Distributed Acquisition: A Transformative Methodology for Department of Defense System Acquisition

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Abstract
The Department of Defense's acquisition system is faltering, costing $183 billion in overruns and two-year delays across 36 programs, as centralized Major Capability Acquisition (MCA) delivers rigid, costly systems that stifle small contractors and lag behind evolving threats. Misaligned contractor profit motives prioritize minimal compliance over warfighter utility, shrinking the defense industrial base and burdening firms with digital engineering and security demands. Distributed Acquisition revolutionizes this paradigm, replacing MCA's linear model with a government-led, iterative "bid→architect→bid→design→bid→build" process. Systems are broken into modular Developmental Items, developed by 150-person teams, guided by a System Design Agent, and supported by a government-owned digital infrastructure. Open interfaces and a Technical Data Package ensure adaptability, while an Inquisition Team enforces accountability. Rooted in WWII's distributed success and Value-Driven Design, and informed by the authors' decades of government and industry expertise, this methodology expands the industrial base, ousts underperformers, and rewards innovation. Aligned with the FORGE Act, Distributed Acquisition delivers agile, warfighter-ready systems to secure DoD's strategic edge.

The Need for a New Approach

The Department of Defense (DoD) faces an urgent imperative to rethink how it acquires major capability systems, driven by persistent challenges that undermine its ability to deliver warfighting platforms aligned with strategic goals. The traditional Major Capability Acquisition (MCA) pathway, long the backbone of this effort, has struggled to produce systems that are modular, innovative, sustainable, and adaptable to an evolving operational landscape. A comprehensive analysis in a preceding study, referred to here as Lewis et al. (2025), identifies deep-seated structural issues within MCA that have resisted decades of reform efforts. These flaws, detailed in the Lewis et al. (2025) analysis of MCA's persistent challenges, have caused significant cost overruns, such as $183 billion across 36 programs, schedule delays, and systems that fail to meet the DoD's vision of resilience and enduring advantage. The approach of a Distributed Acquisition methodology is designed to address these shortcomings by reimagining the acquisition process to account for the recurring aspects of MDAP programs that have remained consistent through decades of reforms.

Distributed Acquisition replaces MCA's centralized, linear framework, critiqued in the First Paper for embedding complexity and proprietary constraints, with an iterative 'bid→architect→bid→design→bid→build' process. This fosters competition and modularity, enabling agile system development aligned with DoD's vision for adaptable platforms (Lewis et al., 2025). This is accomplished by fractioning systems into smaller, independently managed pieces scaled for development by 150-person or less organizations, fostering competition, broadening participation, and ensuring government control at every stage. It aims to deliver platforms that can evolve with emerging threats, drawing on a diverse industrial base to enhance resilience and innovation. The stakes are high: as adversaries advance technologically, the DoD cannot afford to remain tethered to an acquisition model that falters under modern demands. This white paper outlines what Distributed Acquisition entails—its core principles, the entities involved, and their interactions—offering a blueprint to realign system acquisition with enduring mission needs, while leaving implementation specifics for future exploration.

Defining Distributed Acquisition

Distributed Acquisition transforms the traditional acquisition sequence, shifting from MCA's linear 'bid→architect→design→build' progression, critiqued in Lewis et al. (2025) for its rigidity, to an iterative 'bid→architect→bid→design→bid→build' framework This shift contrasts MCA's centralized approach with Distributed Acquisition's flexible, competitive process, aligning with DoD's need for adaptable systems (Lewis et al., 2025). This process starts with the government—or its proxy—breaking a system into smaller Developmental Items (DIs), standalone components with clear performance goals, modeled with objective functions, connected by open, shared standards. These goals, rooted in Value-Driven Design identified from Lewis et al. (2025), guide each DI's development to meet DoD needs efficiently.

These DIs are then offered for independent bids, with a critical constraint: contractors securing one DI are barred from bidding on adjacent or contained items. This rule prevents any single entity from consolidating control over interconnected pieces, ensuring a distributed effort that avoids the monopolistic tendencies seen in traditional approaches. The process starts with a mandatory consortium of all prospective participants, tasked with crafting a reference architecture that remains vendor-agnostic, setting a

collaborative foundation before competitive bidding begins.

This staged sequence keeps competition alive across multiple phases. An initial bid selects consortium members, who then architect the system collectively, free from any single vendor's proprietary influence. The system is then split into DIs, each bid separately based on the shared architecture. Design follows, executed within a government-provided digital environment, and a final bid round determines production contractors. This iterative bidding prevents early lock-in, allowing the DoD to steer development at key junctures. By retaining ownership of all technical data through a comprehensive Technical Data Package (TDP), structured in three levels—conceptual, developmental, and production—the government maintains the ability to re-bid any DI if a contractor underperforms or departs. This flexibility ensures systems remain adaptable, unburdened by the rigid frameworks that have historically constrained MCA.

