

# Program and Project Management Practices in the Federal Civilian Agencies

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## White Paper

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## Executive Summary

Over many years now, considerable resources have been expended to improve program and project performance in the federal government. In this connection, the Federal Acquisition Institute (FAI) was established in 1976 to “(foster and promote) the development of a federal acquisition workforce.” Subsequently, a multi-agency Functional Advisory Board (FAB) was established to update program/project management competencies and recommend improvements to existing federal certification standards. Best practice-based guidelines have been published by the Government Accountability Office (GAO) to improve program and project cost and schedule performance. An entire industry has evolved to provide specialized training and program management support to federal program and project managers. Millions of training and support dollars are spent each year to upgrade the knowledge, skills, and abilities of federal program and project managers.

A natural question to ask is whether these program and project management-targeted initiatives are having the desired impact? Are federal programs and projects more successful now as a result of these efforts?

To explore this question, a survey of federal civilian agencies was conducted in April and May of 2014. The survey was available to all federal civilian and contractor employees involved with acquisition program management. It cast a wide net in an effort to gain general insights into Agency policies and practices specifically related to cost and schedule management.<sup>1</sup>

The purpose of the survey was to:

- Determine the methods by which federal civilian agencies manage program-level cost and schedule performance of major acquisition programs
- Generally assess the effectiveness of these methods
- Identify new best practices for managing program-level cost and schedule performance

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<sup>1</sup> Department of Defense agencies were not the focus of the survey insofar as their program and project management policies are well defined.

## Summary of Key Findings

A total of 59 responses were received from seven federal agencies. The majority of the responses, 74%, were received from three large agencies. Because of the pattern of responses, it is not possible to project the results across all federal agencies. However, the results are sufficiently interesting to warrant follow-up studies on an agency basis to understand root causes for cost and schedule overruns.

The findings suggest that agencies have in the majority of instances, instituted comprehensive cost and schedule management policies. Additionally, these findings suggest that GAO cost estimating and scheduling best practices have made important inroads in the civilian agencies with 66% reporting policies consistent with the GAO Cost Estimating Guide and 51% with the GAO Schedule Assessment Guide. Yet cost and schedule management remain significant issues as evidenced by only 9% of respondents reporting that their organizations always deliver capabilities within cost baselines and 3% within schedule baselines.

One might argue that “always” is too severe a test. However, only 22% “somewhat agreed” with the statement relative to cost performance and 31% “somewhat agreed” relative to schedule performance. The two most cited causes for these results have remained constant over the years: 75% of responses mentioned changes in scope as a factor for both cost and schedule overruns, while requirements management was the second most cited factor at 65% for cost overruns and 68% for schedule overruns.

It seems counterintuitive that unmanaged scope persists as a major problem with today’s intense focus on program and project management training, certification standards, and best practice-based policies. With all that is known about the relationship between effective scope management and program or project success, it seems inconceivable that scope decisions are made that place a program or project at risk. Clearly, there must be reasons other than training or policy deficiencies to explain decision-making that allows impactful scope changes to occur without effective mitigations. Presumably senior management is aware of program status, risks, and issues since 81% of respondents regularly report cost and schedule performance to senior management.

Methods emphasizing shorter development cycles such as Agile, keeping the business owner close to the development effort, and “dividing” acquisition programs into smaller pieces seem to be more effective than traditional methods for requirements management. In this regard, 43% of respondents report using Agile on at least some of their software development activities.

## Conclusion

The survey does not purport to explain why informed management would allow high risk scope changes to occur. However, one might surmise that better training and best practice-based policies are not the entire solution.

While much is made of program and project managers being accountable and responsible for program and project success, there are indications that scope problems lay outside of their control. Or perhaps at least in the federal setting, the view of program/project manager responsibility and accountability needs to be reconsidered.

Pulling this thread suggests that current organizational constructs may be the major factor in scope-related cost and schedule failures. The survey results show that most program and project managers regularly report to senior leaders, so information flow upward does not seem to be the crucial issue. Yet, scope decisions are still made which damage prospects for successful cost and schedule management. Something else must be at play that enables these situations to occur.

