Twenty-First Century Defense Acquisition: Challenges and Opportunities

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This article is the first in a series that will examine the complexities associated with defense acquisition decision-making in the twenty-first century. Budget constraints, political dynamics, cooperative alliances, and changing requirements pose particular—and often unique—challenges. This series of articles is intended to offer systemic "models" for effecting good acquisition decisions, provoke new ideas, and encourage dialogue across national borders on matters of defense acquisition. This first article examines the use of a formal acquisition strategy methodology as a means of reducing uncertainty in defense acquisition decision-making and selecting the best alternative toward achieving a capability.

Introduction: Defense Planning

Globalization, the emergence of new and changing threats, the devolution of central planning, and continuing reliance on aging weapon systems pose particular challenges for ministries of defense, armaments authorities, and armed forces around the world. Their quest to optimize the capabilities of their national armed forces given budget limitations, aging weapon systems platforms, and newly (or poorly) defined capabilities requires a disciplined approach with which to analyze alternatives that can satisfy validated military capabilities. And all this must be done in an operating environment that demands a tightrope balance between cost, schedule, performance, and risk.

While national interests generally form the primary basis for identifying defense acquisition strategies, the importance of coalitions cannot be overlooked in the strategy development phase. The Partnership Action Plan on Defense Institution Building (PAP-DIB) is an example of a forum that creates an opportunity for cooperation in the analysis of common threats, gaps in needed capabilities, and potential multi-party defense acquisition solutions. Joint acquisition strategy development can have a profound impact on interoperability, supply chain management, and life-cycle cost.

The shift to a focus on affordability over the entire lifespan of weapons systems, coupled with capability-driven solutions, requires a new mindset. It also demands different ways of thinking about what to buy and how to buy it.

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Of particular importance in effecting good acquisition strategy development is understanding and recognizing the interrelationship between the three primary systems supporting decision-making. The identification and implementation of an acquisition strategy requires that an operational requirement (needed capability) be clearly defined and validated, and that funding be identified to meet the required capability. Figure 1 depicts the three decision support systems.

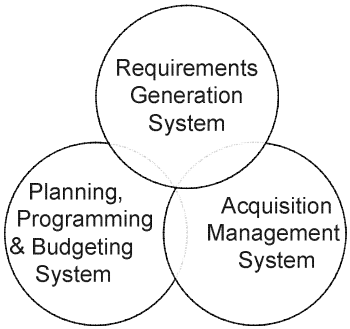

Figure 1: Decision Support Systems

The decision to buy a weapon system—that is, to adopt a materiel solution to acquiring a needed capability—requires a disciplined approach toward developing a well thought out and integrated acquisition strategy. This strategy identifies options and shortlists the best options in stated areas such as logistics support, competition, etc.

The defense planning model of the Ukrainian Armed Forces is depicted in Figure 2. This model demonstrates the importance of coordination among the decision support systems. Effective acquisition strategies require early identification and commitment of appropriate levels of resources, including manpower and knowledge. The first step in the acquisition strategy model is the identification of the resources necessary to develop a comprehensive acquisition strategy.

Within the context of acquisition strategy development, a common problem many nations face centers upon the identification of the operational requirements. Solutions are often identified before the problem statement is fully articulated. Consequently, little or no meaningful consideration is given to the various options available to meet a stated operational capability. The mindset is “business as usual.” But the reality is that budget constraints, political dynamics, and other influences will no longer permit a “business as usual” mentality.

As a hypothetical example, consider the fictitious island nation of Cambria. For the last twenty years, Cambria’s armed forces have relied on its fleet of four rotary aircraft

