



Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition Policy

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1.0 Executive Summary

On January 30, 2012, PricewaterhouseCoopers LLP (PwC) was awarded a contract to explore adapting a methodology and associated metrics for use by the Department of Defense (DoD) that, upon execution, would enable senior DoD leaders the opportunity to determine the effectiveness of acquisition policy changes on the defense acquisition system, along with issues that interfere with achieving efficiency and responsiveness in the acquisition of major defense acquisition programs (MDAPs).

The methodology we explored for adaptation for DoD purposes is termed the **Independent, Integrated Program Review (I2PR)**. An I2PR is a systematic and comprehensive assessment of the 10 Elements of Program Management including: Communication, Contracting, Cost, Human Resources, Logistics, Risk, Schedule, Scope, and Internal/External Integration. I2PR metrics quantify the risks associated with a Program's Initiating/Planning Phase and its Execution/Control Phase.

During the course of the contract, PwC performed three major tasks:

• Data Mining and Analysis

- The purpose of this task was to determine if, based on a statistical analysis of historical program data, trends could be determined to provide predictors of either an Acquisition Program Baseline (APB) breach or a Nunn-McCurdy breach.
- We conducted an analysis using various statistical, regression-based techniques comparing program data from MDAPs that had previously declared an APB breach to programs that had not declared an APB breach. We carried out a similar analysis comparing program data from MDAPs that had previously declared a Nunn-McCurdy breach to programs that had not declare a Nunn-McCurdy breach.
- We extracted the program data used in the analysis from the Defense Acquisition Management Information Retrieval (DAMIR) system, which generates monthly outputs based upon quarterly Defense Acquisition Executive Summary (DAES) reports provided by MDAPs. Not every MDAP is required to submit a DAES report every quarter.
- The analysis of the data was inconclusive with respect to identifying trends that can be used to provide predictors of an APB or Nunn-McCurdy breach.
- The ability to adapt the I2PR methodology for use within the DoD is not negatively impacted by this finding. On the contrary, the inability to determine a predictor of a breach using the information solely from DAES reports provides verification and validation that a program assessment requires a more comprehensive review, which is precisely the approach defined by an I2PR.

• Survey Distribution

- The purpose of this task was to collect input from senior DoD acquisition officials regarding the identification and prioritization of the Elements and Sub-Elements of Program Management that have the most impact on the success or failure of acquisition programs.
- We distributed over 150 surveys to senior DoD acquisition officials and received 38 responses. Analysis of the responses provided a quantitative assessment of the relative importance of the Elements and Sub-elements of Program Management.
- During Initiation and Planning, the most important elements of Program Management are Cost Management, Schedule Management, and Scope Management.

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- During Execution and Control, the most important elements of Program Management are Cost Management, Schedule Management, and Contract Management.
- During an I2PR, these elements will be weighted more heavily, and will have a more significant impact on a program's ability to achieve its program objectives than other elements. The metrics generated from an I2PR are dependent on these weighting factors.
- **Dashboard Requirements**
 - The purpose of this task was to define the requirements for an interactive dashboard and to develop a prototype to demonstrate functionality and capability.
 - Using the dashboard, DoD leaders have the ability to quickly and easily view metrics resulting from an I2PR from individual programs or a portfolio of programs.
 - When viewed over time, these metrics provide DoD leaders with the ability to assess the effectiveness and utility of changes in acquisition policy, along with issues that interfere with achieving efficiency and responsiveness in the acquisition of major weapon systems.
 - Additionally, the dashboard provides the ability to "drill down" into the elements and sub-elements assessed during an I2PR, and to identify issues and risks which impact the ability of a program to meet its objectives.

The results of these tasks led to the adaptation of PwC's I2PR methodology for DoD purposes. Issues and risks identified during an I2PR may also provide insight into other factors, including regulatory and statutory constraints believed to be limiting the efficiency of the defense acquisition system.

An added value of an I2PR is the opportunity to have an independent, integrated, and thorough review of MDAPs – potentially uncovering previously unknown issues, risks, and concerns – thereby increasing the likelihood of delivering the required capability to the end-user on time and on budget.

The purpose of this report is to provide: 1) a description of the research study efforts, 2) the results of the study efforts, 3) a summary of how these efforts contributed to the adaptation of the I2PR methodology, and 4) an overview of how an I2PR can be used to develop metrics that enable senior DoD leadership the ability to appraise the effectiveness and utility of changes in acquisition policy.

2.0 Background

On May 27, 2011, the Washington Headquarters Services, Acquisition Directorate (WHS/AD) on behalf of the Director for Performance Assessments and Root Cause Analysis (PARCA) issued a Broad Agency Announcement (BAA) to perform the following:

"Conduct a study, and draft a report documenting same, that identifies and describes a methodology to track, analyze and assess the systemic technical, management, institutional, moral hazard, contractual, and legal issues that interfere with achieving efficiency and responsiveness in the acquisition of MDAPs. Specific ideas regarding the establishment of metrics that enable senior DoD management to appraise the effectiveness and utility of changes in acquisition policy and other factors on the performance of the defense acquisition system including the performance of government acquisition institutions and defense suppliers are sought. In general, current regulatory and statutory constraints should be considered in these suggestions, but, where such constraints interfere with important mechanisms for achieving these goals, they may be presumed to be fungible. The purpose of the announcement is to solicit proposals from any and all entities that excel in performance measurement and

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organizational effectiveness studies & analyses. A deep understanding of the relevant DoD acquisition environment is desirable but not essential. The proposed recommendations would be assessed for possible immediate DoD implementation. It is anticipated that up to four offerors may be selected."

This report will detail the tasks PwC undertook to adapt a methodology that will meet these requirements.

3.0 Research Study Overview

PwC has extensive experience performing independent reviews to assess and improve the efficiency of organizations; however, additional research was required in order to adapt the methodology to the DoD. Specifically, the research study adapted the methodology by identifying the process to quantitatively and analytically assess a major defense acquisition program's Initiation/Planning Phase and Execution/Control Phase. We conducted the following tasks:

- **Data Mining and Analysis.** The purpose of this task was to conduct an analysis comparing major defense acquisition programs that failed to meet their approved acquisition program baselines against programs that successfully met their baseline. The objective of the analysis was to identify leading indicators and common trends between programs in an effort to develop predictors of a program breach.
- **Survey Distribution.** The purpose of this task was to distribute surveys to Senior DoD acquisition professionals. The surveys enabled the identification and prioritization of the Elements of Program Management that have the greatest impact on the success or failure of acquisition programs. Analysis of the responses aided in the refinement of the methodology to be used during the execution of an I2PR.
- **Dashboard Requirements.** The purpose of this task was to define requirements that supported the development of an I2PR dashboard. The dashboard enables integration and analysis of the information collected during the I2PR and displays the metrics to enable DoD leadership the ability to assess the effectiveness of changes in acquisition policy.

We conducted these tasks in parallel, as shown in **Figure 1**.



Figure 1. Task Sequence

3.1 Data Mining and Analysis

3.1.1 Program Selection

Upon initiation of this task, PwC was provided a list of MDAPs, including the Service and an indication of the type of baseline breach – either a Nunn-McCurdy breach or an APB breach. We selected 50 programs for review – 25 programs that had previously declared a Nunn-McCurdy breach and 25 programs that had not declared a breach. We made an effort to promote a distribution across the Services. **Figure 2** provides a list of the 50 programs that we selected for analysis. The 25 programs highlighted in the darker shade are the programs that had previously declared a Nunn-McCurdy breach. The 25 programs highlighted in the lighter shade are the programs that have not declare a breach.

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Air Force	Army	Navy	DoD
AEHF	AB3A REMANUFACTURE	DDG 1000	CHEM DEMIL- ACWA
C-130J	AFATDS (ATCCS)	E-2D AHE	F-35
C-5 RERP	ARH	EFV	JTRS GMR
F-22	EXCALIBUR	LCS	BMDS
JASSM (JASSM/JASSM- ER)	GMLRS/GMLRS AW	LPD 17	
SBIRS HIGH	LAND WARRIOR	MH-60R	
WGS	PATRIOT/MEADS	RMS	
FAB-T	BLACKHAWK UPGRADE	SSN 774	
BGBS	ER/MR UAS	V-22	
SBSS B10	HIMARS	BAMS UAS	
B-2 RMP	LUH	JPALS	
MOUS	JLENS	CVN 78	
C-5 AMP		EA-18G	
LAIRCM		P-8A	
NAS		SM-6	
Reaper		JHSV	
		CH-53K	

Figure 2. Summary of Selected Programs

3.1.2 Data Gathering

PwC was provided access to the Defense Acquisition Management Information Retrieval (DAMIR) system. DAMIR generates monthly outputs based upon quarterly Defense Acquisition Executive Summary (DAES) reports provided by MDAPs.

Since MDAPs are not required to submit a DAES report every quarter, only 36 of the 50 MDAP programs we reviewed contained enough relevant data to perform the analysis. We assessed data for each program starting at Program Initiation (in most cases Milestone B) and continuing to the present. The data included whether the program had either an APB or Nunn-McCurdy breach for that time period, the type of breach, the percentage of Key Performance Parameters (KPPs) met, various budget metrics such as Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP), Actual Cost of Work Performed (ACWP), Budget at Completion (BAC), Estimate at Completion (EAC), and Management Reserve (MR), the percent changes in Program Acquisition Unit Cost (PAUC) and Average Procurement Unit Cost (APUC), Program Manager (PM) risk ratings, and Office of the Secretary of Defense (OSD) risk ratings.

3.1.3 Data Analysis

PwC analyzed the data using statistical, regression-based techniques. Statistical methods quantified the effects the variables have on the probability of a breach, enabling the creation of models that predict the probability that a program may have an APB or Nunn-McCurdy breach in the future within a given timeframe.

