Analysis of Section 401: Enhancing Secondary Sources and Supply Chain Management for the Department of Defense

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Key Points: This report analyzes Section 401 of the Forged Act, which establishes a program for enhancing secondary sources and supply chain management within the Department of Defense (DoD). The analysis reveals a historical context of recurring DoD efforts to reform acquisition and strengthen supply chains, with a particular emphasis on second sourcing in the 1980s. The intended effects of Section 401 include a streamlined qualification process for secondary sources, rapid wartime qualification capabilities, and a more robust and adaptable defense supply chain. Potential negative impacts range from quality control challenges and increased risk of counterfeit parts to resistance from original equipment manufacturers (OEMs) and potential for bureaucratic complexity. Mitigation strategies are proposed to address these risks. The implementation of Section 401 will significantly affect various DoD personnel, including the acquisition workforce, engineers, logistics specialists, and contracting officers. Stakeholders who might oppose the provision include OEMs, prime contractors, and potentially some within the DoD acquisition community. Successful implementation will require additional resources in funding, specialized personnel, training programs, and technological infrastructure. The success of the program can be measured through metrics such as the number of qualified secondary sources, reduced lead times, improved part availability, and cost savings. Alternative approaches to achieving similar outcomes include strategic stockpiling, enhanced collaboration with OEMs, and investment in domestic manufacturing capacity. Section 401 introduces specific actions and requirements to enhance secondary sourcing and improve supply chain risk management, which Program Managers should integrate into their program protection and sustainment planning by proactively identifying critical components, leveraging the new qualification processes, and implementing obsolescence management strategies.

History of the Recommendation: The Department of Defense has a long history of attempting to improve its weapon systems procurement and supply chain management processes.[1] Over six decades, numerous initiatives have been undertaken, often in response to specific challenges or periods of perceived inefficiency. The establishment of Federally Funded Research and Development Centers (FFRDCs) during and after World War II illustrates an early recognition of the need for specialized expertise to address complex technological and logistical problems.[2] These centers played a crucial role in bridging the gap between scientific innovation and military application, suggesting a historical precedent for

government-driven solutions to enhance defense capabilities. Similarly, the evolution of the Defense Logistics Agency (DLA), originating in World War II, highlights the continuous efforts to centralize and improve the provision of supplies to the armed forces, adapting to the changing demands of military operations over time.[3] The challenges faced in establishing and refining DLA underscore the persistent need for initiatives like Section 401 to address ongoing vulnerabilities in the defense supply chain and enhance its resilience.

The 1980s marked a period of significant emphasis on second sourcing as a preferred strategy in defense acquisition.[4] Driven by the Competition in Contracting Act and the Packard Commission, this approach aimed to introduce competition, cut costs, and improve the performance and reliability of defense components and major subsystems. The "Great Engine Wars," where the Air Force successfully qualified General Electric as a second supplier for fighter jet engines, serves as a well-known example of the benefits achieved through government-driven second sourcing, resulting in substantial cost savings and improved engine reliability.[4] This historical success provides a strong justification for the renewed focus on second sourcing in Section 401. However, the decline of second sourcing in the 1990s, primarily due to tighter defense budgets and quality issues associated with poorly implemented efforts, offers valuable lessons for the current initiative.[4]

In the post-Cold War era, while second sourcing efforts diminished, the need for a resilient and agile defense supply chain has become increasingly apparent.[4] Factors such as globalization, technological advancements, and evolving geopolitical landscapes have underscored the complexity and strategic importance of effective supply chain management for the DoD.[5] The recent resurgence of interest in second sourcing reflects a growing recognition of its potential to mitigate risks associated with single or sole-source suppliers and to enhance the overall flexibility of the defense industrial base. This renewed focus makes Section 401 a timely and relevant response to contemporary supply chain challenges.

Furthermore, ongoing oversight from bodies like the Government Accountability Office (GAO) has consistently highlighted areas needing improvement in DoD supply chain risk management.[8] These reports often point to vulnerabilities in areas such as information and communications technology (ICT) supply chains, emphasizing the persistent need for more robust management practices. Congressional interest in the Defense Industrial Base (DIB) and related issues of capacity, regulation, and resilience, as noted by the Congressional Research Service (CRS) [12], further indicates a legislative focus on the concerns addressed by Section 401. This alignment of congressional priorities with the objectives of the program suggests a strong potential

for support and oversight during its implementation.

