



DoD Diminishing Manufacturing Sources & Material Shortages (DMSMS) Workshop

13 - 15 December 2005

San Antonio, TX

Agenda

OSD Update by John Becker, ADUSD (LP&P)

DMSMS Interoperability, by Jim Stein, GIDEP

The New Teaming Process by Alan Clark, DSCC Programs Office

Traceability, What It Is And How To Get It by Michael Jones, DSCC

DMS SDW Update, by Susan Dadey, Concurrent Technologies

Q-Star™: Coalition and Commonality Server(QCCS), by Wade Erickson, Government Industry Data Exchange Program (GIDEP)

Common Use Tools Committee (CUTC) of the DoD DMSMS Working Group, by Cathi Crabtree, Commercial Technology Management Naval Surface Warfare Center

DoD DMSMS Guidebook, by Jack Snapp, Arnica Senior Manager

DMSMS Plan Builder, by Keith McLendon, US AMC LOGSA

Breakout Tracks and Labs:

- Sunset Supply Base, by Raymond Tadros, NSWC Corona
- Lead-Free Impacts on DoD Microelectronics, by Vance Anderson, DMEA
- Aging Aircraft Integrated Product Team, by Ric Loeslein, NAVAIR
- Commodity Management in the Department of Defense by Michael Jones, DSCC
- Robotic Solder Dip – A Key Technique for Mitigating Reliability Risk Posed by Tin Whiskers by Charlie Minter, Best Manufacturing Practices Center of Excellence
- Q-Star™: Helping Defense Industry Mitigate The Financial Risk Of Obsolescence, by Malcolm Baca, Qinetiq Technology Extension Corporation

Tuesday, December 13, 2005

***Optional training with additional registration fee**

You have the option to take two of the DMSMS courses at this workshop. The course descriptions are listed below

Instructor for both courses - Chuck Marshall, DMSMS Operations and DLA Programs, ARINC Engineering Services, LLC

DMSMS for Executives - The course provides concise Diminishing Manufacturing Sources and Material Shortages (DMSMS) information for the Executive or Program Manager requiring an understanding of DMSMS impacts to their operations. DMSMS impacts multiple processes including reliability, maintainability, supply chain efficiency, funding, policy, procedure, and staffing. This course is tailored to offer the executive a perspective of management/supervisory actions necessary to enable effective DMSMS mitigation, thereby enhancing mission readiness, efficiency, and cost effectiveness. This two-hour instructor-led course is designed to empower the Manager through an understanding of the challenges and options to ensure proper establishment of an optimum proactive DMSMS team. A one-hour web-based version of this course will soon be available through the Defense Acquisition University's Continuous Learning website. This course is presented in a service/function neutral manner.

DLA DMSMS Essentials - This course will provide an overview of DLA DMSMS capabilities, cataloging and standardization as it applies to component research and DMSMS, using the DLA representatives, weapons coding, software tools and other DLA specific abilities. There will be a strong emphasis on understanding technical drawings and how they translate into cataloging codes and item-of-supply requirements. Interpreting the total-item record (basic codes and meanings) including Reference Number Category Codes (RNCC), Reference Number Variations Codes (RNVC) for item identification, Item Standardization Codes (ISC), the DSCC DMS Shop and other DLA fundamentals specifically applied to DMSMS. This will be a service /discipline neutral course.

Wednesday, December 14, 2005

7:00 AM	Continental Breakfast and Registration
8:00 AM	Welcome - David Robinson, DSCC Columbus
8:10 AM	OSD Update - John Becker, ADUSD (LP&P)
8:40 AM	Interoperability - Jim Stein, GIDEP
9:10 AM	Teaming Process - Alan Clark, DSCC Programs Office

9:40 AM GIDEP - Thomas Myers, GIDEP Operations Center

10:10 AM Break

10:30 AM Traceability, What It Is and How To Get It. - Mike Jones, DSCC

11:00 AM SDW Update - Susan Dadey, Concurrent Technologies

11:30 AM Marine Corps - Dave Rowlands, US Marine Corp

12:00 PM Lunch

1:00 PM - Breakout Tracks and Labs
4:15 PM Please see following pages for Tracks and Labs

Thursday, December 15, 2005

7:00 AM Continental Breakfast and Registration

8:00 AM - Breakout Tracks and Labs
12:15 PM Please see following pages for Tracks and Labs

10:15 AM - Open Lab
2:45 PM Last chance to visit any labs you may have missed

12:15 PM Lunch

1:15 PM Blue System Discussion - Bill Pumford, GIDEP DMSMS
Program Manager

2:00 PM Workshop Tools Discussion - Cathi Crabtree, Commercial
Technology Management Naval Surface Warfare Center, Crane;
DoD DMSMS Working Group Tools Committee (invited)

2:25 PM Guidebook Update - Jack Snap, Arnic Senior Manager (invited)

2:50 PM Plan Builder Tool - Keith McLendon, US AMC LOGSA

3:20 PM Workshop Wrap Up - David Robinson, DSCC

3:30 PM Workshop Concludes

Labs

Shared Data Warehouse (SDW)

Susan Dadey, Concurrent Technology Corporation

AVCOM

Willie Brown, Manufacturing Technology, Inc.

Parts Miner

Bobby Holbrook, Parts Miner Information Services

OMIS

John Tilton, Naval Undersea Warfare Center

Q-Star

Mal Baca, Qinetiq Technology Extension Corporation

JCOMMS

Ric Loeslein, Naval Air System Command

TACTRAC

Keith Doubleday & Danny Bronstein, I2 Technologies, Inc.

SYSTAINET

Ed Odette, GSCS, Inc.

MORE

Lynne Marinello, USA RDECOM

BOM and Component Loading Station

Chuck Marshall, DMSMS Operations and DLA Programs, ARINC Engineering Services, LLC

	Track 1	Track 2	Track 3	Track 4
	Wednesday, December 14, 2005			
1:00-2:00	Sunset Supply Base - Raymond Tadros, NSW Corona	All labs open	Lead Free - Vance Anderson DMEA & Charlie Minter BMPCOE	Service Prospective Update - Marines & Army - (invited)
2:00-3:00	All labs open	Joint Council on Aging Aircraft (JCAA) - Ric Loeslein, NAVAIR	Sunset Supply Base - Raymond Tadros, NSW Corona	Service Prospective - Air Force & Navy - (invited)
3:15-4:15	Joint Council on Aging Aircraft (JCAA) - Ric Loeslein, NAVAIR	Service Prospective - Air Force & Navy - (invited)	All labs open	The Microcircuit Commodity Council, a Status Report - Mike Jones, DSCC
	Thursday, December 15, 2005			
8:00-9:00	Lead Free - Vance Anderson DMEA & Charlie Minter BMPCOE	Sunset Supply Base - Raymond Tadros, NSW Corona	Service Prospective Update - Marines & Army - (invited)	All labs open
9:00-10:00	The Microcircuit Commodity Council, a Status Report - Mike Jones, DSCC	Service Prospective Update - Marines & Army - (invited)	Joint Council on Aging Aircraft (JCAA) - Ric Loeslein, NAVAIR	Lead Free - Vance Anderson DMEA & Charlie Minter BMPCOE
10:15-11:15	Service Prospective Update - Marines & Army - (invited)	The Microcircuit Commodity Council, a Status Report - Mike Jones, DSCC	Service Prospective - Air Force & Navy - (invited)	Joint Council on Aging Aircraft (JCAA) - Ric Loeslein
11:15-12:15	Service Prospective - Air Force & Navy - (invited)	Lead Free - Vance Anderson DMEA & Charlie Minter BMPCOE	The Microcircuit Commodity Council, a Status Report - Mike Jones, DSCC	Sunset Supply Base - Raymond Tadros, NSW Corona

Hotel Information

A limited block of rooms have been reserved at Hyatt Regency San Antonio, San Antonio, TX; 123 Losoya Street, San Antonio, TX 78205, phone: 210-222-1234. The industry rate is \$149 and the government per diem rate is \$89.* To ensure the discounted NDIA rate, please make your reservations early and ask for the NDIA room block. Rooms will not be held after *Monday, November 21, 2005* and may sell out before then. Rates are also subject to increase after this date. *The government per diem rate is available only to active duty or civilian government employees. ID will be required upon check-in. Retired military or government civilians do not qualify for the government rate.

Registration Information

<i>Registration Fees</i>	<i>Regular (on/before 11/25/05)</i>	<i>Late/Onsite (after 2/25/05)</i>
Government/Academia/Allied	\$300	\$350
Industry NDIA Member	\$450	\$500
Industry Non-NDIA Member**	\$500	\$550
Industry Speaker	\$400	\$400
Government Speaker	\$250	\$250
Optional Training DMSMS for Executives and DLA DMSMS Essentials	\$60	

To register online for this conference visit the following link:

<http://register.ndia.org/interview/register.ndia?~Brochure-664A> or visit the NDIA web site at www.ndia.org and select Schedule of Events. Then select 2005 December and scroll down to the DMSMS Conference then scroll down the page to "Register" and select. Review your information and then select "Submit" one time only and then select "Confirm". On-line registration will close after November 25, 2005. You must register on-site after this date.

-or-

You may fax the completed registration form contained in this brochure to 703-522-1885. Please do not fax registration forms after November 25, 2005. You must register onsite after this date.

-or-

You may mail the completed registration form contained in this brochure, or available online, to: Event #664A, National Defense Industrial Association, 2111 Wilson Boulevard, Suite 400, Arlington, VA 22201-3061. Mailed registrations must be received by November 25, 2005. You must register on-site after this date.

Cancellations

Cancellations received before November 25, 2005 will receive a full refund.

NO REFUNDS FOR CANCELLATIONS AFTER November 25, 2005.

SUBSTITUTIONS ARE WELCOME.

** Registration fees for Non-NDIA members include a one year non-refundable NDIA membership of which \$15.00 is for your subscription to National Defense magazine.

Conference POC

For more information please contact Britt Bommelje at 703-247-2587 or via email bbommelje@ndia.org.

Promotional Partnership Opportunities

Increase your company or organization's exposure at the DMSMS Workshop by becoming a Promotional Partner. For information please contact Sam Campagna at NDIA at 703-247-2544 or scampagna@ndia.org. A Promotional Partner (\$2,500) will receive their company name on the back cover of the on-site brochure, main platform recognition throughout the conference, signage at all events including opening reception and a 350-word company description in the on-site brochure.

Thank you to our Promotional Partner



Special Needs

NDIA supports the Americans with Disabilities Act of 1990. Attendees with special needs should call 703-522-1820 prior to November 25, 2005.

Symposium Attire

Appropriate dress for this Workshop is business casual for civilians and class B uniform for military.

Identification Badges

At the time of registration check-in, each registrant will be issued an identification badge. Please be prepared to show a government issued I.D. Badges must be worn at all Workshop functions.

Attendee Roster

An attendee roster will be distributed at the Workshop. In order to appear in the attendee roster, you must be registered by November 25, 2005. An updated roster WILL NOT be disseminated during or after the Workshop.

“The Department of Defense finds this event meets the minimum regulatory standards for attendance by DoD employees. This finding does not constitute a blanket approval or endorsement for attendance. Individual DoD component commands or organizations are responsible for approving attendance of its DoD employees based on mission requirements and DoD regulations.”

DMSMS Workshop
Hyatt Regency San Antonio, San Antonio, TX
December 14-15, 2005 • Event #664A

National Defense Industrial Association
 2111 Wilson Boulevard, Suite 400
 Arlington, VA 22201-3061
 (703) 522-1820 • (703) 522-1885 fax
www.ndia.org



- 3** Ways to sign up: 1. Online with a credit card at www.ndia.org Address change needed
 2. By fax with a credit card — Fax: 703-522-1885
 3. By mail with a check or credit card

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* By your signature above you consent to receive communications sent by or on behalf of NDIA, its Chapters, Divisions and affiliates (NTSA, AFEI, PSA, NCWG, WID) via regular mail, e-mail, telephone, or fax. NDIA, its Chapters, Divisions and affiliates do not sell data to vendors or other companies.

By completing the following, you help us understand who is attending our meetings.

Primary Occupational Classification. Check ONE.

- A. Defense Business/Industry
- B. R&D/Laboratories
- C. Army
- D. Navy
- E. Air Force
- F. Marine Corps
- G. Coast Guard
- H. DOD/MOD Civilian
- I. Gov't Civilian (Non-DOD/MOD)
- J. Trade/Professional Assn.
- K. Educator/Academia
- L. Professional Services
- M. Non-Defense Business
- N. Other _____

Current Job/Title/Position. Check ONE.

- A. Senior Executive
- B. Executive
- C. Manager
- D. Engineer/Scientist
- E. Professor/Instructor/Librarian
- F. Ambassador/Attaché
- G. Legislator/Legislative Aide
- H. General/Admiral
- I. Colonel/Navy Captain
- J. Lieutenant Colonel/Commander/Major/Lieutenant Commander
- K. Captain/Lieutenant/Ensign
- L. Enlisted Military
- O. Other _____

Year of birth _____
 (Optional)

Registration Fees

	Early on/before 11/25/05	Late/Onsite after 11/25/05
Government/Academia ¹	\$300	\$350
Industry Member	\$450	\$500
Industry Non-member ²	\$500	\$550
Government Speakers	\$225	\$225
Industry Speakers	\$400	\$400

*Optional DMSMS for Executives and DLA DMSMS Essentials \$60

No refunds for cancellations received after 11/25/05. **Substitutions are welcome in lieu of cancellation.**

¹ Includes a free three-year NDIA membership and *National Defense* magazine for Military and Government employees (first time members only).

No do not sign me up for the membership.

² Registration fees for non-NDIA members include a one-year non-refundable NDIA membership—\$15.00 will be applied for your subscription to *National Defense Magazine*

Questions? Contact Meeting Planner, Britt Bommelje
 (703) 247-2587 email: bbommelje@ndia.org
Mail to: NDIA, Event #5920
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Payment Options

- Check (payable to NDIA)
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- VISA
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Credit Card Number

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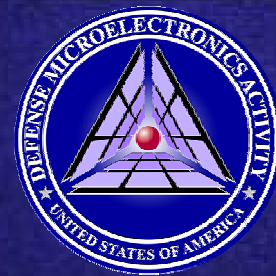
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Office of the Secretary of Defense
Defense Microelectronics Activity
(DMEA)



***Lead-Free Impacts on
DoD Microelectronics***



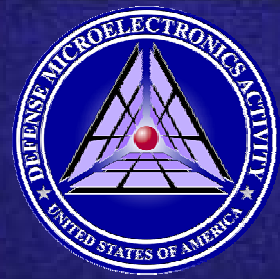
Vance Anderson
Defense Microelectronics Activity
Microelectronics Systems Branch
anderson@dmea.osd.mil
(916) 231-1646

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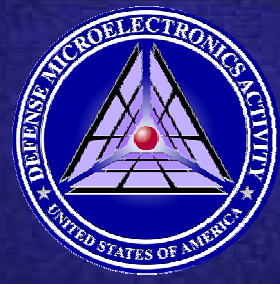
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Outline



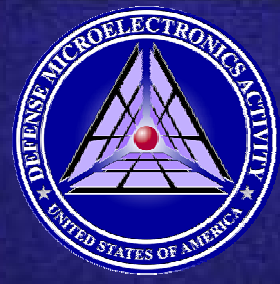
- Lead-free Background
- Lead-free Impacts on DoD
- Mil/Aero Lead-free Efforts
- Mitigation Strategies
- Summary



Lead-Free Background

There is a global transition to lead-free

- Lead-free brings new and re-emerging failure modes in electronics
- **Reduction of Hazardous Substances (RoHS)**
 - EU Directive banning “placing on market” new electronic equipment containing specific levels of the following after **July 1, 2006**
 - **Lead**, Cadmium, Mercury, hexavalent chromium, polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE) flame retardants
- **Waste Electrical and Electronic Equipment Directive (WEEE)**
 - EU directive aims to minimize the impact of electronic waste
 - Encourages and sets criteria for collection, treatment, recycling
 - Makes the *producer responsible*
- Related legislation underway in China and Japan

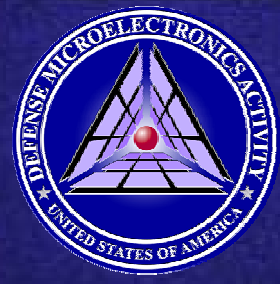


Lead-free Impacts on DoD

- DoD (and Aerospace) systems have unique requirements
 - High reliability
 - VERY long service life
 - Extended temperature ranges
 - We still *repair* boards!

- Primary lead-free impacts
 - Lead-free solder issues
 - Tin whisker failures
 - Availability of leaded solder and components
 - New processes / configuration control

*Commercial solution strategies for lead-free may not apply to
Military / Aerospace applications*



Lead-free Solder Issues

➤ Temperature stress

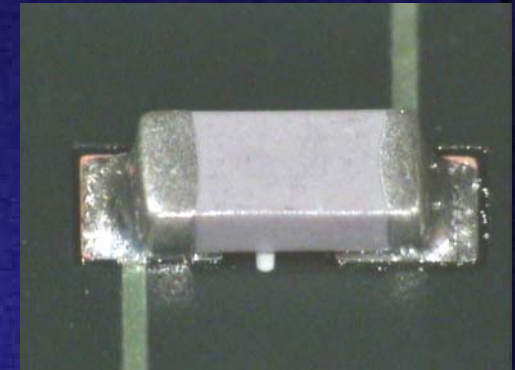
- Prevailing Pb-free solder replacement (SnAgCu) has **~35°C higher** reflow temperature
- Infant mortality
- Latent failures
- Requalification?

➤ Solder joint reliability (durability)

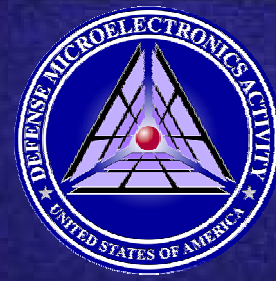
- Intermetallics between solder and lead/pad
- Cross contamination of different alloys
- Changed / unacceptable wetting characteristics
- New qualification parameters

➤ Configuration control

- Must prevent mixing of incompatible alloys
- Patent infringement

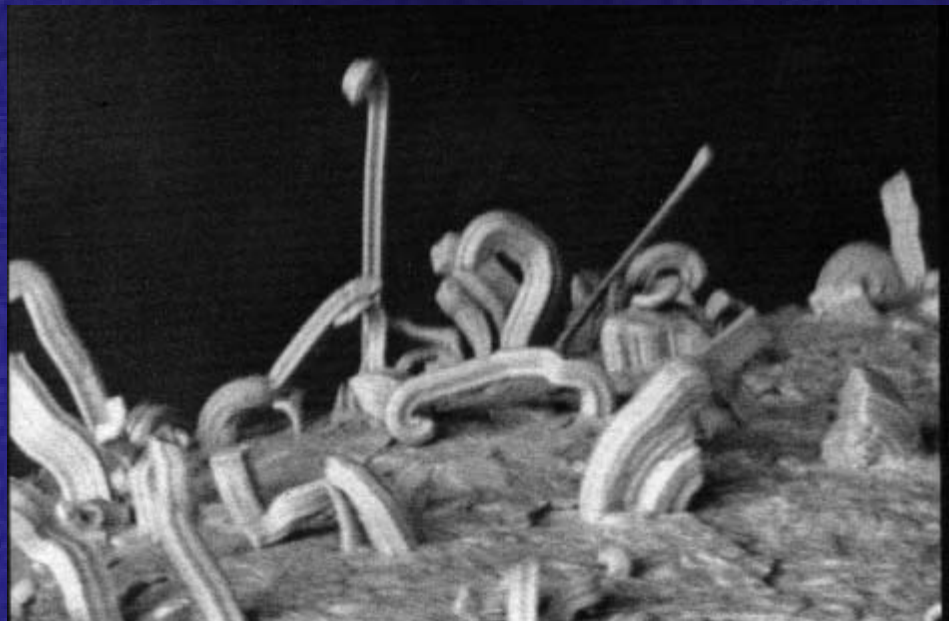


Cracked Solder Joint



Tin Whisker Impacts

- Tin whisker effects documented since the 1940's
- Tin Whiskers
 - "grow" from nearly all tin alloys
 - pure Sn
 - SnBi, SnCu, SnAgCu
 - Few microns to over 1mm
 - Electrically conductive
 - Crystalline

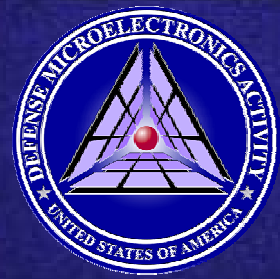


(Photo courtesy of NASA Goddard Space Flight Center)

- Whisker induced failures:
 - *Short Circuit* – bridges two adjacent pins
 - *Metal vapor arc* – high voltage and specific atmosphere can result in plasma arc capable of catastrophic damage
 - *Contamination* – whisker breaks off and interferes with mechanical, optical, or MEMS component



Process & Availability Impacts

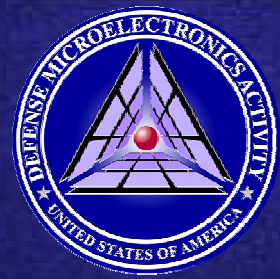


- **DMS due to *finish* and/or *package* (vs. die)**

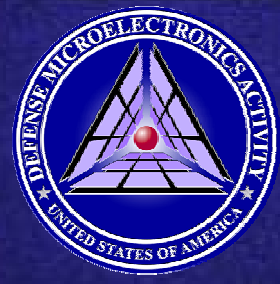
- **New processes, policies, and mitigation strategies must be developed**
 - Lead-free mitigation programs
 - Revision and re-qualification of manufacturing processes
 - Configuration control
 - Change costs \$\$\$



Mil/Aero Lead-Free Efforts



- The commercial industry has spent millions in development and conversion to lead free
 - *They have not solved all our problems*
- Military and Aerospace specific lead-free efforts
 - Industry and academic lead-free research efforts
 - Government, Industry, and International working groups
 - Development of a lead-free educational curriculum for DoD PMs

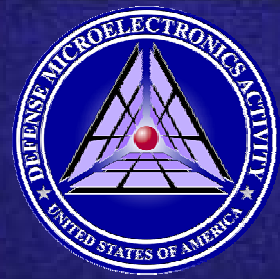


Mil / Aero Lead-free Efforts

- University of Maryland - CALCE
 - Computer Aided Life Cycle Engineering (CALCE) Electronic Products and Systems Center (EPSC)
 - Several projects and tools related to lead-free and tin whisker
- NASA – Goddard Space Flight Center
 - Extensive research and documentation on tin whisker effects
 - Check out the pictures!
- JCAA/JG-PP and NASA Kennedy
 - Lead-Free Solder Testing for High-Reliability Applications
- Navy – ONR
 - Office of Naval Research (ONR)
 - Best Manufacturing Practices Center of Excellence (BMPCOE)
 - Ongoing tin whisker research with Raytheon, CALCE, NASA, Boeing, Honeywell, Northrop Grumman

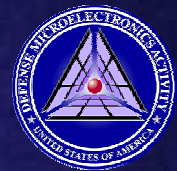


LEAP-WG



Lead-free Electronics in Aerospace Project (LEAP) Working Group

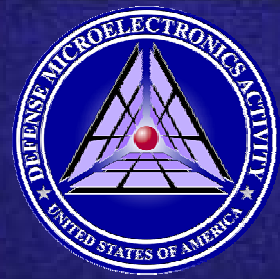
- GEIA, AIA, AMC, Aerospace, Military Contractors, Government
- LEAP is developing “actionable” guidance documents for Military and Aerospace use



- **GEIA-STD-0005-1**, *Performance Standard for Aerospace and Military Electronic Systems Containing Lead-free Solder*
- **GEIA-STD-0005-2**, *Mitigating the Effects of Tin on Aerospace and Military Electronic Systems Containing Lead-free Solder*
- **GEIA-HB-0005-1**, *Program Manager’s Handbook for Managing the Transition to Lead-free Electronics in Aerospace and Military Systems*
- **GEIA-HB-0005-2**, *Technical Guidelines for Aerospace and Military Electronic Systems Containing Lead-free Solder*

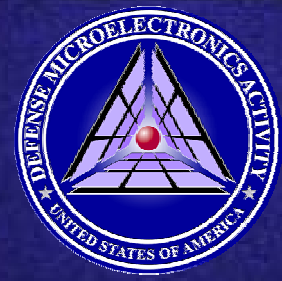


IEC TC-107



- International Electrotechnical Commission – IEC
 - International standards body (like ANSI for US)
- IEC/TC-107 – Process Management for Avionics
 - Develops standards for aerospace and avionics
- IEC/TC-107 has initiated efforts to further transition the GEIA / LEAP WG documents as International Standards

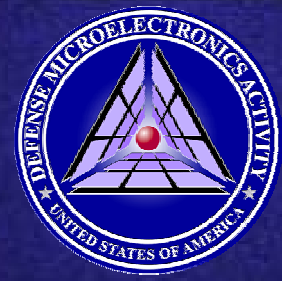




DoD ELFIPT

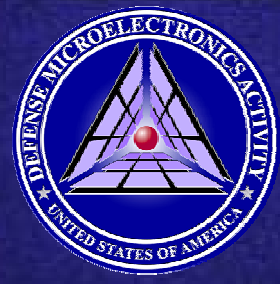
DoD Executive Lead-Free Integrated Process Team (ELFIPT)

- Initial meeting Oct 19, 2005 in DC
- Senior Membership from:
 - DoD
 - DLA
 - Army
 - Navy
 - Air Force
 - Industry
- Identify DoD specific issues
- Coordinate service efforts
- Provide policy guidance
- Identify research efforts



Mitigation Strategies

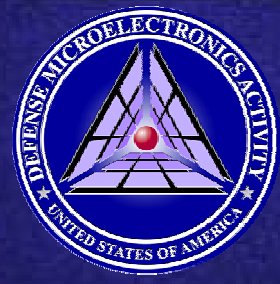
- Implement a lead-free transition strategy
- Utilize industry best practices and standards in development and maintenance processes
 - Upcoming GEIA Standards
 - Tools
 - Perform a tin-whisker risk assessment
- Documented methods to *reduce* tin whisker effects
 - AVOID the use of PURE TIN (!)
 - Hot solder dip
 - Strip and replate
 - Matte Sn and underplate with Ni
 - Control the plating process
 - Conformal coating



Summary

- ***There is a global shift to lead-free electronics***
 - Lead-free exemptions will only buy a little time
- Develop and implement a lead-free strategy
 - Avoid pure tin finishes
- Inform and Educate DoD PMs
- Coordinate and support lead-free research

Remember: Lead-free processes that work for your cell phone don't necessarily work for your weapon system...

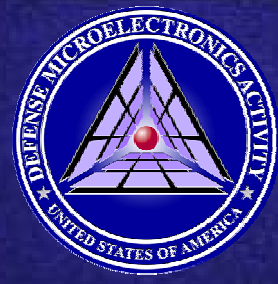


References

- **Join the new DMEA Lead-Free Distribution List**
 - Lead-free info, news, articles
 - To JOIN: send email with "lead free" in the Subject to Vance Anderson, anderson@dmea.osd.mil

A few lead-free resources

NASA Goddard	nepp.nasa.gov/whisker/
IPC Lead Free	www.leadfree.org
INEMI	www.inemi.org/CMS/
CALCE	www.calce.umd.edu/lead-free/
BMPCOE	www.bmpcoe.org



Questions ?

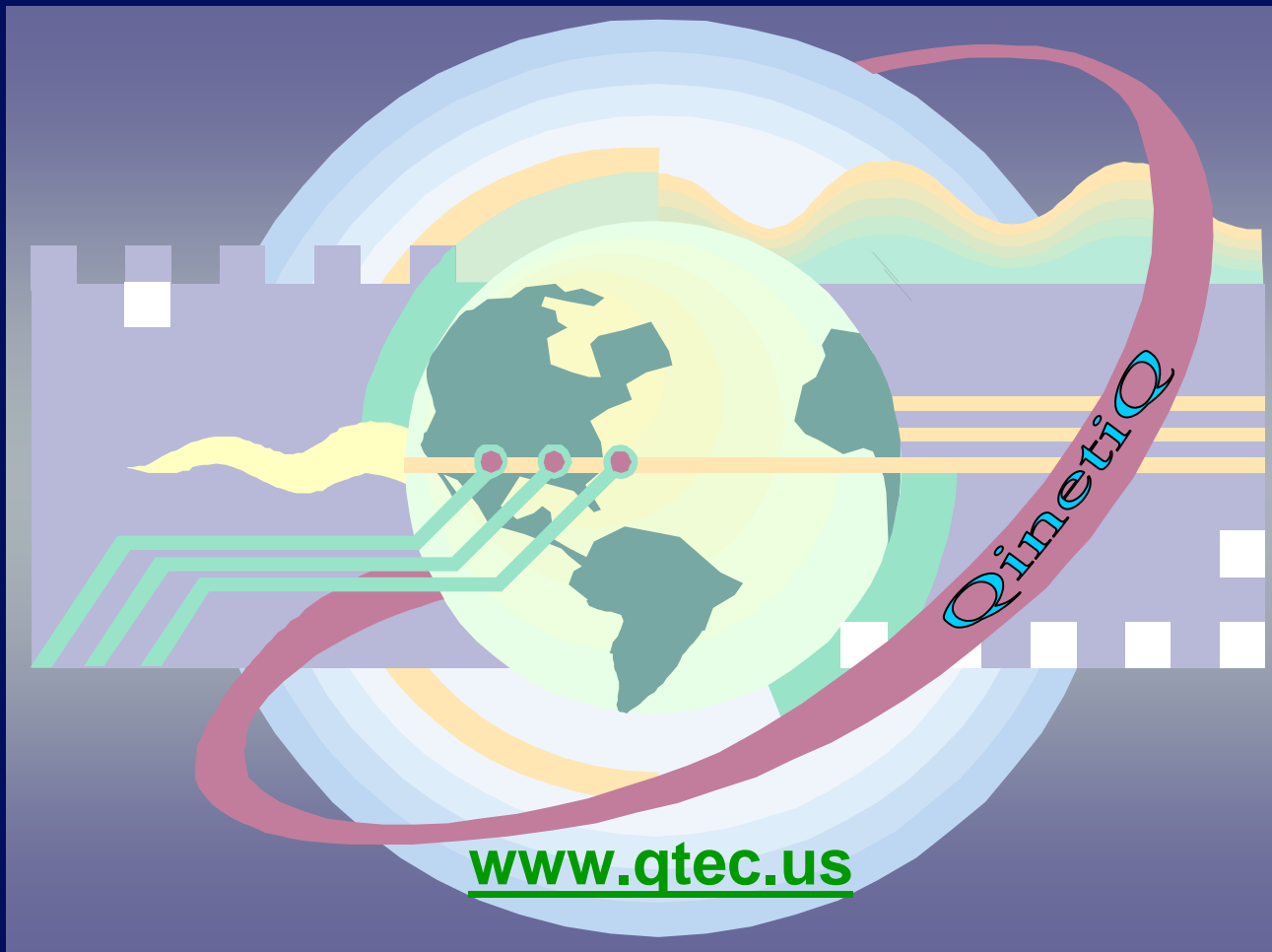


"PEST CONTROL FOR AGING AIRCRAFT -

SERVICE, NOT SERPENTS"

"Snakes in the Cockpit" with permission of JCAA & Hank Caruso

QinetiQ *HELPING DEFENSE INDUSTRY MITIGATE THE FINANCIAL RISK OF OBSOLESCENCE*



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Presented By
QinetiQ

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CEO, President
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Presented At:
DoD DMSMS
Workshop
2005
San Antonio TX

QinetiQ Technology Extension Corporation
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QinetiQ

DMSMS REALITY CHECK

WHAT IS THE COLLECTIVE FINANCIAL IMPACT IN...

- ...redundant research on common component problems?
- ...redundant solution cost common components at box level systems?
- ...production delays?
- ...rework?
- ...retesting?
- ...recertification?
- ...missed shipment schedules?
- ...cost overruns?
- ...increased cost of ownership?
- ...logistical support for the war fighter?