Panel analysis was the primary statistical method we used for the analysis. Panel data regression models can uniquely capture the effects of time and the variability between programs when predicting breaches, making this method the most appropriate for the analysis at hand. We estimated three models for each type of breach: one to predict a breach two months from the present, one to predict a breach four months from the present, and one to predict a breach within four months time.

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Before generating the models, we reviewed the data to ensure consistency and accuracy. We removed cases from the analysis in which an APB or Nunn-McCurdy breach occurred due to an external event, such as a quantity change. We treated cases in which a program declared breaches over consecutive time periods as a single APB or Nunn-McCurdy breach that had yet to be addressed. When there were gaps in the numerical data, such as BCWS, BCWP, and ACWP, we smoothed the data through trending. Lastly, as the data had a disproportionate amount of programs with Nunn-McCurdy breaches, we weighted the data to create a representative sample of Nunn-McCurdy breached vs. non-breached programs.

In addition to panel analysis, we explored other statistical techniques, such as Cox proportional hazards regression, logistic mixed-models, and Chi Square Automatic Interaction Detection (CHAID) analysis. Although these techniques may be more advanced than panel analysis (logistic mixed-models in particular), they require more complete datasets. As a result, the panel analysis findings were the most robust and statistically significant given the available data.

3.2 Survey of Senior DoD Acquisition Officials

A key task within this study was to collect input from senior DoD acquisition officials. PwC chose to collect this input through a survey-based approach. This approach alleviated the challenges associated with coordinating multiple interviews across several sites, while still providing the ability to obtain the information required to support the adaptation of the I2PR methodology. The information we collected supported a critical aspect of the methodology adaptation – identification and prioritization of the elements and sub-elements of program management that have the most impact on the success or failure of acquisition programs.

3.2.1 Survey Development

PwC developed a survey to solicit input from senior DoD acquisition officials regarding their program management experiences while managing or directing major defense acquisition programs. In order to establish a baseline of experience and to allow an analysis of responses, the survey requested respondents' general background information. For program managers, additional information regarding the status of their program was requested. Each respondent was asked to provide a relative ranking of key program management elements in both the Initiation/Planning phase and the Execution/Control phase. For those program elements that respondents deemed to be most important, a follow-on question requested a relative ranking of the sub-elements within that element. In addition, the survey asked respondents to rank major contributors of project delay and the efficacy of their program office.

A complete copy of the survey can be found in Appendix B.

3.2.2 Survey Tool – Qualtrics

PwC selected the Qualtrics Software as the tool for distributing the survey. The rigorous process of obtaining OSD approval for the survey demanded the assertion that all responses were anonymous and voluntary. PwC undertook numerous measures to ensure the complete privacy and anonymity of all survey respondents. In addition, PwC complied with the following regulations governing the use of human subjects for research and the surveying of DoD personnel:

- Code of Federal Regulations (CFR) Title 32, Part 219 "Protection of Human Subjects"
- DoD Directive 3216.02 "Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research"
- DoD Instruction 1100.13 "Surveys of DoD Personnel"
- OPNAVINST 5300.8C "Coordination and Control of Personnel Surveys"
- SECNAVINST 3900.39D "Human Research Protection Program"

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3.2.3 Survey Population

158 senior DoD acquisition officials were offered the opportunity complete the short 20-minute survey. These officials were comprised of current or former Program Executive Officers (PEOs) and MDAP Program Managers. We distributed a significant number of surveys to gain a diverse perspective and a wide breadth of participation. **Figure 3** summarizes the survey population by service and position.

	Current MDAP PM	Current PEO	Former MDAP PM	Former PEO	Total
U.S. Navy	35	11	20	7	73
U.S. Army	13	5	6	2	26
U.S. Air Force	21	10	14	6	51
DOD	4	2	1	1	8
Total	73	28	41	16	158

Figure 3. Survey Population

3.3 Dashboard Requirements Definition

PwC has developed numerous "executive level" dashboards for commercial and government clients. Based on this experience, discussions were held with experienced PwC dashboard developers, which identified common features of an effective dashboard, tailored to meet the requirements of this effort. These included:

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4.0 Study Results

4.1 Data Mining Results

The data we extracted from DAMIR included information that can be considered both dependent and independent of an APB or a Nunn-McCurdy breach. For example, a trending increase in PAUC or APUC is not independent of an APB or Nunn-McCurdy breach since an APB or Nunn-McCurdy breach is defined by a percent increase in PAUC or APUC. Similarly, a trending increase in the projected program completion date is not independent of an APB breach because an APB breach can be defined by a percent increase in schedule duration. Using these variables as a predictor of an APB or Nunn-McCurdy breach would be inappropriate.

However, trends in other data extracted from DAMIR can be considered independent of an APB or Nunn-McCurdy breach, and we used these in an attempt to determine trends that may lead to the identification of predictors of an APB or Nunn-McCurdy breach.

Data extracted from DAMIR that is independent of a breach and that we used to determine if a predictor of a breach could be identified included various budget metrics, such as Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP), Actual Cost of Work Performed (ACWP), Budget at Completion (BAC), Estimate at Completion (EAC), and Management Reserve (MR). We combined analysis of this data with non-numerical data, such as the Program Manager (PM) risk ratings and Office of the Secretary of Defense (OSD) risk ratings to determine if trends could be established to identify predictors of a breach.

We used various analytical methods to analyze the data. The results of the analysis were inconclusive with respect to the identification of a predictor. The strongest indicator of a pending APB or Nunn-McCurdy breach was the Program Manager's Schedule Risk Assessment; however, this was true only when combined with a percent change in the Original Baseline (OB) Program Average Unit Cost (PAUC). As previously mentioned, OB PAUC is not an independent variable with respect to an APB or Nunn-McCurdy breach. The resultant conclusion is that based on the data assessed, no significant, independent predictors of an APB or Nunn-McCurdy breach were identified.

The ability to adapt the I2PR methodology for use within the DoD is not negatively impacted by this finding. On the contrary, the inability to determine a predictor of a breach using the information solely from DAES reports provides verification and validation that a program assessment requires a more comprehensive review; precisely the approach defined by an I2PR.

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An I2PR assessment is qualitative in nature. Successfully identifying trends that provide predictors to a breach would have provided a quantitative perspective to an I2PR assessment and complemented the results.

Additional data that was not provided as part of this study that may have contributed to the identification of predictors includes information such as the number and levels of risks being tracked by the program office, staffing and retention data for key personnel, technology readiness levels of critical technology items, results of technology performance measurements, requirements stability, and other program office metrics not reported in the quarterly DAES reports. This information, combined with the independent data delivered via DAMIR, may identify trends that provide a leading indicator and predictor of a breach.

4.2 Survey Results

PwC recognized that only a percentage of the 158 surveys would be returned. We received a total of 38 responses. This represents 24% of the population. Although this was less than the 30% we would have liked, it was sufficient for our purposes and did not impact the quality of our analysis nor our ability to incorporate the results into our methodology.

Figure 5 provides the distribution of responses.

We performed an analysis of the responses, which aided in the refinement of the methodology to be used during the execution of an I2PR.

	PM	PEO	Other	Total
U.S Navy	7	2	4	13
U.S. Army	6	2	1	9
U.S Air Force	3	5	2	10
DOD	1			1
Other	2	2	1	5
Total	19	11	8	38

Figure 5. Survey Respondents

4.2.1 Program Initiation and Planning – Program Management Elements

Respondents were asked to prioritize the 10 Elements of Program Management with respect to Program Initiation and Planning. The following instructions were provided in the survey:

Program Planning refers to the efforts required to "establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives. The planning processes develop the project management plan and the project documents that will be used to carry out the project." (PMBOK® Guide – Fourth Edition, p. 46)

Rank the following 10 Elements of Program Management numerically from one (1) to ten (10) in order of their level of significance, **during the Program Planning phase**, on achieving the program's objectives."

We used the results of this portion of the survey to determine a relative weighting factor for each of the 10 Elements of Program Management within the Planning/Initiation Phase. The results of this analysis are shown in **Figure 6**.

Program Element	Element Weighting
Cost Management	15.1%
Schedule Management	13.4%
Scope Management	12.6%
Contract Management	10.8%
Risk Management	10.2%

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Program Element	Element Weighting
External Integration	8.6%
Program Office Integration	7.9%
Communication Management	7.7%
Logistics Management	7.0%
Human Resources	6.7%

Figure 6. Initiation and Planning: Program Element Weight

During the execution of an I2PR, we will use the weighting factors to determine the overall programmatic risk associated with the Planning/Initiation Phase. Specifically, issues identified in the Cost Management element, for example, will have a more significant impact on a program’s ability to achieve its program objectives than issues identified within the Human Resources element. The metrics generated from an I2PR are dependent on these weighting factors.

4.2.2 Program Planning and Initiation – Respondent Group Analysis

Since each respondent provided their background information, we can compare the results of each respondent group. For example, the Navy respondents’ ranking of the importance of the Program Management Elements during the Planning/Initiation Phase can be compared against the Air Force respondents’ ranking of the same.

Figure 7 lists the top three program management elements during the Planning/Initiation Phase as defined by the different respondent groups:

	Global	Army	Navy	AF	PM	PEO
#1	Cost	Schedule	Cost	Scope	Cost	Scope
#2	Schedule	Cost	Schedule	Cost	Schedule	Cost
#3	Scope	Scope	Contract	Schedule	Contract	Risk

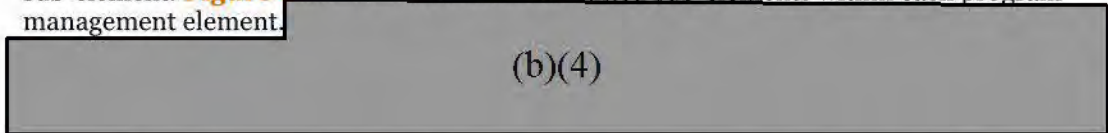
Figure 7. Initiation and Planning: Respondents' Priorities

Across all respondent groups, Cost Management is either the first or second priority. Schedule Management appears as one of the top three priorities for all respondent groups, except for the PEOs. The PEOs were the only respondent group to rank Risk Management as one of the top three program elements during Planning/Initiation.

