



**MAXIMIZING  
THE VALUE IN  
EARNED VALUE MANAGEMENT**

**AFFIRM**

**A Resource Paper  
Sponsored by the**

**Association for  
Federal Information  
Resources Management**

**June 2006**

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***The Association for Federal Information Resources Management (AFFIRM) was founded in 1979 with the goal of advancing the management of Federal IRM. AFFIRM's membership is composed of individuals from the Federal Government, industry, and academia. AFFIRM's focus is on senior management issues of interest to the Federal Government. Additional information is available on the Internet at [www.affirm.org](http://www.affirm.org).***

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## LETTER FROM THE AFFIRM PRESIDENT

June 14, 2006

Dear Colleague:

For the past eleven years, the Association for Federal Information Resources Management (AFFIRM) Emerging Issues Forum has prepared a series of issue papers on topics of importance to the federal information technology community. On May 10, 2006, the Forum conducted a focus group session with a diverse group of senior government and industry officials. This report summarizes the opinions expressed by the participants regarding the direction and future of Earned Value Management.

AFFIRM hopes the report will prove useful to both government and industry executives as we continue to seek to implement the electronic government of the future. We will continue to sponsor other similar studies to advance the state of knowledge and practice in managing Federal information resources and solicit your comments.

I want to personally thank the AFFIRM Emerging Issues Forum committee members for their hard work and Chris Dorobek of Federal Computer Week for his excellent moderating. And, of course, our special thanks go to the focus group members for taking time out of their busy schedules to contribute to this important initiative.

Sincerely,

Edward Meagher  
President  
AFFIRM

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## AFFIRM EMERGING ISSUES FORUM

### AFFIRM ROUNDTABLE DISCUSSION MODERATOR AND PANELISTS

**Conducted: May 10, 2006**

Moderator		
Christopher Dorobek	Editor-in-Chief	FCW
Panelists		
Brian Burns	CTO for Infrastructure	DOI
Manny De Vera	Program Director, Center for Service Delivery and Project Management	GSA
Davidson Frame	Academic Dean	University of Management and Technology
Odelia Funke	Director, Mission Investments	EPA
Sally Good-Burton	Chief, IT Portfolio Management Division, OCIO	DOI
David Muzio	Procurement Policy Analyst/OFPP	OMB
John Rehberger	Project Manager/Computer Specialist ITM/OCIO	USDA
Karen Richey	Senior Cost Analyst	GAO
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Jim St. Clair	Grant Thornton LLP

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## AFFIRM SUSTAINING PARTNERS 2005-2006 PROGRAM YEAR

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## TABLE OF CONTENTS

Letter from the AFFIRM President.....	3
AFFIRM Emerging Issues Forum .....	4
AFFIRM Roundtable Discussion Moderator And Panelists.....	4
AFFIRM Emerging Issues Forum Co-Chairs, Report Authors And Contributors .....	4
AFFIRM Sustaining Partners 2005-2006 Program Year .....	5
Table of Contents .....	6
Introduction .....	7
Executive Summary .....	8
Questions .....	10
Conclusion .....	20

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## INTRODUCTION

At the beginning of each calendar year, generally in the late January, early February time frame, the AFFIRM Emerging Issues Forum team begins its quest in search of the topic “du jour.” That is, find that important topic of high interest which will become the central focus of federal government and federal government-related executives who partake in AFFIRM’s annual Spring panel. As the discussion started within the AFFIRM team, especially with its government members, discussion of possible topics went directly to Earned Value Management (EVM) and literally went no further.

By January/February 2006, there had become a greater interest in EVM. To strengthen its already existing guidelines, and as a means toward helping federal organizations develop more successful information technology projects, the Office of Management and Budget directed agencies to develop their policies for using EVM by December 31, 2005. Business, as well as the Department of Defense (DOD), has been using EVM successfully for years. Why not the remainder of the federal government? In essence, EVM should assist federal project managers in having a better, more in-depth, view and understanding of the overall status of their projects. Plus, with the federal government spending nearly \$65 billion this year on information technology, there should be an inherent need for IT projects to be successful—thus a need for Maximizing the Value in Earned Value Management.