The most obvious areas for inquiry involve an organization's cultural and structural relationships and authorities. Clearly, current constructs are not working. Those who approve scope decisions need to be closely tied to program and project success. All persons within the decision tree, not just program and project managers, need to be truly accountable for negatively impacting decisions. If program and project managers are to be solely accountable and responsible for cost and schedule overruns, then they must be organizationally independent and managerially empowered to own the management processes.

Requirements failures are a different matter. Potential solutions are well known and involve better methods for requirements gathering and improved training not only of practitioners but of business owners, as well. For decades, program and project managers have struggled to collect the "right" requirements and clearly the struggle continues. On the information technology side, methodologies like Agile show great promise. The bottom line, regardless of the type of program or project, all involved must be totally prepared to execute efficiently and effectively. Here again, organizational issues must be considered. The acquiring organization must mobilize its best people and resources, equipped with the necessary authorities, training, processes, and tools to properly manage acquisitions to a proper conclusion.

Leaders at all levels need quality information for decision-making. Not every acquisition program in the civilian sector relies on Earned Value Management (EVM) to monitor cost and schedule performance.<sup>2</sup> Across the government there is continued pressure to award Firm Fixed Price Contracts meaning that decision makers likely do not receive

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<sup>2</sup> EVM is a disciplined project management process that integrates the technical scope with the cost and schedule data. When implemented correctly, it will provide reliable performance information which can be used in decision making to assist the programs and projects. For programs and projects not using EVM, it should be considered as an alternative to provide key data for managing programs and projects. While

sufficient performance data from their contractors. Contractor status reports are provided and perhaps not much more.

In this situation when the reported data is not predictive or sufficiently focused, concise, or meaningful valid forecasts are problematic. Regardless of the contract type or the nature of the acquisition, better data needs to be collected and leaders need to be better trained on how to interpret the right data, ask for additional data (deeper dive) when appropriate, and then take correct actions as a result of better information. In addition, leadership must put follow-up mechanisms in place to ensure that corrective actions take place.

In summary, efforts to improve competencies and embed best practices in acquisition program management have not yielded the intended result of consistently successful acquisition programs. Much work remains in the way organizations are structured, people operate, and acquisitions are managed and measured. Follow-up benchmarking studies should be considered to identify consistently successful organizational models for major investment programs or at least rule out organizational structures, management practices, and behaviors that negatively impact program and project success.

## Detailed Results

### Question 1: Primary role/position

- Acquisition Executive: 3 (5.2% of respondents)
- Contracting Officer: 1 (1.7% of respondents)
- Contracting Officer Representative: 1 (1.7% of respondents)
- Cost Estimator/Analyst: 4 (6.9% of respondents)
- Customer Support: 2 (3.4% of respondents)
- Deputy Project Manager: 4 (6.9% of respondents)
- Enterprise Architect: 1 (1.7% of respondents)
- Financial Manager: 1 (1.7% of respondents)
- IT Solution Architect: 1 (1.7% of respondents)
- Program Management Office Staff: 10 (17.2% of respondents)
- Program Manager: 9 (15.5% of respondents)
- Project Manager: 3 (5.2% of respondents)
- System Engineer: 2 (3.4% of respondents)
- Other: 16 (16.6% of respondents)
- No answer: 1 (1.7% of respondents)

### Question 2: Years of program management and acquisition related experience:

- Weighted Average Years of Experience: 7.36
- Range: 3 years to 30+ years

### Question 3: In your role, do you track cost and schedule performance of one or more major investments?

- Yes: 43 respondents
- No: 16 respondents

### Question 4: Are you certified?

- Yes: 35 (60% of respondents)
- No: 23 (40% of respondents)
- No answer: 1

### Question 5: Agency Affiliation

- Not reported in this White Paper

### Question 6: For investments of \$5M or greater, does your Agency or organization:

- Purchase “off-the-shelf” solutions: 11 (19.6% of respondents)
- Develop major solutions in-house with little or no contractor support: 1 (1.8% of respondents)

- Develop major solutions using contractors with little or no government oversight: 3 (5.4% of respondents)
- Develop major solutions using contractors with substantial government oversight: 41 (73.2% of respondents)
- No answer: 4

Question 7: Approximate FY budget for new investments (IT and non-IT, not including O&M) for your Agency or organization:

- <\$50M: 6 (10.7% of respondents)
- \$50M - \$100M: 10 (17.9% of respondents)
- \$100M - \$500M: 6 (10.7% of respondents)
- \$500M - \$1B: 13 (23.2% of respondents)
- >\$1B: 21 (37.5% of respondents)
- No answer: 3

Question 8: To what extent do you agree with the statement: “Our organization always delivers requested capabilities/solutions as initially planned without major changes.”

