

Headquarters U.S. Air Force

Integrity - Service - Excellence

Improving ERP Estimating in the DoD

**Year of the Air Force
Family**



**Mr. Wilson Rosa
Mr. Max Hodal (Wyle)
Mr. Brian Kolstad (MCR)
Capt. Charles Silvanic
AFCAA/FMI
4/19/10
Version 1.0**

Year of the Air Force
Family



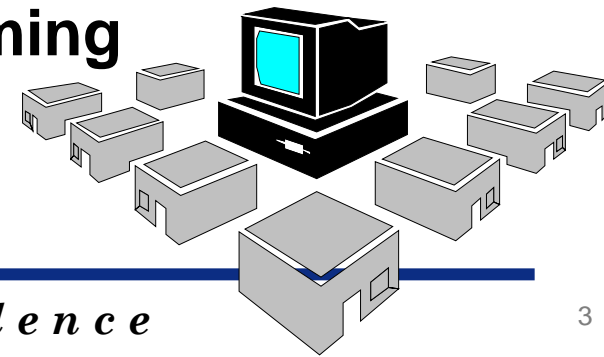
Table of Contents

- **ERP Background**
- **Industry Status**
- **DOD Status**
- **Identifying Cost Drivers and Metrics**
- **Data Collection Efforts**
- **Standardizing the CES**
- **Developing New ERP Tools**



ERP Background: What is an ERP?

- **Enterprise Resource Planning (ERP) software**
- **An enterprise software application that**
 - **Has a single, integrated database**
 - **Integrates multiple business functions across an organization onto a single computer system that serves everyone's needs**
 - **Eases the exchange of data and facilitates communication among departments**
- **Each module works separately performing specific data-processing**





Industry Status

- **Major Consolidation in industry**
 - **SAP and Oracle are the two main players**
- **Proprietary Interfaces**
 - **Created from customer-selected COTS modules**
- **Open Source ERPs Emerging**
- **SOA, Cloud Computing, Other Emerging Technologies**
 - **How will these affect ERPs and interfaces?**



DoD Status: ERPs in Development

- **Several ERPs in development in the DoD with mixed success**
- **Most projects have slipped significantly from their original schedules**

PROGRAMS	ERP Backbone
BSM (DLA)	SAP
GCSS-Army	SAP
GFEBs (Army)	SAP
Navy ERP	SAP
DEAMS (AF)	Oracle
DIMHRS (BTA)	Oracle (PeopleSoft)
ECSS (AF)	Oracle
GCSS-MC	Oracle
LMP (Army)	SAP



■ RICEW Objects

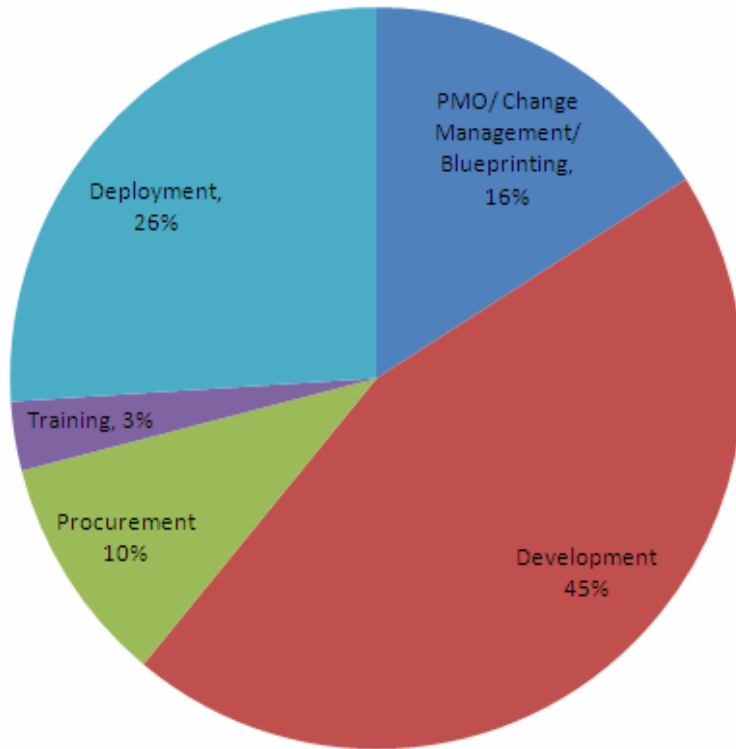
- **Sizing Metric based on Reports, Interfaces, Conversions, Extensions, and Workflows**
 - **These tailor the COTS ERP to achieve customer objectives**
 - **COTS modules are not included in RICEW Object count**
- **A technical metric analogous to Function Points, Object Points, etc.**