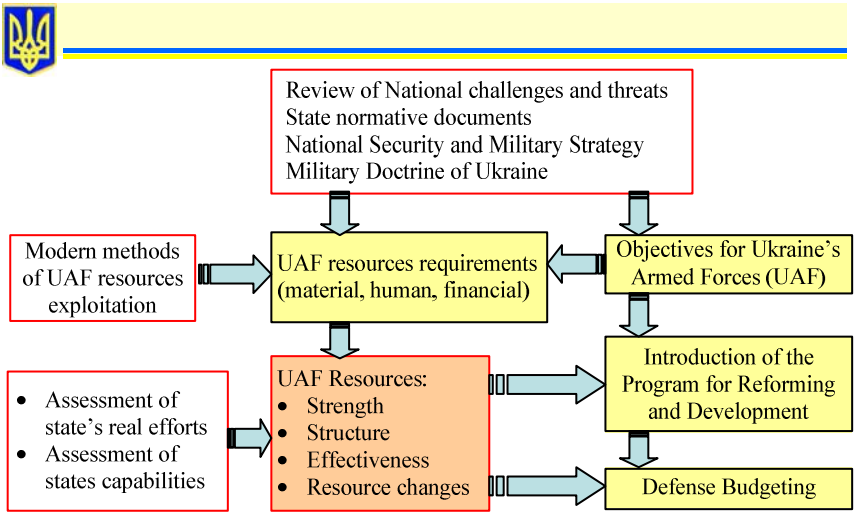

Figure 2: Ukrainian Armed Forces (UAF) Strategic Defense Model

to patrol its borders. The age of the aircraft has significantly reduced the Cambrian military's mission capability, and a decision is made to replace the aging fleet of helicopters. Further examination of alternatives would reveal other solutions; however, buying "new" helicopters is a pre-supposed solution. But even a quick analysis of alternatives would reveal other possible options: patrol boats, unmanned aerial vehicles, unmanned underwater vehicles, and perhaps others as well. To mitigate and perhaps avoid the temptation to pre-suppose a solution, a structured approach toward identifying and analyzing alternatives and selecting the best *strategy* forms the basis for a well-grounded way ahead.

Acquisition Strategy

An acquisition strategy is a capabilities-based solution that is grounded in a thorough analysis of alternatives. It is the "helicopter view" of the path toward progress in defense planning. The helicopter view is recognized as the top level view of what needs to be done. The Cambrian view is an example of the results of taking a helicopter view. It provides decision makers with necessary top-level information with which to balance risks against cost constraints, schedule requirements, and performance needs. A methodology to identify acquisition strategies requires identification of possible solutions, evaluation of the most feasible candidates, and the selection of an overall strategy that optimizes the "integrated" outcome of the acquisition process. The focus must be at the systems level, so that affordability and feasibility across the anticipated system's lifecycle are considered. It is tempting to focus only on the actual procurement

cost of a weapon system; however, to do so presents decision makers with a flawed analysis. The entire life cycle of a weapon system includes maintenance and support costs that can build significant financial obligations into the operations and support phases of the acquisition. A top-level acquisition strategy must be based on the integration of supporting strategies in pre-defined elements. Those elements, or supporting strategies, include a competition supporting strategy, sourcing supporting strategy, life cycle supporting strategy, and others. Collectively, each supporting strategy contributes to the top-level acquisition strategy. Integrating the supporting strategies ensures that important considerations—such as training, maintenance, competitive sourcing, etc.—are not overlooked when a decision is made regarding the best overall strategy.

In acquisition strategy development, a team of knowledgeable practitioners:

1. Identify the most likely high-level strategies in important elements (e.g., sourcing, competition, logistics, etc.)
2. Identify core strategies within each high-level strategy
3. Define, research, describe, and compare core strategies
4. Select the optimal strategy for each high-level strategy and integrate those optimal strategies to ensure that they complement rather than conflict with one another
5. Assess the risks and opportunities that the integrated optimal strategies pose

We can describe acquisition strategy development as a structured decision-making process in which each phase in the process forms the foundation for subsequent phases. The end result is a recommended acquisition strategy that considers all of the important elements of the acquisition, including sourcing, costs, logistics, technology, and national interests. Each phase consists of input, throughput (or process), output, and outcome for each phase in the acquisition strategy development (see Figure 3). The input consists of all the stated requirements, resources, etc; the process turns the input into some stated output, e.g. a competition element strategy; and the output results in an outcome—for instance, international competition—that results in a better solution.

At a minimum, strategies must be developed for the following elements:

- Sourcing (e.g., whole life, procurement only, lease versus buy, etc.)
- Competition (e.g., international competitive bidding, national competitive bidding, limited competition, directed sourcing)

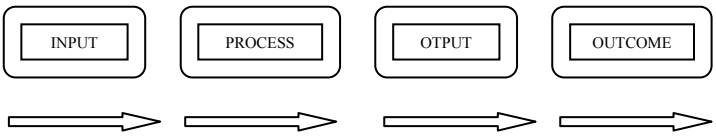

Figure 3: A Phase in the Acquisition Strategy Development

- Logistics (organic or commercial)
- Pricing (cost to buyer or cost to the supplier)

Additional acquisition strategies may be developed for quality, data and information, economic/social elements, etc. Each strategy element can be expressed as continuum of options. An example is depicted in Figure 4.