- Completely disagree
- Somewhat disagree
- Somewhat agree
- Completely agree
- Other

*Results:*

8.5% “completely agree” with the statement while 35.6% “completely disagree” which represented the majority of respondents. “Completely disagree” and “somewhat disagree” totaled 66.1% of the responses. 23.7% “somewhat agreed” with the statement. Several respondents indicated their organization delivered some capabilities as initially planned with major changes.

Question 9: To what extent do you agree with the statement: “Our organization always delivers requested capabilities/solutions within the cost baseline.”

- Completely disagree
- Somewhat disagree
- Somewhat agree
- Completely agree
- Other

*Results:*

8.6% completely agreed and 22.4% somewhat agreed with the statement while 25.9% completely disagreed. The majority (41.4%) of respondents were in the “somewhat disagree” category.



Question 10: If costs exceed the planned baseline, what are the usual reasons: (Check all that apply)

- Events outside of our control
- Changes in scope
- Ineffective requirements management
- Ineffective risk management
- Inadequate government cost estimates
- Lack of consistent management oversight
- Poor contractor performance
- Unknown
- Other

*Results:*

The data shows that there are, typically, multiple reasons for a cost overrun. 74.6% of responses include “Changes in scope” as a factor. “Ineffective requirements management” was the second most cited factor at 64.4%. “Inadequate government cost estimates” was cited as a factor in 54.2% of the responses, “Events outside of our control” and “Lack of consistent management oversight” tied at 52.5% as factors in cost overruns. “Ineffective risk management” was cited as a factor in 49.2% of the responses. “Poor contractor performance” was cited as a factor in 40.7% of the responses. While contractor performance is certainly an important element in managing cost baselines, scope management remains the primary point of failure. However, the application of standard program management skill factors was implicated in fully 80% of the responses.

Question 11: To what extent do you agree with the statement: “Our organization always delivers requested capabilities/solutions within the schedule baseline.”

- Completely disagree
- Somewhat disagree
- Somewhat agree
- Completely agree
- Other

*Results:*

Only 3.4% of the responses, 2 of 59, agree with the statement and 30.5% somewhat agreed with the statement. 27% completely disagreed with the statement. The majority (37.3%) of respondents were in the “somewhat disagree” category. The results tend to indicate continuing problems with schedule management.

Question 12: When a schedule breach does occur, what are the usual reasons: (Check all that apply.)

- Events outside of our control
- Changes in scope
- Ineffective requirements management
- Ineffective risk management
- Inadequate government cost estimates

- Lack of consistent management oversight
- Poor contractor performance
- Unknown
- Other

*Results:*

The data shows multiple reasons for schedule baseline breaches. Similar to cost overruns, 74.6% of responses include “Changes in scope” as a factor. Ineffective requirements management was cited in 67.8% of responses. “Inadequate government schedule estimates” was cited as a factor in 61% of the responses. “Ineffective risk management,” “Events outside of our control,” and “Lack of consistent management oversight” were tied at 50.8% of responses. “Poor contractor performance” was cited in 39% of responses. Clearly, ineffective program and project management covering a wide area are the principal causes of schedule baseline breaches.

