

Headquarters Air Combat Command

Maturing the Enterprise

*Applying process improvement strategies
to a large GIS program*



**Dave Williams –
Program Manager**

**Gerard Dache – CMMI
Lead Appraiser**

**This Briefing is:
UNCLASSIFIED**



Overview

- **Background on Air Combat Command IGI&S (GeoBase)**
- **What is the SEI and the CMMI**
- **Why Launch a CMMI Based Process Improvement Program**
- **What were the benefits to ACC GeoBase**
- **What did we learn and what were the keys to our success**
- **Questions / Closing Comments**



Background on Air Combat Command IGI&S (GeoBase)

- **History of Project**
 - Started 2001
- **Mission**
 - Support all non-Intel geospatial efforts within ACC/AFCENT/AFSOUTH
- **Footprint/AOR**
 - 15 US Bases, 12 US Ranges, >150 Central and South American Sites and >1000 Southwest Asian Sites
- **Services/Capabilities**
 - Fast Map Services of all content
 - Data discovery and download for all content
 - Infrastructure (servers, people, etc.) throughout World
 - 99.9% Uptime



What is the SEI

- **Software Engineering Institute**
 - DoD Federally Funded Research Development Center (25 years) to research to improve the practice of software and systems engineering
 - Today, the SEI is driving the future of complex systems, and performs cutting-edge research that continues to transform the way software and systems are developed and maintained. Areas of research include:
 - Acquisitions
 - Current vs Future DoD Needs
 - Cyber Environment & Related Technologies
 - Economic & Game Theory
 - Network & Systems Survivability
 - Performance Management
 - Process Improvement
 - Social Networking
 - Work Force Development





What is CMMI

- **Process Improvement Model**
- **Collection of best practices from:**
 - **Industry**
 - **Government**
 - **Academia**
- **Constellations**
 - **Services**
 - **Acquisitions**
 - **Development**
- **Process Groups**
 - **Project Management**
 - **Engineering**
 - **Process Management**
 - **Support**





What is the CMMI_(Cont)

- **Capability Maturity Model Integrated (CMMI)**
 - **Process Improvement Model for Software & Systems**
 - **Ideal for government systems**
 - **Globally Recognized**

Between April 02 - June 09

- 4,726 Appraisal
- 3,906 Organizations



Argentina	Australia	Austria	Bahrain	Bangladesh	Belarus	Belgium	Brazil
Bulgaria	Canada	Chile	China	Colombia	Costa Rica	Czech Republic	Denmark
Dominican Republic	Egypt	Finland	France	Germany	Greece	Hong Kong	Hungary
India	Indonesia	Ireland	Israel	Italy	Japan	Korea, Republic Of	Latvia
Lithuania	Luxembourg	Malaysia	Mauritius	Mexico	Morocco	Nepal	Netherlands
New Zealand	Norway	Pakistan	Panama	Peru	Philippines	Poland	Portugal
Romania	Russia	Saudi Arabia	Singapore	Slovakia	South Africa	Spain	Sri Lanka
Sweden	Switzerland	Taiwan	Thailand	Turkey	Ukraine	United Arab Emirates	United Kingdom
United States	Uruguay	Vietnam					

* The ACC IGI&S (GeoBase) Systems Group is one of the only GIS programs in the world to earn this recognition



What is the CMMI_(Cont)

Level	Focus	Process Areas <i>Including IPPD</i>	
5 Optimizing	<i>Continuous Process Improvement</i>	Organizational Innovation and Deployment Causal Analysis and Resolution	
4 Quantitatively Managed	<i>Quantitative Management</i>	Organizational Process Performance Quantitative Project Management	
3 Defined	<i>Process Standardization</i>	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition Organizational Training Integrated Project Management (2 IPPD Goals) Risk Management Decision Analysis and Resolution <i>Organizational Environment for Integration</i> <i>Integrated Teams</i>	
2 Managed	<i>Basic Project Management</i>	Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management	
1 Initial			Risk Rework

