

A Guide to Program Management Knowledge, Skills and Practices



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A Guide to DoD Program Management Knowledge, Skills and Practices

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1. Purpose

Every acquisition professional plays a pivotal role in improving acquisition outcomes and program successes. From inception of a program through disposal Big-A players (discussed in [A Department of Defense \(DoD\) Guide to Program Management Business Processes](#)) are vital in every aspect of an acquisition. Key players work together to find efficient and affordable ways to meet the needs of the requiring sponsor. As materiel solutions are developed, acquired and sustained, the Big-A players must strive to reach a common goal to balance requirements, resources and technology to meet the sponsor's needs. Words and phrases like flexible, agile, risk & opportunity, tailoring, and trade-offs aid key players in finding optimal materiel solutions to meet the warfighters' needs.

***NOTE:** There are several hyperlinks throughout this document tied directly to the Defense Acquisition University ([DAU](#)) Virtual Research Library. Your browser will likely open two windows. The first window opens the library and the second window opens the path to the referenced document. Please check both windows for the information. You are required to sign into your student account with your DAU ID or Common Access Card (CAC). If you are having problems with the virtual library, please contact our DAU [librarian](#) for assistance. Hover your cursor over the librarian link for the email address.*

***Disclaimer:** The articles presented in this guide were carefully chosen to stimulate your critical thinking skills. DAU does not endorse the author/publisher's views as the position of DAU nor the Department of Defense. DAU encourages you to research other relevant publications and viewpoints to draw your own conclusions to meet the specific needs of your organization. Also this document depends on current/active hyperlinks to avoid restating information already available through other DoD sources. The hyperlinks are checked quarterly to maintain the flow of current information.*

The [Defense Acquisition Guidebook \(DAG\)](#) retires at the end of September 2022. Separate guides were produced to provide new content largely driven by the expansion of recent acquisition statutes and the Adaptive Acquisition Framework (AAF). The newer guides are standalone products and may be found on DAU's [AAF](#) website or the sponsoring organization's website. The guides are as follows:

- [A Guide to DoD Program Management Business Processes](#)
- [A Guide to Program Management Knowledge, Skills and Practices](#)
- [Analysis of Alternatives \(AOA\) Cost Estimating Handbook](#)
- [Cybersecurity Resources and Reference Guide](#)
- [DoD Cost Estimating Guide](#)
- [DoD Experimentation Guidebook](#)
- [Engineering for Defense Systems Guidebook](#)
- [Guide to International Acquisition and Exportability Practices](#)
- [Human Systems Integration Guidebook](#)
- Intellectual Property: A Strategic and Tactical Guide
- [Intelligence Support to the Adaptive Acquisition Framework \(ISTAAF\) Guidebook](#)
- [Product Support Manager Guidebook](#)
- [Requirements for the Acquisition of Digital Capabilities Guidebook](#)
- [Systems Engineering Guidebook](#)

- Technology and Program Protection Guidebook
- [Test and Evaluation \(T&E\) Enterprise Guides and Guidebooks](#)

If you do not see a hyperlink on the AAF website for the guides listed above, that means it has not been approved for public release. Please keep in mind that these guides are periodically updated by the sponsor therefore, it is prudent to periodically check for updates. Additionally, you are encouraged to visit DAU's [ACQuipedia](#) website for quick access to information in a succinct and digestible format.

2. Techniques in Leading and Supporting a Program Office

Rory Burke, author of [Project Management Techniques](#), said “project management can be defined as a way of developing structure in a complex project, where the independent variables of time, cost, resources and human behavior come together.” Your leadership and communication skills play an essential role in connecting the independent DoD variables and external influencers into workable solutions where the outcomes are optimal for all.

2.1 Acquisition Leaders (Formal and Informal Leaders)

Acquisition leaders, formal or informal leaders, set the tone for the organization. We’ve heard at one time or another that, “people do not quit their jobs, they often quit their boss.” This is not the sole reason people depart a job however, it is a variable within your domain to influence.

We should strive daily to be [better leaders](#) for our team. Examine yourself and determine what leadership styles you best exemplify for your mission and what leadership styles are needed for the mission. A mix of leadership styles works best in an agile and flexible environment. There are many books, articles and publications available to you.

Have you ever felt robbed of your time? A famous English writer remarked, “time is what we want most, but what we use worst.” Managers should think about the distribution of their time and apply themselves to areas where leadership is needed most. So, how does one select where to spend their time? Understand the roles of the acquisition professional and work issues and problems at the lowest possible level. Assign responsibilities appropriately for maximum effectiveness. There is an article in the [Harvard Business Review](#) called “[Management Time: Who’s Got the Monkey?](#)”. You can also find the article using any of the internet search tools. The content in this article explores the meaning of management’s time as it relates to the interaction between leaders, managers, peers and subordinates. Further you are encouraged to share this article with your entire team.

To aid you in managing and leading consider the following:

- Have a draft mission and vision statement in mind for your organization and ask your team for input. Plan and conduct an effective [Off-Site](#) with your senior leadership team and seek buy-in on your ideas. Present the results of your offsite to your entire team. At the end of the day the program manager (PM) will make the final decision but, it would help to get collective buy-in on your mission and vision.
- Set direction, delegate responsibilities and establish achievable goals. A sense of

achievement in a high pressure environment can be a powerful tool to keep your team motivated. Ensure your goals are nested and measureable using a resource-informed integrated master schedule ([IMS](#)). Keep in mind that a properly resource-loaded schedule includes all contractor and government tasks. As an example, the program management office (PMO) should have a deliberate and measurable plan ([knowledge point example](#)) for government furnished equipment in the baseline schedule.

- Establish a culture of excellence for your team by fostering high standards expected of an organized and integrated team. Select the right people for the right assignments. Recognize [winning teams](#) and individuals that are excelling or innovating on an assigned task. Allow the teams to brand themselves (ie, Team Eagle) and talk about their accomplishments at an All-Hands event. Find other innovative approaches to inspire your team.
- Recognize the tenants for fostering a winning environment for a winning team. It is our human nature to jump into big problems and challenges head first. Clearly, big issues and challenges demand the attention of the leader. With that statement in mind, the PM and senior leaders cannot afford to lose sight of the big-picture while attacking every single problem and/or challenge.
- Consider the idea of [Crew Resource Management \(CRM\)](#) techniques used in aircraft cockpits. CRM refers to the effective use of the available resources to achieve an optimal outcome. There is a tendency to make a quick decision that may not be fully informed by the facts nor circumstances. Emotional decisions could lead to less optimal outcomes. Give strong consideration to the CRM concept for your program by ensuring airspeed and altitude of your PMO remain constant despite the maze of ankle biter challenges and distractors. The CRM construct requires team trust and mutual respect for each member of the team. In the book [Clear Leadership](#) Gervase Bushe states, “the rapidness of change in the world today often means internal mental models, for addressing challenges, no longer apply.”
- Don’t get paralyzed in a neutral gear. In order to move your program forward, anticipate friction within and outside of your PMO. Friction has some good qualities and may create the traction necessary to move your program forward.
- [Mentor](#) the next generation of subordinate leaders. Consider the words of Steven Spielberg, “the delicate balance of mentoring someone is not creating them in your image but, giving them the opportunity to create themselves.

2.2 Program Battle Rhythm

The PM is responsible for the [battle rhythm](#) of the PMO. Subordinate leaders and teams should nest their battle rhythm into your operations. Set a good battle rhythm and routinely review the calendar to see where your time and energy are being spent. As the nation and world gain traction from the devastating impact of the Coronavirus Disease (COVID19), reimagine organizing your [teams](#) in a hybrid environment. A battle rhythm example is depicted in Table 1.

