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# Creating a "Should Cost" Culture Through Opportunity Management

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## Abstract

The 2016 *Performance of the Defense Acquisition System Annual Report* states, "The institution of 'should cost' management ... has been a success and should be a permanent feature of the DoD's acquisition culture." Yet, inculcation into culture implies a mindset that executes cost saving opportunities throughout all levels of the acquisition workforce to the lowest level workers. Initiatives, such as Configuration Steering Boards and USAF's "Bending the Cost Curve" are important and communicate leadership engagement; however, creating a "should-cost" culture requires every level of the acquiring organization to continuously seek both small and large cost saving ideas. One could posit that the system engineering community has transformed from merely managing risks to expanding into exploring opportunities. However, the question becomes, are opportunities being as aggressively pursued and managed as risks? By conducting surveying, this research studies the perceptions of acquisition professionals as to the implementation of opportunity management for the purpose of determining the depth that "should-cost" philosophy has penetrated organizations. This study discusses methods to drive the "should-cost" philosophy deeper into organizations, along with the role that defense acquisition education could play.

## Introduction

Although the concept of "should-cost" has been around since shortly after World War II as both technical and organizational complexity soared, the recent rendition of should-cost is traced to the Better Buying Power initiative, established by Ashton Carter, then Under Secretary of Defense, Acquisition, Technology, and Logistics (USD[AT&L]) in 2010 (Burt, 1972; Husband, 2014). Recently, the Department of Defense (DoD) has touted to Congress that "lower contract costs, reduced cost overruns, and arrested cost growth" can be directly tied to BBP's "should cost" initiative (Maucione, 2017). Accordingly, in the 2016 *Performance of the Defense Acquisition System Annual Report*, the authors state that "the institution of 'should cost' management and its consistent emphasis over the last 6 years by the acquisition chain-of-command has been a success and should be a permanent feature of the DoD's acquisition culture" (pp. xviii, xix). This statement is not surprising as Carter, in a 2011 *Defense AT&L Magazine* article, co-written by John Mueller, wrote that "There are no silver bullets; each PM must find solutions that fit his or her specific program. In the final analysis, embracing the 'should cost' management paradigm represents a cultural change, not just a one-time event" (p. 17), along with "It is not a one-time fix but a change in the culture of our government teams and our contractors" (Carter & Mueller, 2011, p. 18). Yet, inculcation into culture implies a mindset that executes cost saving opportunities throughout all levels of the acquisition workforce down to the lowest level workers. Yet, as Husband (2014) points out, "Unlike industry, which is driven by profits, government PMs often focus solely on risks and pay insufficient attention to cost-reduction opportunities" (p. 571). DoD Director of Defense Pricing, Shay Assad, said that instilling the acceptance of should-cost was a great struggle for the DoD and that the bureaucratic mindset, that is, culture, needed to start thinking differently from historical-based pricing, that is, "will cost" to "should-cost" (Maucione, 2017; Risor, 2011). Also, inculcation into culture implies that values and artifacts



align with the pursuit of should-cost, which takes time and leadership attention (Hatch & Cunliffe, 2013).

For major programs, DoD 5000.02 requires that

program managers, in consultation with the PEO, and the requirements sponsor, will, on at least an annual basis, identify and propose to the CSB (Configuration Steering Board) a set of recommended requirements changes to include descoping options that reduce program cost and/or moderate requirements and changes needed to respond to any threat developments.

While the program managers' efforts in bringing tradeoffs before the CSB is also a step in the right direction, reducing costly design decisions by capitalizing on the effects of many small changes will be difficult to achieve in a once yearly forum. For these types of tradeoffs, systematic, process-driven pursuit of small changes is required via other ways, for example, opportunity management (OM).

Similarly, in 2015, the Air Force announced its "Bending the Cost Curve" initiative, featuring a cost-capability analysis program, which also offers cost-savings opportunities. However, this initiative only promotes the conversation during the pre-EMD contract award stage. Unfortunately, it is only during detailed design that many cost-capability opportunities become apparent, reinforcing the need for a continuous opportunity-driven mindset. All of these initiatives are important and communicate leadership engagement; however, creating a "should-cost" culture requires acquisition professionals at all levels of the organization to continuously seek and implement both small and large cost saving ideas.

With the replacement of the August 2006 *Risk Management Guide for DoD Acquisition* with the broadened June 2015, and subsequent 2017, *Department of Defense Risk, Issue, and Opportunity Management Guide for Defense Acquisition Programs* (ROI Guide; DoD, 2017), one could posit that the system engineering community has transformed from merely managing risks, both potential and realized (issues) to expanding into exploring opportunities. At the lower levels of the organization, opportunities, as defined by the ROI Guide, "are potential future benefits to the program's cost, schedule, and/or performance baseline, usually achieved through proactive steps that include allocation of resources" (p. 43), and that "risk and opportunity management support Better Buying Power initiatives to achieve should-cost objectives" (DoD, 2017, p. 43). Figure 1 from the RIO Guide highlights the relationship between should cost and OM, which elucidates the importance of OM at lower levels of an organization in the effort to create a "should-cost" culture.





Figure 4-1. Opportunities Help Deliver Should-Cost Objectives

**Figure 1. Opportunities Help Deliver Should-Cost Objectives**  
(DoD, 2017, Figure 4-1)

However, the question becomes, are opportunities as well understood and are they being as aggressively pursued and managed as risk and issues? By conducting quantitatively-based, statistically-significant surveying, this research studied the perceptions of acquisition professionals as to the implementation of OM at the lower levels of acquisition organizations for the purpose of determining the depth that the “should-cost” philosophy via the lower level OM has penetrated their organizations. Using this data, the study posits methods for increasing the ability for leaders to drive “should-cost” philosophy deeper into their organizations and the role that defense acquisition education should play for the purpose of creating and sustaining a “should-cost” culture.

**Should Cost**

Although the concept of “should cost” is tied to the 1960s practice of employing a team of experts to complete a comprehensive, meticulous analysis at a defense industry contractor’s facility, and limited as “what a defense system *ought to cost*, assuming reasonable economy and efficiency in the contractor’s operations” (Burt, 1972, p. 3), Ashton Carter, in his BBP initiative, co-opted the phrase and broadened it to include challenging “the business-as-usual approach, with its underlying assumption that program costs will grow to match (or exceed) the independent cost estimate” (Carter & Mueller, 2011, p. 14). Carter and Mueller (2011) warn not to confuse the 2010 version of “should-cost” with the DFARS “should cost review” and its emphasis on production. The ultimate goal of the earlier should-cost review was to provide the government team with in-depth information in support of a better negotiating position and “set realistic objectives for negotiating the immediate contract” (Burt, 1972; Morin & Van Buren, 2011, p. 1). Instead, the “should-cost” initiative found in BBP demands across-the-lifecycle implementation, with a particular emphasis on “up-front planning and exploring engineering trades,” as program managers “drive leanness into their programs by establishing Should-Cost estimates at major milestone decisions,” by looking at every “cost element, including government costs, acquisition strategies, and any technique that could provide net savings” (Carter & Mueller, 2011, p. 16; Husband, 2014, p. 568; Morin & Van Buren, 2011, p. 1).

Congress, without using the term “should cost,” also addressed the use of historical data for budgeting purposes when the Ike Skelton National Defense Authorization Act for Fiscal Year 2011 passed employing the following verbiage:



(a) cost estimates developed for baseline descriptions and other program purposes ... are not to be used for the purpose of contract negotiations or the obligation of funds; (b) cost analyses and targets developed for the purpose of contract negotiations and the obligation of funds are based on the government's reasonable expectation of successful contract performance in accordance with the contractor's proposal and previous experience. (Husband, 2014)

Willen and Garber (2011) posit that when implemented systematically, should cost can "reduce system costs by 5 to 15 percent and subsystems by up to 40 percent." In fact, William LaPlante, when Assistant Secretary of the Air Force for Acquisition (SAF/AQ), claimed over \$2 billion in actual program cost cutting in recent years with more to come (Serbu, 2015). Experience has shown that benefits are best when a cross-functional team, employing various skills, is required to reap the should-cost review benefits (Bioto et al., 2012).

