Raytheon Pasadena
CMMI-DEV vs. CMMI-SVC
Evaluation & Recommendation

November 17, 2011

Agenda

- CMMI History

- Operations Goals

- Understanding CMMI-DEV v1.3 and CMMI-SVC v1.3

- What Does SEI Recommend?

- Evaluation Approach

- Evaluation Analysis
  - Costs and Effort
  - Evaluation Parameters
  - Decision Analysis and Resolution (DAR)

- Recommendation

- Current Activities and Plans

- Conclusion

CMMI Background and Highlights

❑ 1998 SDSIO Contract Awarded to Raytheon by NASA's Jet Propulsion Laboratory

- 2004 Achieved CMMI Maturity L3 for Services (CMMI-Dev, Version 1.1)
  - Innovative approach of to applying CMMI-DEV to Services Organization
  - Received patent (05E095)
- 2007 Achieved CMMI Maturity L3 for Services (CMMI-Dev, Version 1.2)
- 2007 Achieved CMMI Engineering Capability for Raytheon Web Solutions (RWS) (CMMI-Dev, Version 1.2)
  - Pasadena Innovative approach was published as a use case in the CMMI-DEV Version 1.2 book

❑ 2008 Won the re-compete, DSIO Contract Awarded.
  - CMMI was a key discriminator
  - CMMI is a DSIO contract requirement

- 2010 Achieved CMMI L3 Maturity L3 for Services (CMMI-DEV, version 1.2)

Continuous process improvement culture

Operations Goals

❑ **Overview**

- CMMI-DEV v1.1 was implement for 2004 certification
- CMMI-DEV v1.2 was implemented for 2007 & 2010
- CMMI-DEV v1.3 and CMMI_SVC v1.3 released late 2010

❑ **Raytheon Pasadena Operations Goals**

- Maintain customer focused approach to processes
- Maintain Raytheon Pasadena CMMI certification
- Re-evaluate CMMI constellation selection
- Identify, document and make a recommendation to leadership on which CMMI constellation is best suited for Raytheon Pasadena

CMMI is aligned with Raytheon Pasadena goals

Understanding CMMI-DEV and CMMI-SVC

Raytheon
Intelligence and Information Systems

❑ CMMI-DEV v1.3

- Has a total of 18 Process Areas (PAs)
- From which 17 PA directly apply to Pasadena Operations
  - The Supplier Agreements Management (SAM) PA is not implemented
- For Maturity Level 3 12 out of the 18 PA are the same for CMMI-DEV and CMMI-SVC
- For Maturity Level 3 5 PAs are unique to CMMI-DEV

❑ CMMI-SVC v1.3

- Has a total of 19 PA
- Could primarily re-use 12 PAs from the existing implementation of CMMI-DEV

SVC specific PAs

CMMI-SVC

7

Core PAs

have been expanded to include 3 SPs

include services-specific informative material

Shared PA (SAM)

Not Implemented in Pasadena

1

12

CMMI Core PAs

5

CMMI-DEV

DEV specific PAs
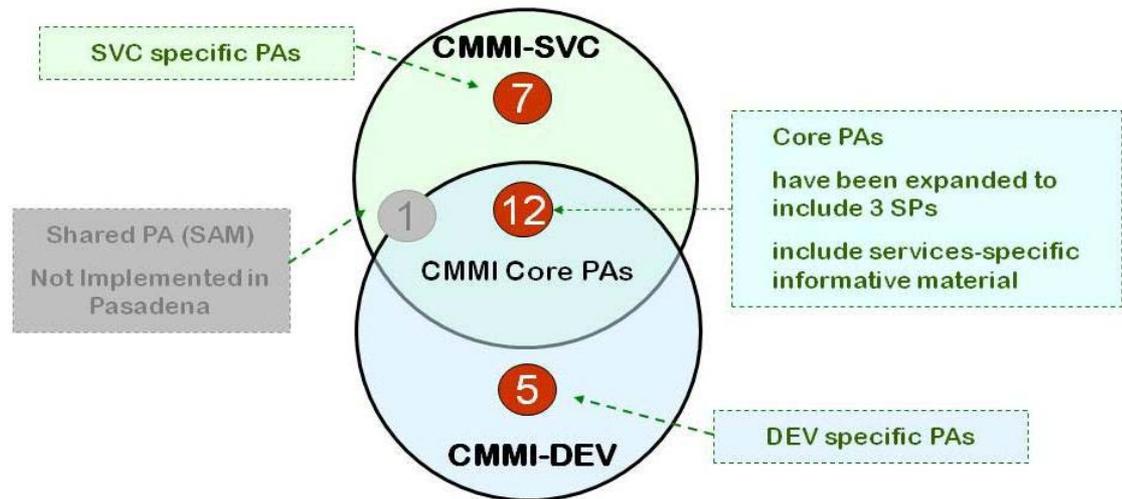
Could we leverage the overlap between CMMI-DEV and CMMI-SVC?