This level of detail can be used to tailor the weightings of the program elements, depending on the service or program/portfolio being assessed.

4.2.3 Program Initiation and Planning – Program Management Sub-Elements

Within each program management element, we defined 10 sub-elements. Each respondent was asked to prioritize the 10 sub-elements within their top four program management elements. Analysis of these responses resulted in a weighting factor for each sub-element. **Figure 8** shows the top three weighted sub-elements within each program management element.



Successful performance of these sub-elements is the most important aspect of Cost Management during the Program Initiation/Planning phase. Issues identified with these sub-elements will have the largest impact on a program’s ability to meet its objectives.

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Program Element	#1 Weighted Sub Element	#2 Weighted Sub Element	#3 Weighted Sub Element
Cost Management	(b)(4)		
Schedule Management			
Scope Management			
Contract Management			
Risk Management			
External Integration			
Program Office Integration			
Communication Management			
Logistics Management			
Human Resources			

Figure 8. Initiation and Planning: Sub-Element Priorities

Within each sub-element there are up to 10 Characteristics of a Successful Program (COSP) that will be assessed during an I2PR.

4.2.4 Program Execution and Control – Program Management Elements

Similar to Program Initiation/Planning, we asked respondents to prioritize the 10 elements of program management during Program Execution and Control. The following instructions were provided in the survey:

Program Execution refers to the "process of performing the work defined in the project management plan to achieve the project's objectives." (PMBOK® Guide – Fourth Edition, p. 83)

Rank the following 10 Elements of Program Management numerically from one (1) to ten (10) in order of their level of significance, **during the Program Execution phase**, on achieving the program's objectives.

We used the results of this portion of the survey to determine the weighting factor for each of the 10 elements of program management for the Execution/Control Phase. The results are shown in **Figure 9**. Note the differences in priority of elements between the Initiation/Planning Phase and the Execution/Control Phase. While Cost Management and Schedule Management remain the top two priorities, Scope Management falls from the third priority during Initiation/Planning to the fifth priority during Execution/Control. This does not diminish the overall importance of Scope Management during Execution/Control, but rather demonstrates the increased importance that Contract Management and Risk Management have during this phase of a program life's cycle.

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Program Element	Element Weighting
Cost Management	17.2%
Schedule Management	13.4%
Contract Management	12.3%
Risk Management	10.6%
Scope Management	10.6%
Communications Management	7.8%
External Integration	7.7%
Logistics Management	7.1%
Program Office Integration	7.0%
Human Resources Management	6.3%

Figure 9. Execution and Control: Program Element Weight

4.2.5 Program Execution and Control: Respondent Group Analysis

Similar to the previous section, we performed an analysis of the results comparing the priorities assigned by each respondent group.

Figure 10 lists the top three program management elements during the Execution/Control Phase as defined by the different respondent groups:

	Global	Army	Navy	AF	PM	PEO
#1	Cost	Cost	Cost	Scope	Cost	Cost
#2	Schedule	Schedule	Contract	Risk	Schedule	Risk
#3	Contract	Risk	Scope	Cost	Contract	Scope

Figure 10. Execution and Control: Respondents' Priorities

Across all respondent groups, Cost Management is one of the top three priorities. Risk Management appears within the Army, Air Force, and PEO groups as one of the top three elements during this phase of a program's life cycle.

This level of detail can be used to tailor the weightings of the program elements, depending on the service or program/portfolio being assessed.

4.2.6 Program Execution and Control – Program Management Sub-Elements

Similar to the previous section, we conducted an analysis of each of the sub-elements, resulting in a weighting factor for each during Program Execution and Control. Figure 11 shows the top three weighted sub-elements within each program management element.

Issues identified within these sub-elements will have the largest impact on a program's ability to successfully meet its objectives.

As noted earlier, within each Sub-element are up to 10 COSP that will be assessed during an I2PR.

Program Element	#1 Weighted Sub Element	#2 Weighted Sub Element	#3 Weighted Sub Element
Cost Management	(b)(4)		
Schedule Management			
Contract Management			
Risk Management			

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Program Element	#1 Weighted Sub Element	#2 Weighted Sub Element	#3 Weighted Sub Element
Scope Management	(b)(4)		
Communication Management			
External Integration			
Logistics Management			
Program Office Integration			
Human Resources			

Figure 11. Execution and Control: Sub-Element Priorities

4.2.7 Survey – Additional Findings

Beyond the principal objective of the survey and the subsequent analysis to provide relative weightings between program elements and sub-elements, we asked additional questions to obtain greater insight into the issues that impact the effectiveness of the acquisition of major weapon systems.

Major Contributors of Project Cancellation

Respondents were provided a list of 11 key contributors to Project Cancellations and asked to rank them. Figure 12 provides a summary of the results, indicating for each key contributor, the average ranking provided by the respondents.

The top four contributing factors align most closely with Scope Management and Cost Management.

Less significant factors closely align with the elements that have less influence on the success of a program. For example, the bottom three factors align closely with Communication Management and Human Resource Management, which both ranked lower in priority.

Programs that control scope, conduct accurate estimates, clearly define their goals/objectives, and have sufficient resources would likely fare better than programs that do not.

Factor	Average Rank
Change(s) in scope mid-project	3.4
Poor estimates in the planning phase	3.6
Poorly defined goals/objectives	4.2
Insufficient resources	4.3
Missed deadlines	6.2
Change in strategy	6.2
Change in environment	6.7
Lack of Change Management	7.4
Lack of stakeholder involvement	7.5
Poor communication	7.8
Insufficient motivation for completion	8.6

Figure 12. Contributors to Program Cancellation: Average Ranking

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Program Office Efficacy

We also provided respondents the opportunity to assess the efficacy of their program offices, either as the program manager or the PEO. The areas that we asked the respondents to assess align closely with specific sub-elements within each program management element. The purpose of providing the program managers the opportunity to perform what is essentially a self-assessment was to enable a correlation between those programs that are performing well against specific aspects of their program office. The questions align with what can be described as a "maturity assessment". Various assessment methodologies exist which aim to measure the maturity of an organization. It is generally accepted that higher performing programs operate at a higher maturity level.

However, due to the limited number of respondents, a statistically significant correlation between programs that are performing well and the maturity of those program offices is not provided.

In lieu of this analysis, we provide a general analysis across all respondents.

A "low" maturity program office would have the following characteristics:

- Team members lack prior training and relevant specialty skills.
- Overall team communication is poor. Uncertainty exists in understanding mission objectives.
- Risks are identified and mitigation plans are developed; however, the processes are ad hoc.
- Poor cost management has resulted in excessive cost variances.
- Poor schedule management has resulted in excessive schedule variances.
- Poor scope management has resulted in uncontrollable scope creep.
- Poor logistics management has or is projected to result in excessive operational and supportability cost growth (15% or greater from planned).
- Contract fee structure disincentivizes or inappropriately incentivizes suppliers.
- Common tools and templates are not defined, or they are defined and developed but not consistently applied.
- Interface control documents are required and are developed but are not consistently applied.

A "moderately" mature program office would have the following characteristics:

- The program manager and all team members are trained and educated in program management skills, and team members are trained and educated in program specific skills.
- Communication is highly effective across all media and levels. Little or no uncertainty exists in understanding mission objectives.
- Highly effective cost management processes proactively control cost variance.
- Risks are rigorously identified using a common methodology and integrated with other program management activities.
- Highly effective schedule management processes proactively control schedule variance.
- Highly effective scope management processes enable acceptable changes in scope definition.
- Logistics management has or will likely result in low to moderate operational and supportability cost growth (less than 15% but greater than 5% from planned).
- Contract fee structure appropriately incentivizes suppliers.
- Common tools and templates are consistently applied.

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- Interface control documents are consistently applied.

A "highly" mature program office would have the following characteristics:

- All team members are trained and educated in specialty skills and are called upon to provide training to other program offices.
- The team is establishing communication management best practices that are used by other programs.
- The team is establishing risk management best practices that are used by other programs.
- The team is establishing cost management best practices that are used by other programs.
- The team is establishing schedule management best practices that are used by other programs.
- The team is establishing scope management best practices that are used by other programs.
- Logistics management has or will likely result in minimal operational and supportability cost growth (5% or less from planned).
- The team is establishing contract management best practices that are used by other programs.
- The team is developing best practices for tools and templates within the program office that are used by other programs.
- Interface control documents developed within the program office are used as best practices by other programs.

Based on the responses, 5% indicated that their program offices have characteristics that would align with "low maturity", 75% indicated that their program offices have characteristics that would align with "moderate maturity", and 20% indicated that their program offices have characteristics that would align with "high maturity".

We recommend a follow-on correlation between high performing program offices with these characteristics.

Survey – Comments Provided

We offered respondents the opportunity to provide comments on any other aspect that impact a program's success:

- "Still need to look at AT&L internal reforms too many a/o's still tinkering and not in alignment with AT&L leadership."
- "The amount of additional reports required to be reviewed and approved for ACT I Programs."
- "Excessive oversight by AT&L staff. Would like more insight (vice oversight) by AT&L & AT&L staff."
- "The customers have far too much ability to muck with the budget. Their influence constantly causes program perturbations."
- "Defending cost execution for CR funds to OSD Comptroller broken. People who rely on 5 year averages do not understand contract execution of dollars."
- "Our program office is significantly undermanned in experienced acquisition professionals, with an organizational structure being >90% civil service engineers and <5% GS-1101s. This is the main driver for the deficiencies I reported in this survey."
- "A first order affect to program success is the timeliness of decision making. Currently, the time for ACAT-I program major decisions is entirely too long. Additionally, the added burdensome taskers from DAE/SAE staffs are mis-aligned with our senior leadership's guidance of streamlining decision making."