### **Organizational Culture Change Challenges**

At its heart, "should cost" is about challenging the status quo, that is, the historical costs that form the basis of what a program is budgeted to. With the requirement of managing to should cost being a "long-term endeavor" (p. 17) and the inevitable resistance to change from the status quo, inculcation of should cost into the DoD culture will take considerable, persistent effort (Carter & Mueller, 2011, p. 14). Two major resistor elements are the DoD's mechanistic organizational structure, which tends to preserve the status quo, and the program managers' fear that "should cost" was just one more opportunity for higher headquarters to cut their funding (Husband, 2014). David Van Buren (Air Force Service Acquisition Executive) and Jamie Morin (Assistant Secretary of the Air Force [Financial Management and Comptroller]) in a joint memorandum confirm this trust issue by stating, "We recognize program managers have concerns about providing estimates that are lower than the budget, since DoD culture tends to use programming and budgeting to incentivize achievement"; however, they affirm that "this is not the intent of this [Should Cost] initiative" (Morin & Van Buren, 2011, p. 1.). Also, Carter sought to alleviate the fear of lost funding with his joint memorandum with the Under Secretary of Defense (Comptroller/Chief Financial Officer) Robert Hale, writing that after validation of actual savings by the Service Assistant Secretary (Financial Management and Comptroller), that "Savings would then generally be retained by the Service and reallocated to the highest priority needs as determined by the Service Secretary or a senior leader as designated by the Service Secretary" (Carter & Hale, 2011, p. 1).

The DoD's mechanistic organizational structure may present an even more challenging hindrance to culture change. Mechanistic organizations are depicted by elevated levels of hierarchical structure and hegemony; distinctly delineated roles and responsibilities; written policies and practices; specialized, standardized tasks; and centralized decision-making procedures, which research has shown to be restrictive to the innovation, flexibility, and creativity needed to identify opportunities (Hatch & Cunliffe, 2013). Mechanistic organizations are intended to achieve certain goals using fixed regulations, policies, events, or standards, which can be difficult in a complex, changing world ("Mechanistic Organizations," n.d.; Morgan, 1986). However, the advantages of a mechanistic organization are that formalization and control can lead to greater efficiencies through reduced variation and better predictability, which can help develop the institution of should-cost and OM, but will require added effort, as the mechanistic structure tends to hold fast to past practices, such as risk management (RM) only, rather than expand to include new practices, such as aggressively seeking OM (Fiol & Lyles, 1985; "Mechanistic



Organization,” n.d). Organizational structure induces and is interwoven with the culture, including a confirmed “negative correlation between centralization and innovation” (Whittinghill, 2011, p. 17). “Should cost,” and by extension OM, are a result of innovative behaviors and questioning status quo. For this to become cultural, strong leadership must encourage the creative thought needed to derive these opportunities.

Schein’s Theory of Culture theorizes that a collection of basic assumptions, taken for granted by the culture’s member, form the basis of a culture (Hatch & Cunliffe, 2013). For example, in America, the freedom of speech and religion, along with our democratic elections, are basic cultural assumptions. Even as our mindfulness of these basic assumptions diminish, they guide our perceptions, thoughts, and feelings (Hatch & Cunliffe, 2013). Schein considers values as the next level of culture, sharing that they provide the “social principles, goals, and standards that cultural members believe have intrinsic worth” (p. 169), leading members in their concept of right and wrong and leading to defined behavioral standards and expectations (Hatch & Cunliffe, 2013). The third and final level of Schein’s hypothesis is artifacts, which are the outward indicator of values in the form of objects, verbal expressions, and behaviors (Hatch & Cunliffe, 2013). The U.S. Marines phrase *semper fidelis*, Latin for “always faithful,” offers a superb case of an artifact derived from the values of honor and duty to country and fellow marines.

While the inherent control that comes with a mechanistic organization makes expressing new ideas, questioning performance requirements, and change difficult, one potential way of increasing the likelihood of a shift towards a “should-cost” culture is by increasing the emphasis on a lower-level, grassroots approach to cost savings, OM (Morgan, 2006).

## **Opportunity Management**

OM can be described as an extension of a disciplined system engineering approach, and complement to the more well-known and better implemented RM (DoD, 2017; Pridgen et al., 2012). In fact, risk and opportunities can be seen as opposite sides of the same coin (Dester & Blockley, 2003, p. 83). Opportunities are defined in the 2017 RIO Guide, as the “potential future benefits to the program’s cost, schedule, and/or performance baseline, usually achieved through reallocation of resources” (p. 43). OM is described by the RIO Guide as a support to “Better Buying Power initiatives to achieve should-cost objectives” (DoD, 2017, p. 43), as a way to “help offset cost or schedule impacts from realized risks” (p. 43). The OM process is similar to the RM process with both employing a five-step approach. Figure 2, taken from the ROI Guide, describes the OM process.





**Figure 2. Opportunity Management Process**  
(DoD, 2017, Figure 4-2)

Programs are advised that they may either use the RM board or establish a separate OM Board (OMB), and upon disposition, track the opportunity via an opportunity register, which is analogous to the risk register (DoD, 2017). The RIO Guide describes four possible dispositions after the opportunity candidate has been evaluated for potential cost, schedule, and performance benefits, along with any additional risks potentially introduced. Options included are the following:

- “Pursue now – Fund and implement a plan to realize the opportunity. (Determination of whether to pursue the opportunity will include evaluation of the return of any investment when the opportunity would be realized, the cost, additional resources required, risk, and time to capture.)
- Defer – Pursue/cut-in later; for example, request funds for the next budget and request the S&T community mature the concept.
- Reevaluate – Continuously evaluate the opportunity for changes in circumstances.
- Reject – Intentionally ignore an opportunity because of cost, technical readiness, resources, schedule burden, and/or low probability of successful capture” (DoD, 2017, p. 45)

The RIO Guide advocates using any realized savings as an offset for any issues: yet, it also introduces the option to use the OM process to pursue more capability. While giving the warfighter added capabilities is a worthy goal, the better option may be to be more aggressive on “should-cost” goals. One of the potential problems with OM used for capability enhancement, as outlined by Conrow and Charette (2008) in their *Defense AT&L Magazine* article, “Opportunity Management: Be Careful What You Ask For,” is that “unless tightly controlled, OM may exacerbate the enduring problem of requirements creep that plagues programs today” (p. 16), defining opportunities as “the potentially desired better- (or greater-) than-expected outcome of an event or situation that requires an additional allocation or reallocation of resources to pursue” (p. 16). One could argue that this criticism, while somewhat valid, is narrowly-focused on one potential use of OM. Quite the opposite application could be pursued using OM methodology, where cost-driving performance requirements could be challenged with the opportunity to trade off certain thresholds if cost saving and/or avoidance amounts warranted, with consent of the budgeting command, who determine overall affordability in accordance with DoD Instruction (DoDI) 5000.02, *Operation of the Defense Acquisition System*. In fact, the RIO Guide, while sharing the expectation that “high-return opportunities to improve the program life cycle cost, schedule and performance

baselines” (DoD, 2017, p. 47) be evaluated and actively pursued, expectations are also for programs to “establish opportunity likelihood and benefit criteria in line with program ‘should-cost’ objectives” (p. 47). Analysis of the current DoD RIO Guide and defense acquisition education reveals the strong cultural preference for identifying and averting risks over identifying and pursuing opportunities. As described above, only five pages are dedicated to describing and instructing on OM within the 96-page RIO Guide. Also, an analysis of learning objectives of Defense Acquisition University (DAU) Defense Acquisition Workforce Improvement Act (DAWIA) curriculum demonstrates a strong preference for RM instruction over OM.

### Assessment of Defense Acquisition University Learning Objectives

An analysis of the DAU curriculum focused on core DAWIA required courses for certification requirements revealed only one major terminal/enabling learning objective (ENG 301) for the topic of OM related to should cost, compared to the 22 major terminal/enabling learning objectives on RM. (Note that ENG201: Applied Systems Engineering in Defense Acquisition, Part I, is under development, and course objectives were not available.) Figures 3–16 show the results of a survey of DAU course objectives across the acquisition, engineering, contracting, and production, quality, and manufacturing learning objectives, where one might expect OM and RM objectives to most reasonably be found.

<b>1</b>	<b>Recognize the key drivers of the Department of Defense's Acquisition Management System.</b>
	Define Systems Acquisition Management.
	Recognize how <i>risk</i> (cost/schedule/performance) is at the core of acquisition management.
	Name the principle regulations governing defense acquisition and procurement.
	Recognize the requirement for effective safety and health programs for every defense acquisition program and top-level legislation that applies to our environmental concern.
	Identify the three major DoD decision-making support systems in defense acquisition programs.

