

# ***Business & Enterprise Systems***

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## **PEO BES & AF Logistics Success Story (ILS-S)**

**MITTS 2018**



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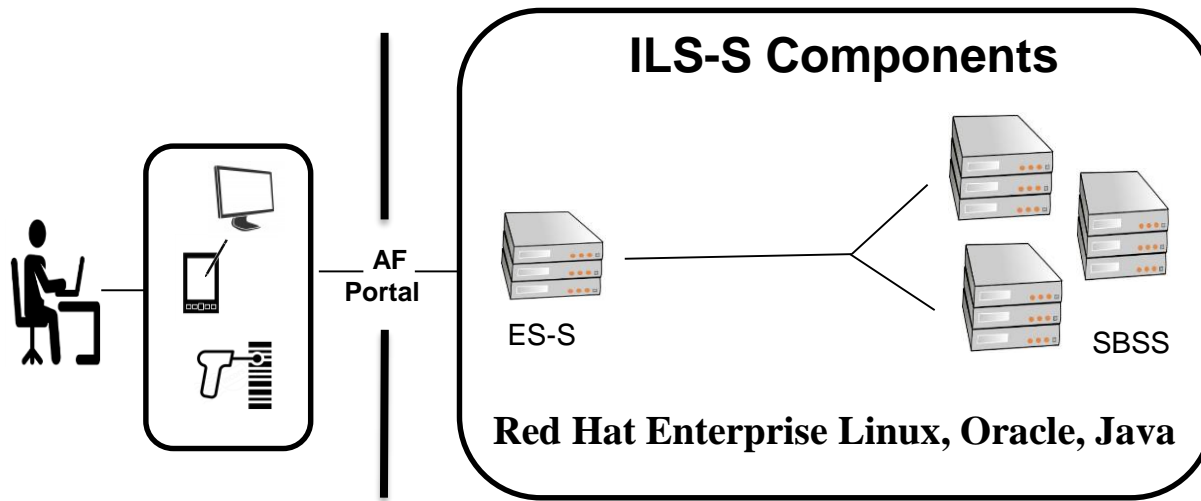
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# Integrated Logistics System Supply (ILS-S)



## Who We Are

- **Portfolio Manager:** HQ AFMC/A4N (Ms. Kim Brown)
- **Functional Advocate:** HQ AF/A4LR (Mr. Colquitt Lawrence)
- **Senior Material Leader:** Col. Alvin Burse
- **Program Manager:** Mr. Tommie Ellis
- **Lead Functional:** Ms. Antoinette Briggs
- **Lead Engineer:** Mr. James Harbison
- **Contracting Officers:** Mr. Richard Ashley, Ms. Lexie Potter
- **Industry Partners:** DSD, DATUM



## What We Do

- Defense Business System—IT Retail Supply
- Enterprise wholesale and retail asset visibility
- Mission Capable (MICAP) Management
- Serialized Tracking Nuclear Weapons Related
- Mobility, Chemical, Biological, Radiological, Nuclear
- Sustainment + ACAT III FIAR, Wrapper, SBSS Re-Platform



***Transformed ILS-S to modern system to support AF needs***

## Who We Support

- 18K End Users
- 107K Logistics Customers
- 40 Interface Partners
- Global Mission - 275 sites



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# ILS-S SBSS Re-Platform



## ■ Previous SBSS Technical Upgrade Events

- **1964:** UNIVAC 1050 II (Assembler)
- **1985:** Migrated UNISYS 1100/60 (COBOL 74 / DMS)
- **1990s:** COBOL 74 to COBOL 85; SuperStructure

## ■ Re-Platform Requirement

- Reduce annual ILS-S (SBSS) Infrastructure Costs
- Posture ILS-S to support future compliance mandates
- 4 COAs; Re-Platform (Lift and Shift) approved Nov 2012

## ■ Results

- 👍 **Cost:** \$2M under budget
- 👍 **Schedule:** Met all dev/test milestones; fielded 5 months early
- 👍 **Performance:** Met/exceeded all Key Performance Parameters
- 👍 **Requirement:** Annual infrastructure costs reduced \$25M



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# Why was Re-Platform Successful?



