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Strengthening the U.S. Defense Industrial Base: Policies and Practices for Ensuring Health, Profitability, and Diversity

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Strengthening the U.S. Defense Industrial Base: Policies and Practices for Ensuring Health, Profitability, and Diversity

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Abstract

The U.S. defense industrial base (DIB) is fundamental to national security; however, the DIB faces significant challenges, supply chain fragility, industry consolidation, foreign dependence on critical materials, and shortages of skilled labor. These vulnerabilities threaten the DIB's health and profitability, risk slowing modernization, and could undermine the U.S. competitive advantage. This paper examines policies and practices to strengthen the DIB by exploring three pathways: integrating small, medium-sized, and non-traditional contractors; incentivizing reshoring and securing critical supply chains; and designing acquisition policies that balance efficiency with long-term resilience. Drawing on Department of Defense assessments, Government Accountability Office reports, and scholarly research, this study identifies gaps in existing policy and highlights best practices. The research provides a detailed analysis of how current policies impact DIB profitability and diversity, offering actionable recommendations for policymakers to enhance industrial resilience and innovation. Ensuring a strong, profitable, and diverse industrial base is a strategic necessity for accelerating warfighting capabilities and sustaining U.S. national defense in the 21st century.

Keywords: Defense industrial base, acquisition policy, supply chain resilience, industrial base diversity, national security

Introduction

The U.S. defense industrial base (DIB) is critical to national security, equipping warfighters amid growing strategic competition with China and Russia. The DIB faces pressure to deliver advanced capabilities quickly while maintaining resilience. Recent disruptions—such as pandemic-related supply chain issues, reliance on foreign suppliers, and industry consolidation—have exposed vulnerabilities (GAO, 2023, 2025).

The core argument is that the DIB's ability to sustain U.S. technological and warfighting superiority is at serious risk without targeted, deliberate policies to address three interconnected issues: insufficient resilience to supply chain shocks, lack of profitability incentivizing SME exit, and limited diversity constraining innovation. These gaps undermine the DIB's responsiveness to crises and threaten the Department of Defense's (DoD) efforts to accelerate critical capabilities.

The purpose of this study is to examine policies and practices that enhance the resilience, profitability, and diversity of the DIB, while supporting acquisition efficiency and modernization objectives. By analyzing DoD industrial base assessments, Government Accountability Office (GAO) reports, and scholarly research, the study identifies key vulnerabilities and explores three strategic policy pathways: (1) integrating small and medium-sized enterprises (SMEs) and nontraditional contractors into the industrial base, (2) incentivizing reshoring to reduce foreign dependence and securing critical supply chains, and (3) adjusting acquisition strategies to balance short-term efficiency with long-term industrial resilience.

By doing so, this research contributes actionable recommendations for policymakers and acquisition professionals, directly supporting the theme of "Accelerating Warfighting Capabilities" at the Naval Postgraduate School's 23rd Annual Acquisition Research Symposium & Innovation Summit.

Research Questions

This study is guided by the following research questions:

1. What are the primary vulnerabilities currently facing the U.S. DIB in terms of profitability, diversity, and supply chain resilience?
2. How do existing DoD policies and acquisition practices impact the health and competitiveness of the defense industrial base?
3. What strategies or policy interventions could strengthen the profitability and participation of SMEs within the defense industrial base?
4. How can the U.S. industrial base balance efficiency-driven acquisition models with the need for long-term resilience against geopolitical and economic shocks?
5. What best practices from other sectors or allied nations can inform U.S. approaches to sustaining a robust, diverse, and innovative industrial base?

Literature Review

Historical Perspective: U.S. DIB from the Cold War to Present

The U.S. DIB has undergone significant transformation since the Cold War. During the mid-20th century, the DIB was characterized by a broad and competitive landscape of firms supporting defense innovation, often driven by high Cold War defense budgets and a national security imperative (Markusen, 1991). Following the end of the Cold War, however, declining defense spending and structural adjustments led to major consolidations within the sector. The 1990s saw the so-called "Last Supper," a DoD initiative that encouraged mergers among prime contractors to reduce perceived overcapacity in the defense sector (Gansler, 2011). This period reshaped the industrial base into a smaller set of dominant players, narrowing the diversity of firms available to the government.