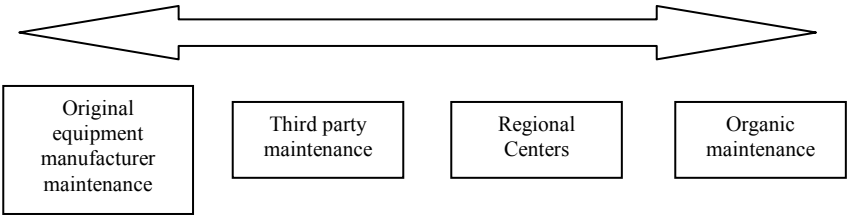

Figure 4: Maintenance Acquisition Strategy Element

I suggest a phased approach toward developing acquisition strategies.

1. Resources

The first phase in the development of an acquisition strategy is the identification and commitment of the right resources. Resources include people, funding, and other tangible items necessary to begin the development of an acquisition strategy. The success of the entire process depends upon the capabilities and availability of the right resources. The acquisition strategy team is responsible for collecting, analyzing, and synthesizing all of the information necessary to make an acquisition strategy decision. The commitment of a staff of knowledgeable military and civilian personnel dedicated to a single project is not common practice in many nations. The scarcity of people and the prevalence of competing demands for resources make this first step particularly challenging. Furthermore, the lingering vestiges of central planning in many states make it difficult for some institutions to "take ownership" of the process and recognize the importance of the early identification of resources, and of the need to plan a feasible acquisition strategy.

Knowledgeable, experienced people, who represent institutions and organizations that have a *significant* interest in the acquisition strategy, are the best candidates for the acquisition strategy team. Team members must be *knowledgeable* in their subject area, so that they can make meaningful contributions to the phased output of the acquisition strategy process. Ideally, the team is dedicated first and foremost to the development of an acquisition strategy. Other responsibilities should not take precedence during this process. While the demands on people's time are numerous, to allow this to happen weakens the ability of the team to complete a well-developed acquisition strategy within stated time constraints. The team must agree on the ground rules for interim de-

cision-making. Consensus is the preferred method; however, the divergent opinions of team members must be noted. Sometimes, the outliers (or extreme positions) turn out to be of particular importance. Differing positions should be voiced and discussed among the team members. This helps avoid the phenomenon known as "groupthink."[1]

Early use of the team model has proven to be a successful model for defense acquisition management. The National Armaments Directorate of the Czech Republic realized that the magnitude of the Gripen aircraft program warranted a dedicated team of acquisition program management professionals to successfully manage the program. Creating and sustaining a cohesive team from acquisition strategy through acquisition management helps preserve the institutional knowledge that is so critical in defense acquisition decision-making.

Expectations regarding funding for the project will influence the selection of viable options; the costs associated with the ongoing responsibilities and activities of the acquisition strategy team must be identified in this first phase. Sufficient funding must be identified and set aside to ensure that the work of the acquisition strategy team can continue through the duration of the acquisition strategy development process. Once the team members have been identified and have agreed on the procedures and protocol to be used during this phase, the information-gathering phase can begin.

2. Collection of Information

The second phase involves the collection of background information and data necessary to making a fully informed decision. As with the first phase, the project requirements must remain in focus. Team members must have access to and review all documents that may affect the development of the acquisition strategy. Five-year defense plans and related documents provide important information that will enhance the team's understanding of the requirements and their place within the context of the overall operating environment. External influences, such as existing legislation, STANAGS, or allied publications (along with a good understanding of the political landscape) will assist the team members as they begin their work.

The intended output of this step is information—information that will be analyzed, filtered, and examined as part of the development of the acquisition strategy. Potential sources, technological data, and maintenance philosophies are some of the types of information that the team must collect. Having complete information will enhance the team's ability to conduct a thorough analysis of alternatives for the supporting strategies.

