Raytheon

Customer Success Is Our Mission

A Case Study of Transitioning: The CMMI Rosetta Stone

Electronic Warfare Systems

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Background – Electronic Warfare Systems (EWS)

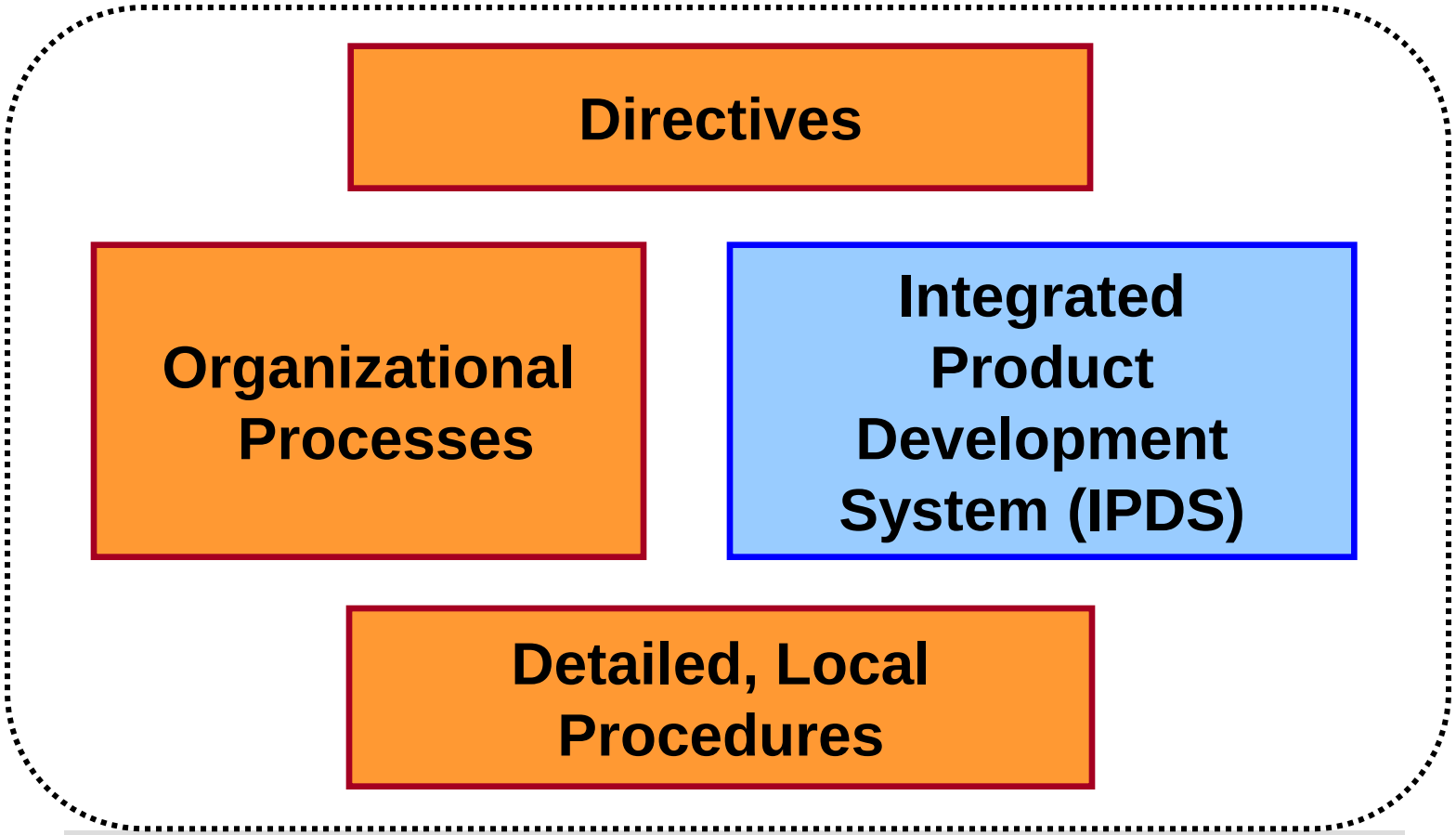
- A business unit of Space and Airborne Systems Division (SAS)
  - SAS is a large diverse organization with the workforce located in El Segundo and Goleta, California; North Texas; and Mississippi.
- A premier provider of electronic warfare solutions for the war fighter in the U.S. and our allied International Defense communities.
- EWS Software Engineering obtained CMM Level 3 in December, 2001.

Background (Continued)

- SAS, foreseeing the business value,
  - Initiates a CMMI program to obtain Level 3 for SE and SW
  - Creates the Enterprise Management System (EMS)
    - Integrated with Raytheon's Integrated Product Development System (IPDS)
    - Provides infrastructure and organization-level policies
- EWS steps up to the plate