CAN WE REDUCE THIS FINANCIAL IMPACT?

WHAT CHANGE IN DMSMS INFORMATION SERVICES CAN REDUCE DMSMS COST IMPACT?

What if...with a click of a mouse you could identify all participants in the defense industry that is working the identical component problem?

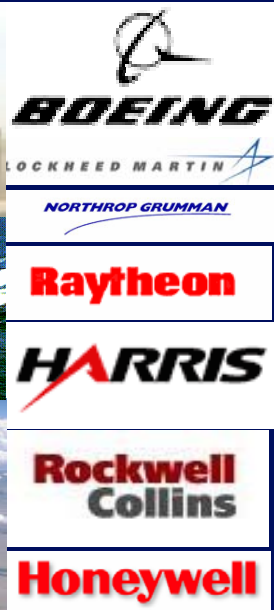
What if...you had a means of collaboration and solution sharing on common component obsolescence problems industry wide?

What if...all of this could be done with absolute security without divulging participants' configuration information?

**ALL OF THE ABOVE IS NOW POSSIBLE WITHIN DOD...UTILIZING
THE "Q-Star™ Coalition and Commonality Server (QCCS)**

THE NEED FOR INTERNATIONAL INTEROPERABILITY BETWEEN COALITION COUNTRIES IS INCREASING...

DoD

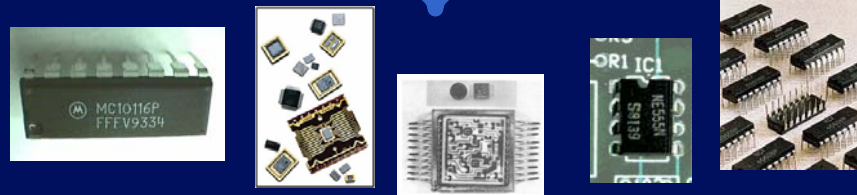


FOR EXAMPLE

Land, Sea & Air Weapon Systems Have Common Suppliers

...And They Use Common Components

MoD



Interoperability Solution Sharing On Common Component Obsolescence Will Benefit All Coalition Countries and Their Supplier Bases

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DOD's BASELINE OF ACTIVE DEVICE USAGE IS INCREASING FURTHER DILUTING PURCHASING POWER INCREASING DMSMS COST IMPACT

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87,000



1990

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Other Related Conditions That Impact Component Obsolescence

1. Fewer Components Needed To Achieve System Functionality.
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DATA-CENTRIC OBSOLESCENCE MANAGEMENT IS THE MOST COST EFFECTIVE WAY TO MANAGE COMPONENT LEVEL OBSOLESCENCE.

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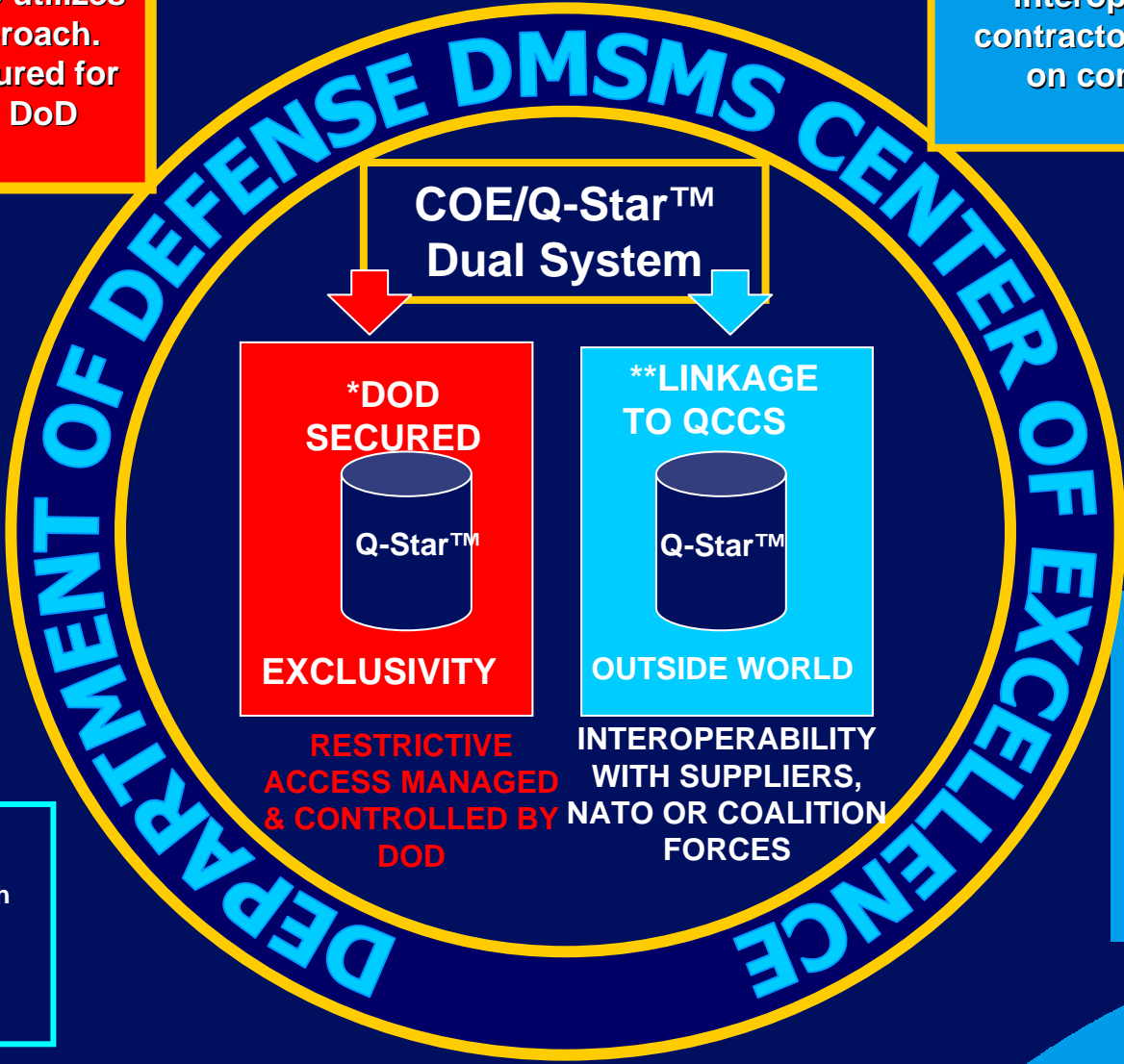
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SYSTEM MUST MEET ALL PARTICIPANTS' SECURITY REQUIREMENTS and BE ITAR COMPLIANT

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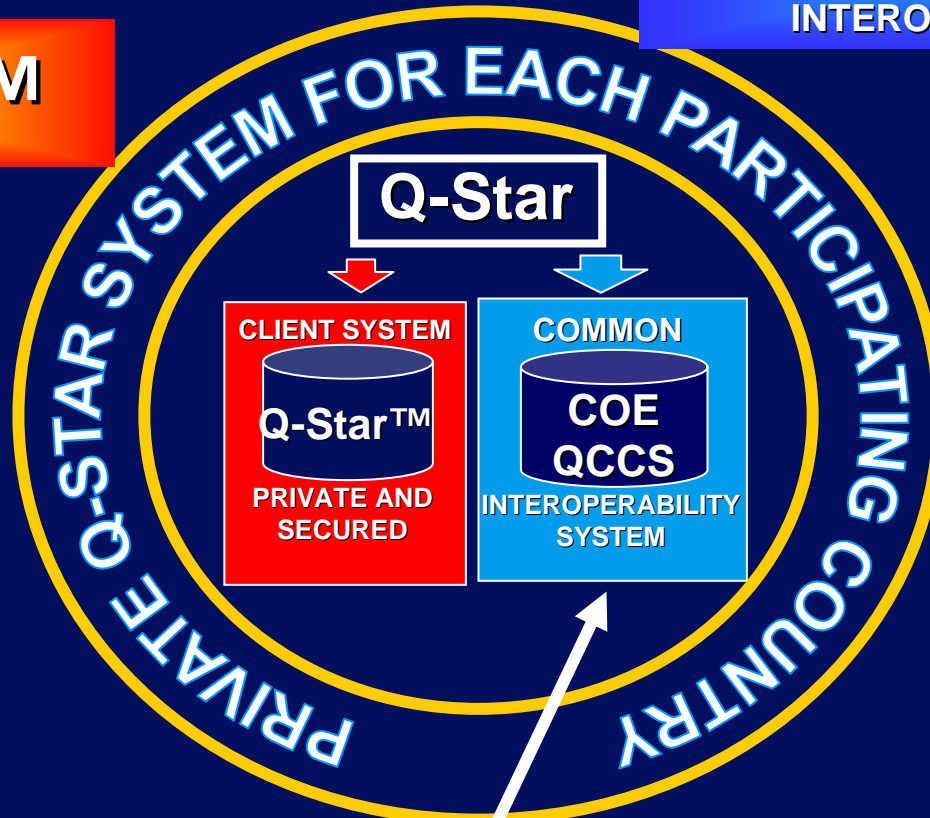
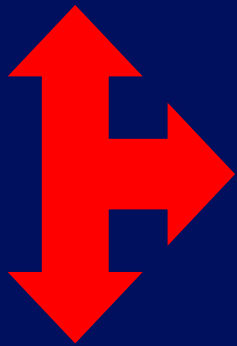
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Client Q-Star™ Systems Offer A Secured Private System Managed and Controlled By Client

Each Allied Country Would
Have A Private
Obsolescence System

ALL PARTICIPANTS WITH DOD
APPROVAL WOULD HAVE
ACCESS TO THE DOD QCCS
INTEROPERABILITY SYSTEM.

Q-Star™



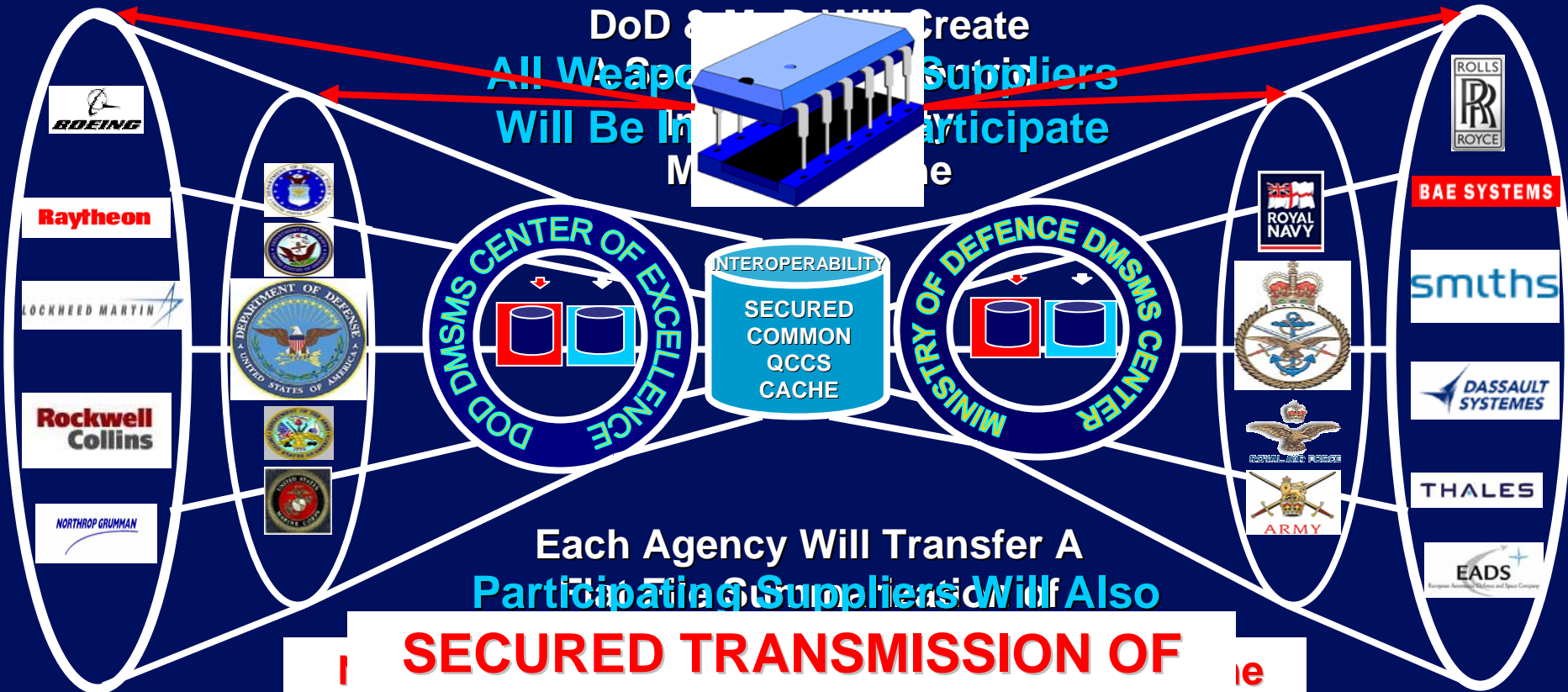
The Private
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Under The Control
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Each Participating
Client

International
Data-Centric
Networking On
Common
Component
Problems

**NO CONFIGURATION
INFORMATION IN BLUE SYSTEM**

CONCEPTUAL EXAMPLE: HOW DoD AND MoD WILL UTILIZE THE QCCS ON COMPONENT OBSOLESCENCE

INTEROPERABILITY DMSMS SOLUTION SHARING AT THE COMPONENT LEVEL WILL BENEFIT ALL PARTICIPANTS



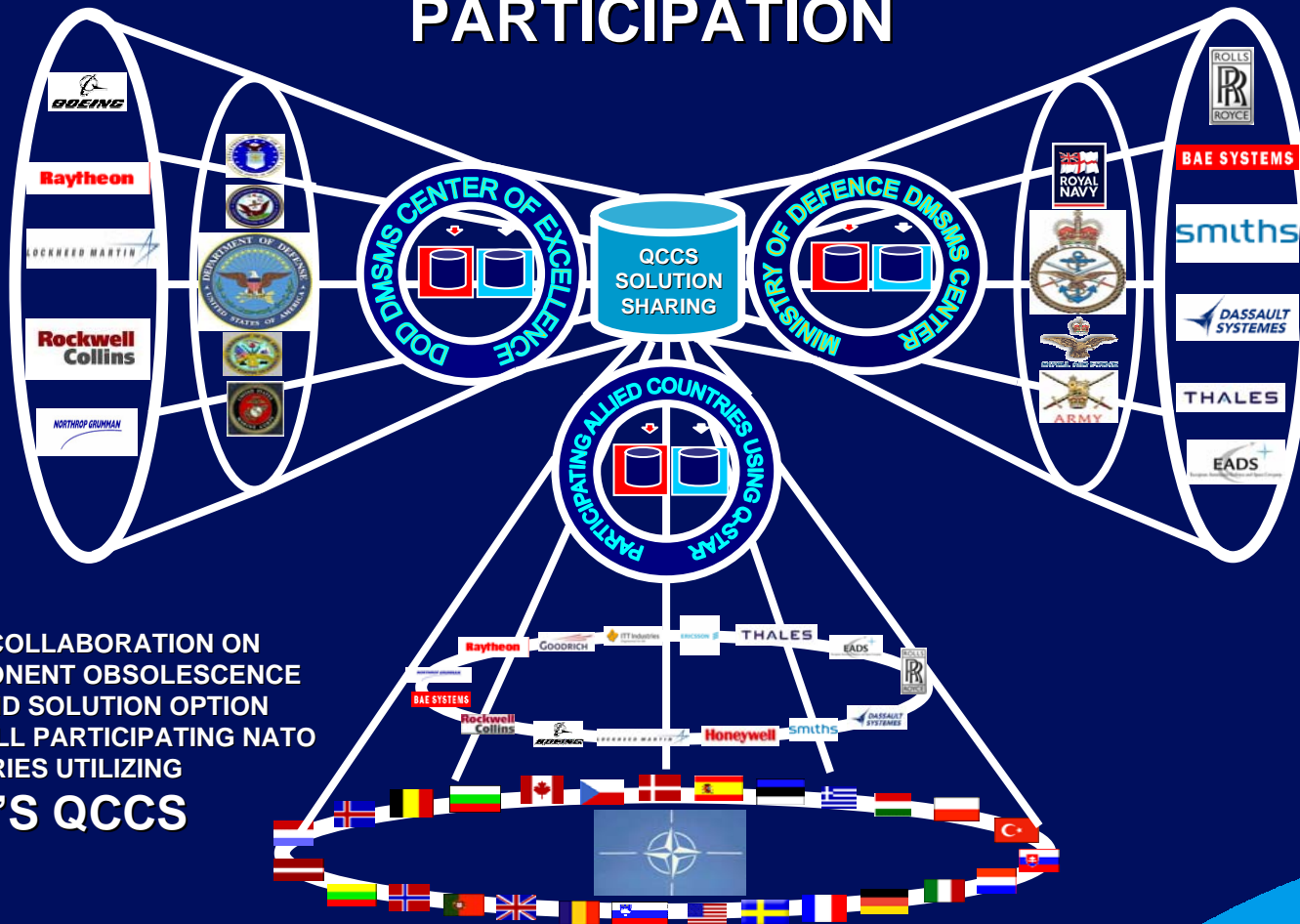
Each Agency Will Transfer A
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**SECURED TRANSMISSION OF
ALL PARTS LISTS**

Participants Allowing Them To Collaborate Or
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QCCS SYSTEM WOULD BE OPEN TO ALL ALLIED COUNTRIES WISHING TO PARTICIPATE ON COMMON COMPONENT OBSOLESCENCE PROBLEMS

FOR EXAMPLE: NATO-WIDE PARTICIPATION

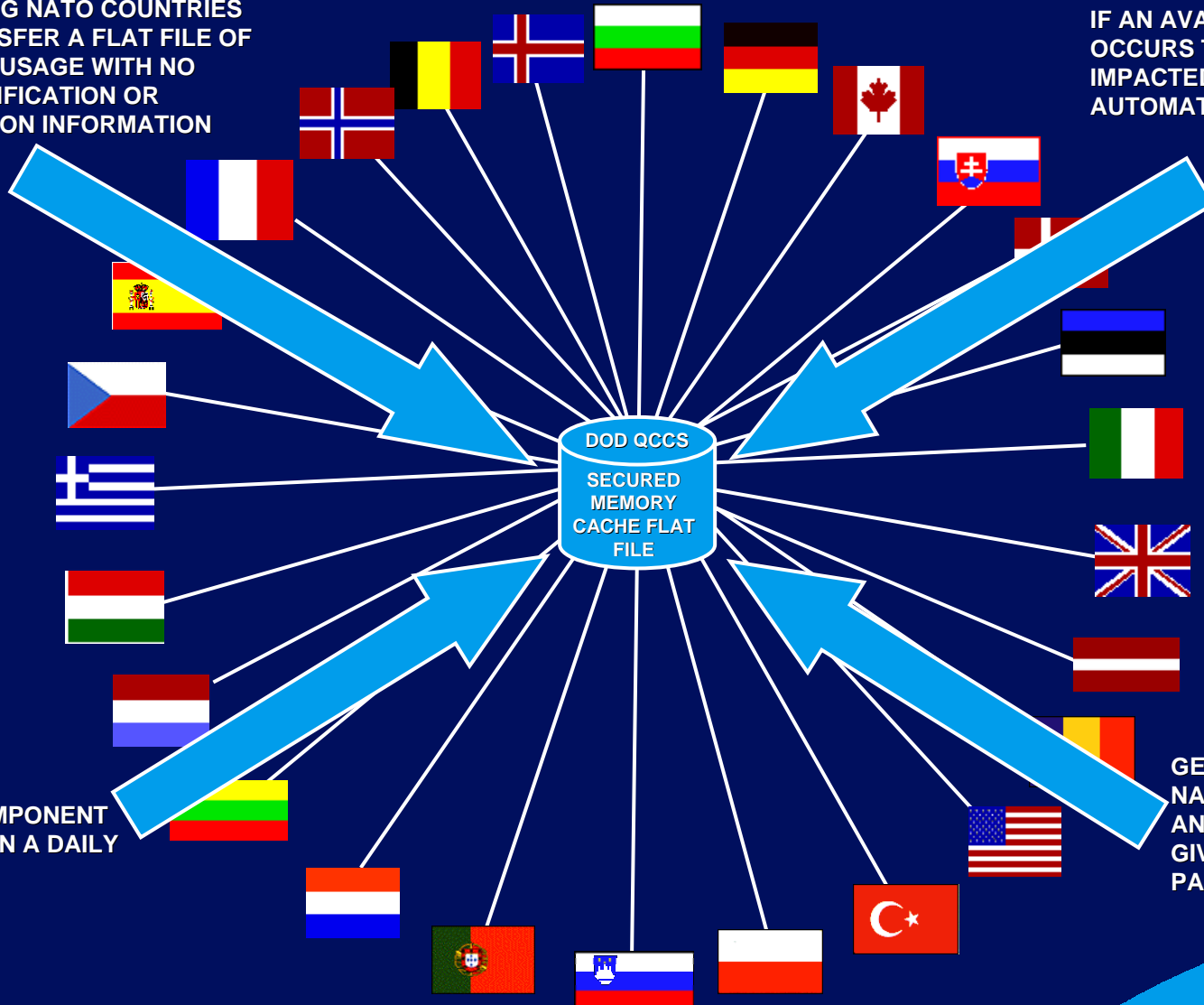


SEAMLESS COLLABORATION ON
COMMON COMPONENT OBSOLESCENCE
PROBLEMS AND SOLUTION OPTION
VISIBILITY FOR ALL PARTICIPATING NATO
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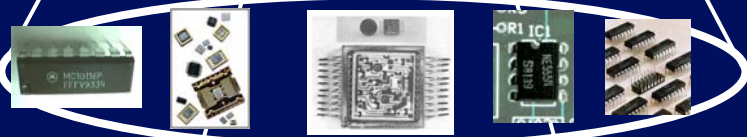
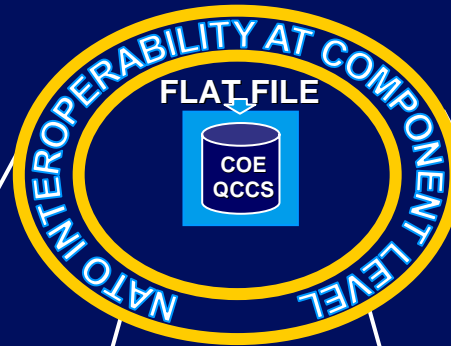
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- SOLUTION SHARING
- COMPONENT OBSOLESCENCE



WEAPON SYSTEM SUPPLIERS THAT WANT TO PARTICIPATE

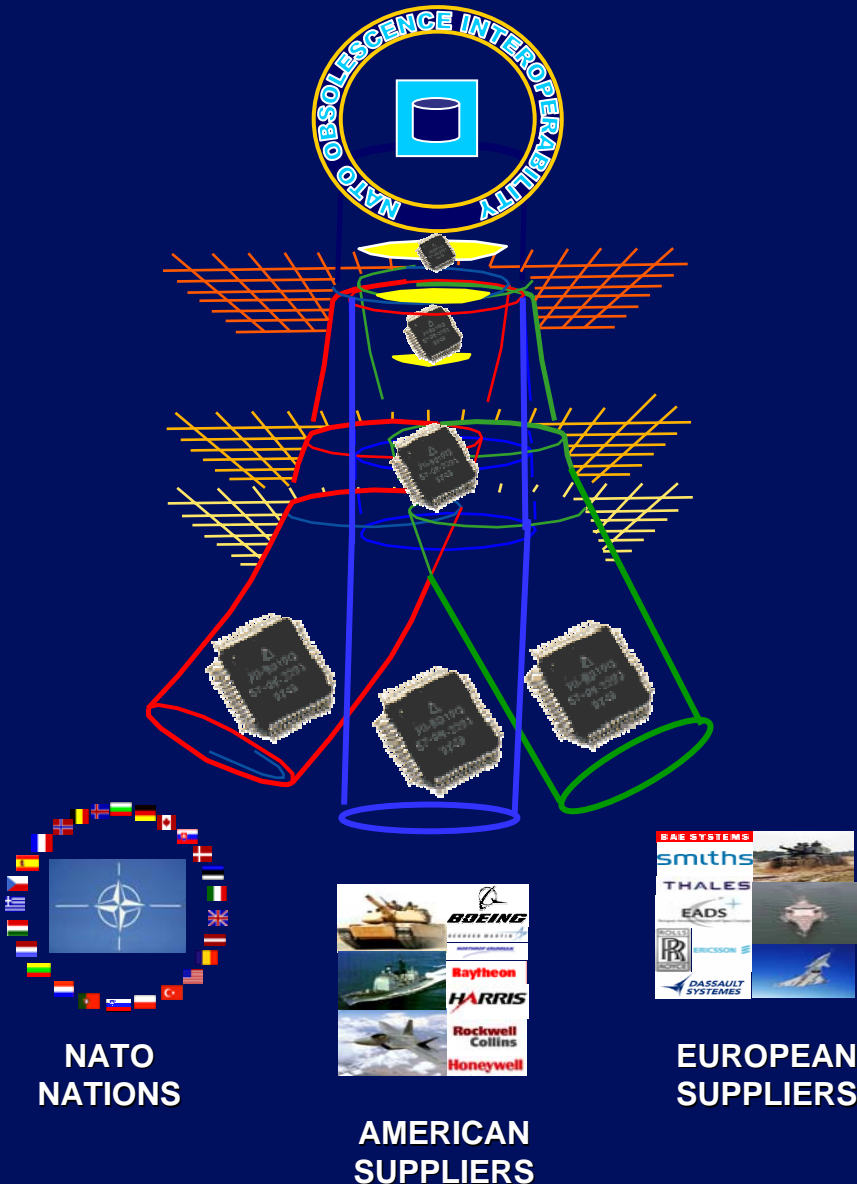


NATO NATIONS AND ALLIED COUNTRIES THAT WANT TO PARTICIPATE



FOR EXAMPLE

THE VALUE OF QCCS DATA CENTRIC INTEROPERABILITY!



IF... WHERE AND HOW...?

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AMERICAN SUPPLIERS

Lower Solution Cost
EUROPEAN SUPPLIERS

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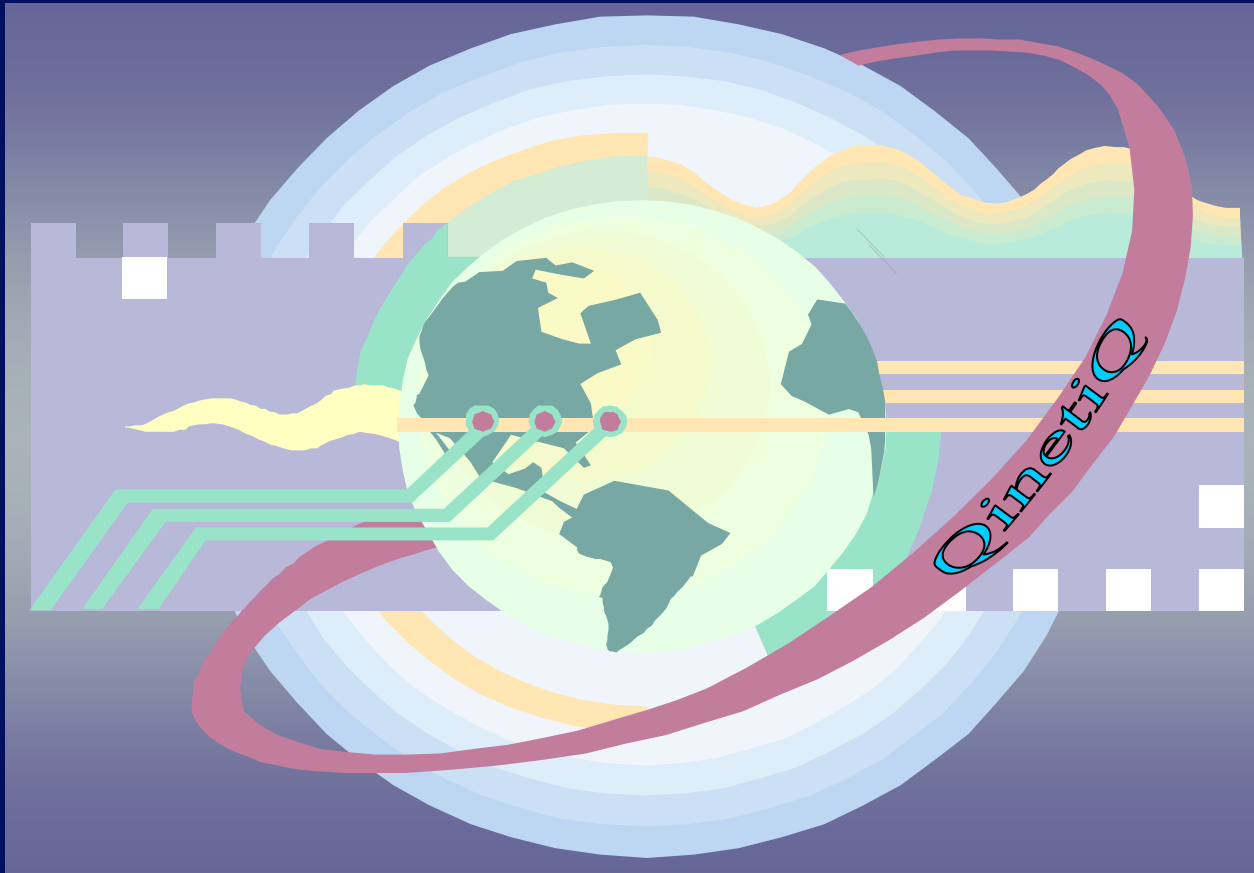
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Thank You!



QinetiQ Technology Extension Corporation
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www.qtec.us

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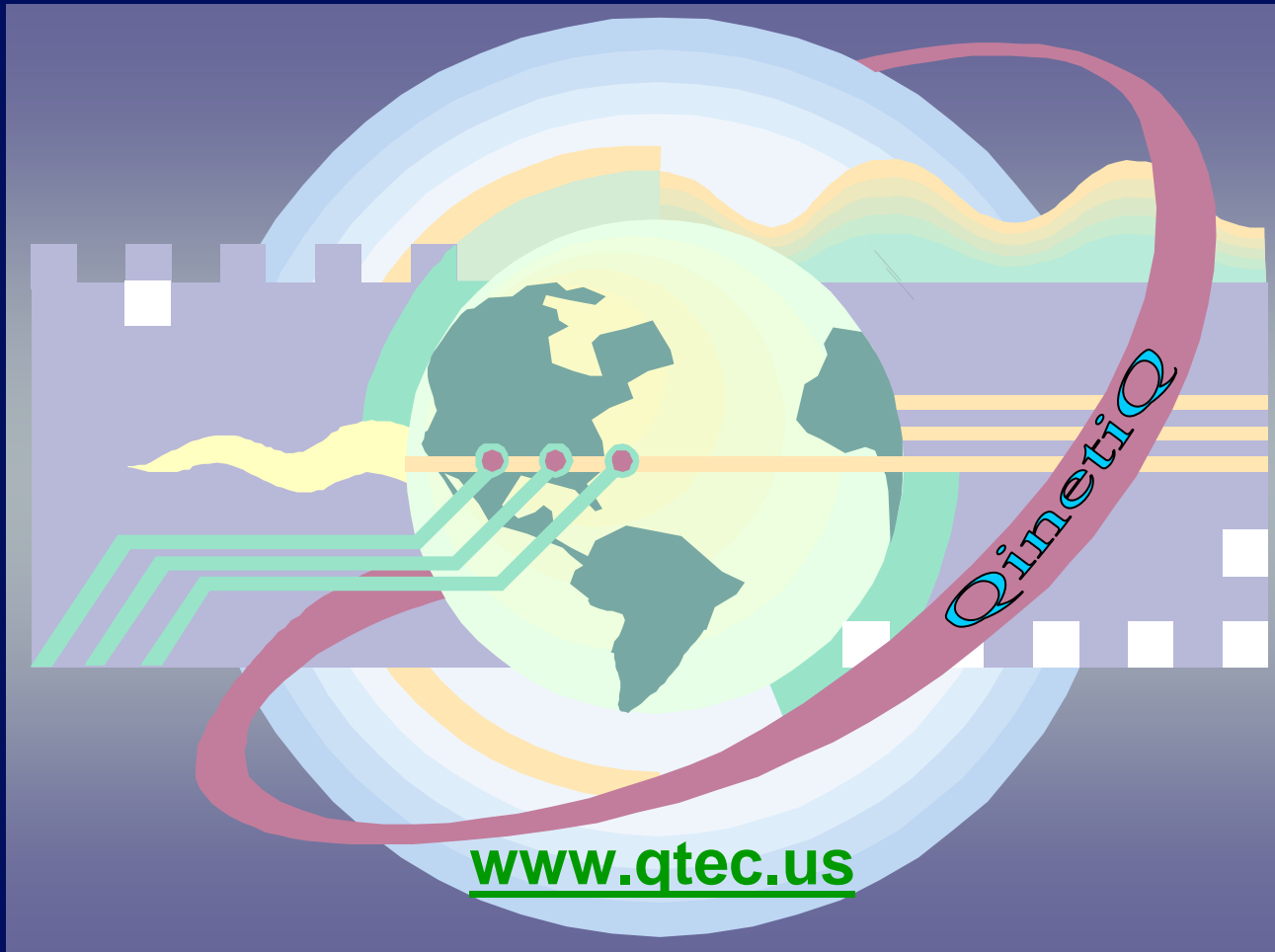
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QinetiQ *HELPING DEFENSE INDUSTRY MITIGATE THE FINANCIAL RISK OF OBSOLESCENCE*



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Presented By
QinetiQ

Malcolm Baca
CEO, President
QinetiQ Technology
Extension Corporation
(QTEC) USA
(949) 376-5757
mbaca@qtec.us

Presented At:
DoD DMSMS
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2005
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QinetiQ

DMSMS REALITY CHECK

WHAT IS THE COLLECTIVE FINANCIAL IMPACT IN...