Consider the importance of information in the case of the Estonian Border Guards, who required new uniforms. In collecting sourcing information, no national sources of the required fabric were identified. As a result, the only candidates for vendors of the

[1] Groupthink is a problem-solving technique in which proposals are accepted without any careful critical scrutiny of alternatives and in which participants suppress opposing thoughts. See Irving L. Janis, *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, 2nd ed. (Boston: Houghton Mifflin, 1983).

material were located outside of the country. While this sourcing information was correct, problems ensued during the manufacture of the uniforms. When a two-contract approach was identified as the best candidate solution, the Border Guard found itself in the middle of a contract disagreement regarding the feasibility of manufacturing uniforms from the purchased fabric. Risk assessment (which is an important step in developing an acquisition strategy, discussed later in this article) provides a mechanism to identify and mitigate the risks associated with such scenarios. Had complete information regarding materials and manufacturing been gathered at the outset, this contract dispute might have been avoided.

Technology plays an important role in the operations of weapon systems. Teams must identify technological issues during this information collection phase in order to conduct realistic assessments about the likelihood that certain technologies will be made available for their use. Laws such as the Arms Export Control Act in the United States may impose obstacles to the acquisition of certain types of technologies.

3. Synthesis of Information

Once the information collection is complete, the team must assemble and synthesize the data into coherent and meaningful groupings. Information does not "stand alone"—that is, information related to one specific acquisition strategy element bleeds into and often impacts other acquisition strategy elements. For this reason, the eventual synthesis of all information across all elements of the strategy development process is necessary. The initial review of information should be conducted on an individual rather than a team basis; this approach helps to avoid reliance on the findings of others and helps to preserve the integrity of the information analysis.

Once the individual reviews of collected information have been conducted, team members convene to discuss and compare their individual findings. Disparities are identified, along with potential explanations for the divergences. Acquisition elements are interrelated, so that each can be represented as a continuum. For example, one important aspect of acquisition strategies is maintenance support throughout the life cycle of a system. Expressed on a continuum, we could identify extreme options for maintenance support (see Figure 4). As we move further into the development of an acquisition strategy, we will see how the two extremes on the continuum can be further developed.

Acquisition strategy development must examine the information collected to determine which approach to maintenance support—of the many options along the continuum—is the best strategy. The decision will affect cost, scheduling, supplier selection, and other supporting strategies. Thus, the collection of information related to a specific supporting (element) strategy must ultimately be examined in relation to all supporting (element) strategies to ensure complementary results.

4. Identification of Optional Strategies

In this phase, the strategies or solutions that merit continued examination are studied further. Optional strategies should be identified for all of the significant or "core"

strategies that influence the acquisition. For example, the detailed optional strategies for maintenance support throughout the life cycle of a weapon system may consist of the following:

1. Maintenance provided by the original equipment manufacturer
2. Maintenance provided by an outside third party
3. Organic maintenance
4. Regional or "hub" maintenance among neighboring allies

Each strategy is examined for feasibility and risk. As a result of this process, perhaps Option 4 would be unrealistic if, for example, no cooperative maintenance agreement and/or facility exists. Scheduling may also be a major consideration in eliminating Option 4, since the lack of exclusive use of a maintenance facility can result in delays. As the optional strategies are further examined, the best candidates for further evaluation are identified, and the process of detailed examination of the remaining optional strategies becomes the input for the next phase.

5. Further Development of Best Optional Strategies

In this phase, the team further refines and develops the candidate strategies that are the output of Phase 4. Team members compare and contrast the optional strategies in detail to determine possible risks that could affect the successful implementation of the strategy. The comparative analysis of one optional strategy versus another requires team members to examine the strengths and weaknesses of each optional strategy *for each element* in the light of the operating environment of the *future*. A strategy that is considered optimal today may not be the best strategy given future scenarios.

For example, industrial cooperation—in the form of licensed production, co-production, etc.—recognizes that long-term economic benefit at the national level can be linked directly to defense purchases. Developing a strategy for effective industrial cooperation requires an environmental scan of the future over the long term. We can see an example of this supporting acquisition strategy in evidence over the last two decades in Turkey. The Undersecretariat for Defense Industries (SSM) developed an F-16 acquisition strategy that called for in-country co-production of F-16 aircraft parts. However, as F-16 aircraft age, aircraft demand drops, and production of parts drops. A long-term solution would envisage co-production on a dual-use production line, thereby mitigating the supply/demand risk associated with exclusive F-16 parts co-production.

Team members should prepare narratives that describe why each optional element strategy is a viable choice and how the element strategy will be implemented, giving full consideration to the constraints, risks, and opportunities identified. As a result of this phase, further elimination of optional strategies may take place. Remaining viable element strategies form the basis for further evaluation in the next phase.

