

One if by Land, Two if by Sea...

You are a CMMI-DEV appraisal expert. What do you do if your org wants to do a CMMI-SVC appraisal?

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Kerry Trujillo**

November 14-17, 2011

Agenda

- Overview
- Beginning of the Story
- Raytheon IDS Organization and Service
- Process/Tools/Roles
- Summary
- End of the Story
- Questions
- Presenters' Biographies

Overview

How do you collect evidence the first time an organization has a CMMI® for Services appraisal after only being appraised against CMMI for Development?

How do you know what evidence to gather when you've done CMMI for Development appraisals for years?

Raytheon Integrated Defense Systems (IDS) worked with Cooliemon LLC, an external CMMI appraisal lead, to focus on the process, tools, and personnel roles that would create a successful appraisal.

Beginning of the Story

- The time: April 1775
- The Place: Boston, Massachusetts
- The Story:

Paul Revere had many occupations; silversmith, dentist, Lieutenant in the Massachusetts militia, and Son of Liberty.

As a successful businessman he planned his activities, worked with suppliers, and dealt with product defects and customer complaints.

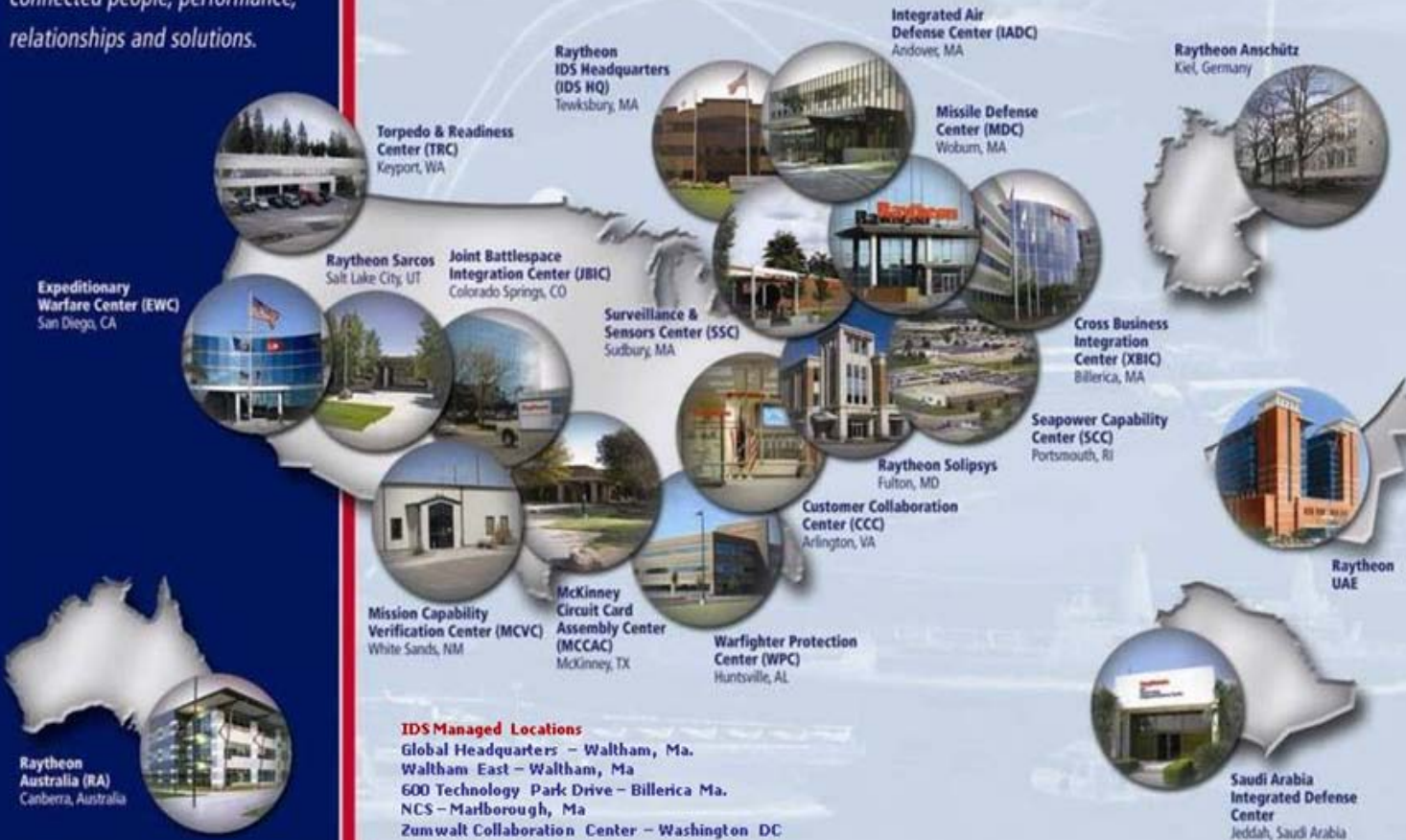
He also became a courier for the Boston Committee of Correspondence and the Massachusetts Committee of Safety . He provided news on British movements to people in towns from Boston to New York.



