



PM-30 Snippet Series

Earned Value Management System (EVMS)

Academic Research Study: An Introduction

U.S. Department of Energy
Office of Project Management (PM)
Project Controls and Policy Division (PM-30)

Research Study Background

- ✦ Academic research is intended to create knowledge, drive innovation, and address challenging problems
- ✦ Sponsored by the Office of Project Management (PM) in April 2019 and led by Arizona State University (ASU) to identify and explore areas of consensus and conflict on the use of an EVMS
- ✦ A steering committee of 41 subject matter experts was established to provide overall guidance and review of the research study process
- ✦ Twelve workshops collected 1,534 responses from 159 project and program management, project controls, business and financial management professionals
- ✦ Notable organizations remain committed to furthering the research study!

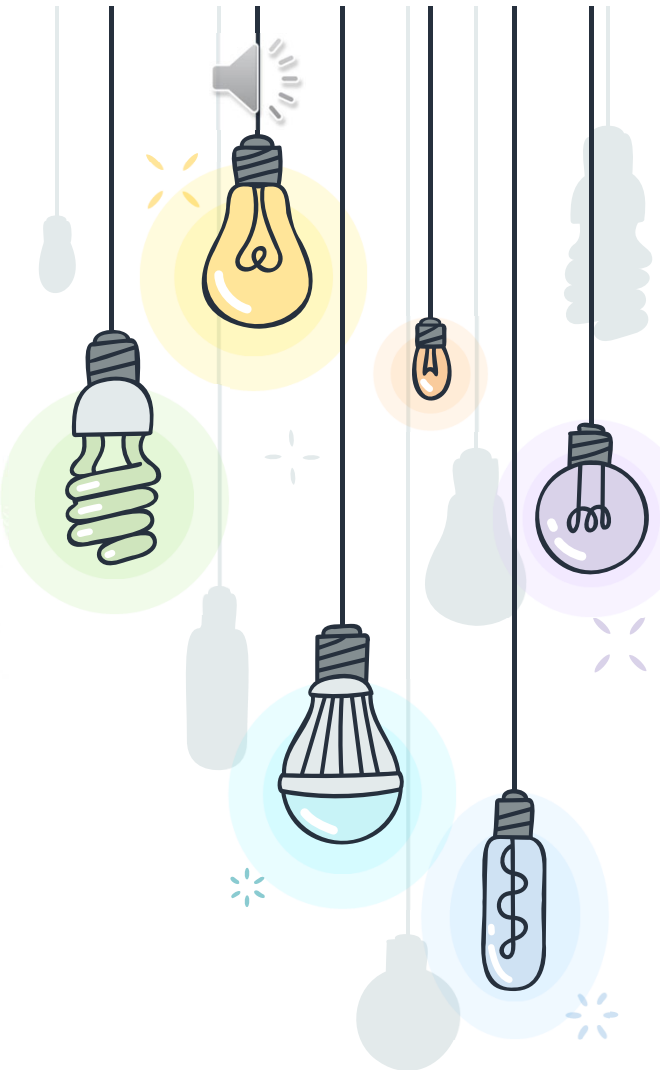
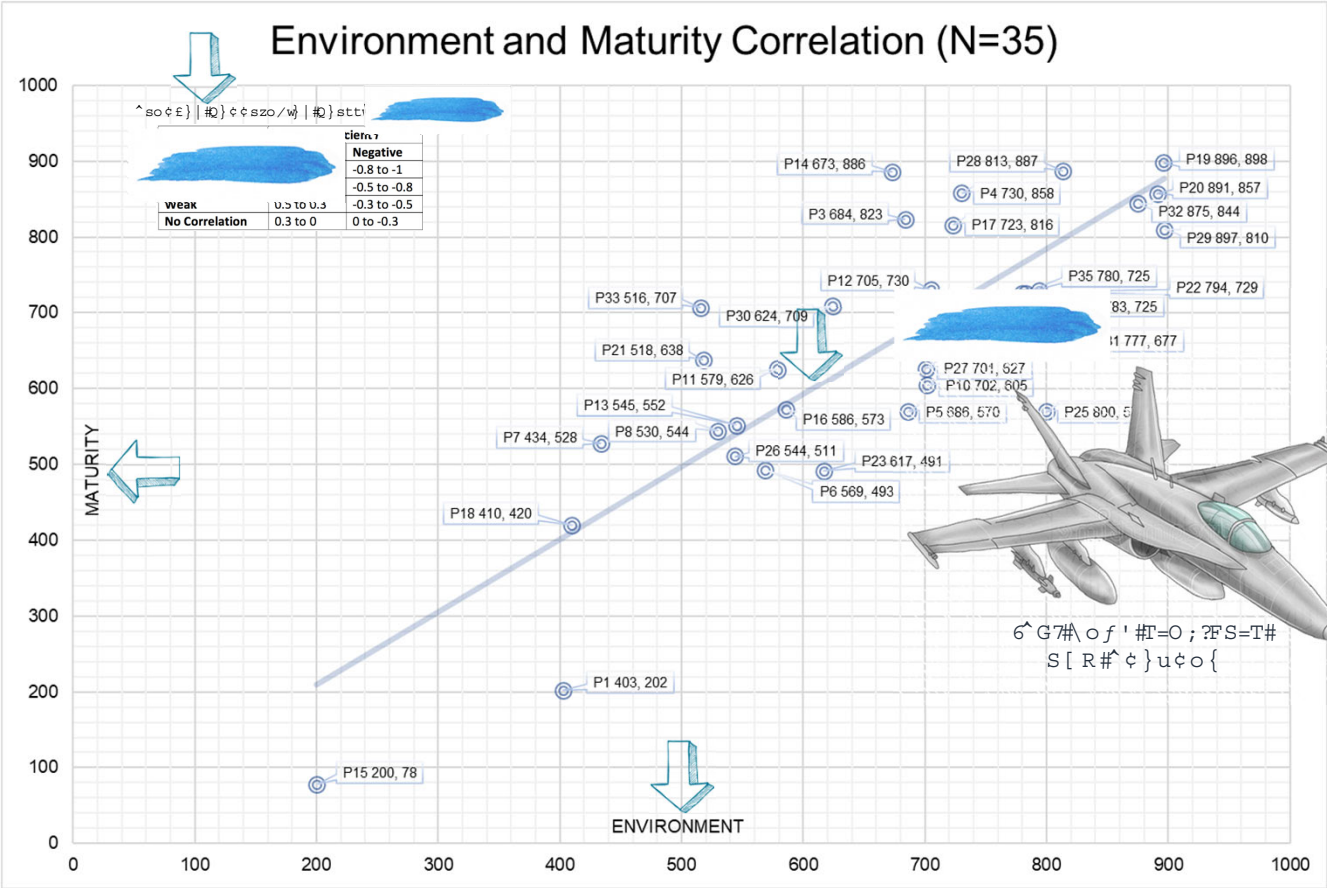