Contemporary Challenges

The current DIB faces a complex set of vulnerabilities. Consolidation continues to pose concerns regarding innovation, competitiveness, and resilience (Lachow, 2022). A limited number of prime contractors increases the risks of supply bottlenecks and reduces bargaining leverage for the DoD. Supply chain fragility has also been highlighted by disruptions during the COVID-19 pandemic, which exposed overreliance on foreign suppliers for critical materials, including rare earth elements and microelectronics (GAO, 2022). Foreign dependencies, especially in strategic industries, pose security risks that limit the United States's ability to ensure independent warfighting capabilities (CSIS, 2021). Labor shortages compound these risks, as skilled workers in shipbuilding, aerospace, and advanced manufacturing are increasingly scarce, limiting the capacity to meet surge requirements (DoD, 2023).

Policy Frameworks

Several key policy assessments and initiatives provide a framework for evaluating the health of the DIB. The DoD's Annual Industrial Capabilities Report to Congress consistently highlights fragility in the industrial base and identifies priority areas requiring investment (DoD, 2023). The GAO has also produced reports on acquisition reform, cybersecurity risks in defense

supply chains, and the challenges of monitoring subcontractor performance (GAO, 2022). Legislative initiatives such as the Defense Production Act and Title III funding mechanisms have been deployed to expand domestic capacity in critical sectors (Johnson, 2020). Moreover, recent National Defense Authorization Acts (NDAA) have emphasized the importance of industrial base resiliency, diversified suppliers, and fostering innovation through partnerships with small and medium-sized enterprises.

Scholarly Perspectives

Scholarly literature provides additional insights into the structural and strategic challenges facing the U.S. DIB. Scholars have examined the tension between efficiency and resilience, noting that acquisition reforms emphasizing cost reductions have often reduced long-term resilience in critical supply chains (Lachow, 2022). Others highlight the role of innovative ecosystems, where collaboration among government, industry, and academia is essential to sustaining technological advantage (Gholz & Sapolsky, 1999). Theories of industrial health also emphasize the need for diversity in firm size and specialization to promote adaptability and responsiveness during crises (Markusen, 1991). Finally, scholars argue that acquisition reform should balance efficiency with flexibility, ensuring that the DIB can withstand shocks while maintaining profitability and competitiveness.

Problem Statement

The U.S. DIB is a critical enabler of national security and warfighting capabilities. Yet, it faces persistent vulnerabilities that threaten its ability to meet current and future defense requirements. Among the most pressing challenges are fragile supply chains, declining profitability for SMEs, and a lack of diversity in the industrial base.

Supply chain vulnerabilities have been highlighted by recent crises, including the COVID-19 pandemic and geopolitical competition with China. Overreliance on foreign sources for critical minerals, rare earths, and microelectronics exposes the United States to strategic risks that could delay or degrade its ability to produce essential defense systems (GAO, 2022, 2024). These dependencies undermine readiness and limit the DoD's capacity to accelerate warfighting capabilities in times of crisis.

Profitability challenges for smaller firms also weaken the DIB (Reuters, 2024) While large prime contractors dominate the market, SMEs often struggle to enter or remain in the defense sector due to long procurement cycles, complex compliance requirements, and limited access to capital (Lachow, 2022). This trend reduces competition and innovation, creating a more brittle industrial base that is less responsive to DoD needs.

Equally concerning is the lack of diversity in the industrial base, both in terms of firm size and regional distribution. The heavy concentration of defense contracts among a few large companies reduces innovation incentives and creates systemic vulnerabilities should one supplier fail. Furthermore, the underrepresentation of new entrants, minority-owned businesses, and nontraditional suppliers limits the diversity of ideas and technologies entering the defense ecosystem (CSIS, 2021).

While policy initiatives such as the Defense Production Act, Title III funding, and annual industrial capabilities reports have sought to address these issues, gaps remain. Current measures are often reactive, narrowly focused, or insufficiently coordinated to produce systemic change (DoD, 2023). A more comprehensive approach is needed to ensure resilience, profitability, and diversity across the industrial base.

This research argues that without addressing these vulnerabilities, the United States risks eroding its ability to accelerate warfighting capabilities in an era of rapid technological

change and great power competition. Strengthening the industrial base is not only an economic or policy concern but a fundamental requirement for sustaining U.S. strategic advantage.

Methodology / Analytical Approach

This study employs a qualitative policy analysis approach to investigate the vulnerabilities of the U.S. DIB and evaluate policy options to strengthen its resilience, profitability, and diversity. The choice of a qualitative framework reflects the complex, multidimensional nature of defense acquisition and industrial base issues, which are shaped by economic, political, and strategic considerations.

