



Proactively Managing Supplier Relationships for an Integrated Product Development Program

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NATIONAL SECURITY



ENERGY & ENVIRONMENT



INFRASTRUCTURE



HEALTH SOLUTIONS

Presentation Description

More and more, functional and data components for complex systems come from many sources...

GOTs, MOTs, COTs, Open source, subcontracted SME development, Government furnished components

...not to mention the prime contractor itself who is responsible for delivering a working software system.

Too often, “ready-made” software capability is not quite ready

- it's being developed in parallel
- rather than leading to lower costs and reduced cycle time, the reverse can and has happened.

How can a program office and the prime take proactive steps to make sure the program stays on track?

Who We Are – ARA, Inc.

- Founded 1979, Albuquerque, New Mexico
- 1,083 employee owners at locations in the U.S. and Canada
- FY16 sales of \$233 million



National Security

ARA delivers innovative solutions to assess, detect, deter, defeat, and respond to threats facing us at home and abroad.



Infrastructure

ARA leads in technologies and services to improve performance and sustainability of infrastructure for transportation, buildings, and energy systems.



Energy & Environment

ARA provides innovative engineering services and products for alternative fuels, and the power and utility services market.



Health Solutions

ARA provides specialized research and technology services, testing and product development in health science and engineering.





Who We Are – Layman & Layman

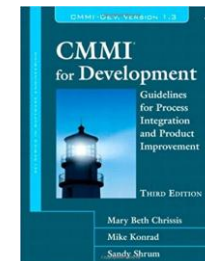
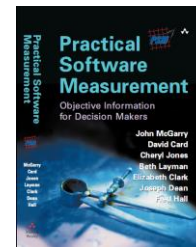
Our Mission: To help organizations transform and improve both Practices and Results.

- We partner with organizations who really want to improve **the way work gets done**.

We leverage industry best practices published in models and bodies of knowledge like PMBOK, CMMI, ITIL, ISO, and Practical Software Measurement.

Our areas of expertise include:

- Performance Improvement
- Benchmarking and Assessments
- Measurement at all levels of the enterprise
- Portfolio and Project Management
- Organization Change Management



The Situation

Major DoD software IDIQ contract to produce two software products

- Joint program with many stakeholders across the DoD
 - Differing priorities

ARA has held contract 5 years

- Task Orders per product specify capabilities/schedule to be delivered

Products are large, complex, legacy software systems

- Each product has a CCB that is geographically dispersed
- Each product consists of in-house developed components, externally developed components, large data component
 - In-house software components developed locally
 - External software components development geographically dispersed
 - Data components development both local and geographically dispersed
- External components developed by government offices or contractors under unrelated contracts

Challenges

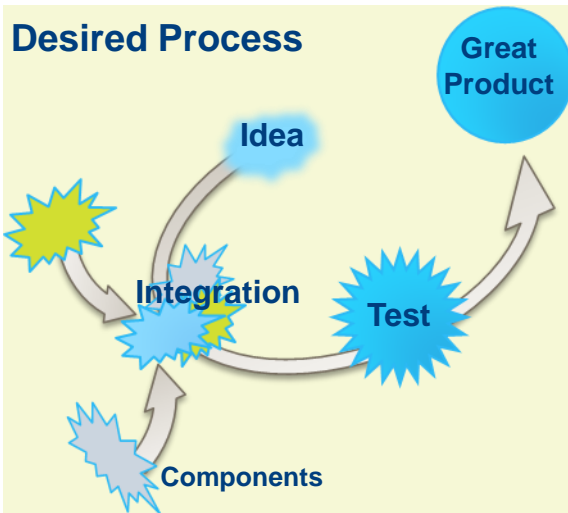
Supplier

- Poor understanding of Integrator's requirements
- Little coordination of timing of capability delivery
- Different contract or funding priorities
- Poor understanding of integrator's timeline
- Little or no CM
- Little or no quality assurance or testing
- **Frustrated team**

Integrator

- Limited opportunity to communicate directly with supplier
- Lack of insight on supplied component changes drive unexpected changes in code, rework, etc.
- Delayed receipt of high priority capabilities
- Missed deliveries, missing capabilities in final product
- Customer dissatisfaction
- **Frustrated team**