Raytheon - Integrated Defense Systems (IDS)

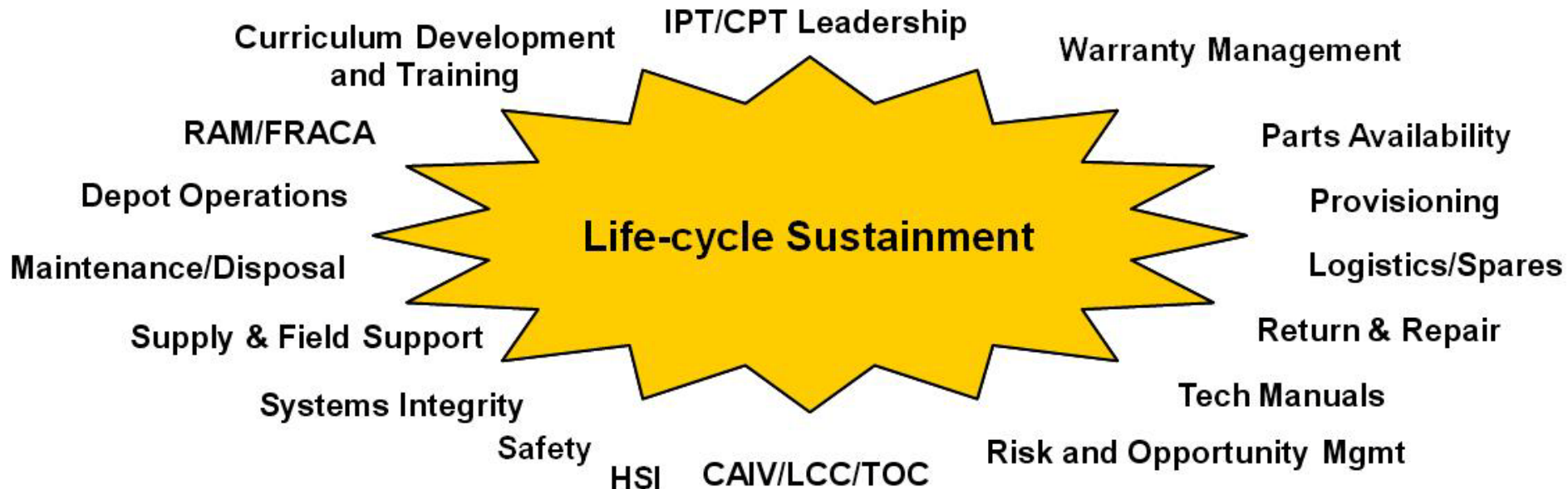
Integrated Defense Systems is Raytheon's leader in Global Capabilities Integration through connected people, performance, relationships and solutions.