Table 1: Battle Rhythm Example

Daily	Weekly	Monthly	Quarterly
Walk around leadership	Weekly activity report	Update program status to your senior stakeholders	All hands update to the entire team and stakeholders
Be positive	Feedback to Senior Leaders	Seek Feedback – formal (SBI)	Update organizational succession plan
Communicate your purpose (Why & How)	*Engage top-tier stakeholders	Develop workforce using all available tools (Defense Acquisition Workforce Improvement Act (DAWIA), education, professional training, micro learning and so on)	All hands team building events (chili cook-off, costume party, etc.)
Say hello, thank you, and thanks for the correction	Highlight Wins	*Conduct second tier supervisors spot checks	Formally update Program Executive Officer (PEO)/Senior Leadership
Live & maintain a climate of integrity, dignity, professionalism and open communications	Delegate and monitor	*Conduct exit interviews	Review latest program information (GAO, testimony, industry reports)
Respect people’s time	Reward positive behavior/correct negative behavior in private	Review calendar for holidays, DoD Component anniversaries, birthdays, heritage months and celebrate those moments as a team	*Engage the warfighter community
Lead from the front	Keep learning new things		
Keep commitments	Celebrate the successes		
Give informal Situation, Behavior, Impact (SBI) feedback	*Align with stakeholders (user, industry and sponsor). Ask the warfighter-- how are we doing?		
Take the job, not yourself, seriously			
Do not pass up the teachable moment			* Increase/decrease engagements as required

Plan event-driven and cyclical activities into your battle rhythm and align those activities into your integrated master plan (IMP), as appropriate. Check in with your stakeholders often and routinely seek and address their thoughts, advice, concerns and recommendations.

2.3 Helpful Tools, Techniques and References for Metrics and Measures

William Thomson, a British mathematical physicist, quipped “if you cannot measure it, you cannot improve it.” What tools do you use to recognize high to low functioning teams? There is no panacea for this question. Consider the following: lead by example and exception, delegate, empower and trust your team. Consider the following ideas:

- Have you set the conditions for a proper work environment?

- Set goals and solicit appropriate metrics from the team.
- Set the example by communicating effectively with the team and stakeholders.
- Avoid overreacting to a failure and/or deficiency with the team. Use that incident as a teachable moment.
- Reinforce the importance of openness and candor. It is ok to speak truth to power.
- Don't ignore the comments or suggestions from junior team members.
- Consider implementing [self-directing work teams](#), especially for agile software development efforts.
- Schedule regular sessions with the team and remain abreast of the team's efforts.
- Effective teams cannot work in a microcosm and must operate/integrate with cross-functional team members, when appropriate.
- Become a servant leader.
- Support the team in managing relationships, especially with senior leaders.
- Most importantly! Know when to leave so the team can get some work accomplished.

2.3.1 The Acquisition Cycle/Lead Time Dilemma

Accounting for cycle and lead times throughout your schedule is vitally important and potentially problematic for numerous reasons that may include: unaffordable user expectations; continuing resolution; strategic priority shifts; Planning, Programming and Budgeting System (PPBS) processes; Joint Capabilities Integration and Development System (JCIDS) processes; decision review cycles; overly demanding requirements; technology maturity; lack of competition; procurement lead times; an overly ambitious schedule; excessive bureaucracy; program execution failures; industrial base complexities; burdensome regulations/policies and so on. There are no easy answers to solve these very complex challenges. The Director of Defense Pricing/Defense Procurement and Acquisition Policy signed a policy entitled, [Reducing Acquisition Lead Time by eliminating Inefficiencies Associated with Cost or Pricing Data Submissions After Price Agreement \("Sweep Data"\)](#). You may find this information useful.

Focus on the activities that you and your Program Executive Officer (PEO) are able to influence. Track lessons learned from similar programs and adhere to best business practices.

- Staffing Timelines for Requirements: Each DoD Component prescribes to their unique timeline for staffing user requirements. Become familiar with your DoD Component's staffing timeline and keep in mind that Joint Requirements have their own staffing timeline as noted in [A Guide to Program Management Business Processes](#). Please do not confuse staffing timelines (cycle time) with the amount of work (lead time) necessary to get the appropriate documents into the Joint/DoD Component staffing processes. Consider the following DoD Component guides and instructions for properly planning your lead times:
 - [Air Force DAF Acquisition Process Model](#)
 - [Army Regulation 71-9 Warfighting Capabilities Determination](#)
 - [Marine Corps Systems Command Acquisition Guidebook](#), Chp 4
 - [SECNAVINST 5000.2, DAS and Joint Capabilities integration and Development System Implementation](#)

- Contracting: Incorporate the appropriate contracting standards using [Procurement Action Lead Time \(PALT\)](#) supplemental information for your baseline. PALT is the amount of time required to complete all actions leading to a contract award. The process begins when the approved requisition is received in the contracting activity and ends upon a contract award. PALT includes the time required to process and assemble:
 - the purchase request (including the independent government estimate)
 - statement of work or a performance work statement
 - technical exhibits and attachments
 - service contract approvals (ref. Defense Federal Acquisition Regulation (DFARS) 237.170-2))
 - quality assurance surveillance plan for services
 - applicable sole source justification & approval

Further PALT includes the time required to solicit the government's requirement, evaluate the offers and obtain necessary approvals before awarding the contract. PALT [goals do not](#) include any tasks nor actions necessary to enter the requisition process.

- AAF Pathways: Pursue the pathway of least resistance to get a materiel solution to the warfighter. You should recommend sound tailoring techniques to your milestone decision authority (MDA). The tailoring techniques should help you cut down on bureaucratic processes and regulatory standards that may have very little value to your program's progress. Allocate the lead time necessary to shape your tailoring strategy with the MDA. Work across the DoD and DoD Component functional and stakeholder enterprise and garner support for your tailored approach. Never underestimate the value of a non-attribution shaping-brief across the functional and stakeholder enterprise. Tailor the shaping-brief to the intended audience and seek early feedback from your stakeholder engagements.
- Industrial Base: Get industry excited about your program. Conduct [industry day](#) events and seek feedback from the industrial base enterprise. Continue to collaborate with industry partners using various professional and contracting techniques. Explore opportunities to introduce competition at the component and subcomponent level for existing or new contracts.

2.3.2 Integrated Master Schedule / Integrated Master Plan

The IMS is an integrated networked multi-layered time-based schedule of program tasks required to complete the work effort captured from a related IMP. The IMS should include all IMP events and accomplishments that support the program office's closure criteria. The IMP and IMS help establish and maintain the baseline and facilitate effective planning and forecasting for your program. The IMP is an overarching event-based plan that captures each acquisition milestone and accomplishments required for program completion. A fully integrated contractor and government IMS set the conditions to have a fully informed resource-loaded program schedule. The [DoD Standard Practice: Work Breakdown Structures for Defense \(MIL-STD-881E\)](#) was republished on October 6, 2020 and provides the framework for DoD PMs and contractors to define the program's work break structure (WBS). Use this standard to tailor your program to meet your mission requirements.

- Section 1 defines and describes the WBS.
- Section 2 provides instructions on the application of the WBS in the pre-award timeframe.
- Section 3 provides direction for developing and implementing a contract WBS.
- Section 4 examines the role of the WBS in a post-award and refers to agreements between a PMO and other organizations (e.g., test sites, depots, labs, federally funded research and development centers (FFRDC)).
- This standard also provides WBS definitions for specific defense materiel commodity systems in Appendices A through J.

2.3.2 Best Practices for the Management of an IMS

In December 2015 the Government Accountability Office (GAO) conducted an assessment to highlight best schedule practices for a project, [Schedule Assessment Guide: Best Practices for Project Schedules](#). Their assessment includes real-world examples where Monte Carlo simulations on the IMS could have helped a PMO detect blind spots or watch-areas in their schedule. We often think of simulations in the context of systems engineering. There are schedule models available that would provide you with insightful information/data about your schedule. Consider the following best practice examples noted from the report.

Best Practice 1: Capture all activities

The schedule should reflect all activities as defined in the program's WBS. The WBS should include the necessary details by the contractor and government to accomplish an objective, task and/or subtask.

Best Practice 2: Sequence all activities

Plan for a realistic schedule that includes key dates and associated knowledge points to measure progress. Activities within the schedule should be logically sequenced and linked. As an example a predecessor activity should start or finish before its successor. Minimize and justify any date constraints and lags in your schedule. A well-defined IMP plays a central role in defining key elements and activities within your schedule. Ensure that your schedule interdependences are properly defined and linked to the completion of an activity and/or MS decision.

Best Practice 3: Assign resources to all activities

The schedule should reflect the resources (labor, materials, travel, facilities, equipment and the like) needed to do the work. Define activities within your schedule where constraints and/or resource limitations exist. In those cases the PMO should track those constraints/limitations as part of the program's risk mitigation plan and update the IMP at the next decision point.