A significant and growing challenge within the defense sector is the increasing problem of electronic component obsolescence.[14] The rapid pace of technological advancement often leads to the discontinuation of components that are still vital for the long lifecycles of military systems. This issue drives up costs, causes delays, and can significantly impact the readiness of defense platforms. The projections of substantial growth in the defense electronics obsolescence management market [15] underscore the critical need for proactive strategies to address this challenge. Therefore, Section 401's focus on secondary sources and obsolescence management is particularly relevant in the context of these increasing pressures.

Desired Effect of the Recommendation: Section 401 of the Forged Act aims to enhance the Department of Defense's supply chain management and the utilization of secondary sources through a comprehensive program. The stated objectives and specific provisions outline several key desired effects.

One primary objective is to establish a streamlined process for secondary source qualification that can be rapidly deployed in both wartime and peacetime conditions. This aims to achieve the desired effect of faster qualification of alternative suppliers, thereby reducing the DoD's reliance on single or sole sources and enhancing the overall flexibility of the supply chain. By having readily available qualified secondary sources, the DoD can better mitigate risks associated with supplier disruptions, whether due to unforeseen events or increased demand during conflicts.

A related objective specifically targets wartime scenarios, aiming to ensure that the qualification process can be completed within weeks, rather than months or years, to maintain operational readiness and support rapid deployment. The desired effect here is an enhanced ability to quickly secure necessary parts and systems during wartime, directly supporting military operations and minimizing delays that could impact mission success. This emphasis on rapid wartime qualification underscores the critical importance of agility and responsiveness in times of conflict.

Furthermore, the program seeks to maintain a robust and flexible supply chain that adopts advanced manufacturing techniques and can quickly adapt to changing conditions and requirements. This objective aims for the desired effect of increased resilience and adaptability within the defense supply chain. By embracing innovative manufacturing approaches and fostering the ability to respond to evolving needs, the DoD can better prepare for future challenges and ensure the long-term sustainability

of its supply chain.

Beyond these overarching objectives, the specific actions and requirements outlined in Section 401 contribute to several other desired effects. The mandate to establish policy, regulations, and guidance for enhancing secondary source utilization is intended to create clear and standardized procedures across the DoD for identifying, qualifying, and utilizing alternative suppliers. Defining the standards for qualification, testing, evaluation, and airworthiness determinations for secondary sources will lead to the desired effect of establishing clear benchmarks to ensure the quality and reliability of parts and systems obtained from these sources. This addresses potential concerns about the performance and safety of non-original components.

The requirement to create prepackaged templates, including Source Approval Requests (SAR) and Parts Manufacturer Approval (PMA), for various categories of parts and systems aims to achieve the desired effect of streamlined administrative processes for secondary source approval. These templates will simplify the application and review process, reducing bureaucratic hurdles and accelerating the qualification timelines for new suppliers. Addressing part availability problems, obsolescence management, and supply chain cost inflation is intended to have the desired effect of improving the availability of critical parts, proactively mitigating the challenges of obsolescence, and ultimately reducing costs throughout the defense supply chain. These are fundamental challenges that Section 401 directly seeks to resolve, impacting readiness, sustainability, and affordability.

Subsection (c) provides a detailed roadmap for achieving a more efficient, flexible, and responsive qualification process. This includes encouraging the delegation of material review board authorities, implementing commercial processes and procedures, pre-qualifying vendors for safety-critical items, ensuring timely notification of approval decisions, establishing processes for the qualification of advanced manufacturing, considering alternative materials, allowing for system-level qualification, streamlining the approval authority, and minimizing the need for military-unique specifications. The collective desired effect of these provisions is a modernized qualification system that leverages commercial best practices, empowers contractors, and reduces unnecessary reliance on overly specific military standards.

The focus on transition planning incorporating ASME Y.14.24 standards aims for the desired effect of standardized and comprehensive procedures for transitioning design authority. This ensures continuity and efficient transfer of technical knowledge when introducing secondary sources, addressing the complexities of managing design changes and intellectual property. The strategies for part availability and

obsolescence management, including improved inventory tracking and pre-qualification of alternative sources (including FAA-certified parts), are intended to lead to the desired effect of reduced part shortages, improved forecasting of obsolescence, and access to a wider range of potential suppliers. These strategies directly tackle the challenges of maintaining aging systems and ensuring the availability of critical components.