Embedding Modularity and Openness

A defining feature of Distributed Acquisition is its commitment to modularity at the boundaries of each Developmental Item. Contractors may employ proprietary solutions within a DI's core, tailoring designs to their strengths, but the interfaces—where DIs connect—adhere to an open-source standard, fully documented in the TDP. This Modular Open Systems Approach (MOSA) at the borders ensures that any DI can be replaced or upgraded by a competitor or second source without unraveling proprietary connections, providing a safeguard against vendor dependency. The TDP evolves through the consortium's conceptual design where much of the mission engineering work of the government customer is refined and represented by identifying the Stakeholder needs and broad constraints on the solution. In the developmental phase DIs are assigned objective functions. This adapts Collopy and Hollingsworth's Value Driven Design's objective function, quantifying military utility to drive design decisions by guiding DIs designs to be directly driven by the impact on cost, schedule, performance, risk, and lifecycle implications at the system level. This supplements more traditional system requirements by allowing for a decentralized optimization of the system where DIs effectively act as agent-based optimizers in system development. The production phase of development specifies manufacturing details, culminating in a fully government-owned TDP to preserve control over the system's lifecycle.

Team size is central to Distributed Acquisition's structure, capping each DI's design effort at 150 persons, a limit informed by research on coordination and proven by historical successes like Lockheed's Skunk Works, which developed the U-2 with a small, agile team in under two years (Lewis et al., 2025). This approach, mirroring WWII's modular systems, ensures agility and government control, avoiding the delays and complexity of MCA's large-scale efforts.

This cap, informed by research on human coordination limits (Lewis et al., 2025), keeps teams manageable and agile, avoiding the delays and complexity that arise when organizations grow too large. By breaking systems into smaller units—potentially down to individual components—the methodology lowers barriers for participation, inviting small and mid-size firms alongside larger players. This granularity enhances resilience: the smaller scale of each DI enables second-sourcing or experimental designs, minimizing disruptions compared to MCA's large-scale failures, as noted in Lewis et al. For example, a modular missile system could use DIs like guidance or propulsion units, developed by small teams, allowing rapid upgrades akin to WWII's tank production (Lewis et al., 2025). The result is a system that can adapt incrementally, integrating new technologies or adjusting to operational shifts without overhaul.

Incentivizing Performance and Accessibility

Distributed Acquisition aligns contractor incentives with DoD objectives through a dual financial mechanism. To counter the contractor-DoD misalignment identified in Lewis et al. (2025), each DI is contracted under a Firm Fixed Price (FFP) to ensure cost certainty, with an additional sum awarded if the delivered item exceeds baseline military utility, as calculated by a system-level objective function established during the consortium phase. This structure, grounded in Principal-Agent Theory, aligns contractor incentives with warfighter needs, incentivizing innovation over profit-driven minimal compliance, unlike the FCS program's costly overruns driven by integrator priorities (Lewis et al., 2025). This formula—tailored to each DI's purpose, such as efficiency for a power unit or range for a sensor—rewards entities that deliver enhanced capability, encouraging and fostering innovation over mere compliance. This approach enables the adoption of cutting-edge solutions, providing a financial incentive to push boundaries rather than settle for the minimum viable product, ensuring systems contribute meaningfully to warfighting needs.

To broaden participation, the methodology centralizes the digital engineering environment under government oversight. Defined, designed, and implemented by the DoD or its proxies, this environment supplies contractors with thin clients to access necessary tools and, for authorized entities, a second client for classified networks. File transfers between security levels are managed by the environment's maintainers, minimizing risks and eliminating the need for contractors to invest in costly software or security infrastructure. This accessibility levels the playing field, enabling firms of all sizes to compete without the overhead that typically favors established players. By streamlining classification authority and reducing entry barriers, Distributed Acquisition ensures a diverse pool can contribute, enhancing the methodology's reach and impact.

Structuring Roles for Flexibility

The methodology enforces strict separation across manufacturing and integration to maintain competition and prevent dominance. No single contractor can manufacture all DIs or even adjacent ones, with manufacturing bids integrated into the consortium to incorporate producibility insights early on. This delineation ensures that the production phase remains distributed, avoiding the end-to-end control that has characterized past efforts. A single Integrator, selected from the consortium for its expertise in testability, assembles and tests the system, covering engineering, design verification, proof of manufacture, and production phases. This focused role ensures the system functions cohesively, with the Integrator's early involvement in requirements shaping and objective function definition fostering a testable outcome from the start.

This separation extends to the entities themselves, with no organization permitted to serve simultaneously as SDA, DA, Design Entity, manufacturer, or Integrator, ensuring competition and flexibility. To address potential coordination challenges across multiple DIs, as warned by Brooks in Lewis et al. (2025), the SDA's arbitration and MOSA interfaces streamline integration, mirroring WWII's modular coordination success.