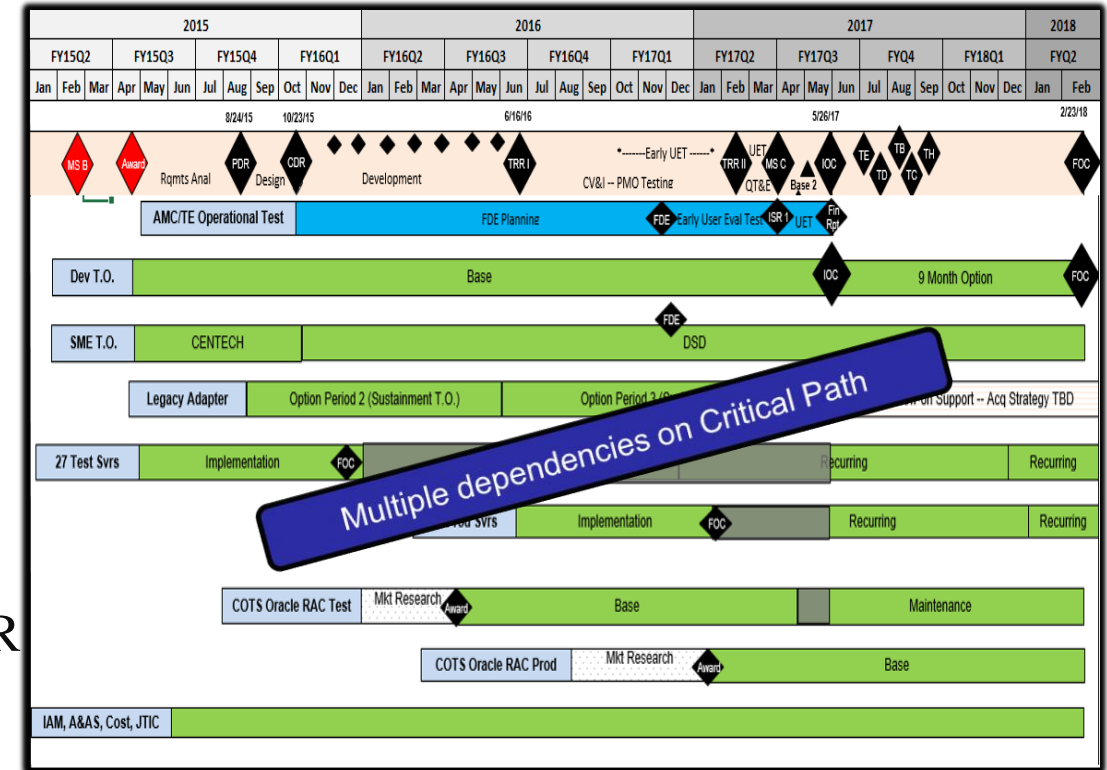
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## ■ Prep Steps

- Middleware layer between SBSS and ES-S (2004)
- SBSS “green screens” to ES-S (2007)
- Interface “Wrapper” (2016)
- Automated test scripts (2014-2016)

## ■ Risk Reduction

- A4 Customer commitment! Control scope, No BPR
- Staggered implementation schedule



## Teamwork Critical Success Factor!

- **Gov't:** PK, EN, JA, FM/Cost, DT/OT, DISA, CIE, IA, Interfaces, AFMC/A4 & Users, Our Leadership
- **Industry:** Array/NTT, CENTECH, DSD Labs, A&AS, Oracle, Attachmate

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# Teamwork



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# So What's Next?