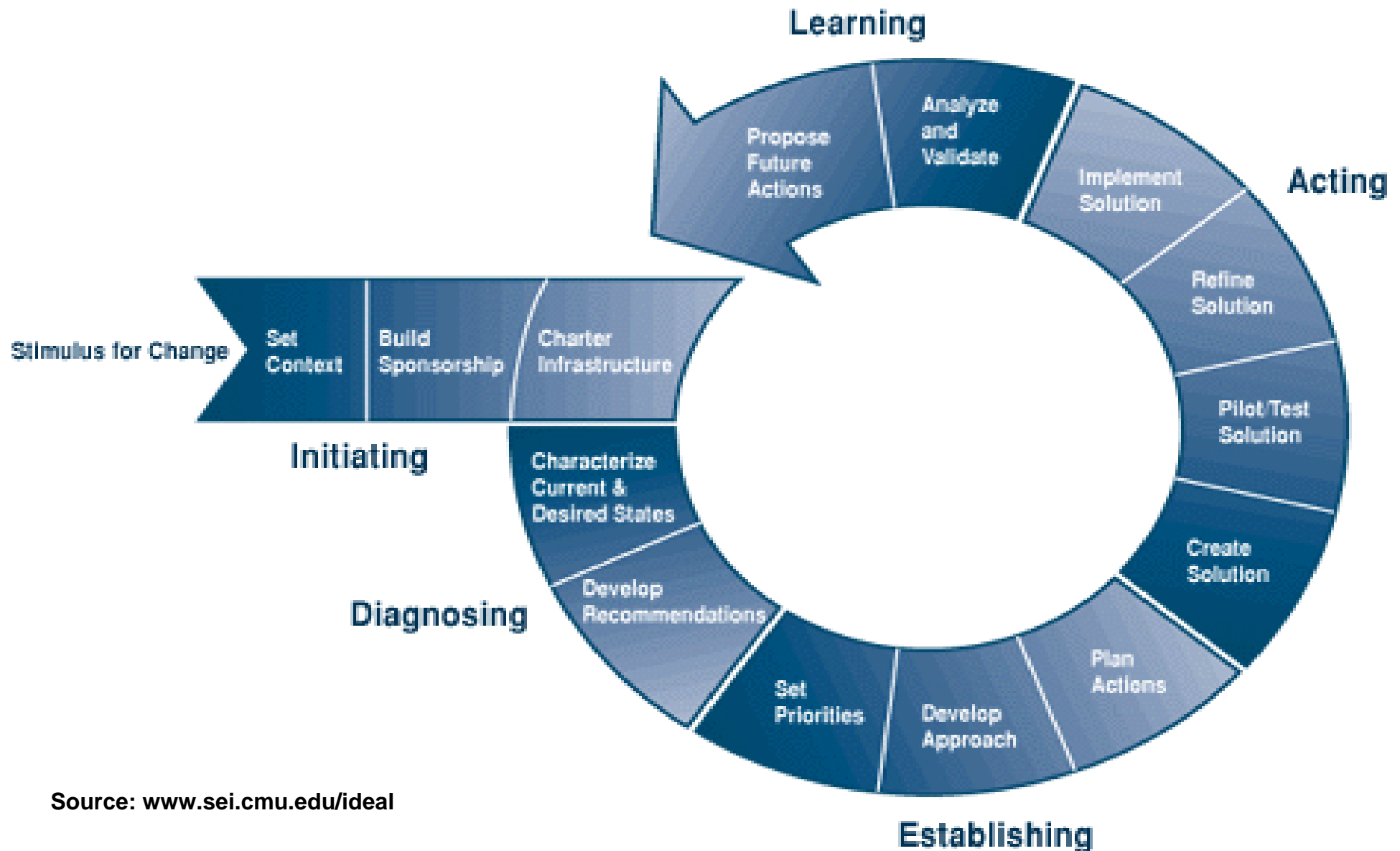


Why Launch a CMMI Based Process Improvement Program?

- **Certifications, awards and recognition are important and we wanted to take credit for the good work we have done**
 - **Few if any geospatial program have earned a CMMI Rating**
- **We thought we were good, but we wanted to benchmark against industry standards**
- **We really wanted to know our strengths and weaknesses so that we could do even better**
- **Innovation and continuous improvement are cornerstones of our success – we wanted to enshrine these principles in our processes**