Question 13: Is there written policy or guidance requiring development of a Work Breakdown Structure (WBS) during program/project planning? (Check all that apply)

- No, we do not require development of a WBS at any level
- Yes, we are required to develop a WBS at the Program level
- Yes, we are required to develop a WBS at the Project level
- Yes, contractors are required to develop a WBS
- Unknown
- Other

*Results:*

Only 10.2% of respondents report not requiring development of a WBS in their organization. A near equal percentage of respondents reported policy of guidance requiring a WBS at the program and project levels, (61% and 64.4%, respectively). 59.3% of respondents reported that contractors are required to develop a WBS. Interestingly, one respondent felt that “The WBS concept is inappropriate and dated. It stovepipes efforts, inflates requirements, causes conflicts, and hinders efficient prioritization for Agile delivery.” One response indicated that policy existed but ineffective due to lack of training. Another response indicated the PMO does a poor job of managing WBS. Overall, it does not appear that a lack of WBS policy is a leading factor in cost and schedule baseline breaches. Although only one response involved Agile, and considering its growing use in the federal government, a relook at standard WBS theory may be in order.

Question 14: Is there written policy or guidance requiring development of a Cost Estimating Baseline Document (CEBD)?

- No, we do not require a CEBD for major investments
- Yes, we require a CEBD for major investments
- Unknown

*Results:*

66.1% of responses report policy or guidance requiring development of a CEBD. 16.9% of respondents report either that a CEBD is not required or it is unknown whether such policy or guidance exists. A CEBD is a best practice as described in the GAO Cost Estimating and Assessment Guide.

Question 15: Is there written policy or guidance requiring a formal Life Cycle Cost Estimate (LCCE) prior to moving forward with an investment?

- No, we do not require a formal LCCE for major investments
- Yes, we require a formal LCCE for major investments
- Unknown

*Results:*

81% of respondents indicate that policy or guidance exists which requires an LCCE. LCCEs are defined as a best practice by GAO. It is unclear why 10.3% of respondent indicated an LCCE is not required.

Question 16: Does your organization employ a sufficient internal capability to properly estimate life cycle costs for major investments?

- No, we do not have sufficient internal resources for estimating life cycle costs for major investments
- Yes, we have sufficient internal resources for estimating life cycle costs for major investments
- Unknown

*Results:*

55.2% of respondents report sufficient internal resources to estimate LCCEs for major investments. A surprisingly large number of respondents (31%) indicate sufficient internal resources were not available.

Question 17: Is there written policy or guidance requiring development of a formal Risk Management Plan for major investments? (Check all that apply)

- No, we do not have written policy or guidance concerning a formal Risk Management Plan for major investments
- Yes, the Risk Management Plan includes a vulnerability assessment
- Yes, the Risk Management Plan includes a qualitative risk analysis
- Yes, the Risk Management Plan includes a quantitative risk analysis
- Yes, the Risk Management Plan includes a Risk Register
- Yes, the Risk Management Plan includes a risk prioritization
- Yes, the Risk Management Plan includes a Project Schedule Management Plan
- Yes, the Risk Management Plan includes a Cost Management Plan
- Yes, the Risk Management Plan includes risk mitigation strategies
- Unknown

*Results:*

Only 2 respondents (3.4%), report not having a written policy or guidance concerning development of a formal risk management plan. Reviewing the list of Risk Management

Plan content, most respondents (81.4%) report that policy or guidance includes a qualitative risk analysis. In this connection, fewer plans (66.1%,) include a quantitative risk assessment, which requires greater rigor and precision. Risk mitigation strategies are a feature in 74.6% of the plans, which is surprising since risk mitigation strategies are an integral part of a risk planning. Risk prioritization is a requirement in 76.3% of the plans. Surprisingly, only 42.4% include a Project Schedule Management Plan and 40.7% include a Cost Management Plan.

Question 18: Is there written policy or guidance requiring development of an Integrated Master Schedule (IMS) during program/project planning? (Check all that apply)

- No, we do not require development of an IMS at any level
- Yes, we are required to develop an IMS at the Program level
- Yes, we are required to develop an IMS at the Project level
- Yes, contractors are required to develop an IMS
- Unknown
- Other

*Results:*

Seven respondents (12.1%) report their organizations do not require an IMS at any level. 69% of respondents report contractors are required to develop an IMS. 62.1% respondents report policies requiring an IMS at the program level. A lesser number of respondents (56.9%), report their organizations have policies requiring IMS at the project level. Although a significant percentage of policies require an IMS for contractors and the government at the program level, it is more significant that IMS are not a feature in 100% of policies. The IMS is a basic tool of program, project, and contractor management.