Research Study Results

- ✦ All three of the research study hypotheses were proven to be correct:
 - EVMS maturity attributes and environment factors can be defined
 - EVMS maturity attributes and environment factors can be measured
 - EVMS maturity attributes and environment factors are relational
- ✦ There are statistically significant differences between the performance of projects and programs implementing a mature EVMS and those that are less committed
- ✦ Environment factors, including project and program cultures that are averse to the appropriate use of an EVMS can increase the risk of cost and schedule growth
- ✦ The introduction of environment factors and their influence on an EVMS provides a material change from past thinking



Research Study Results (Continued)



✦ Research Study Results (Continued)

- ✦ Environment was found to be the independent variable (x-axis)
- ✦ The research defines a project or program environment by four categories and 27 factors:
 - Culture
 - People
 - Practices
 - Resources
- ✦ Environment refers to the internal and external circumstances and conditions that can influence the performance of a project or program
- ✦ Most circumstances and conditions are influenced by human beliefs, behaviors, and attitudes
- ✦ Data collected as part of the research study were statistically analyzed to develop weighted scores as a mechanism for assessing environment
 - Culture accounts for 31 percent of the total possible 1,000 points



✦ Research Study Results (Continued)

- ✦ Maturity was found to be the dependent variable (y-axis)
- ✦ The research study defines an EVMS by ten interrelated management subprocesses and 56 attributes:
 - Organizing
 - Planning and Scheduling ←
 - Budgeting and Work Authorization
 - Accounting Considerations
 - Indirect Budget and Cost Management
 - Analysis and Management Reporting
 - Change Control
 - Material Management
 - Subcontract Management
 - Risk Management
- ✦ Maturity refers to the degree of integration and effectiveness of each management subprocess to produce reliable data
- ✦ Data collected as part of the research were statistically analyzed to develop weighted scores as a mechanism for assessing maturity