This boundary preserves the methodology's distributed nature, preventing any single player from consolidating power across phases. The smaller scale of DIs and the government's ownership of the TDP further reduce the stakes of losing a bid, discouraging legal challenges and enabling rapid replacement of underperforming contractors. Together, these elements create a flexible structure where the DoD can adjust course—second-sourcing a DI or shifting production—without the systemic upheaval that larger, centralized contracts often entail, offering a resilience tailored to modern operational demands.

Entities Driving Distributed Acquisition

Distributed Acquisition relies on a distinct set of entities—the System Design Agent (SDA), Design Agents (DAs), Design Entities, and the Inquisition Team—each with tailored responsibilities to ensure the methodology delivers adaptable, government-controlled systems. These entities operate in a framework that avoids the centralized dominance of traditional MCA programs, fostering a distributed effort that aligns with the DoD's strategic vision. Their roles are shaped to counter the structural issues outlined in Lewis et. al (2025), providing a cohesive yet flexible structure where authority and effort are spread across multiple players. No single organization can overlap roles, such as serving as both SDA and Design Entity, ensuring independence and preventing the consolidation that has historically limited adaptability. These entities interact selectively, engaging only where their contributions advance the methodology's goals. The SDA anchors the process with system-level oversight, DAs manage complexity in larger efforts by overseeing specific subsystem areas, Design Entities execute the hands-on work, and the Inquisition Team safeguards integrity as needed. This delineation creates a dynamic ecosystem, capable of producing systems that meet warfighting needs without the rigidity of past approaches. The following sections detail what each entity brings to Distributed Acquisition, illuminating their purpose within this transformative paradigm.

The System Design Agent: Custodian of the Reference Architecture

The System Design Agent (SDA) stands as the central steward of Distributed Acquisition, tasked with maintaining the system's overarching structure and technical integrity. It leads the consortium of prospective participants to establish a reference architecture including the system level objective function modeling military utility, ensuring the system's foundation remains free of proprietary bias before bidding begins. The SDA's primary output is the TDP, structured across three levels—conceptual from the consortium, developmental defining DIs with flowed-down objective functions, and production detailing manufacturing specifics—all owned by the government to preserve control. This custodianship allows the DoD

to oversee the system's evolution, enabling re-bidding of any DI without dependency on a single contractor. The SDA defines Developmental Item boundaries, capping design efforts at 150 persons to ensure agility, as justified by coordination limits in Lewis et al. (2025). It manages the digital engineering environment, supplying tools and secure access via thin clients to enable diverse participation, countering MCA's contractor-driven organizational barriers.

When disputes arise between contractors over interfacing DIs—such as mismatched outputs—the SDA arbitrates, using the TDP's open standards and the system level objective function in tradespace decisions to resolve conflicts impartially. As a government extension, it streamlines security by eliminating subcontractor classification chains, facilitating swift contractor replacement. The SDA sets the stage for design and production, ensuring modularity and flexibility without engaging in the detailed work itself.

Design Agents: Navigators of Subsystem Complexity

Design Agents (DAs) step into Distributed Acquisition for systems of significant scale, managing subsystems where the SDA's oversight alone proves insufficient. Each DA oversees a specific cluster of DIs—such as propulsion or electronics—translating the TDP's objective functions into area specific objective functions and detailed requirements. Rather than receiving top-down directives, DAs craft these objective functions and requirements to align with their subsystem's purpose, evaluating design choices objectively against goals like efficiency or performance. This autonomy ensures subsystems contribute to overall utility, avoiding the misaligned priorities that have challenged MCA, as noted in Lewis et. al (2025).

Within their domain, DAs arbitrate conflicts between DIs—resolving issues like incompatible specifications—using the TDP's open interfaces to adjust designs. When disputes cross subsystems, DAs collaborate with peers and escalate unresolved issues to the SDA for final arbitration. Operating as government extensions, DAs remain neutral, free from contractor incentives, and focus on coherence without designing DIs themselves. Their presence scales the methodology, distributing responsibility to manage complexity while preserving the distributed structure, ensuring large systems remain adaptable and aligned with DoD objectives.

Design Entities: The Builders of Developmental Items

Design Entities form the operational core of Distributed Acquisition, comprising a diverse group—traditional contractors, nontraditional firms, government labs, test facilities, and research centers—that bid on, design, and build DIs. They participate in the consortium to shape the reference architecture, contributing practical expertise before competing for individual DIs. Each entity works within the 150-person limit and the digital environment, leveraging the TDP's standards, tailored objective functions, and requirements to develop their assigned components. This diversity broadens participation, countering the narrow industrial base that has limited traditional MCA programs, as highlighted in Lewis et. al (2025).

The smaller scale of DIs reduces the incentive for legal challenges by losing bidders, while the TDP's openness facilitates replacement of underperforming entities. Design Entities benefit from the FFP plus military utility bonus, pushing beyond baseline requirements to earn rewards for enhanced capability. This competitive dynamic drives innovation, supported by the government-provided tools that eliminate upfront costs, ensuring even small players can contribute. Their role transforms systems into collaborative yet independent efforts, enhancing resilience and flexibility across the acquisition process.