## ■ Be Flexible

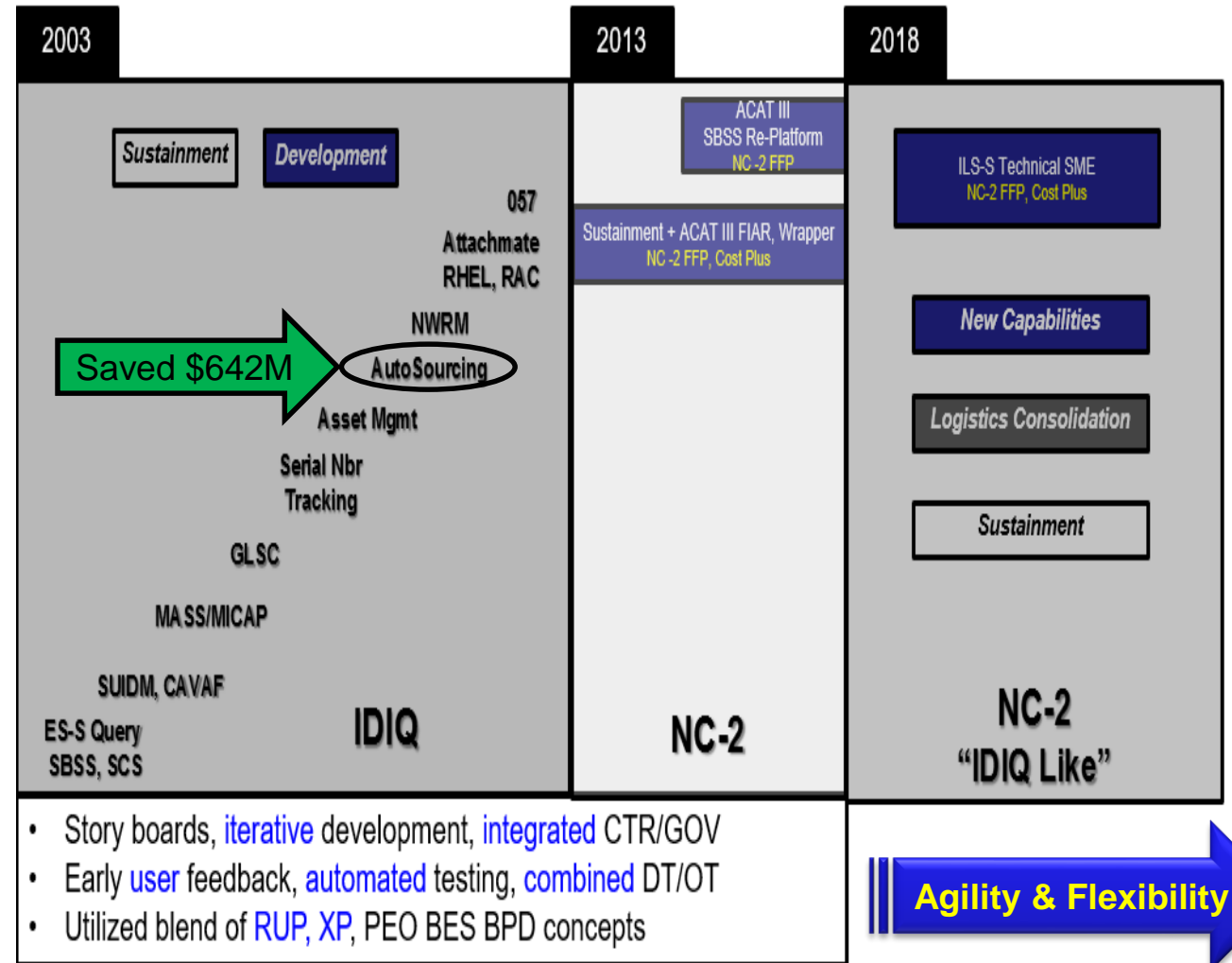
- Tiered Sustainment
- Logistics consolidation
- New capabilities

## ■ Task Order Awarded Feb '18

- Technical SME Support (DATUM)
- Java, Oracle, RHEL, Web development
- Initially funded Basic Sustainment
- Can add support based on customer need

## ■ Support Agile

- Evolve what we do already



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# The Bigger Picture



## ■ SAF/AQ Agile Huddle Feb '18 (Maj. Gen Zabel)

**The "Chasm"**

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Pre-Milestone B POM 2 years Agile DevOps

- Defines what we are buying, for stakeholder transparency & planning, test planning, POM justification
- Defines salient characteristics of what the solution set looks like in order to plan POM funding
- Likely misaligned with POM
- Asks independent test to re-plan to multiple, small test events
- Can't articulate what reqts will be addressed, 2-3 years in advance

Integrity - Service - Excellence

**Future Agile SW Acquisition**

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**How?**

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- In Requirements, trade the artifacts for a governance process that includes the same stakeholders & signature authority
  - Identify needs through operational sensing & convert to a bounded requirement by having the stakeholders at the table
- Shift POM funding to better align with an unknowable future
  - Move more work to a single appropriation type (O&M or RDTE)
  - Manage appropriations at the portfolio level
- Tailor program documents to do more at a portfolio level
- Continue to work with test community to help them position to meet needs of iterative capability delivery
  - Maximize automated test (including cyber vulnerability testing) within the development process
- Continue to work with AOs to reduce RMF complexity in execution