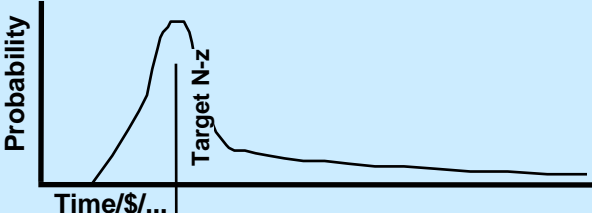
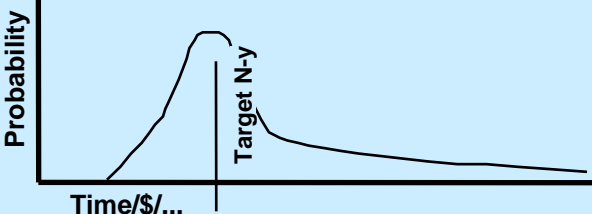
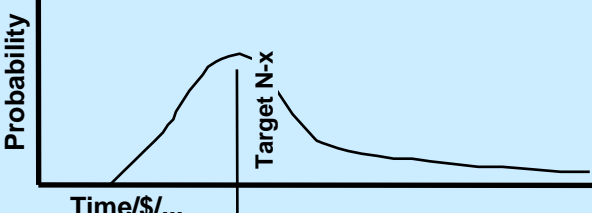
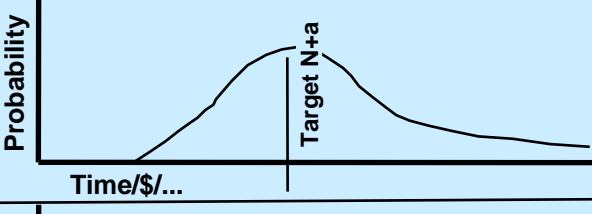
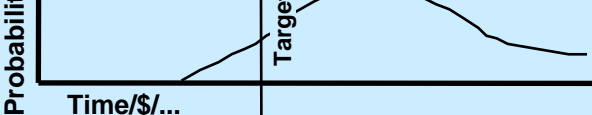


Process Improvement Lifecycle





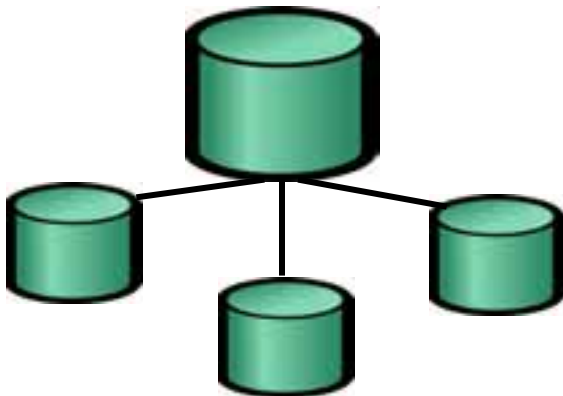
Benefits of process improvement

	Process Characteristics	Predicted Performance
Level 5	Focus is on continuous quantitative improvement	
Level 4	Process is measured and controlled	
Level 3	Process is characterized for the organization and is proactive	
Level 2	Process is characterized for projects and is often reactive	
Level 1	Process is unpredictable, poorly controlled, and reactive	



Application to ACC GeoBase

- **SEI CMMI Level 2 Appraisal for ACC GeoBase Systems Group**
- **ACC GeoBase Systems Group**
 - **Manage all core service technical operations**
 - **DB**
 - **PM**
 - **WEB**
 - **System Admin / Engineering**