Challenge



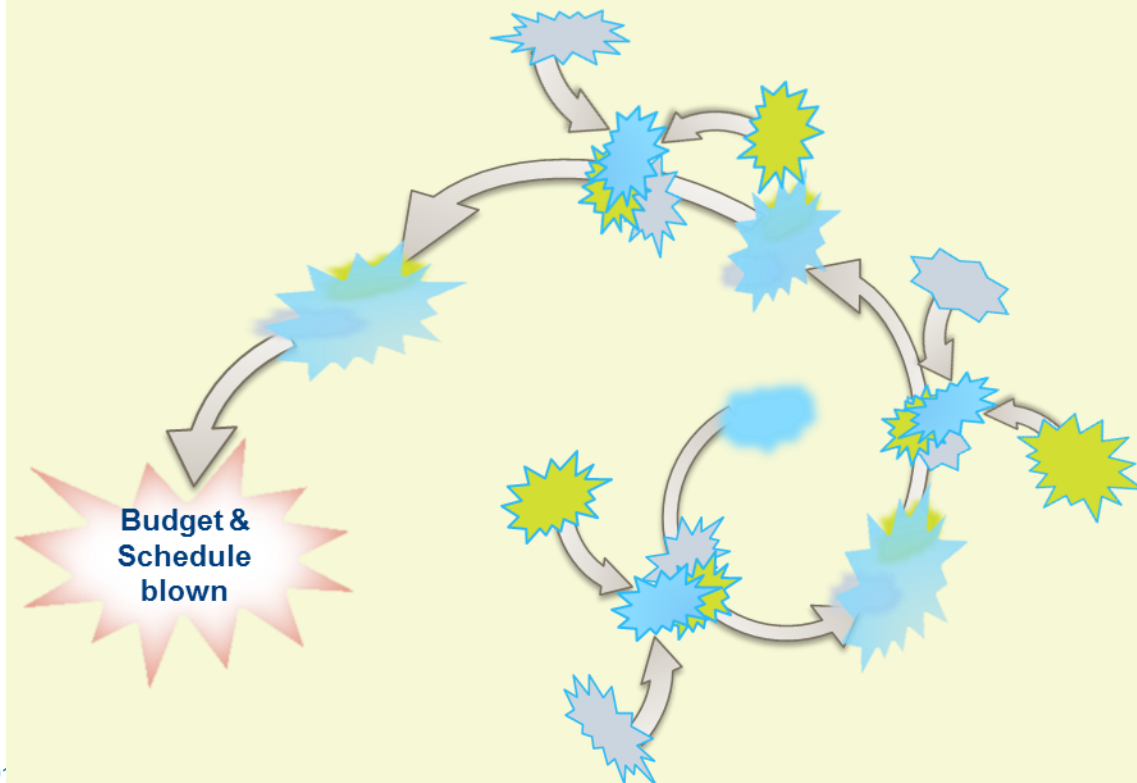
Integrator

- Broken or incomplete component deliveries
- Inadequate documentation of delivery
- Missed deliveries, missing capabilities in final product

Supplier

- Different Contract with different requirements
- Poor Configuration Management
- No requirements traceability
- Non-existent interface documentation
- Inadequate testing

Death Spiral



Use of CMMI



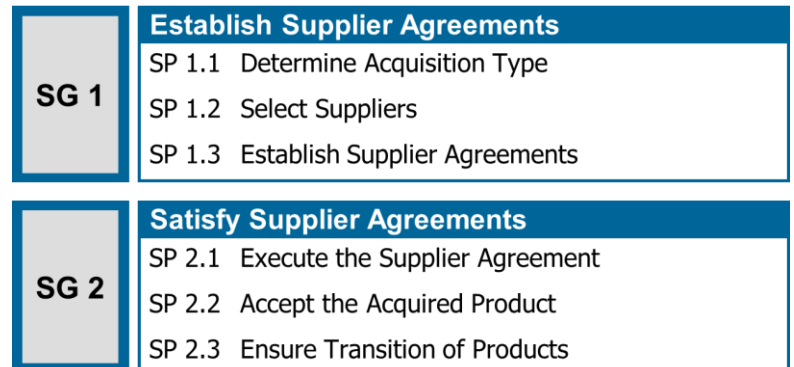
CMMI DEV / 3SM
Exp. 2020-03-03 / Appraisal #27791

CMMI is a well-known and accepted industry framework -- collected best practices designed to promote the behaviors that lead to improved performance

ARA ECD achieved CMMI for Development ML 3 in 2017

Supplier Agreement Management (SAM) Process Area proved challenging, given the indirect relationships between prime integrator and component suppliers

Supplier Agreement Management (SAM)