IDS MISSION CENTERS



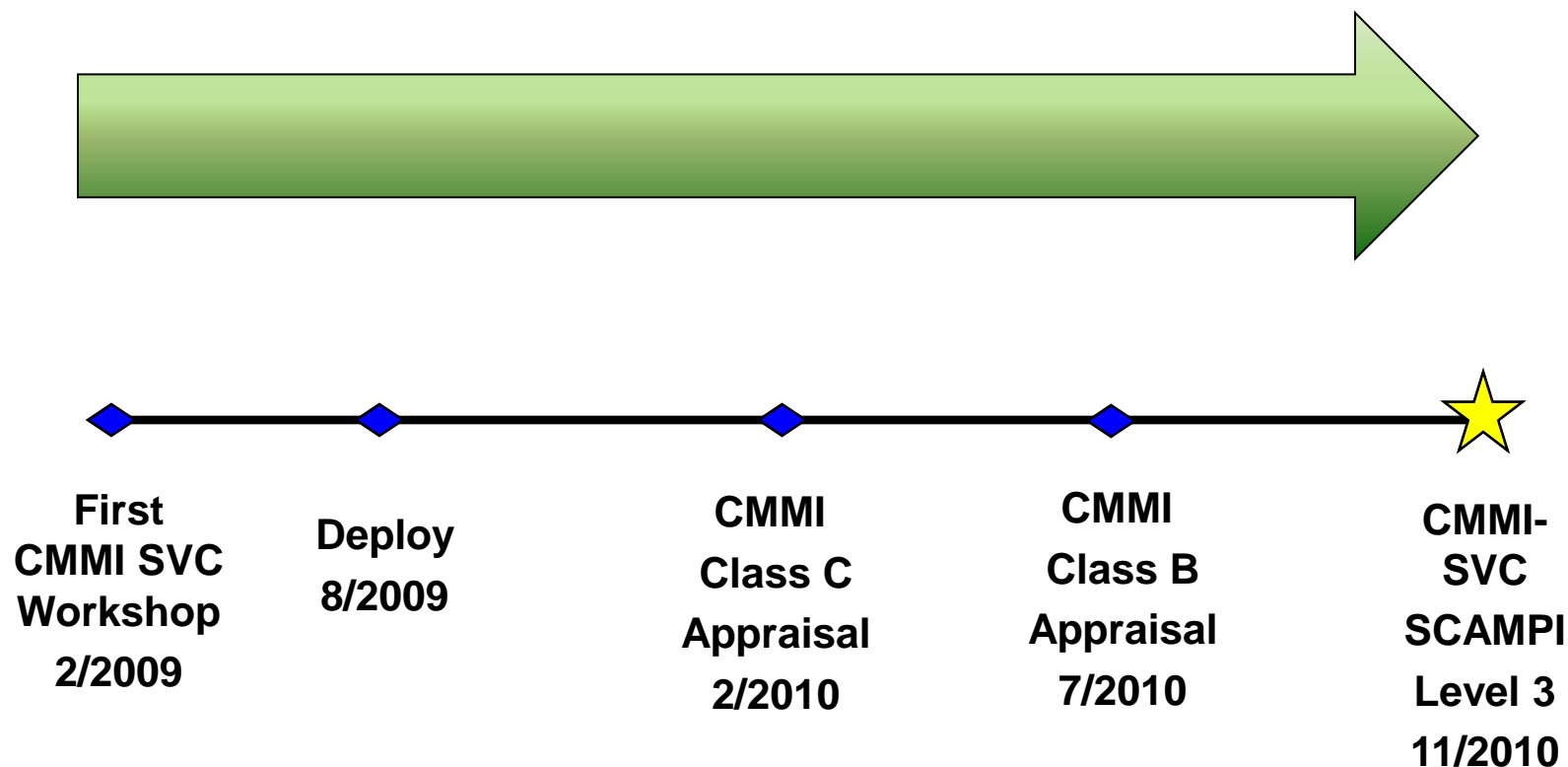
Raytheon
Integrated Defense Systems

IDS Life-cycle Sustainment Service



Providing a solution that ensures the system's availability/sustainability/supportability, as documented in a contract. It consists of multiple functions that are required to fulfill the contract.