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## EXECUTIVE SUMMARY

The following are some of the key points from the roundtable discussion about “Maximizing the Value in Earned Value Management (EVM).”

- ◆ The Office of Management and Budget (OMB) defines “Earned Value Management” (EVM) as a project management tool that effectively integrates the project scope of work with cost, schedule, and technical performance elements for optimal project planning and control. *The bottom line is that EVM is a tool to help drive successful project management.*
- ◆ *Effective August 2005, the OMB specifically requires federal agencies and contractors to use EVM Systems (EVMS) on all new major Information Technology (IT) projects.*
- ◆ *The Civilian Agency Acquisition Council and the Defense Acquisition Council have proposed that the Federal Acquisition Regulation (FAR) include standard EVM provisions for project management and a set of guidelines for EVM use in all federal agencies. In effect, this will expand the number and type of programs that require EVM.*
- ◆ *EVM is proving to be very scalable as a project management tool for initiatives of different sizes, including smaller and less complicated programs. Project managers can successfully implement a low-end form of EVM by simply applying ten or twelve of the 32 stipulated criteria.*
- ◆ *EVM is a valuable decision-making tool for executives in the public sector and industry alike. The necessary information on which to base critical management decisions is clearly delineated for the executive in terms of cost, schedule, and technical performance.*
- ◆ *While variances are viewed as a “fact of life” by program and project managers, federal agencies must ensure that their projects stay within a 10 percent variance of stated cost, schedule, and technical performance goals.*
- ◆ *EVM promotes excellent visibility into overall project performance, and signals prospective cost and/or schedule overrun situations. Application of EVM requires detailed and thorough planning, and provides inherent safeguards against “scope creep.”*
- ◆ *As an effective project management tool, EVM yields powerful results for risk identification and monitoring. EVM opens an early window of opportunity – i.e., provides an “early warning” – to take corrective action and thereby mitigate risk.*
- ◆ *EVM expertise is enhanced through the recruitment of experienced EVM practitioners and bolstered internally by extending education and training opportunities to executives, program and project managers, as well as IT technical staff.*

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- ◆ *Implementation of EVM requires a “corporate” commitment – executive sponsorship of sound business and project management practices – in order to be successful.* The benefits of EVM have become quite evident, and today it is viewed as a standard of good program management practice to require the use of this methodology.
  - ◆ *Federal agencies must assess and address the issue of program and project management proficiency through a process of gap analysis.* At a most basic level, organizations must make a determination as to where they are today, where they want/need to be, and what is required to move forward from current levels of proficiency to the desired result.

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## QUESTIONS

1. **Let's start with a definition of Earned Value Management and discussion of why it is important to project management in your agency.**
  - a. What is Earned Value Management (EVM)?
  - b. Why is EVM important to project management in your agency?
  - c. Is it good policy to require its use? And, why?

***Earned Value Management (EVM) is a common-sense approach to project management.***

Earned Value Management is recognized as an excellent project management discipline, which has been mandated to improve project management practice throughout the federal government. Its roots are established within the framework the Federal Acquisition Streamlining Act of 1994 (FASA), and the Information Technology Management Reform (Clinger-Cohen) Act of 1996. Agency heads are required to approve or define the cost, schedule, and performance goals for major acquisitions and achieve, on average, 90% of the cost, schedule, and performance goals established. The director of OMB is required to develop a method for analyzing, tracking, and evaluating the risks and results of all major capital investments for information systems for the life of the system.

EVM represents a better way to *manage resources* – not just track spending. The benefits of EVM have become generally evident over time, and it is good practice to make it a requirement. One reason EVM has been well received is that it provides metrics by which to obtain independent assessments of cost and schedule. This is crucial for analysis and auditing functions – and provides an objective gauge for contractor performance. In essence, this will help determine if the government is getting value for what it is paying.

The metrics generated by EVM are important indicators relative to attaining the desired ranking on the President's Management Agenda (PMA) scorecard. It is important to highlight the advantages of EVM to the primary beneficiaries – the public, the agencies, and the OMB. EVM provides a distinct element of transparency of project performance.

Although EVM represents a significant underpinning for project management success in the public sector, its overall application is “lumpy” – i.e., not uniformly applied. Additionally, some project managers are better educated/trained and, therefore, more readily embrace this discipline.