- ...redundant research on common component problems?
- ...redundant solution cost common components at box level systems?
- ...production delays?
- ...rework?
- ...retesting?
- ...recertification?
- ...missed shipment schedules?
- ...cost overruns?
- ...increased cost of ownership?
- ...logistical support for the war fighter?

CAN WE REDUCE THIS FINANCIAL IMPACT?

WHAT CHANGE IN DMSMS INFORMATION SERVICES CAN REDUCE DMSMS COST IMPACT?

What if...with a click of a mouse you could identify all participants in the defense industry that is working the identical component problem?

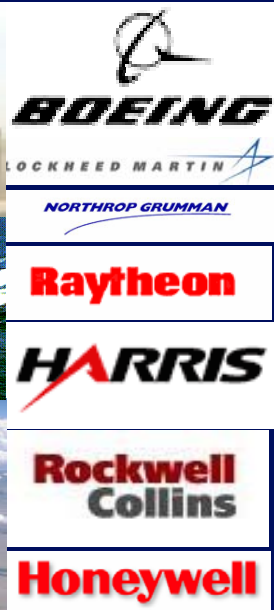
What if...you had a means of collaboration and solution sharing on common component obsolescence problems industry wide?

What if...all of this could be done with absolute security without divulging participants' configuration information?

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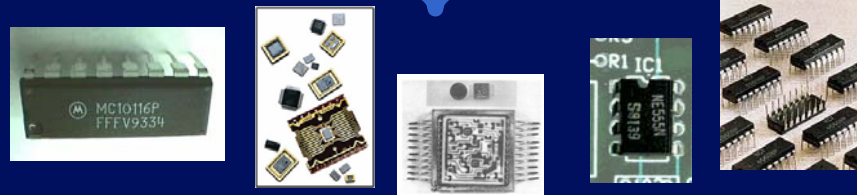


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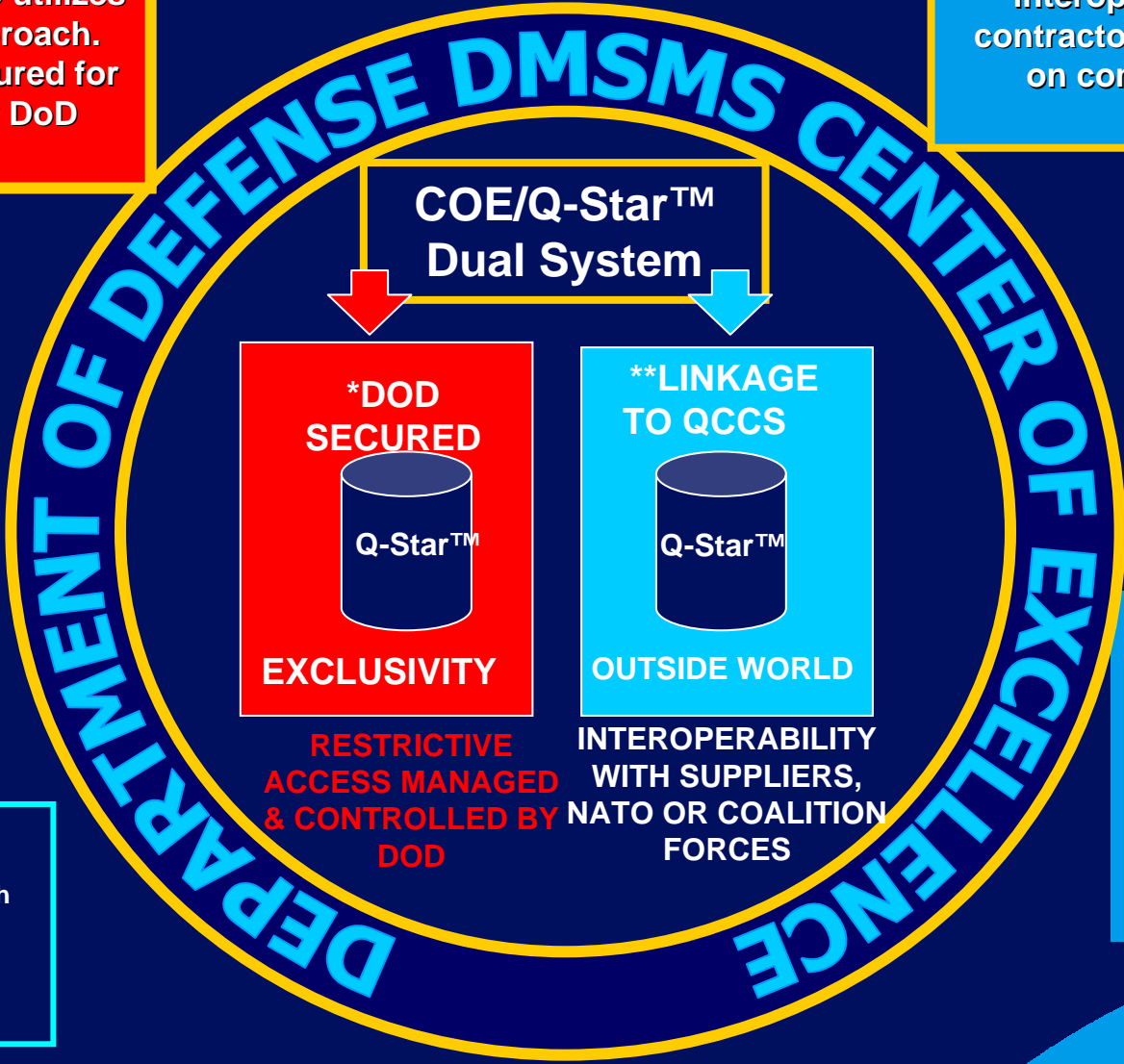
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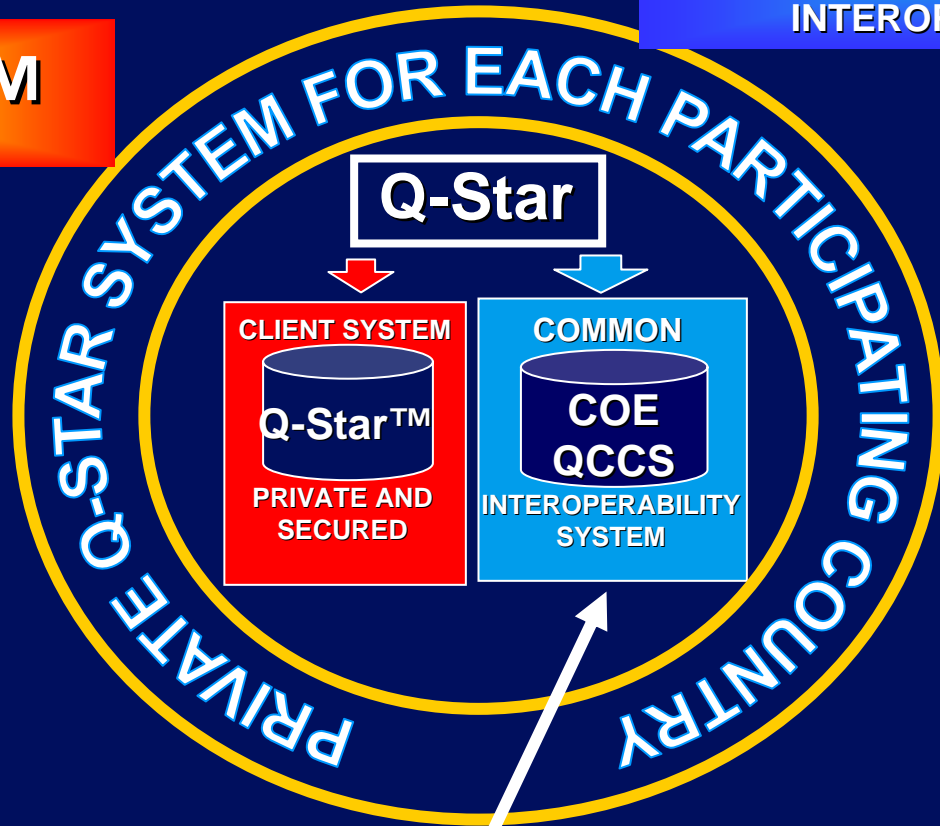
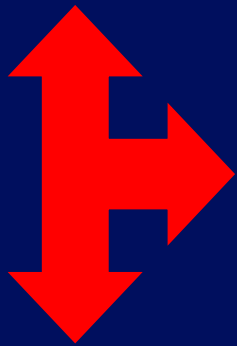
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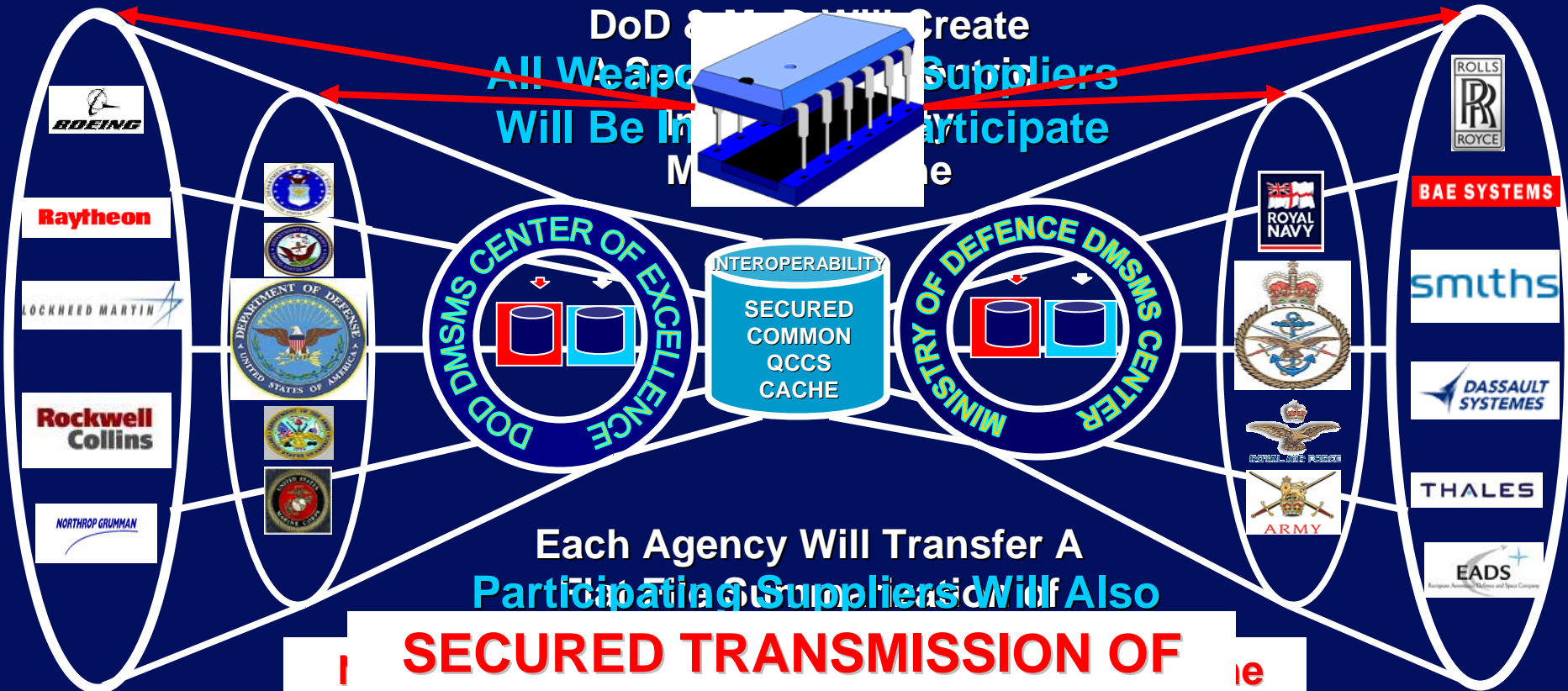
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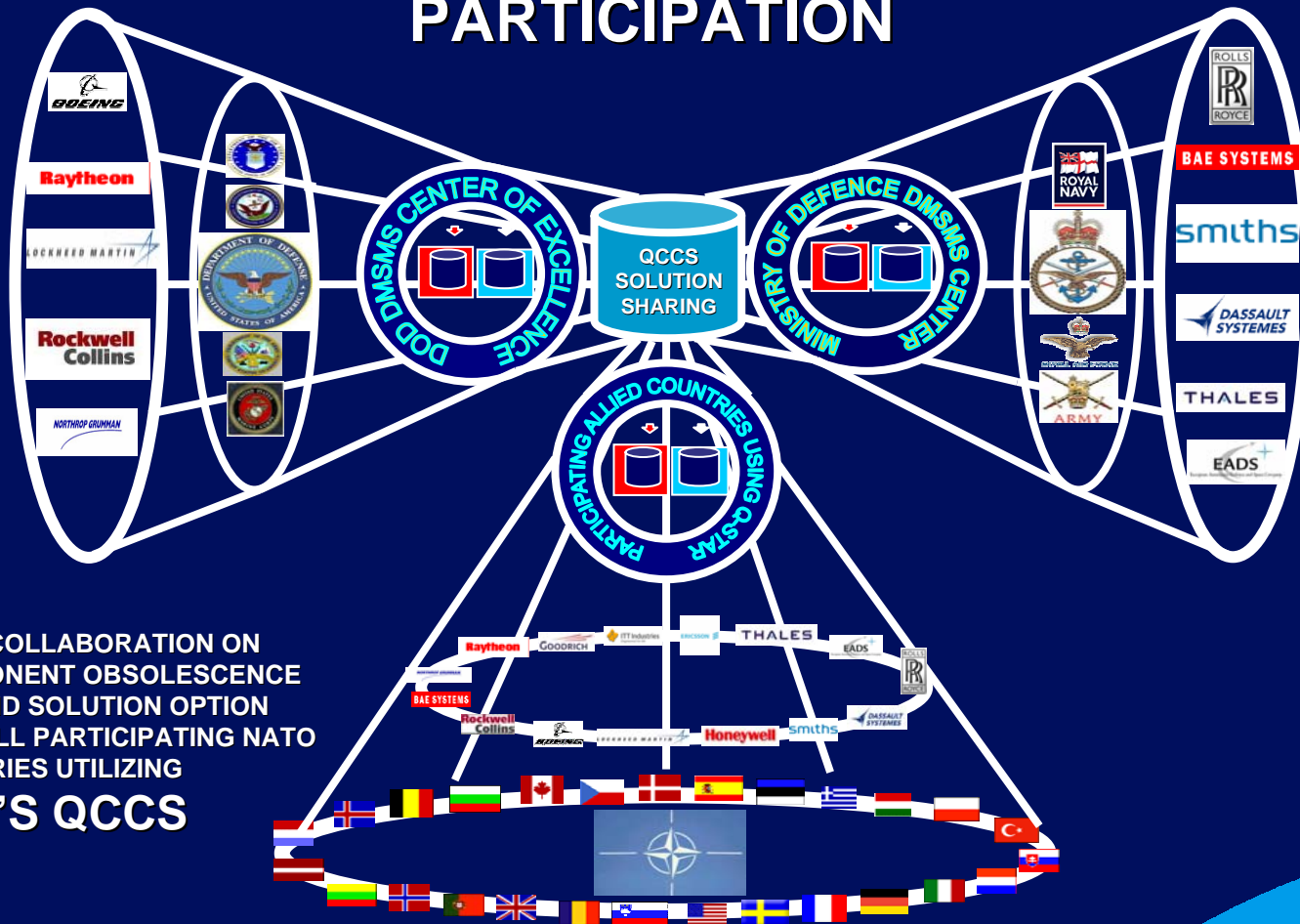
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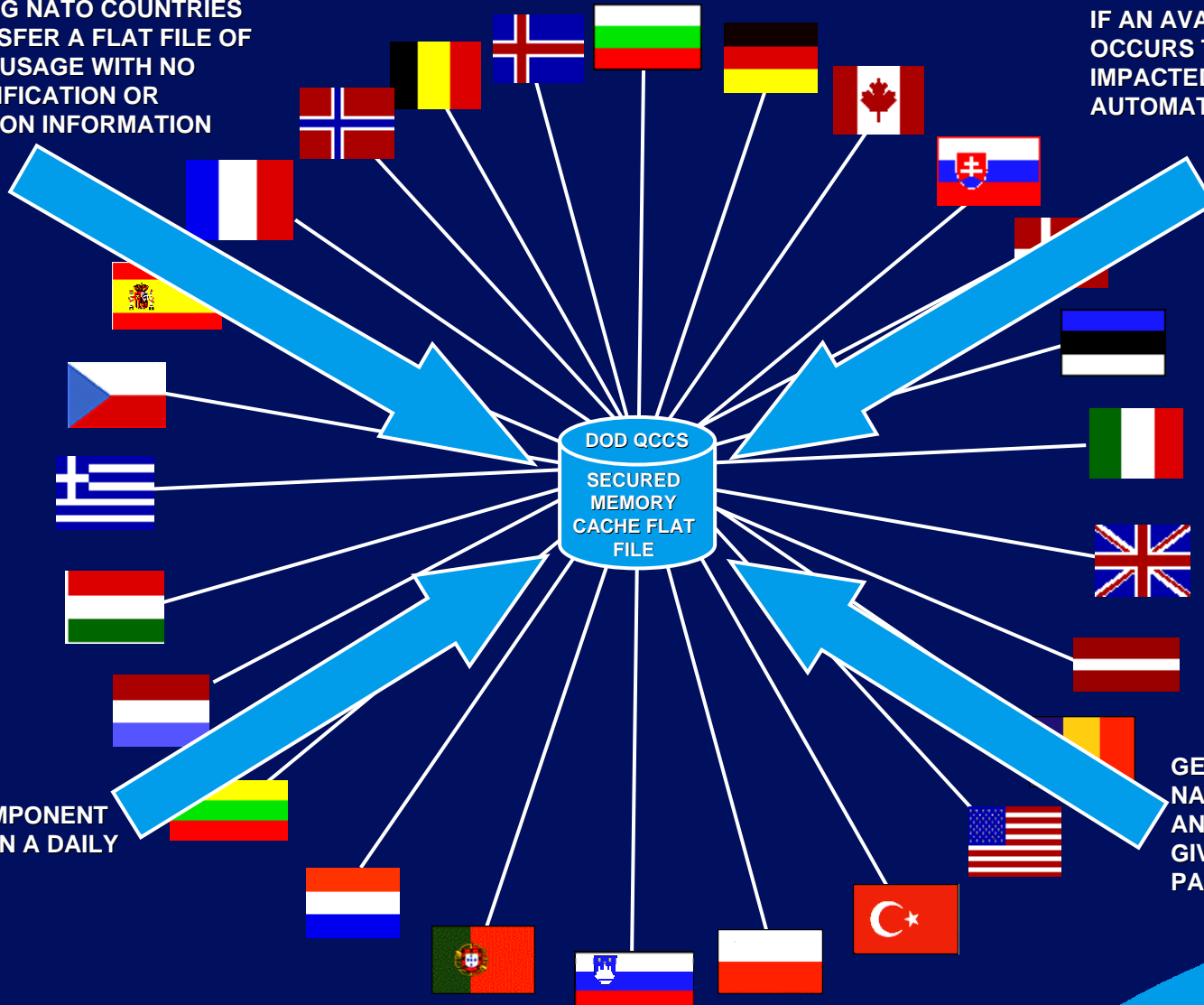
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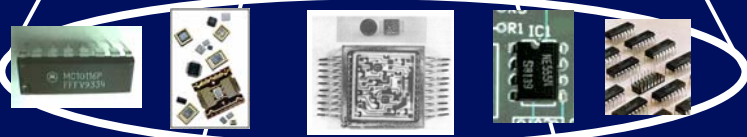
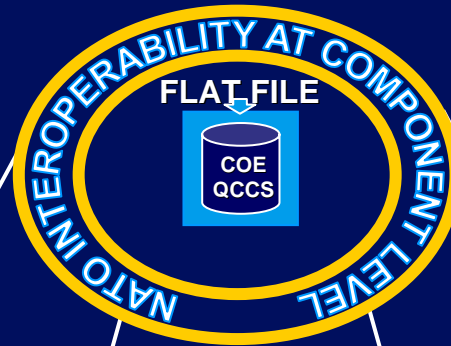
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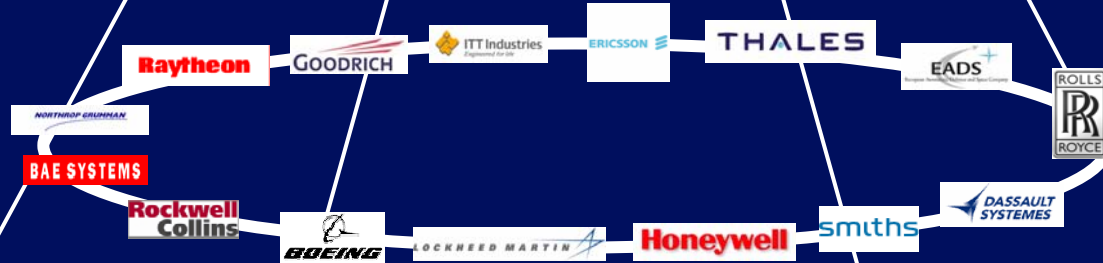
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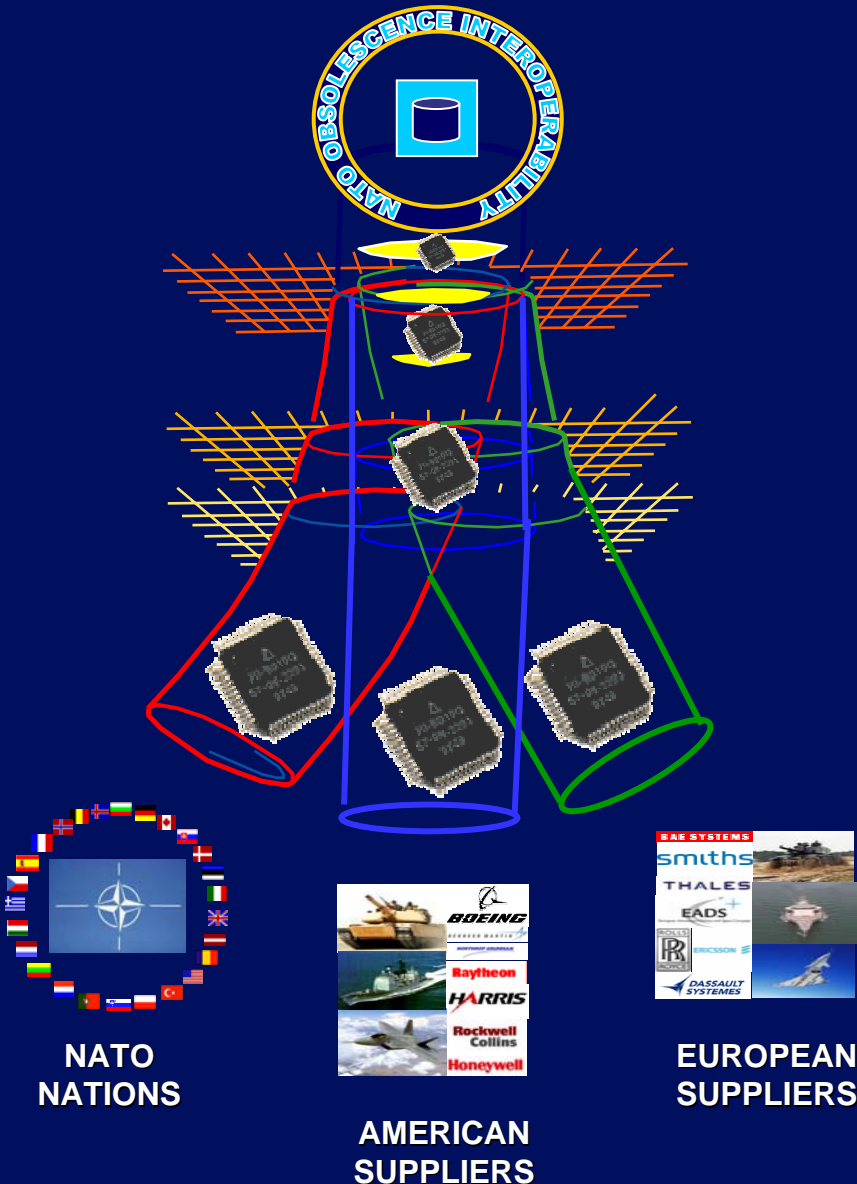


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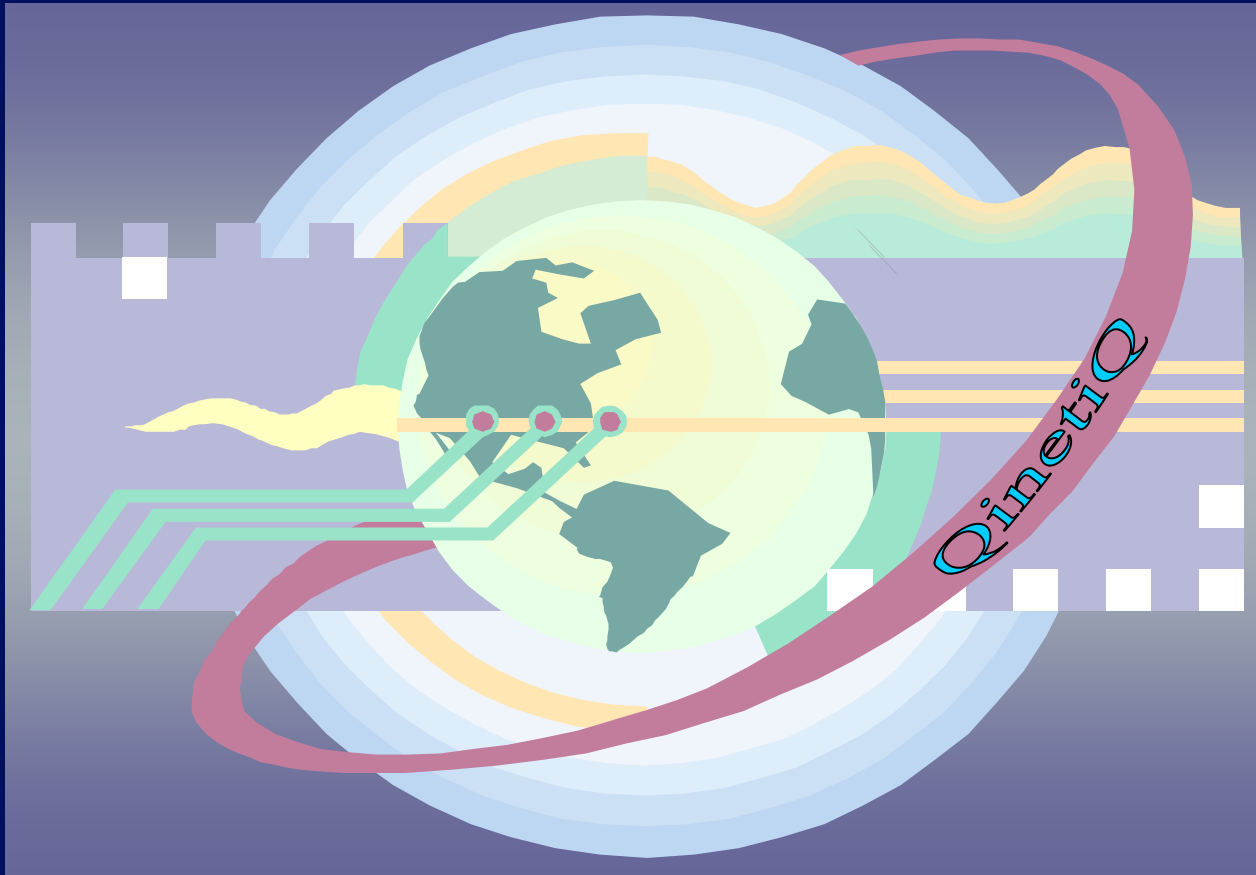
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Thank You!



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DMSMS Work Shop

San Antonio, TX

December 2005



Agenda

- Look Backward to Nashville
 - Policy
 - Technology
 - Organization
- Look Forward to Charlotte
 - Policy
 - Technology
 - Organization



Policy / Guidance Issued

- **Defense Acquisition Guidebook**
 - **Para 5.2.1.5 addresses DMSMS by name**
- **Supportability Guide with cover letter from USD/ATL**
 - **Page 14 mentions DMSMS prominently**
- **USD/ATL Memo dated August 16, 2004**
Subject: Strategic Management of Microcircuits
 - **Directs TLCSM EC to achieve 5 key objectives**
- **PBL Guide---with cover letter from USD/ATL**
 - **Para 4.3 forcefully addresses DMSMS**
- **DMSMS Guide---April 7, 2005**

Being Pro-active in managing DMSMS is a must-do for all Programs throughout its entire life-cycle in order to be able to make a credible claim of mitigating its impact.