**Figure 3. ACQ 101—Fundamentals of Systems Acquisition Management Course Objectives**

<b>2</b>	<b>Apply the risk management process as a basis for making sound acquisition program decisions</b>
	Relate the key tenants of IPPD to planning and executing an acquisition program
	Identify the barriers to successful IPT implementation
	Identify key acquisition best practices, including commercial practices that impact the relationship between government and industry.
	Identify the information required for a decision review and recognize the significance of the Acquisition Program Baseline, Key Performance Parameters, and Acquisition Strategy
	Identify the advantages and disadvantages of international armament cooperative development in an acquisition strategy.
	Identify long term supportability and sustainment strategies through the application of Product Support Business model (PSBM) and the 12 - Step Product Support Strategy Process Model.
	Capture the Product Support Strategy and specific planning execution details in the LCSP.
	Identify the five activities of the risk management process model.
	Use the risk management process to identify the major areas/sources of <i>risk</i> in an acquisition program strategy.
	Use Technical Performance Measures to track progress in program <i>risk</i> areas during systems development.
	Identify the role of Early Operational Assessment (EOA) in reducing program <i>risk</i> .
	Relate the Acquisition Program Baseline (APB) to planning, control, and <i>risk</i> management in attaining cost, schedule and performance goals.
Recognize the relationship between <i>risk</i> management and exit criteria.	
<b>5</b>	<b>Determine the role of contracting in the acquisition process and the major contractual contributions toward managing program <i>risk</i>.</b>
	Apply the <i>risk</i> management process as a basis for making sound acquisition program decisions

**Figure 4. ACQ 202—Intermediate Systems Acquisition, Part A Course Objectives**





9	Analyze actual versus planned technical performance data in risk areas to indicate potential problems that may prevent a system from being operationally effective and suitable.
	Identify potential risk areas based on technical performance data
	Identify the role of technical performance measures in the systems engineering process.

Figure 5. ACQ 203—Intermediate Systems Acquisition, Part B Course Objectives

3	The student, while serving in the role of a contracting leader, will determine risk mitigation techniques to use in a contracting related problem.
	Identify the reasons for the presence of risk
	Analyze risk handling techniques as stated in the DoD Risk, Issues and Opportunities Guide, June 2015 in a contracting issue
Identify industry risk factors during the contracting process	
Using knowledge of industry risk and personal perspective, formulate viable solutions to a contracting dilemma	
Using knowledge of industry risk and personal perspective, evaluate viable solutions to a contracting dilemma in order to reach a defensible decision	
19	Given a program scenario and cost reduction opportunities, the student will develop engineering inputs for a should-cost management plan in accordance with in accordance with DoDI 5000 and the Defense Acquisition Guidebook (DAG).
	Recognize the relationship between Affordability, Will-Cost, and Should-Cost baselines.
	Compare Value Engineering to should cost management.
	Describe an approach to implementing should cost management on an acquisition program.
	Given a set of executable cost reduction initiatives, analyze the initiatives from an engineering perspective.
	Given a set of executable cost reduction initiatives and set of constraints, develop an associated program should cost baseline.
	Given a program scenario, develop a list cost reduction initiatives to support should cost management in the operations and sustainment phase.

Figure 6. CON 360—Contracting for Decision Makers Course Objectives

17	Describe the function of the Risk Management process as part of the Systems Engineering Process
	Describe the purpose, inputs and outputs, and activities of the Risk Management Process
	Describe how Risk Management is used
	Outline the importance of risk identification
	Summarize risk mitigation techniques
	Explain the role of risk tracking

Figure 7. ENG 301—Leadership in Engineering Defense Systems Course Objectives

8	Given DoD technical risk management problem solving scenarios, provide rationale for the selection and defense of a best solution using the guidance provided in the DoD 5000 series documents, DAG, and DoD Risk, Issue, and Opportunity Management Guide for Defense Acquisition Programs.
	Given a risk management scenario, demonstrate the use of the DoD Risk Management process steps.
	Given a risk management and problem solving scenario, demonstrate use of the Risk Reporting Matrix using the Likelihood and Consequence Tables discussed in this lesson.
	Given a risk management and problem solving scenario (issue), defend the best option to pursue to control risk.
	Given a risk management and problem solving scenario (issue), determine specific implications of potential Design Considerations.

Figure 8. ENG 101—Fundamentals of Systems Engineering Course Objectives

5	Given a capability development scenario, the student will analyze a capability need and develop a systems engineering risk assessment to support early acquisition life-cycle development planning in accordance with policy established in DoDI 5000.02 and the Defense Acquisition Guidebook.
	Identify the systems engineering inputs to a Material Development Decision (MDD)
	Identify the major elements of an Analysis of Alternatives as described in the DAG.
	Identify sources for investigating technology opportunities and risks related to development of a needed capability.
	Derive a list interfacing systems and stakeholder organizations that will influence the requirements and constraints for a preferred materiel solution.
	Analyze an Initial Capabilities Document (ICD) to support development of system-level performance requirements.
	Assess a proposed materiel solution for technology insertion risks and opportunities.
	Assess user capability requirements and the related preferred materiel solution for risks related to systems engineering design considerations.

Figure 9. ENG 202—Applied Systems Engineering in Defense Acquisition, Part II Course Objectives



10	<b>Given a system development scenario and system architectural description, the student will develop appropriate system security risk mitigations (system security features), in accordance with the Defense Acquisition Guidebook and concepts discussed in class.</b>
	Analyze a system's CONOPS and architecture description for critical system functions and related critical program information.
	Analyze a system's CONOPS and architecture description to identify potential System Security risks.
	Evaluate a system CONOPS for tradeoffs between interoperability related requirements and system security requirements.
11	<b>Given a system development scenario, the student will evaluate strategies to manage program uncertainty through integration of program metrics and technical measurement with program risk management in accordance with Earned Value Management standards, the DoD Risk Management Guide, and the Defense Acquisition Guidebook.</b>
	Recognize the role of systems engineering in establishing a cost, schedule, and performance baselines for a given project.
	Describe a process for developing a set of program metrics and measures (EVM and TPMs) to support integrated technical assessment and program management.
	Identify sources of program technical risks.
	Given a specific risk, analyze the risk in accordance with the DoD Risk Management guide.
	Derive a set of technical performance measures to support management of program risk.
	Discuss strategies to integrate use of technical performance measurement and Earned Value Management to manage program risk and uncertainty.
8	<b>The student will describe major elements of system security engineering as it applies to the design, development, procurement, and sustainment of DoD systems in accordance with the directives and guidance discussed in class.</b>
	Define system security engineering related terms of critical program information (CPI), mission critical functions, mission critical components, trusted systems and networks (TSN), and supply chain.
	Describe the major elements of program protection plan (PPP).
	Describe the methods for determining system security engineering requirements and design features.
	Describe CPI risk assessment concept.
	Describe horizontal protection process.
	Describe TSN risk assessment concept.
	Recognize the appropriate application of specific countermeasures to the protection of technology, mission-critical functions, mission-critical components, and information.
	Describe countermeasure considerations of foreign involvement to include Anti-Tamper.
	Describe software assurance (SwA).
	Describe supply chain risk management (SCRM).
	Describe cybersecurity as a countermeasure.
Describe the integrated risk management concept.	

**Figure 10. ENG 301—Leadership in Engineering Defense Systems Course Objectives**

10	<b>Given a scenario, apply risk management actions and processes for a program.</b>
	Differentiate between "risks" and "issues."
	Describe the DoD Risk Management Process.
	Identify program risks and their associated root causes.
	Apply risk analysis techniques to a program's risk areas.
	Identify potential risk mitigation options for risk events.
	Describe methods for risk tracking.
State the objectives of risk planning.	
11	<b>Determine organizational structures to manage risk.</b>
	Describe typical potential program risk management organizational structures.
12	<b>Use risk management software for risk analysis.</b>
	Determine risk ratings using risk management software.
	Apply Monte Carlo simulation software for a program schedule analysis.
	Examine program risk levels based on the results of Monte Carlo simulations.