Source: Introduction to CMMI for Development v1.3 course

Improving SAM Practices - Challenges

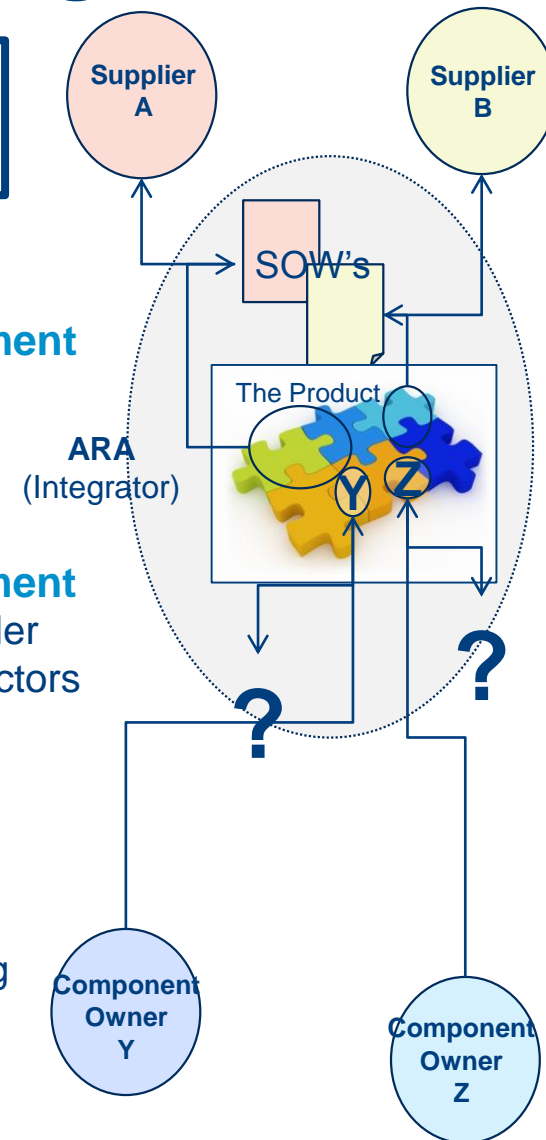
Supplier “issues” came out during initial CMMI gap analyses – not only were CMMI Best Practices not met, this was definitely a serious “pain point” for ARA.

CMMI Best Practice (Goal 1) – Establish Agreements

- **For “real” suppliers SOW’s developed, but needed improvement**
 - Status reporting requirements?
 - Standards to be followed?
 - Evaluation milestones?
 - Deliverable acceptance criteria?
- **For other situations, no contractual relationship = no agreement**
 - No official relationship between integrator and component provider
 - Some were GFE – government entities; some were other contractors
 - MOUs/MOAs were created + a unique approach

CMMI Best Practice (Goal 2) – Satisfy Agreements

- **Without clear and specific “agreements”, no accountability**
 - Little visibility into supplier deliveries – quality, timeliness, etc
 - ARA had to “accept” poor/incomplete deliveries – no basis for rejecting
 - Hard for the customer to see what was really going on
 - Blame fell on integrator for late deliveries of product



SAM G1 Solution

Setting expectations with BOTH customer and suppliers

- MOA/MOU developed between ARA divisions
- GFI table in proposal for task or contract defines any externally supplied capabilities that the final product will be dependent on

Success of the XYZ v1.1 release is dependent on the following Government furnished components having component capabilities listed in the table below.

Government Furnished Components			
Need Date	SRD #	Item/Capability	Acceptance Criteria
9/1/2015	4.3.1	ActionFlex dynamic modeling system: <ul style="list-style-type: none"> • Dynamically remove materials (includes GUI changes) • New wizard scripts • Additional data sets (material properties, product dimensions, shelf life) • Test harness with updated regression tests 	<ul style="list-style-type: none"> • Software version description describing what capabilities have been added or changed • Acceptance tests demonstrating correct operation of all new capabilities (each new data set, each new wizard, new GUI options) • Government acceptance and approval of the operation of all new capabilities
9/1/2015	Table 4.3.6	ActionFlex with known issues identified in Table 4.3.6 of the SRD corrected	<ul style="list-style-type: none"> • Software version description describing what capabilities have been added or changed • Acceptance tests demonstrating correct operation of all new capabilities (each corrected behavior) • Government acceptance and approval of the operation of all new capabilities

SAM G2 Solution – Supplier Delivery Log

Track and rate deliveries

- Use acceptance criteria from GFE table
- Test and record results

Communicate with customer & supplier

- Defined integration process enables quicker turn-around
- Communication can center on facts not accusations
- Delivery Log keeps track of progress and history

Early proactive engagement enables corrective actions

- How do we avoid going *there*?

VS

- How did we get *here*?

Refinements

The organization continues to adjust and improve the process

Testing of Supplied Components by Integrator

- The collection of regression tests for supplied component
- Done before integration testing
- Speeds up acceptance (or kickback) of supplied components

Improvements to Delivery Logging

- Delivery Logs communicated to customer
- Acceptance criteria and test results now also influence delivery/supplier scoring

Results

Customer has good insight into what's really going on

- Holding the right teams accountable
- Reduced customer frustration

Suppliers are more deliberately aware of what is expected

- Alignment of expectations changes priorities and behavior
- Reduced supplier frustration

ARA's deliveries are both more timely and have better quality

- Improved award fees
- Reduced program team frustration

Questions

Contact Information:

Beth Layman

321.777.2914 (O)

321.749.2951 (M)

beth@laymanandlayman.com

www.laymanandlayman.com



LaTrevia Pounds

Thank You!