Benefits of the Process

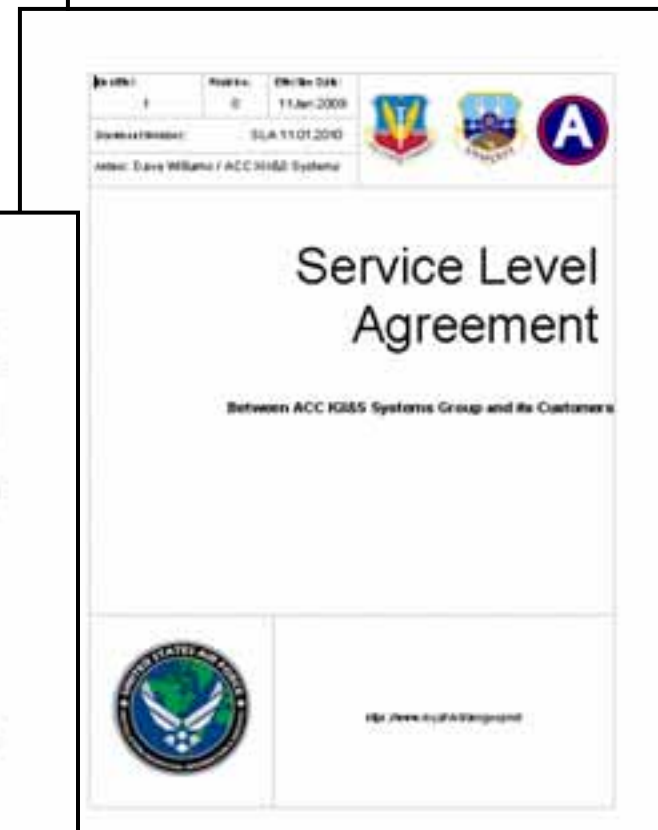
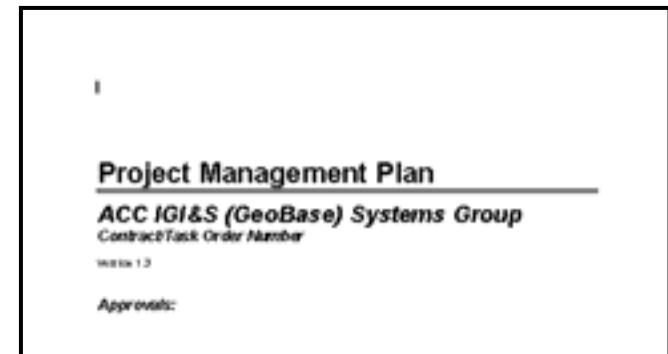
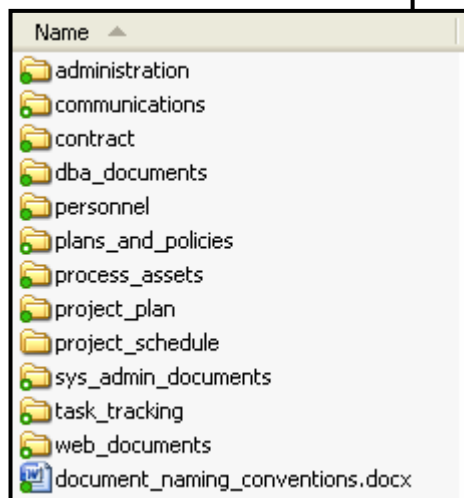
- **Benefits of the process improvement event**
 - **Adequate Document Management**
 - **Adequate Metrics**
 - **Independent Auditing**
 - **Work Classification: routine, scheduled, event driven**
 - **Motivator for related groups**





Proper Document Management

- Centralized all documentation
- Standardized formatting
- Templates for everything
- Defined directory structure and naming system





Adequate Metrics

- **Step back and develop measurements that are really important**
 - **Web**
 - **User / Hits, etc.**
 - **DB**
 - **Mean Time to Recover**
(performing a real recovery of data)
 - **System**
 - **Mean Time to Recover an OS** (performing a real recovery of data)



TIE METRICS TO AUDIT PROCEDURES!



Independent Auditing

- Performed by an independent auditor
- Scheduled and random
- All aspects of audit are documented
- Audit'ees wrote key aspects of audits (buy-in)



Three Categories

- Project Management
- Technical
- Information Assurance

AIR COMBAT COMMAND IGI&S	
ACC A1ZG STANDARD OPERATING PROCEDURE	
Database Administrator Technical Audit Procedure	
Effective Date: 9 Nov 2009	OPR: ACC Database Admin
1. Introduction	
1.1. Purpose	
2. Procedure Overview	
2.1. DB Backups	
2.2. Average Wing/NAF/OCONUS site RDBMS TNS Ping Latency	
2.3. Ensure viability of backups	
2.4. COOP/Failover viability	



Work Classification: routine, scheduled, event driven

Work Classification = Understanding where time is spent

- **Routine:** day-to-day expected work activities
- **Event Driven:** unplanned or reactive activities
- **Schedule:** known and planned for activities

Time Allocation					
	LEAD	SYS	DBA	WEB	ARCENT
Routine Activities	5%	30%	25%	10%	20%
Event Driven Activities	60%	90%	15%	40%	30%
Scheduled Activities	35%	10%	60%	50%	50%

Benefits

- **Identifying areas that need focus**
- **Support for resource planning and request**





Keys to Success

- **Establish the right foundation early**
 - This is about improving the process, not getting the prize
 - The model or appraisal is not more important than the business
 - If it doesn't make sense...why do it?
- **You need to start with a team that can win**
 - Managers who are motivated and competent
 - Consultants / appraisers with the “right stuff”
 - Supportive management structure
- **Build consensus rather than demanding compliance**
 - Building the system without understanding the requirements takes longer, costs more and usually fails
 - Requirements come from all stakeholders (including the developers)
 - Taking the time to listen, understand and develop smart solutions results in faster, better implementations



Closing / Questions

- **Dave Williams**
 - Dave.Williams@aecom.com
 - 757.513.1295
- **Gerard Dache**
CMMI Lead Appraiser
Gdache@common-sense-solutions.biz
703.474.7939