Question 19: Is there written policy or guidance for when to schedule interim milestones or deliverables? (Check all that apply)

- No, we do not have policy or guidance concerning when to schedule milestones or deliverables
- Yes, the policy or guidance suggests events and timeframes within which the PM should schedule milestones or deliverables
- Yes, the policy or guidance enables the PM to accurately assess the value of the work completed on a monthly basis
- Yes, PMs routinely follow the guidelines for scheduling milestones and deliverables
- Unknown
- Other

*Results:*

72.4% of respondents indicate their organization's policy suggests events and timeframes within which the PM should schedule milestones or deliverables, which is surprisingly high. Yet, only 37.9% report that that PMs routinely follow the schedule guidelines. An equal percentage of respondents feel the policy enables PMs to accurately assess the value of work completed on a monthly basis. There appears to be a correlation between

those who feel the policy enables the PM to accurately assess the value of work and those who follow the policy. What is happening with the remaining PMs who apparently do not follow their organization's policy is unknown from the survey.

Several of the "Other" responses are of interest. One mentions a lack of understanding of milestones by a PMO senior manager. The second response indicated that the PMO does a poor job of managing interim milestones and deliverables. Also, an "Other" response repeated the issue of policy/guidance establishing a "waterfall expectation" which is inconsistent with an IT development.

Question 20: Is there written policy or guidance concerning a formal program or project management plan (PMP)? (Check all that apply)

- No, we do not have policy or guidance concerning a formal PMP
- Yes, the PMP includes the program/project organization and roles
- Yes, the PMP includes a communications strategy
- Yes, the PMP includes a schedule management strategy
- Yes, the PMP includes a financial management strategy
- Yes, the PMP includes a configuration management strategy
- Yes, the PMP includes a quality management strategy
- Yes, the PMP includes key governance/performance review events
- Yes, the PMP includes a risk management strategy
- Yes, the PMP includes high level task descriptions
- Yes, the PMP includes program and project reporting requirements
- Yes, the PMP includes contract reporting
- Yes, the PMP includes high level schedule(s)
- Yes, the PMP includes resources
- Unknown
- Other

*Results:*

Only 6.8% of respondents report that their organization has no policy or guidance requiring a Program Management Plan (PMP). 83.1% of the respondents report policy or guidance covering program/project organization and roles. The PMP content items listed in the question were reportedly included in policy/guidance in 50.8% to 72.9% of the responses. As represented in this survey, PMP policy and guidance appears fairly comprehensive in terms of the important elements to be considered prior to program/project initiation.

Question 21: Is the Agency/organization's current guidance related to cost estimating or analysis consistent with the GAO Cost Estimating Guide?

- Yes
- No
- Unknown

*Results:*

66.1% of respondents report that their organization's guidance is consistent with the GAO Cost Estimating and Assessment Guide. Although a significant finding, the results should be higher insofar as the GAO Guide captures important best practices for estimating and managing program/project costs.

Question 22: Is the Agency/organization's current guidance related to schedule planning or management consistent with the GAO Schedule Assessment Guide?

- Yes
- No
- Unknown

*Results:*

50.8% of respondents indicate their organization's guidance is consistent with the GAO Schedule Assessment Guide, although the Scheduling Assessment Guide is still in the comment phase and has not been finalized. The fact that better than 50% of respondents answered this question in the affirmative suggests that scheduling best practices are known by most responding organizations. However, considering the responses to question 11, there is some doubt how well these best practices are implemented.

Question 23: Is the Agency/organization's policy consistent with ANSI/EIA Standard 748?

- Yes
- No
- Unknown

*Results:*

According to the respondents, ANSI/EIA 748 informs only 44.1% of the organizations' policy/guidance. 55.9% responded either "no" or "unknown." This result is not surprising and may depend more on the incidence of Earned Value Management in development contracts.

Question 24: Is there a written policy or guidance concerning cost and/or schedule performance reporting?