6. Identification and Integration of "Best Choice" Strategies

In this phase, team members evaluate the remaining optional element strategies and select the best strategy for each dimension. Advantages and disadvantages of each element strategy are further examined. Optional element strategies are eliminated based upon the synthesis and analysis of all the information gathered in Phase 1. This phase focuses on the "how" by asking how strategies will be implemented. For example, if national competitive bidding is identified as the "best choice" competition element strategy, how will the competition proceed? Can national sources team with outside sources? Do national sources meet the quality criteria being considered? How will prices be evaluated? What is the pricing mechanism for spare parts? Are economic price adjustment articles necessary? How and to what extent will the use of price adjustment articles affect the affordability of the system over the long term?

When the Armed Forces Philippines (AFP) decided to replace their aging fleet of two-ton military-use trucks, the competition element strategy called for international competitive bidding. The quality element strategy called for bidder to have an ISO 9000-3 certification, which affected the number of viable international bidders. In fact, no United States truck manufacturers had Level 3 certification and, as a result, none were able to compete. The AFP had determined during the development of their acquisition strategy that their geographic location and past experiences in obtaining spare parts to meet readiness levels necessitated a more stringent quality program for the new procurement.

Integration of the "best choice" element strategies allows the team members to see whether the element strategies complement or conflict with one another. If, for example, national competitive bidding is selected as the "best choice" strategy for competition, and ISO 9000-3 is selected as the "best choice" strategy for quality, are there national sources that can meet the quality standard? If not, the two strategies are in conflict, and must be reconciled.

7. Evaluate Best Choices

In this phase, team members conduct a final analysis of the best choices, in the light of all environmental conditions. The result will be a collection of strategy elements that can be adopted and implemented to ensure the success of the program, considering schedule, risk, and other relevant factors. There must be a supporting rationale that demonstrates that the "best choice" strategy elements are grounded in reason and analysis of objective data. As an environmental evaluation will likely reveal a different operating environment in the future, some risk is introduced into the final strategy selection in that the future is not certain. If the selected strategy elements cannot be justified considering the environmental conditions and cohesiveness in integration, team members must revisit and reexamine optional strategies identified earlier in the process. If, for example, a new public procurement act is pending parliamentary approval, what impact might the new law have on the "best choice" strategies?

8. Final Risk Assessment and Risk Mitigation

Risk assessment and mitigation are not unique to this final phase; rather, risk management should be an integral part of all prior strategy identification, analysis, and selection phases. However, in this final phase, risk is worth examining on its own, center stage. All types of risk related to the strategy elements and their implementation techniques must be re-examined. Risk areas that are new or may have been previously overlooked are now included in a final risk assessment. Simply put, risk assessment asks two fundamental questions: "What could go wrong?" and, "Can we accept the consequences?" Risk mitigation identifies potential options should the risk event occur. Consider the following scenario, using once again the fictional island nation of Cambria:

a. A selected strategy for support is contractor maintenance logistics support.
b. An environmental scan indicates that Cambria's army will deploy as part of a coalition force, and that the weapon system to be acquired will deploy with troops.
c. What is the risk assessment related to contractor support on the battlefield?
d. What risk mitigation techniques can be adopted to ensure continued maintenance of the systems on the battlefield?

Perhaps the best risk mitigation strategy would be to have organic capability to support the weapon system in battlefield conditions. To do so will require appropriate tendering and contract language, which would in turn impact prices and have other consequences as well. Thus, early identification of risk and mitigation techniques allows the team to manage the acquisition rather than react to "perfectly predictable surprises."

Summary

A disciplined approach to identifying, evaluating, and choosing the best acquisition strategy must be introduced early in the defense acquisition cycle. The acquisition strategy approach described in this paper requires the time and commitment of knowledgeable acquisition professionals. It requires the examination of the options available on a continuum of choices for various acquisition elements. Each acquisition element and shortlisted strategy must be viewed in relation to other shortlisted strategies to ensure complementary rather than conflicting consequences. The process of developing a comprehensive acquisition strategy can be iterative, since the environmental context may change during the development of the acquisition strategy. Risk is an ongoing theme in the identification and assessment of acquisition strategies, and cannot be overlooked in any phase of acquisition strategy development.

Bibliography

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