Cost management measures, such as regular benchmarking against commercial sector costs and cost-benefit analyses, aim to achieve the desired effect of identifying cost inefficiencies and opportunities for cost reduction within the defense supply chain. This emphasizes fiscal responsibility and value for money in secondary sourcing initiatives. The mandate for more effective waiver procedures for business rules, allowing for alternative design reviews and clear decision-making roles, is intended to provide increased flexibility and agility in navigating bureaucratic processes and adopting innovative solutions.

The proposed licensing royalty plan seeks to incentivize Original Design Activities (ODAs) and Current Design Activities (CDAs) to cooperate in secondary source development by providing fair compensation for intellectual property use, thereby facilitating access to necessary technical data. The establishment of an engineering workforce development program aims to equip the DoD workforce with the skills necessary to effectively plan and execute secondary sourcing initiatives. The cost savings exemption intends to enable quicker adoption of alternative sources in critical situations without being immediately constrained by cost savings requirements, prioritizing operational needs and readiness. Requiring Level of Repair Analysis (LORA) to consider non-economic factors aims for more comprehensive repair or replacement decisions that account for battlefield realities and supply chain disruptions. Finally, the exemptions from certain mishap investigations and liability protections for approval authorities are intended to encourage innovation and risk-taking in the development and approval of secondary sources for non-safety critical items.

Potential Negative Impacts of the Recommendations: While Section 401 holds significant promise for enhancing the DoD's supply chain, its implementation could also lead to several unintended negative consequences if not carefully managed.

One potential negative impact is the challenge of maintaining consistent quality control standards as the program expands the use of secondary sources. While the Act mandates the definition of qualification standards, the sheer volume of new suppliers and the emphasis on rapid qualification, especially during wartime, could

strain existing quality control processes. This could potentially lead to inconsistencies in the quality and reliability of critical parts and systems, increasing the risk of failures and impacting operational readiness.

Expanding the pool of suppliers, particularly if it involves less stringent vetting processes in the pursuit of speed, could also increase the risk of counterfeit parts entering the defense supply chain. The GAO has previously highlighted concerns about counterfeit parts in the DoD's ICT supply chain [8], indicating that this is a broader vulnerability. A significant increase in the number of secondary sources could inadvertently create more opportunities for substandard or counterfeit components to infiltrate military equipment, potentially compromising system performance, safety, and national security.

The ambitious scope of Section 401, encompassing policy development, template creation, enhanced qualification processes, and workforce training, could place a significant strain on the existing DoD workforce and resources. While subsection (i) acknowledges the need for workforce development, the scale of the effort required to effectively implement all aspects of the program might be underestimated. Insufficient personnel or inadequate funding could hinder the program's success and lead to delays or incomplete implementation.

The provisions in Section 401 that promote secondary sourcing and mandate royalty payments for intellectual property could be met with resistance from Original Equipment Manufacturers (OEMs). OEMs might perceive this as a threat to their market dominance and profitability, potentially leading to reluctance to share technical data or cooperate with the qualification of secondary sources. This lack of cooperation could impede the program's effectiveness in identifying and qualifying viable alternative suppliers.

The emphasis on rapid wartime qualification, while crucial for maintaining operational readiness, could create pressure to expedite the qualification process to such an extent that the thoroughness of testing and evaluation, especially for safety-critical and mission-critical components, is compromised. Striking the right balance between speed and rigor will be essential to avoid compromising the reliability and safety of military equipment during critical times.

Despite the intention to streamline processes through the creation of new policies, regulations, guidance, templates, and waiver procedures, there is a risk that the sheer volume of new requirements could inadvertently add another layer of complexity and bureaucracy to the acquisition process. If not carefully designed and implemented

with a focus on user-friendliness and efficiency, these new processes could become cumbersome and hinder the very agility and responsiveness the program aims to achieve.

Finally, the cost savings exemption, intended to facilitate rapid sourcing in critical situations, could be susceptible to abuse if not accompanied by clear guidelines, robust oversight mechanisms, and strong accountability measures. Without proper controls, this exemption could potentially lead to the adoption of secondary sources that are not truly the best value or necessary, potentially wasting resources without significantly enhancing supply chain resilience.

Mitigations the Organization Will Take to Diminish the Negative Impacts: To mitigate the potential negative impacts identified, the DoD should proactively implement several key strategies.