IDS CMMI – SVC Timeline



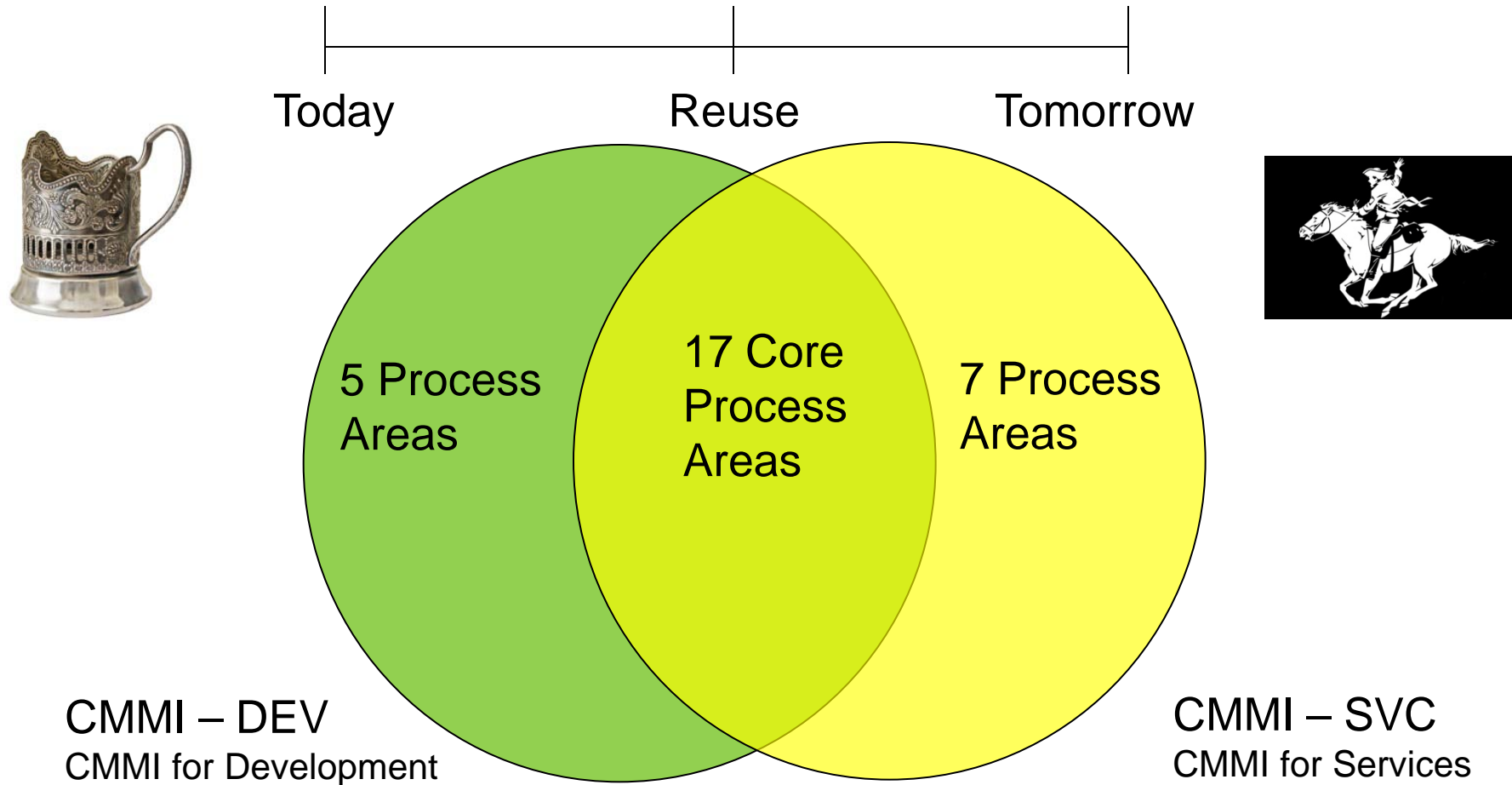
CMMI Class C Appraisal – Looked at evidence and conducted interviews. Lots of discovery.

