conditions, receives relevant information and proposed courses of action, and then uses the same interface to advance elements of the plan. At the time it was published, the demo showed an illustrative scenario for planned future capabilities. However, it shows Palantir's vision for how AIP could support military decisionmaking and aligns with Batir's description of MSS capabilities.

More recently, in March 2026, Palantir published a blog post emphasizing MSS's ability to integrate third-party software into its workflows. In one example, object detections generated by an external AI system were ingested into MSS and made available to AIP Agents for natural-language querying and analysis. In another, detections from drone sensors were synced back into MSS and loaded into an AIP Agent, which generated insights and recommendations about possible next steps.

Beyond battlefield analysis, LLMs also support the administrative and legal processes surrounding intelligence sharing. According to the unpublished Palantir documentation, MSS's Machine-Assisted Disclosure feature provides a "centralized portal for tracking foreign disclosure policy, processing requests, and auto-

disseminating releasable products to partner networks" that includes an "LLM-powered policy library." Given that foreign disclosure is a notoriously slow and bureaucratic process, automating even parts of it could meaningfully accelerate the sharing of intelligence with allied partners.

Q4: What is Anthropic's role in Maven Smart System?

A4: AIP tools use an underlying LLM, which Palantir provides through partnerships with leading AI companies. In commercial contexts, AIP's Model Catalog allows users to browse available LLMs and select the one best suited to a given task. MSS, however, operates on classified networks, which severely limits which models are available.

Anthropic was the first frontier AI company to deploy its models in those environments and has powered MSS's LLM capabilities to date. Palantir announced a partnership with Anthropic to bring its flagship model Claude to classified networks through AIP in November 2024, and the Pentagon subsequently renewed and expanded its work with Anthropic in a July 2025 contract.

Reporting has highlighted the Pentagon's use of Claude through MSS in the war in Iran and through an unspecified Palantir system in the February 2026 capture of former Venezuelan President Nicolás Maduro.

In addition to directly incorporating Anthropic LLM capabilities for MSS user-facing functionality, it is possible that the government is using additional Anthropic offerings, such as Claude Code. Using AI agents to author, edit, and test MSS' underlying software code could, in principle, accelerate development and enhance cybersecurity. Many other tech companies have emphasized that the majority of their software development work is now done by AI coding agents overseen by human engineers. Neither the government nor its industry partners have publicly and explicitly stated whether this is the case. However, Undersecretary of Defense for Research and Engineering Emil Michael stated in March 2026

> Some of these models are good at other things. Claude has a good use case on coding. Codex with OpenAI is coming up strong. xAI has some real-time content advantages. Google Gemini has some advantages because of their assets with

> YouTube, Nest Cams, so for robotics and things like that. They all have different strengths.

Michael's remarks suggest, at a minimum, that the government is considering using code authored by AI, if it is not doing so already. Palantir's description of Maven Logic is consistent with such an interpretation, though not definitive proof.

Q5: What is Anthropic's future with Maven Smart System?

A5: The relationship between the Pentagon and Anthropic has seriously deteriorated in 2026. During a renegotiation of the July 2025 contract, Anthropic refused the Pentagon's demand to add language to the contract that would allow "any lawful use" of Claude and to subtract previously accepted terms of service that restricted Claude's use for mass domestic surveillance and fully autonomous lethal weapons. In response, the Pentagon labeled Anthropic a "Supply Chain Risk," and President Donald Trump posted on Truth Social an order for all federal agencies to transition away from Claude within six months. The first of these two actions requires all Pentagon vendors to remove Claude from products used in their Pentagon work. Anthropic is currently challenging the designation in court with mixed results so far.

Frontier AI companies SpaceX, OpenAI, and Google have all reached agreements with the Pentagon in recent months to provide their technology on classified networks. It remains unclear which of those companies' models, if any, will become available on MSS through AIP. Palantir CEO Alex Karp told reporters at the company's March 2026 conference that Palantir's "products are integrated with Anthropic, and in the future, it will probably be integrated with other LLMs."

In terms of the difficulty of replacing Anthropic's models in MSS and integrating with other vendors, Undersecretary Michael stated earlier this month:

> We were single-threaded on one vendor, one AI vendor at the Department of War, and to integrate into classified systems is not just putting your software on a public cloud and having it work. These are sophisticated, protective systems that take a lot of work to integrate on, so it wasn't like I could just turn on a few other models that easily. But never again we'll be single-threaded with any one model.

Palantir has claimed in recent public communications that its software is model-agnostic and supports a diverse selection of models for LLM-powered use cases.

Q6: What future does the Pentagon envision for Maven Smart System?

A6: MSS is now a core component of the Pentagon's push for CJADC2. This has become increasingly clear with MSS's recent relocation to CDAO, which plays a major role in CJADC2 efforts, and is further reinforced within the Pentagon's FY 2027 budget documents.

As a term of art, CJADC2 refers to a warfighting function or capability rather than any specific program. The DOD has sought to develop and implement JADC2 capabilities since 2019 to solve similar warfighting problems to those outlined above. The CDAO describes CJADC2 as follows:

> CJADC2 is not a single system, but a series of interconnected capabilities from the edge to the boardroom, providing the Joint commander with sensors and systems across the tactical, operational, and strategic levels to create a clearer picture of the current situation in the fog of war. CJADC2 also connects the command and control systems of key U.S. allies and partners, ensuring that we built trust and interoperability, thereby enhancing the overall effectiveness of a combined international force.

On March 9, Deputy Secretary of Defense Steve Feinberg wrote a memo to Pentagon officials stating that MSS would become a program of record—a formally approved acquisition program recorded in the Pentagon's budget—signaling a longer-term commitment by the Pentagon to the Palantir-built platform. His justification hinged on MSS's importance for CJADC2: "In order to maintain our data-driven decision advantage, it is imperative that we invest now and with focus to deepen the integration of [AI] across the Joint Force and establish AI-enabled decisionmaking as the cornerstone of our strategy for [CJADC2]." To this end, the memo ordered oversight of MSS to relocate to the CDAO within 30 days and further directed Pentagon Chief Technology Officer Emil Michael to evaluate options for organizationally moving the MSS Smart System program "under a potential CJADC2 Program Office as its permanent home."

Budget documents similarly emphasize MSS's role in CJADC2 development. The DOD's FY 2027 budget request includes $2.3 billion for MSS and the Joint Fires Network—a complementary battle management platform—"to deliver CJADC2 to the Department's joint warfighting capabilities."

While MSS seems likely to be an important piece in the CJADC2 puzzle, a complete version of the Pentagon's ambitious concept has yet to be realized. An April 2025 Government Accountability Office report noted that the Pentagon still lacks a framework for guiding CJADC2 and has yet to specify and track progress toward concrete goals. Other issues the report found included duplicative efforts across military departments, restrictive data rules, and a "limited awareness of experimentation lessons learned." MSS's future role in enabling CJADC2 will depend on the Pentagon's ability to solve these internal challenges.

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