■ Requirements Counts

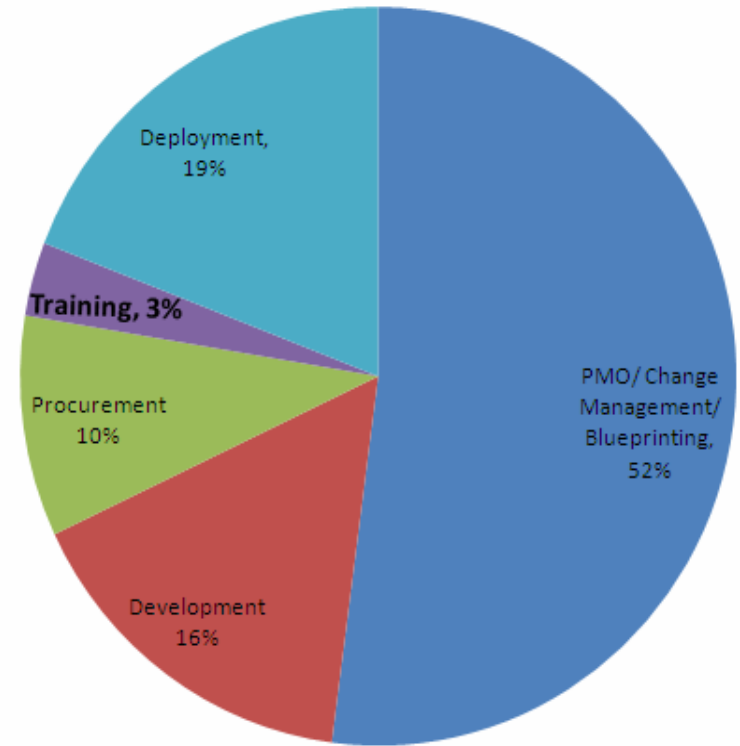
- **Sizing Metric based on complete requirements specification and documentation**
 - **Available earlier than RICEW Object definition**
 - **Depends on maturity of requirements development**



ERP Cost Breakdown



(Notional) Traditional
Software Program



ERP Estimate Breakout



Data Collection Efforts

■ SRDR Form

- Standard form for collecting relevant ERP data
- Contact AFCAA for the full version

ERP Resources Data Report: Final Developer Report

Page 2: Product Size

D. Product Size Reporting	Actual Delivered Objects	Actual Hours (Enterprise System Integrator)	Actual Cost (Enterprise System Integrator)
25. Reports (includes Forms)			
Simple Complexity: Standard reports within the ERP tool that require NO Modifications.	3		
Medium Complexity: Standard reports within the ERP tool that require minor-major modifications.	9		
High Complexity: Number of new reports developed from scratch.	9		
Significant Complexity: Number of new reports developed from scratch that require complicated extraction or transformation logic			
26. Interfaces (Inbound and Outbound)			
Simple Complexity: Number of external files with 1 record element type, and 0 to 1 transaction in upload	2		
Medium Complexity: Number of external files with 2 record element types, and 1 or more transactions in upload	10		
High Complexity: Number of external files with 3 or more record element types, and 1 or more transactions in upload	24		
Significant Complexity: Number of external files with 4 or more record element types, and 1 or more transactions in upload	33		
27. Conversions			



Data Collection Efforts

- 14 ERPs - Multiple programs from three Services and NASA
 - Plan to provide CERs and other metrics based on this data at June SCEA Conference

■ Used the following sample Data Fields

- RICEW Count
- Requirements
- Effort (in Man-Hours)
 - Blueprinting
 - Design/Build
 - etc.
- Cost (in TY \$K)
 - Blueprinting
 - Design/Build
 - etc.