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EVM is a common-sense approach to project management. In practice EVM is scalable, as most projects can successfully employ a low-end form of EVM simply by applying ten or twelve of the stipulated criteria – “good sense management.” The disciplines of EVM and project management go hand-in-hand. EVM will continue to evolve, and there is still much that we need to learn. A strong commitment to training and development needs to be fostered government-wide.

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- 2. According to one letter from a federal government organization, EVM has proven to be an accepted management practice for well over 25 years. It is a management tool used by both contractor and government program managers to have visibility into technical, cost, and schedule progress on investments.**
- a. How well is EVM giving you that visibility into your investments?
  - b. What could be better/how could it be improved? Is there a downside? For example, how difficult is it to actually implement EVM?
  - c. As an aside, if EVM has been a management practice for over 25 years, what has slowed its adoption rate within the federal government?

***EVM requires that measurable performance goals be articulated at the outset of a project. It is virtually impossible to measure what is not clearly defined.***

EVM equips the government with a project management tool that generates current and relevant data that provides a high degree of visibility into capital projects in terms of cost, schedule, and technical performance. One interesting note from the panel was the view that if a project is behind schedule, but has a lower cost associated with being behind schedule, then that combination is not so bad. It was observed that as organizations mature, and as there are increasing numbers of certified project management professionals on board, the utilization of project data also transitions to a new level of maturity – no longer is performance data used only to fulfill reporting functions, but is proactively applied to effectively manage projects.

While EVM may have been once regarded as useful only for large projects, today it is viewed as standard good business practice for smaller initiatives as well. It was asserted that EVM actually does not cost anything – rather, it saves money – but, it may cost if there is not a good management system in place. Although presently there is interest in EVM beyond the DOD, and has been for some time, there may still be some resistance to making this approach to project management a requirement throughout the federal government. However, in earlier instances where the private sector was required to adopt the practice of EVM (as was frequently the case in the ‘80s and ‘90s), those companies now generally embrace this methodology.

Today there are 32 formal criteria for EVM certification specified by ANSI/EIA-748 – reduced in number from the original set of 35 criteria called out in DOD Instruction 7000.2 issued in 1967. In terms of achieving scalability, each agency has the latitude to select the applicable project management criteria from within the set defined by

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ANSI/EIA-748. Therefore, it becomes the responsibility of the various agencies to determine and factor in the relevant criteria necessary to achieve suitable levels of scalability. It was suggested that if everyone were to gravitate toward a certain combination of criteria, a consensus would emerge as to which criteria are essential across-the-board.

EVM is used ideally with complementary project management tools, and is intended to be implemented to the extent that an organization would apply security – the level and degree determined by good judgment. Geared toward a proactive management perspective, EVM requires that measurable performance goals be articulated at the outset of a project. The point was made that it is virtually impossible to measure what is not clearly defined.

Projects, and allocated resources, need to be well-managed – regardless of scope or size. EVM is a tool that can be effectively used “across lines” – that is, it can be readily scaled to fit numerous types of projects of various sizes, spanning a broad range of budget parameters. The benefits of EVM have become quite evident over time, and today it is viewed as good program management practice to require implementation of this discipline. To do so effectively, government agencies and contractors alike need to engage program and project managers who are educated, trained, and experienced in the use of EVM.

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### 3. How are you implementing EVM in your organization?

- a. What policies have you established for implementation?
- b. What types of projects are required to use EVM? Stated somewhat differently, what types of projects would benefit most from using EVM?
- c. What is the dollar threshold for projects within your organization? Are there other thresholds?
- d. What is the best way for executives to use EVM?

***EVM gives executives relevant and current information on which to base decisions. Compliance is mandatory for government cost-reimbursable contracts valued at \$20 million or more. EVM may also be necessary for projects having less value, but greater risk.***

OMB has published guidance for the implementation of the provisions of ANSI/EIA-748 via Circular A-11, but has left the definition of “major” for the agencies to specify. While EVM compliance is now mandatory for government cost-reimbursable contracts or agreements valued greater than or equal to \$20 million, contracts valued at more than \$50 million require contractors to use a validated EVMS. Contracts valued at less than \$20 million may be subject to EVM reporting, based on the level of risk as determined by the government program manager.