The Inquisition Team: Guardians of Accountability

The Inquisition Team serves as an on-demand overseer in Distributed Acquisition, activated by the DoD to address delays, cost issues, or performance shortfalls, fostering shared consciousness across Lewis et al. (2025). By operating independently and reporting directly to the government, it ensures transparency and accountability, countering the hierarchical opacity that hindered oversight in MCA programs like FCS (Lewis et al., 2025). Unlike other entities, it is not a permanent fixture but a separate group reporting directly to the government, bypassing the SDA or DAs to maintain independence. It investigates root causes—whether contractor failure, oversight lapses, or unavoidable factors—recommending actions like replacing an entity or adjusting operations. This flexibility ensures accountability, addressing gaps that have persisted in MCA, as noted in Lewis et. al (2025).

When engaged, the Inquisition Team can propose significant shifts—second-sourcing a DI, adding quality controls, or even replacing the SDA—ensuring the system stays on track. Its temporary nature minimizes overhead while maximizing impact, offering a corrective mechanism that adapts to issues without

entrenching bureaucracy. By standing apart, the Inquisition Team safeguards the methodology's integrity, ensuring systems deliver on their intended purpose despite setbacks.

Interactions Among Entities in Distributed Acquisition

The strength of Distributed Acquisition lies in the deliberate interactions between its entities—the SDA, DAs, Design Entities, and the Inquisition Team—structured to deliver adaptable, government-controlled systems. These relationships focus on meaningful connections that advance the methodology's goals, avoiding unnecessary overlap that could clutter the process. The SDA and Design Entities collaborate early and often, DAs mediate between the SDA and Design Entities in complex efforts, and the Inquisition Team engages all parties as an independent check when required. This selective interplay ensures a cohesive yet distributed effort, distinct from MCA's centralized hierarchies.

These interactions operate within a framework where roles remain separate—no entity can double as SDA, DA, Design Entity, manufacturer, or Integrator—preserving competition and flexibility. The following sections detail how these entities connect, illustrating a system that fosters innovation and resilience while maintaining DoD authority throughout the acquisition lifecycle.

Collaborative Foundations: SDA and Design Entities in the Consortium

The SDA and Design Entities forge their partnership in the consortium, where the SDA leads a diverse group to define the reference architecture. This collaboration ensures the system's foundation reflects collective input—spanning manufacturing insights, testing needs, and technological possibilities—rather than a single contractor's agenda. The SDA synthesizes this into the TDP's conceptual level, setting objective functions for DIs that guide subsequent bids. This early engagement establishes a shared baseline, enabling Design Entities to compete on equal footing once the architecture is set.

Post-consortium, the SDA supports Design Entities by providing the digital environment and arbitrating DI conflicts. As entities design their components, the SDA ensures interface compatibility, resolving disputes—such as mismatched specifications—using the TDP's open standards. This oversight maintains system integrity without stifling contractor autonomy, while the ability to re-bid DIs keeps entities accountable. This ongoing relationship anchors Distributed Acquisition in government control, leveraging Design Entities' expertise to deliver a modular, adaptable outcome.

Bridging the Gap: DAs as Intermediaries Between SDA and Design Entities

In larger systems, DAs connect the SDA's system-level vision with the Design Entities' detailed execution, managing subsystems to scale the methodology effectively. The SDA assigns DAs clusters of DIs, handing over the TDP's developmental design with objective functions. DAs then work with Design Entities, refining these into requirements that align with subsystem goals—ensuring components contribute to overall utility. This mediation distributes oversight, preventing the SDA from becoming overwhelmed while guiding entities without dictating their designs.

DAs also resolve conflicts within their subsystems, adjusting DI designs via MOSA interfaces when issues arise. When disputes span subsystems, DAs collaborate with peers and Design Entities, escalating to the SDA if needed. This tiered approach maintains momentum, ensuring subsystem coherence integrates into the broader system. By acting as neutral intermediaries, DAs enhance the methodology's ability to handle complexity, supporting the SDA and Design Entities in delivering a unified, flexible platform.

Design Entities and Their Competitive Dynamics

Among Design Entities, interactions shift from collaboration to competition once the consortium phase concludes, a deliberate design to drive innovation and prevent consolidation. During the initial architecture definition, these entities—traditional contractors, nontraditional firms, labs, test facilities, and research centers—work together under the SDA's guidance, sharing insights to shape a system that serves all participants. Once Developmental Items (DIs) are defined and bidding begins, their relationship transforms into a competitive landscape. A contractor winning a DI is barred from bidding on adjacent or contained items, a rule enforced by the SDA to ensure no single entity dominates interconnected components, maintaining a distributed structure that avoids the monopolistic tendencies MCA has exhibited, as noted in the Lewis et. al (2025).