To address the risk of compromised quality control, the DoD should implement rigorous and multi-layered quality assurance processes for all secondary sources. This includes enhanced testing, inspection, and certification procedures, potentially leveraging independent third-party evaluations where appropriate. Building upon existing quality control frameworks and incorporating lessons learned from past second sourcing initiatives, particularly regarding quality issues encountered in the 1990s [4], will be crucial.

To counter the increased risk of counterfeit parts, the DoD must implement robust counterfeit detection and prevention measures. This should include the adoption of advanced counterfeit detection technologies and processes, enhanced supplier vetting procedures, stringent part traceability measures, and close collaboration with industry partners and law enforcement agencies to identify and prevent the introduction of counterfeit components into the defense supply chain. Leveraging best practices from the commercial sector and incorporating guidance from GAO reports on supply chain risk management [8] will be essential in this effort.

To manage the potential strain on workforce and resources, a phased implementation approach should be adopted. This involves starting with less complex parts and systems to allow for learning and refinement of processes before scaling up. Simultaneously, it is critical to ensure that adequate resources, including personnel with the necessary expertise, sufficient funding, and appropriate infrastructure, are allocated to support the program's requirements. A gradual rollout will enable the DoD to build expertise and address challenges proactively.

To mitigate potential resistance from OEMs, the DoD should engage in proactive dialogue and foster collaboration. This includes clearly communicating the intent of the licensing royalty plan and exploring opportunities for mutually beneficial partnerships in secondary sourcing. Transparency and open communication can help alleviate concerns and encourage cooperation.

To balance the need for rapid wartime qualification with the imperative of thoroughness, a risk-based approach should be developed. This involves prioritizing speed for non-safety-critical items while maintaining rigorous testing and evaluation standards for safety-critical and mission-critical components. Leveraging the pre-qualification of vendors for critical items, as outlined in subsection (c)(3) of Section 401, can also contribute to a more efficient yet thorough process.

To prevent the program from becoming overly complex and bureaucratic, the design of new policies, regulations, guidance, and templates should prioritize user-friendliness. Seeking continuous feedback from the acquisition workforce during the development and implementation phases will be vital to identify and address any unintended complexities or bureaucratic hurdles. Regular review and adaptation of these processes will be necessary to ensure the program remains efficient and effective over time.

Finally, to prevent the potential for abuse of the cost savings exemption, the DoD must establish clear and specific guidelines for its use. This should include rigorous justification requirements, independent review processes, and strong accountability mechanisms to ensure that the exemption is used appropriately and in the best interest of the DoD, prioritizing critical needs without compromising value.

DoD Personnel Most Affected: The implementation of Section 401 will have a significant impact on various personnel within the Department of Defense.

The **Acquisition Workforce**, broadly defined, will be at the forefront of this program. This includes Program Managers who will be responsible for integrating secondary sourcing into their program strategies, Contracting Officers who will need to adapt their procurement practices, Engineers who will be involved in the technical evaluation and qualification of alternative sources, and Logistics Specialists who will manage the integration of these sources into the supply chain. Subsection (c)(4) of Section 401 explicitly mentions the notification of approval decisions to requesting members of the acquisition workforce, highlighting their direct involvement. Furthermore, the engineering workforce development program outlined in subsection (i) specifically targets government engineers, manufacturing or repair staff, and software developers,

indicating the critical role of technical personnel in the success of this initiative.

Engineers and Technical Staff will play a vital role in the technical evaluation, testing, and qualification of secondary sources. This includes conducting airworthiness determinations and ensuring that alternative parts and systems meet the stringent performance and safety standards required by the DoD. They will be instrumental in developing and utilizing the prepackaged templates and in ensuring compliance with the defined qualification standards. The workforce development program established under subsection (i) is specifically designed to enhance their skills in these critical areas.

Logistics and Supply Chain Management Personnel will be directly responsible for implementing the strategies aimed at improving part availability and managing obsolescence. This will involve implementing improved inventory tracking systems, identifying and pre-qualifying alternative sources, and developing proactive obsolescence management strategies. They will also be involved in cost management activities, such as conducting regular benchmarking and cost-benefit analyses, and in the implementation of Level of Repair Analysis (LORA) that considers non-economic factors.

Contracting Officers will need to adapt their contracting practices to incorporate the new policies and procedures for engaging with secondary sources. This will include navigating the licensing royalty plan for intellectual property and understanding and utilizing the more effective exception or waiver procedures for business rules. Their role in establishing contracts with qualified secondary sources will be crucial for the program's success.