**Figure 11. PMT 251—Program Management Tools, Part I Course Objectives**



1	<b>Generate program solutions and documents using program management tools and techniques in an acquisition program scenario.</b>
	Using scenario documentation; develop a Team Charter for an Integrated Product Team (IPT) describing the team's purpose, goals, roles, operating agreements and critical success factors
	Using a list of product office personnel, construct an IPT addressing both personnel availability and background/experience
	Given market research and company data, assess technology maturity to determine technology readiness levels
	Using product office documentation; select cost, technical, and schedule criteria to evaluate system alternatives
	Using product cost, technical, and schedule data; evaluate alternatives to determine an order of preference
	Given revised scenario data, re-evaluate alternatives to determine a recommended alternative
	Given a simulated contractor's schedule and supporting documentation, analyze them to identify errors
	Using scenario documentation, apply risk management processes to identify and analyze risks, and propose mitigation plans
	Given Earned Value Management (EVM) data, analyze it to determine project status
	Provided additional EVM data, evaluate it to detect trends in contractor performance
	Using EVM data, assess contract performance, to identify significant risks, issues, and recommended courses of action
	Provided simulated contractor cost data and guidance, use cost estimating techniques and factors to develop a detailed cost estimate
	Given scenario information, prepare an information issue paper to document results of issue analysis
	Given a project risk occurrence, apply problem solving tools to determine a recommended course of action
	Using results of issue analysis, develop a decision briefing to justify a recommended course of action
	Given sample risk management software tools, compare their features to determine their advantages and disadvantages
Given a scenario, apply project management tools to generate project documentation	

Figure 12. PMT 257—Program Management Tools, Part II Course Objectives

2	<b>Given a situation, identify risks in the formulation of a transition or acquisition strategy.</b>
	Explain supply chain management risks to manufacturing.
14	<b>Given a scenario analyze a program production plan and its relationship to the overall acquisition strategy.</b>
	Explain the purpose of manufacturing risk management.
	Define the common manufacturing risk categories.
	Define the 5 M's of Manufacturing.
	Explain the purpose and benefit of the Best Manufacturing Practices Center of Excellence.
	Explain the basics of Lean Manufacturing.
18	<b>Analyze software measurement data and develop software risk mitigation plans.</b>
	Given a scenario and the Practical Software Measurement Methodology (PSM), prepare a set of appropriate software management, quality and process measures.
	Explain the importance and methods of determining ESCH risk levels.
	Identify issues that impede effective ESCH implementation.
	Explain ESCH risk management techniques.

Figure 13. PMT 352A—Program Management Office Course, Part A Course Objectives



6	Given a situation, identify risks in the formulation of a transition or acquisition strategy.
	Given a contract, prepare an integrated risk assessment in response to a government solicitation.
	Analyze risk items regarding cost, schedule and technical maturity.
	Recognize the technology transition mechanisms and their roles.
	Recognize four practices that support the rapid and effective transition from science and technology to products.
21	Given program requirements, the acquisition strategy and risk management software, analyze the program's risks.
	Given a scenario with design decisions to document and ensure deliveries reflect a best-value balance among cost, schedule, performance and technical risk factors, relate appropriate system engineering technical management processes that assess alternatives and measure progress.
	As testing progresses, modify technical risk plans to address unexpected results.
	Conduct trade studies to achieve appropriate balances between cost, schedule, performance, and risk.
	As testing progresses, revise design decisions as required to meet and exceed cost and performance requirements.
Given a government solicitation, synthesize design alternatives, risk, and requirements.	
Given program status, discuss recommended programmatic changes at an information brief in the context of risk mitigation.	
Assess software quality risks associated with software development for a given program.	
Given a scenario, develop appropriate mitigation strategies for software acquisition risks you identified.	
40	Given a system's status and user feedback, re-evaluate program risk and revise mitigation plans.
	Propose a program's plan for risk mitigation.
	Given international and interoperability issues, revise risk management plan and risk handling/mitigation plan.
	Given production changes/challenges, assess a program's risk and associated risk handling options.
	Explain the purpose of manufacturing risk management.
Define the common manufacturing risk categories.	
Explain the risks associated with unstable rates and quantities, variation in processes, and special tools and equipment.	

Figure 14. PMT 352B—Program Management Office Course, Part B Course Objectives

10	Recognize the DoD acquisition risk management process within and IPPD/IPT environment.
	Recognize current Department of Defense risk management policy for acquisition programs.
	Identify the basic categories and examples of risk for acquisition programs.

Figure 15. PQM 101—Production, Quality, and Manufacturing Fundamental Course Objectives

Describe manufacturing as a design constraint, risk driver, and an enabling/critical set of technologies
Describe producibility as a design constraint, risk driver, and manufacturing enabler
Identify and assess basic supply chain operational issues, problems and risks
Identify and discuss methods, tools and techniques used to manage and mitigate ESOH risks
Identify and describe the key elements of the DoD Risk Process Model
Conduct a Manufacturing Readiness Assessment on an assigned program identifying manufacturing and/or quality risks

Figure 16. PQM 301—Advance Production, Quality, and Manufacturing Course Objectives

Not surprising with little emphasis placed both in policy and education, qualitative data from the Risk and Opportunity Management Survey confirm the perception that DoD acquisition professionals are more familiar with, and that organizations are more actively pursuing, RM over OM.



## Quantitative Methodology

A literature search has not revealed any qualitative or quantitative research on the acquisition workforce professionals' perception of their understanding of RM and OM, or their leadership and organization's pursuit of RM and OM.

## Research Questions and Hypotheses

The scientific aim of this research is to establish the need to increase the emphasis in education and practice of OM by comparing it to the emphasis on RM. While a comparison between RM and OM provides an evaluative tool for understanding any deficiencies in OM education and/or practice, the author is not advocating any decrease in RM at the expense of OM. Both are valuable tools in program management and cost control. The quantitative research questions directly applicable to the survey are as follows:

1. Do acquisition workforce members perceive that they understand OM equal to RM?
2. Do acquisition workforce members perceive that they work for leadership that encourages OM equal to RM?
3. Do acquisition workforce members perceive that they work for an organization that actively pursues OM equal to RM?

Answering these research questions through use of the survey instrument, focused on RM and OM, the former as a comparative tool, has the potential to provide the DoD with a practical roadmap to increase education in OM and make its practice a useful tool in the pursuit of a should-cost culture.

Hypothesis 1: Acquisition workforce members perceive that they understand OM less than RM.

The expectation is that acquisition workforce members will perceive that their understanding of OM is less than that of RM. Not only is OM less mature as a discipline, but the current DoD's culture is more focused on ensuring that failure doesn't occur than on creating opportunities for increased success.

Hypothesis 2: Acquisition workforce members perceive that their leadership encourages OM less than RM.

The expectation is that acquisition workforce members will perceive that, overall, their leadership encourages OM less so than RM. With the RM process being more ingrained in the system engineering process, leaders need to provide greater personal emphasis and expend greater personal energy on OM to create an environment where RM and OM receive equal attention and resources.

Hypothesis 3: Acquisition workforce members perceive that their organization manages opportunities less than it manages risk.

The expectation is that acquisition workforce members will perceive that their organization manages opportunities less than risk. Again, with RM process being more ingrained in system engineering process, organizations need to have processes that emphasize equal discipline and process control to RM and OM.



## Research Design

The most appropriate research design for exploring these hypotheses is to conduct surveys that can capture the perceptions of acquisition workforce members across multiple functional areas, years of experience, services, and organizational type. Questionnaires are an appropriate and relatively easy way to collect information across a wide population for studying behavioral items (Cozby & Bates, 2012). The research design consists of a simple, one-page questionnaire to be distributed via an email with an Opinio-developed questionnaire to previous DAU classes, as well as an identical paper version to be given in multiple DAU residential classes. It is developed specifically to minimize the time required to distribute and complete in order to encourage participation, since the paper version is being conducted using class time. Paper version surveys are post-collection converted electronically into the electronic Opinio format to reap the data collection analysis and reporting tools available through Opinio.

Although preference would be to consider these hypotheses across the total population of interest—that is, all acquisition professionals, including all organizations, services, geographic areas, and experience levels—that would be too costly, impractical, and probably impossible (Acharya et al., 2013). Due to time and cost constraints, and a population of over 100,000 acquisition professionals (45,443 Army, 40,651 Navy, and 25,075 Air Force, when surveyed in 2007), sampling was limited to students attending DAU courses at DAU Midwest campuses, that is, convenience sampling (DAU, 2007). One disadvantage of convenience sampling is that bias can be introduced since a sampling of DAU Midwest students will likely comprise a large percentage of students from the local USAF base, Wright-Patterson AFB, which may not be an accurate representation of the overall acquisition workforce population (Cozby & Bates, 2012).

## Population and Sample

Questionnaires were made available to all acquisition workforce students taking classes at DAU Midwest campuses from mid-February through late-March 2017. With an acquisition workforce of over 100,000, a sample size of 384 participants is required to provide a precision of estimates of +5% with a 95% confidence level (Cozby & Bates, 2012). A total of 388 surveys were collected.

## Measures/Instrumentation

A survey instrument (see Appendix) was developed specifically for this research. Perceptions on an understanding of, encouragement of, and use of OM was based specific questions on OM, as well as on a comparative analysis of participants' perceptions of their understanding of, leadership encouragement of, and organizational use of RM.

