



Measuring and Managing Army Supply Chain Risk

A Quantitative Approach by Item Number and Commercial Entity Code

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Army Materiel Command (AMC) executives are concerned that a decrease in orders to suppliers for repair parts could raise the risk that either the suppliers will shift production or fail, potentially disrupting the Army's supply chain. This report presents a process and methodology for determining supply chain risk by repair part, supplier, and weapon system, and the supply chain risk factors that are critical to AMC.



RESEARCH QUESTIONS

- Which supply chain risks are most critical to the Army?
- How can the Army assess supply risk by weapon system and supplier?
- How can the Army reduce the likelihood and impact of supplier failure?
- How can the Army reduce risks stemming from its contracting processes?



KEY FINDINGS

To identify supply chain risks most critical to the Army, RAND convened a workshop with AMC's Strategic Sourcing Working Group. The workshop identified the top three risks as demand fluctuation, funding uncertainty, and long lead-times. RAND found additional risks, such as lack of technical drawings, expired contracts, unpredictable demand patterns, reparability, whether the NIIN is sole-sourced, and whether the NIIN has downed a weapon system overnight.

Based on the identified risks, RAND developed a measure of supply chain risk by NIIN for 9,300 repair parts. RAND found that only a few hundred of the 9,300 parts analyzed have much risk, mainly because of the large inventory on hand.

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RAND then used the NIIN risk measure to develop measures of supply chain risk by weapon system and supplier, by summing risk over all NIINs for each weapon system and supplier, combined with other factors associated with the weapon system and supplier.



RECOMMENDATIONS

- To be able to assess which risks are most critical to the Army, and to assess supply risk by weapons system and supplier, RAND recommends that AMC develop a tool with the methodology described in this report.
- To reduce the likelihood and impact of supplier failure, the Army should develop risk mitigation strategies for high-risk suppliers. Such strategies include identifying parts with no technical drawings and determining whether they should be developed, seeking new sources of supply, examining whether a part should be repaired, and assessing whether a supplier has contingency plans for natural hazards. Consider initiating an “internal supplier management” process, to improve demand planning and forecasting, and to reduce internal lead-times, especially for riskiest suppliers. For repairables, assess whether the repair cycle can be improved; for nonrepairables, assess whether the NIIN could be made repairable. This approach complements AMC’s strategic sourcing initiative by concentrating management attention on larger volume and value suppliers.
- To reduce risks stemming from its contracting processes, the Army should examine the high risk NIINs, and determine whether a new contract is needed. The administrative lead time for contracting can be quite long and variable, risking depletion of inventory. This risk can be mitigated by monitoring expected years of supply, and pre-emptively making requests for proposals and other long lead time contracting process steps.