Material Review Boards (MRBs) will also be affected, particularly with the encouragement and support for the delegation of their authorities, processes, and approvals to contractors or subcontractors for non-safety critical items. This shift in responsibility will likely require training and guidance on the new processes and the scope of their delegated authority.

Finally, **Legal Counsel** within the DoD will be involved in interpreting and implementing the new policies and regulations established under Section 401. Their expertise will be particularly important in navigating issues related to intellectual property rights, the licensing royalty plan, and the liability protections provided to approval authorities.

Stakeholders Opposed and Rationale for Opposition: The implementation of

Section 401, while intended to benefit the DoD, may face opposition from certain stakeholders due to potential impacts on their interests.

Original Equipment Manufacturers (OEMs) are likely to be significant stakeholders who might oppose the program. Their primary rationale for opposition stems from concerns about a potential reduction in their market share as the DoD increasingly turns to secondary sources for parts and systems. The licensing royalty plan, which mandates fair and reasonable royalty payments for the use of their intellectual property, might be viewed as an infringement on their rights and a potential decrease in their profitability. Furthermore, OEMs might raise concerns about the quality and reliability of parts produced by secondary sources, arguing that these could negatively impact the performance and safety of their original designs, thereby damaging their brand reputation.

Established Prime Contractors could also oppose the increased emphasis on secondary sourcing. These large contractors often have well-established and tightly controlled supply chains. The requirement to identify, qualify, and integrate new secondary sources into their existing processes could be perceived as adding complexity, increasing risks, and potentially disrupting their established relationships with current suppliers. They might also prefer to maintain greater control over their supply chains and be hesitant to share technical requirements or rely on external sources that they do not directly control.

Industry Associations that represent OEMs and prime contractors are also likely to voice opposition to Section 401. These associations typically advocate for policies that protect the interests of their member companies. They may lobby against provisions they perceive as detrimental to their members' market position, profitability, or intellectual property rights. Their arguments will likely mirror the concerns raised by the OEMs and prime contractors themselves, emphasizing potential risks to quality, safety, and the existing defense industrial base.

Finally, there might be some within the **DoD Acquisition Community** who could oppose the program. Resistance could arise from individuals who are accustomed to existing processes and procedures and are hesitant to adopt new approaches. They might perceive the new program as adding more complexity or risk to their responsibilities. Additionally, some acquisition professionals may have long-standing relationships with established suppliers and might be reluctant to embrace new, potentially less familiar, secondary sources. Concerns about the increased workload associated with implementing the new qualification processes, developing new templates, and overseeing a broader supplier base could also contribute to opposition

within the DoD.

Additional Resources: Successful implementation of the program established under Section 401 will necessitate the allocation of several additional resources to the Department of Defense.

Funding will be a critical requirement. Significant upfront investment will be needed to establish the program infrastructure, including the development of new policies, regulations, guidance documents, and prepackaged templates. The implementation of the licensing royalty plan will also require dedicated funding mechanisms to ensure fair and timely payments to ODAs and CDAs. Furthermore, ongoing financial support will be essential for the engineering workforce development program, the enhanced qualification and testing activities required for secondary sources, the implementation of improved inventory tracking systems, and the continuous cost benchmarking and analysis mandated by the Act. The administration of the new waiver procedures will also likely require dedicated resources.

Personnel with specialized expertise will be crucial for the program's success. This includes individuals with in-depth knowledge of supply chain management best practices, advanced manufacturing techniques (such as additive manufacturing), intellectual property law, contract law, quality assurance methodologies, and counterfeit detection technologies. The increased workload associated with identifying, qualifying, and managing a larger pool of secondary sources may also necessitate an increase in the overall number of acquisition professionals, engineers, and logistics specialists within the DoD. Additionally, dedicated personnel will be required to develop and deliver the comprehensive training programs outlined in subsection (i) for the engineering workforce.

Training will be essential to ensure that the DoD workforce has the necessary skills and knowledge to effectively implement the program. Comprehensive training programs will need to be developed and delivered to the acquisition workforce, engineers, technical staff, logistics personnel, and contracting officers. This training should cover all aspects of the new program, including secondary source qualification processes, testing and evaluation procedures, airworthiness determinations, intellectual property rights, the application of the licensing royalty plan, and the proper use of new systems and tools.

Finally, **Technological Infrastructure** will need to be enhanced to support the program's objectives. The implementation of improved inventory tracking systems will likely require investment in new or upgraded IT infrastructure and software solutions.