This competitive dynamic plays out as Design Entities develop their DIs within the government-provided digital environment, adhering to the TDP's open interfaces. While they do not collaborate directly, their work intersects at these boundaries, where compatibility is critical—say, a sensor's output aligning with a processor's input. The SDA or DAs oversee these junctures, but Design Entities focus on their

individual contributions, striving to maximize the system level military utility objective function established in the consortium. This system level function, central to the Value Driven Design Methodology and tied to each DI's objective function, fuels competition—entities vie to deliver enhanced capability, exercising an incentive compensation pprtion beyond the Firm Fixed Price if the government customer agrees to its inclusion in the design. This mechanism of option incentive pushes the DI to innovative solutions in both performance, cost, schedule, and positive lifecycle impacts where traditional approaches often stagnate. The smaller scale of DIs lowers the stakes of losing a bid, reducing legal challenges and enabling swift replacement, fostering a fluid, competitive ecosystem.

The small size of the DI also allows lower risk for concurrent development of more innovative, but potentially more risky solutions without major impact to the cost and schedule of the main effort.

The diversity of Design Entities amplifies this competition's impact. A small firm might leverage agility to innovate on a circuit card, while a lab pushes boundaries on a sensor, and a traditional contractor refines a structural component—all within the same system. This interplay, whose efforts are aligned through the overall system objective function, ensures a broad range of solutions, enhancing the system's overall quality and adaptability. The government's provision of thin clients levels the playing field, allowing entities to compete based on merit rather than resources, a contrast to MCA's bias toward established players. Through this competitive tension, Design Entities collectively build a system that benefits from varied expertise, delivering resilience and flexibility that monolithic efforts struggle to achieve.

The Inquisition Team's Oversight Role

The Inquisition Team engages with other entities in Distributed Acquisition as an independent overseer, activated only when the system encounters significant issues—delays, cost overruns, or performance shortfalls. Hired directly by the DoD, it operates outside the routine chain, reporting findings without filtering through the SDA or DAs, who might be implicated in the problem. This independence allows the team to interact with all parties—SDA, DAs, and Design Entities—to diagnose root causes, whether a contractor's failure, an oversight lapse, or an unavoidable setback. Its role ensures accountability, addressing deficiencies that have historically persisted in MCA, as outlined in Lewis et. al (2025), without embedding permanent bureaucracy into the methodology.

When engaged, the Inquisition Team's interactions with specific entities deepen based on the issue at hand. If a Design Entity struggles to deliver a DI—perhaps missing performance targets—the team investigates, recommending replacement if warranted, which the SDA executes via the TDP's open interfaces. Should the SDA falter—say, mismanaging arbitration or the digital environment—the team might propose a new SDA, a significant intervention to restore system integrity. With DAs, the team assesses subsystem oversight, suggesting adjustments if requirements misalign with objectives. These recommendations can extend to programmatic shifts—initiating a second source for a DI or implementing new quality controls—ensuring the system regains momentum without derailing the broader effort.

This targeted engagement enhances the methodology's adaptability. The Inquisition Team collaborates with the SDA and DAs to enact its proposed fixes (unless the recommendation to the government is a modification or replacement involving the SDA/DA), leveraging their authority to realign operations, while its direct access to Design Entities ensures granular insight into performance issues. Its temporary nature keeps it lean, minimizing overhead while maximizing impact, a flexibility that contrasts with MCA's entrenched oversight challenges. By interacting with all entities as needed, the Inquisition Team acts as a guardian, ensuring the system delivers on its intended purpose despite setbacks, reinforcing Distributed Acquisition's resilience.

Absence of Unnecessary Connections

Not every potential interaction among entities in Distributed Acquisition warrants emphasis, as some lack meaningful contribution to the methodology's goals. The Inquisition Team, for instance, has no routine engagement with Design Entities outside specific investigations, preserving its role as a reactive overseer rather than a constant presence. Similarly, DAs do not connect directly with the Inquisition Team unless a review necessitates it, maintaining the team's impartiality. Design Entities, despite their numbers, interact with each other only indirectly through the SDA and DAs via the TDP's interfaces, as post-consortium collaboration could undermine the competitive drive that fuels innovation.

This selectivity keeps the methodology streamlined, avoiding the cluttered relationships that can bog down large systems. The SDA and DAs focus on their

respective oversight roles without redundant overlap, while Design Entities concentrate on their DIs without needing direct ties to the Inquisition Team in normal operations. By limiting interactions to those that advance modularity, control, and adaptability, Distributed Acquisition ensures a lean, purposeful structure, distinct from the hierarchical tangles that have hampered MCA. This clarity of purpose enhances the system's efficiency, directing effort where it matters most to achieve DoD objectives.