Document Analysis

The primary analytical method will be document analysis, drawing from publicly available and government-sourced materials. Key sources will include DoD reports such as the Annual Industrial Capabilities Report to Congress, GAO audits, congressional hearings, and legislative mandates in the NDAA. These documents provide authoritative insights into the state of the DIB, recurring challenges, and policy interventions currently under consideration or implementation. Complementary materials from think tanks (e.g., Center for Strategic and International Studies, RAND Corporation) and scholarly research will be used to contextualize findings within broader debates on acquisition reform, supply chain resilience, and defense economics.

Comparative Case Review

To deepen the analysis, a comparative case review will be conducted across selected issue areas. One case will focus on rare earth element supply chains, which highlight the risks of foreign dependency and illustrate efforts to restore domestic production capacity. A second case will examine SME integration models, exploring both barriers to entry and successful practices that enhance participation. A third case will assess the COVID-19 pandemic's impacts on the DIB, particularly the exposure of supply chain fragility and labor shortages. Together, these cases provide empirical evidence of vulnerabilities and the effectiveness of policy responses under different conditions.

Analytical Framework

The study will apply a structured thematic analysis to identify recurring patterns across documents and cases. Themes such as profitability, diversity, resilience, and innovation will guide data coding and interpretation. By comparing findings across policy documents and cases, the research will assess the extent to which current interventions address systemic weaknesses or leave critical gaps. The goal is to generate actionable policy recommendations that align with the DoD's strategic objective of accelerating warfighting capabilities through a stronger, more adaptive industrial base.

Findings and Analysis

Integrating SMEs and Nontraditional Contractors

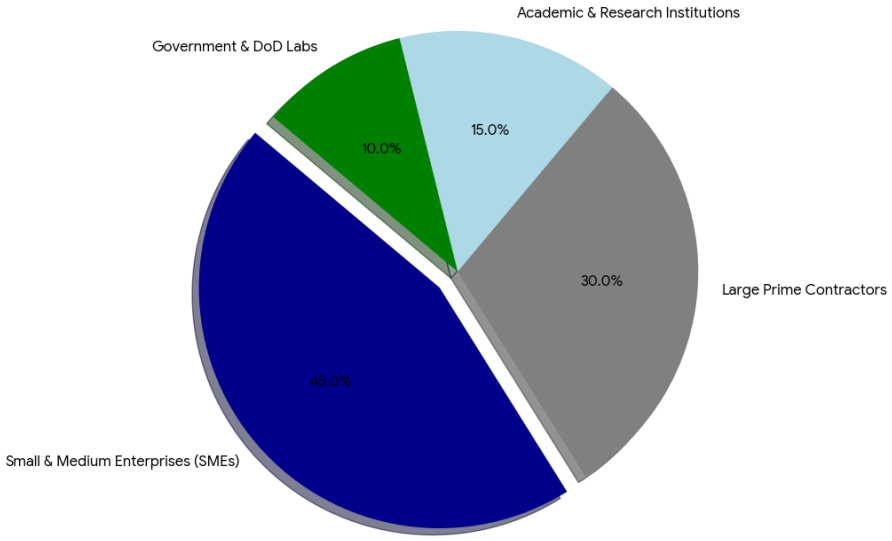
SMEs and nontraditional contractors face persistent barriers in accessing defense contracts. High compliance costs, lengthy procurement cycles, and complex regulatory frameworks often discourage participation (Lachow, 2022). For example, cybersecurity certification requirements under the Cybersecurity Maturity Model Certification (CMMC) framework create additional cost burdens that disproportionately impact smaller firms (GAO, 2022). Furthermore, contracting delays limit SMEs' cash flow, creating conditions that favor larger firms with greater financial resilience.

Benefits of SME Participation

Despite these barriers, SMEs play a critical role in fostering innovation, diversifying the industrial base, and strengthening regional economic ecosystems. Research indicates that SMEs contribute disproportionately to technological innovation, often introducing niche capabilities or dual-use technologies that can be rapidly adapted for defense purposes (Gholz & Sapolsky, 1999). Moreover, greater SME participation increases geographic and sectoral diversity, reducing concentration risks and creating redundancy in the supply chain.

Figure 1 is a pie chart illustrating the different sources of technological innovation that contribute to the defense industrial base. It is designed to visually represent the argument that SMEs are a disproportionately large source of new, game-changing ideas compared to their size.

Figure 1: Primary Sources of Disruptive Innovation in the U.S. Defense Sector



Note: Illustrative breakdown of the primary sources of disruptive technological innovation within the defense ecosystem. The significant contribution from SMEs highlights their critical role in fostering agility and introducing novel capabilities. Percentages are illustrative based on analyses of innovation trends.