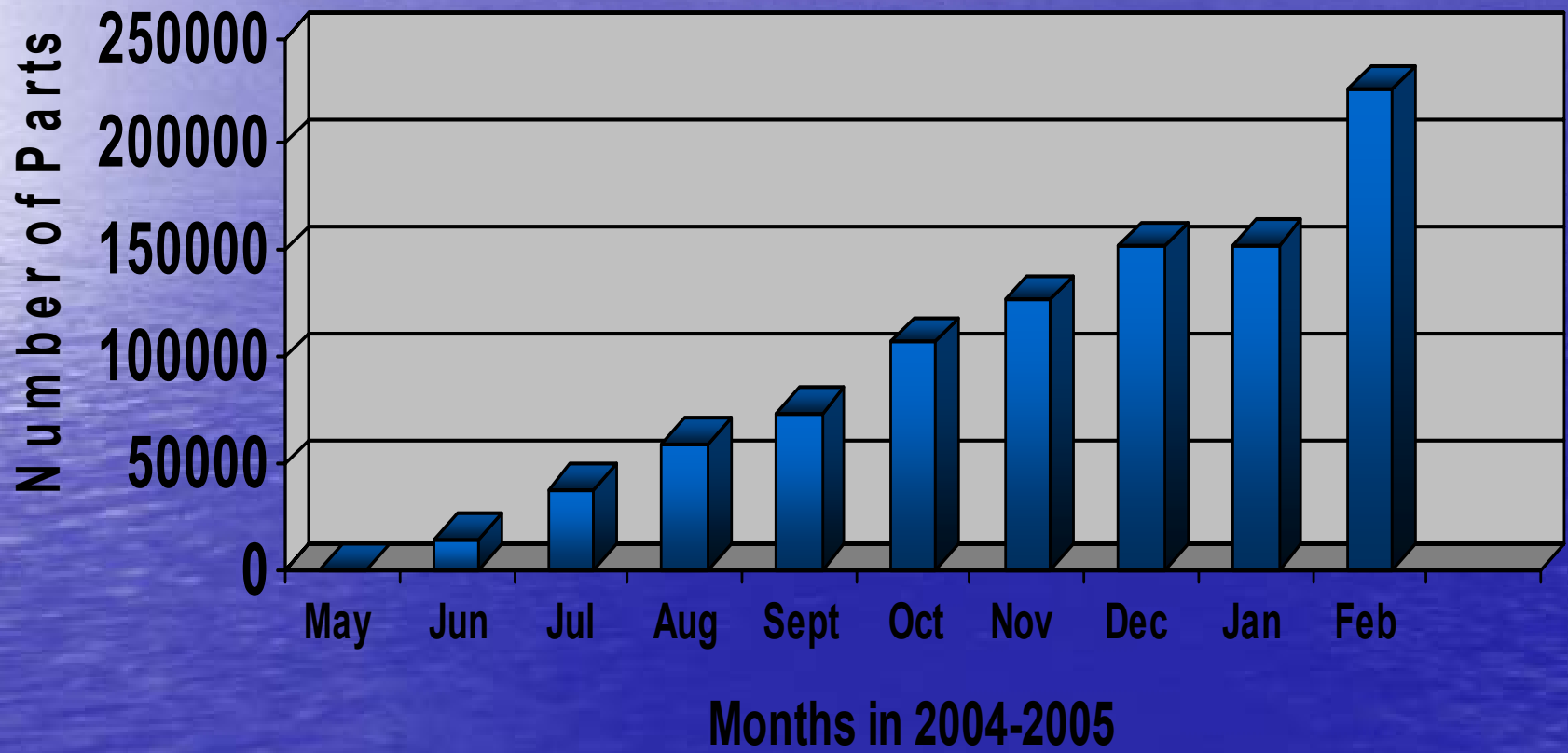


Technology Accomplishments

- **Launched COE**
 - **DMSMS Tool added April 30, 2004**
- **Created training courses for DAU's distance learning course; formal accreditation in process**
 - **ARINC created content**
 - **Karta Technologies created format suitable for use with DAU**
- **Shared Data Warehouse**
 - **AF module in use**
 - **DLA module in use**
 - **Army module in use**
 - **Navy module under construction**



Cumulative Parts Loaded





Organization & Process Changes

- **LPP now organized around 6 focus areas, one of which is Weapon System Product Support - Lead by Greg Saunders**
 - Includes DSPO—mission expanded
 - includes DMSMS—more org changes envisioned
 - includes GIDEP—transfer underway
- **DAES Review Process explicitly includes DMSMS**
- **DAES-S Review Process launch underway now**
- **Started to expand International Sharing via Weapon System Support Forum**

LPP is headed by Lou Kratz. LPP reports to DUSD/L&MR. L&MR reports to USD/ATL. They are all engaged in this matter.



Next 18 Months— what I said in April

- General strategy and operating philosophy

To be pro-active, focus on customers, achieve interoperability through open standards, adopt common & re-useable tools that are scalable in developing

- Supply Solutions - DSCC and DSCR leading the way
- Engineering Solutions - DMEA leading the way
- Procurement Solutions - Commodity Council

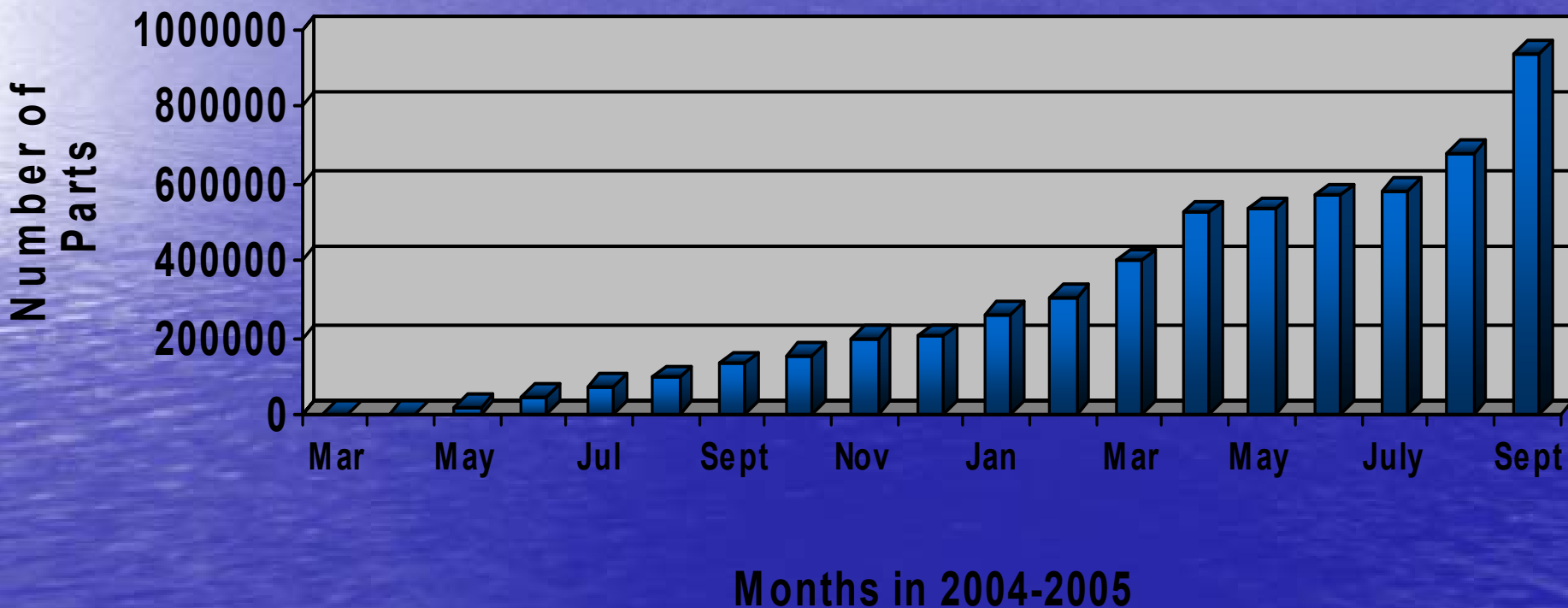
- Major Goals

- Become more aggressive in changing the facts on the ground by implementing the policy/guidance previously cited
- Collaborate more with Allies
- Implement Agile Sustainment lesson learned beyond DSCR
- Understand efficacy and limitations of ARCI and MFOP to avoid DMSMS entirely

Let's all Stop Admiring the Problem



Cumulative Parts Loaded



Investigating time-phasing tool, PlanBuilder, data collection tool—what else?



COE morphs into DKSP

- COE

- One-stop-shop
- Products & Services
- Best Cost provider
- All Products
- Link Allies
- Star Wars
- Fights and strife
- No sustainment budget
- Impossible

- DKSP

- Sharing
- Collaboration
- Create original content to help “have-nots”
- Point to other authoritative sites
- Help the needy and willing
- Part of DSPO budget
- Possible



Ongoing Now

- Charter update. Update headed toward Lou Kratz for approval.
- DMSMS Guidebook. Update headed towards TLCSM EC for approval.
- COE conversion to DKSP.
- DMSMS WG Structure. Interoperability, Outreach, Common Use Tools
- Assistance Visits. Roadshow in development.
- Integration with Parts Management.



Road Ahead

- Defense Systems reinvigorates Risk Assessments and DMSMS is integral
- L&MR establishes Supportability Assessments and DMSMS is integral
- DAES and DAES-S reporting aimed at 5 key metrics and DMSMS is integral
- DSPO re-establishes Parts Management as mandatory and DMSMS is integral
- New era of sharing---amongst ourselves and with allies---and DMSMS is integral

KEEP THE FAITH

The DEFENSE SUPPLY CENTER, COLUMBUS



The New Teaming Process





Defense Supply Center Columbus

Taking the Lead in DMSMS Support



Agenda

- History of Teaming Group
- Why do we Team?
- Teaming Basics
- Examples of Successful Teaming Projects
- New Teaming Process
- How you can Participate
- Current Opportunities
- Summary



Defense Supply Center Columbus

Taking the Lead in DMSMS Support



History

- The old group had the right idea, but was a little ahead of capabilities
 - No real teaming took place
 - Few shared solutions
 - Elementary “not user friendly” software
- The old teaming group has evolved
 - Incorporated into the DOD DMSMS Knowledge Sharing Portal (DKSP- Formerly the COE)
 - DoD DMSMS Workshop
- The old teaming database was moved to GIDEP and is available for archival purposes (accessible with GIDEP user ID and password)
- We are defining and refining a new process



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Taking the Lead in DMSMS Support



Why do we Team?

- Because there are common use items in all systems
- Eliminate duplicate research
- To share:
 - Information
 - Resources
 - Financial
 - Engineering and Logistics Knowledge
 - Solutions
- To help smaller programs benefit from others solution development
- Facilitates standardization of process, terms, parts, etc.
- Saves government \$\$ in the long run



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Teaming Basics

- Identify a potential part
 - Two Basic Triggers:
 - GIDEP/DLA DMSMS IST Initiated
 - User initiated/DKSP
- Identify users
 - Programs
 - Logistics and Technical Professionals
 - OEMs
 - Contractors



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Teaming Basics

- Identify potential solutions
 - Potential Substitutes
 - Approved Alternates
 - Standardized Parts
 - Aftermarket Program
 - Emulations
 - Engineering Solutions
- Contact and Coordinate potential solution with interested users
- Record and share the solution results



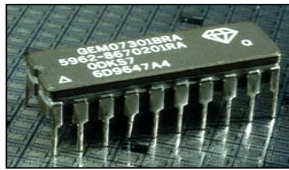
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The Impact of a Single Microcircuit

5962-01-269-8025
122 Unique WSDCs



250K NRE/Weapon System
VS
30 Mil NRE Redesign



¹Weapons system Designator Code (WSDC)



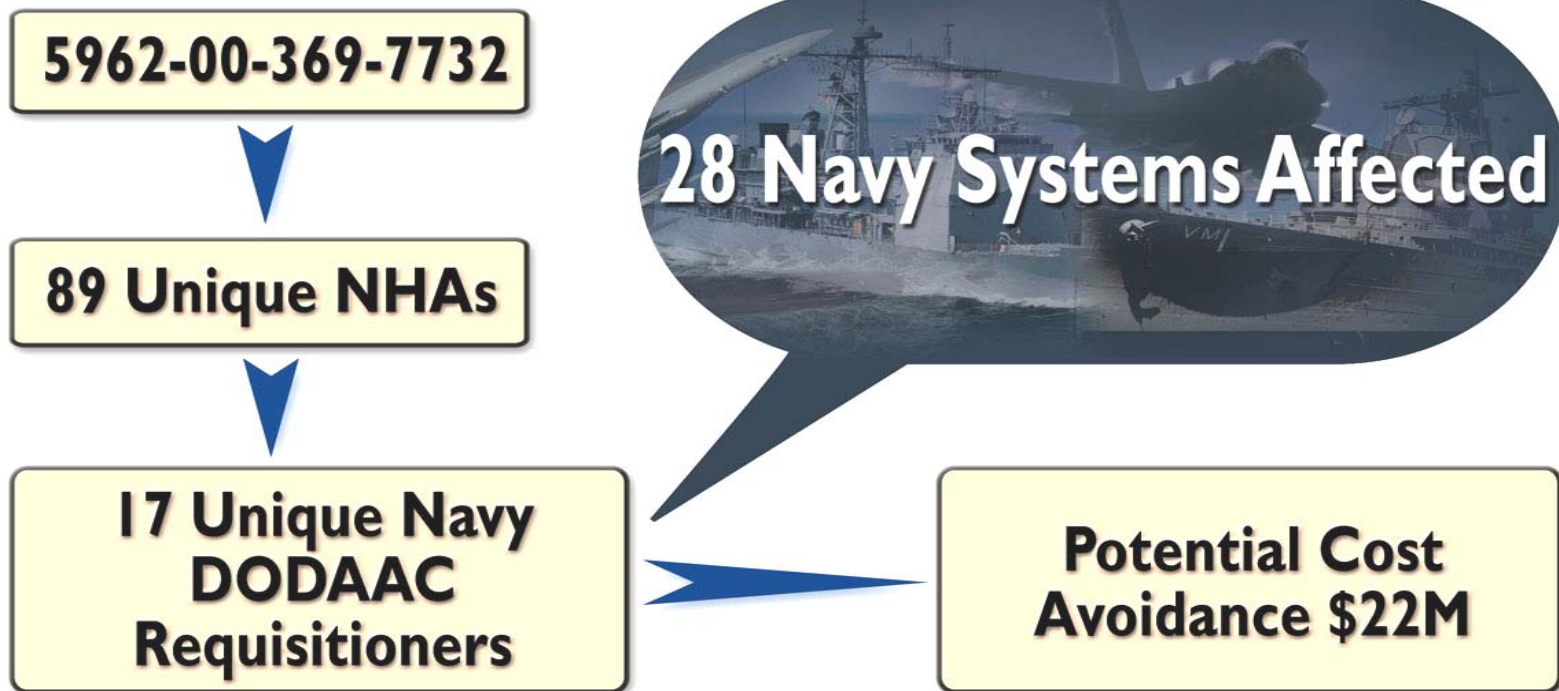
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Example – Estimated Benefits

... from one device...



... 850 unique DODAACs requisitioning GEM parts - affecting an estimated 780 unique Navy CCAs ...



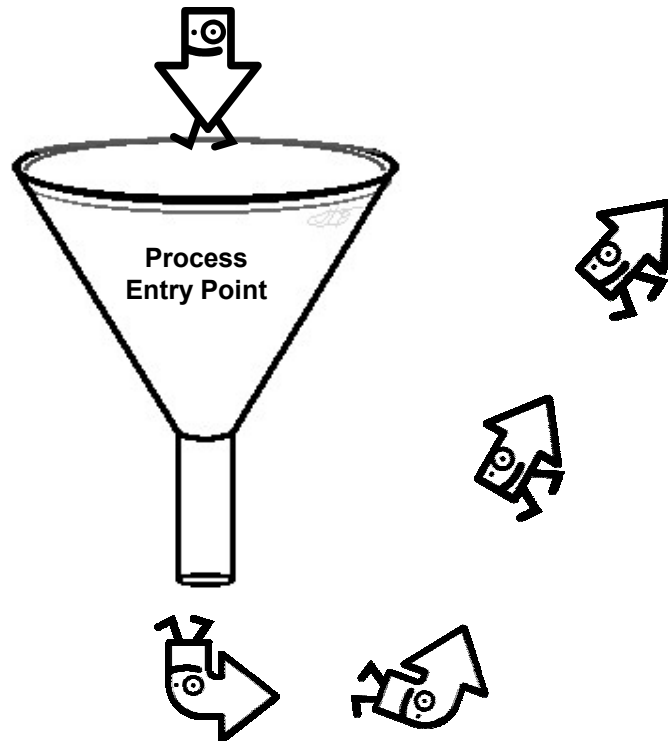
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New Teaming Concept Overview

**GIDEP/DLA DMSMS IST Identified
User Request/Identification**



- Identify users
- Identify potential solutions
- Contact and Coordinate potential solution with interested users
- Record and share the solution results



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GIDEP/DLA DMSMS IST Initiated

- Normal DMSMS process
 - Notices from many sources including:
 - Shared Data Warehouse
 - Predictive Tools
 - GIDEP
 - Manufacturer
 - DLA DMSMS IST Proactive Management of select Federal Supply Classes (FSC 5962,5961,5980,5998)



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- Next Basic Steps
 - Identify users
 - Identify Potential Solutions
 - Coordinate with interested programs/parties
 - Select best solution(s), record and share results



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User initiated

- Call to GIDEP/DLA DMSMS IST/DKSP for individual/program request for help
- Next Basic Steps
 - Identify users
 - Identify Potential Solutions
 - Coordinate with interested programs/parties
 - Select best solution(s), record and share results



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How can you Participate?

- Identify a problem you have (and hopefully a possible solution)
- Go to the DKSP to see if a teamed solution has already been addressed
- To Initiate a teaming project:
 - Submit email or call the DKSP
 - Call the DLA DMSMS IST
 - Call GIDEP
- When called upon for a potential teaming opportunity:
Participate!



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Diminishing Manufacturing Sources and Material Shortages

DMSMS Center of Excellence

Unrestricted Access Home

- Contact Us
- DMSMS Library
- DMSMS 101
- DMSMS Training Courses
- Calendar of Events
- Excess Parts DRMO
- Vendors Corner
- Worldwide Part Request
- Tools and Management Aids
- Points Of Contact
- DMSMS COE Information Sources
- DMSMS Forum

GIDEP Membership Required

- Obsolescence Solution Wizard
- DMSMS Predictive Tools
- Urgent Data Request
- GIDEP Home

Working Groups Membership Required

- DMSMS Working Groups

SPONSORED BY:



Mission Statement

The COE is chartered by the Office of Secretary of Defense to be the one-stop best provider of non-biased products, services, information, educational resources, data interchange techniques, interaction forums, and related material to empower the DoD community (Organic and Industrial) to implement best practices for monitoring, tracking, resolving, and performing analytical logistic and engineering analysis related to obsolescence impacts. Consistent application of the COE tools/techniques facilitates optimal resolution, test, parts management, design, upgrade and redesign methodologies, thereby minimizing detrimental weapons systems readiness impacts.

[CLICK HERE for April 2005 DMSMS Conference Information](#)

 DMSMS LIBRARY	 DMSMS 101	 DMSMS TRAINING COURSES
 CALENDAR OF EVENTS	 EXCESS PARTS DRMO	 VENDORS CORNER
 WORLDWIDE PART REQUEST	 DMSMS WORKING GROUPS	 TOOLS AND MANAGEMENT AIDS
 OBSCOLESCENCE SOLUTION WIZARD	 DMSMS PREDICTIVE TOOLS	 URGENT DATA REQUEST FORUM
UNRESTRICTED ACCESS	GIDEP MEMBERSHIP REQUIRED	WORKING GROUPS MEMBERSHIP REQUIRED



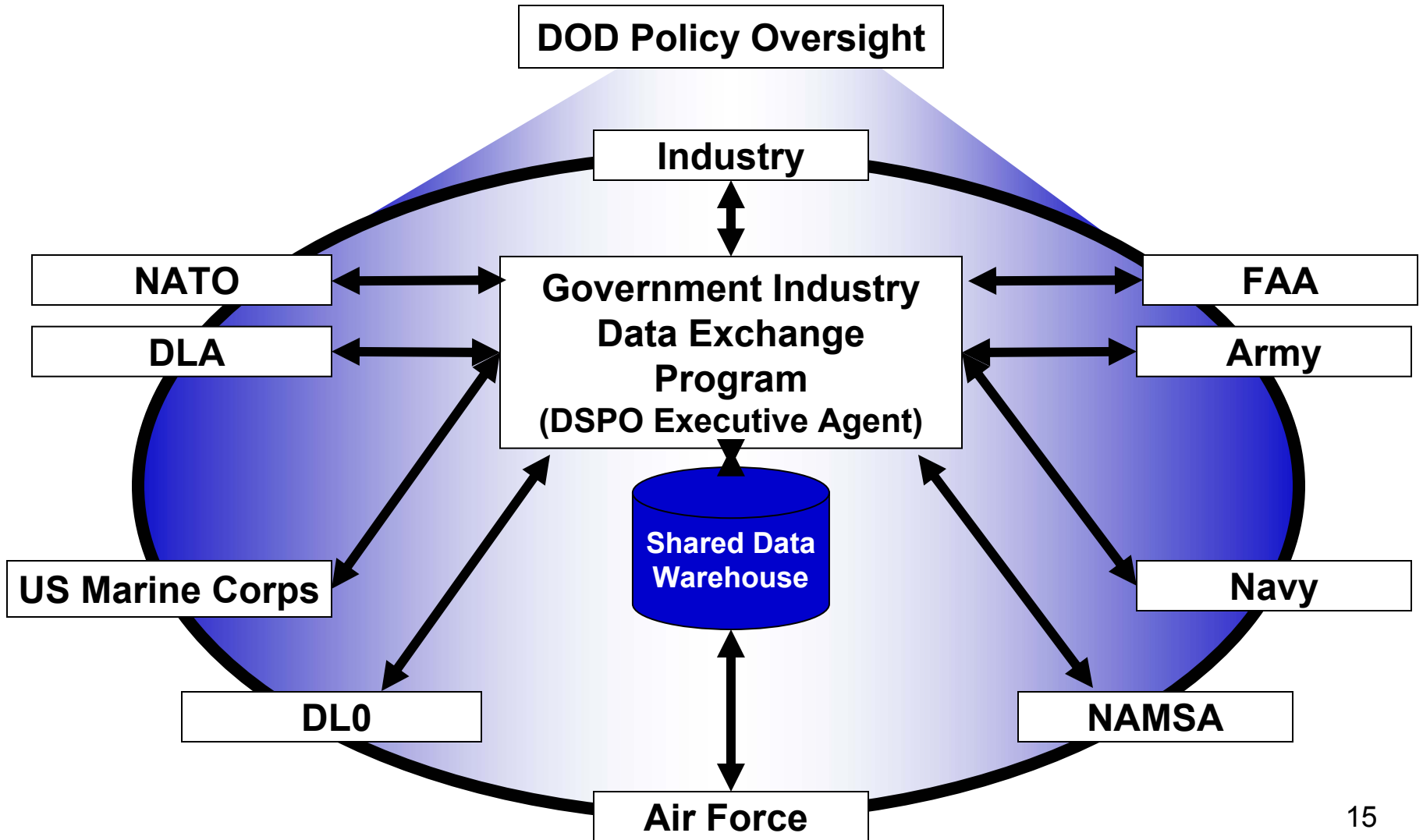
POINT OF CONTACT



DMSMS COE INFORMATION SOURCES



DOD DMSMS Community





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Process to Access GIDEP

APPLICATION FOR GIDEP PARTICIPATION

-
- **REQUIRED DOCUMENTATION FOR MEMBERSHIP**
- **YOU MUST SUBMIT:**
- **Completed GIDEP Participation Request Form**
- **Completed GIDEP User Authorization Form**
- **For Government Contractors/Subcontractors, Proof of Business with the US or Canadian Government with one of the following:**
 - **Copy of Government contract**
 - **Copy of purchase order with Government Contractor**
- **SEND DOCUMENTATION TO:**
- **GIDEP Operations Center, P. O. Box 8000 Corona, CA 92878-8000**
- **OR**
- **FAX: (951) 898-3250**
- **OR**
- **EMAIL: roster@gidep.org**



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Interoperability: NATO NSN Study Sample

- 58,433 NATO NSNs
 - 2,973 Mil-Spec or SMD (5%)

Sources

Sources	Parts
No Source	2022
Aftermarket	309
Other Sources	642
Total	2973 ³

Usage

Services	NSN	Total WS Usage	Unique WSDC
Air Force	1,066	23,262	172
Army	644	6,397	80
Marine Corps	471	4,547	71
Navy	1,106	78,966	342
Non-WS	1,571	0	0
Total	-	114,743	665

³1058 of these parts are Gemable



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23 Part numbers
Die Commercial source only available

Input Mfr P/Nb	Generic	NSN	RNOC	RNVC	DSOC GEMability	TOTAL	A	AF	M	UK	N	OH	DMD	Mfr Part Number	Mfr	Original Die Mfr	Comm. Die
M38510/10901BCA	555	5962010587937	2	2	GEMABLE	115	4	21	2	Yes	88	56	58	M38510/10901BCA	ROCHESTER	INTERSIL	Y
UA110HMQB	110	5962006156101	3	2	NOT GEMABLE	107	1	14		Yes	92	145	107	UA110HMQB	ROCHESTER	NSC	Y
8103908JA	9128	5962012150975	2	2	DEVELOPMENT	87	4	16	1	Yes	66	148	6	8103908JA	ROCHESTER	STDMICROS	Y
5962-8877201CA	8038	5962013117563	2	2	DEVELOPMENT	85		17	4	Yes	64	353	87	5962-8877201CA	ROCHESTER	INTERSIL	Y
M38510/48002BQA	80	5962012138156	2	2	DEVELOPMENT	42		11		Yes	31	0	20	M38510/48002BQA	ROCHESTER	INTERSIL & TI	Y
CA3140T/3	3140	5962011227624	3	2	NOT GEMABLE	39	2	3		Yes	34	79	29	CA3140T/3	ROCHESTER	INTERSIL	Y
1692/BEAJC	1692	5962011099019	3	9	DEVELOPMENT	38	1	2		Yes	35	0	1	1692/BEAJC	ROCHESTER	NSC	Y
MM70C95J/883B	70C95	5962010196668	3	2	RESEARCH	24		2		Yes	22	31	0	MM70C95J/883B	ROCHESTER	NSC	Y
MD8748H/B	8748	5962011142450	3	2	DEVELOPMENT	23	3	7	1	Yes	12	507	487	MD8748H/B	ROCHESTER	INTL	Y
MD8031A/H/B	8031	5962012331260	3	2	DEVELOPMENT	20		10	2	Yes	8	56	0	MD8031A/H/B	ROCHESTER	INTL	Y
8103907JA	9128	5962012175380	2	2	DEVELOPMENT	20		5		Yes	15	0	2	8103907JA	ROCHESTER	STDMICROS	Y
HA1-2620-8	2620	5962010286115	3	2	NOT GEMABLE	16		6	1	Yes	9	347	114	HA1-2620-8	ROCHESTER	INTERSIL	Y
AM25LS2518/BEA	25LS2518	5962011169527	3	9	DONE	12		9		Yes	3	7	12	AM25LS2518/BEA	ROCHESTER	AMD	Y
PAL20L10AMJS/883B	20L10	5962012293340	3	2	MASK	11		2		Yes	9	10	5	PAL20L10AMJS/883B	ROCHESTER	AMD & TI	Y
5962-8947601LA	610	5962013896021	2	2	MASK	3		3		Yes		12	0	5962-8947601LA	ROCHESTER	TI	Y
AM27S21A/BEA	27S21	5962012571315	3	9	GEMABLE	3		3		Yes		10	7	AM27S21A/BEA	ROCHESTER	AMD	Y
SMJ2532-45JM	2532	5962011587420	3	2	DEVELOPMENT	3				Yes	3	2572	50	SMJ2532-45JM	ROCHESTER	TI	Y
5962-9072702MXA	34010	5962014631198	2	2	DEVELOPMENT	2		1	1	Yes		0	0	5962-9072702MXA	ROCHESTER	TI	Y
PAL20L10ACNS	20L10	5962012616293	3	9	MASK	2		2		Yes		148	1	PAL20L10ACNS	ROCHESTER	AMD & TI	Y
AM27S33A/BVA	27S33	5962013466084	3	9	GEMABLE	1		1		Yes		0	0	AM27S33A/BVA	ROCHESTER	AMD	Y
LM759MH	759	5962013980477	3	2	NOT GEMABLE	1		1		Yes		0	3	LM759MH	ROCHESTER	NSC	Y
DS75453N	75453	5962010109177	3	2	GEMABLE	1		1		Yes		1113	11	DS75453N	ROCHESTER	NSC	Y
EP610DM883B	610	5962013472241	3	9	MASK	1		1		Yes		0	62	EP610DM883B	ROCHESTER	TI	Y



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Taking the Lead in DMSMS Support



Summary

- Old Process right “Spirit and Intent”
- There are good reasons to Team
- Successful past teaming examples
- There are viable basic processes
- You now know of some current teaming opportunities
- Your *Participation* is key



Common Use Tools Committee (CUTC) of the DoD DMSMS Working Group

DoD DMSMS Workshop

Presented by Cathi Crabtree

12/15/05



Common Use Tools Committee (CUTC)

Outline

- CUTC Members
- Roles and Responsibilities
- Purpose



Common Use Tools Committee (CUTC)

CUTC Members

- Kris Krueger, Air Force
- Frank Stonestreet, AMSAA
- Nicole Margrif, RDECOM-TARDEC
- Julie Smith, RDEC
- Paul Ngo, DISA
- Alan Clark, DLA
- Tony Monteleone, DLA (DORRA)
- Wes Trunnell, DMEA
- Cathi Crabtree, NSWC Crane
- John Tilton, NUWC Keyport
- Raymond Tadros, NSWC Corona
- Ric Loeslein, NAVAIR
- Ron Wong, Karta
- Rod Tafoya, Marine Corps
- David Waits, FAA



Roles and Responsibilities

- Roles and Responsibilities are currently being updated to support the move to the DKSP, but roughly will include:
 - Provide a technical review of current and pending capabilities instruments and determine usefulness/applicability to the DoD user
 - Identify any gaps, i.e. features that would be beneficial for reference within the DKSP but which are not contained in any capabilities instruments we've reviewed, and investigate new capabilities to fill these gaps
- Provide oversight of development of a taxonomy of DMSMS tools and databases
 - Mapping of known capabilities against this taxonomy
 - Ongoing process
- Stay apprised of Shared Data Warehouse progress and plans
- Report to the DoD DMSMS Working Group



Common Use Tools Committee (CUTC)

Purpose

- Support the DKSP philosophy
 - Facilitate sharing and collaboration of the knowledge and resources needed to resolve obsolescence challenges
 - Leverage off what the various CUTC members are doing to strengthen available DMSMS services
 - Provide resources to those who are just getting started



Common Use Tools Committee (CUTC)

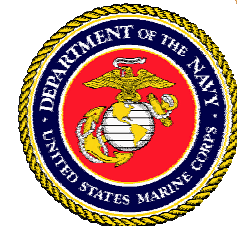
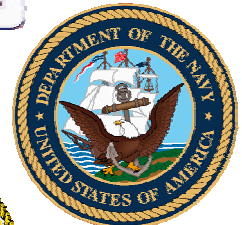
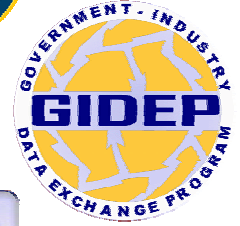
Contact Us

- If you have ideas, recommendations, questions, lessons learned, etc., contact any one of the CUTC members to share them