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- "There are many things that are out of control of the program manager and the processes discussed in this survey."
- "Two points I would suggest and I know you can do nothing about the issues. 1. The annual programming process influenced by the Services, Defense and Congress is a nightmare. 2. An external audit from non-experts in their field of "expertise" by the GAO and IGs is a waste of the majority of your programs time. Some programs need the oversight, but most do not, so Defense should stop all "self-initiated" audits from those organizations. Self-initiated audits are a ploy by the oversight organizations to justify excessive headcount."
- "The indirect empowerment of OSD staff offices causes scope creep, budget instability, frequent delays, and significant energy going into satisfying the staffs versus managing the program."
- "I'm frankly perplexed as to how the questions in this survey will give you any insight into program success. I would not have asked most of these questions; rather, I would have focused on the competing and opposing pressures that a PM has to deal with are handled. For example, excessive reporting requirements, unrealistic and short-sighted requirements, absurd testing requirements, unstable budgets...the list goes on. I think you missed the boat on this one."
- "An understanding of System Engineering Process with regard to contractor's ability to execute programs."

These comments provide insight into other factors that impact the effectiveness of the acquisition of major weapon systems.

5.0 The Independent, Integrated Program Review (I2PR)

The tasks performed during this study enabled the adaptation of the I2PR that, upon execution, will allow senior DoD leaders the ability to determine the effectiveness of acquisition policy changes on the defense acquisition system, along with issues that interfere with achieving efficiency and responsiveness in the acquisition of MDAPs. The following section provides an overview of the methodology that can produce metrics to achieve this objective.

5.1 I2PR Overview

An I2PR follows a systematic approach to review, observe, assesses, integrate, and report findings that produce metrics, providing DoD leaders insight into a program's ability to execute both Program Initiation/Planning and Program Execution/Control. An I2PR includes an integrated assessment of the critical aspects of program management, including communication, contracting, cost, human resources, logistics, risk, schedule, scope, and internal/external integration.

An I2PR measures programmatic risks against the 10 elements of program management, as shown in **Figure 13**. Within each of the 10 program elements, 10 sub-elements have been identified. This forms a 10 x 10 matrix as shown in Appendix A. These 100 sub-elements form the basis of the I2PR assessment methodology.

Within each sub-element, up to 10 Characteristics of a Successful Program (COSP) are assessed during an I2PR. This results in a 10 x 10 x 10 matrix. Therefore, up to 1000 COSP are assessed during the execution of a full-scale I2PR.

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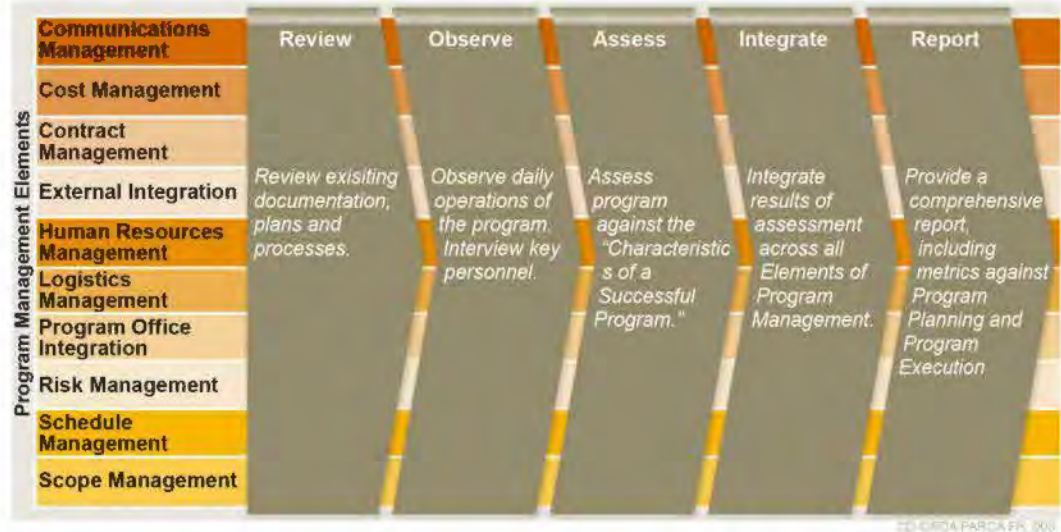


Figure 13. I2PR Methodology Overview

5.2 I2PR Pedigree

The I2PR leverages existing PwC commercial and government methodologies to provide a comprehensive, programmatic assessment of a program’s Planning/Integration phase and Execution/Control phase. We have used these methodologies in various commercial assessments to provide insight and recommendations, consequently improving the effectiveness and efficiency of operations.

The following section provides a summary of these methodologies

5.2.1 Program Management Evaluation Tool

PwC's Program Management Evaluation Tool provides a disciplined approach to assess an organization's program management maturity. As shown in **Figure 14**, the tool identifies

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5.2.2 Project Assurance Methodology

PwC's Project Assurance Methodology

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5.2.3 Project Assessment Methodology

PwC's Project Assessment

(b)(4)

5.2.4 Project Portfolio Management Maturity Assessment Tool

PwC's Project Portfolio Management Maturity Assessment Tool

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6.0 I2PR Dashboard

Based on the results of the Dashboard Requirements Definition, the Data Mining and the Survey, and the subsequent adaptation of the I2PR methodology, we developed

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6.1 I2PR Dashboard – View Metrics

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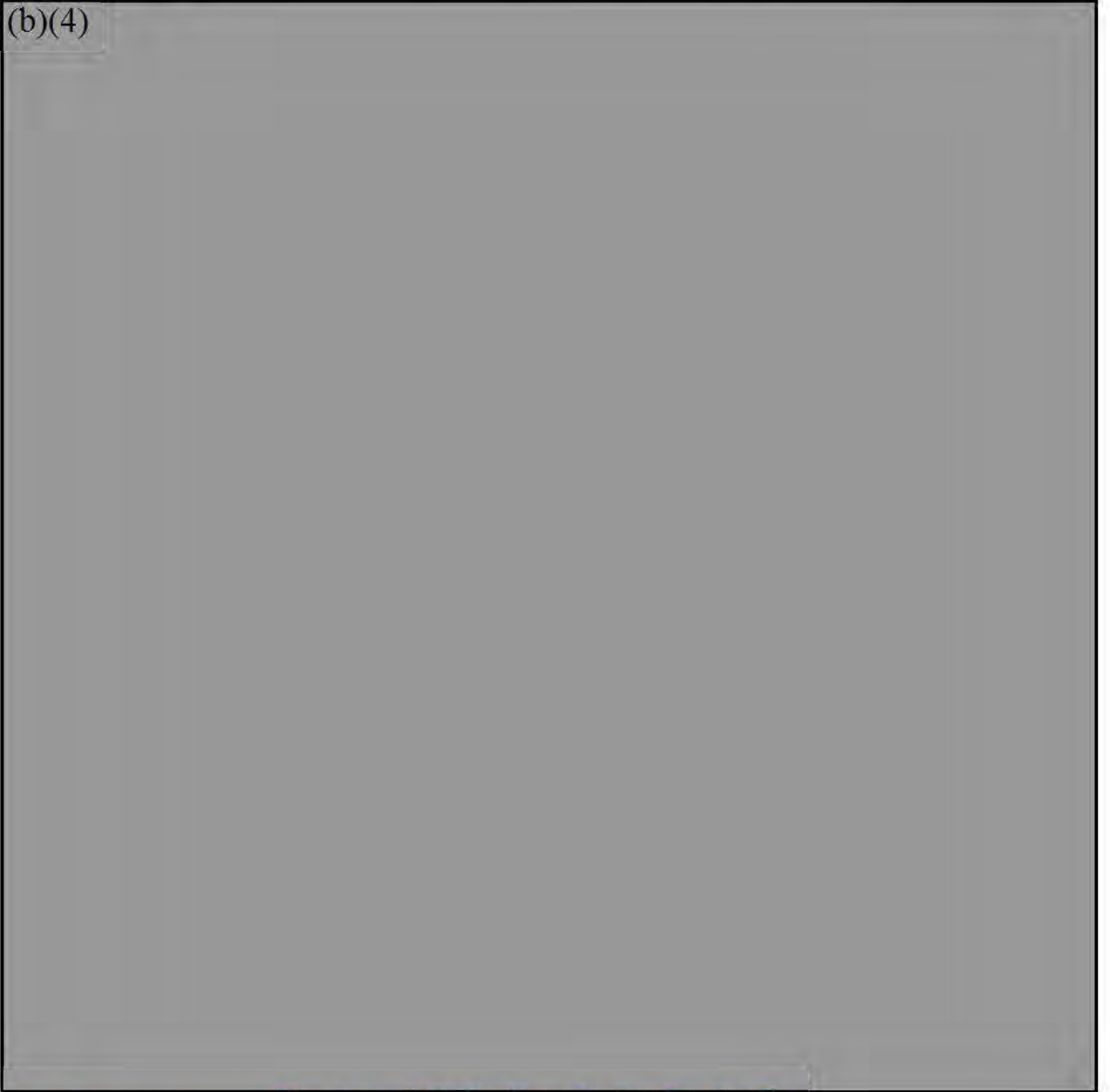