Figure 1. SME Participation

Policy Tools

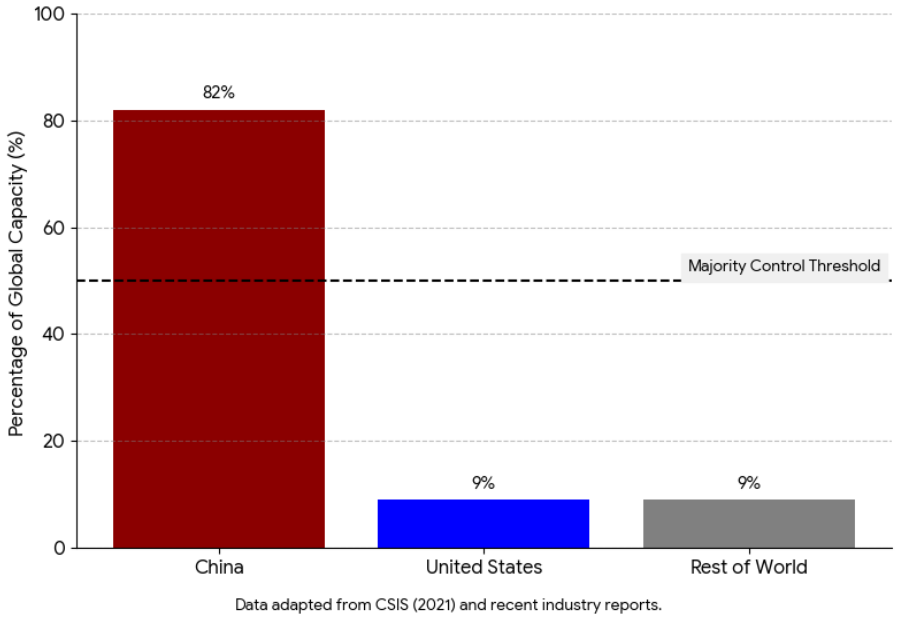
Several policy mechanisms have been designed to facilitate SME integration, including Other Transaction Authorities (OTAs), the Small Business Innovation Research (SBIR) program, and the Small Business Technology Transfer (STTR) program. OTAs, for instance, allow the DoD to bypass some of the bureaucratic hurdles of traditional procurement, encouraging participation by firms that would otherwise avoid defense contracting (Johnson, 2020). SBIR and STTR programs incentivize early-stage innovation and provide a bridge for small firms to scale technologies for defense applications. However, their reach remains limited, and scaling pilot programs into sustained contracts continues to be a challenge.

Incentivizing Reshoring and Securing Supply Chains

Critical Materials

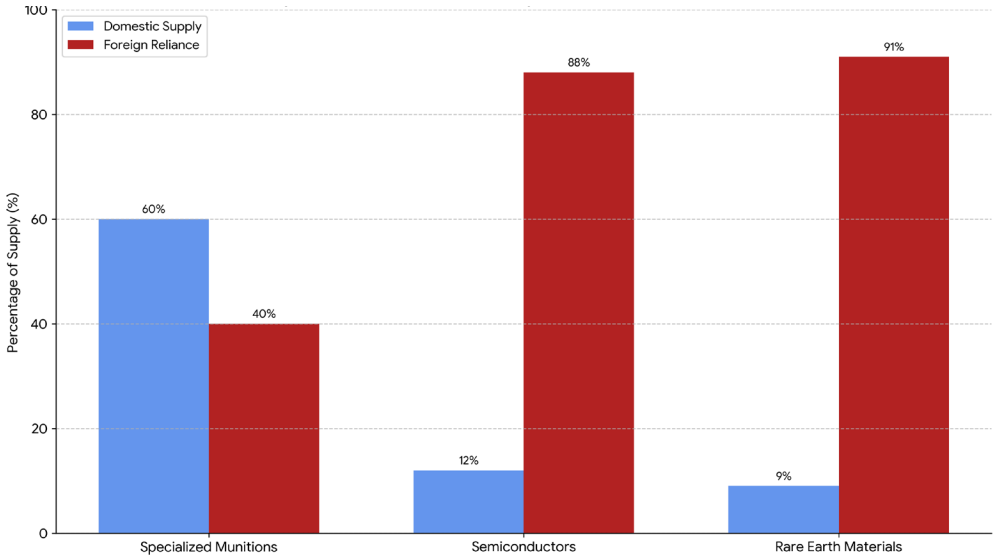
Supply chain fragility is particularly acute in critical materials, such as rare earth elements, semiconductors, and specialized munitions. More than 80% of rare earth processing

capacity remains concentrated in China, creating a strategic vulnerability for U.S. defense production (CSIS, 2021). Similarly, semiconductor shortages during the COVID-19 pandemic disrupted both civilian and defense industries, underscoring the risks of concentrated global supply chains (DoD, 2023).