Diminishing Manufacturing Sources
DMSMS
 Shared Data Warehouse

- About DMS
- DMS Login
- Other Links



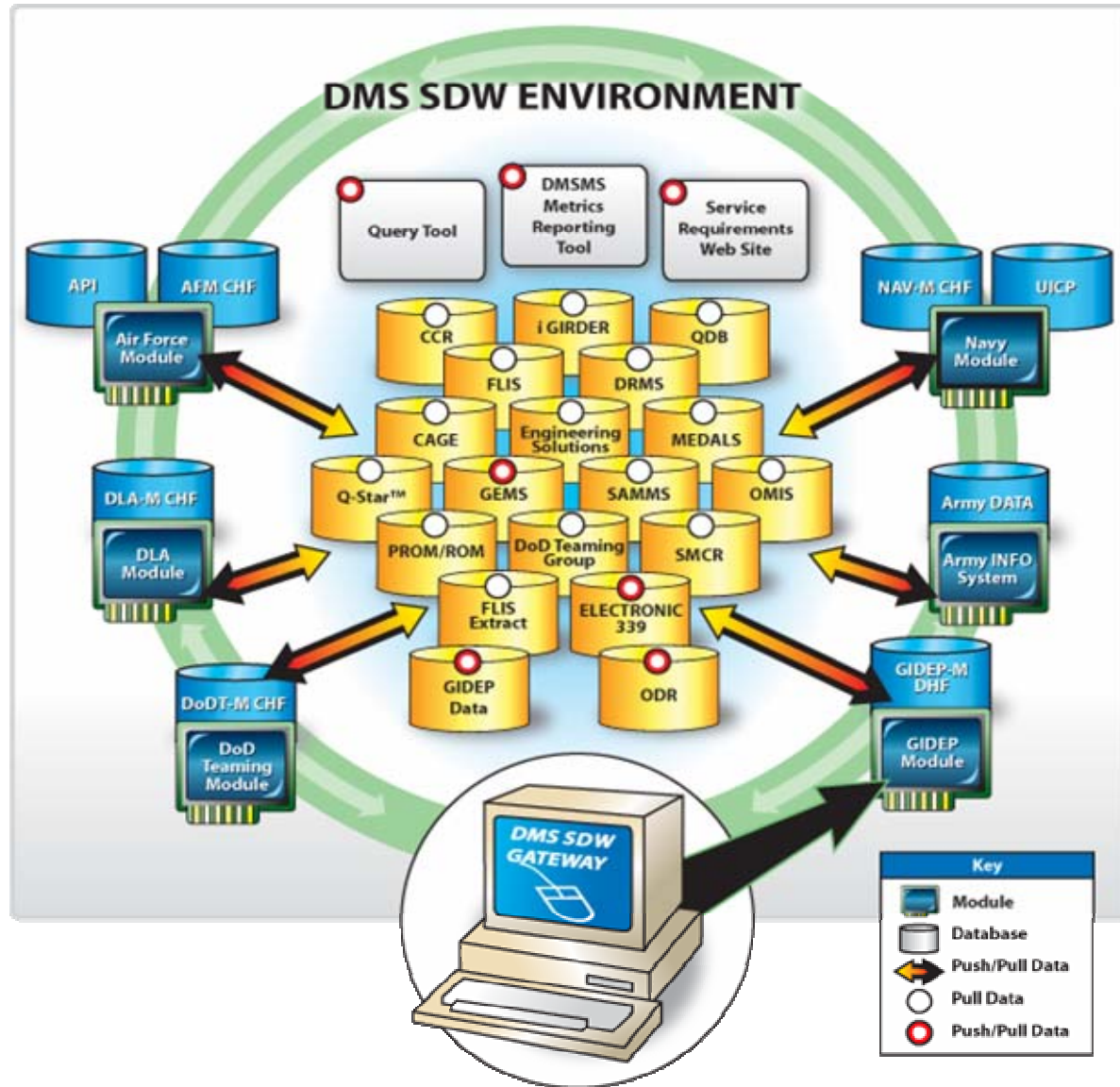
DMS SDW

DMSMS Workshop

14 December 2005



Concept



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DMS SDW Case Management

- Provides Single Points of Entry
- Enables receipt of DMSMS notification data electronically via gateway
- Provides Module-to-module and database integration
- Accommodates the business process and workflow of an obsolescence managing activity or military service
- Enables reactive and proactive case processing for managed items
- Provides essential tools for the exchange of data, identification and processing of parts and NSNs potentially affected by obsolescence issues, and associated inventory requirements



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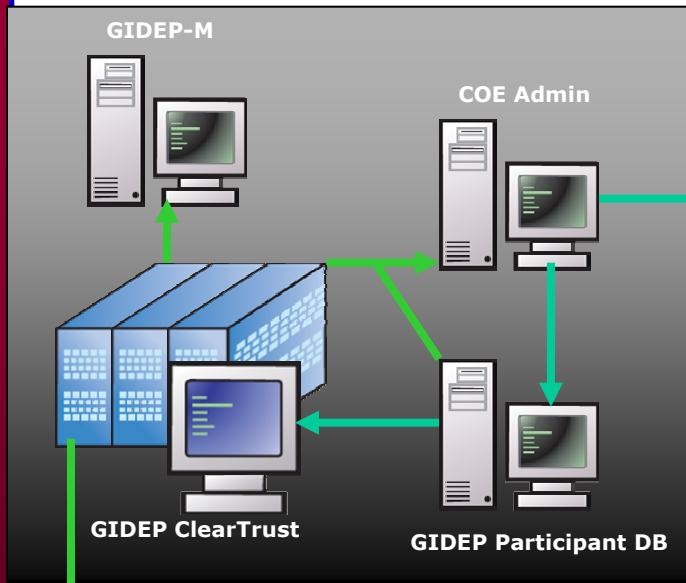
DMS SDW Case Management

- Enables LOTB Requirements Determination
 - Analysis
 - Computation
 - Request for service requirements
 - Module-to-module or via email and the Service Requirements Web site
- Provides Case History File
 - Detailed obsolescence data to support decision processes
- Provides systematic dissemination of associated data and facilitates the growth of a central data repository
- Enables the ODR
 - Summary of obsolescence data contained in module case history files
 - Repository for obsolescence data from disparate sources

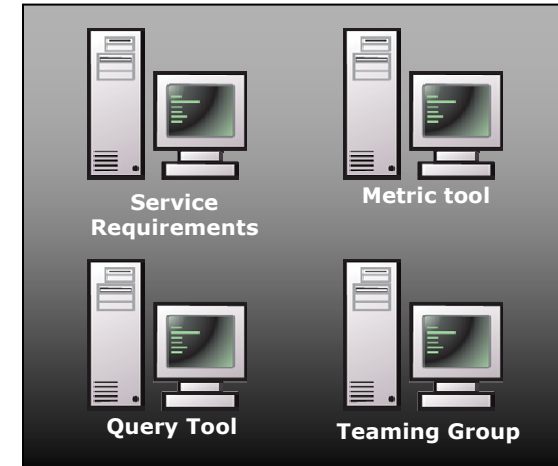


Single Sign On

GIDEP



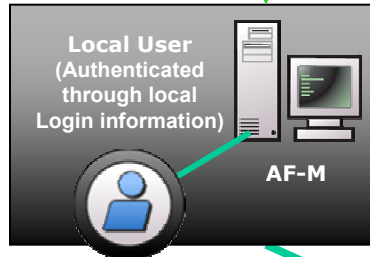
COMMON USE TOOLS



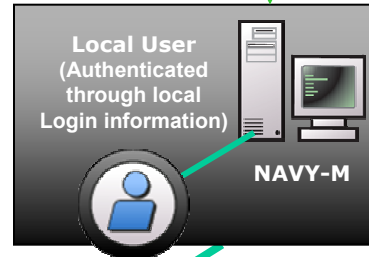
DLA



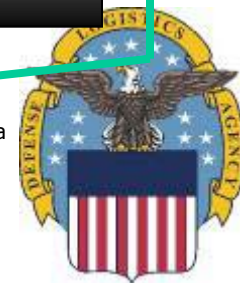
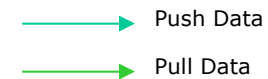
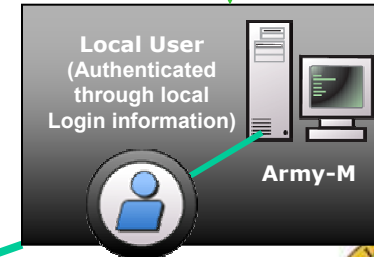
AF



NAVY



Army



DSCC Progress/Activity

- DSCC Module
 - Production level application
 - 36 Users
 - Trained 5
 - 1740 Cases
 - Unique Part Number 104,947



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DSCC Progress/Activity

- DSCC Module
 - AFM integration
 - Certification and Accreditation – Nov 05
 - SSAA approved
 - ATO issued
 - Critical anomaly resolved in the DSCC/AFM integration – Nov 05



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DLA Progress/Activity

- DLA Module
 - “Technology Refresh”
 - Business Rules
 - Database and Inter-DMS Module Connectivity
 - User Interface
 - Application Prototype is at *CTC* Alpha
 - First design iteration is complete



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DSCC/DLA Planned Activity

- DSCC Module
 - Maintenance mode (resolution of any unanticipated anomalies)
- DLA Module
 - Development activities – Ongoing
 - Technical Evaluation Processes
 - Item Manager Evaluation Processes
 - Module and database integration
 - Beta Deployment – March 06
 - Testing – April 06
 - User Acceptance – May 06
 - Production Deployment – May 06



AF Progress/Activity

- 510 users
- Trained 157 users
- Cases 80
- Line Items 504
- Worksheet 395
- NHA 667



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AF Progress/Activity

- Production AFM up and running – October 04
- Integration with DSCC Module – October 04
- ALC user training completed
- Production 1.8 release scheduled – December 06



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AF Planned Activity

- Planned updates include:
 - ODR integration
 - New reporting capabilities
 - Module and database integration
 - GUI enhancements



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GIDEP Progress/Activity

- GIDEP Public Entry Form (GIDEP-P)
 - Publicly available Discontinuance Notice entry form
 - *CTC* Alpha
- GIDEP Module (GIDEP-M)
 - GIDEP's Discontinuance Notice creation and tracking system
 - First design iteration complete
 - ODR integration complete – October 05
 - Corona Beta – October 05
 - GIDEP staff Beta testing underway



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GIDEP Planned Activity

- GIDEP-M
 - Integrated FLIS search – March 06
 - Integrated CAGE/Manufacturer Name validation via CCR database – March 06
 - Review and revision in tangent with continuing Beta testing
 - Production deployment – April 06
 - Integration with service modules – April 06



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GIDEP Planned Activity

- GIDEP-P
 - Integrated CAGE/Manufacturer Name validation via CCR database – May 06
 - Beta Deployment – June 06
 - Review and revision in tangent with Beta testing
 - Production Deployment – July 06



Navy Progress/Activity

- Schedule
- Code refresh for maintainability, scalability, adaptability
- Technical infrastructure requirements currently in progress
- Requirements analysis
 - NAVICP-M & NAVICP-P DMS business processes mapping
- Prototype demonstration – November 05



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Navy Planned Activity

- Requirements analysis – Ongoing
- Navy Module design – Ongoing
- Prototype development as part of requirements gathering/design process – Ongoing
- Navy Module beta deployment – May 06
- Module and database integration – May 06
- Production deployment – June 06



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Army Progress/Activity

- Contract modification executed to conduct study (\$50k)
- Conference calls with principal – October 05
- *CTC* team established – October 05
- Army provided initial documentation – October 05
- Initial schedule provided, revised based on conference call – October 05
- Travel to key sites – November 05
 - TACOM for technical overview
 - User sites as identified by Army



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Army Planned Activity

- Army documentation review – Ongoing
- As-is analysis – Ongoing
- Map core INFO system functionalities to SDW/COE functionalities (define gaps) – Ongoing
- Technical analysis
 - Infrastructure
 - Databases accessed
 - GIG
 - Integration aspects
 - Security considerations
- Develop final report
 - Include recommendations and alternatives
 - Include POAM and cost estimate
- Study report due 23 December 2005



Service Requirements Web Site Progress/Activity

- Initial development complete
- *CTC* Alpha
- DLA-M CHF integration
- Alpha testing complete



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Service Requirements Web Site Planned Activity

- Review and revise following completion of DLA-M Beta deployment – March 06
- Beta deployment and testing – April 06
- Integration with service modules – May 06
- Production deployment – June 06



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Metrics Tool Progress/Activity

- COTS evaluation completed – March 05
- Business Objects Web Intelligence procured by DLA – October 05
- High level requirements
- Report Types
 - Ad-hoc reporting
 - Predefined reporting



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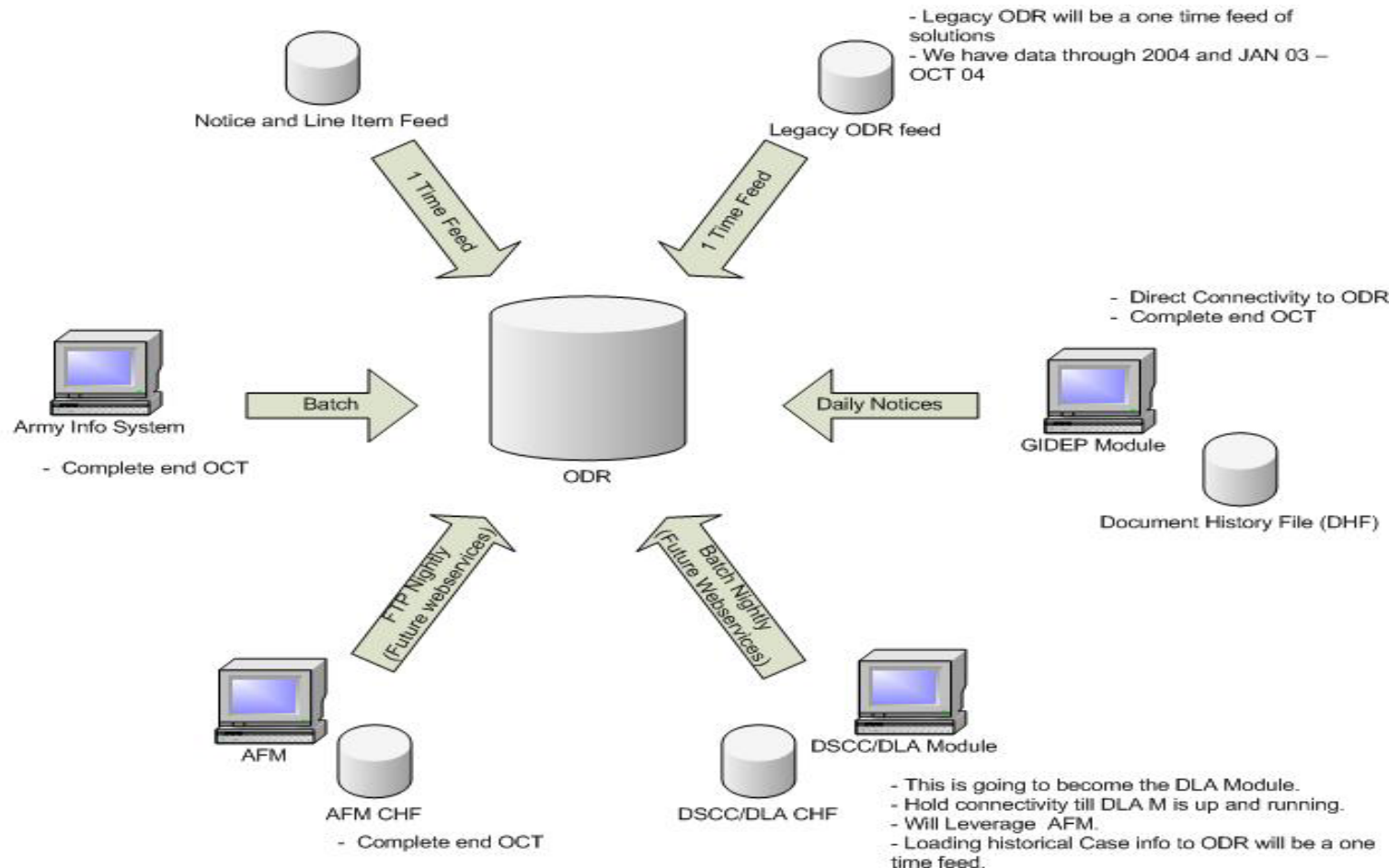


Metrics Tool Planned Activities

- Development environment
- Initial version of metrics reports
- Data source Integrate
- Query Tool retirement
- Production Deployment – August 06



ODR Progress/Activity



Queries for ODR

- 1.) Count of notices & L/I's
- 2.) Find Part/NSN solution (That is a given solution for that Part/NSN)
- 3.) Search notice detail (That is to search any given notice in the GIDEP M)



ODR Progress/Activity

- Beta deployed – October 05
- Supporting scripts developed and positioned for future web services interaction
- Initial loads – October 05
 - Legacy GIDEP
 - Legacy ODR
 - DSCC



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ODR Progress/Activity

- Data issues/challenges documented
- Possible data cleansing recommendations
 - Format issues with key data elements (GIDEP document number)
 - Relationship of data elements
- Developed basic queries



ODR Planned Activity

- Data findings review with subject matter experts – January 06
- Requirements clarification
- Army, Air Force, Navy data load – February 06
- Data “scrubbing” – February 06
 - Develop plan and implement
- Cleansed data load – March 06
 - Legacy ODR
 - Legacy GIDEP
 - DSCC
- Corona beta deployment – March 06
- Legacy transition to new ODR – March 06
- Web services integration – April 06
- Production deployment – April 06



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Q-Star™
Coalition and Commonality Server
(QCCS)



QCCS

What is the QCCS

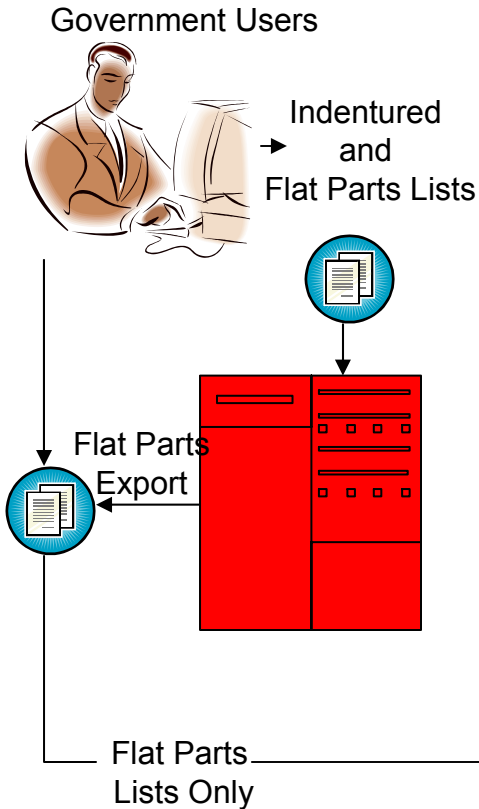
- **Semi-Mirrored version of the DoD version of QStar with a separate user parts lists database**

Why

- **Government-Industry BOM sharing**
- **Increased Part Commonality interaction from QStar user community**
- **Coalition Member access (pending)**

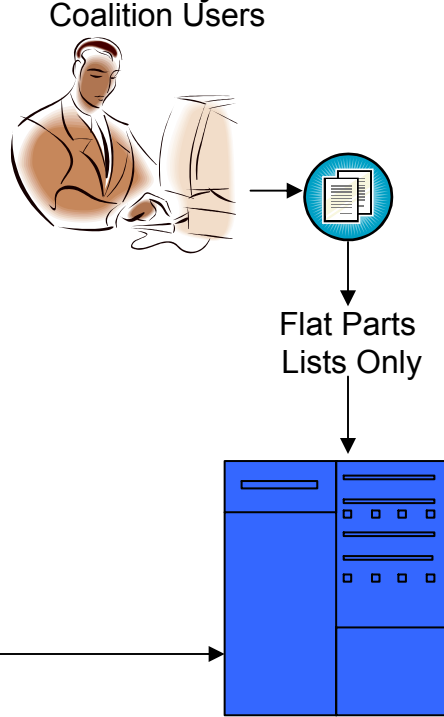


QStar DoD Version



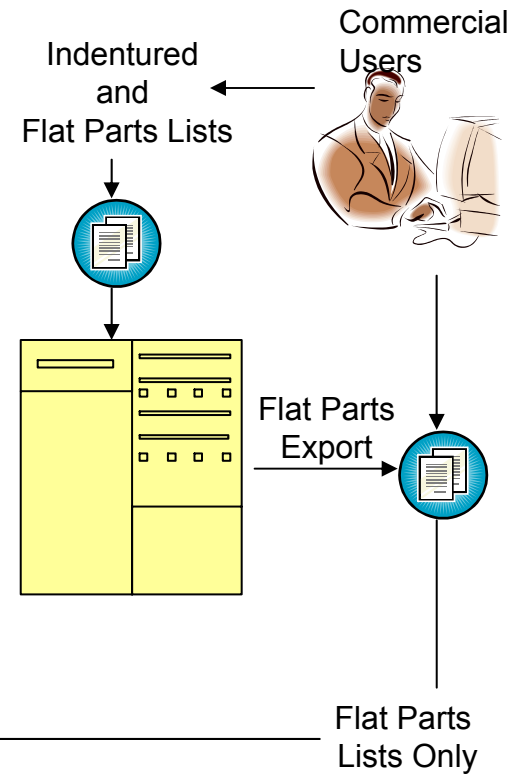
Opt in Commonality and List Sharing Across all Government Users

Commonality/Coalition System



Commonality and User Controlled List Sharing Across all Participating Users

QStar Commercial Version




Company Segregated Access to List

Note: All actions are user initiated; no automated parts loading across systems

- What is Commonality

Help
Close




Q-Star™
QinetiQ Sustainment Technology Assessment Resource

Close this window
Print
Research Request Part Finder

Part Detail

Item Ref	Client Input Data	Q-Star™ Matched Data
In House PN	CDR04BX473BKUR	N/A
Mfr PN	CDR04BX473BKUR	N/A
Mfr		CDR04BX473BKUR
CAGE Code		
Spec		
Screening Level		
Part Type		
Description		
NSN		
Qty	1	

Help



Q-Star™
QinetiQ Sustainment Technology Assessment Resource

Part Commonality for Part Number: 74F64SJ

Locations where this part is used within this project

List Name	Item Number	Customer Reference	Quantity
SYNC CCA		1003331-001	3
		TOTAL	3

Locations where this part is used within other projects

Not used elsewhere within your BOMS

Other users of this part

User Name	Activity	email	phone
Joe Brown	ABC Corporation	JBrown@ABCCorp.com	(943) 555-3256
Bill Smith	R2 Aerospace	BSmith@R2Aero.com	(310) 555-8778
Ted Turner	NSWC Crane	TTurner@Navy.mil	(340) 555-4328

Commonality

Add Note

Add Part

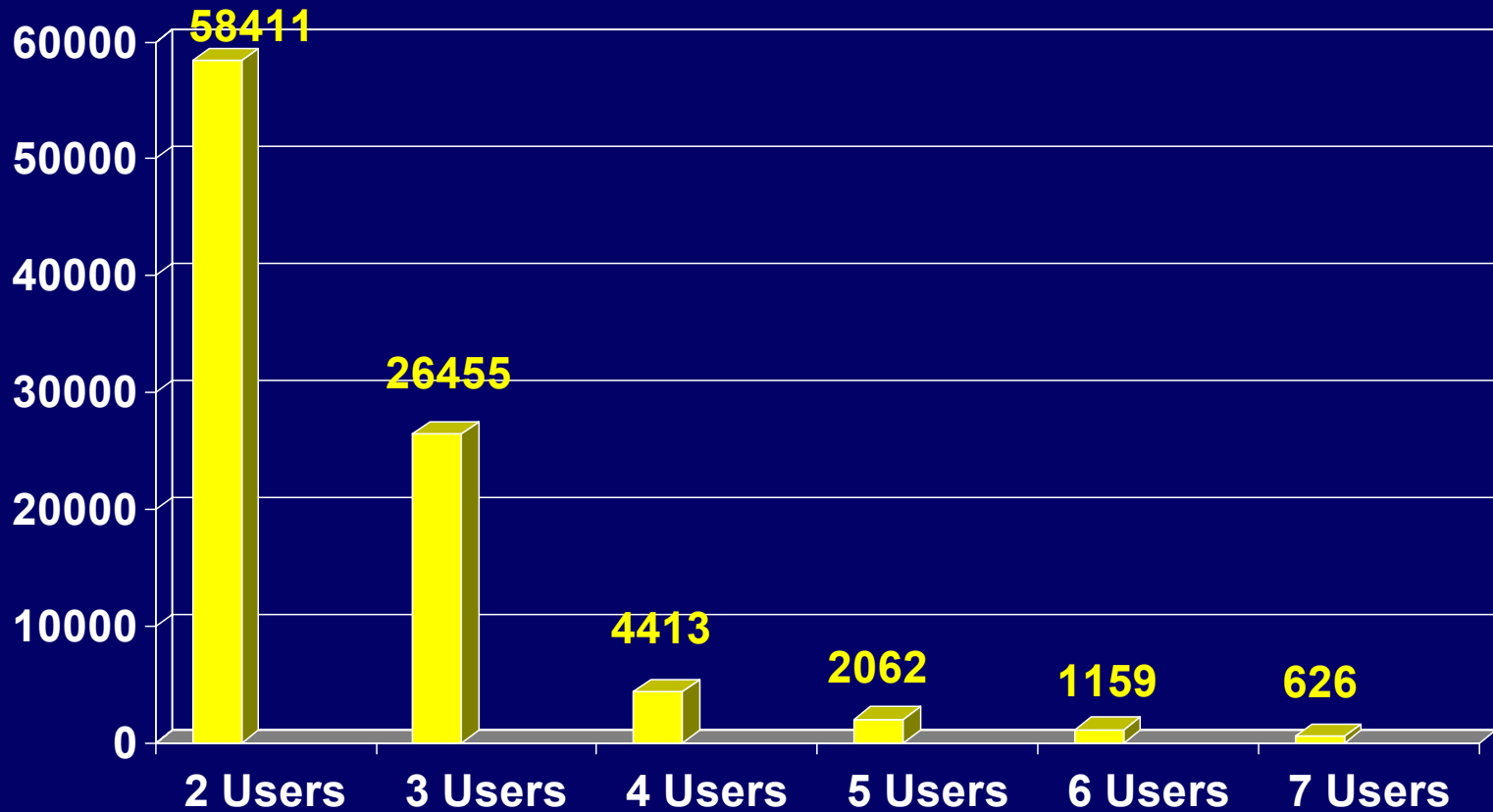


Commonality Trends in the DoD QStar

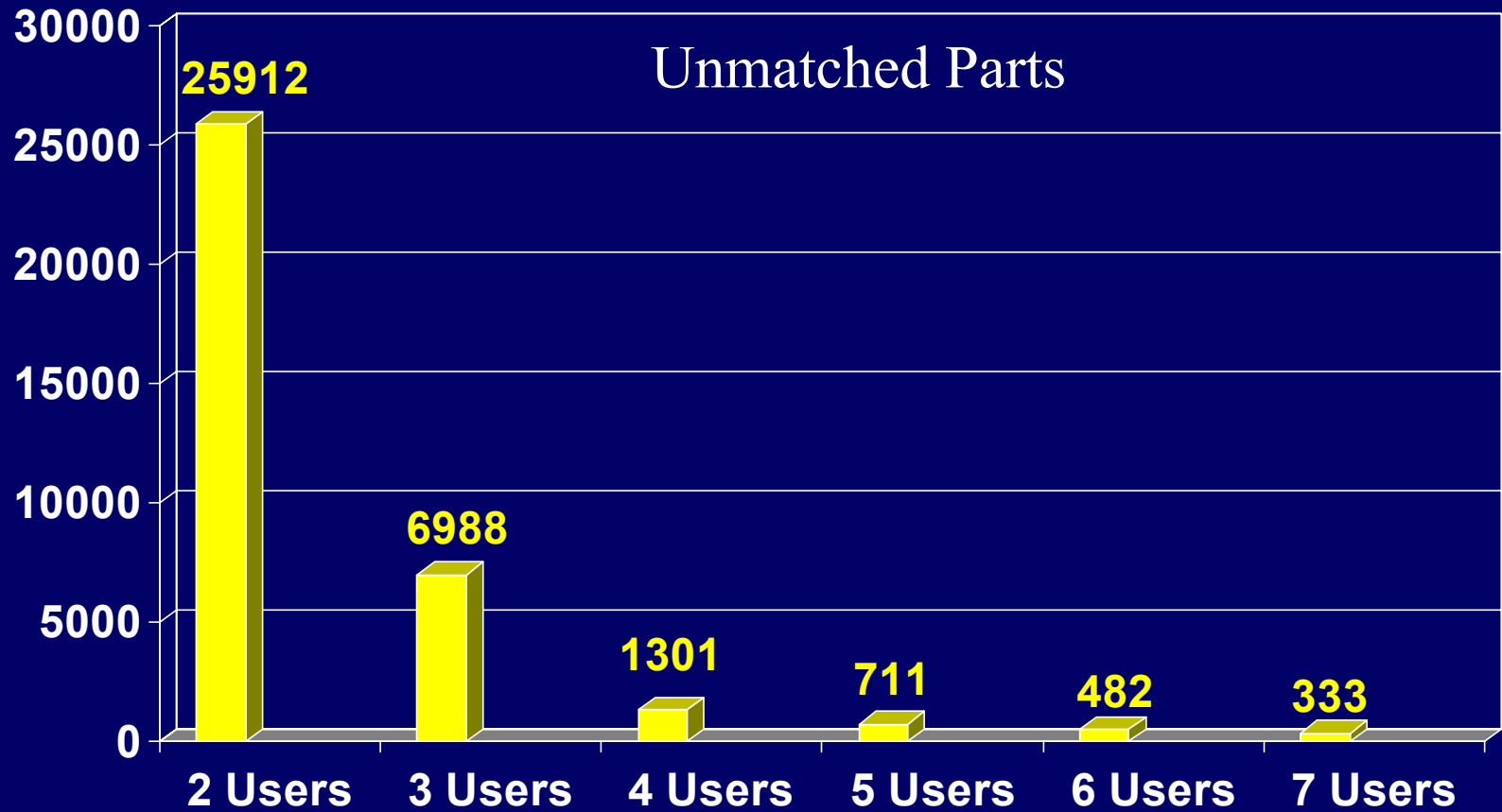
- 230,500 distinct parts submitted by users in Library
- 196 users
 - People logging into Q-STAR
 - Independent of submitting a list
- 97 users selecting commonality
- 94,140 parts shared by 2 or more users



Commonality Trends



Commonality Trends



- Sharing Features

Help | Support | Log Out

Q+Star™
QinetIQ Sustainment Technology Assessment Resource

Status | Reports | Parts Lists | Project Manager | Part Lookup | Research Request | User Prefs

Set Project Access

Change the project access for the selected user

Project Name:

Agency: NAVY
Government Agency: UNITED STATES NAVY

Filter Users By Lastname:

Filter Users By Activity Name:

To review the

© GinetIQ 2005

UNITED STATES OF AMERICA

Help | Support | Log Out

Q+Star™
QinetIQ Sustainment Technology Assessment Resource

Status | Reports | Parts Lists | Project Manager | Part Lookup | Research Request | User Prefs

Set Project Access

Change the project access for the selected user

Project Name:

Agency: GIDEP INTERNAL PARTICIPANT
Government Agency: INTERNAL USER

Filter Users By Lastname:

Filter Users By Activity Name:

User Name	Access		
	Full	Partial	None
ALICE LUH (GIDEP OPERATIONS CENTER)	<input type="radio"/>	N/A	<input checked="" type="radio"/>
GWEN NGUYEN (GIDEP OPERATIONS CENTER)	<input type="radio"/>	N/A	<input checked="" type="radio"/>
LARRY NELSON (GIDEP)	<input type="radio"/>	N/A	<input checked="" type="radio"/>
MIKYUNG C. KIM (GIDEP OPERATIONS CENTER)	<input type="radio"/>	N/A	<input checked="" type="radio"/>
ROBERT C. KARPEN (CSC/GIDEP)	<input type="radio"/>	N/A	<input checked="" type="radio"/>
TOM MYERS (GIDEP OPERATIONS CENTER)	<input type="radio"/>	N/A	<input checked="" type="radio"/>

To review these system settings later, click **Project Manager** on the title bar.