Reimagining Acquisition for the Future

Distributed Acquisition offers a bold reimagining of how the DoD acquires major capability systems, designed to deliver platforms that are modular, innovative, and adaptable to an evolving operational landscape. This methodology shifts away from MCA's centralized paradigm, actively dividing systems into Developmental Items managed by a diverse set of entities under government oversight, countering the complexity critiqued in Lewis et al. (2025). It addresses the structural issues that have long undermined acquisition efforts, as detailed in Lewis et. al (2025), providing a framework that aligns with the DoD's vision of resilient, sustainable systems. By outlining what this approach entails—its principles, entities, and their interactions—this white paper presents a transformative path forward, leaving practical execution for subsequent exploration.

The urgency of this shift stems from the DoD's need to counter advancing threats with systems that can evolve rapidly, yet transitioning to Distributed Acquisition requires addressing potential costs and contractor resistance, as noted in Lewis' et al. (2025) discussion of post-9/11 consolidation. Phased pilot programs, such as those supported by the FORGE Act, can test the methodology on smaller systems, leveraging Value-Driven Design's cost savings to build stakeholder confidence while mitigating risks (Lewis et al., 2025).

Distributed Acquisition delivers this capability by breaking systems into smaller, manageable pieces, fostering competition, and retaining control through a government-owned TDP. The SDA, DAs, Design Entities, and Inquisition Team work together to ensure systems meet warfighting needs without the rigidity of past approaches. This methodology does not merely adjust existing processes but redefines them, offering a system that can integrate new technologies, adapt to operational shifts, and withstand disruptions—qualities essential for maintaining strategic advantage.

Restoring Clarity and Control

Distributed Acquisition actively clarifies system requirements by defining objective functions during the consortium phase, addressing the vague requirements critiqued in Lewis et al. (2025). The SDA and Design Entities collaborate to define these goals—specific, measurable targets for each DI—ensuring alignment with overall utility from the start. DAs refine these into subsystem requirements, maintaining focus on purpose rather than allowing vague specs to drift, a problem Lewis et. al (2025) identifies in MCA. The financial structure reinforces this clarity, rewarding entities that exceed baseline expected utility with an incentive reward, driving performance that directly supports DoD needs rather than minimal lifecycle and operational performance compliance at maximal cost and schedule outcomes.

Government control is reestablished through the TDP and digital engineering environment. The SDA's ownership of technical data—spanning conceptual, developmental, and production phases—enables the DoD to re-bid any DI, ensuring flexibility without dependency on a single contractor. The digital environment, managed by the government, provides tools and security via thin clients, centralizing authority and eliminating subcontractor complexities. This control allows the DoD to adjust course—replacing entities or shifting production—with minimal disruption, a stark contrast to MCA's loss of oversight, empowering the government to steer systems toward enduring effectiveness.

Fostering Modularity and Resilience

Modularity lies at the heart of Distributed Acquisition, embedded through MOSA at DI boundaries. The SDA ensures these interfaces remain open, allowing components to be swapped or upgraded without proprietary barriers, enabling systems to evolve as needs change. This approach ensures that advancements—new sensors, power units, or structural elements—can be integrated incrementally, maintaining relevance over time. The TDP's documentation supports this modularity, providing a blueprint that any contractor can use, freeing systems from the lock-in that has constrained MCA adaptability.

Resilience emerges from the methodology's distributed structure and smaller DI scale. Capping design efforts at 150 persons keeps teams agile, reducing the risk of failure cascading across the system. The ability to second-source or replace a DI—facilitated by the TDP and overseen by the SDA—minimizes disruption, while the Inquisition Team's interventions ensure rapid correction of setbacks. This resilience allows systems

to withstand contractor issues or operational shifts, offering the DoD options to pursue experimental designs or dual suppliers, enhancing technological robustness and readiness for unexpected challenges.

Broadening the Defense Industrial Base

Distributed Acquisition expands the industrial base by inviting a diverse array of Design Entities—small firms, labs, and nontraditional players—into the acquisition process, echoing historical successes like the interwar period's radar development, where decentralized teams drove innovation under resource constraints (Lewis et al., 2025). This approach, akin to WWII's network of 18,000 small firms, counters MCA's reliance on five prime contractors, fostering competition and resilience as demonstrated in distributed models (Lewis et al., 2025). The government-provided digital environment eliminates entry barriers, allowing these entities to compete on equal terms without significant upfront investment. The smaller scale of DIs reduces the stakes of bidding, discouraging legal disputes and encouraging participation from a wider pool, countering the narrow base that has limited MCA, as noted in Lewis et al. (2025). This inclusivity fosters a vibrant ecosystem where varied expertise drives system quality.

The competitive dynamics among Design Entities amplify this effect. By barring winners from adjacent DIs, the SDA ensures no single player dominates, maintaining a broad contributor base throughout design and production. The Integrator's focused role in assembly preserves this diversity, relying on inputs from multiple manufacturers rather than a single source. This approach revitalizes the DoD's supplier network, enhancing competition and innovation, ensuring systems benefit from a range of perspectives and capabilities, a strategic asset in an era of complex threats.