CMMI Class B Appraisal – Looked at evidence and conducted interviews. Very little discovery.

SCAMPI Appraisal – Official appraisal that results in a Maturity Level rating.

Process / Tools / Roles

CMMI-SVC and CMMI-DEV - 1



CMMI-SVC and CMMI-DEV - 2

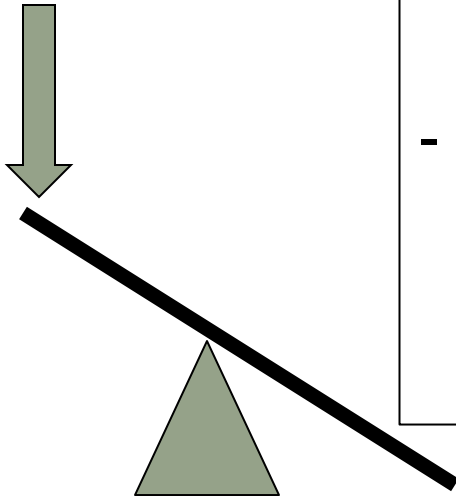
CMMI – DEV CMMI for Development

CMMI – SVC CMMI for Services

Product Integration (PI)
Requirements
Development (RD)
Technical Solutions
(TS)
Validation (VAL)
Verification (VER)