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QinetIQ Sustainment Technology Assessment Resource

Disclaimer

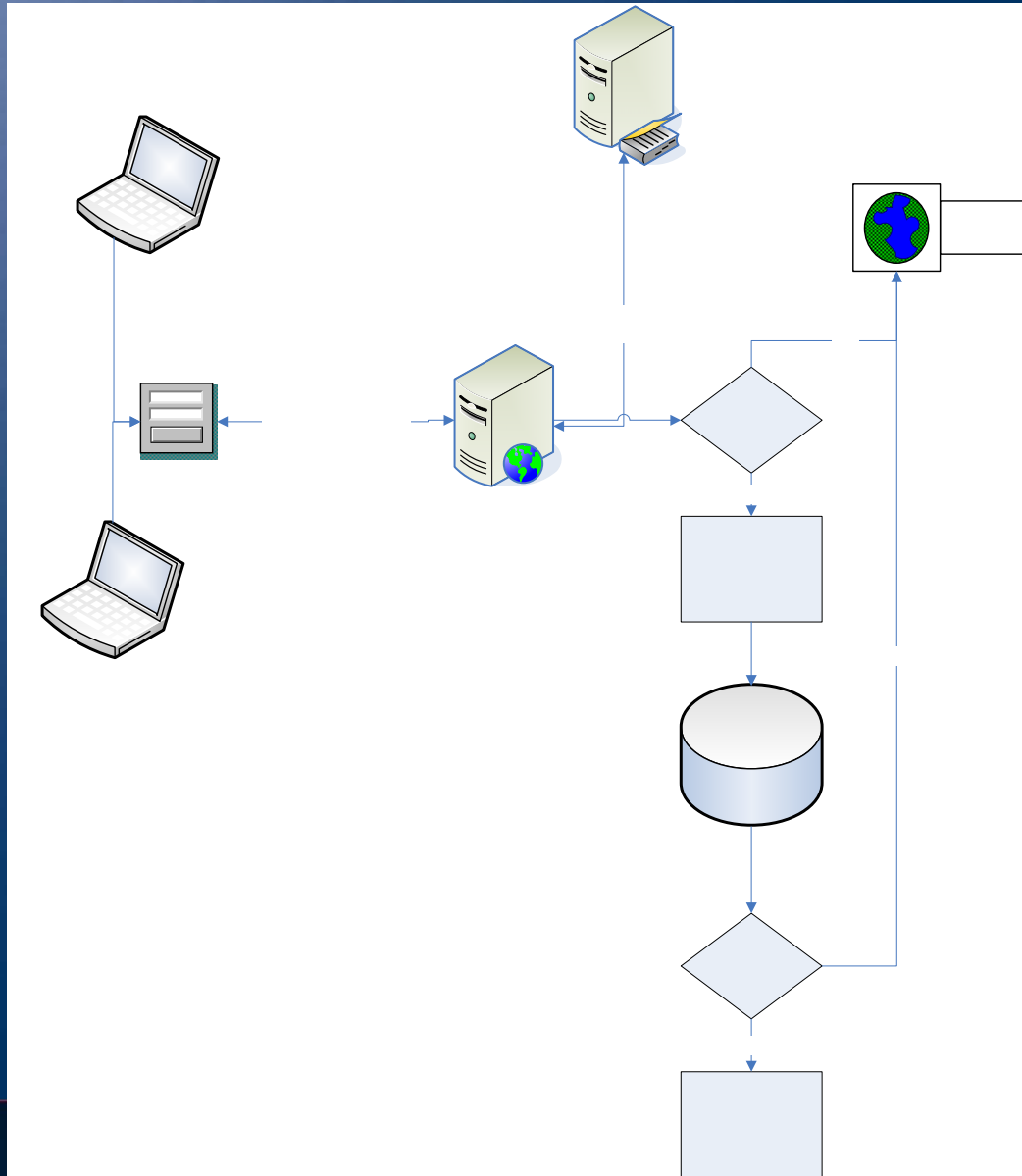


QCCS

- Access
 - DoD and US Government Users
 - No difference; license covered by DoD License
 - GIDEP Userid/Password
 - Industry Users
 - Commercial Subscription to QStar
 - GIDEP Userid/Password
- Logging On
 - No users or data transferred to QCCS; completely voluntary
 - Can export from DoD QStar system (to excel or csv) and import into QCCS



QCCS



QCCS

- Differences from DoD version of QStar
 - Flat Parts lists only
 - system will accept Indentured BOMs (ignores indenturing information)
 - Indenturing related features removed
 - Part sharing at the list level only
 - No Delete Capability (considering time delay)
 - Commonality Participation is a requirement
 - No alerts
 - reduces duplicate alerting from DoD QStar server or Commercial System
 - As a note; the DoD Sharing is Optional



QCCS

- Solution Data Sharing (under consideration)
 - Solution notes shared through Commonality Screen
 - Considering additional fields during the solution collection process



QCCS

- Reports
 - All standard reports available
 - Considering new reports
 - Commonality count by list
 - Parts list that have Commonality and count



QCCS

QUESTIONS



Traceability, What It Is And How To Get It

Michael Jones
Defense Supply Center Columbus
DMSMS Workshop
December 2005

Agenda

- Traceability, defined
- Other terms
- The Pipeline
- Documentation
- How far back?
- Verification
- Summary

Traceability Defined

- Per Merriam-Webster “Trace” is “to discover by going backward over the evidence step by step”.
- Traceability is the ability to understand the origins of an item to the point desired using available documentation.

Traceability Defined

- For microcircuits this means being able to determine the manufacturer of a device, including:
 - Place of manufacturer
 - Quality system (Class)
 - Technical requirements and characteristics
 - Date of manufacture

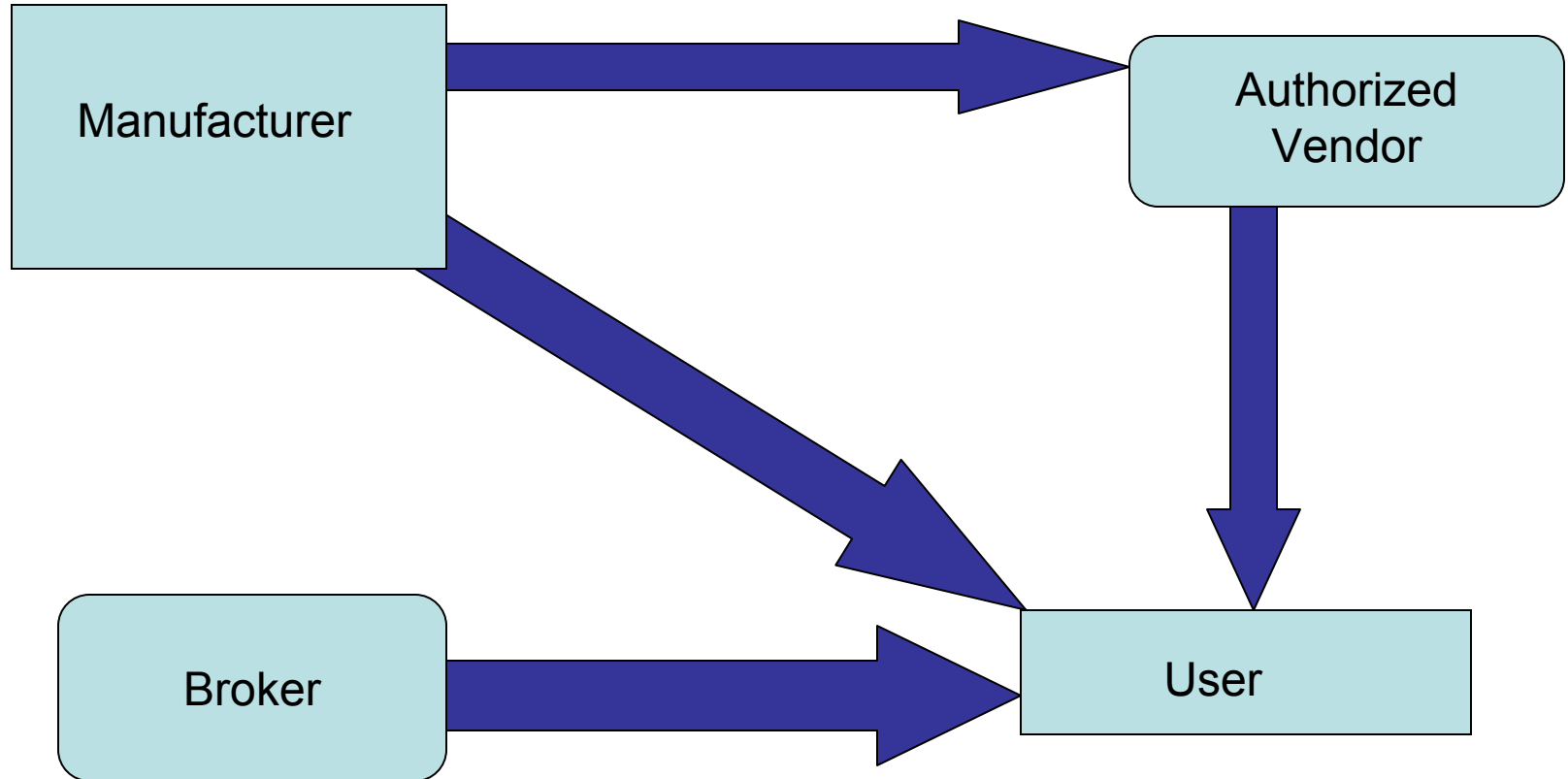
Other Terms

- Manufacturer – The organization that assembled the part (could be the die fabricator – but may not be)
- Authorized Vendor – An organization with a formal agreement with the manufacturer to distribute their products
 - After-market

Other Terms

- Independent Supplier or Broker – An organization with no formal agreements or relationship with the manufacturer but is able to supply product or mediate the sale of product directly from the manufacturer or some other source.
 - After-market

The Pipeline



Documentation

- Documentation should identify:
 - Manufacturer
 - Date of Manufacture
 - Part Number
 - Lot Number
 - Serial number if applicable
 - Place of manufacture
 - Drawing number if applicable

Documentation

- Documentation should be signed by a company representative from the manufacturer and other organizations involved.
- Documentation should trace the path the part followed from manufacturer to the organization supplying the part.

How Far Back?

- Traceability should be available back to the manufacturer, but what manufacturer?
- If the manufacturer on the package and the documentation did not fabricate the die further documentation may be needed.
- Traceability documentation should trace the origin of the die, not just the packaged part.

Verification

- Part should be marked with part number, date code, manufacturer ID as a minimum
- These should be checked with documentation received to verify accuracy
- Ensure signatures are valid
- Ensure part is traceable from the current supplier all the way back to the manufacturer

Verification

- Any discrepancies in the documentation should be questioned immediately
- Any concerns about the path the part took from the manufacturer to the current supplier should be investigated
- The manufacturer should be contacted if warranted
- A third party should be contacted as appropriate (QML-DLA)

Summary

- Traceability is a tool which, when used properly, allows you to verify that the part you have received is the part you need.
- Traceability must be monitored and evaluated with every part received.

DMSMS Workshop

Commodity Management in the Department of Defense Microelectronics Commodity

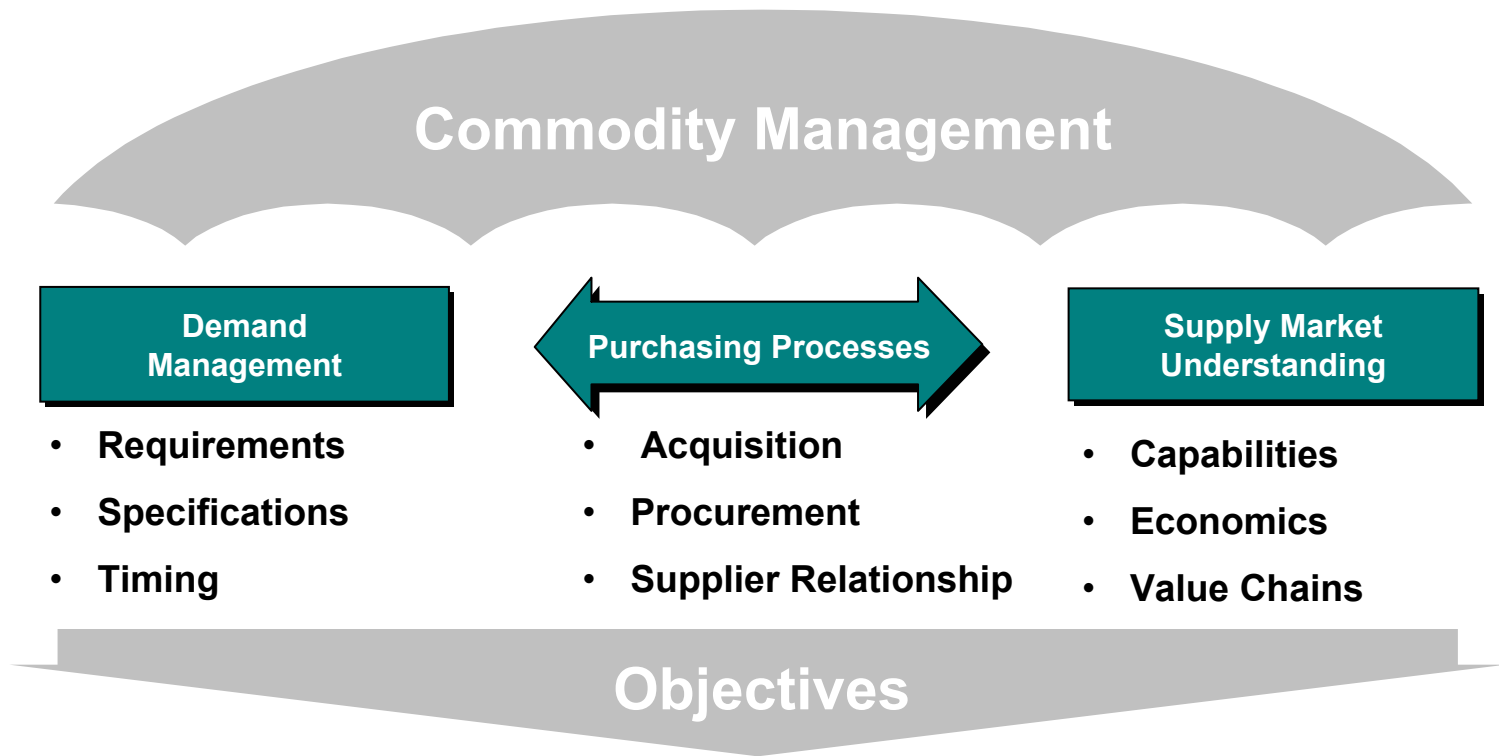
San Antonio, TX
December, 2005



Contents

- ▶ Introduction
- ▶ Issues and trends (DoD vs. Industry)
- ▶ Commodity overview (DoD)
- ▶ Key Insights
- ▶ Microelectronics Commodity Management Initiative

Commodity Management is a recognized industry best practice



Optimize Total Cost of Ownership

Supply Assurance and Strengthened Supply Base

Innovation Incorporated in Weapons Systems and Processes

DoD and industry have different philosophies on the use and management of microelectronics

DoD profile

- ▶ DoD spend is 0.4% of Global semiconductor market
- ▶ “Repair and Maintain strategy”
- ▶ DoD life cycles are long and shift to COTS parts has led vendors away from the DoD market
- ▶ DoD has limited influence in global market, but potential for greater influence in North American PCB market
- ▶ DoD organizations/initiatives such as DMEA, Trusted foundry program, DMSMS addressing supply/obsolescence issues
- ▶ Individual weapons system programs are responsible for their individual items

Industry trends

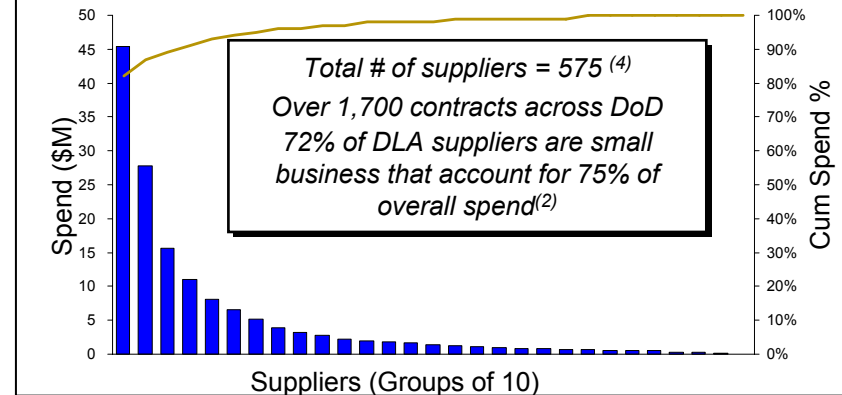
- ▶ Retail consumer driven - top global suppliers focus on automotive, wireless, consumer electronics markets
- ▶ “Throw away strategy”
- ▶ Focus on generating economies of scale
 - high volumes
 - lower cost products
 - shorter life cycles
- ▶ Fabrication capacity migrating to Southeast Asia; North American PCB capacity is down 50% over last 5 years
- ▶ Market and technological factors have led to vertical specialization

DoD microelectronics commodity characteristics

DEMAND CHARACTERISTICS

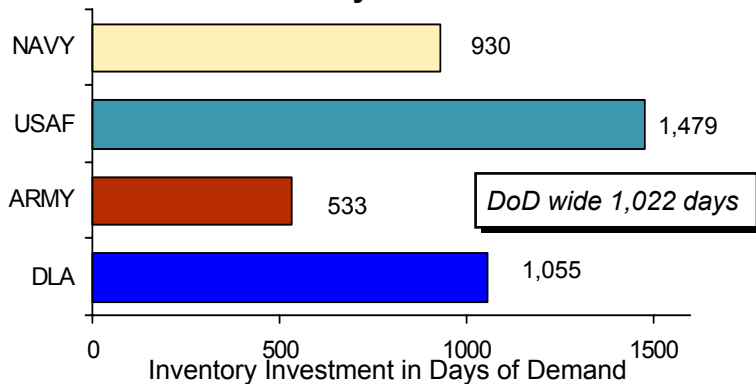
Total usage ⁽¹⁾	\$1,094M	
Total spend ⁽²⁾	\$728M	
Total inventory ⁽³⁾	\$3,062M	
	<u>Microchips</u>	<u>Circuit boards</u>
	(Consumables, FSC 5962)	(Repairable, FSC 5989)
# of NSN's	74,000	169,000
Unit costs	Low cost (85% < \$1000)	High cost (80% > \$1000)

SUPPLY CHARACTERISTICS



INVENTORY INVESTMENT CHARACTERISTICS

Microelectronics Days of Demand on Hand



PERFORMANCE CHARACTERISTICS⁽⁵⁾

	<u>Microchips</u> (Consumables, FSC 5962)	<u>Circuit boards</u> (Repairable, FSC 5989)
Supply Availability	88%	77%
Overall Supply Availability = 85%		
Admin Lead-time (avg. days)	61	85
Production Lead-time (avg. days)	135	214

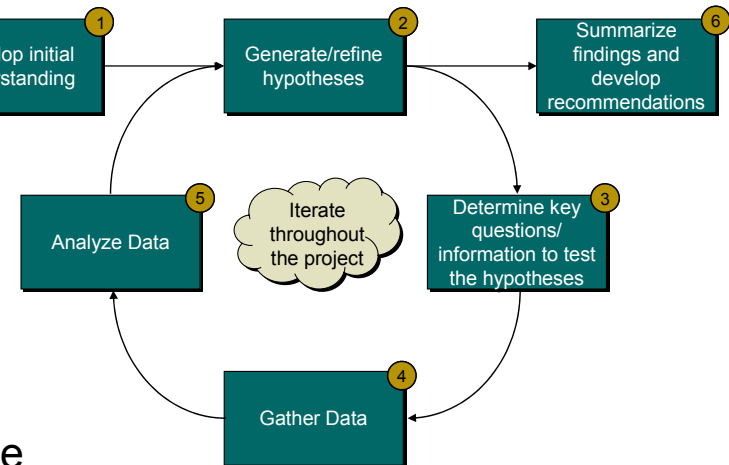
(1) CY 2004 demand, (2) CY 2004 contract spend, (3) Inventory is a snapshot as of July 2005 ; Spend lags demand (4) FY 2003 DoD Contract data from Eagle Eye Publishers; (5) CY 2004 DLA data

Initial insights reveal fragmented DoD procurement and short falls in material availability

- ▶ In 2003, 60% of microelectronics spend was with 4 traditional DoD suppliers (Lockheed Martin, Northrop Grumman, Raytheon, General Dynamics)
- ▶ Bottom 24% of spend was across 565 suppliers
- ▶ A large number of small business suppliers are available for this commodity
 - 72% of DLA vendors are small businesses
- ▶ DoD's leverage is dispersed across a large number of contracts
 - Lockheed Martin was the top supplier in 2003 with 57 contacts for \$185M spend across DLA and each of the Services
 - Northrop Grumman has 93 contracts for \$63M
 - Raytheon had 134 contracts for \$58M
- ▶ DoD supply performance is not in line with DoD-wide inventory investment
 - 2.8 years of demand on hand (1,022 days) achieved supply availability of 85%
- ▶ Supply performance varies even within the top suppliers with only one of DLA's top 15 suppliers in each microelectronics category meeting the 85% availability target

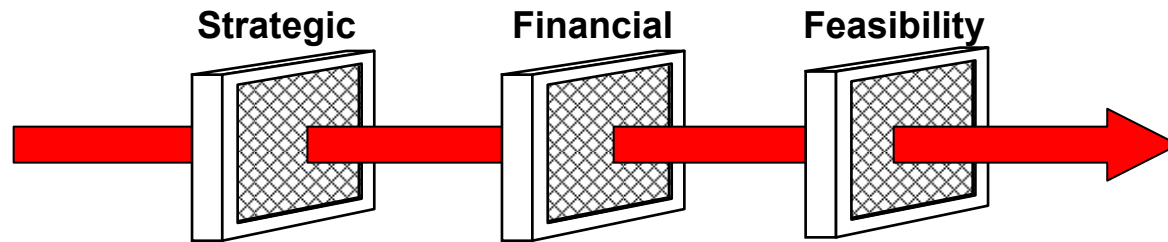
Chartered a commodity management initiative to present a DoD-wide view of the Microelectronics commodity

- ▶ Commodity team with Representation from OSD, each of Services and Agencies
- ▶ Short timeframe (5 months) operating in Virtual team structure
 - Teams collaborated via weekly conference calls, 2 on-site meetings
 - Minimal time demand on participants ~ few hours per week
- ▶ Project employed Hypothesis driven approach
 - No significant investment in data collection ~ teams leveraged existing data / reports
 - Structured, iterative process
- ▶ Clear objectives
 - Optimized Total Cost of Ownership
 - Strengthened Supply Base and Supply Assurance
 - Innovation in Weapons Systems and Processes



Continuing team effort is devoted to defining opportunities and developing strategies for DoD-wide implementation

- ▶ Defining a wide range of potential opportunities
- ▶ Evaluate and filter opportunities



- ▶ Prioritize opportunities based on their magnitude
- ▶ Develop actionable strategies for DoD-wide implementation
- ▶ Expected outcomes
 - Improved availability for the warfighter
 - Reduced administrative costs
 - Material cost savings
 - Release working capital funds for more appropriate use

Opportunities

- ▶ Streamline Contracting Process
 - Centralized contracting with decentralized ordering
 - Greater use of long term contracts
 - Leverage existing and new strategic relationships
- ▶ Eliminate duplicate NSNs
 - Review and revise NSN cataloging process
 - Consolidate duplicate NSNs
- ▶ Obsolescence Mitigation
 - Implement PBL in weapons systems contracts
 - Develop tools /methodology to demonstrate/educate PMs value of tech refresh and obsolescence mitigation
- ▶ Improve collaboration/partnering with industry
 - Establish a consolidated supply and demand planning process
 - Align DoD requirements and industry capabilities/plans

Aging Aircraft Integrated Product Team



Aging Aircraft IPT



AGING AIRCRAFT IPT: "WHAT'S EATING YOU?"

JCAA GIDEP Workshop 14-15 Dec 05

Ric Loeslein

Aging Aircraft Integrated Product Team

DMSMS Team Lead

Naval Air Systems Command

Patuxent River, MD

301-342-2179

George.Loeslein@navy.mil

Who is the JCAA?



Aging Aircraft IPT

Vision

Jointly Identify, Investigate, and Implement Programs that will Field Products to Improve the *Availability* and *Affordability* of all the Services' and Agencies' Aging Aeronautical Systems.

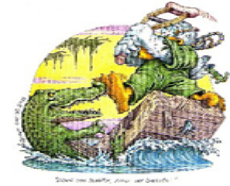
Process

Through the use of Integrated Roadmaps, Shared Data and Analyses, the JCAA will:

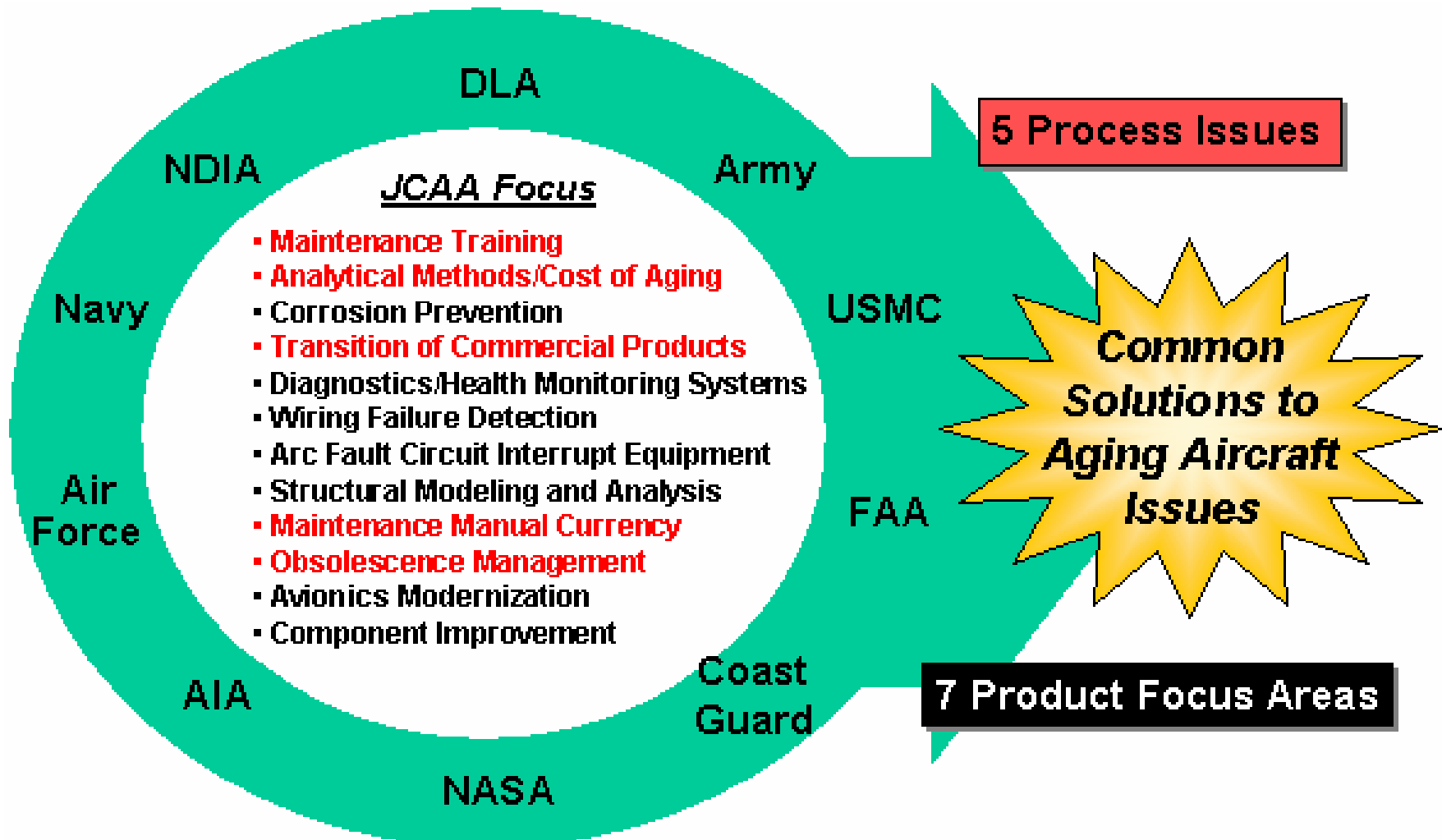
- Identify **Process Recommendations & Improvements**
- Advocate/Enable **Promising Technology**
- **Facilitate Transition** of Technology/Program Opportunities
- Promote Knowledge Management on Aging Aircraft
- **Coordinate Funding** for Promising Areas



National Strategy Focus



Aging Aircraft IPT



OSD and JLC Charged JCAA to Develop a National Strategy

JCAA Website



Aging Aircraft IPT

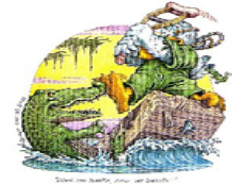
A screenshot of the JCAA website displayed in a browser window. The browser's address bar is empty. The website has a black background with yellow and white text. At the top, it says "Welcome to the JCAA WebSite". Below that is a banner with the "NAVY AIR" logo on the left, a central image of various aircraft, and the "U.S. AIR FORCE" logo on the right. Underneath the banner are links for "Latest News (Updated 3/31/05)", "Chairman's Message", and "JCAA National Strategy". The next section is titled "Members | Visitors". The main logo for "JCAA" is in large, bold, yellow letters, with "JOINT COUNCIL ON AGING AIRCRAFT" written below it in smaller white letters. To the right of the "JCAA" text are three stars: a blue one, a white one, and a red one. Below the logo is a section for "Aging Aircraft Conference Papers" with links for "2005", "2003", and "1998 - 2002". At the bottom of the page, it says "This Web Site is Best Viewed With Screen Resolution Setting 1024*768 and Internet Explorer 5.5+ or Netscape 7.0".