- There is no formal written policy concerning cost and/or schedule reporting on major investments
- There is formal written policy which requires cost and/or schedule reporting on major investments
- There is formal written policy which requires cost and/or schedule reporting based on the government's performance measurement baseline
- Unknown
- Other

*Results:*

53.4% of respondents report written policy or guidance concerning cost and/or schedule reporting on major investments. However, only 32.8% respondents indicate formal policy or guidance requiring reporting based on a government performance measurement

baseline. The basis for cost and schedule reporting where there is not a government performance management baseline is unclear from this survey. Certainly, the validity of such unsupported reporting can be questioned. A government performance measurement baseline is a best practice and is necessary for accurate and independent monitoring of contract performance.

Question 25: Do PMs regularly report cost and/or schedule performance metrics to senior management?

- PMs do not regularly report cost and/or schedule performance to senior management
- PMs regularly report cost and/or schedule performance metrics to senior management
- Unknown
- Other

*Results:*

81% of respondents report that PMs regularly report cost and schedule performance to senior management, which is very significant. However, the value of the reporting depends on the accuracy and reliability of the data reported. The lack of government baselines among other policy-related elements significantly impacts accurate cost and schedule management.

Question 26: Do program managers report total program performance according to a predetermined schedule? (Check all that apply)

- There is no predetermined reporting schedule
- Report cost and schedule metrics on a monthly basis
- Report cost and schedule metrics on a quarterly basis
- Report cost and schedule metrics on a semi-annual basis
- Report cost and schedule metrics on an annual basis
- Unknown
- Other

*Results:*

10.2% of respondents report that program managers do not report according to a predetermined schedule while 59.3% reported monthly, which is a desirable practice. 35.6% report quarterly, 15.3% report semiannually, and 16.9% report annual. Frequent reporting is a best practice. Just how frequently a program/project manager needs to report depends on the nature of the work and the culture of the organization. Suffice it to say that frequent reporting exposes negative trends sooner that may threaten program and project success.

Question 27: Does your organization report cost and schedule performance for firm fixed price contracts?

- Yes
- No

- Unknown

*Results:*

Surprisingly, 55.4% respondents report that their organizations report cost and schedule performance for firm fixed price contracts. The survey does inquire as to the nature of the reporting, however. The remaining respondents answered “no” or “Unknown” to the question.

Question 28: At what level does your organization report cost variances? (Check all that apply)

- Does not report cost variances at any level
- Program level
- Project level
- Contract level
- Unknown
- Other

*Results:*

49 out of 58 responses (85%) report cost variance reporting. A surprisingly high percentage, 62.1%, organizations report cost variances at the program level while 67.2% report at the project level and 63.8% at the contract level. Three respondents (5.2%) commented variously that reporting was not value-added, PMs do not do a good job in variance reporting, and senior CIO management does not understand cost variance reporting.

Question 29: At what level does your organization report schedule variances? (Check all that apply)

- Do not report schedule variances at any level
- Program level
- Project level
- Contract level
- Unknown
- Other

*Results:*

The responses to this question parallel the responses to the previous question. 46 of 58 79.3% or respondents organizations report schedule variance. 63.8% organizations report cost variances at the program level, 62.1% at the Project level, and 56.9% at the contract level which is less than for cost variance reporting.

Question 30: Does your organization employ a sufficient internal capability to properly manage schedule performance for major investments?

- No, we do not have sufficient internal resources to manage schedule performance for major investments
- Yes, we do have sufficient internal resources to management schedule performance for major investments



- Unknown

*Results:*

57.6% of respondents report sufficient resources to properly manage schedule performance on major investments. That leaves 32.2% of respondent organizations who lack sufficient resources and 10.2% who answered “unknown.” If these results are representative of agency acquisition capabilities, they indicate significant shortfalls in the organization’s ability to manage schedule performance. Since schedule performance and cost are linked, except perhaps involving firm fixed price contracts, it can be argued that no matter how good the policy or guidance, cost and schedule management effectiveness will be limited.

Question 31: To what extent does your organization employ AGILE on software development activities?

- Not at all
- On some software development activities
- On all software development activities
- Unknown

*Results:*

43.1% of respondents indicate that Agile is used on some software development activities. While 3.4% report that Agile is used on all software development activities. Questions exist regarding how best to manage Agile efforts. It is a substantial policy and guidance issue that needs to be addressed.