Figure 17. I2PR Dashboard – Baseline Details

6.2 I2PR Dashboard – Program Results

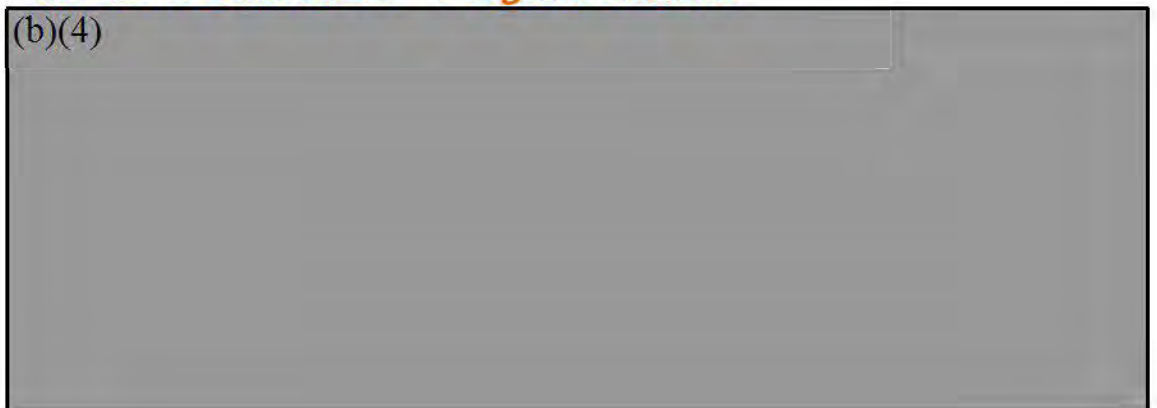




Figure 18. I2PR Dashboard – Program View

6.2.1 I2PR Dashboard: Detailed Analysis

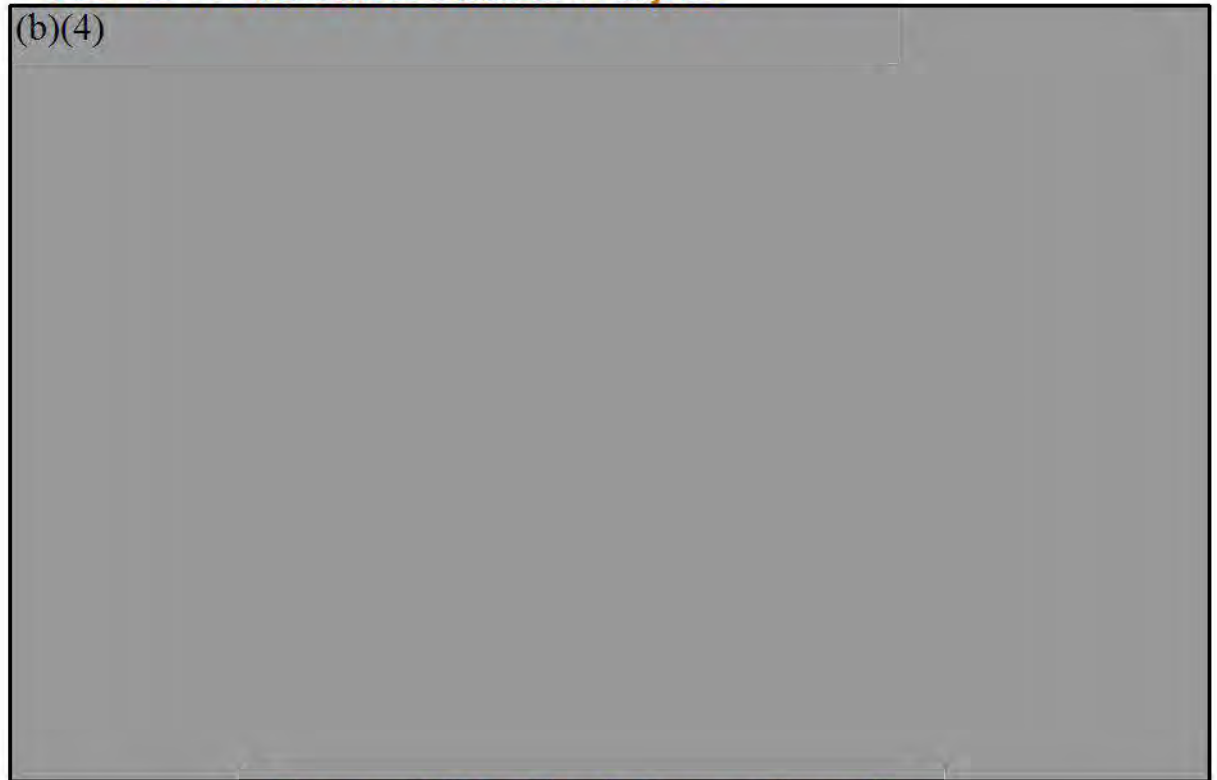


Figure 19. I2PR Dashboard – Program Element View



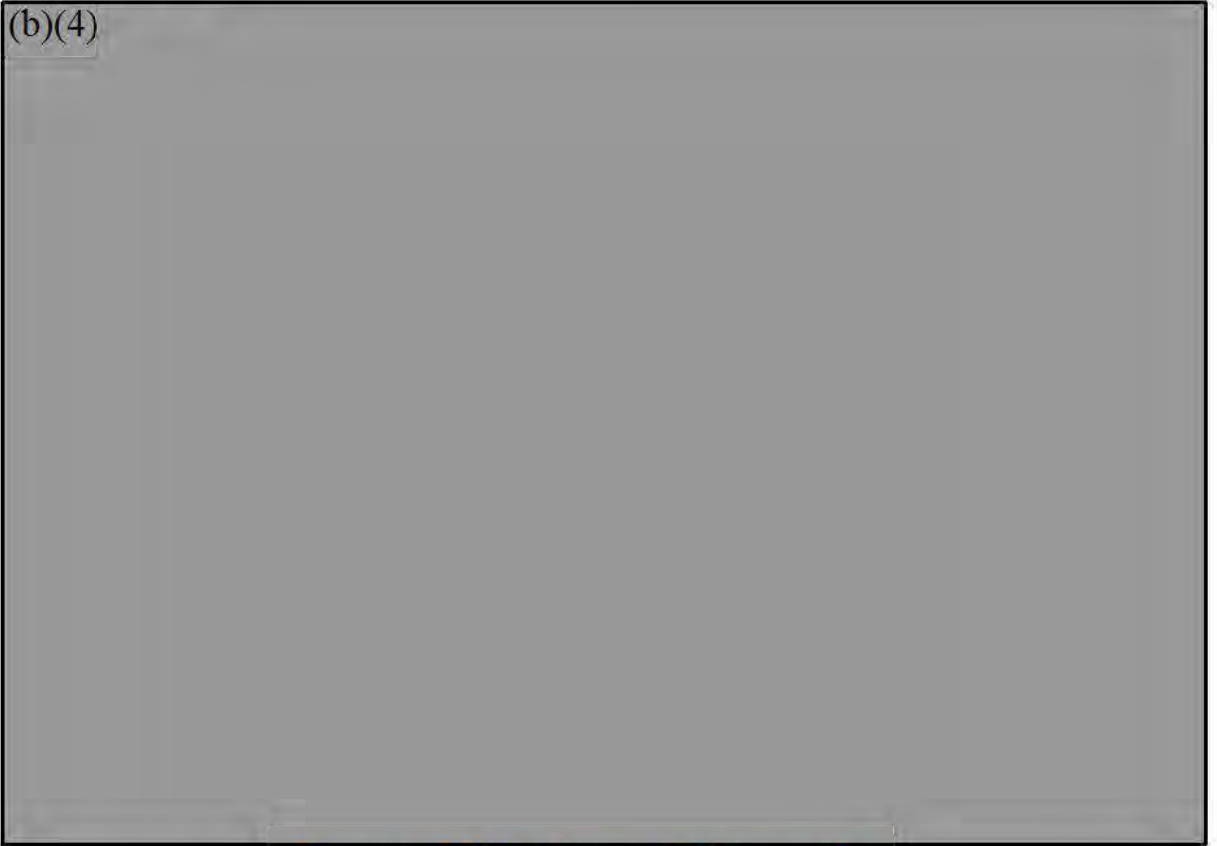


Figure 20. I2PR Dashboard – Sub-element View





Figure 21. I2PR Dashboard – Sub-element Details

6.2.2 I2PR – What if Analysis

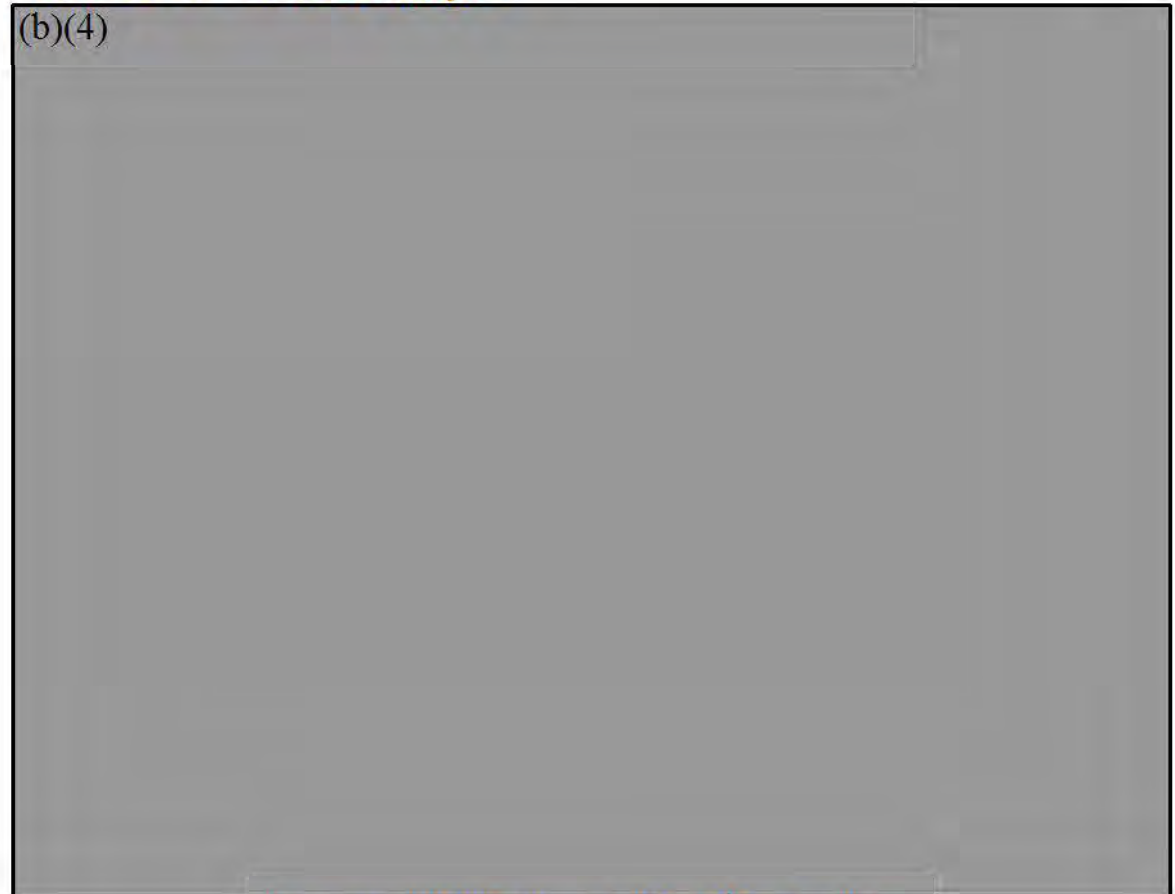
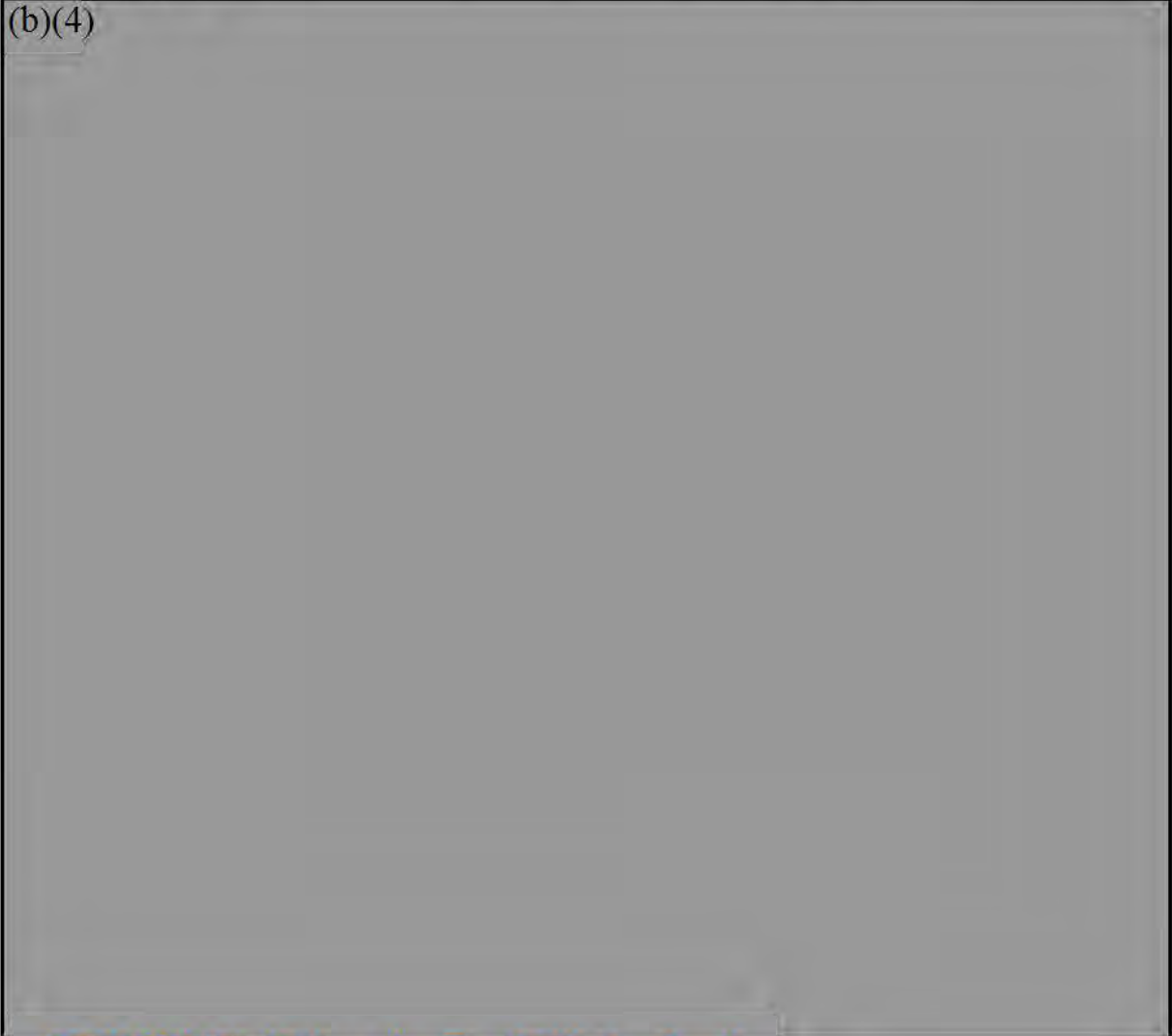



Figure 22. I2PR Dashboard – What If Analysis View

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6.3 I2PR Dashboard – Portfolio Analysis

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7.0 Recommendation/Next Steps

The compilation of the study tasks, shown in **Figure 23**, allowed for the adaptation of the I2PR methodology to meet the needs of senior DoD leaders.