The survey is divided into two sections. The first section includes 10 statements employing a 5-point Likert scale used for each item (1=strongly disagree to 5=strongly agree). The first six questions were directly related to the opportunity to RM comparison. The next three questions were created to qualitatively determine which specific areas of OM were perceptually most encouraged by leadership—continuous improvement in both generic and business processes and reductions in performance requirements. The last question was designed to understand if the acquisition workforce believed that they had specific ideas of where performance requirements could be traded off for financial savings.

In order to better understand the acquisition workforce perceptions on opportunity culture, the following four demographic variable data were collected: branch of service, functional area, years employed in the acquisition workforce, and organizational type.



## Data Collection Procedures

An electronic link was sent to former students directing them to the survey site and ensuring that students understood that the survey was both anonymous and voluntary. Also, with the permission of instructors and consent of the students, the paper questionnaire was given to complete during class, again with the understanding that the survey was both anonymous and voluntary. Students who did not want to participate could either not open the survey, or if given a paper copy, not accept it or return it blank. Upon completion, students anonymously returned the surveys to a table at the front of the room.

## Data Analysis

Due to time constraints for both collection and analysis of data, data analysis for each question was limited to between 383 to 388 responses. Also, to ensure that the research was not flawed by an alternative explanation, a succession of t-tests, using a significance level of .05, should be conducted to verify that the data does not vary significantly based on any of the demographic variables. For example, one could theorize that specific functional areas may vary in their perceptions and therefore may bias the data if a significant portion of those respondents were functionally aligned.

The data collected did expose some significant trends in the perceptions of the current acquisition workforce, as the limited number of participants provides for an accuracy of approximately +5% given a 95% level of confidence.

The first pair of questions analyzed were the participants' perceived understandings of both RM and OM. Most notably, analysis of the results from "Question 1: I understand risk management" revealed that 89.2% of the participants either agreed or strongly agreed that they understood RM; whereas, that percentage dropped significantly to 55.9% for those participants that agreed or strongly agreed for the paired question on OM, "Question 4: I understand opportunity management." Figures 17 and 18 provide the details on these two questions.

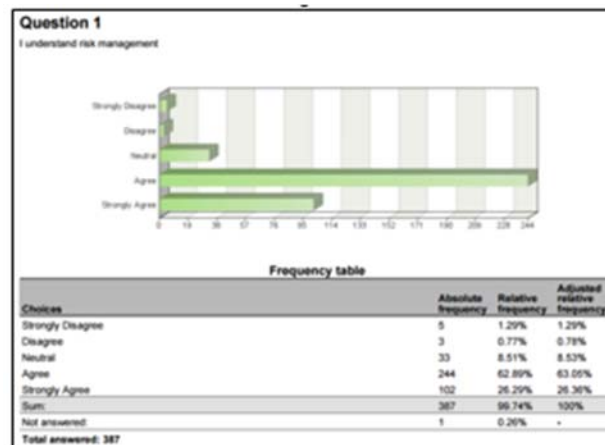
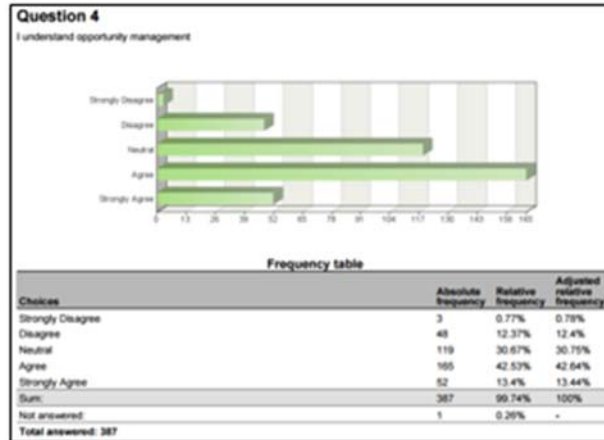
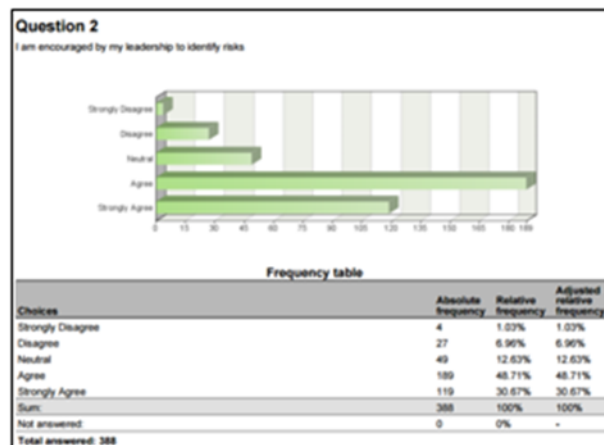


Figure 17. Question 1 Results



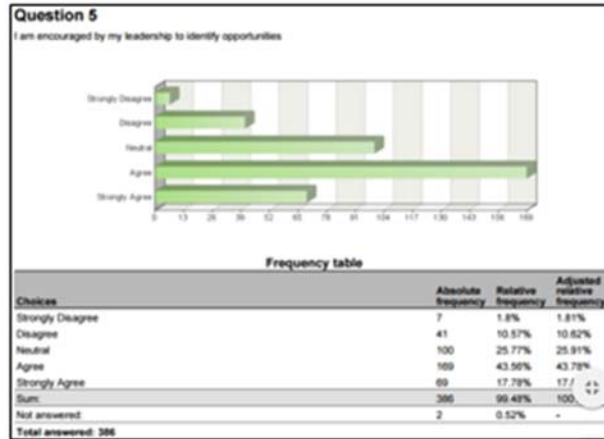
**Figure 18. Question 4 Results**

The second pair of analyzed questions were the participants' perception of their leadership's encouragement for them to identify risks and opportunities. Analysis of the results from "Question 2: I am encouraged by my leadership to identify risks" revealed that 79.4% of the participants either agreed or strongly agreed that leadership encouraged them to identify risks; whereas, that percentage dropped significantly to 61.3% for those participants that agreed or strongly agreed for the paired question on OM, "Question 5: I am encouraged by my leadership to identify opportunities." Figures 19 and 20 provide the details on these two questions.



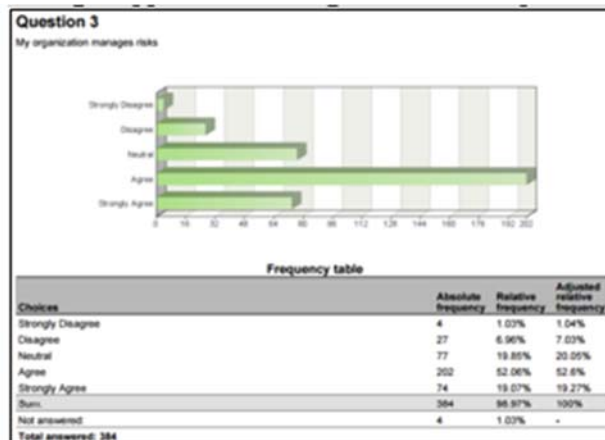
**Figure 19. Question 2 Results**



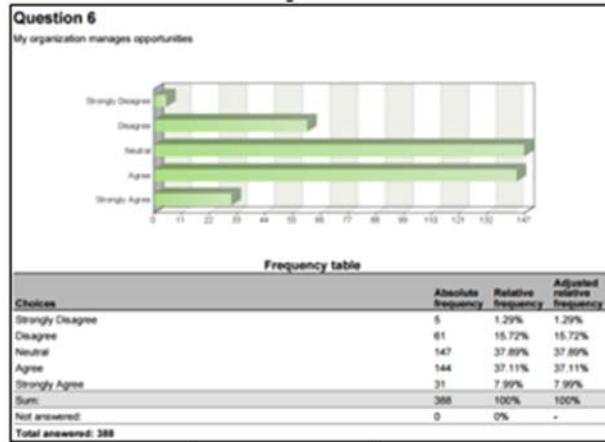


**Figure 20. Question 5 Results**

The third pair of analyzed questions were the participants' perception of whether or not their organization managed risks and opportunities. Analysis of the results from "Question 3: My organization manages risks" revealed that 71.3% of the participants either agreed or strongly agreed that their organization manages risks; whereas, that percentage dropped significantly to 45.1% for those participants that agreed or strongly agreed for the paired question on OM, "Question 6: My organization manages opportunities." Figures 21 and 22 provide the details on these two questions.