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**But There Are Obstacles**

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- **Requirements** developed in advance of the POM are too rigid and often obsolete before they reach the point of execution
- **POM funding** is developed 2 years in advance of funds release; the amounts and appropriations often do not meet the need
- **Test** organizations were organized & staffed and created processes around the expectation of infrequent system deliveries
- The AF's transition from DIACAP to **RMF** is incomplete; agile delivery of software exacerbates the complexity involved
- We have no experience base in **cost estimation** for agile DevOps
- Need to build experience & best practices for **contract approaches**
- Effective 'DevOps' relies on tuning based on experience with the fielded product but the complexity of our **network environment** impedes insight into the user's experience by the PMO

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***ILS-S selected as "Start Small" for Logistics Mission Area***

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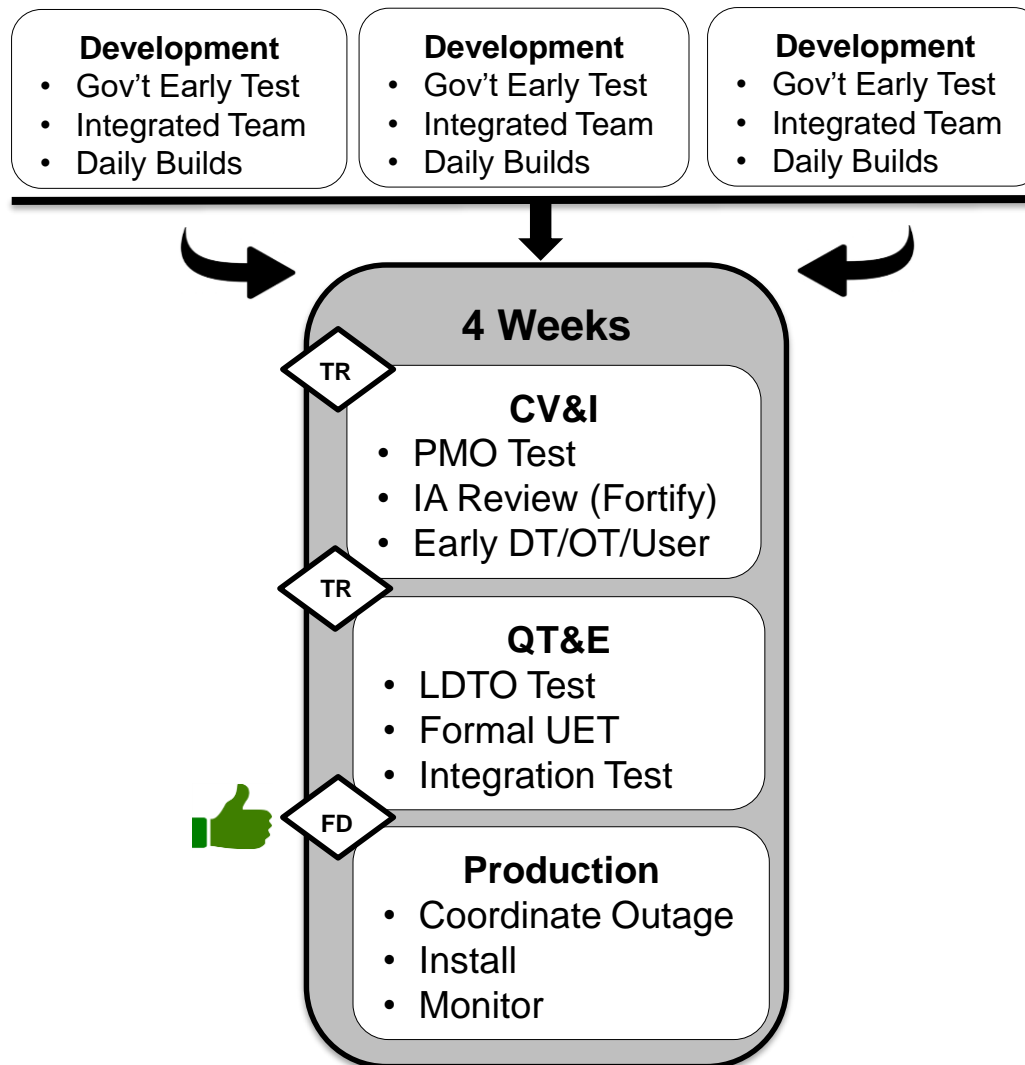
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# “Start Small” Approach