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Figure 23. I2PR Adaptation

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7.1 Establishing a Baseline

An I2PR quicklook consists of a subset of a full-scale I2PR. Notionally, an I2PR quicklook will be 33% of a full-scale I2PR. We evaluated several iterations of how to determine the composition of the subset. The analysis concluded that the most optimum composition was as follows:

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Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

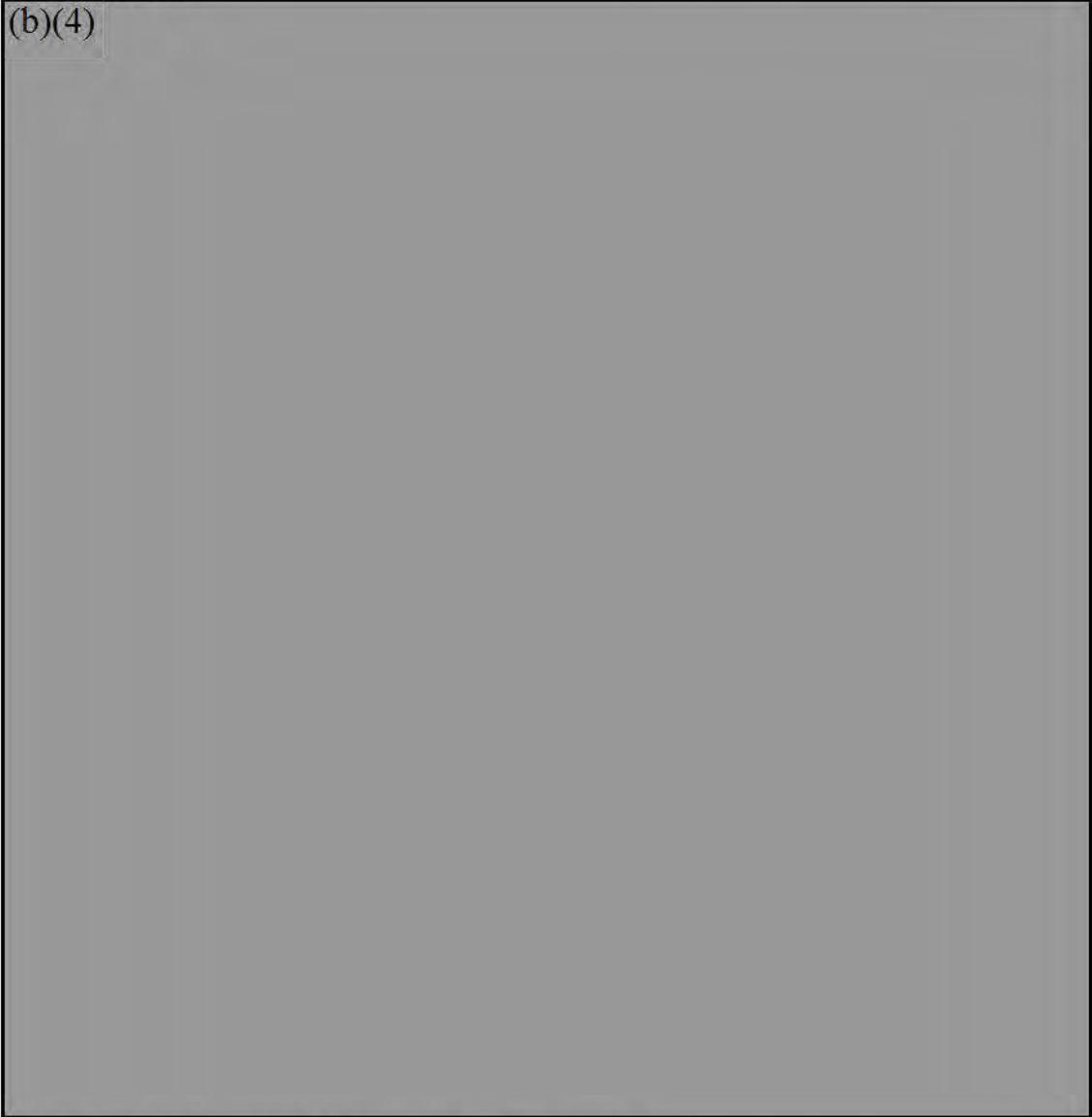
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7.2 I2PR Final Report

Upon completion of the assessment, we will deliver the I2PR final report, which will include specific details regarding the shortfalls identified during the assessment along with recommended corrective action and impacts if not corrected.