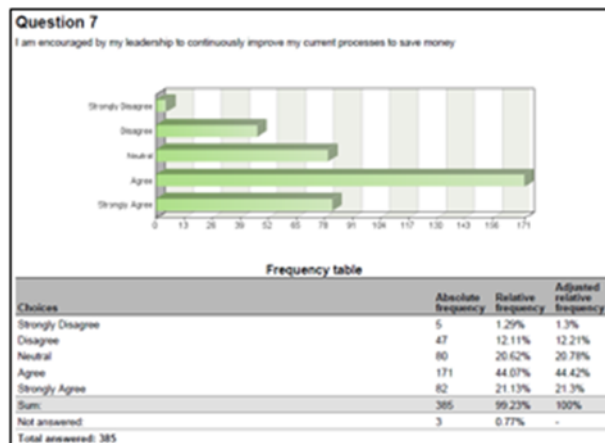


**Figure 21. Question 3 Results**

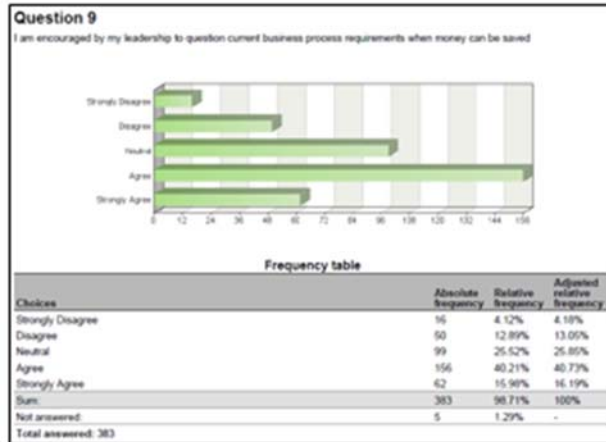


**Figure 22. Question 6 Results**

The fourth pair of analyzed questions were the participants' perception of whether or not their leadership encouraged process improvement, to include questioning current business processes, in order to save money. Analysis of the results from "Question 7: I am encouraged by my leadership to continuously improve my current processes to save money" revealed that 65.2% of the participants either agreed or strongly agreed that their leadership encouraged their continuous process improvement. "Question 9: I am encouraged by my leadership to question current business process requirements when money can be saved" revealed similar results, with 56.2% of the respondents answering either "agreed" or "strongly agreed." Figures 23 and 24 provide the details on these two questions.

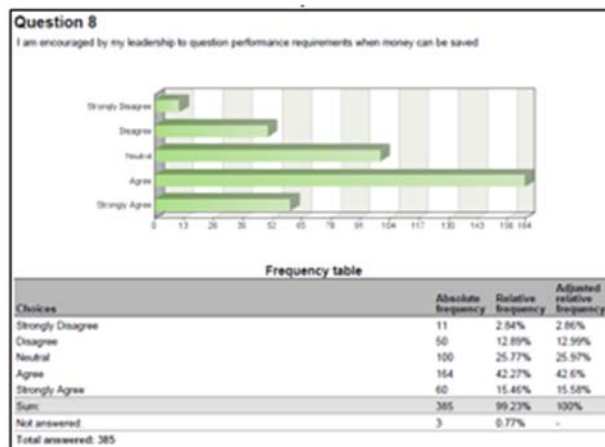


**Figure 23. Question 7 Results**



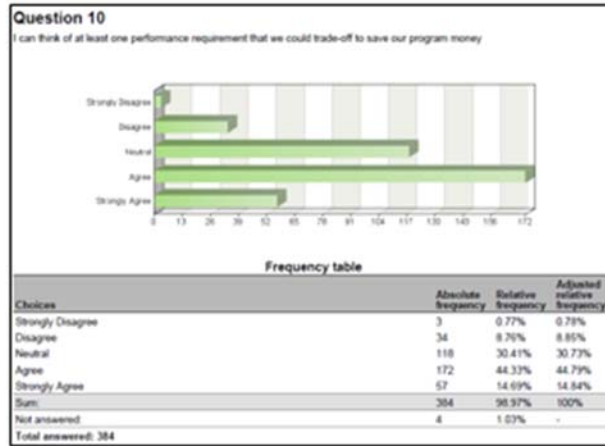
**Figure 24. Question 9 Results**

The fifth pair of analyzed questions were the participants' perception of whether or not their leadership encouraged them to question performance (i.e., users) requirements, and secondly, if they in fact could think of "at least one performance requirement" that could be traded in order to save money. Analysis of the results from "Question 8: I am encouraged by my leadership to question performance requirement when money can be saved" revealed similar results with the process improvement paired questions in that 57.7% of the participants either agreed or strongly agreed that their leadership encouraged questioning performance requirements. Question 10 strayed from the previous three questions in that it was ascertaining their opinion versus their perception of leadership. "Question 10: I can think of at least one performance requirement that we could trade-off to save our program money" indicated similar results, with 59.0% of the respondents answering either "agreed" or "strongly agreed." Figures 25 and 26 provide the details on these two questions.



**Figure 25. Question 8 Results**





**Figure 26. Question 10 Results**

## Demographics

As expected due to the survey’s administration being primarily performed at the DAU Midwest’s Kettering, OH, campus in close proximity to Wright-Patterson AFB, nearly half (45.6%) of the respondents self-identified as “Air Force,” compared to only 1.3% self-identifying as “Marine Corps” and 8.3% as “Navy.” In using these results for cultural inquiry, one could posit that this skew may affect the overall understanding of the general DoD population as each service may have its own distinct culture. Percent comparisons of individual questions within these groups were not conducted as the amount of data required for +5% accuracy given a 95% level of confidence diminishes the ability to provide definitive quantitative results for each demographic group.

With the exception of the “Contracting/Financial Management” acquisition career field, a fairly even distribution of career fields were represented, with over half being either “Program Management” (25.8%) or “Engineering/Production, Quality and Manufacturing” (25.3%). Likewise, “years working in an acquisition career field” showed a reasonably even distribution. Of the four categories only “2–5 years” at 16% was relatively slightly represented. Finally, the organizational type that the respondents currently work in showed a relatively large percentage engaged in program offices at 40% with a relatively even distribution amongst the remaining four categories; albeit, “research laboratory” was only represented by 5.4% of the participant populations. Figures 27–30 contain detailed results of the four demographic questions

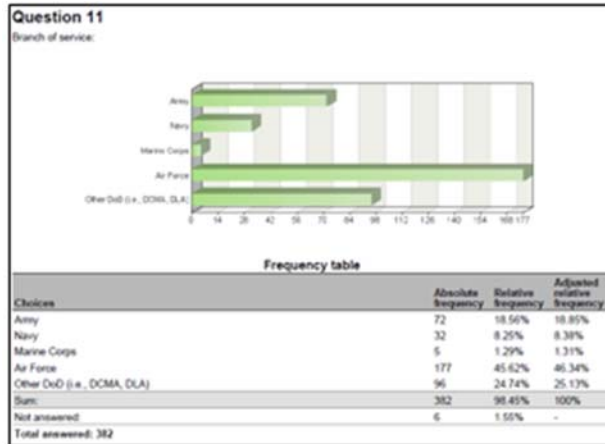


Figure 27. Question 11 Results

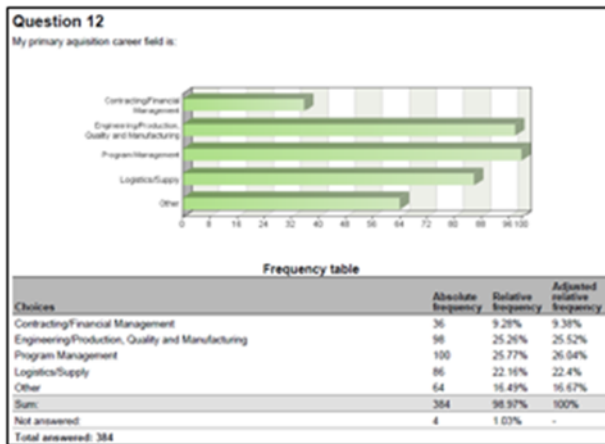


Figure 28. Question 12 Results

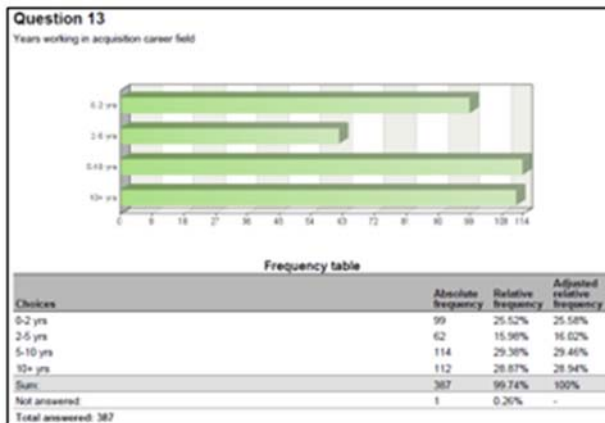
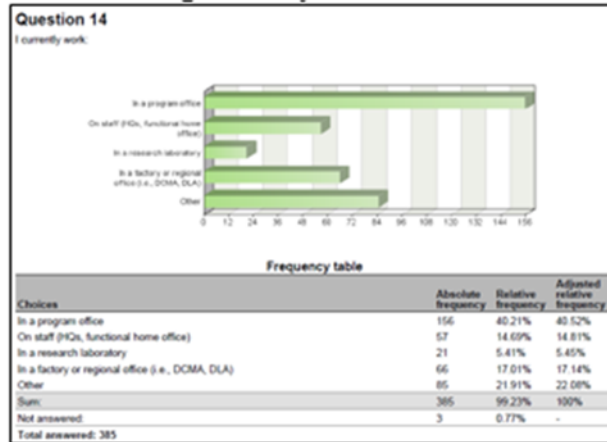