SIZE		Effort (Man-Hours)
Requirements	RICEW	Plan
1078	722	88,752
842	234	55,020
903	522	51,530
2433	1068	110,040
4805	511	93,232
1000	167	139,587
657	2174	1,646,895
155	29	66,411
462	319	4,047
192	251	8,000
5457	198	24,903
114	84	2,734
6428	177	960
1472	241	132,428



Standardize CES

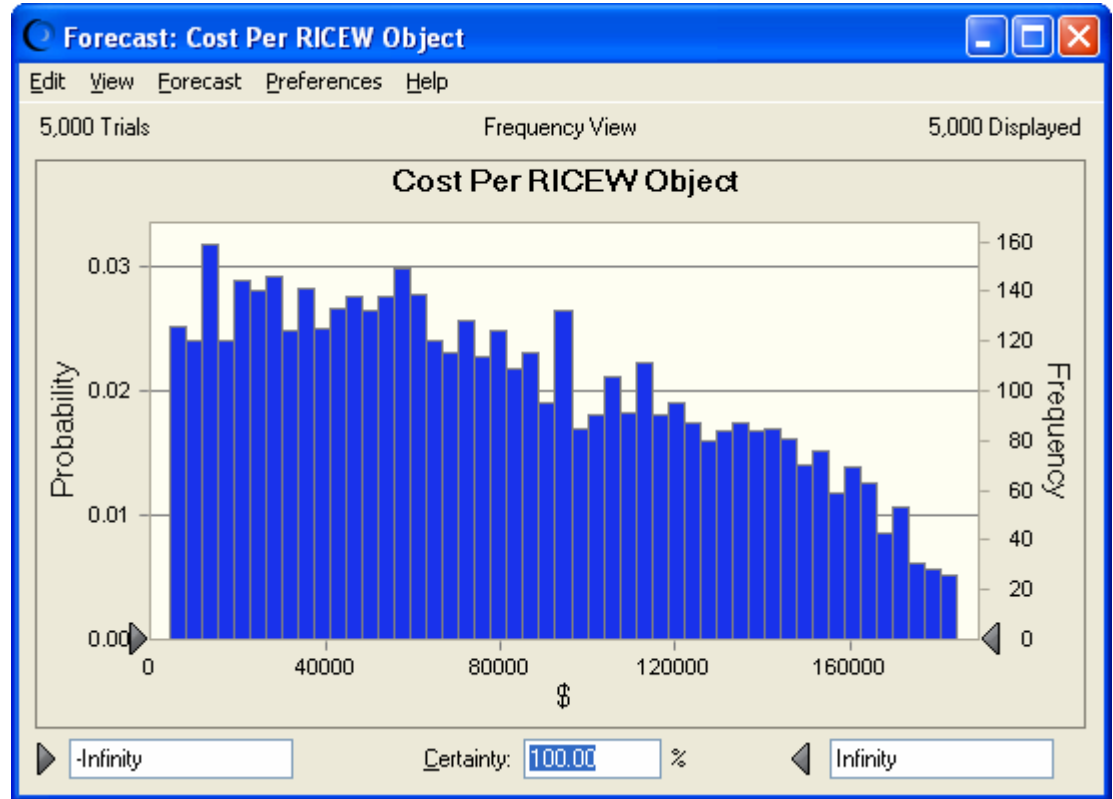
- **New MAIS WBS**
- **Major Changes pertinent to ERP**
 - **Revamped PMP section (1.3) to breakout Enterprise Information System (EIS)**
 - **Moves Procurement HW and SW to deployment section (12.1.1)**
 - **Adds Change Management activity (5.0)**
 - **Includes Data Migration (12.1.4)**
 - **O&S section breaks out EIS from other maintenance activities (14.4)**