Circular A-11 directs contracting officers to work with program managers to determine appropriate thresholds to define programs and projects that are designated “major acquisitions,” and therefore generate contracts qualified for EVM. The designation “major acquisition” is defined as a capital project that requires special management attention on the basis of one or a combination of key factors including: importance to an agency’s mission; high cost – for development, operations, or maintenance; high risk; high return; and/or significant role in the administration of programs, finances, property, or other resources.

That said, agencies are adopting EVM methodology in a variety of ways. During the roundtable discussion it was indicated that in some agencies there are reporting requirements for all projects – the non-majors as well as the majors. For example, cost and schedule performance data are prepared for monthly submissions, and subsequently entered into portfolio management software programs for reporting to executives on a portfolio basis. Project management review board meetings are conducted where graphic displays are used to create snapshots of project performance status so that problematic areas can be quickly identified and addressed with relevant and current information.

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It is important that federal agencies continue to educate and train their program/project management community, as well as executive leadership, internally – with respect to project management and the effective use of EVM. It was noted that these professionals need time to evolve – to gain in education as well as experience – in order to be optimally effective. Much can be gained by sharing practical experience acquired throughout the various agencies as well as by learning from the private sector – there is really no need to “re-invent the wheel.” EVM is a valuable decision-making tool for executives in the public sector and industry alike.

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**4. Are you aware of specific instances where EVM reporting really saved an important project, and helped it get back on track with appropriate corrective actions? And, if so, what were these corrective actions?**

**Sub question:** There are cost and schedule metrics for these elements of EVM. What should the metrics for performance entail?

***EVM helps to identify the “whys” behind which projects to continue, which ones to fix, and which ones to kill.***

While variances are viewed as a “fact of life” by program and project managers, federal agencies must ensure that their projects stay within a 10 percent variance of stated cost, schedule, and performance goals in order to achieve and maintain “green” marks on the PMA scorecard.

EVM opens an early window of opportunity – “early warning” – to take corrective actions, thereby mitigating risk factors and enhancing the probability of successful attainment of stated project goals. EVM is an effective project management tool that yields powerful results for risk identification and monitoring. EVM also helps to identify the “whys” behind which projects to continue, which ones to fix, and which ones to kill.

In the EVM paradigm, work is planned, budgeted, and scheduled in time-phased increments using a “Work Breakdown Structure” (WBS) to define, schedule, and assign costs to discrete project tasks. As work is accomplished, value is “earned” on the same basis as it was planned. Comparison of this earned value with the planned value for a specific time period provides a progress barometer – if more value is planned than is earned for a defined period, then the project may not meet the specified schedule unless action is taken to recapture the unaccomplished work. Similarly, comparison of the earned value for a task or group of tasks with the “actual” costs required to accomplish the same task(s) provides an indicator of task cost performance – if actual costs are greater than planned costs for the accomplished task(s), the project is experiencing a cost overrun.

During the roundtable discussion, the instance of the Navy’s A-12 Avenger – Stealth Bomber Program, a \$4.8 billion contract, was cited as a classic example of a project that would have been well-served by EVM at its inception. At the time the top priority aircraft was terminated, the project was at least \$1 billion over budget, 18 months behind schedule, and 8,000 pounds overweight – major red flags in the areas of cost, schedule, and technical performance. This became a great lesson learned for NAVAIR which has now become a powerhouse agency and expertise center in EVM.

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**5. One of the criticisms is that EVM measures the quantity of work and not the quality. How do you respond to that?**

***EVM entails upfront risk management and mitigation planning. Used in conjunction with independent verification and validation (IV&V), EVM serves as a cornerstone that enhances quality control and assurance measures.***

EVM requires effective risk management and mitigation planning intended to signal early warning of cost and/or schedule overrun situations – thereby it serves primarily as a project management tool for risk identification and monitoring.

It was explained in the discussion group that it is not that difficult to “game” EVM through front-end or back-end loading of project management data. For example, inappropriate gaming or re-baselining of project metrics to reflect an acceptable “bottom line” results in skewing, hence invalidating, final measurement of project effectiveness or success. There may be major variances within discrete tasks which are masked by adjusted starting point or end result metrics that are reported. Obviously, there is no real value to be gained through manipulating project status or performance data.