The development and management of the prepackaged templates and the licensing royalty plan may also necessitate the adoption of new software platforms or enhancements to existing systems. Furthermore, the integration of advanced counterfeit detection technologies into existing quality assurance processes might require the acquisition of specialized equipment and software.

Measures of Success: The Department of Defense can measure the success and effectiveness of the program established under Section 401 through a variety of metrics.

A primary indicator of success will be the **increased number of qualified secondary sources** for critical parts and systems. Tracking the growth in the number of alternative suppliers that meet the DoD's stringent qualification standards will demonstrate the program's effectiveness in diversifying the supply base.

Another key measure will be the **reduction in lead times for parts acquisition**, particularly for critical components and during periods of high demand or supply chain disruptions. A decrease in the time required to obtain necessary parts from secondary sources will indicate improved responsiveness and agility.

The program's impact on **part availability rates** will also be a critical metric. Monitoring the availability of critical parts and systems and aiming for a significant improvement will demonstrate the program's success in mitigating shortages and ensuring operational readiness.

A reduction in **obsolescence-related issues** will be another important indicator. Tracking the decrease in instances where mission-critical systems are unavailable due to the lack of obsolete components will highlight the effectiveness of the program's obsolescence management strategies.

Cost savings achieved through the use of secondary sources will be a significant measure of the program's efficiency. This should be tracked by comparing the costs of parts obtained from secondary sources against those from original sources, while also accounting for the costs associated with qualification and implementation. The regular benchmarking of part costs against commercial sector costs, as mandated in subsection (f) of Section 401, will provide valuable data for this metric.

The program's ability to expedite sourcing during critical times can be measured by **faster wartime qualification times**. Tracking the time taken to qualify secondary sources during wartime or contingency operations and comparing it against the

objective of qualification within weeks will be crucial.

The extent to which the program encourages innovation can be assessed by monitoring the **increased use of advanced manufacturing techniques** by secondary sources within the defense supply chain. This will indicate the program's success in fostering a more technologically advanced and adaptable industrial base.

Ultimately, the program's success will be reflected in **improved operational readiness rates** of key defense systems. An increase in the overall readiness of military platforms and equipment will demonstrate the positive impact of enhanced secondary sourcing and supply chain management.

Qualitative feedback from the **acquisition workforce** will also be valuable. Regularly soliciting feedback on the ease of use and effectiveness of the new policies, procedures, and templates will provide insights into the practical implementation of the program and identify areas for improvement.

Finally, the success of the transition planning aspects of the program can be measured by tracking the **number of successful transitions from ODA to CDA** that are planned and executed using the standardized templates provided under subsection (d) of Section 401.

Alternative Approaches: While Section 401 proposes a comprehensive approach to enhancing secondary sourcing and supply chain management, several alternative strategies could also be considered to achieve similar outcomes.

One alternative approach is **strategic stockpiling**. Instead of solely focusing on identifying and qualifying secondary sources, the DoD could increase its strategic reserves of critical, long-lead-time components. This approach could provide a buffer against immediate supply chain disruptions. However, it can be costly to maintain large stockpiles, and it might not effectively address the long-term challenges of component obsolescence.

Another approach could involve **enhanced collaboration with OEMs**. Rather than directly promoting secondary sources, the DoD could focus on strengthening its partnerships with original equipment manufacturers. This could involve offering incentives for OEMs to improve their responsiveness, increase their production capacity, and proactively manage obsolescence within their own supply chains. Encouraging OEMs to develop alternative sourcing options within their existing networks could also be a beneficial strategy.

Investing in domestic manufacturing capacity represents another alternative. The DoD could implement policies and incentives aimed at encouraging the development and expansion of domestic manufacturing capabilities for critical defense components. This would reduce reliance on foreign sources and potentially mitigate the risks associated with single or sole suppliers located overseas.

Promoting **modular design and open architectures** in defense systems could also offer a pathway to greater supply chain flexibility. Designing systems with interchangeable, modular components and adhering to open architecture standards would make it easier to integrate alternative parts and technologies from various sources, reducing dependence on specific suppliers. As noted in snippet [16], modular design can lead to long-term cost savings on replacement parts.