Enterprise Management System

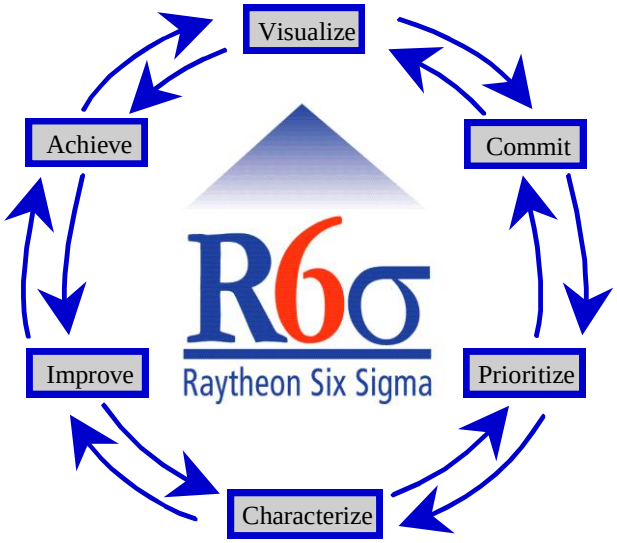
- As a Program-oriented set of processes, IPDS does not, by itself, satisfy CMMI



A Suite of Processes is Needed

What To Do?

- Using Raytheon's Six Sigma approach
  - Representatives from Engineering, Program Management and Support formulate a plan for EWS



Where We Are

- Significant variability in processes used across programs exists within Program Management and Engineering (except for Software Engineering)
- Therefore, the *clear-cut* route is to build on the SAS provided suite for our processes

Where We Want to Be

- Employ an artifact-oriented tailoring tool
  - Capitalize on artifact-oriented appraisal approach
- Provide electronic collaboration tool
  - Facilitate collection
- Growth engine for full CMMI implementation

CMMI Rosetta Stone

- By providing to our programs the required artifact template
- Programs through executing the artifact templates are CMMI compliant

Preparation for Deployment

- Identify the typical work product produced today
- Validate the work product meets the CMMI intent
  - Identify *new* artifacts for any gaps
- Create the artifact template

Results in a List of Artifacts that comply with Raytheon's EMS

Tailoring Tool

- Each program tailors based on artifact templates

IPDS Task	CMMI Process Area	GP / SP	Typical Direct Artifact	Artifact Owner	Tailor	(Program X) Work Product	Control Level
3-02.03.01 DEFINE SYSTEM BOUNDARIES, INTERFACES AND PHYSICAL CHARACTERISTICS	TS	2.3-3	System/Subsystem Design Document (SSDD)	SE			
3-02.03.02 IDENTIFY SYSTEM PHYSICAL SOLUTION ALTERNATIVES	TS	1.1-2	Trade Studies	SE			
3-02.03.04 GROUP AND ALLOCATE SYSTEM FUNCTIONS	TS	1.1-2	Requirements Allocation Specification (RAS)	SE			
3-02.03.06 ALLOCATE SYSTEM PHYSICAL AND PERFORMANCE CHARACTERISTICS	RD	2.2-1	Requirements Allocation Specification (RAS)	SE			

Tailoring Tool (Continued)

- Facilitates a program's tailoring to their requirements
  - A program understands what they need to produce in terms of artifacts

- Contains the required set of artifacts to be produced to meet CMMI Level 3

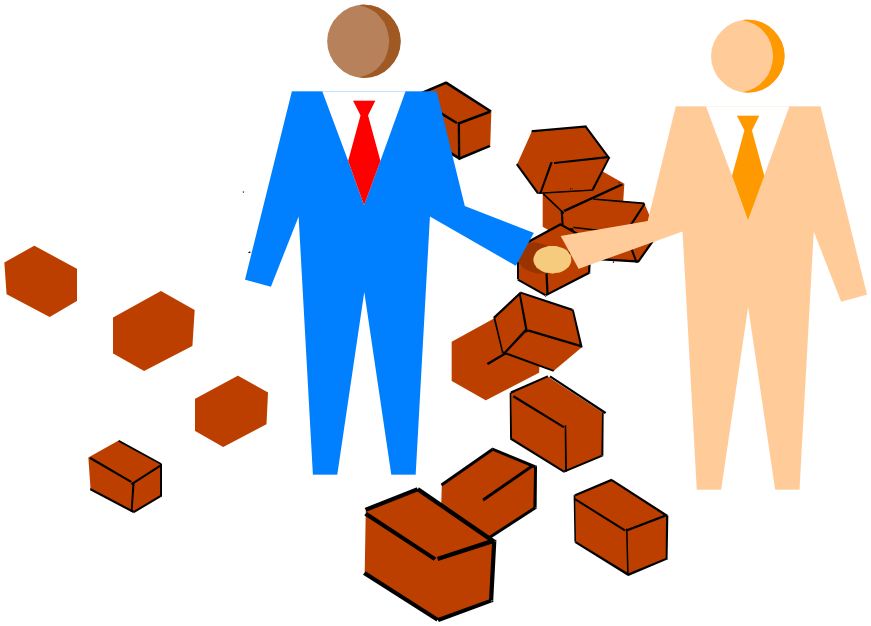
A program tailors the standard process set

Collaboration Tool

- Helps programs by facilitating collaboration and retainment of artifacts
- Artifact repository may contain:
  - Program plans and schedules
  - Program calendars
  - Meeting agendas, minutes, and reports
  - Action item logs
  - Risk watch lists
  - Peer reviews and electronic approvals
- Tool evaluation in progress

Breakthrough to the Other Side

- When an organization moves to CMMI, they acknowledge a business need to integrate management processes, and place the focus where it belongs, on the process and product.



Questions and Answers