## ■ Evolve what we do already

- Iterative-Incremental development and delivery
- Monthly delivery of “minimum viable capability”
- Product Backlog---but shift as needed
- Iterations vs Sprints
- Learn...lessons roll to next Iteration(s)
- Seven Iterations May – Dec 2018



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# Iteration 1 (V5.0.2)



- 4 weeks fielding cycle  
(TRR I to Production)
- Stakeholder Buy-In
  - Information Assurance
  - Lead Development Test
  - Documentation
  - Engineering Review
  - Fielding Approval
- 2 weeks cycles if possible

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		ILS-S Sustainment v.5.0.2	23 days	5/1/18	Thu 5/31/18		
2		PMO CV&I (F3)	14 days		Fri 5/18/18		
3		Functional/Product Baseline	1 day	Tue 5/1/18	Tue 5/1/18		Scott Hunter,Walt Long
4		Fortify (Code Scan) N/A	1 day	Tue 5/1/18	Tue 5/1/18		Datum(Technical Sus Contr)
5		TRR I Minutes/Checklist	2 days	Tue 5/1/18	Wed 5/2/18		Walt Long
6		CCB Coordination	1 day	Tue 5/1/18	Tue 5/1/18		Scott Hunter
7		Release Request Letter	3 days	Tue 5/1/18	Thu 5/3/18		Walt Long
8		Software installed to F3	1 day	Fri 5/4/18	Fri 5/4/18	3	Datum(Technical Sus Contr)
9		CV&I Test	4 days	Mon 5/7/18	Thu 5/10/18	8	Scott Hunter
10		DISA STIGs requested as needed	4 days	Tue 5/8/18	Fri 5/11/18	8	Mike Garriss
11		Appropriate artifacts to IA/SCAR	1 day	Fri 5/18/18	Fri 5/18/18	10	Christy O'Donnel,Josh Latham
12		AF Form 636	5 days	Mon 5/7/18	Fri 5/11/18		Walt Long
13		CV&I TR (Test Report)	5 days	Mon 5/7/18	Fri 5/11/18		MSgt Brown
14		RTM/QC Scripts/ITD	5 days	Mon 5/7/18	Fri 5/11/18		Scott Hunter,MSgt Brown,Walt
15		QT&E (F4)	4 days	Mon 5/14/18	Thu 5/17/18		
16		Final User Manual Updates	1 day	Mon 5/14/18	Mon 5/14/18	14	Scott Hunter
17		TRR II Minutes/Checklist	1 day	Mon 5/14/18	Mon 5/14/18	14	Walt Long
18		Sprint Software (on CD for CM)	1 day	Mon 5/14/18	Mon 5/14/18	14	Walt Long,Mike Garriss
19		Software installed to F4	1 day	Mon 5/14/18	Mon 5/14/18	14	Mike Garriss
20		QT&E Testing	3 days	Tue 5/15/18	Thu 5/17/18	19	MSgt Brown
21		Production (F6)	23 days	Tue 5/1/18	Thu 5/31/18		
22		Security Clearance	2 days	Mon 5/21/18	Tue 5/22/18	11	Christy O'Donnel,Josh Latham
23		UET Concurrence (N/A)	0 days	Tue 5/22/18	Tue 5/22/18		David Whitehead
24		QLR (Quick Look Report)(LDTO Test)	3 days	Fri 5/18/18	Tue 5/22/18	20	David Whitehead
25		Eng Go Package to LE	17 days	Tue 5/1/18	Wed 5/23/18		Walt Long
26		Eng Go Recommendation	3 days	Wed 5/23/18	Thu 5/24/18	24	James Harbison
27		Fielding Approval Memo	1 day	Tue 5/22/18	Wed 5/23/18	26	Walt Long,Tommie Ellis
28		Production installed to F6	2 days	Wed 5/30/18	Thu 5/31/18	27	Mike Garriss