Finally, the DoD could invest more heavily in **advanced forecasting and predictive analytics tools**. These technologies can help to better anticipate potential supply chain disruptions and component obsolescence issues, allowing for more proactive mitigation strategies. Snippet [16] highlights the benefits of using predictive analytics for obsolescence forecasting, suggesting that this approach could complement the strategies outlined in Section 401.

Section Specific Question 1: What specific actions, programs, or requirements does Section 401 introduce to enhance secondary sourcing or improve supply chain risk management (SCRM)? How should Program Managers integrate these into their program protection and sustainment planning?

Section 401 introduces numerous specific actions, programs, and requirements designed to enhance secondary sourcing and improve supply chain risk management (SCRM) within the Department of Defense. To enhance secondary sourcing, the section mandates the establishment of policy, regulations, and guidance; the definition of qualification, testing, evaluation, and airworthiness determinations for secondary sources; the creation of prepackaged templates for approvals; and the development of strategies to address part availability problems and obsolescence. It also outlines streamlined qualification processes for both peacetime and wartime, including the potential delegation of material review board authorities, the implementation of commercial processes, and the pre-qualification of vendors for critical items. Further enhancements include specific pathways for the qualification of advanced manufacturing techniques, the evaluation of alternative materials, the possibility of system-level qualification, the streamlining of approval authority, and the minimization of military-unique specifications. Additionally, Section 401 requires transition planning incorporating ASME standards, the implementation of strategies

for part availability and obsolescence management including improved inventory tracking and pre-qualification of alternative sources, the establishment of a licensing royalty plan, the creation of an engineering workforce development program, and a cost savings exemption to facilitate the adoption of alternative sources in critical situations.

To improve supply chain risk management (SCRM), Section 401 inherently promotes diversification of sources by emphasizing secondary sourcing, which reduces reliance on single or sole suppliers. The proactive strategies for obsolescence management directly mitigate the risk of critical parts becoming unavailable. The pre-qualification of vendors enhances supply chain reliability by establishing vetted alternative suppliers. Improved inventory tracking allows for better visibility and management of potential shortages. Finally, the requirement for Level of Repair Analysis (LORA) to consider non-economic factors like battle damage repair and supply chain disruption contributes to a more resilient approach to logistics.

Program Managers should integrate these aspects of Section 401 into their program protection and sustainment planning by first identifying critical components within their systems that are sole-sourced or face a high risk of obsolescence. They should then proactively leverage the streamlined qualification processes and prepackaged templates provided by the program to identify and qualify secondary sources for these components. When considering secondary sources that involve changes in design authority, Program Managers must utilize the standardized transition planning templates and guidelines. They should also actively incorporate the program's obsolescence management strategies, including improved inventory tracking and the identification of alternative sources, into their long-term sustainment plans. Furthermore, Program Managers should explore the potential of alternative materials and advanced manufacturing techniques as viable sourcing options, utilizing the qualification pathways established under Section 401. Encouraging their team members, especially engineers and logistics personnel, to participate in the engineering workforce development program will enhance their capacity to effectively implement secondary sourcing initiatives. In situations where mission readiness is at risk due to part unavailability, Program Managers should understand and be prepared to strategically utilize the cost savings exemption to expedite the adoption of alternative sources. Finally, they must ensure that Level of Repair Analyses for their programs comprehensively consider non-economic factors, including potential supply chain disruptions, to inform more resilient repair and replacement decisions.

Section Specific Question 2:

Summary: Section 401 of the Forged Act represents a significant initiative to enhance secondary sourcing and strengthen supply chain management within the Department of Defense. By establishing a comprehensive program with clear objectives and specific requirements, it aims to create a more resilient, responsive, and cost-effective defense supply chain. The historical context reveals a long-standing need for such reforms, with past efforts offering valuable lessons for successful implementation. While the potential benefits of Section 401 are substantial, including a streamlined qualification process, rapid wartime sourcing capabilities, and improved part availability, potential negative impacts such as quality control challenges and resistance from OEMs must be carefully addressed through proactive mitigation strategies. The successful implementation of this program will require a concerted effort involving various DoD personnel, supported by adequate funding, specialized expertise, comprehensive training, and enhanced technological infrastructure. Measuring the program's success through defined metrics will be crucial for ensuring its effectiveness and making necessary adjustments over time. While alternative approaches exist, Section 401 provides a robust framework for achieving its intended goals, provided that it is implemented effectively and with ongoing oversight. Program Managers play a critical role in integrating the provisions of Section 401 into their program protection and sustainment planning to maximize its benefits for the DoD.

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