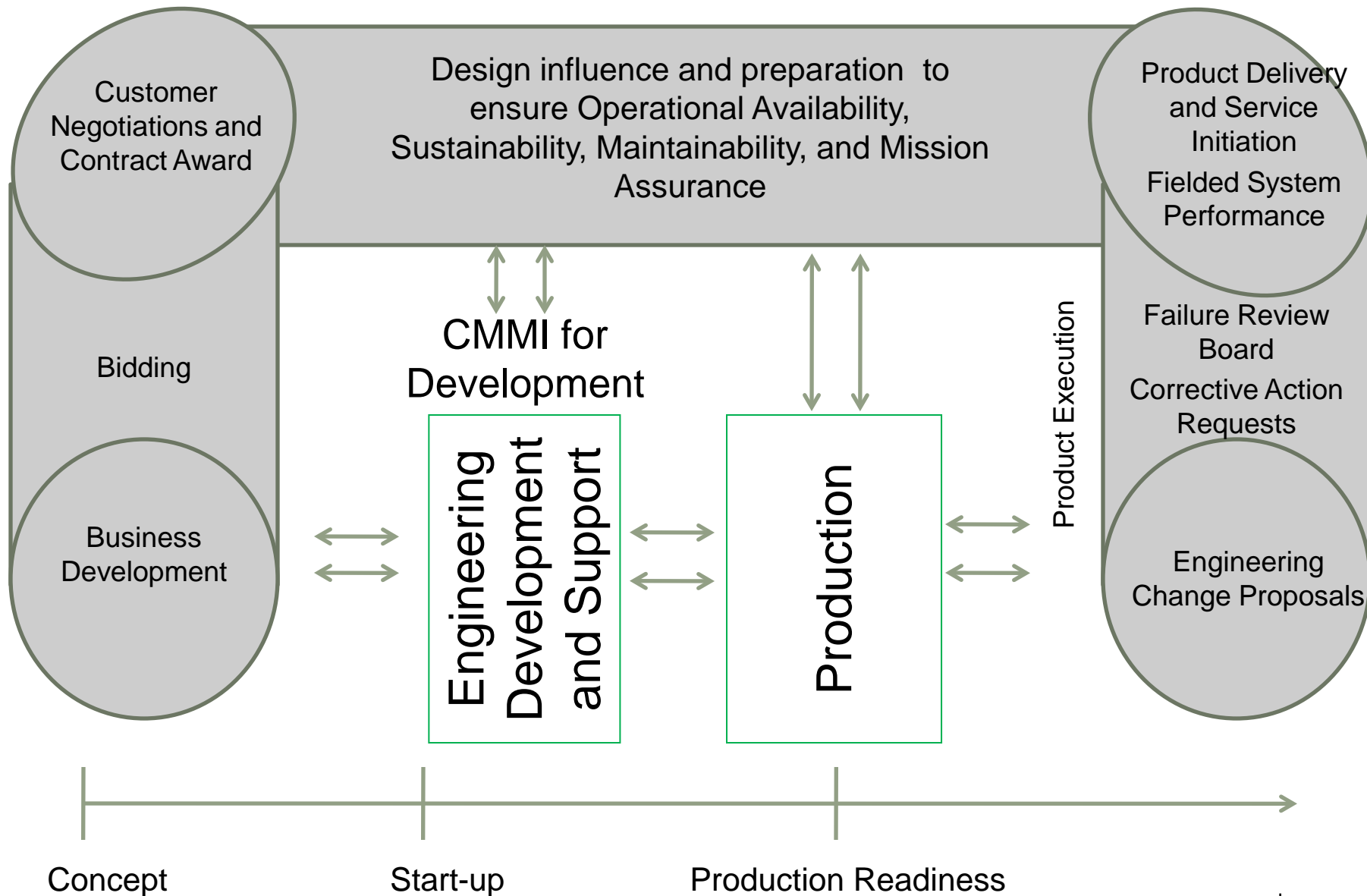
Causal Analysis and Resolution (CAR)
Configuration Management (CM)
Decision Analysis and Resolution (DAR)
Integrated Project/Work Management
(IPM/IWM)
Measurement and Analysis (MA)
Organizational Process Definition (OPD)
Organizational Process Focus (OPF)
Organizational Performance Management
(OPM)
Organizational Process Performance (OPP)
Organizational Training (OT)
Process and Product Quality Assurance
(PPQA)
Project/Work Monitor and Control (PMC/WMC)
Project/Work Planning (PP/WP)
Quantitative Project/Work Management
(QPM/QWM)
Requirements Management (REQM)
Risk Management (RISKM)
Supplier Agreement Management (SAM)

Capacity and
Availability
Management (CAM)
Incident Resolution
and Prevention
(IRP)
Service Continuity
(SCON)
Service Delivery
(SD)
Service System
Development (SSD)
Service System
Transition (SST)
Strategic Service
Management
(STSM)



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CMMI for Services for IDS



IDS Organization Example

CBT / IBT	IBT 1	IBT 2	IBT 3
Engineering			
Finance			
Contracts			
Business Development			
Supply Chain			
Operations			
Quality			

IBT = Integrated Business Team is the portion of the IDS organization representing a grouping of programs that provides products and services. CBT = Cross Business Team is the portion of the IDS organization that provides people, processes, tools and technologies across IDS Integrated Business Teams (IBT).

Program Organization Example

IBT



CPT = Cross Product Team is a functional team responsible for establishing the process and providing resources to support the IPT.

IPT = Integrated Product Team is a multi-functional team responsible for delivering a product or service.