Best Practice 4: Establish the duration of all activities

The schedule should realistically reflect the length of an activity. Once the duration of an activity is determined continue to use the same rationale, historical data and assumptions for your cost estimating. The duration of an activity works best when the tasks are reasonably short and meaningful with discrete progress measurements. Most government schedules contain summary level tasks that typically reflect longer durations of activities. PMOs are

cautioned from using summary level tasks and encouraged to break up activities into government work packages and/or discrete tasks as part of your fully resource-loaded schedule.

Best Practice 5: Verify horizontal and vertical schedule traces

A horizontal schedule should link products and outcomes associated with other sequenced activities. Linked products are commonly referred to as “hand-offs” and serve to verify that activities are arranged in the right order for achieving aggregated products or outcomes. A vertical schedule should reflect that the data are consistent between different levels of a schedule. When schedules are vertically traceable, lower-level schedules are more consistent with upper-level schedule events, knowledge points, and/or decision points.

Best Practice 6: Confirm the critical path is valid

A critical path reflects the longest duration in the schedule through the sequence of activities arranged to achieve the shortest possible duration of the project.

Best Practice 7: Allow for a reasonable amount of float

A schedule should identify the amount of time a predecessor activity could slip before the delay affects the program’s estimated finish date. Float supports the PMO in determining flexibility within an activity before other activities and tasks are impacted. As a general rule activities along the critical path have the least amount of float.

Unreasonably high float on an activity or path indicates that your schedule logic might be missing or invalid.

Best Practice 8: Conduct a schedule risk analysis

A schedule risk analysis starts with a critical path schedule. Data about program schedule risks are incorporated into a statistical simulation to: predict the level of confidence in meeting a program’s completion date, determine level of confidence with your contingency plan and identify high-priority risks. Programs should include the results of the schedule risk analysis in constructing an executable baseline schedule. Become familiar with [DoDI 8510 Risk Management Framework \(RMF\) for DoD Information Technology](#) and incorporate the instructions as outlined.

Best Practice 9: Update the schedule using actual progress and logic

Progress and logic updates provide a realistic forecast of start and completion dates for program activities. Maintaining the integrity of the schedule logic is necessary to reflect the true status of the program.

Best Practice 10: Maintain a baseline schedule

A baseline schedule roots in managing the program scope, the time period for accomplishing activities and resources necessary to support the baseline. The baseline schedule, also known as a target schedule, is managed best under a configuration management control process. Program performance is measured, monitored and reported against the baseline schedule. Continue to monitor schedule progress and completion dates to determine any variances that may impact downstream activities.

2.3.2.1 Schedule Risk Assessment

The Schedule Risk Assessment (SRA) is a powerful analytical tool for risk, opportunity management and decision making. Unlike earn value management (EVM) data the SRA uses statistical techniques to predict a level of confidence in meeting a program's completion date. This analysis focuses on uncertainty, key risks and how the impact on the activity durations. Nearly every schedule possesses a degree of uncertainty thereby making the entire schedule uncertain. Again, the PMO is encouraged to run statistical simulations on the schedule. Without restating information found in [Schedule Assessment Guide: Best Practices for Project Schedules](#), please take a few moments to examine Section 8, [Conducting a Schedule Risk Analysis](#). You will find helpful information on topics like: Schedule Uncertainty and Risk, SRA case studies, Conducting a Schedule Risk Analysis, Collecting Anonymous and Unbiased Risk Data, Schedule Risk Analysis with Risk Drivers, and a Best Practice Checklist.

2.3.2.2 14-Point Schedule Metrics for IMS Analysis

Review the Defense Contract Management Agency (DCMA) program analysis pamphlet, [DCMA EVMS PAP PAM 200.1](#) for helpful information regarding EVM and scheduling best practices. This pamphlet identifies EVM metrics to assist the acquisition professionals with potential problem areas in the IMS. The metrics provide the program analyst with a framework to ask and probe within the IMS for potentially problematic areas. The 14-point schedule metrics include: Logic, Leads, Lag, Relationship Types, Hard Constraints, High Float, Negative Float, High Duration, Invalid Dates, Resources, Missed Tasks, Critical Path Test, Critical Path Length Index, and the Baseline Execution Index. You are encouraged to use these 14-points to meet the needs of your PMO's metric and measures program.

2.3.4 Metrics and Measures of the IMS

A famous economist and Noble Peace Prize recipient remarked "if you torture the data long enough, it will confess." Consider some best business practices for metrics and measures.

2.3.4.1 Earned Value Management

EVM is a performance tool that integrates cost and schedule into a single resource-loaded schema for the purpose of assessing a program's cost, schedule and technical performance. Implementation standards are required for cost-reimbursable or incentive contracts where the contract value is prescribed for Major Capability Acquisition (MCA) pathway: [DoDI 5000.85](#), DFAR Supplement [DFARS Subpart 234.2](#), [FAR 52.234-4](#), and [FAR Subpart 34.2](#).

The Assistant Secretary of Defense Acquisition (ASD(A)) reviews and approves EVM applicability for a Major Defense Acquisition Program (MDAP) in coordination with the applicable DoD Component/Defense Agency representatives. The acquisition strategy reflects the PM's approach to satisfying the EVM requirement for applicable contracts. There are two clauses identified for PM situational awareness: [DFARS clauses 252.234-7001](#) and [DFARS 252.234-7002](#). Please visit ASD(A)'s website of common [EVM Definitions](#).

2.3.4.2 Use Earned Value Management to Confirm Progress

When EVM is required and implemented the PM should execute internal performance management processes that allow for the following:

- Plan and assign all work scope to the applicable areas of the WBS.
- Objectively assess accomplishments at the lowest possible WBS level, as appropriate.
- Assess variances, implement corrective actions and provide forecasts of cost and schedule.
- Use performance data and forecasting as part of the decision making process.

The characteristics of EVM are the foundation of disciplined program management techniques. The ASD(A) [Acquisition Data and Analytics Office](#) maintains responsibility for major defense authorization performance assessments, root cause analysis, and EVM. For more information visit the [Integrated Program Management Guides and Reference](#) website for helpful resources that include: [DoD EVM Implementation Guide](#), [EVMSIG Memo](#), [Agile and EVM: A Program Manager's Desk Guide](#), and [Program Manager's Guide to the Integrated Baseline Review \(IBR\)](#).

2.3.4.3 Earned Value Management Determination

For EVM determination use the final anticipated dollar value of the effort/contract that includes but not limited to: all contract options and extensions, maximum quantity of supplies or services to be acquired, contract ceiling price or final price based on future events/services. If the value of a contract is expected to exceed \$20 million the PM can impose an EVM requirement at contract award in anticipation of meeting that threshold. In some cases a contract modification, not known at time of award, can cause a contract value to cross the threshold for EVM requirements. In those cases the PM should consider the cost and benefit of EVM for the program, discuss findings with the Contracting Officer, and make a recommendation to the decision authority. Keep in mind that the AAF focuses on speed of relevance and tailoring techniques to achieve speed of relevance. Consider the following documents to determine if EVM adds value to your program once the threshold is crossed: [Integrated Program Management Data Analysis Report \(IPMDAR\) Implementation & Tailoring Guide](#) and [IPMDAR Data Item Description \(DID\)](#).

The decision to implement EVM on a contract outside the criteria prescribed in [DoDI 5000.85](#) and [DFARS Subpart 234.2](#) is a risk-based recommendation at the discretion of the PM. The PM is encouraged to conduct a cost-benefit analysis before deciding to implement EVM on a contract and before seeking decision authority approval for a change in strategy. Cost-benefit analysis explains the rationale for the decision and the benefits gained by the government.

Consider these risk based factors:

- Type of work and level of reporting: developmental or integration work is inherently more risky to the government therefore reporting should be considered.

- Schedule criticality of the contracted effort to a program’s mission: items required to support another program or effort may warrant EVM requirements.

The application of EVM on non-scheduled based contracts should be considered on a case-by-case bases (i.e. those that do not ordinarily contain work efforts that are discrete in nature):

- Contracts compensated on the basis of “time and materials.”
- “Services” contracts (i.e. maintenance, repair, sustainment, and other services that are provided on an as needed basis).
- Level of Effort (LOE) activities (i.e. program management support contracts).