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8.0 Additional Value of an I2PR

Not only does an I2PR identify issues that interfere with achieving efficiency in the acquisition of MDAPs while providing leaders with metrics to measure the effectiveness of changes in acquisition policy, it also affords the following added value.

8.1 Supports Secretary Carter's Initiatives

An I2PR supports several of Secretary Carter's initiatives, including an assessment of the program's "should-cost" estimate to include the analysis below:

- A focus on each contributing factor to program cost, with accompanying justification, **and its integrated relationship to technology, schedule, requirements, acquisition strategy, and the defense supplier**
- A delta-cost from the "will-cost" estimate, based on discrete initiatives to reduce costs throughout program execution, **utilizing an integrated approach similar to a "weight management" plan**
- Contractual off-sets to reduce costs during execution, based on insights derived from the I2PR assessment

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8.2 Provides Transparency

Transparent behavior signals openness, communication, and accountability. Demonstrating transparent behavior is key to rebuilding credibility with Congress and restoring the confidence of the American public. The I2PR helps to determine whether:

- Program affordability has been established
- Appropriate tradeoffs among cost, schedule, and performance objectives have been made
- Reasonable cost and schedule estimates have been developed, with controls in place
- There is a high likelihood of accomplishing the intended mission
- Compliance with policies, regulations, and directives has been attained

8.3 Improves Likelihood of Program Success

An added value of an I2PR is the opportunity to have an independent, integrated, and thorough review of MDAPs, potentially uncovering previously unknown issues, risks, and concerns, thereby increasing the likelihood of delivering the required capability to the end-user on time and on budget.

Appendix A. Program Management Element Map

Program Management Element Map										
10 Elements of Program Management	Communications Management	Contract Management	Cost Management	External Integration	Human Resources Management	Logistics Management	Program Office Integration	Risk Management	Schedule Management	Scope Management
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Sub Elements										

Figure 24. Program Management Element Map

Appendix B. Survey

OSD(AT&L) Program Management Questionnaire

Dear Colleague,

As you know, one of Mr. Kendall's (USD(AT&L)'s) key 2012 initiatives is the improvement of the operation and efficiency of the acquisition system. At his direction, my office, PARCA, has partnered with PricewaterhouseCoopers LLP (PwC) to explore a new metrics methodology to assess the effectiveness of changes in acquisition policy and other factors on the performance of the defense acquisition system.

PwC has designed a survey to assay the views of key acquisition executives on problems and priorities – from your point of view – in our efforts to improve the system. I hate surveys, frankly, but this one is completely multiple choice unless you choose to add your thoughts (which we would value highly). Further, it may be completed in less than 15 minutes.

Precautions are in place to ensure your anonymity. Your response is voluntary. This survey has been approved by OSD and has been assigned the report control symbol (RCS) DD-AT&L(OT)2506. The information you submit via this survey will only be used for identifying issues that interfere with achieving efficiency in the acquisition of MDAPs, and will establish metrics to enable senior DoD leaders to determine the effectiveness of acquisition policy changes on the defense acquisition system. Please respond within a week of receipt so that we can get the results to OSD(AT&L) as quickly as possible.

The point of contact for this effort is Dr. Dan Davis, Acquisition Policy Analysis Cell, OUSD(AT&L) /PARCA, telephone 703-614-2692, email Dan.Davis@osd.mil

//signed Gary Bliss//

Director

Performance Assessments and Root-Cause Analyses

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

Survey Format and Overview:

The survey is organized into six main sections.

Section 1.0. Background

Section 2.0. Program Planning

Section 3.0. Program Execution

Section 4.0. Rank Major Contributors of Project Cancellations

Section 5.0. Efficacy of the Program Office

Section 6.0. Additional Comments

The survey consists of up to 30 questions. Please allot approximately 20 minutes to complete this survey in one sitting, as anonymity settings do not allow an option to save progress and continue the survey at a later date. An indicator will be displayed to provide you with evidence of your progress.

This survey is unclassified only. Please do not respond with any information that might be sensitive and treated as "For Official Use Only." You may decline to take this survey without any repercussions. Precautions are in place to ensure the anonymity of all respondents. Your responses will be kept confidential and will not be traceable. No information will be used to identify any specific respondent. Using the survey software's anonymous settings, our system does not enable "cookies," which are files placed on your computer's hard drive in order to monitor your use of the site or the Web.

This Web site does gather certain data from your visit but does not store it in a way that it can be linked to you. This non-personal information helps us make the site more useful by recognizing the types of technology being used. The data collected appear below:

1. The date and time this survey was submitted.
2. A list of respondents named by a unique identifier which cannot be linked back to the respondent.

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

1.0 Background

Personal Background

What is your current position?

- Program Manager
- Program Executive Office
- Secretariat Staff
- System Command Staff
- Other (Please specify) _____

**Which Branch of the Armed Services did you support for this program?
(Select one)**

- Army
- Navy
- Air Force
- Marine Corps
- Joint
- Other (Please specify) _____

How many years of acquisition experience do you have?

- 0-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20 or more years

Which of the following Program Management certifications/designations do you have (select all that apply)?

- Defense Acquisition Workforce Improvement Act (DAWIA) Level 3 – Program Management
- Department of Defense Acquisition Professional Community (APC)
- Project Management Professional (PMP), certified by Project Management Institute (PMI)
- Program Management Professional (PgMP), certified by Project Management Institute (PMI)
- Others (Please specify) _____

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

Program Background

Where in the life cycle is your current program (if you are managing more than one MDAP, please refer to the longest running MDAP)?

- Materiel Solution Analysis Phase (Pre-Milestone A)
- Technology Development Phase (Pre-Milestone B)
- Engineering Manufacturing and Development Phase (Pre-Milestone C)
- Production and Deployment Phase
- Operations and Support

Has your current program ever declared a Nunn-McCurdy Breach?

- No**
- Yes – Significant Breach
- Yes – Critical Breach
- We are in the process of declaring either a significant or critical Nunn-McCurdy Breach

Is your program projected to finish on time, per the original Milestone B Acquisition Program Baseline (APB)?

- Yes, the program is projected to **finish early or on time**
- No, the program is projected to be **late, by equal to or less than 5%**
- No, the program is projected to be **late, by 6-10%**
- No, the program is projected to be **late, by 11-15%**
- No, the program is projected to be **late, by more than 15%**
- Program does not have an APB at this time

Is your program projected to finish within budget, per the original Milestone B Acquisition Program Baseline (APB)?

- Yes, the program is projected to finish **under or on budget**
- No, the program is projected to **overrun, by equal to or less than 5%**
- No, the program is projected to **overrun, by 6-10%**
- No, the program is projected to **overrun, by 11-15%**
- No, the program is projected to **overrun, by more than 15%**
- Program does not have an APB at this time

Is your program projected to meet its key performance parameters (KPPs) performance thresholds, per the original Milestone B Acquisition Program Baseline (APB)?

- The program is projected to **exceed all or most** performance thresholds
- The program is projected to **meet most** performance thresholds
- The program is projected to **meet some** performance thresholds
- The program is **not** projected to **meet any** of its original performance thresholds
- Program does not have an APB at this time

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

2.0 Program Planning

Program Planning refers to the efforts required to "establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives. The planning processes develop the project management plan and the project documents that will be used to carry out the project." (PMBOK® Guide – Fourth Edition, p. 46)

Rank the following 10 Elements of Program Management numerically from one (1) to ten (10) in order of their level of significance, during the Program Planning phase, on achieving the program's objectives. Please use each number only once, with 1 being most significant and 10 being least significant.

- Communications Management
- Contract Management
- Cost Management
- External Integration
- Human Resources Management
- Logistics Management
- Program Office Integration
- Risk Management
- Schedule Management
- Scope Management

Note: Only four of the following 10 questions will be presented. The four to be presented are based on which 4 elements were ranked highest (#1-4) in the previous question

Within Communications Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Communications Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Plan Communications
- Identify Stakeholders
- Distribute Information
- Manage Stakeholder Expectations
- Report Performance
- Governance & Reporting
- Communications Methodology
- Internal Communication
- External Communication
- Communication Effectiveness

Within Contract Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Contract Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

- Contract Administration
- Contractor Quality Management
- Supplier Contracts
- Procurement Planning
- Request for Proposal
- Source Selection
- Supplier Performance
- Supplier Dependencies/Evaluation
- Contract Content
- Contract Fees

Within Cost Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Cost Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Cost Estimating
- Budgeting
- Establishment of a Cost Performance Baseline
- Funding Allocation
- Cost Performance Measurement
- Cost Reporting
- Cost Change Control
- Cost Reduction Management
- Cost Risk Management
- Affordability

Within External Integration, there are 10 sub-elements. Please identify which three (3) sub-elements of External Integration have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Interface Control Documents
- Joint Systems Engineering Plan
- Joint Risk Management Board
- Joint Integrated Master Schedule
- Joint Configuration Management
- Joint Logistics Management
- Joint Test and Evaluation
- Joint Program Office Integration
- Requirements Interdependency
- Joint Stakeholder Alignment