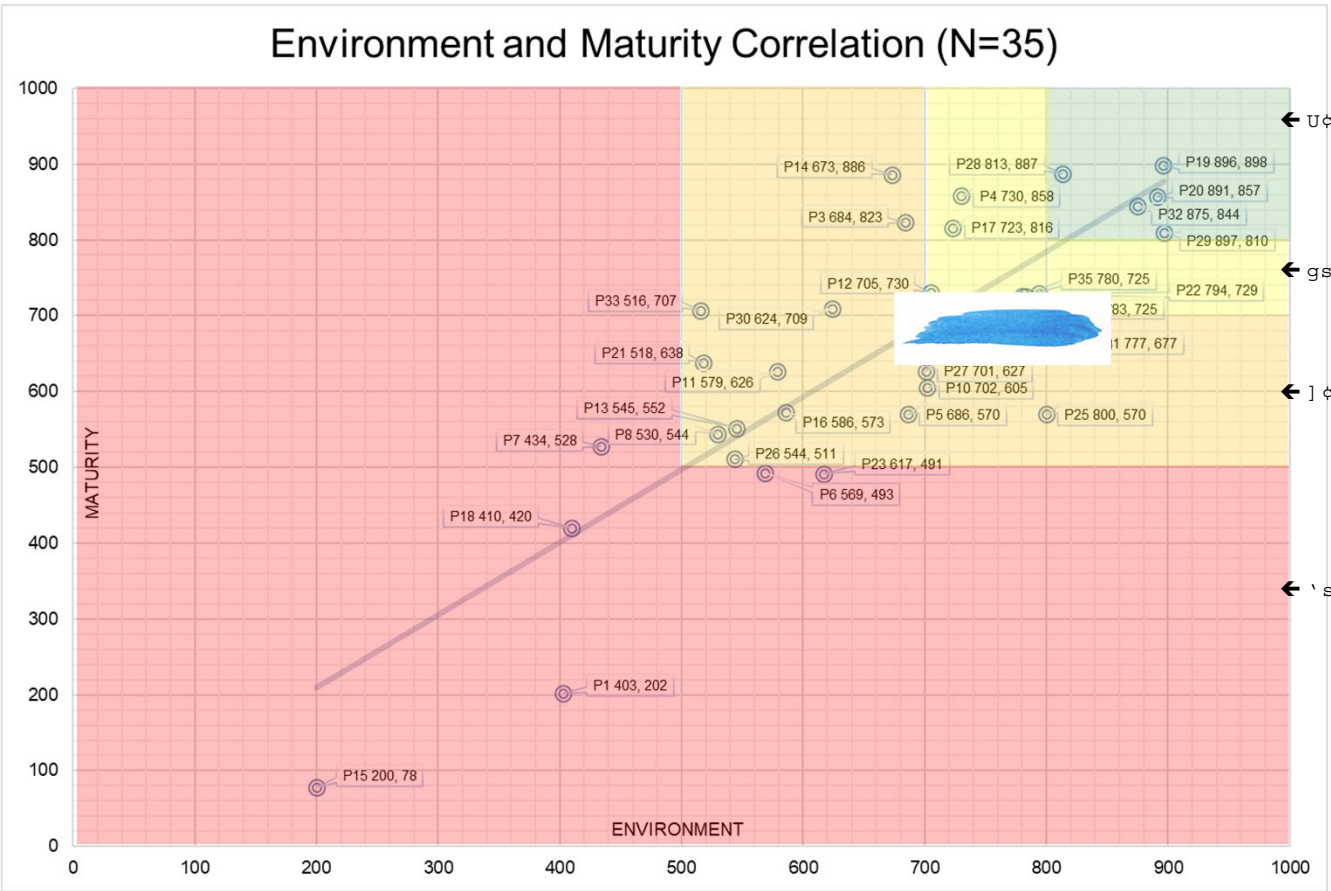



IP2M METRR Solution

- ✦ The solution directly explains what opportunities there are to solve the area of concern, condition to be improved, or difficulty to be eliminated
- ✦ Integrated Project Program Management / Maturity and Environment Total Risk Rating (IP2M METRR) quantitatively measures a project's or program's environment, and the maturity and effectiveness of an EVMS
- ✦ IP2M METRR assessment scores are plotted against color ranges providing actionable insights to maximize project and program performance and predictability
 - Personalized project and program credit risk score




IP2M METRR Solution (Cont.)






GREEN (>800)

N:	5
Mean Cost Growth:	-0.3%
Mean Schedule Growth:	-5.9%




YELLOW (700-799)

N:	7
Mean Cost Growth:	+13.7%
Mean Schedule Growth:	+3.8%



ORANGE (500-699)

N:	15
Mean Cost Growth:	+48.2%
Mean Schedule Growth:	+26.9%



RED (<500)

N:	6
Mean Cost Growth:	+92.3%
Mean Schedule Growth:	+24.3%

IP2M METRR Benefits

- ✦ At the Department of Energy, IP2M METRR is a lightbulb idea
- ✦ IP2M METRR looks to inform, incite, and empower
- ✦ IP2M METRR simplifies and democratizes an EVMS
- ✦ IP2M METRR provides actionable insights by benchmarking a project's or program's environment and the maturity of an EVMS
- ✦ Right-sizing an EVMS using IP2M METRR matches its implementation to workload requirements at the lowest possible cost
- ✦ Reciprocity expands the use of IP2M METRR as a best practice across government and industry



Key Takeaway

- Improving project and program performance is possible, but not through business as usual, transformative change is needed
- An EVMS can position your project or program for success - if you let it