Non schedule-based contracts might not permit objective work measurements due to the nature of the work. The PMO should make every effort to identify, separate and measure any discrete work typically identified as LOE. With concurrence from the MDA, the PM may decide to waive EVM requirements for certain contracts. In those cases the PM should consider other management control techniques that may provide advanced warning of potential performance problems with their contractor.

Due to the uniqueness of [Foreign Military Sales \(FMS\) contracts](#), special considerations are given to ensure EVM can be effectively implemented. A case-by-case analysis of the contractual structure may be necessary to determine the benefits and risk of implementing EVM.

2.3.4.4 Earned Value Management Reporting

The benefits of EVM analyses are not limited to a contractual reporting requirement. Industry and the government should foster an EVM environment that encourages dialogue and a trustworthy exchange of data and ideas without the element of surprise to either party.

Integrated Program Management Report (IPMR) [Data Item Description \(DID\) DI-MGMT-81861](#): The IPMR contains the instructions for a contractor to provide cost and schedule data on DoD acquisition contracts. IPMR consist of seven formats:

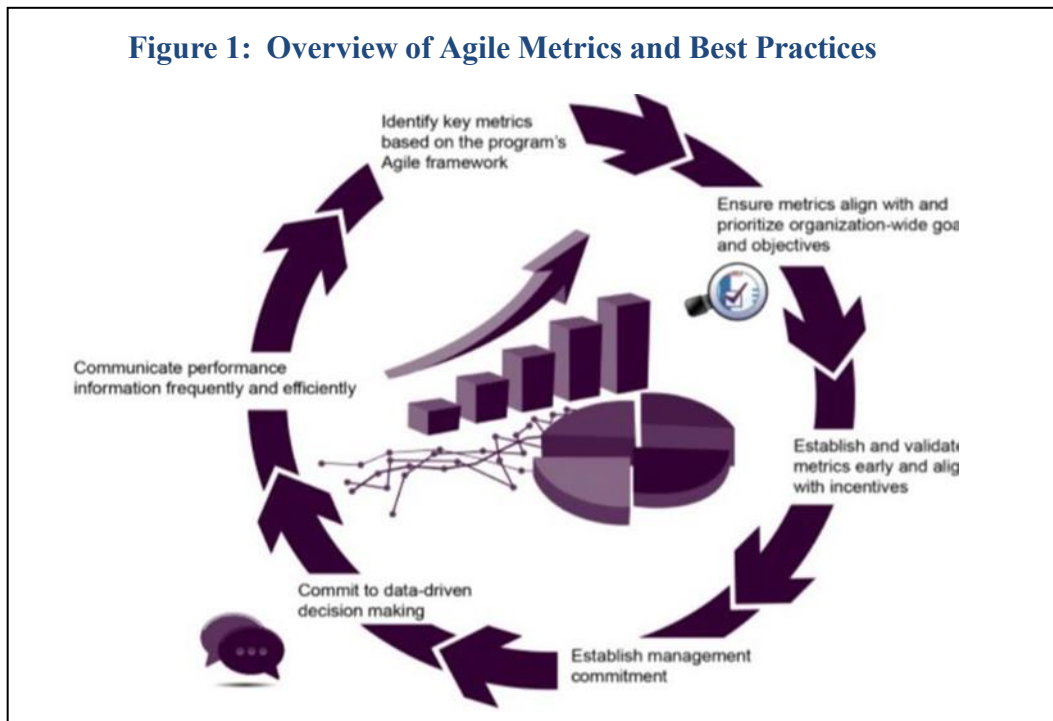
- Format 1 defines cost and schedule performance data by product oriented WBS.
- Format 2 defines cost and schedule performance data by the contractor's organizational structure (e.g., Functional or Integrated Product Team (IPT)).
- Format 3 defines changes to the Performance Measurement Baseline (PMB).
- Format 4 defines staffing forecasts.
- Format 5 is a narrative report used to provide the required analysis of data contained in Formats 1-4 and 6.
- Format 6 defines and contains the contractor’s IMS
- Format 7 defines the time-phased historical & forecast cost submission.

In the case of a Firm Fixed Price (FFP) contract, PMs can require disciplined scheduling practices that include reasonable and reliable forecasting information. To ensure such practices are demonstrated by contractors, IPMR may be applied or tailored for Format 5 and Format 6 data.

2.3.4.5 Metrics for Agile Software Development Program

On September 23, 2019 the Office of the Undersecretary of Defense for Acquisition and Sustainment (OUSD(A&S)) released a guide entitled [Agile Metrics Guide: Strategy Considerations and Sample Metrics for Agile Development Solutions](#). Each software program differs in terms of scope and complexity therefore, metrics should be tailored according to the program's agile framework. This guide provides metric and quality vernacular that describes benefits, challenges, variations and context for agile terms like: story points, velocity, velocity variance, velocity predictability, story completion rate, sprint burn-down chart, release burnup, cumulative flow diagram, defect count, test coverage, number of blockers, delivered features, delivered value points, level of user satisfaction, mean time to restore, deployment frequency and fail rate.

In September 2020 GAO published an [Agile Assessment Guide: Best Practices for Agile Adoption and Implementation](#). This guide covers a wealth of topics for your consideration: agile adoption challenges in the federal government and actions taken in response, agile adoption of best practices, overview of agile execution and control, requirements development and management in agile, agile and program monitoring and control and agile metrics. Also review Figure 1.



On December 15, 2019 OUSD(A&S) released a guide entitled [Software Acquisition Strategy: Agile Guidance](#). This guide captures key information that should be contained in your acquisition strategy for software intensive programs. This guide offers techniques for developing a robust agile strategy aimed at delivering needed capability more quickly to warfighters and other users of these software intensive programs.

2.3.5 Risk, Issue and Opportunity Management

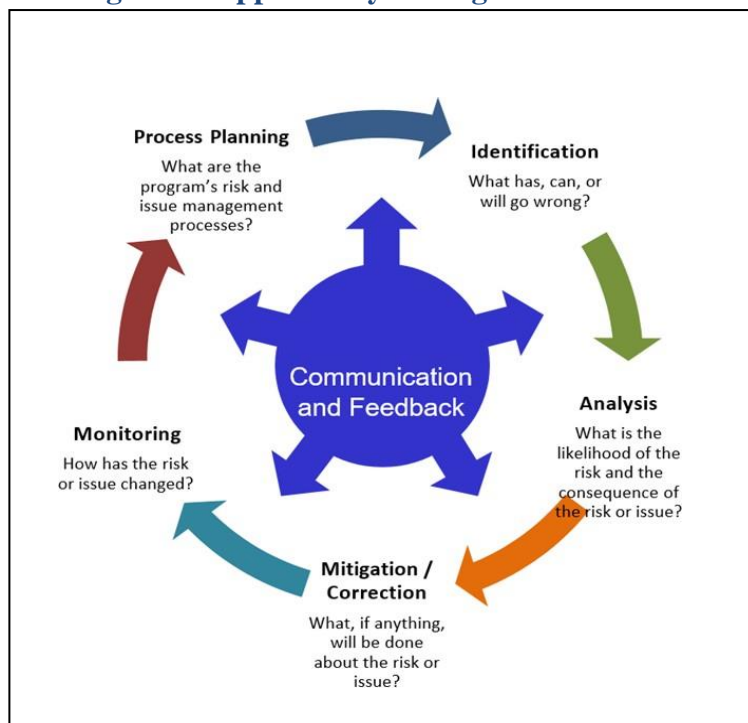
PM responsibilities include an effective risk management program. Risk is attributed to uncertainty in your program. As an example large and complex weapon systems may possess significant technical risk to achieve program goals within the cost and schedule allocation. An event or task is considered uncertain when the outcome cannot be reasonably defined within the allocated resources. Reasonable risk taking is appropriate as long as risks are controlled and mitigated. Technical risk is a vital part of program management. The PMO and functional teams are jointly responsible for assessing, monitoring and controlling risk. Check out “Section 3.3.1.6 Technical Reviews and Assessments” of the [Engineering of Defense Systems Guidebook](#) for additional information on technical risk.

Risks are characterized by the probability of an annoying event, task and/or activity occurring. The use of best practice risk management techniques may lessen the likelihood of an unwanted event occurring without a contingency plan.