<http://www.jcaa.us>

**Aging Aircraft Team
Initiatives:
General Series Publications**



General Series Pubs



Aging Aircraft IPT

- Common Maintenance Procedures Utilized in All Platforms
- Number 1 Way to Transition New Maintenance Technology
- *Always* underfunded
- JCAA Coordinating Updates

ID	Task Name	Duration	2003				2004				2005				2006				2007				2008
			Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	
1	Technology Roadmaps	1565 days	[Timeline bar from Qtr 2 2003 to Qtr 4 2007]																				
2	Joint Services CPC Roadmap	261 days	[Green bar from Qtr 3 2003 to Qtr 4 2003]																				
3	Joint Services NDI - Prognostics/Diagnostics Roadmap	456 days	[Blue bar from Qtr 4 2003 to Qtr 2 2004]																				
4	Joint Services Protective Finishing System Roadmap	261 days	[Blue bar from Qtr 1 2004 to Qtr 4 2004]																				
5	Joint Services Coatings Removal Roadmap	261 days	[Blue bar from Qtr 2 2004 to Qtr 3 2004]																				
6	Joint Services Corrosion Mapping Roadmap	261 days	[Blue bar from Qtr 3 2004 to Qtr 4 2004]																				
7	Joint Services Inorganic Coating/Plating Roadmap	260 days	[Blue bar from Qtr 4 2004 to Qtr 1 2005]																				
8	Joint Services Cleaning and Preservation Roadmap	260 days	[Blue bar from Qtr 1 2005 to Qtr 4 2005]																				
9	Joint Services Maintenance Practices Roadmap	260 days	[Blue bar from Qtr 2 2005 to Qtr 4 2005]																				
10																							
11	Collaborative Technology Initiatives	1305 days	[Timeline bar from Qtr 2 2003 to Qtr 4 2007]																				
12	Clear Water Rinse	261 days	[Green bar from Qtr 3 2003 to Qtr 4 2003]																				
13	Corrosion Kits	261 days	[Green bar from Qtr 3 2003 to Qtr 4 2003]																				
14	Geographic Corrosion Assessment	870 days	[Blue bar from Qtr 4 2003 to Qtr 4 2005]																				
15	CPC Spec Updates	417 days	[Blue bar from Qtr 1 2004 to Qtr 4 2004]																				
16	OSD Corrosion Guide Aerospace Annex	223 days	[Green bar from Qtr 2 2004 to Qtr 3 2004]																				
17	AMCOM-NAVAIR Corrosion Partnership	784 days	[Blue bar from Qtr 3 2004 to Qtr 4 2005]																				
18	Corrosivity Sensor Initiative	620 days	[Blue bar from Qtr 4 2004 to Qtr 4 2005]																				
19	AVDEC Gasket OSD Initiative	521 days	[Blue bar from Qtr 1 2005 to Qtr 4 2005]																				
20	OSD Mg Finishing Effort	261 days	[Blue bar from Qtr 2 2005 to Qtr 3 2005]																				
21	New Coating Evaluation	260 days	[Red bar from Qtr 3 2006 to Qtr 4 2006]																				
22	Avionics Corrosion Issues - TBD	270 days	[Red bar from Qtr 1 2005 to Qtr 2 2005]																				
23	OSD Corrosion IPT	1145 days	[Blue bar from Qtr 4 2003 to Qtr 4 2007]																				

01-1A-509 Corrosion Control



Aging Aircraft IPT

The Challenge

- Duplication
 - 01-1A-509 (Airframe)
 - 16-1-540 (Avionics)

The Team

- U.S. Navy/U.S. Marine Corps
 - North Island
 - China Lake
 - FFT
- U.S. Air Force
 - Warner Robins
- U. S. Army

The Product

- Revise NA-01-1A-509
- Revise NA 01-1A-540
- Volumize data
- Hard Copy/CD released Mar 05

NA 01-1A-501-1
TM 1-1500-344-23-1
TO 1-1-689-1

**Corrosion
Program and
Corrosion
Theory**

1 MAR 05

NA 01-1A-501-2
TM 1-1500-344-23-2

**Aircraft
Corrosion
Control**

1 MAR 05

NA 01-1A-501-3
TM 1-1500-344-23-3
TO 1-1-689-3

**Avionics and
Electronics
Corrosion
Control**

1 MAR 05

NA 01-1A-501-4
TM 1-1500-344-23-4

**Consumable
Materials and
Equipment -
Airframes**

1 MAR 05

NA 01-1A-501-5
TM 1-1500-344-23-5
TO 1-1-689-5

**Consumable
Materials and
Equipment
Avionics**

1 MAR 05

**Aging Aircraft Team
Initiatives:**

**Avionics and Airframe Parts
Obsolescence**

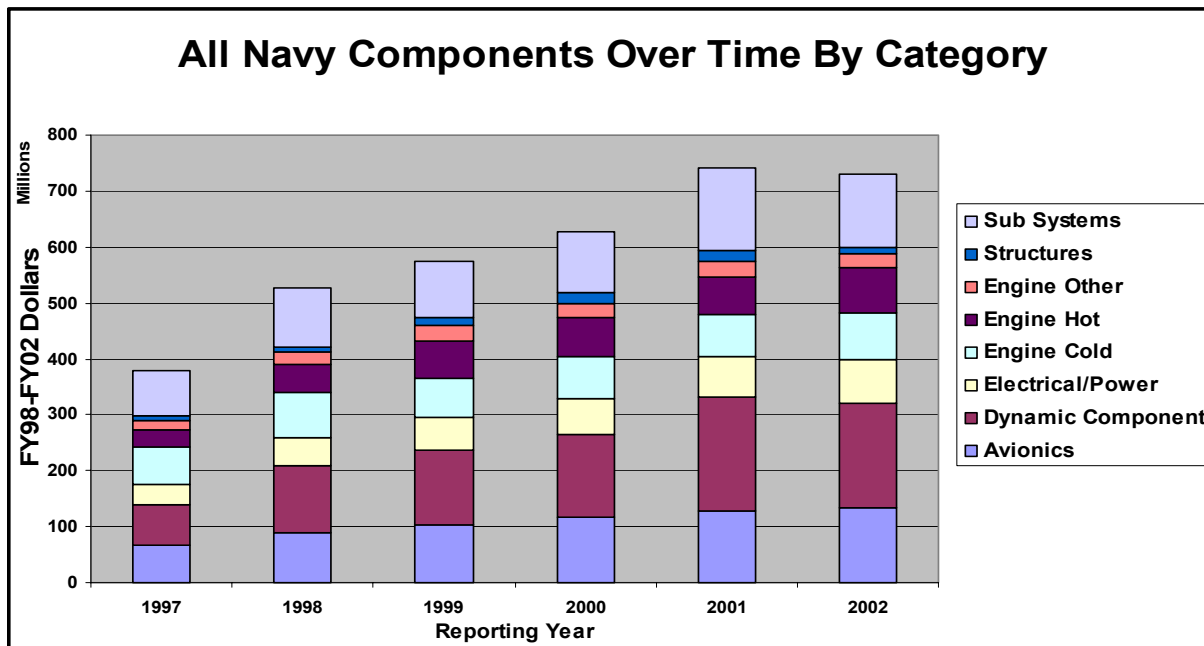


DMSMS / Obsolescence Policy



Aging Aircraft IPT

“The Problem”



- Component Repair growing by an average of 7.8% per year

- *Obsolescence a Key Factor for Avionics Cost Growth*

- Obsolescence impact to Naval Aviation alone = **\$750M**

- PMA 265-\$18M

- **PMA 275-\$32M AVOIDED**

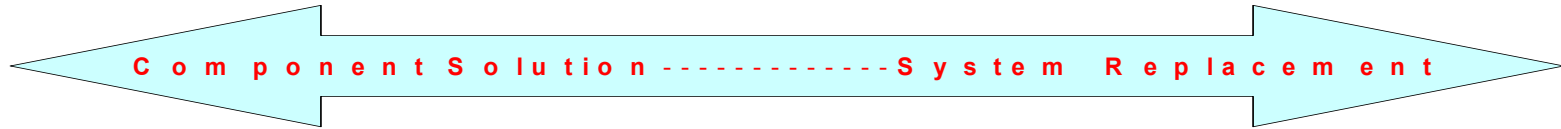
Root Cause Analysis

	Age	Obs	Vndr	Dsgn	Log	New Item	Maint Plan
Avionics	27.5%	45.0%	1.3%	8.1%	8.1%	9.4%	0.6%
Dynamic Component	61.0%	0.0%	7.3%	3.7%	11.0%	12.2%	4.9%
Electrical/Power	40.6%	4.7%	6.3%	37.5%	3.1%	3.1%	4.7%
Engine Cold	64.2%	0.0%	0.0%	0.0%	7.7%	28.2%	0.0%
Engine Hot	86.2%	0.0%	0.0%	0.0%	0.0%	10.3%	3.4%
Engine Other	46.7%	8.3%	0.0%	23.3%	20.0%	1.7%	0.0%
Structures	76.7%	3.3%	0.0%	13.3%	0.0%	3.3%	3.3%
Sub Systems	52.9%	5.9%	4.4%	10.3%	14.7%	10.3%	1.5%

Spectrum of Potential Solutions

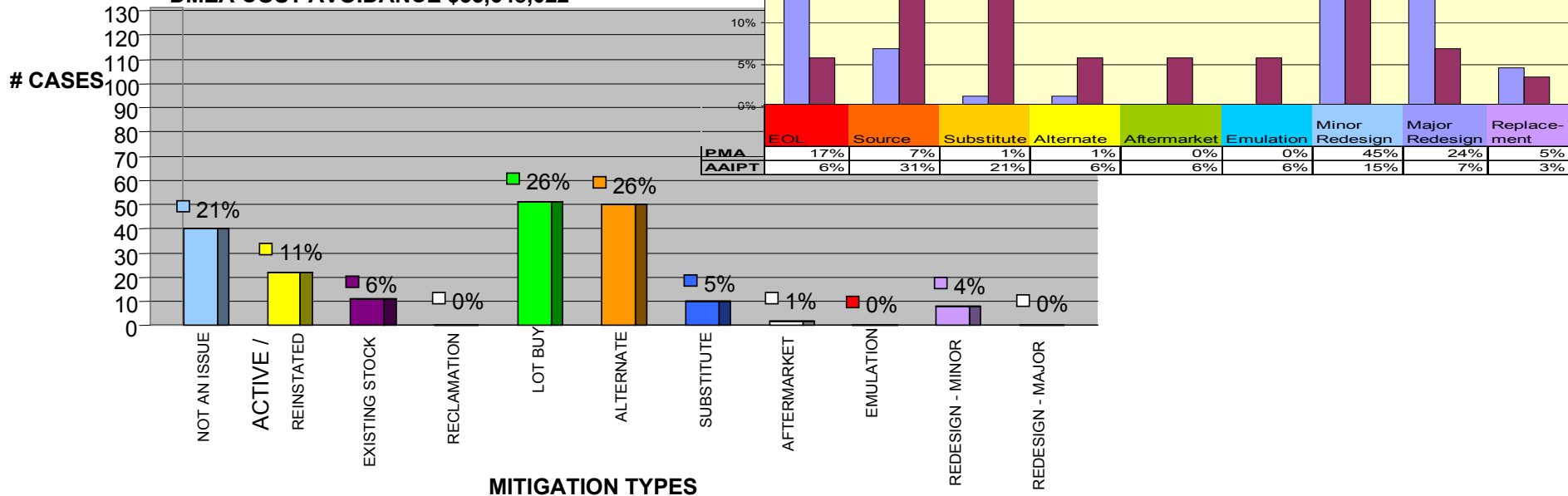


Aging Aircraft IPT



V-22 OBSOLESCENCE MANAGEMENT TEAM RESOLUTIONS (2005)

DMEA COST AVOIDANCE \$33,648,022



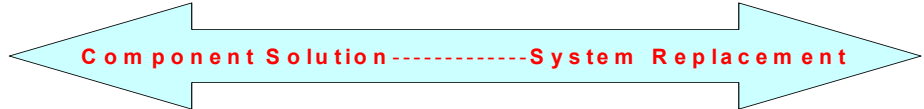
Full Spectrum Obsolescence Support



Aging Aircraft IPT



- Standardized approach**
- Multiple tools for each phase
 - Waterfall charts
 - Tracking of Metrics
 - Certified Costs

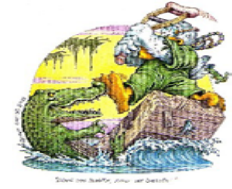


- Procurement:**
- SOW preparation
 - Re-engineering
 - Supplier obsolescence plans
 - Component Selection
 - Architecture Refresh options

- Process:**
- Tools Re-engineering
 - Metrics
 - Training

- Sustainment:**
- "Hot Line Support
 - Re-engineering options
 - System Analysis and Support

JCOMMS System Architecture

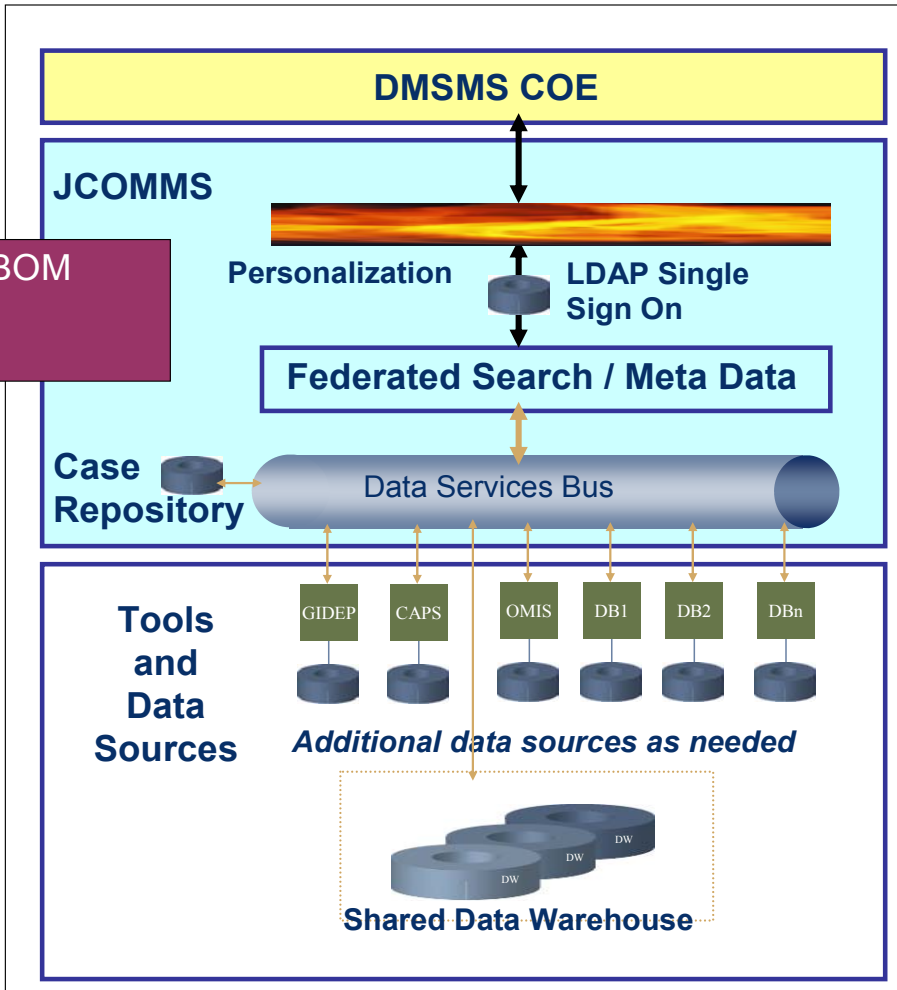


System Architecture

Aging Aircraft IPT



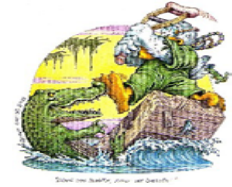
Part Number /BOM
Cleansing and
Formatting



Solution Sharing
Data Translation
Piece Part Search
Simultaneous Search
Parametric Search
Solution Search
Predictive
Obsolescence
Personalization

Future – ERP and
Depot Repair Data

JCOMMS - Targeted Data Sources and Tools Integration



Aging Aircraft IPT

Data Sources and Tools

Access Tools

FedLog/FLIS
PC Link

Aggregated Parts Sources

Shared Data Warehouse
Part Miner

Clearing House for Information

ILS
IHS Specs & Standards

Inventory Management

WebCATS
DSCC
Haystack

Maintenance Information

LMDSS

Predictive Tools

Q-STAR
Total Parts Plus
TACTRAC-Comet
CAPS Expert

Publication

NATEC
GIDEP
Avionics Installation
Plan

Sustainment Tools

AVCOM
Horizon
Sunset
OMIS
EPIC
Sustain

Technical Drawings

JEDMICS (Medals)

Supplier

Sarnoff
Lansdale
Rochester
Fairchild
Motorola
Micro Semi
National Semi
TI
QP Semi
Cypress
Intersil

- This list represents an independent view of the potential data sources and tools that will be considered under the JCOMMS Discovery
- And is JOINT across DoD

JCOMMS – Wild Card LM45 Results



Aging Aircraft IPT

Demo

Document Matches: 15

Number of results displayed: 15

ID	Manufacturer	Description	Originator	Phone Number	Source
... LM4546AVH					
LM4558N	NATIONAL SEMICONDUCTOR CORPORATION DIV HIGH RELIAB	MICROCIRCUIT,LINEAR			FLIS
LM4550VH					GIDEP DMS Notices
LM4550VH	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,QFP,48PIN,PLASTIC			CAPS
LM4548AVH	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,CMOS,QFP,48PIN,PLASTIC			CAPS
LM4546AVH	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,QFP,48PIN,PLASTIC			CAPS
LM4550VHX	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,QFP,48PIN,PLASTIC			CAPS
LM4550VHX					GIDEP DMS Notices
LM4548AVH					GIDEP DMS Notices
LM4546AVH					GIDEP DMS Notices
LM4546AVHX	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,QFP,48PIN,PLASTIC			CAPS
LM4548AVHX	National Semiconductor Corp	IC,SOUNDCARD CIRCUITS,CMOS,QFP,48PIN,PLASTIC			CAPS
LM4546AVHX					GIDEP DMS Notices
LM4548AVHX					GIDEP DMS Notices
LM4558N	LOCKMART	NSC	RICK.CAHN	doug44	JCOMMS Cases

FastTrack – The Need

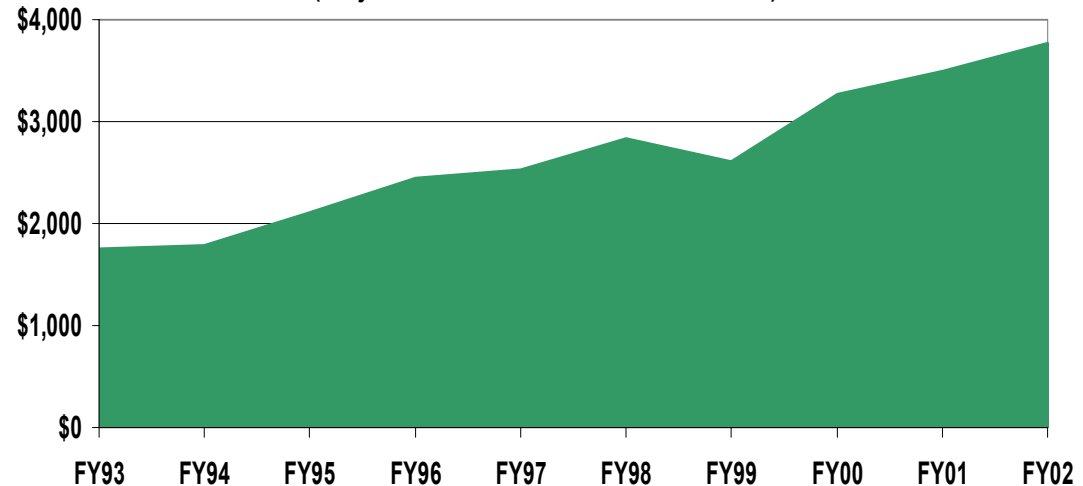


Aging Aircraft IPT

DLA Managed Consumables Have Experienced **Significant Increases in Acquisition Costs**

- Many different FSCs
 - Many are simple structural parts
- **up to 300% increase**
- increased use of OEM's for "readiness at all cost" solutions

Dollars Spent based on Standard Prices
(Adjusted for Inflation, In Millions)



All Aviation Consumable Items - Dollar Demand Chart

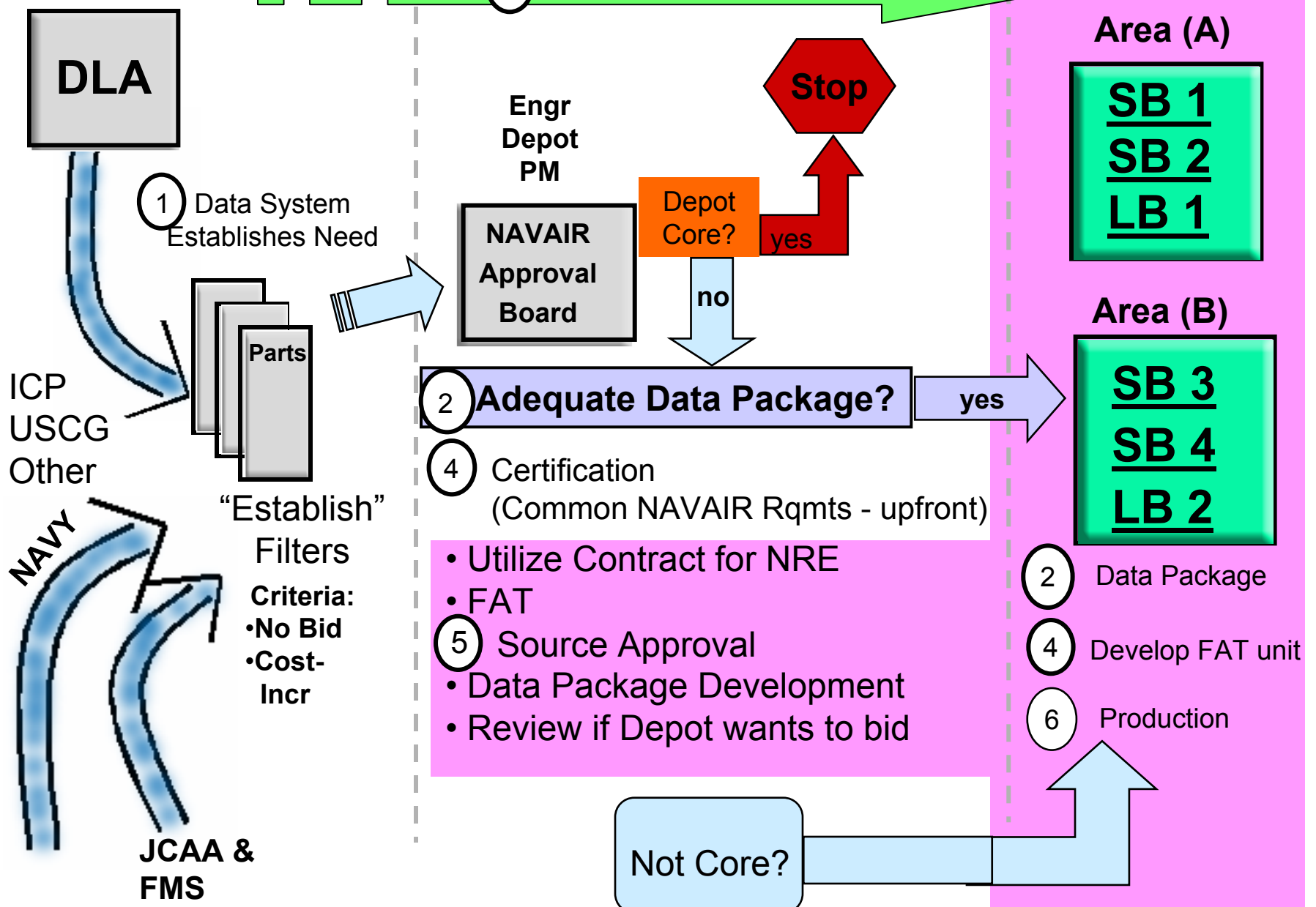
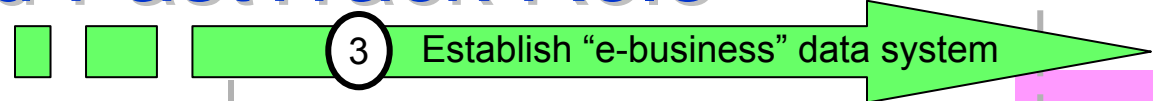
DLA Managed items one of two major issues in depot cost growth

Process to qualify alternate sources severely fragmented and inefficient

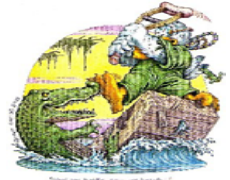
Program Teams Don't have the Resources to Establish Stand Alone Contracts for Individual Parts

Proposed FastTrack Role

Establish Consortium of contractors



Obsolescence & FastTrack Overview



Aging Aircraft IPT

- **Obsolescence offers both Challenges and Opportunity**
- **Need to be Proactive and attack the cause of Obsolescence**
 - Teaming with Industry
 - Establish “Standards” for Electronic Parts management
 - Balance new design practices, tools and more robust mitigation efforts
 - Champion new technologies

Opportunity to get in on the Ground Floor

**Aging Aircraft Team
Initiatives:**

Airframe Corrosion



Corrosion Products



Aging Aircraft IPT

- **Touch-Up Aerosol Primers & Topcoats**
- Isocyanate Investigation
- Sacrificial Coating Repair
- **Clear Water Rinse System**
- **Corrosion Repair Kit**
- Specifications Update
- **AvDec Sealants**
- Magnesium Treatment
- OSD CPC Guidebook Appendix K



Touch-Up Aerosol Primers and Topcoats

Aging Aircraft IPT

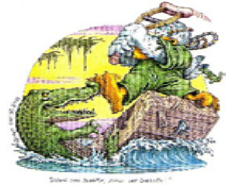
Objective: Evaluate performance of commercial off-the-shelf aerosol products conforming to MIL-SPEC for touch-up painting.

Background: Non-approved aerosol coatings (A-A-2786 & PWC) do not provide adequate corrosion protection, weather resistance, durability, nor are they resistant to operational fluids. Used extensively by O- and I- level maintenance activities, and IMC sites.



Status: Product screening and initial corrosion testing is complete. Follow-On testing underway and when complete Implementation planned for FY05.

Clear Water Rinse System



Aging Aircraft IPT

Description:

Automated taxi-thru Clear Water Rinse System (CWRS) for aircraft upon return to airfield after completion of daily mission or training exercises.

A closed loop CWRS with filtration to remove heavy metal contaminants, salts, oils and greases.

Date Action Initiated/Due:

June 2004

Status:

Approved Army project with initial lease for Hunter AAF, GA

OSD FY05 funding - \$2M (Hunter AAF)

Service FY05 matching - \$3M (SWA)

Aeronautical:

Rotary Wing



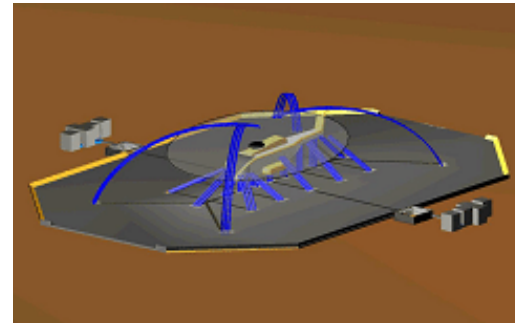
Services/Agencies Impacted:

All Rotary Wing Owners

ILS Elements:

Leased/Transportable System

Contractor Logistic Support (CLS)



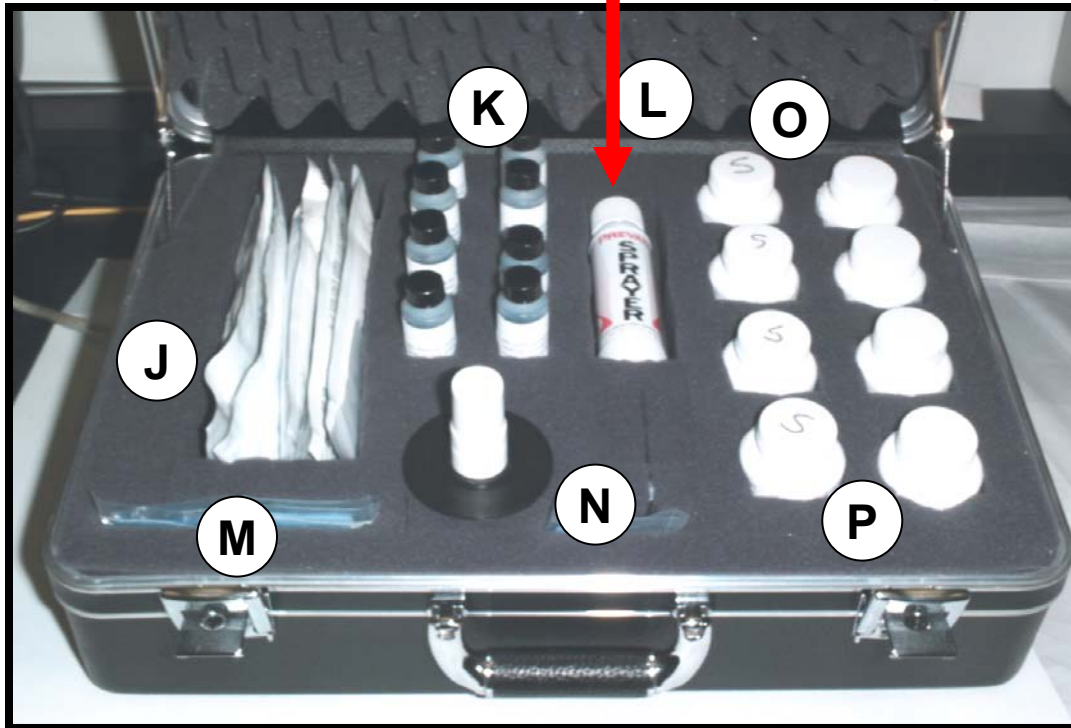
Corrosion Repair Kit



K. One-component primer
And one-component topcoat

**L. Pre Val
Aerosol sprayer**

J. Primer
and Topcoat
Sempens



O. Two-component
polyurethane
brush or
sprayable topcoat

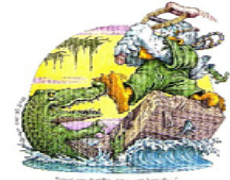
M. Pre-moistened
abrasive pads and
towelettes

N. Chromate conversion
coating pen

P. One-component brush or
sprayable polyurethane
topcoat

Short term solutions for the maintainer

CPC and AvDec Sealants



Aging Aircraft IPT

Description:

Antenna, static wick, other electrical interfaces and floorboards pose corrosion problems for aviation platforms.

Current corrosion prevention schemes are not sufficient and lead to high component scrap rates, maintenance Man hours and prematurely damaged structure.

Date Action Initiated/Due:

Start Jan 2005

Status:

Approved project

OSD FY05 funding - \$2.91M

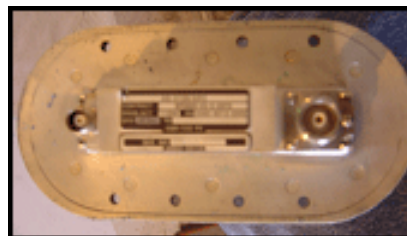
Service FY05 matching - \$3.832M

Air Force, Navy and USCG successfully demonstrated

Aeronautical:



**Without AvDEC
gasket**



**With AvDEC
gasket**

ILS Elements:

Maintenance Planning

Manpower & Personnel

Supply Support

Training & Training Support

Air Vehicle Bonding Repair



Aging Aircraft IPT

Processes for Austere Bonding

PROBLEM

- Difficult to effect bonded repairs in austere environments (esp. blowing sand)
- Limits effectiveness of patches, and increases repair time for forward deployed units
- Can force delayed repairs

SOLUTION

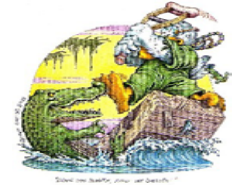
- Commercially available hazmat removal bags could fulfill this requirement. Need to develop use procedures and put in –21 or TMS SRMs. Could also provide procedures for manufacturing bags from scratch.
- Commercial bags provided to recently deploying H-46 squadron HMM-261 for prototype.