An Integrated Baseline Review (IBR), employed within the EVM discipline, reveals risk elements and open action items. The IBR enables the government and contractor(s) – working together as a project team – to establish a Performance Measurement Baseline (PMB) that can be used as the basis for defining a mutual understanding of the risks inherent in the contractors’ performance plans and underlying management control systems. As a result of this process, an appropriate risk management and mitigation plan can be developed and implemented upfront in the planning phase to further assure a successful project outcome.

Independent Verification and Validation (IV&V) of project outcome, or the “product,” is recommended for quality control and assurance as an adjunct to EVM. Clearly, IV&V must be performed by an individual or organization that is technically, managerially, and financially separate from the development organization. Verification is concerned with checking that the system is well-engineered (is the system built right?), and validation is concerned with checking that the product meets the users’ needs (is the right system being built?).

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It is important for federal agencies to recruit individuals who are well-educated in EVM to serve as program and project managers, and to establish co-operative relationships with EVM-experienced professional organizations and contractors. Astute project teaming partners will bring “best practices” to the table – thereby further promoting risk management through EVM/IBR and supporting quality assurance through IV&V to generate maximum return-on-investment (ROI).

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**6. What have been the best lessons learned so far from the use of EVM?  
Are we maximizing its value?**

***We need to understand these project management concepts and have our senior executives more engaged.***

As part of the wrap-up discussion, each participant was asked to give a summary/close out comment.

- ◆ What is missing most in almost any kind of project is project management. Also, there needs to be a gap analysis: are things in place or are they not? We need to understand these project management concepts and have our senior executives more engaged.
- ◆ It is especially important to note that while the primary beneficiary of EVM is the taxpaying public, benefits extend to the federal agencies as well as to the OMB. No longer can we accept the mindset that it is OK to cost overrun since the project will get more money. That mindset needs to change.
- ◆ The following are some lessons learned: 1) There is no value in gaming the system. 2) EVM requires lots of expertise; there is a need to bring in good people. 3) There is a need for contractors and government program managers to work together. 4) There is a community of interest pertaining to EVM which can share best practices and experiences.
- ◆ EVM forces good planning and there must be discipline in this process.
- ◆ GAO is developing a cost estimate guide which will have linkage to EVM. It is due in late Fall 2006.
- ◆ The project budget is one-dimensional. It shows what has been spent—and therefore what has not. EVM gives us a good measuring stick that can be used across agencies.
- ◆ EVM must be flexible to handle changes in scope—watch out for scope change and scope creep. We need to educate our executives as to what EVM is.
- ◆ EVM should be viewed constructively as a part of good project management. If EVM is viewed as a “silver bullet,” it will fade away like TQM and other similar panaceas.
- ◆ Look at EVM as one tool that can really help.

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## CONCLUSION

***“For all new major IT projects . . . . ensure cost, schedule, and performance goals are independently validated for reasonableness.”***

A few years ago, in the journals that cover the federal government, it would have been somewhat difficult to find a feature article or news story about Earned Value Management. “Earned Value” what? Exactly. Times are not changing; they have changed. Progress is being made. DOD continues to be a big user of EVM; civilian agencies, in all likelihood, will be also. Recently, even more emphasis has been placed on Earned Value Management. OMB’s memo (M-05-23) to CIOs, dated August 4, 2005, required agencies to develop Earned Value Management policies by December 31, 2005. Of interest in Attachment A to that memo was a statement that cost, schedule, and performance goals were to be “validated for reasonableness.” Do the goals have to be all encompassing and/or strict? No, they have to be reasonable. We absolutely applaud this type of guidance.

As in past years, the AFFIRM roundtable participants attempted to explore several questions—generally from seven to nine. This year, only five of the EVM-related questions were addressed, plus a summary/wrap-up question. There was a lot to be said by all. Earned Value Management is requiring more focus and project management attention in the development of successful IT programs and projects. And, as one panelist stated about EVM, “It wasn’t that difficult to implement and we found there was tremendous value.” It would appear that greater program value has a much improved chance of being realized. And, now, we do see the value in Earned Value Management being maximized.