2.3.5.1 Five-Step Risk Management Process

The [DoD Risk, Issue, and Opportunity Management Guide](#), dated Jan 2017, outlined a five-step management process that may be applied to discrete risk or issues. The steps are broadly applicable to multiple phases in a program’s lifecycle. This process for managing individual risks and issues operate within a broader framework in which consideration of risk shapes the basic program structure and content. Figure 2 depicts the suggested five steps. Each step is explained in detail within the guide.

Figure 2: Opportunity Management Process

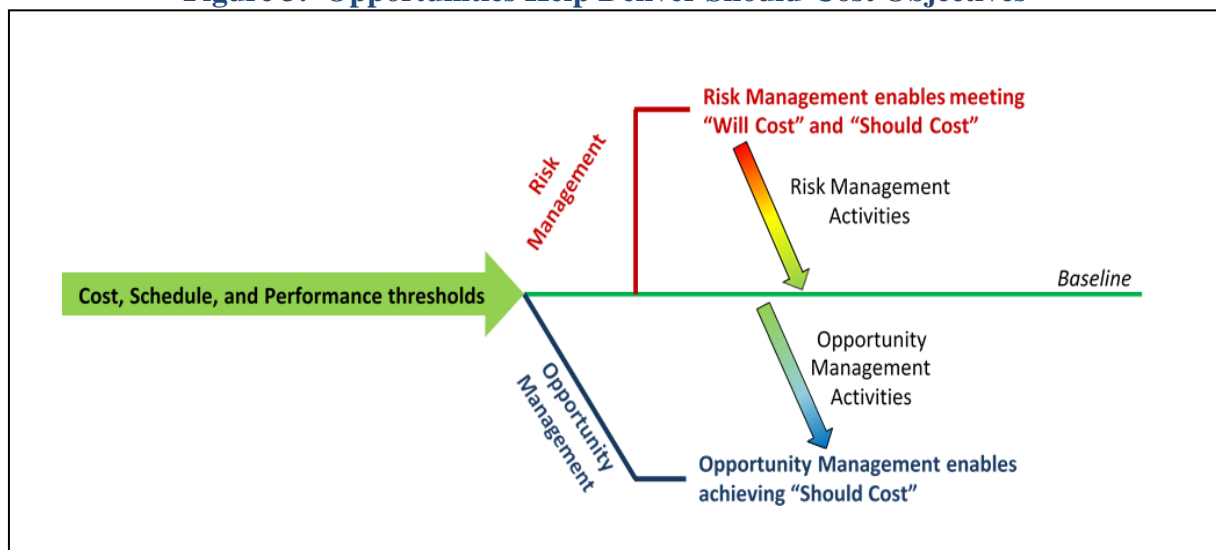


2.3.5.2 Opportunity Management

Program personnel should implement an opportunity identification and evaluation process to plan, identify, analyze, manage, and monitor initiatives that yield potential program cost reductions, schedule reductions and/or performance improvements. As with risk and issue management, the program may use an opportunity management approach in an attempt to improve a program’s outcome. Keep in mind that opportunities may help offset cost or schedule impacts. Programs should document their opportunity management processes and incorporate these processes into the program.

Identifying opportunities start with an active search of potential enhancements within the program’s technical mission and stakeholder objectives. As opportunities are found or identified, the program should evaluate the potential benefits and risk. Candidate opportunities should be evaluated for costs, benefits and potential risks before they are approved. Figure 3 depicts opportunities that may help deliver should-cost objectives.

Figure 3: Opportunities Help Deliver Should-Cost Objectives



2.3.6 Harvesting Underruns

The DoD [Earned Value Management System Interpretation Guide \(EVMSIG\)](#) offers flexibility for a variety of program execution and development methodologies. An underrun in the contract budget base (CBB) does not automatically mean excess funds are available. Practitioners may erroneously treat EVM budget and contract funding in the same ways. The application of budgets and funding are distinct and follow separate rules. Budgets follow EVM rules while funding follows contracting and fiscal rules:

- “Budget” has a very specific meaning for EVM and refers to the estimated resources needed to complete the contracted scope of work.
- “Funding” refers to the government dollars available to obligate on the contract and

- other work efforts to be accomplished.
- The amount of obligated funding does not always equate to contract price. There is no rule that requires the CBB to equal the amount of funding for a contract price.

When the contract scope is completed with less funding than anticipated there may be opportunities within your portfolio for technology maturation, expanded in-scope contract work and/or risk buy-down. The ability to use any underruns may take on the form of a contracting action and not necessarily an EVM action. Regardless of the use for the underrun it must prescribe to the appropriate fiscal laws and regulations.

There are times where the contractor recommends or the government decides to move money between cost accounts. In the context of an underrun, this activity is often referred to as “harvesting underruns.” To maintain Earned Value Management System (EVMS) integrity, budget amounts should remain within scope for which they were budgeted, even when that scope is completed with favorable cost performance. As a general rule underruns should not serve as a means to develop new baseline activities/tasks that are likely beyond the scope of the contract. That said, PMs may exercise their discretion and authority in balancing resources for the overall success of in-scope activities.

2.3.7 Focus on Program Affordability

Affordability analysis, like the PPBS and JCIDS process, is a DoD Component level responsibility. The PM provides information into this process, but does *not* conduct the analysis nor make the decisions. DoD Cost Assessment and Program Evaluation (CAPE) published a [DoD Cost Estimating Guide](#). You are encouraged to familiarize yourself with this document should you need information about DoD cost estimating and affordability.

PMs must remain within established program goals and affordability. Program affordability management involves various aspects across this guide that includes program strategies, risks and opportunities, performance requirements, technology and design elements for lifecycle sustainment.

2.3.8 Best Value Continuum and Tradeoffs

In most cases a person, group and/or an organization expects their resources to effectively work for them to the maximum extent possible. The government has the same expectation of its acquisition leaders and workforce. Check out [ACQuipedia: Best Value Product Support Arrangements](#) for more information on this subject. Also check out [DoD Enterprise Software Initiative \(ESI\) Best Value Toolkit](#). This toolkit represents commercial best practices for commercial software acquisitions. The toolkit was designed for use in a variety of situations. Use and customize the tools to your benefit and unique situation.

2.3.9 PM Cost Analysis Inputs

While affordability analysis is the responsibility of the DoD Component, the acquisition community (including the PM) plays a role by informing decision makers on potential tradeoffs as various implementations are considered. Implementation may include: risks and

realities of cost, schedule data, technology maturity level and/or interoperability expectations.

It is important to remember that affordability analyses are not synonymous with cost estimating. The analysis informs the program's top-down affordability goal. On the other hand cost estimates are generated from the bottom-up. An affordability goal coupled with a cost estimate comparison informs leaders about the funding margins and constraints to satisfy the requirement. When your cost estimate exceeds your affordability goals it is necessary to implement program trade-offs. Those trade-offs may include reductions for: procurement quantities, a scaled-down programmatic and engineering program, key performance parameters (KPP) and/or key system attributes (KSA).

2.3.10 Operations and Sustainment

The PMO is required to update the Life Cycle Sustainment Plan (LCSP) at various decision points depending on PM's approved [AAF](#) pathway. [DoDI 5000.91](#) outlines procedures for the implementing product support for the six AAF pathways. The [Product Support Manager Guidebook](#) addresses best business practices and other helpful information for the program manager, product support manager, and lifecycle logisticians (LCL). Each person serves in a vital role as part of the PM's core team as discussed in [A Guide to Program Management Business Processes](#).

The operations and sustainment (O&S) phase is typically the most expensive phase of a program. The [Operations and Sustainment Cost-Estimating Guide](#) addresses cost challenges and metrics that you may find helpful. Pay particular attention to sections three, four and five.

The [Supply Chain Metrics Guide](#) was released to aid the acquisition community with a suite of metrics to:

- track supply chain performance against established goals and targeted trends.
- identify negative performance trends or anomalies and begin development of corrective actions.
- evaluate performance results from efforts designed to improve DoD supply chain processes.
- establish policy changes to improve supply chain performance.

There are other DoD documents that address logistics, sustainment and materiel readiness that may assist you in developing your strategy:

- [Product Support Manager Guidebook](#)
- [DoD Logistics & Materiel Readiness, Strategic Plan, Oct 2021](#)
- [Performance Based Logistics Guidebook](#)
- [Product Support Business Case Analysis Guidebook](#)
- [SD22 - A Guidebook of Best Practices for Implementing a Robust Diminishing Manufacturing Sources and Material Shortages, Jan 2021](#)
- [DoD Logistics Assessment Guidebook](#)
- [Lifecycle Sustainment Plan Outline, Version 2.0](#) (updated version in works)

Each DoD Component operates differently to meet operational requirements for materiel release/fielding, supportability, and sustainment. You are encouraged to review other DoD Component documents for potential tailoring ideas.