CPT / IPT	IPT 1	IPT 2	IPT 3
Sys, SW, HW Engineering		X	
WL Engineering	X	X	X
Finance	X	X	X
Contracts	X	X	X
Business Development	X	X	X
Supply Chain	X	X	X
Operations		X	
Quality	X	X	X

X = Represented in Appraisal

Appraisal Preparation Roles

Appraisal Team Representative/Member

- Provided CMMI-SVC model interpretation



SME for each function

- Created “long” evidence list
- Provided experiential knowledge
- Did not need to know the model

Point of contact for each program

- Deployed updated process
- Collected evidence as the program executed
- Stated readiness

Keys (Reins) to the successful appraisal - 1

Alignment between Appraisal Team and the Programs

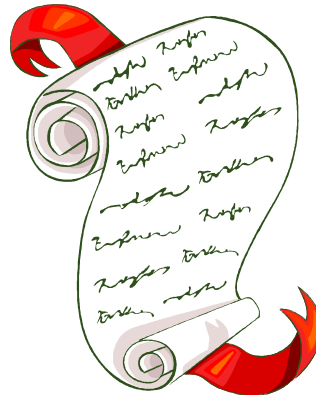
- Appraisal Team overview and discussion meetings
- War Room
 - Appraisal Team representative provided live feedback to the evidence collectors
 - Questions were answered quickly
 - Review and validation of evidence was immediate



Keys (Reins) to the successful appraisal - 2

Evidence collection tool

- Common repository
- Leverage from the evidence for the core processes
 - Plans, Measurement Reviews, Schedules, ...
- Initial list provided from Execution SMEs
 - They own or use the processes everyday – use their knowledge
 - This became a long list.....



Evidence file example -1

Generic Name	Process Area	Practice	Description of Evidence	Link	Comment	Updated
CPT Meeting minutes	IWM	SP 1.5	D: IPT/CPT Meeting Logistics	https://teamexample.Repository.com		
CPT Meeting minutes	WMC	SP 1.1	D: CPT Meeting Logistics	https://teamexample.Repository.com	Supportability merged into Logistics CPT after reorg in 2009- hence no meeting	
CPT Meeting minutesx1	WMC	SP 1.5	PMT meeting minutes	https://teamexample.Repository.com	PMT Meeting minutes folder - see 3/23/10 file	
CPT Meeting minutesx2	WMC	SP 1.5	Team Handbook	https://teamexample.Repository.com	See page 14 (Fig 7) for names of each roles	
CPT Meeting minutes	WMC	SP 1.2	D: - CPT Meeting Logistics	https://teamexample.Repository.com		
CPT Meeting minutes	SD	SP 2.2	D: CPT Meeting Logistics	https://teamexample.Repository.com	Folder includes examples of CPT meeting minutes	
IPT Meeting minutes	DAR	GP 2.8	D: IPT Meeting Minutes where trade study discussed.	https://teamexample.Repository.com		Updated 6/22 with Comm Pwr mm
IPT Meeting minutes	DAR	GP 2.7	D: IPT Meeting Minutes where trade study discussed.	https://teamexample.Repository.com		
IPT Meeting minutesx1	SD	SP 2.2	D: IPT Meetings	https://teamexample.Repository.com	IPT Meeting minutes; Operations is an IPT within program structure; Fire Unit meetings is part of the test Radars IPT that is responsible for maintaining radar	Done - 5/17/10

Meeting minutes were used in 31 instantiations

Evidence file example - 2

Generic Name	Process Area	Practice	Description of Evidence	Link	Comment	Updated
Management Plan	WP	SP 1.4	D:Management Plan Section 4.1.1	https://teamexample.Repository.com	See WLPMP in PDM	
Management Plan	WP	SP 2.7	D: Management Plan	https://teamexample.Repository.com		
Management Plan	WP	SP 3.1	D: Management Plan	https://teamexample.Repository.com		
Management Plan	WP	GP 2.4	D: Management Plan Section 6.2.3 (Roles and Responsibilities)	https://teamexample.Repository.com		
Management Plan	CAM	GP 2.2	D: Mgmt Plan, CAM planning sect 4, Execution, Sect 5	https://teamexample.Repository.com		
Management Plan	CM	GP 2.2	D: Management Plan	https://teamexample.Repository.com		
Management Plan	DAR	GP 2.4	D: Management Plan - Roles & Resp. Table 4-1 - Program Management Team does program management iaw with section 4	https://teamexample.Repository.com		
Management Plan	DAR	GP 2.2	D: Management Plan section 4.12	https://teamexample.Repository.com		Updated 6/7
Management Plan	IWM	SP 1.4	D: Management Plan	https://teamexample.Repository.com		