Note: Comparison of global rare earth element processing capacity. The chart highlights the significant strategic risk posed by the heavy concentration of this critical capability in a single nation. Data adapted from CSIS (2021) and recent industry reports.

Figure 2. Global Rare Earth Processing Capacity



Note: U.S. reliance on foreign suppliers across key defense-related sectors. The chart highlights the acute vulnerabilities in semiconductors and rare earth materials, where domestic supply chains are insufficient to meet critical national security needs. Data is illustrative based on DoD and GAO reports.

Figure 3. Reliance on Foreign Suppliers

Reshoring Initiatives and Challenges

In response, the U.S. government has launched initiatives to reshore critical industries. The CHIPS and Science Act of 2022, for instance, allocated billions in subsidies to expand domestic semiconductor manufacturing. Similarly, the Defense Production Act (DPA) has been invoked to incentivize domestic mining and processing of rare earth elements. Despite these efforts, challenges remain. Reshoring involves significant cost premiums, workforce shortages in advanced manufacturing, and environmental permitting hurdles (Johnson, 2020). These barriers suggest that reshoring cannot be a stand-alone strategy but must be paired with broader resilience-building efforts.

Public–Private Partnerships

Public–private partnerships (PPPs) are increasingly recognized as essential to securing supply chains. For example, collaborative ventures between DoD and private firms in the munitions sector have expanded production capacity while spreading financial risk. PPPs provide mechanisms for shared investment in infrastructure, workforce development, and research, aligning private sector incentives with national security priorities. This approach has also proven useful in rare earth initiatives, where government guarantees and co-investment have helped attract private capital to high-risk ventures.

Balancing Efficiency with Long-Term Resilience

Efficiency vs. Industrial Base Health

A persistent tension in defense acquisition lies between the drive for efficiency and the need for long-term resilience. Policies such as lowest-cost contracting and just-in-time production practices may deliver short-term savings but risk undermining the broader health of the DIB (Lachow, 2022). Excessive reliance on efficiency metrics has led to consolidation among prime contractors, reduced supplier diversity, and created systemic risks in cases of supply disruptions.

Acquisition Reform Debates

Acquisition reform remains a contentious policy area. Advocates for reform argue for reducing bureaucracy, expanding competition, and lowering costs for taxpayers. Critics contend that these approaches, if not carefully calibrated, erode industrial base resilience by discouraging long-term investment in capacity and innovation (Gansler, 2011). For example, while lowest-price technically acceptable (LPTA) contracts are intended to promote competition, they often disincentivize higher-quality or more innovative solutions.

Policy Recommendations

This research suggests that acquisition strategies must better balance cost efficiency with the strategic imperative of resilience. One approach involves adopting “best value” contracting models that weigh long-term readiness alongside price considerations. Additionally, expanding multi-year procurement contracts can provide suppliers with greater predictability, enabling sustained investment in infrastructure and workforce development. Finally, creating resilience metrics—such as supply chain redundancy, geographic diversification, and workforce stability—alongside cost metrics would allow policymakers to make more balanced acquisition decisions.

Expected Research Results

This study anticipates several key findings that will contribute to understanding and strengthening the U.S. DIB. The research is expected to reveal that current policies, while

addressing certain operational needs, remain insufficient to ensure the long-term diversity, resilience, and profitability of the industrial base. Several gaps persist across supply chain management, SME integration, and strategic prioritization of critical industries.

Insufficiency of Current Policies

The analysis will likely demonstrate that existing DoD and federal policies do not adequately incentivize diversity or resilience in the DIB. While instruments such as the DPA, Title III programs, and annual industrial capabilities reports provide targeted support, they often fail to create systemic improvements across supply chains or to integrate non-traditional contractors effectively (DoD, 2023; GAO, 2022). As a result, the industrial base remains concentrated among a few large prime contractors, creating vulnerabilities to geopolitical disruptions, market shocks, and technological bottlenecks.