- [AF Pamphlet 63-128, Integrated Life Cycle Management, 3 Feb 2021](#)
- [US Army Pamphlet 700-127, Integrated Product Support Procedures, 28 Sep 2016](#)
- [NAVFAC Acquisition Logistics Manual](#), *(copy and paste link into your browser)*

2.3.11 Manufacturing and Quality

In January 2021 the Office of the Under Secretary of Defense Research and Engineering (OUSD(R&E)) published a compilation of best practices and lessons learned in the [DoD Manufacturing and Quality Body of Knowledge \(M&Q BoK\)](#). This BoK details M&Q activities and offers suggestions for your consideration throughout the lifecycle of the program. Appendix B of the BoK has an extensive list of references. Keep in mind that documents are continuously updated therefore, it is recommended you conduct an internet search to ensure you have the latest version of the referenced documents.

3. Engage with Industry

As acquisition professionals the business of relationship building plays a crucial role in advancing a program forward. Consider that the end-state of a program for government and industry are generally the same. No one wants to purposely fail their customer. Although the end-state and objectives are common, government and industry are often motivated and incentivized differently in meeting the program's end-state. Engage industry by understanding the seams and gaps that may hamper a strong bond. It will take mutual trust and respect, on both sides, to make a strong bond stronger in this agile and flexible acquisition environment. James Cash Penny remarked that, "growth is never by mere chance; it is the result of forces working together."

3.1 Practical Model for Partnering

DoD released an [Incentives Guidebook](#) in recognition that mutual commitment by industry and the government are necessary to create a cooperative atmosphere for information exchange. The guidebook also provides insight into some basic methods and tools useful in conducting the business analysis that forms the foundation for a sound incentive structure. The guidebook can be applied throughout the lifecycle of DoD programs for products and services.

3.1.1 Getting Started

The best way to start is to start. It is up to the individuals, leaders and the collective group to determine the type of partner they plan to be. Partnering should be initiated by groups or individuals with support from the PM and/or the Contracting Officer. Partnering is most beneficial when the parties believe that formal business transactions may prove to be ineffective in some cases. There seems to be a genuine fear of engaging industry directly because of a potential [Procurement Integrity Act](#) violation. Become familiar with the Act and engage within the bounds of the law. Consult with the experts as you develop your industry engagement strategy.

A commitment from senior leaders, as well as stakeholders, will reinforce the need for open dialogue and trust. Stakeholders are people within the government and industry who are critical to a program's success. Plan workshops and other events based on the tasks to accomplish for the group. Set goals and become empowered to make decisions within your group.

3.1.2 Communicating with Industry

The invitation to partner with industry should be extended as early as possible in the acquisition process. Obtain the necessary resources to get started. Participants will need to have sufficient time to learn, grow, share and develop achievable inch stones for the greater good of the program. Consider adding a partnership clause in your solicitation and keep in mind that a face-to-face gathering is not always necessary. We've learned a lot from COVID-19 therefore, use media tools already available to your organization when conducting routine exchanges. If you are in the pre-solicitation/market research stage, work through your Contracting Officer to ask industry about their processes, concepts, technology, and industry-to-government partnership philosophy. Seek mutual ground and resolve the anomalies at the lowest possible level.

3.1.3 Conducting the Workshop and Developing the Charter

Be deliberate in your engagement strategy. Select a co-facilitator from industry as well as the government. Oftentimes workshops are largely planned and executed by the contractor. The government should consider briefing relevant information to the contractor. This approach ensures for a bi-lateral exchange of ideas and information. Avoid inviting the professional meeting-goers. Review the attendee list and make a hard call on the attendance list. Be mindful of the contract scope and stay within the bounds of the awarded contract. If a formal charter is required, be upfront about the charter in your solicitation. Keep your leadership informed on the objectives and outcomes of the workshop by scheduling a formal out-brief. It is best that an industry leader and a government equivalent leader attend the out-brief. Leadership attendance at the out-brief reinforces the idea that you are engaged and care about the team's work.

3.1.4 Making it Happen

Get engaged. Plan and execute your workshops with clearly defined objectives coupled with an identifiable and achievable end-state. Identify your champions and engage them to keep the energy, enthusiasm and commitment moving. Over time the continuum of the partnership should evolve to solve problems with sustainable and measurable solutions within the resources allocated. As a group you are encouraged to have a positive can-do attitude, avoid blame, avoid surprises, seek mutual accountability for problem resolution and most of all, embrace change in order to deliver warfighter capabilities.

No matter how well the partnering process is working pause and take the time to publicly recognize individuals and/or groups for their efforts and contribution. This reinforces the idea that senior leaders are engaged and the partnership processes are important to the bigger

picture program.

3.2 Understanding Industry Motivators

Better understanding of the marketplace should be important to government PMs. A wide range of market research and business knowledge increase a program's chance of success. Make attempts to attract non-traditional defense contractors ([NDC](#)) when appropriate.

Increased market intelligence starts with an understanding of the industrial base and the supply chain that may include: foreign, traditional, NDCs. Gain an appreciation from industry on what drives them to compete for government work. Many powerful market intelligence tools are available online, some for a cost and some for free. Be mindful of [controlled unclassified information \(CUI\)](#) when using commercial products.

When assessing an overall company's market position some specific areas are important for PMs to consider. This includes but are not limited to:

- How is the company organized?
- What is the company's financial health?
- What investments are being made for the future?
- What business strategy does it advertise and follow?
- What are its core products or new products?
- Who are the competitors and what other market segments should participate?
- Is the supply chain healthy?
- What risks, tied to potential incentives/strategies, is it willing and capable of handling?
- What considerations are imagined for small business, foreign interest, and NDCs?

Defense companies are generally focused on the long-term to earn profits that exceed the cost of capital, attract investors by demonstrating profitability and attract/retain talented employees. The company's financial pipeline is kept afloat by sales, orders, cash flow and profit. If a time comes that you decide to disrupt cash flow as a means to get the company's attention be prepared for all potential consequences.

Business development personnel work the corporate strategy into a nominal five year operating plan. They make projections and assumptions when deciding on an existing or new market segment. When you are not in an active solicitation get out and engage with industry. Keep in mind that the Wall Street factor is always in play because the shareholders own publicly traded companies. For private companies you should understand what motivates the company's leadership.

Business intelligence is important to the government and the same holds true that government intelligence ("what is the government thinking") is equally important to industry. Industry and government research dollars are dwindling therefore, a mutual "need to know" may be appropriate. PMs should consider their demand signal approach with industry and speak as one voice in concert with the DoD Component's priorities. If the program is within the solicitation window an exchange with industry should be discouraged. Consult with the Contracting Officer first. Outside of a solicitation and post-award window you are

encouraged to engage with industry often and as prescribed by your leadership team or the PM.

Company financial health is measurable but not always clear. The language of finance, between government and business, should improve the uncertainty level discussed earlier.

Key financial ratios are used to show how companies and stakeholders measure financial performance trends and investment potential to achieve the revenues and profit margins needed to keep companies in business. While not all-inclusive, some general considerations are shown below:

- Understand the operating plan and cost components that lead to profit margins (financial reporting via financial statements and ratios that are used by customers, investors and competitors to compare a company's efficiency).
- Consider supplier management issues which are important both for pre- and post-contract award. Outsourcing, international participation and make-buy decisions are all important in supplier and subcontractor management when considering a desired business outcomes.
- A contractor general manager may be motivated by:

$$\text{Return on Assets (ROA)} = \frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} + \text{Cash Generated}$$

- A chief operating officer may be motivated by:

$$\text{Return on Equity} = \frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholder Equity}}$$

- A chief executive officer may be measure and motivated by:

$$\text{EPS} = \frac{\text{Profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Shareholder Equity}} \times \frac{\text{Shareholder Equity}}{\text{Shares Outstanding}}$$

Search for reports, financial statements and risk data that may be publicly available at [The Securities and Exchange Commission](#) website. Look for the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) search tool.