Figure 29. Question 13 Results





**Figure 30. Question 14 Results**

## Results

All three hypotheses are supported. Respondents' perceptions, as derived from Question 1 and Question 4, indicate a persistent gap in their own understanding of OM versus RM, which supports the notion and documentation presented earlier that there exists a lack of education on OM, especially when compared with RM, indicated by the wide disparity of 33.3% less respondents specifying that they understood OM (55.9%) compared to RM (89.2%). Also evident from the data (Question 2 and Question 4) is the respondents' perception that their leadership encourages the pursuit of OM less so than RM, by a difference of 18.1% when comparing OM (61.3%) versus RM (79.4%). Finally, data indicates that respondents perceive organizations not managing opportunities as aggressively as risks, denoted by a difference of 26.2% when comparing OM (45.1%) and RM (71.3%). These results supporting the second and third hypotheses corroborate the notion that cultural inculcation of OM has yet to be achieved.

Questions 7–10 reveal some important information regarding the respondents' perceptions on two potential sources of opportunities for cost savings. While the majority of respondents signified that they either agreed or strongly agreed with leadership encouragement or their own ability to identify these opportunities, there is still work to be done if the DoD acquisition workforce, as a unified whole, adopts "should cost" through the grassroots efforts of OM, as large percentages of respondents either were neutral, disagreed, or strongly disagreed with the notion that their leadership encouraged general process improvement (34.0%), business process improvements (42.5%), or questioning performance requirements (41.5%). When questioned about their own ability to identify at least one requirement tradeable for savings, 39.9% selected neutral, disagreed, or strongly disagreed.

The reminder of this paper will offer rationale and ideas in the development of increased education, leadership, and organization engagement and encouragement of OM through continuous process improvement and performance requirement tradeoffs, to foster an OM mindset furthering the potential to create a "should-cost" culture across the DoD.

## Increased Education on Opportunity Management to Foster "Should-Cost" Mentality

The large gap between those participants who stated that they understood OM versus those who stated that they understood RM, couple with the demonstrated lack of

targeted curriculum on OM, as demonstrated by their absence from DAU's DAWIA courses' learning objectives, makes a strong case for an adjustment. If DoD leadership desires a culture that targets "should cost" versus "will cost," the skills and emphasis should be developed for OM early within the education of our acquisition workforce.

Currently, engineering (ENG), program management (PM), and production, quality, and manufacturing (PQM) functional areas have modules embedded in the residential courses dedicated to RM; however, none have been identified for OM. For example, the advanced PQM course, PQM301, has a module dedicated to Manufacturing Readiness Assessment and Risk Management; however, that module, and nowhere else in the course addresses OM. Both the intermediate (DAWIA Level II) and advanced (DAWIA Level III) courses for PM, PMT257, and PMT360, respectively, have RM as a major curriculum topic, but they make no mention of OM. Yet, DAU cannot unilaterally change the curriculum, because it must create and teach curriculum in agreement with the learning objectives established by the Functional Integrated Product Teams (IPTs) at the OSD. The Functional IPTs will need to direct DAU through the adjustment of learning objectives if OM will be taught to the acquisition workforce in order for the gap in understanding between what RM is versus what OM is to evaporate.

As an interim step, DAU does have the ability to develop a continuous learning objective on OM. Currently, their catalog lists a CLM on RM, but none exists for OM. However, a search on the DAU website for "opportunity management" reveals an entry in *Acquipedia* and a "hot topic" recorded in June 2016 on Risk and Opportunity Management.

## Process Improvement

Two survey questions, 7 and 9, were developed specifically to gauge the acquisition workforces' perception of their leadership's encouragement of their pursuit of process improvement, generally and specifically to business processes, which is considered a key for should-cost implementation.

The role of "lean" in developing a "should-cost" culture was identified as implementation strategies by both USD(AT&L) Carter and the Air Force Service Acquisition Executive, David Van Buren. Shortly after the release of BBP 1.0, Carter and Mueller (2011), in their *Defense AT&L Magazine* article, *Should Cost Management: Why? How?*, assert that PMs should "call in the assistance of Lean Six Sigma experts to assess your processes and trim the fat. Encourage your contractors to similarly self-evaluate and jointly look at inefficiencies in processes you engage in together" (p. 18). Van Buren and the Assistant Secretary of the Air Force (Financial Management and Comptroller) Jamie Morin stated in their memorandum, *Implementation of Will-Cost and Should-Cost Management*, that "program managers must begin to drive leanness into their programs by establishing Should-Cost estimates at major milestone decisions" (Morin & Van Buren, 2011). The two survey questions addressing process improvement, as previously reported, indicate that the majority of respondents felt that their leadership encouraged them to both "continuously improve [their] current processes to save money" (65.1%) and to "question current business process requirements when money can be saved" (56.2%). While this is encouraging, a nearer uniform attitude toward these pursuits would be highly beneficial.

While specific implementation of lean is beyond the scope of this research, multiple gurus of lean philosophy have written of the importance of lean being inculcated into the culture rather than a program to follow. Jeffery Liker (2004), author of *The Toyota Way*, has indicated that "most attempts to implement lean have been fairly superficial. The reason is that most companies have focused too heavily on tools such as 5S and just-in-time, without understanding lean as an entire system that must permeate an organization's culture."



James Womack, credited with expanding the awareness of the power of lean via his co-authored book with Daniel Jones and Daniel Roos, *The Machine That Changed the World*, states, “The big danger is that it becomes a ‘program’ that everyone is doing as a staff exercise but which no one understands and no one believes in. Then it is just another collection of tools without a context. It inevitably will fail” (Industry Week, 2005, p. 5). This paper’s author’s personal experience as senior manager of Continuous Improvement and Manufacturing while employed in the defense industry also attests to this, writing in his article, *Lean Implementation: A Three-Pronged Attack*, “it became apparent that if we were to successfully attain an attitude of continuous improvement—faster, better, cheaper, we needed to create a culture that would allow lean to thrive” (Riel, 2012, p. 35).

Using OM as a disciplined tool to encourage critical thinking for program cost reduction presents an increased opportunity to drive culture change, provided it becomes more than a “staff exercise,” and instead is used to drive culture change.

### **Performance Requirements Tradeoff Opportunities**

In 2015, the Air Force announced its “Bending the Cost Curve” initiative, introducing a cost-capability analysis program, which offers cost-savings opportunities. As William LaPlante, former Assistant Secretary of the Air Force for Acquisition (SAF/AQ), explains, “The warfighter can point us to the knee in the curve and say, ‘You know what? I’m not willing to pay more for this capability than that capability’” (Serbu, 2016, p. 2). LaPlante further explains that the Air Force “will match up the costs of each individual capability within a set of requirements and ask end users whether the mission benefit is worth the price” (Serbu, 2016, p. 2). However, the purpose for this discussion is pre-contract award, designed to “determine how the Air Force approaches its source selection” (p. 2). As LaPlante states, “Now we can put together a cost capability RFP that shows exactly where we’re willing to pay extra to get a capability” (Serbu, 2016, p. 2). While this initiative is very worthwhile and can surely allow the defense industry a better understanding of where the warfighter places priorities in dollar terms, it does not extend post-contract, when risks and opportunities become more evident as the detailed design progresses.

The discussion on how much a certain requirement threshold is worth needs to extend beyond contract award. By offering a reliable way for a steady, long-term requirements review by the systems engineering community as the design progresses, the warfighters can be provided with a better understanding of optional short and long-term cost avoidance and/or savings prospects, that is, should cost that may become apparent as the design matures (Riel, 2017). Using OM methodology, a first step would be to outline the cost-avoidance/savings opportunity using robust “tradeoff–benefit” statements, employing practices from the RM section of the 2017 RIO Guide. Next, decide upon, track, and report on these opportunities as any other opportunity created in a more robust OM process than currently apparent in organizations.