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# Key Points



## ■ ILS-S aligns with BES Strategic Vision, 2018-2021

- OPERATE systems in cost effective manner
- INTEGRATE existing and future technologies
- INNOVATE by adopting new technologies
- ***“Our customer needs us to go faster...  
...and I agree!”*** Col. Al Burse, HIA SML

## ■ Possible to accomplish a lot with:

- Right people, process and tools & contract type
- Integrated industry partner/government teams
- Scope control

## ■ Possible to ship usable capability early & often...but:

- PMO does not control many critical processes; need ongoing stakeholder & leadership support
- Pre-scheduled monthly Iterations may not always be what's best for the user

*Strategic Vision, 2018-2021*

**BUSINESS AND ENTERPRISE SYSTEMS DIRECTORATE**  
One team, empowered, trusted, innovative, & focused on the warfighter

The men and women of this Directorate have successfully operated and maintained war winning information systems for decades, keeping our promise to support Airmen and their missions across the globe.

Today, information technology's pace of change, emerging mission requirements and increasingly sophisticated cyber threats challenge our ability to meet our commitments.

Our values, skills and abilities are key to the success of this strategy, and will position us to provide the world class support our Airmen expect and deserve.

➡ We run the systems that run the Air Force: moving money, manpower, and materiel

**Our Strategic Vision**

**OPERATE**  
our systems in a cost effective manner to increase the lethality of today's AF and Joint weapon systems

**INTEGRATE**  
existing & future technologies and commercial best practices to deliver enterprise capabilities cost effectively and with greater velocity

**INNOVATE** by adopting new technologies and processes to assure information dominance

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# ***Supply Modernization Technical & Business Objectives***



- **Complex: Subject of 2003 book “Modernizing Legacy Systems”**
- **Technical Challenge:**
  - 5 Unisys mainframes to Red Hat Enterprise Linux
  - 1.2M lines of COBOL to Java
  - 235 DMS records to Oracle
  - 80 host bases
- **As-Is > To-Be: Integrate existing enterprise, no degradation in service**
- **Timeline:**
  - 24-month: Initial operational capability (2 host bases)
  - 9-month: Full operational capability (78 host bases)
- **No margin for error: Firm-fixed price**





# ***Supply Modernization Technical Approach***



- **Incremental: Delivery & fielding**
- **Frontload risk: Wrap and adapt**
- **Battling marketecture: Vendor showdown**
- **You are doing it wrong: Size to your mission**
- **Build the foundation: It is all about the data**
- **Code conversion:**
  - Don't cross the streams
  - Garbage in, garbage out
  - Bridge the communication gap
- **Automation: continuous integration & testing**

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# Supply Modernization Benefits & Lessons Learned



## ■ Benefits:

- Before: Maintained existing business processes
- During: Minimized program risk
- After: Uniform testable & sustainable architecture

## ■ Lessons learned:

- DMS locking is much different than Oracle locking
- DISA separation of database and application server
- Reports are not always “reports”

## ■ Lesson confirmed:

- Risk: Never let assumptions drive architecture
- Complexity: Eliminate accidental, minimize essential
- Incremental: Can take many different forms, but is always risk minimizing



# ***Development Process Evolution***



- **Incremental: RUP to RAX & the SEP**
- **Value: Process should have meaning, everything has a cost**
- **Litmus test: Know your primary objective**
- **You are doing it wrong: Size to your organization**
- **Alignment: Align process to organizational and mission objectives:**
  - Find out where you are
  - Take a small step toward your goal
  - Adjust your understanding based on lessons learned
  - Repeat
- **Team: People matter and automation is critical**



- **Mission objective: FDCCI compliance**
- **Technical requirements:**
  - Eliminate DISA replica GFE contractor development environment
  - Security first
  - Software must be deployed across CIE Dev Zone and DISA
  - No collateral damage to other activities (in parallel to FIAR, sustainment, & modernization)
- **YAGNI: The simplest thing that can possibly work**
- **Incremental: Minimally viable**
- **You are doing wrong: Size to your architecture**



# ***How to speed capability delivery?***



- **Have a mission objective**
- **Process should be less prescriptive and more descriptive**
- **Incremental small steps, evaluate, adjust, repeat**
- **Automate along the way**
- **Remember, you are doing it wrong...**



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# ***Questions***

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