3.3 Industrial Base Considerations in Program Planning

The development and implementation of acquisition plans for each MDAP requires consideration of the nation's technology and industrial base. These considerations are enumerated by law ([Title 10 USC § 2501](#), National Security Strategy for National Technology and Industrial Base) and may include: reconstituting industrial capabilities; providing for the development, manufacture, and supply of items and technologies; rare earth material; providing for the generation of services; maintaining critical design skills; ensuring for reliable sources of materials and reducing the presence of counterfeit parts.

Industrial capability, in the context of Title 10, generally refers to an entire industrial sector and their underlying infrastructure and processes. Industrial sectors are usually thought of broadly

and may include: aircraft; chemical, biological, radiological, and nuclear; cybersecurity for manufacturing; electronics; ground systems; machine tools; materials; missiles and munitions; shipbuilding; software engineering; space; radars and electronics. These sectors consist of a variety of discrete capabilities often implanted in your WBS. These discrete capabilities could include: diesel engines, microprocessors, batteries, food, actuators, medical supplies, internet services, and so on. It is important to be aware of these types of industrial capabilities as you conduct your acquisition planning.

On July 9, 2021 Executive Order (EO) 14036 established a White House Competition Council to coordinate and promote federal government efforts to advance competition. In February 2022 OUSD(A&S) released a report called, [DoD State of Competition within the Defense Industrial Base \(DIB\)](#). This report includes important topics and recommendations as you develop or revise your acquisition strategy. The following topics discussed in this report may interest you and your industry partners: factors impacting competition, growing the small business industrial base, NDCs, reducing barriers to competition, insufficient capacity and workforce constraints. Opening an honest and candid dialogue with industry builds the trust bonds that are necessary for technology investments and capacity building.

Uncertainty often arises with defense specific products/services. To address industrial base considerations at a strategic level, DoD formed an executive-level [Industrial Base Council](#) that includes representatives from the government departments and industry.

On July 21, 2017 EO 13806 directed the Secretary of Defense to conduct a whole-of-government effort to assess risk, identify impact and propose recommendations in support of a healthy manufacturing and defense industrial base. [Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States](#) released on September 2018. DoDI 5000.02 states in part that, “PMs will consider acquisition strategies that leverage international and supportability planning to improve economies of scale, *strengthen the defense industrial base*, and” Section VI identifies ten risk archetypes that led to a variety of negative impacts on America’s industrial base. Please review Table 2 when you are assessing your program’s acquisition strategy. Determine if your efforts have an impact, positive or negative, on the industrial base enterprise.

Table 2: Ten Risk Archetype Threatening America’s Manufacturing and Defense Industrial Base

Risk Archetype	Definition
Sole source	Only one supplier is able to provide the required capability
Single source	Only one supplier is qualified to provide the required capability
Fragile supplier	A specific supplier is financially challenged / distressed
Fragile market	Structurally poor industry economics; potentially approaching domestic extinction
Capacity constrained supply market	Capacity is unavailable in required quantities or time due to competing market demands
Foreign dependency	Domestic industry does not produce the product, or does not produce it in sufficient quantities
Diminishing manufacturing sources & material shortages (DMSMS)	Product or material obsolescence resulting from decline in relevant suppliers
Gap in U.S.-based human capital	Industry is unable to hire or retain U.S. workers with the necessary skill sets
Erosion of U.S.-based infrastructure	Loss of specialized capital equipment needed to integrate, manufacture, or maintain capability
Product security	Lack of cyber and physical protection results in eroding integrity, confidence, and competitive advantage

Title 10 USC § 2440 requires consideration of the national technology and industrial base in acquisition plans for each MDAP. DoD implemented these requirements through policy: DoDI 5000.02, DoDI 5000.85 Appendix 3C.5, DoDI 5000.75 para 4.1.g, DoDI 5000.74 para 3.3.d, and DoDI 5000.60. These policies incorporate requirements for industrial base analyses that should be appropriately documented in your acquisition strategy.

It may not be necessary, or even desirable, for each PM to perform an independent analysis of all industrial base considerations when developing an acquisition strategy. Consult with your DoD Component industrial base team and the industrial policy team at DoD. They have access to a wealth of data, resources and information for your consideration. Reach out to these teams early and take advantage of their resources. For information purposes DoD implemented a directive to address domestic industrial base challenges. Check out [DoDD 5000.62](#) for more information about: reviews of mergers, acquisitions, joint ventures, investments and strategic alliances of major defense suppliers on national security and public interest.

3.4 Market Research

Addressing industrial base considerations should not be confused with market research. Market research focuses on identifying the full range of capabilities, opportunities and alternatives that are available in the domestic and international marketplace. While conducting market research place emphasis on the supply chain. Some sectors or subsectors within industry view the supply chain as a trade secret. Therefore it may be difficult to sift through the supply chain maze to determine the original sources for raw and basic materials, electronics and knowledge. The [DoD Industrial Policy](#) website offers a wealth of helpful tools and information to include: Business Intelligence and Analytics, Mergers and Acquisitions, and Small Business. Additional guides are available to you: [DoD Market Research Report](#)

[Guide for Improving the Tradecraft in Services Acquisition](#), [DoD Guidebook for Acquiring Commercial Items](#), [DCMA Contractor Purchasing System Review \(CPSR\) Guidebook](#) and [Department of the Navy Simplified Acquisition Procedures Guide](#). Also consider the DAU Continuous Learning Module, [CLC 004](#), on Market Research.

3.5 Consideration of the IP & Data Rights – Possible Industry Perspective

Intellectual Property (IP) and Data Rights present challenges for government and industry partners. Keep in mind that industry may approach DoDI 5010.44 from a different vantage point. It is important that both parties understand the fiscal law and policies as part of a win-win agreement that protects the investor while providing the government with the tools/data/information needed throughout the program lifecycle.

Consider the IP & Data Rights requirements for your program and ensure your expectations are known early to potential vendors. Engage your team and industry with questions to anticipate the friction points that should be addressed in your strategy.

Please refer to the Intellectual Property: A Strategic and Tactical Guide for more details on IP strategy development. Other sources of information include:

- [DoD Data Strategy](#)
- [Army Data & Data Rights \(D&DR\) Guide](#)
- [Data Rights DISA](#)
- [Small Business Innovation Research \(SBIR\) Data Rights](#)
- [Air Force Data Rights Guidebook](#)
- [Requirements for the Acquisition of Digital Capabilities Guidebook](#)
- [Navigating Data Rights, Intellectual Property, and Contracting Issues in Cloud Computing Contracts – Some Common Sense Best Practices](#)
- [Acquiring and Enforcing the Government’s Rights in Technical Data and Computer Software Under Department of Defense Contracts: A Practical Handbook for Acquisition Professionals](#)
- [DoDI 5230.24](#), Distribution Statements on Technical Documents

4. Develop the Acquisition Workforce

Supervisors, influential team members, PMs, the Deputy Program Executive Officer (DPEO) and the PEO set the tone of the office environment. The cornerstone of our acquisition success lies in our Acquisition Workforce (AWF). The [DoD Acquisition Workforce Strategic Plan, FY2016-2021](#) outlines the goals and objectives to sustain and improve the capacity and capabilities of the DoD acquisition workforce. The goals are aligned and support overarching DoD strategic direction to improve the professionalism of the total acquisition workforce. Take a moment to review Section 4 of the strategic plan to ensure your program goals align to DoD.

Encourage your team and supervisors to familiarize themselves with the [DoD Back-to-Basics \(BtB\)](#) initiative. BtB improves the certification and training framework to further empower the defense acquisition workforce for success. The [BtB framework](#) includes six functional areas: Program Management, Contracting, Life Cycle Logistics, Engineering and Technical

Management, Test and Evaluation, and Business-Financial Management and Cost Estimating. The targeted implementation date of October 1, 2021 was revised to February 1, 2022. This change provided additional time to complete management actions necessary to implement BtB improvements for the defense acquisition workforce. Check out [Defense Acquisition Workforce Reform and DAU's Transformation](#) for more details.

[DoDI 5000.66, Defense Acquisition Workforce Education, Training, Experience, and Career Development Program](#), assigns responsibilities and provides procedures for the conduct of the AWF education, training, experience, and career development programs.