Although the RIO Guide presents opportunities as more geared towards investing financially today to improve future benefits, directing incremental requirements compromises today to lessen current risks and achieve future benefits is undoubtedly in the crux of the process, as the RIO Guide clarifies to “not ignore small improvements,” which when combined can prove critical to the cost avoidance and/or savings of the requirements tradeoff process (Riel, 2017). Using the models in the RIO Guide for registry development, requirement tradeoff opportunities (RTOs) can be documented and tracked using the same handling choices outlined in the RIO Guide—pursue now, defer, reevaluate, or reject. Also, employing a parallel procedure as found in the RIO Guide, a Requirement Tradeoff Opportunity Register could be created that designates the RTO; the likelihood of the





warfighter community reducing or eliminating the requirement; the negative impact on performance; and any positive impact on producibility, reliability, maintainability, and life-cycle costs (Riel, 2017). This extension of the OM process is only possible if the OM process itself enjoys more consistent application as a tool for should cost.

## **Using Opportunity Management to Drive Culture Change**

Although inculcating a should-cost culture may include practical aspects like better education and increased employee knowledge, skills, and motivation, successful transformation lies in the changes to its culture (Morgan, 2006). Culture change within the DoD can be difficult due to its hierarchical control and mechanistic structure. Yet, these challenges can be overcome with a shared, articulated vision via cultural values and artifacts that encourage the acquisition workforce to convert from a heavy RM bias to a more balanced RM/OM approach. Robust organizational cultures “generate an almost tangible social force field of energy that empowers employees” (Ojo, 2010, p. 4) and are associated with increased performance. While the basic assumptions’ layer of culture will not change as progress is sought from inherently risk-based to include as an equal opportunity-based, espoused values articulated through visible artifacts, including opportunity registers, signage, Opportunity Management Reviews, and so forth, will need to change for organization culture change to occur. The second layer of organizational culture, espoused values, provides the mission, goals, standards, and other measures designed to shape the organization’s strategies, decision-making, and leadership behaviors (Duke & Edet, 2012). Although DAU education will be important for the workforce to understand what OM is, the switch from predominately risk-based to an equal risk/opportunity-based model, requires leadership to ensure an added emphasis on OM as currently experienced by RM. Organizations tend towards stability as leaders intuitively seek to reduce risk through controls and structure, yet, at the “price of diminished innovation and zeal” (Jain, 2013, p. 106), which will be required for OM and should cost to succeed. The addition of OM as an equal partner to RM and the driver for a “should-cost” mentality demands that “the shift goes all the way to [the] core of the culture” (Kofman & Senge, 1993, p. 17). However, Morgan (2006) elucidates that leaders who “understand the challenge of culture change recognize the enormity of [the] task” (p. 138). Culture is not something easily swayed, but rather needs to be cultivated over time. The importance and employment of OM will need to be championed repetitively through the use of artifacts. Formalization of new values coupled with consistency between words and actions can drive trust and create an atmosphere conducive to change (Michailova, 2000). Artifacts—such as posters, brochures, and published stories of OM successes—can add to the inculcation of OM to the DoD culture.

Regarding the effects of organizational culture on change, Hatch and Cunliffe (2013) cite the research of Dan Denison, who “proposed that an organization’s strategy, culture and environment need to be aligned if an organization is to achieve high performance” (p. 186), judging that if culture affects behavior, then by managing the culture, preferred behaviors will develop. Leaders will need to incentivize the transition of the culture from one that emphasizes RM to one that allows system engineering’s attention to be shared with OM (Fairbanks, 2006). One key to instilling OM is to ensure that the progress and results from the established initiatives are tracked. Husband (2014) describes this process as potentially the “most important step,” stating that “without a tracking mechanism and a means to evaluate results, the efforts to create and develop plans for Should Cost initiatives are likely to be wasted” (p. 578), thus illustrating another reason for establishing such initiatives in an opportunity register. Willen and Garber (2011) advocate the use of a “detailed action plan with metrics that can be gauged at specific milestones, starting with an aggressive implementation “mindset” to ensure that the SCR [Should Cost Review] is not viewed as



merely a study that when completed ends up on a shelf, unused,” and that “an aggressive attitude for challenging the status quo” is in place. That will take leadership.

### **Leadership and the Creation of a “Should-Cost” Culture**

By using Ouchi’s concept of clan control, where new members are socialized into the culture and thus internalize the DoD’s values, principles, and purpose, the members of DoD leadership who control reward, recognition, and promotions can heavily influence the behavior and direction that the DoD adopts (Hatch & Cunliffe, 2013). However, an overemphasis on competition, where short-term results and looking good can trump performance over the long haul, can produce short-term results detrimental to long-term success of the weapon system (Kofman & Senge, 1993). Even beneficial long-term organizational goals must be coupled with ethical leadership, as creating hard, specific should-cost goals does not come without risks, as negative side effects can emerge. For example, reaching current acquisition phase, should-cost goals should not come at the expense of life cycle costs or required operational needs. Demanding goals can challenge ethical behavior, as narrow focus and ambition may cause program management teams to fixate on accomplishing specific should-cost goals without regard for greater DoD organizational goals and values. This is not to say that pride in accomplishing should-cost and OM goals is all bad; as Locke and Latham (2009) clarify, the possible drawbacks of goal-setting can be alleviated by managerial attention and solid, ethical leadership, citing that “organizations cannot thrive without being focused on their desired end results any more than an individual can thrive without goals to provide a sense of purpose” (p. 22).

### **Conclusions and Recommendations**

As Husband (2014) points out, experienced acquisition officials will note that should cost and OM are not new; however, they will “require an abundance of strategic thinking and planning, and a long-term vision” (p. 589). In other words, developing a should-cost culture and employing some of the tools and opportunities described herein will require a leadership-centered approach. It will also need to engage the hearts and minds of the entire acquisition workforce, down to the grassroots level. Increased education in managing opportunities, to include requirement tradeoff opportunities, can and should play a role in the development of OM at the lowest levels of an organization, so that an overall “should-cost” culture can develop and endure. However, organizational change is difficult. Leaders wanting to produce a culture that gives equal precedence to OM as to RM face a formidable challenge and should recognize the work that it will take (Ivancevich et al., 2011; Morgan, 2006).

More complete quantitative research and longitudinal studies are recommended to understand whether the acquisition workforce trends towards an equitable assumption of OM and RM responsibilities over time as an indicator of culture shift success. Requirements should be challenged during the entire design process, using an RTO mentality, to ensure that they retain their value as the design matures. Leadership must create reward and recognition mechanisms consistent with reaping opportunities versus bias toward risk control to facilitate the shift towards a more balanced RM/OM resource allocation. Cultural markers, such as should-cost and OM success stories, need to become persistent artifacts to help change the culture. The 2016 *Performance of the Defense Acquisition System Annual Report* is correct in its statement that “the institution of ‘should cost’ management and its consistent emphasis over the last 6 years by the acquisition chain-of-command has been a success and should be a permanent feature of the DoD’s acquisition culture” (pp. xviii, xix). However, it will take a leadership-driven, persistent emphasis to change that culture.



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# Appendix. Risk and Opportunity Management Survey

## Risk and Opportunity Management

Thank you for participating in this short survey on your understanding and experience working with risk and opportunity management. Your candid responses will help us understand the DoD's cultural invocation of these two important topics.

### 1. Understand risk management

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 2. I am encouraged by my leadership to identify risks

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 3. My organization manages risks

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 4. Understand opportunity management

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 5. I am encouraged by my leadership to identify opportunities

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 6. My organization manages opportunities

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 7. I am encouraged by my leadership to continuously improve my current processes to save money

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 8. I am encouraged by my leadership to question performance requirements when money can be saved

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 9. I am encouraged by my leadership to question current business process requirements when money can be saved

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

### 10. I can think of at least one performance requirement that we could trade-off to save our program money

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

## Demographics

### 11. Branch of service:

Army  Navy  Marine Corps  Air Force  Other DoD (i.e., DCMA, DLA)

### 12. My primary acquisition career field is:

Contracting/Financial Management  Engineering/Production, Quality and Manufacturing  Program Management  Logistics/Supply  Other

### 13. Years working in acquisition career field

0-2 yrs  2-5 yrs  5-10 yrs  10+ yrs

### 14. I currently work:

In a program office  On staff (HQ, functional home office)  In a research laboratory  In a factory or regional office (i.e., DCMA, DLA)  Other

Finish





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