CMMI-SVC mapped to Existing Process

SVC Practice Area	Coverage Rating	Comments
Service Delivery (SD)	🟩	Covered well with existing processes. No gaps. Service Agreement is the SWO (Subcontract Work order); Service system is the combination of the 5 service components and is defined by the WCP; Service System component is one of the golden 5 service provision requirements; Service System Delivery is the DSIO Contract Tool; Service Request is the SOW;
Incident Resolution and Prevention (IRP)	🟥	Little or No coverage with existing processes. Many gaps. An incident is and indication of a problem or interference with service delivery. Typical instantiation of this would be help desk with tickets. A possible approach would be to use the DSIO contract tool to record incidents from the customer.
Service System Design (SSD) (optional)	🟩	Covered well with existing processes. No gaps. Well-covered with existing Engineering PAs; however opportunity exists to minimize engineering processes with SVC.
Service System Transition (SST)	🟩	Covered well with existing processes. No gaps. A Service system is represented and defined by the WCP; Service Systems are all of the WCPs under the DSIO contract. A request for a change (MOD) in service would be a service request; so a service transition would occur as a result.
Strategic Service Management (STSM)	🟨	Some coverage with existing processes. Some Gaps. Unclear as to what the standard services are and how they are presented to current and potential customers.
Capacity and Availability Management (CAM)	🟨	Some coverage with existing processes. Some Gaps. Personnel and Facilities planning exist; would need more emphasis of coordination across all services, as well as modelling, measurement, and analysis to make sure that all necessary resources for service delivery are at the right levels and available when needed.
Service Continuity Management (SCON)	🟥	Little or No coverage with existing processes. Many gaps. No continuity planning in place.

3 PAs coverage – 2 PAs some coverage – 2 PAs little or no coverage

What does SEI recommend?

❑ Excerpts from CMMI for Services, v1.3 technical report

"Organizations interested in evaluating and improving their processes to develop systems for delivering services <u>can use the CMMI-DEV model. This approach is especially recommended for organizations that are already using CMMI-DEV or that must develop and maintain complex systems for delivering services.</u> However, the CMMI-SVC model provides an alternative, streamlined approach to evaluating and improving the development of service systems that can be more appropriate in certain contexts."

"Service provider organizations can also choose to use the CMMI-DEV model as the basis for improving and appraising their service system development processes. This use of <u>the CMMI-DEV model is preferred for organizations that are already experienced with CMMI-DEV and for organizations that develop large-scale, complex service systems</u>."

"Even organizations that use the <u>CMMI-DEV model for service system development may wish to refer to the Service System Development process area for helpful guidance</u> on applying development practices to service system components such as people, processes, and consumables."

SEI: Considers the organization's needs and context

Evaluation Approach

❑ Would CMMI-SVC work in our environment?

- We were able to map our business model to the CMMI-SVC model
- However, typical industry service agreements are repetitive; the same service is offered to multiple customers.
- Our customer service agreements/sub-contracts are unique
- The process to instantiate a new sub-contract is the repetitive component

Addressing our customer needs and requirements

Analysis – Effort & Costs

❑ What is the impact of changing to CMMI-SVC in Pasadena?

- Is what we're doing good enough?

- Are we meeting our customer requirements and is our customer happy?

- How are our operations impacted with the implementation of CMMI-SVC?

❑ CMMI-SVC Implementation Effort

- Cost associated with implementation of 7 new PAs

  • 5 PAs effort to implement is "easy" to "moderate"

  • 2 PAs: Incident Resolution and Prevention (IRD), and Service Continuity Management (SCON) are high impact to our current operations and complex to implement

- Cost associated with creating the support infrastructure

- CMMI-SVC has 2 more PAs than CMMI-DEV this may increase evidence collection and SCAMPI effort

Add value to our customers – no additional costs

Analysis - Solution Alternatives

❑ How does Raytheon Pasadena want to be recognized?

- As a product developer?

- As a service provider?

- As both a product developer and a service provider?

- As a combination or mixture of the two?

- As not interested in CMMI?