0	Automated Information System X
1.	Automated Information System Prime Mission Product Release/Increment X
1.1.	Subsystem Software (1-n) (Custom Application Software)
1.2.	Enterprise Service Element (1-n)
1.3.	Enterprise Information System (1-n)
1.4.	External System Interface Development (1-n)
1.5.	System Level Integration
1.6.	System Level Prototyping
2.	Platform Integration
3.	Systems Engineering
4.	Program Management
5.	Change Management
6.	System Test and Evaluation
7.	Training
8.	Place Holder (TBD)
9.	Data
10.	Peculiar Support Equipment
11.	Common Support Equipment
12.	Operational Site Activation, Installation, and Checkout (Deployment)
12.1.	Site Type 1
12.1.1.	Deployment Software and Hardware
12.1.2.	Site Activation
12.1.3.	User Training
12.1.4.	Data Migration
12.1.5.	Management/Engineering Support
12.1.6.	Interim Logistic Support
13.	Industrial Facilities
14.	Operations and Maintenance
14.1.	Systems Engineering and Program Management (Post-FOC)
14.2.	System Operations / Sustaining Engineering
14.3.	Subsystem Software Maintenance
14.4.	Enterprise Service Software Maintenance
14.5.	Business Area Software Maintenance
14.6.	Help Desk
14.7.	System/Database Administration
14.8.	Deployment Hardware Refresh
14.9.	Deployment Software Refresh
14.10.	Follow on User Training
14.11.	Accreditation
14.12.	Independent Verification and Validation
14.13.	Place Holder (TBD)
15.	Disposal



Develop New ERP Parametric Tools

- CERs based on metrics (to be presented at June SCEA)
 - Normalized Cost per RICEW Object
 - Normalized Cost per Requirement
- Ultimately would like to Calibrate SLIM Model with ERP Data



Year of the Air Force
Family



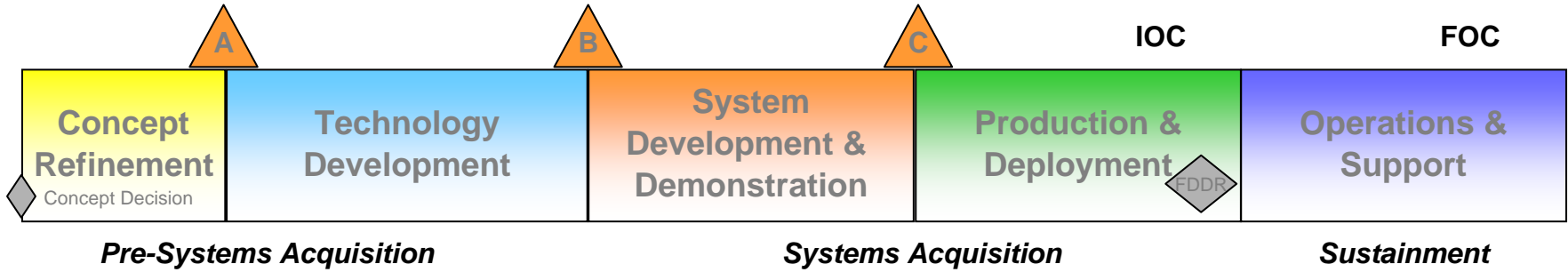
References

- **Rita Lewis Presentation, Feb 16, 2006**
- **Rosa et al Presentation, DODCAS 2005**
- **Corinne Wallshein Presentation, DODCAS 2010**



ERP Acquisition Framework

Defense Acquisition Management Framework – Traditional



Defense Acquisition Management Framework – For ERP Systems