The program plan was used in 42 instantiations

Keys (Reins) to the successful appraisal - 3

After a C appraisal the evidence list was abridged to the important few

- **5% reduction in total evidence count** after the C appraisal
- **8% reduction in total evidence count** after the B appraisal
- Evidence collection and validating activities prior to event significantly improved, with less discovery between the C and the B appraisals
 - **85% reduction** in number of Document Requests written during the B appraisal



Summary

Organizational support

- Knowledgeable Appraisal Lead
- Service SMEs
- Appraisal SMEs
- Program points of contact



Tie your “Service” to your business goals and objectives.

- Collect evidence that is already part of how you do business.
- Have CMMI model SMEs and service SMEs collaborate.

Reduction in evidence collection churn

- Tool that identifies the top pieces of evidence to collect with mapping to the model
- Leverage from the CMMI-DEV evidence list

COLLABORATION

End of the Story

Paul Revere was successful in delivering his message that the Regulars were coming. We have evidence that he planned for his service, handled resources and incidents, and executed to the plan.



Questions



Presenters Biographies

Kerry Trujillo

Raytheon, Affordability Engineering Section Manager

- Kerry has 20 years of experience in military, commercial, and government contractor environments. He has also held roles as individual contributor, process engineer, line supervisor, automation engineer, project lead, process group lead, and Naval Officer. He has utilized the CMMI for Services model in a business that maintains multiple sustainment types of contracts (e.g. Repair and Return, Performance Based Logistics, Depot Support, and Field Operations).

Debra Smith

Raytheon, Process Group Lead

- Debra has worked more than 15 years in commercial and government contractor environments. Her roles have included research biologist, software engineer, process engineer, IPT Lead, six sigma black belt, line supervisor, and project manager. Debra is currently working for a large aerospace company on business improvement initiatives that involve both CMMI for Development and CMMI for Services.

Acronyms

CAIV = Cost As an Independent Variable

CBT = Cross Business Team

CMMI = Capability Maturity Model Integration

CPT = Cross Product Team

FRACA = Failure Reporting Analysis and Corrective Action

HW = Hardware Engineering

HSI = Human Systems Integration

IBT = Integrated Business Team

IPT = Integrated Product Team

LCC = Life Cycle Cost

RAM = Reliability Availability and Maintainability

SCAMPI = Standard CMMI Appraisal Method for Process Improvement

Sys = Systems Engineering

SW = Software Engineering

TOC = Total Ownership Cost

WL = Whole Life Engineering (Specialty Engineering)

Acronyms – CMMI DEV and SVC Process Areas

CAM = Capacity and Availability Management	QPM = Quantitative Project/Work Management
CAR = Causal Analysis and Resolution	QWM = Quantitative Work Management
CM = Configuration Management	RD = Requirements Development
DAR = Decision Analysis and Resolution	REQM = Requirements Management
IPM = Integrated Project Management	RISKM = Risk Management
IRP = Incident Resolution and Prevention	SAM = Supplier Agreement Management
IWM = Integrated Work Management	SCON = Service Continuity
MA = Measurement and Analysis	SD = Service Delivery
OPD = Organizational Process Definition	SSD = Service System Development
OPF = Organizational Process Focus	SST = Service System Transition
OPM = Organizational Performance Management	STSM = Strategic Service Management
OPP = Organizational Process Performance	TS = Technical Solutions
OT = Organizational Training	VAL = Validation
PI = Product Integration	VER = Verification
PMC = Project Monitor and Control	WMC = Work Monitor and Control
PP = Project Planning	WP = Work Planning
PPQA = Process and Product Quality Assurance	