SMEs and Nontraditional Partners as Underutilized Assets

SMEs and nontraditional contractors are expected to emerge as underutilized assets within the DIB. Their contributions to innovation, flexibility, and regional economic development are not fully leveraged due to barriers such as complex compliance requirements, contracting delays, and limited access to capital (Lachow, 2022). The research will identify mechanisms, including OTAs and the SBIR program, that have been partially successful but remain insufficiently scaled to capture the full potential of smaller firms. By systematically evaluating the role of SMEs, the study will highlight policy opportunities to enhance diversity, competition, and innovation in the DIB.

Reshoring Requires Targeted Incentives

The study anticipates that reshoring initiatives, while necessary for supply chain security, require careful strategic prioritization and targeted incentives. Efforts to repatriate production of critical materials such as rare earth elements, semiconductors, and munitions are often limited by high costs, workforce shortages, and infrastructure gaps (CSIS, 2021; Johnson, 2020). Findings are expected to indicate that reshoring is most effective when paired with PPPs, financial guarantees, and long-term procurement commitments that align private-sector incentives with national security objectives.

Acquisition Policy Beyond Cost Minimization

A critical finding will likely emphasize that acquisition policy must move beyond an exclusive focus on cost minimization. Lowest price contracting models, while efficient in the short term, often fail to account for long-term resilience, supplier diversity, and industrial base sustainability (Gansler, 2011). The research is expected to show that incorporating metrics for supply chain redundancy, SME participation, and technological innovation alongside cost considerations can improve strategic outcomes. “Best value” contracting models and multi-year procurement approaches are anticipated to emerge as viable pathways for balancing efficiency with resilience.

Practical Contributions

The anticipated contributions of this research are practical and actionable. By systematically identifying gaps in policy and evaluating alternative pathways, the study will generate recommendations for DoD policymakers, acquisition professionals, and industrial base stakeholders. These recommendations may include expanding SME integration programs, enhancing PPP frameworks, creating resilience metrics within acquisition strategies, and aligning reshoring initiatives with national security priorities. By providing a structured, evidence-based approach, this research aims to support decision-making that strengthens the industrial base while accelerating U.S. warfighting capabilities.

Discussion

The findings of this study have broad implications for U.S. defense strategy. Ensuring a resilient, profitable, and diverse DIB is not only a matter of economic policy but a critical enabler of national security and warfighting capability. Persistent vulnerabilities—fragile supply chains, limited SME participation, and overreliance on a concentrated set of prime contractors—pose systemic risks that could undermine operational readiness in times of crisis (CSIS, 2021; GAO, 2022).

The risks of inaction are significant. Without strategic interventions, the Unite States may face delayed production of critical systems, reduced innovation, and increased dependence on foreign sources for key materials. In the context of great power competition, such weaknesses could compromise the ability to project power, respond rapidly to contingencies, and maintain technological superiority over adversaries.

The research aligns directly with the symposium theme, Accelerating Warfighting Capabilities. By identifying policy levers to strengthen the DIB, the study demonstrates how industrial base health translates into faster, more reliable delivery of capabilities. Integrating SMEs and nontraditional contractors enhances innovation pipelines, reshoring critical industries secures supply chains, and balancing efficiency with resilience ensures sustainable production capacity. Collectively, these measures support the acceleration of capability development and readiness, providing the U.S. military with a strategic advantage in both peacetime preparation and wartime operations.

Conclusion and Policy Recommendations

This research confirms that the U.S. DIB faces persistent vulnerabilities that threaten warfighting readiness and strategic autonomy. Key issues include supply chain fragility, insufficient SME participation, limited diversity in supplier networks, and acquisition policies that prioritize cost over resilience.

To address these challenges, the following policy recommendations are proposed:

1. Expand SME Integration Programs: Scale OTAs, SBIR/STTR programs, and other mechanisms to ensure sustained participation of small and nontraditional firms.
2. Reshore Critical Industries Strategically: Align reshoring initiatives with PPPs, financial incentives, and multi-year procurement commitments to mitigate risks in critical materials and components.
3. Balance Efficiency with Resilience: Incorporate “best value” contracting, resilience metrics, and long-term planning into acquisition practices to preserve industrial base health while meeting cost objectives.
4. Enhance Diversity and Redundancy: Promote regional distribution, minority-owned business participation, and supplier diversification to reduce systemic risks and foster innovation.

Future research should evaluate the effectiveness of these recommendations through longitudinal studies and comparative analyses with allied defense industrial bases. Policymakers and acquisition professionals are encouraged to adopt these insights to strengthen the DIB, ensuring that the United States maintains a resilient and agile foundation for accelerating warfighting capabilities.

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