Maintain positive customer relationships and reputation

Analysis – Evaluation Parameters

❑ Identified Key Evaluation Parameters

- Selected alternatives
    - Continue using CMMI-DEV
    - Implement CMMI-SVC
    - Continue using CMMI-DEV and implement CMMI-SVC
    - Continue using CMMI-DEV and implement CMMI-SVC capability
    - No CMMI re-certification

- Defined evaluation criteria
    - Impact to Raytheon Pasadena
    - Reputation
    - Costs
    - Benefits to the Organization
    - Customer Satisfaction

- Assigned weights to evaluation criteria
    - Sane weights were assigned to identified evaluation criteria based on identified goals

Essential characteristics of Raytheon Pasadena CMMI efforts

❑ Evaluate Alternative Solutions

- Assign values (1,3 or 9) to identified solutions based on analysis and experience

Decision Analysis and Resolution
DAR

Raytheon Proprietary
Raytheon

CMMI-DEV vs CMM-SVC

Criteria	Less Impact to Ops			Reputation (Internal)			Cost			Increased Benefit to MOS			Increased Customer Satisfaction			Σ		Ranking
Criteria Weight	20			20			20			20			20				100	
Alternatives	1	3	9	1	3	9	1	3	9	1	3	9	1	3	9		Totals	
CMMI-DEV		9			9			3			3			3			540	I
		180			180			60			60			60				
CMMI-SVC		3			3			3			3			3			300	V
		60			60			60			60			60				
CMMI-DEV **and** CMMI-SVC		3			9		1				9			3			500	II
		60			180		20				180			60				
CMMI-SVC + CMMI-DEV Capability in Engineering		3			3		1			3			3			260	VI
		60			60		20			60			60				
CMMI-DEV + CMMI-SVC Capability		3			9		1			3			3			380	IV
		60			180		20			60			60				
No CMMI re-certification	9			1					9	1				3			460	III
	180			20					180	20				60				

NOTE- This summa 100, when the num into the yellow ce

Recommendation

❑ **Based on DAR – Recommended to continue using CMMI-DEV for Raytheon Pasadena**

– Less impact to current operations

– No increase costs

– CMMI-DEV has a perceived "reputation" value

– CMMI-DEV has potential to increase benefits to parent organization to attract new business (Specialized Services Development)

❑ **A close second – Continue using CMMI-DEV and add CMMI-SVC PA**

– This would mean implementing and assessing 7 new Process Areas. This would exceed existing budgets.

– Recommend to see about implementing some services best practices from CMMI-SVC such as Incident Resolution and Prevention (IRP), Capacity and Availability Management (CAM) and Service Continuity (SCON) to provide higher value to the organization.

"In God We Trust, all others bring data"

Raytheon Pasadena
Current Activities and Future Plans

❑ **2011 CMMI Activities**

- White paper on CMMI-DEV v1.3 versus CMMI-SVC v1.3 evaluation and recommendation
- Recommendation is to continue using CMMI-DEV
- Transitioned from CMMI-DEV v1.3 from v1.2
- SCAMPI C scheduled for December 12-14, 2011

❑ **2012**

- Continue process improvements and process simplification efforts
- Consider implementing identified CMMI-SVC PAs
- Conduct SCAMPI B2

❑ **2013**

- Conduct SCAMPI A: Achieve CMMI-DEV Maturity L3 (Services adaptation)

Raytheon Nominated by JPL as Contractor of the Year
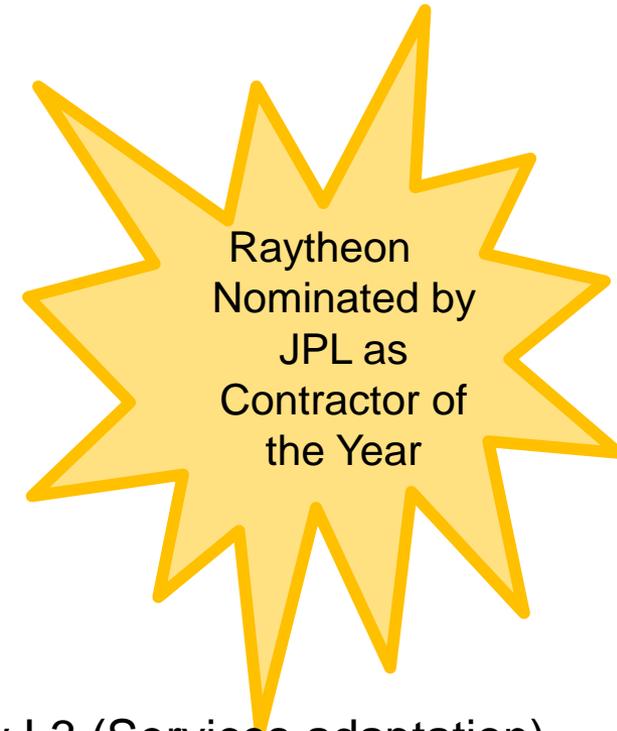
Customer Success Is Our Mission!

Questions