DoD relies on DoD Services Acquisition (SA) to fulfill mission requirements needing a broad range of functional expertise, competencies and skills. Buying services are significantly different from buying a network infrastructure. The [DoD Handbook for the Training & Development of the Acquisition of Services](#) was developed with the SA workforce in mind. The [Human Systems Integration Guidebook](#) covers a broad range of topics to include: human factors engineering, habitability, safety and occupational health, force protection and survivability, and other best practice initiatives. Also check out the [Independent Government Cost Estimate Handbook for Service Acquisition](#). You are encouraged to check with your DoD Component and/or Defense Agency for additional guidance and implementation instructions.

5. Connect Frequently with the Intelligence Community

Threat analysis and intelligence supportability assessments are increasingly critical to DoD acquisition programs. Early identification of the threat and Intelligence Mission Data (IMD) may inform a program's technical risk assessment to optimize system performance for increased survivability. [DoDD 5250.01, Management of Intelligence Mission Data in DoD Acquisition](#) established policies and governance structure led by [USD\(I&S\)](#) in accordance with [DoDD5143.02](#). It is possible that Big-A nor industry stakeholders are familiar with the changes/scope of Acquisition Intelligence nor the role of USD(I&S). Appropriate actions by the PMO should be taken to inform all stakeholders of the Intelligence Community's role. The [Office of Acquisition Intelligence](#) is the focal point for integrating intelligence and acquisition processes within the Defense Acquisition System (DAS). Please refer to the [Intelligence Support to the Adaptive Acquisition Framework \(ISTAAF\) Guidebook](#) for additional information.

6. Cybersecurity, Technology and Program Protection

The nature of today's globalized and interconnected world means that non-state and/or state sanctioned actors have greater access to tools that may do significant harm to our infrastructure using malicious cyber techniques. The [Cybersecurity for Acquisition Decision Authorities and Program Managers, DoDI 5000.90](#) establishes policy and guidance to qualify, quantify, and illuminate cybersecurity risks to acquisition programs.

Program teams must address cybersecurity planning and execution across the program lifecycle. Protection is also critical for classified and unclassified program information. The DoD Chief Information Officer ([CIO](#)) holds sole responsibility for all matters relating to the DoD information enterprise systems. A host of information exist on the CIO website that

includes Empower Mobile Data Access, Modern Software Practices, Architectures & Strategies and other relevant policies. The Test and Evaluation (T&E) community published the [DoD Cybersecurity Test and Evaluation Guidebook](#) that includes relevant cyber topics, vignettes and examples for your situational awareness. The DoD CIO Cybersecurity International Division released a helpful document called [Cybersecurity Reference and Resource Guide](#). Check with your DoD Components and Defense Agencies for specific policies.

[Technology and Program Protection to Maintain Technology Advantage \(DoDI 5000.83\)](#) assigns responsibilities and provides cyber/system security procedures for science and technology (S&T) managers and engineers. Everyone has a proactive responsibility to take actions and mitigate the impact of adversarial attacks that could degrade, disable or shut down our critical systems and infrastructure.

[Technology and Program Protection Guidebook](#) releases in FY22 and covers relevant topics to include activities to mitigate adversarial threat to technology/programs, program protection practices and activities, critical program information analysis, trusted systems and network analysis, hardware/software assurance, supply chain risk management, anti-tamper and exportability features.

7. Knowledge Management

There are a number of examples and definitions across the DoD enterprise that may satisfy your organizational Knowledge Management (KM) needs. Several examples are available for you:

- The Joint Chiefs of Staff Deployable Training Division (DTD) identified KM “as a means to enable doctrinal knowledge sharing” in a focus paper entitled, [Knowledge and Information Management Third Edition](#).
- The Department of the Navy (DoN) CIO states, “[Knowledge Management](#) is the alignment of people and processes, enabled by technology, to facilitate the exchange of operationally relevant information and expertise to increase performance. KM learning processes enable the application of knowledge and better practices, as they emerge, to existing challenges.” The [DoN KM Strategy](#) was published on March 7, 2014.
- The US Army Combined Arms Center defines [Knowledge Management](#) as “the process of enabling knowledge flow to enhance shared understanding, learning and decision making (what); through creation, organization, integration and sharing of knowledge (how); between leaders and subordinates (who); and in order to improve adaptability, integration and synchronization enabling effective decision making (why).” You are encouraged to review the graph used to bridge the KM gap. The US Army published [ATP 6-01.1 \(FM 6-01.1\) Techniques for Effective Knowledge Management](#) as an additional resource to use as needed.
- The RMF Knowledge Service (KS) is DoD’s official site for enterprise RMF policy and implementation guidelines. The [RMF KS](#) provides cybersecurity practitioners and managers with a single authorized source for execution and implementation guidance, community forums and the latest information on the RMF. *You are required to register your CAC for access.*
- The DoD Joint KM Working Group recommended the following definition.

“Knowledge management is a discipline that integrates people and processes enabled by tools throughout the information lifecycle to create shared understanding, increased organizational performance, and improved decision making.” The Chairman of the Joint Chiefs of Staff Instruction (CJCSI) may be signed before the end of the calendar year. Once the new KM CJCSI is approved CJCSI, dated 12 April 2013, will be cancelled.

8. Glossary of Acronyms

AAF: Adaptive Acquisition Framework
ASD(A): Assistant Secretary of Defense Acquisition
ATP: Army Technical Publication
AWF: Acquisition Workforce

BoK: Body of Knowledge BtB: Back-to-Basics
CAC: Common Access Card

CAPE: Cost Assessment and Program Evaluation
CBB: Contract Budget Base
CIO: Chief Information Officer
CJCSI: Chairman of the Joint Chiefs of Staff Instruction
CLC: Continuous Learning Course
COVID19: Coronavirus disease
CPSR: Contract Purchasing System Review
CRM: Crew Resource Management
CUI: Controlled Unclassified Information

D&DR: Data & Data Rights
DAG: Defense Acquisition Guidebook
DAS: Defense Acquisition System
DAU: Defense Acquisition University
DAWIA: Defense Acquisition Workforce Improvement Act
DCMA: Defense Contract Management Agency
DFAR: Defense Federal Acquisition Regulation
DIB: Defense Industrial Base
DID: Data Item Description
DoD: Department of Defense
DoDD: Department of Defense Directive
DoDI: Department of Defense Instruction
DoN: Department of the Navy
DPEO: Deputy Program Executive Officer
DTD: Deployable Training Division

EO: Executive Order
ESI: Enterprise Software Initiative
EVM: Earned Value Management
EVMS: Earned Value Management System
EVMSIG: Earned Value Management System Interpretation Guide

FFP: Fixed Firm Price
FFRDC: Federally Funded Research and Development Center
FMS: Foreign Military Sales

GAO: Government Accountability Office

IBR: Integrated Baseline Review

IMD: Intelligence Mission Data

IMP: Integrated Master Plan

IMS: Integrated Master Schedule

IP: Intellectual Property

IPMR: Integrated Program Management Report

IPMDAR: Integrated Program Management Data Analysis Report

IPT: Integrated Product Team

ISTAAF: Intelligence Support to the Adaptive Acquisition Framework

JCIDS: Joint Capabilities Integration and Development System

KM: Knowledge Management

KPP: Key Performance Parameter

KS: Knowledge Service

KSA: Key System attributes

LCSP: Lifecycle Support Plan

LCL: Life Cycle Logistician

LOE: Level of Effort

M&Q: Manufacturing and Quality

MCA: Major Capability Acquisition

MDA: Milestone Decision Authority

MDAP: Major Defense Acquisition Program

MIL-STD: Military Standard

NAVFAC: Naval Facilities Engineering Command

NDC: Non-traditional Defense Contractor

O&S: Operations and Sustainment

OUSD(A&S): Office of the Undersecretary of Defense for Acquisition and Sustainment

OUSD(R&E): Office of the Undersecretary of Defense Research and Engineering

PALT: Procurement Action Lead Time PEO: Program Executive Officer

PM: Program Manager

PMB: Performance Management Baseline

PMO: Program Management Office

PPBS: Planning, Programming and Budgeting System

RMF: Risk Management Framework

S&T: Science and Technology

SBIR: Small Business Innovation Research

SRA: Schedule Risk Assessment

T&E: Test and Evaluation

USC: United States Code

WBS: Work Breakdown Structure