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

Within Human Resources Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Human Resources Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Program Management Office Organization
- Resource Assessment
- HR Availability
- HR Plan
- Training/Team Building
- Roles and Responsibilities
- Adaptability to Change
- Performance Analysis/Review
- Retention
- Governance/Staff Management

Within Logistics Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Logistics Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Supply Chain Management
- Manufacturability Design Interface
- Maintenance Planning and Management
- Support Equipment
- Sustaining Engineering
- Tech Data
- Facilities
- Computer Resources
- Life Cycle Sustainment
- Environmental Considerations

Within Program Office Integration, there are 10 sub-elements. Please identify which three (3) sub-elements of Program Office Integration have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Change Control Processes
- Tools and Methodologies
- Benefits Realization
- Knowledge Sharing/Lessons Learned
- Decision Authority
- Templates
- Program Metrics
- Utilization of Best Practices

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

- Configuration Management
- Functional Interdependencies

Within Risk Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Risk Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Plan Risk Management
- Risk Management Strategy
- Risk Assessment
- Monitor and Control Risks
- Project Dependency
- Issue Management
- Risk Responses
- Identify Risks
- Risk Stakeholder, Governance, and Communication
- Risk Log

Within Schedule Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Schedule Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Schedule Risk Management
- Schedule Change Control
- Schedule Realism
- Schedule Risk Assessment
- Management of Internal Schedule Dependencies
- Management of External Schedule Dependencies
- Schedule Development
- Schedule Performance
- Schedule Reporting
- Schedule Maintenance

Within Scope Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Scope Management have the most significant influence, **during the Program Planning phase**, on achieving the program's objectives (please select only three elements).

- Requirements Definition
- Scope Change Control
- Scope Verification
- Requirements Stability (Evidence of Creep)
- Scope Documentation
- Stakeholder Management

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

- 1. Scope Alignment (with business priorities)
- 2. Technical Performance Measurement
 - Technical Risk
- 3. Technology Maturity/Readiness

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

3.0 Program Execution

Program Execution refers to the "process of performing the work defined in the project management plan to achieve the project's objectives." (PMBOK® Guide – Fourth Edition, p. 83)

Rank the following 10 Elements of Program Management numerically from one (1) to ten (10) in order of their level of significance, **during the Program Execution phase**, on achieving the program's objectives. Please use each number only once, with 1 being most significant and 10 being least significant.

- Communications Management
- Contract Management
- Cost Management
- External Integration
- Human Resources Management
- Logistics Management
- Program Office Integration
- Risk Management
- Schedule Management
- Scope Management

Note : Only four of the following 10 questions will be presented. The four to be presented are based on which of the 4 elements were selected in the previous question.

Within Communications Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Communications Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Plan Communications
- Identify Stakeholders
- Distribute Information
- Manage Stakeholder Expectations
- Report Performance
- Governance & Reporting
- Communications Methodology
- Internal Communication
- External Communication
- Communication Effectiveness

Within Contract Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Contract Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Contract Administration
- Contractor Quality Management

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

- Supplier Contracts
- Procurement Planning
- Request for Proposal
- Source Selection
- Supplier Performance
- Supplier Dependencies/Evaluation
- Contract Content
- Contract Fees

Within Cost Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Cost Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Cost Estimating
- Budgeting
- Establishment of a Cost Performance Baseline
- Funding Allocation
- Cost Performance Measurement
- Cost Reporting
- Cost Change Control
- Cost Reduction Management
- Cost Risk Management
- Affordability

Within External Integration, there are 10 sub-elements. Please identify which three (3) sub-elements of External Integration have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Interface Control Documents
- Joint Systems Engineering Plan
- Joint Risk Management Board
- Joint Integrated Master Schedule
- Joint Configuration Management
- Joint Logistics Management
- Joint Test and Evaluation
- Joint Program Office Integration
- Requirements Interdependency
- Joint Stakeholder Alignment

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

Within Human Resources Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Human Resources Management have the most significant influence, **during the Execution Planning phase**, on achieving the program's objectives (please select only three elements).

- Program Management Office Organization
- Resource Assessment
- HR Availability
- HR Plan
- Training/Team Building
- Roles and Responsibilities
- Adaptability to Change
- Performance Analysis/Review
- Retention
- Governance/Staff Management

Within Logistics Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Logistics Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Supply Chain Management
- Manufacturability Design Interface
- Maintenance Planning and Management
- Support Equipment
- Sustaining Engineering
- Tech Data
- Facilities
- Computer Resources
- Life Cycle Sustainment
- Environmental Considerations

Within Program Office Integration, there are 10 sub-elements. Please identify which three (3) sub-elements of Program Office Integration have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Change Control Processes
- Tools and Methodologies
- Benefits Realization
- Knowledge Sharing/Lessons Learned
- Decision Authority
- Templates
- Program Metrics
- Utilization of Best Practices

Methodology and Metrics to Measure the Effectiveness of Changes in Acquisition

- Configuration Management
- Functional Interdependencies

Within Risk Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Risk Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Plan Risk Management
- Risk Management Strategy
- Risk Assessment
- Monitor and Control Risks
- Project Dependency
- Issue Management
- Risk Responses
- Identify Risks
- Risk Stakeholder, Governance, and Communication
- Risk Log

Within Schedule Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Schedule Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Schedule Risk Management
- Schedule Change Control
- Schedule Realism
- Schedule Risk Assessment
- Management of Internal Schedule Dependencies
- Management of External Schedule Dependencies
- Schedule Development
- Schedule Performance
- Schedule Reporting
- Schedule Maintenance

Within Scope Management, there are 10 sub-elements. Please identify which three (3) sub-elements of Scope Management have the most significant influence, **during the Program Execution phase**, on achieving the program's objectives (please select only three elements).

- Requirements Definition
- Scope Change Control
- Scope Verification
- Requirements Stability (Evidence of Creep)
- Scope Documentation
- Stakeholder Management

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- Scope Alignment (with business priorities)
- Technical Performance Measurement
- Technical Risk
- Technology Maturity/Readiness

4.0 Major Contributors of Project Cancellations

Rank the following major contributors of project delays/cancellations numerically from one (1) to eleven (11) in order of their level of significance. Please use each number only once, with 1 being most significant and 11 being least significant.

- Poor estimates in the planning phase
- Missed deadlines
- Change(s) in scope mid-project
- Insufficient resources
- Insufficient motivation for completion
- Lack of Change Management
- Poorly defined goals/objectives
- Lack of stakeholder involvement
- Poor communication
- Change in strategy
- Change in environment

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5.0 Program Management Effectiveness

The purpose of this portion of the survey is to determine the efficacy of MDAP Program Offices. If you are not the Program Manager, please provide a general assessment of the MDAP Program Offices under your cognizance.

Which of the following best describes your team's level of education and training proficiency?

- Team members lack prior training and relevant specialty skills.
- Team members are trained in specialty skills relevant to program objectives.
- The Program Manager is trained and educated in program management skills and team members are trained and educated in program specific skills.
- All team members are trained and educated in specialty skills and are called upon to provide training to other program offices.

Which of the following best describes your team's communication management effectiveness?

- Overall team communication is poor. Uncertainty exists in understanding mission objectives.
- Team communicates effectively, and information is communicated frequently.
- Communication is highly effective across all media and all levels. Little or no uncertainty exists in understanding mission objectives.
- The team is establishing communication management best practices that are used by other programs.

Which of the following best describes your team's risk management effectiveness?

- Risks are identified and mitigation plans are developed; however, the processes are ad hoc.
- Risks are measured subjectively and mitigation plans are developed and consolidated across the programs.
- Risks are rigorously identified using a common methodology and integrated with other program management activities.
- The team is establishing risk management best practices that are used by other programs.

Which of the following best describes your team's cost management effectiveness?

- Poor cost management has resulted in excessive cost variances.
- Cost management processes control cost variance.
- Highly effective cost management processes proactively control cost variance.
- The team is establishing cost management best practices that are used by other programs.

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Which of the following best describes your team's schedule management effectiveness?

- Poor schedule management has resulted in excessive schedule variances.
- Schedule management processes control schedule variance.
- Highly effective schedule management processes proactively control schedule variance.
- The team is establishing schedule management best practices that are used by other programs.

Which of the following best describes your team's scope management effectiveness?

- Poor scope management has resulted in uncontrollable scope creep.
- Scope management processes minimize scope creep.
- Highly effective scope management processes enable acceptable changes in scope definition.
- The team is establishing scope management best practices that are used by other programs.
- Not applicable, no scope changes have occurred.

Which of the following best describes your team's logistics management effectiveness?

- Poor logistics management has or is projected to result in excessive operational and supportability cost growth (15% or greater from planned).
- Logistics management has or will likely result in moderate operational and supportability cost growth (less than 15%, but greater than 5% from planned).
- Logistics management has or will likely result in minimal operational and supportability cost growth (5% or less from planned).

Which of the following best describes your team's contract management effectiveness?

- Contract fee structure disincentivizes suppliers.
- Contract fee structure inappropriately incentivizes suppliers.
- Contract fee structure appropriately incentivizes suppliers.
- The team is establishing contract management best practices that are used by other programs.

Which of the following best describes your team's ability to integrate within the program office?

- Common tools and templates are not defined.
- Common tools and templates are defined and developed, but are not consistently applied.
- Common tools and templates are consistently applied.
- The team is developing best practices for tools and templates within the program office that are used by other programs.

Which of the following best describes your team's ability to interface with other external entities (e.g. with other program offices, system commands)?

- Interface control documents are required at this time, but are not developed.
- Interface control documents are developed, but not consistently applied.

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- Interface control documents are consistently applied.
- Interface control documents developed within the program office are used as best practices by other programs.
- N/A – Program Office does not integrate with external entities.

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6.0 Additional Comments

Please provide any comments or any other elements of program management that influence a program's success that were not covered in the survey.

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