Aligning with DoD Objectives

Distributed Acquisition aligns seamlessly with the DoD's overarching objectives of delivering systems that embody modularity, positive lifecycle outcomes, innovation, and adaptability, goals that have proven elusive under the traditional MCA framework.

Modularity is woven into the methodology's fabric through the consistent application of the Modular Open Systems Approach (MOSA) at the boundaries of each Developmental Item (DI). The System Design Agent (SDA) enforces this standard, ensuring that every component—whether a sensor, power unit, or structural piece—connects via open, documented interfaces preserved in the Technical Data Package (TDP). This design allows the DoD to integrate new capabilities or replace outdated elements without dismantling the entire system, providing a platform that can evolve as operational requirements shift. The government's ownership of the TDP reinforces this modularity, offering a blueprint that any contractor can use to contribute, ensuring systems remain flexible and relevant over time.

Positive lifecycle outcomes emerge from the methodology's emphasis on government control and resilience throughout a system's lifespan. The SDA's retention of technical data across conceptual, developmental, and production phases empowers the DoD to manage sustainment without reliance on a single vendor, a flexibility that ensures components can be maintained, upgraded, or replaced as needed. Design Agents (DAs) contribute by aligning subsystem requirements with clear objective functions, embedding lifecycle considerations—like durability or efficiency—into the design process from the outset. The ability to re-bid DIs, supported by the TDP's open interfaces, means that if a contractor's performance wanes during sustainment, the DoD can introduce a new provider with minimal disruption. This approach delivers systems that endure, capable of supporting warfighting needs across their operational life, addressing shortcomings Lewis et. al (2025) identifies in MCA's lifecycle management.

Innovation thrives within Distributed Acquisition through a structure that incentivizes and enables creative solutions. The Firm Fixed Price (FFP) paired with a military utility incentive option, calculated via consortium-defined formulas, rewards Design Entities for exceeding baseline performance—whether enhancing a sensor's range or a power unit's efficiency—pushing them to integrate cutting-edge technologies rather than settling for adequacy. The methodology's openness to a diverse pool of participants—small firms, labs, and nontraditional entities—further fuels this innovation, as varied perspectives compete to deliver superior outcomes. The government-provided digital engineering environment, accessible via thin clients, eliminates resource barriers, allowing even smaller players to propose novel approaches without the overhead that often stifles creativity in traditional acquisition. This ecosystem ensures systems benefit from the latest advancements, keeping the DoD at the forefront of technological capability.

Adaptability is a hallmark of Distributed Acquisition, enabling systems to respond swiftly to changing threats or operational demands. The smaller scale of DIs,

capped at 150-person design efforts, allows the DoD to adjust individual components—swapping a sensor for a new threat profile or upgrading a structural element—without overhauling the whole platform. The SDA's arbitration role, supported by DAs in complex systems, ensures these adjustments maintain system coherence, while the Inquisition Team's oversight provides a mechanism to correct course if issues arise, such as second-sourcing a DI or shifting production priorities. This granularity and flexibility mean systems can evolve incrementally, integrating new technologies or responding to battlefield shifts, a capability MCA struggles to achieve, as noted in Lewis et al. (2025). Together, these elements deliver platforms that meet the DoD's need for agility, ensuring readiness in an unpredictable landscape.

Advancing the FORGE Act with the Distributed Acquisition Approach

The Fostering Reform and Government Efficiency in Defense Act (FORGE Act, S. 5618), introduced in December 2024, aims to streamline DoD acquisition, promote commercial contracting, and diversify the Defense Industrial Base (DIB) (Wicker, 2024). The distributed acquisition approach, by fractionating systems into Developmental Items (DIs), capping teams at 150 persons, and retaining government control via a Technical Data Package (TDP), offers a methodology to implement the FORGE Act's vision, addressing Major Capability Acquisition (MCA) flaws while fostering modularity and innovation.

The FORGE Act's push to reduce bureaucratic barriers aligns with the distributed acquisition approach's iterative bidding process, which replaces MCA's linear framework with a flexible "bid→architect→bid→design→bid→build" sequence. This minimizes delays, as seen in MCA's two-year average overruns, by fostering competition and reducing contractor lock-in. Small teams, informed by Dunbar's 150-person coordination limit, accelerate decisions, supporting the Act's call for agility (Lewis et al., 2025). For instance, a FORGE Act-funded autonomous vehicle program could leverage Distributed Acquisition to engage small tech firms and labs as Design Entities, developing modular components like sensors and propulsion systems linked by MOSA interfaces, ensuring rapid delivery and adaptability. This approach mirrors WWII's diverse network of 18,000 firms, over half small businesses, which delivered modular systems swiftly, operationalizing the FORGE Act's push for DIB diversification and commercial contracting while countering MCA's prime contractor dominance (Lewis et al., 2025).

The Act's emphasis on commercial contracting is enabled by the approach's open TDP interfaces, allowing nontraditional firms to bid without proprietary barriers. The government's digital engineering environment lowers entry costs, inviting commercial players. Value-Driven Design (VDD) optimizes DI trade-offs, potentially saving $55 billion annually (Lewis et al., 2025), aligning with the Act's commercial focus. Diversifying the DIB, a core FORGE Act goal, is achieved by engaging small firms and nontraditional contractors, countering MCA's five-prime dominance (DoD, 2022a). A hypothetical hypersonic missile program could leverage diverse DI developers, enhancing competition and resilience, as WWII's small-firm network demonstrated (Lewis et al., 2025).

The distributed acquisition approach supports the FORGE Act's portfolio-centric acquisition by enabling Program Acquisition Executives to manage DIs holistically, aligning with McChrystal's shared consciousness model. Pilot programs, such as autonomous vehicles, could test this under the Act's flexible funding, with the Inquisition Team ensuring accountability. By operationalizing the FORGE Act, the distributed acquisition approach delivers modular, innovative systems, breaking MCA's cycle of inefficiency and ensuring warfighter readiness.

A Call to Action

Distributed Acquisition is not merely a theoretical exercise but a pressing call to action for the DoD, a response to the urgent need to break free from an acquisition model that falters under modern pressures. The methodology offers a system where the SDA, DAs, Design Entities, and Inquisition Team collaborate to produce platforms that are modular, sustainable, and innovative—qualities essential as adversaries deploy increasingly sophisticated capabilities. Lewis et al. (2025) underscore the cost of inaction: a traditional approach that embeds complexity, does not effectively communicate military utility, cedes control, and limits adaptability, costing the DoD $208 million daily in losses, causes strategic lag against more agile adversaries.

. Distributed Acquisition counters this by fractionating systems into manageable pieces, broadening the industrial base, and retaining government authority, delivering a framework that aligns with the DoD's mission to maintain enduring advantage.

The stakes demand bold change. Systems acquired through this methodology can integrate new sensors, propulsion, or electronics as threats evolve, supported by a TDP that ensures flexibility without proprietary constraints. The diverse participation of Design Entities—enabled by a government-managed digital environment—revitalizes the DoD's supplier network, fostering competition and innovation where MCA narrows options. The SDA's oversight, bolstered by DAs and the Inquisition Team, ensures these systems remain on track, adaptable to setbacks or shifts in priority, offering resilience that traditional large-scale contracts lack. The result is a vision of acquisition that delivers platforms ready for today's fight and tomorrow's challenges, a necessity as operational tempos accelerate.

Acquisitions professionals must seize this opportunity to redefine how the DoD builds its capabilities. The methodology's distributed structure, with its emphasis on modularity and control, provides a system that can pivot—second-sourcing a component, replacing an underperformer, or pursuing experimental designs—without the inertia that has bogged down past efforts. The smaller scale of DIs reduces risk, enabling the DoD to test and refine technologies incrementally, while the integrator's focused role ensures these pieces coalesce into a unified whole. This approach does not require abandoning all past lessons but builds on them, offering a practical path to systems that meet warfighting needs with agility and precision.

This approach addresses concerns and impediments to efficient acquisition that have remained persistent through 40+ years of reform; the DoD needs a methodology that delivers results now and adapts for the future. Distributed Acquisition provides that framework, a system where government-led architecture, competitive design, and independent oversight converge to produce platforms that endure. It empowers the DoD to harness a broad industrial base, integrating diverse expertise into systems that can shift with the threat landscape—whether countering new technologies or sustaining operations over decades. This white paper defines the "what": a transformative approach that restores clarity, fosters resilience, and aligns with strategic goals, urging the DoD to act decisively to implement this vision.

The call extends beyond process to purpose. Distributed Acquisition ensures the DoD can field systems that keep pace with adversaries, delivering modularity that allows upgrades, innovation that pushes boundaries, and adaptability that meets emerging needs. The SDA anchors this effort with a vendor-agnostic foundation, DAs scale it to complex systems, Design Entities build it with diverse input, and the Inquisition Team safeguards its integrity. Together, they offer a system that reclaims control from centralized pitfalls, as highlighted in Lewis et al. (2025), providing the DoD with platforms that prevail in an era of relentless change. This is a potential future of acquisition where a distributed, dynamic approach amends a few of the unchanged elements The acquisition organization is responsible for resolving recurring and negative development outcomes to secure the DoD's mission for future generations.

References

Lewis, R. P., Carnes, J., & Thompson, J. (in press, 2025). Finding Opportunities in the Adaptive Acquisition Framework: A concept for a distributed acquisition approach. In *Creating synergy for informed change: Transitioning technology to the warfighter, NPS 22nd Annual Acquisition Research Symposium and Innovation Summit.*