**Aging Aircraft Team
Initiatives: Wiring Team**



Integrated Wiring Strategy



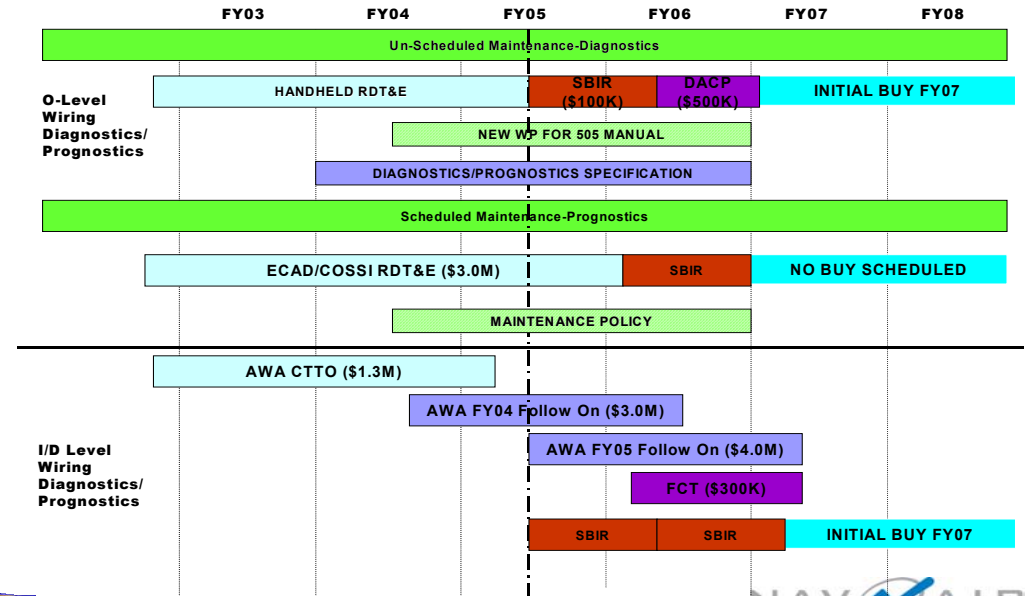
Aging Aircraft IPT

ARC Fault Circuit Breaker

- Reduction in aircraft fires
- Support standardization
- **Joint Logistics Package and Procurement**



Wiring Diag/Prog Efforts



NAV AIR

Balance of technology, conditioned based maintenance (CBM), training and publications
Continuous Tech Insertion

Integrated Roadmap – coordinated Procurement

AWA (Off-Line Diagnostics) Program

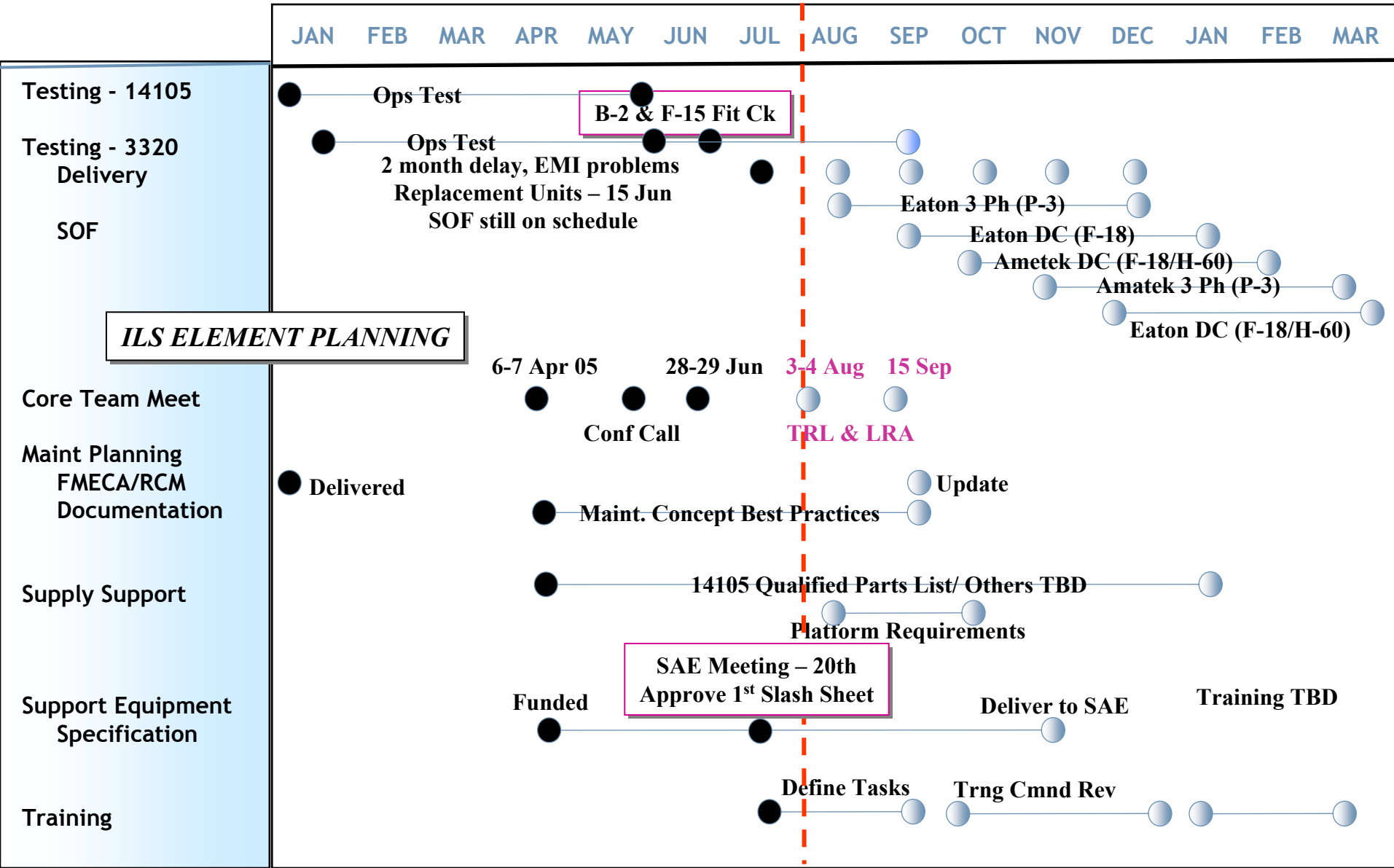
- Develop and Field Depot level Wiring Diagnostic Tool
- Standing Wave Reflectometry (SWR)
- 128,000 point switching

Arc Fault Circuit Breaker

Timeline



Aging Aircraft IPT



Arc Fault Circuit Breaker



Aging Aircraft IPT

Purpose/Description of Issue:

- The FAA, USAF, USN are jointly developing the arc fault circuit breakers and a core logistics package must be developed prior to implementation

End Product/Outcome:

- Common Core Logistics Elements & Processes will be identified/addressed
- **QPL (Jan 06) ** (168 DLA \$, 50k Contr)**
- **Common Training (Mar 06) (FY-06)**
- **Maintenance Concept Doc (Sep 06) ****
- **Navy FY-05 40k Wyle)**
- **Procurement contract (TBD) **(DLA cost**
- **Support equipment (TBD) **(200k DLA funding)**

**** FUNDED**

Task Group Composition:

- USN Bob Ernst (4.1D)
- USN Andrew Yang (4.4.4.3); Chuck Singer (4.4.4.1); Rick Clarkson (3.1.4)
- USAF **Terry Miller (ASC/AAAV)**
- USCG Keith Stevenson
- USA Jean Grotophorst (AMSRD-AMR-SE-IO-VE)
- DLA Dale Roberts (DSCR)
- FAA Mike Walz (Adjunct member)

Metrics:

- Reduction in aircraft fires
- Support standardization
- Time to transition technology

AWA Diagnostic Tester



Aging Aircraft IPT

The Problem: Navy Wiring Defects Impact Safety, Readiness, Cost

- **Safety Impact:**
 - 2.5 electrical fires/month
 - During 30 month period, lost 2 aircraft due to electrical fires
 - 540 in-flight aborts/year
 - Hazardous Material Reports (HMRs)
 - Chafing conditions are our number one safety issue with regard to wiring
 - Hazardous incidents are increasing as aircraft age
- **Readiness Impact:**
 - 1,400 mission aborts/year
 - Effectively average 125 NMC aircraft per year due to faulty wiring
- **Affordability/Cost Impact:**
 - Approximately \$94M in NFF eqpmt removals due to undiagnosed wiring problems on an annual basis
 - 1-2M operational MMhrs/year spent repairing wire problems
 - **Most time spent trouble-shooting, isolating, & locating wire faults**
 - **This information is known to be under-reported**
 - Could be as high as 4M MMhrs/year

AWA Diagnostic Tester



Aging Aircraft IPT

- MULTIPLE FREQUENCY TEST PROTOCOL PER WIRE PATH
 - NON-DESTRUCTIVE
- BASIC CHECK IS FAST & AUTOMATIC
 - ✓ OPENS (ISOLATION)
 - ✓ SHORTS (CONTINUITY)
 - ✓ DISTANCE IN FT/INCHES OR METERS/CM OR ALL INCHES
 - ✓ SOME WAVEFORM ANALYSIS CAPABILITY
- PROCEDURES ARE MENU DRIVEN

Single
Circuit
Path

Multiple
Circuit
Paths +
Multiple
Leads

Ready for Fielding

AWA TEST SYSTEMS



Hand Held
Unit

AWA TESTS CIRCUITS USING
NASA PATENTED
TECHNOLOGY- STANDING
WAVE REFLECTOMETRY
(SWR)

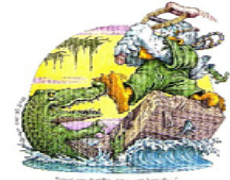


Ruggedized
Laptop



Test Box
+
Expansion
Units

AWA Diagnostic Tester



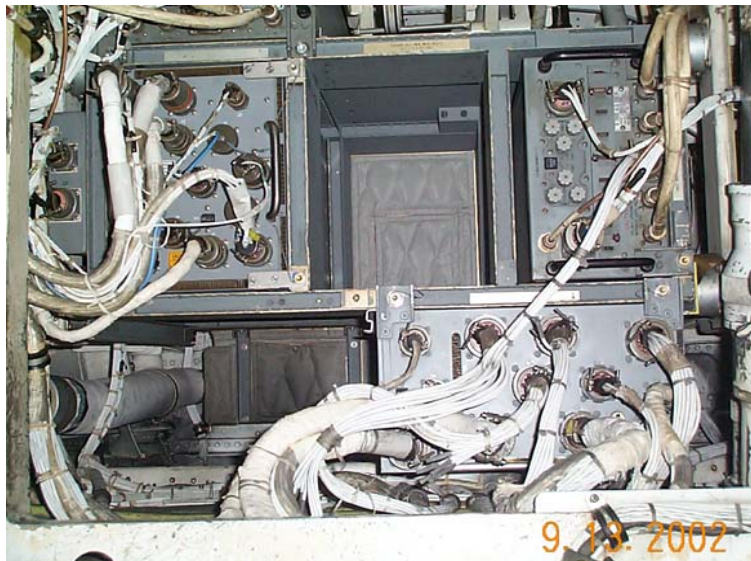
Aging Aircraft IPT

Wiring System – Degraders & Cost

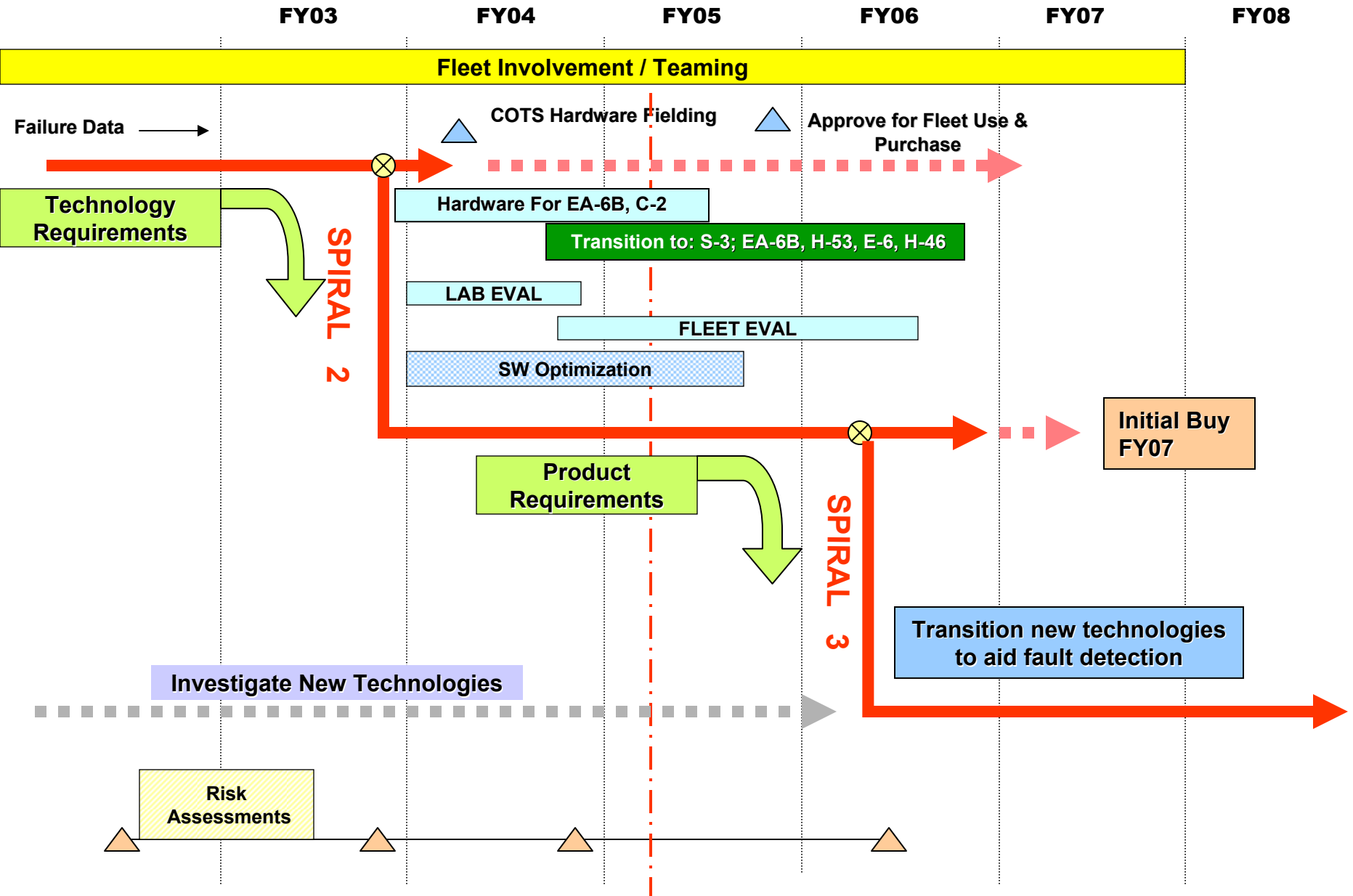
Why Should You Care About Wiring Systems?

- An Indispensable System
- Impacts Safety and Mission Readiness
- High Cost Of False Equipment Removals
- Complexity and Density Is Increasing
- Experiences Aging Effects

- **Safety Degradation**
- **Readiness Degradation**
- **Millions Of MMH**
- **Escalating Cost**



AWA Diagnostic Tester



**Aging Aircraft Team
Initiatives:**

Avionics



Industry Consensus Definition: **Aerospace Qualified Electronic Component**



The intent of this definition of an Aerospace Qualified Electronic Component (AQEC) is to (a) ensure that electronic components used in aerospace applications are reliable in those applications; (b) provide aerospace access to component manufacturers' commercial-off-the-shelf (COTS) products at acceptable cost; (c) minimize deviations from the component manufacturers' COTS products; (d) have little or no negative impact on the AQEC suppliers' operating or business procedures; and (e) promote communication between the component manufacturer and the aerospace users.

This definition is not to be imposed upon AQEC suppliers or users, but to be negotiated among them.

1. The AQEC should have the following features:

- Designed, fabricated, assembled, and **tested in accordance with the component manufacturers'** requirements for (COTS) products;

- Qualified in accordance with the component manufacturer's standards** and specifications for the manufacturer's COTS products;

- Subject to the component manufacturer's design, manufacturing, quality assurance, and quality systems standards, technical specifications, procedures, and other similar requirements for COTS products.

2. In order to be considered an AQEC, the component manufacturer's COTS component should undergo testing and/or analysis to **assess its reliability in the aerospace application**. The process used to do so should be mutually agreed upon by the AQEC suppliers and users.

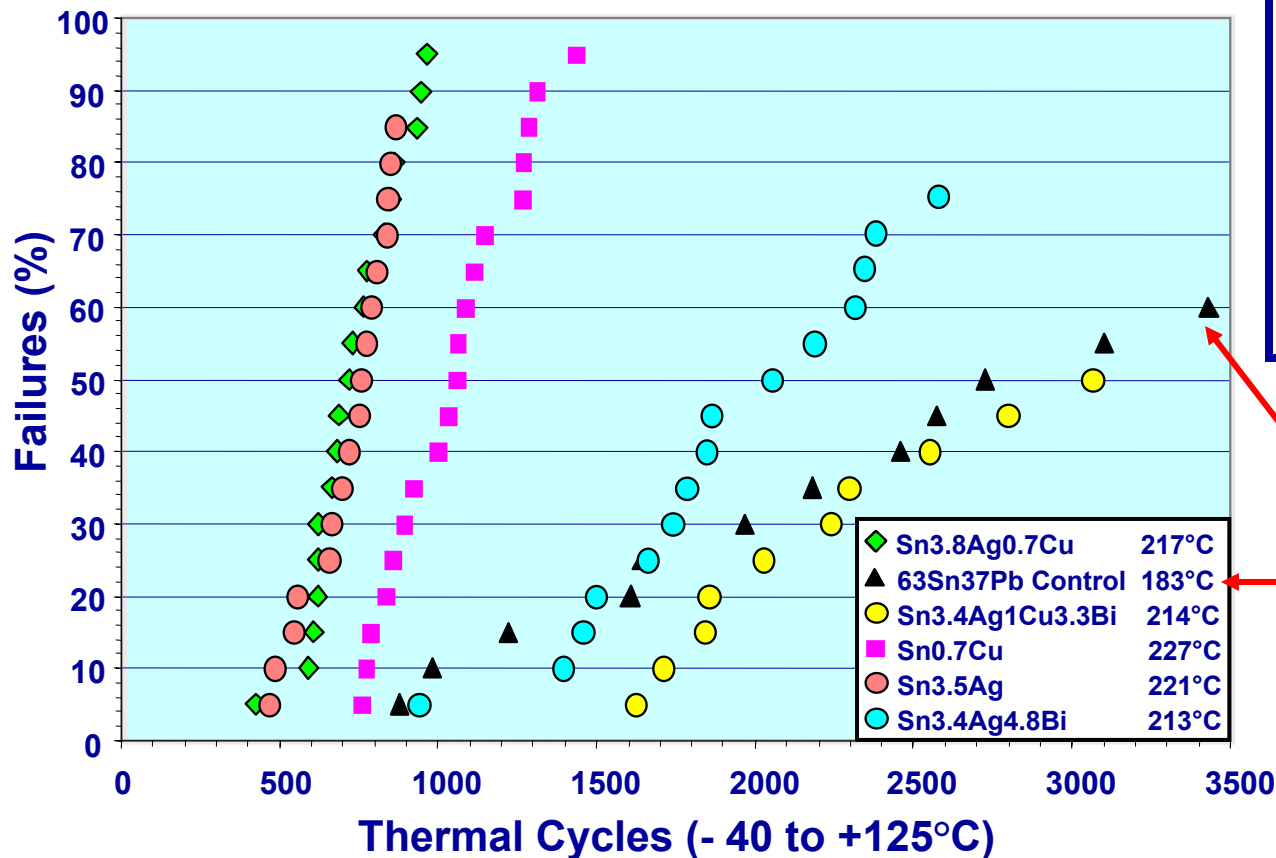
3. The configuration of the device should **remain stable for a specified period of time**. (This may be done in a variety of ways, but one example would be to characterize given lots of devices as AQEC, in sufficient quantities to supply the aerospace market for agreed-upon periods of time.)

Pb-Free Electronics will have New and Varied Solders, Changes in Component Finishes, and Possibly Changes in PWB Materials and Finishes



Aging Aircraft IPT

- ◆ • Sn-3.8Ag-0.7Cu, an industry Pb-free favorite, fails prematurely



Risk Issues:

- Higher processing temp.
 - enhances CTE effects
 - can greatly reduce component service life
- Pb contamination can positively or negatively impact Pb-free solders

Current Solder Alloy



Next Aging Aircraft Conference



Aging Aircraft IPT



9TH JOINT FAA/DoD/NASA
CONFERENCE ON AGING AIRCRAFT
MARCH 6-9, 2006 • HYATT REGENCY-ATLANTA, GA

Sat., May 14, 2005

CONTACT US

Technical Contact:

Rob Pappas
Aging Aircraft Program
Aircraft Safety R&D Division
Federal Aviation Administration
William J. Hughes Technical Center
Atlantic City International Airport, NJ 08405
rob.pappas@faa.gov

Conference Coordinator:

Dennis Flath
Galaxy Scientific Corporation
3120 Fire Road
Egg Harbor Twp., NJ 08234
coordinator@agingaircraftconference.org

<http://www.agingaircraftconference.org/>

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About Atlanta

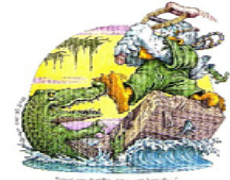
Hotel Information

Contact

Questions?



JCAA Website



Aging Aircraft IPT

A screenshot of a web browser window displaying the JCAA website. The browser's address bar is empty, and the window title is "Welcome to the JCAA WebSite". The website content includes a navigation menu with links for "Latest News (Updated 3/31/05)", "Chairman's Message", and "JCAA National Strategy". Below this is a section for "Members | Visitors" and a large "JCAA" logo with the text "JOINT COUNCIL ON AGING AIRCRAFT" underneath. Further down, there is a section for "Aging Aircraft Conference Papers" with links for "2005", "2003", and "1998 - 2002". At the bottom, a note states: "This Web Site is Best Viewed With Screen Resolution Setting 1024*768 and Internet Explorer 5.5+ or Netscape 7.0".

Welcome to the JCAA WebSite

[Latest News](#) (Updated 3/31/05) | [Chairman's Message](#) | [JCAA National Strategy](#)

[Members](#) | [Visitors](#)

JCAA
JOINT COUNCIL ON AGING AIRCRAFT

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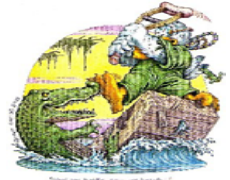
<http://www.jcaa.us>

Summary



Aging Aircraft IPT

- Solutions to Aging Aircraft problems are available.
- Integrated Roadmaps optimize balance of new technology, COTS insertion and logistics
- Need to partner with Industry to find the best of breed
 - NTSC/JCAA resources provide leverage
- Need to focus on real “*Cost Wise*” Solutions for our legacy fleet



JCAA Teaming Strategy

1. We don't have enough resources to do it alone
2. Teaming does not mean money changes hands
 - You do something, we do something else
 - Joint testing. Data exchange
3. US AAIPT will fund the initial steps
 - P-3 Full Scale Fatigue Test as a model
 - Joint development and data sharing; FMS participates in out year requirements
4. What companies, new technology do you want us to evaluate?



Teaming Example

Sample obsolescence Process...

	FMS Customer	NAVAIR/AAIPT	Other DoD	Contractor
Establish Triggers	Joint	Joint	Joint	Joint
Configuration Baseline	Primary	Assist	Assist	Assist
Preliminary Assessment	Assist	Primary	Assist	Assist
Integrate Supply/Demand	Joint	Joint	Joint	Joint
Determine Corrective Action	Primary	Assist	Assist	Assist
Foster Collaboration	Joint	Primary	Joint	Joint

Many components can be completed by others

- outside of the US DoD and DoD contractors

Real Savings is

- in the use of a common process and toolset
- Sharing of NRE and solutions

What's the best teaming arrangement for YOU!

DMSMS Plan Builder
15 Dec 05

Mr. Keith McLendon

U.S. Army Materiel Command





Starting Right



© UFS, Inc.

USAMC LOGSA--Supporting Warfighters Globally

Title

Doc



Motivation



- In preparing for battle I have always found that plans are useless, but planning is indispensable.
 - Dwight D. Eisenhower (1890 - 1969)



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- **A good plan, violently executed now, is better than a perfect plan next week.**
 - George S. Patton (1885 - 1945)



Motivation



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- **Adm. Painter: What's his plan?**
Jack Ryan: His plan?
Adm. Painter: Russians don't take a dump, son, without a plan.



Agenda



- **What is LOGPARS?**
- **LOGPARS history**
- **How LOGPARS works**
- **Features**
- **Benefits**
- **DMSMS Road Ahead**
- **Questions**





What is LOGPARS?



A web-enabled expert system assistant for:

- Preparing program planning documents





What is LOGPARS?



A web-enabled expert system assistant for:

- Preparing program planning documents
- Updating program plans
- Evaluating programs





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A web-enabled expert system assistant for:

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- Updating program plans
- Evaluating programs
- Making decisions
- Obtaining guidance
- Enforcing Planning Process





Mental Break



- It's a small world, but I wouldn't want to paint it.
 - Steven Wright





Why LOGPARS?



“A Brief History”

1984 GAO Study

“... [the Army has the best ILS policy, but the worst execution.] ...”





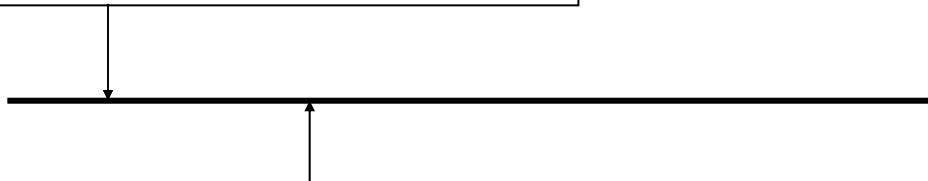
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1989 LOGPARS Version 1

- Began to institutionalize ILS policy in an ILS Planning Knowledge Base.
- Generated ILSP and Warranty information based on current regulations and policy.



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“... [the Army has the best ILS policy, but the worst execution.] ...”

1989 - 1994 Continuous Enhancements

- New documents were added: SOW, MFP, Transportability Report, etc.
- Adapted for other services: Navy, Air Force, Marine Corps, FAA, etc.
- User feedback

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- DOCSHELL solutions initiated by Australia, Department of Agriculture, and SARDA.



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Now

- LOGPARS continues to be enhanced to accommodate the latest regulations, policy and procedures that exist in the area of Life Cycle planning.
- DOCSHELL leverages the latest software application technologies. (e.g. Java, HTML)



Random Mental Vacation



- Much of the social history of the Western world over the past three decades has involved replacing what worked with what sounded good.
 - Thomas Sowell

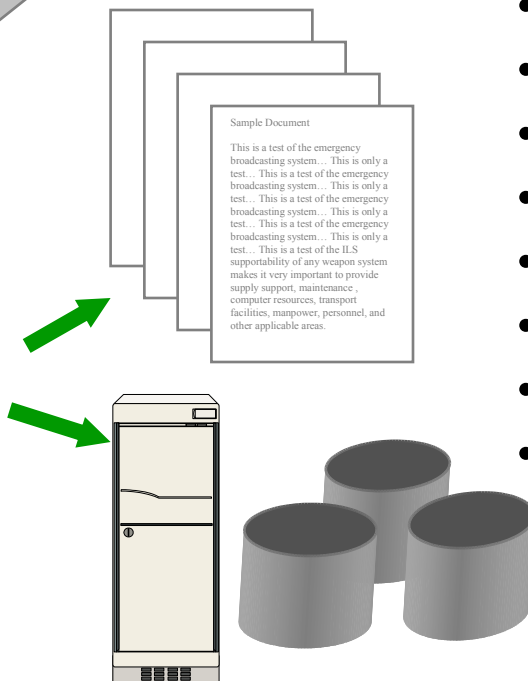
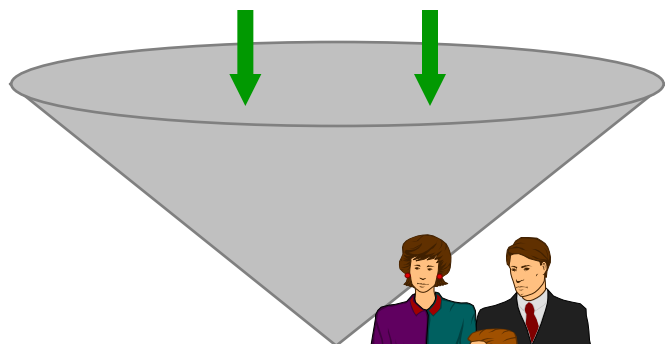




How does it work?



**Latest Policy
Training Information
Lessons Learned
Expert Knowledge/Experience**



LOGPARS Integrated Documents

- **Acquisition Strategy**
- **Supportability Strategy**
- **PBL Strategy**
- **Materiel Fielding Plan**
- **Provisioning Plan**
- **Performance Based Agreement**
- **ILS Statement of Work**
- **Transportability Report**
- **Supportability Assessment**
- **And more...**

USAMC LOGSA--Supporting Warfighters Globally



Features



- **Alternative document authoring process**
 - Provides a “ground-up” approach to authoring planning documents as opposed to a “Copy-Paste” approach.





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- **Automatic data sharing**
- **Continuous consistency checks**
- **Reviewer commenting capability**
- **Ensures an Expert planning process**





Random Mental Vacation



- Time sneaks up on you like a windshield on a bug.

– Jon Lithgow





LOGPARS Benefits



- Reduced time to prepare plans



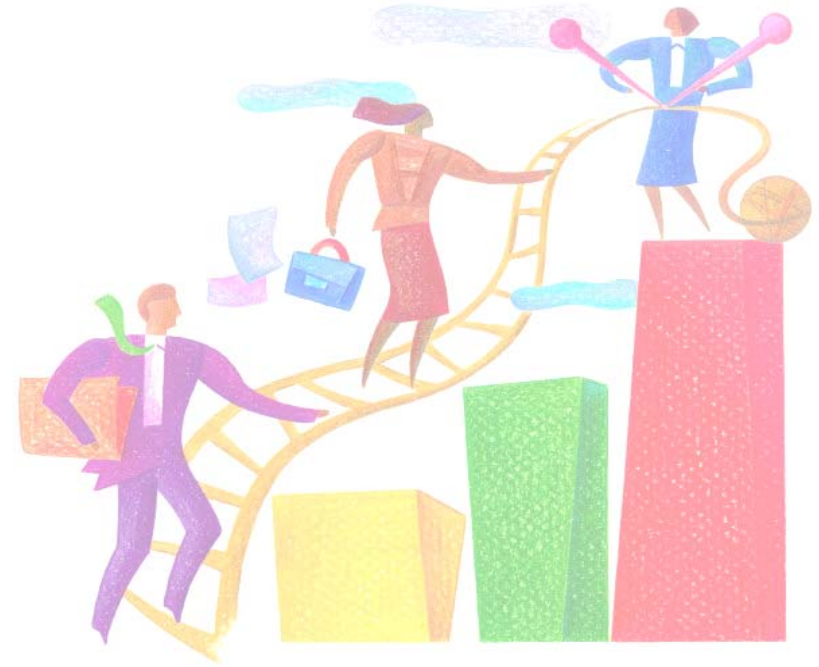
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LOGPARS Benefits



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USAMC LOGSA--Supporting Warfighters Globally



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- Tailored for individual program strategies
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- Supports electronic staffing and review
- Training tool (DAU and on-the-job)
- Minimizes costly requirements omission/duplication
- Easy to expand, enhance, & update the Knowledge Base



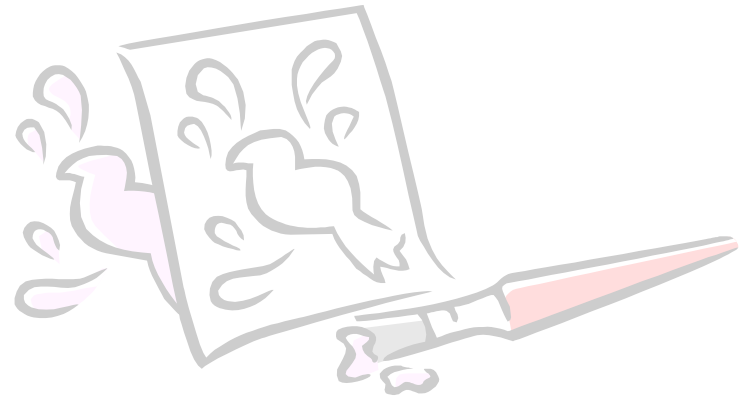
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Exceeds Template Capabilities



- Consistency warnings



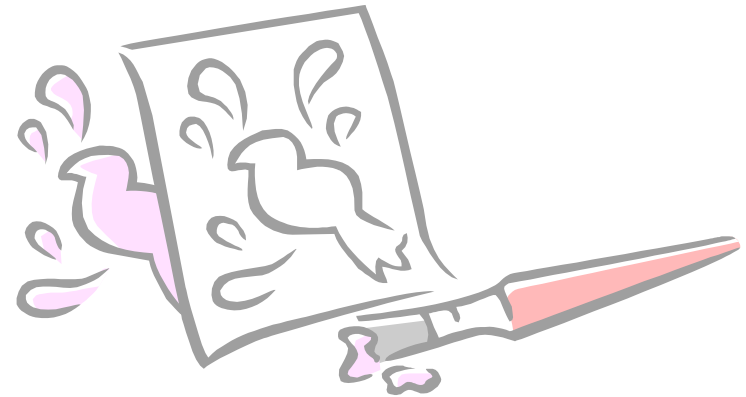
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Exceeds Template Capabilities



- Consistency warnings
- Dynamic answer lists

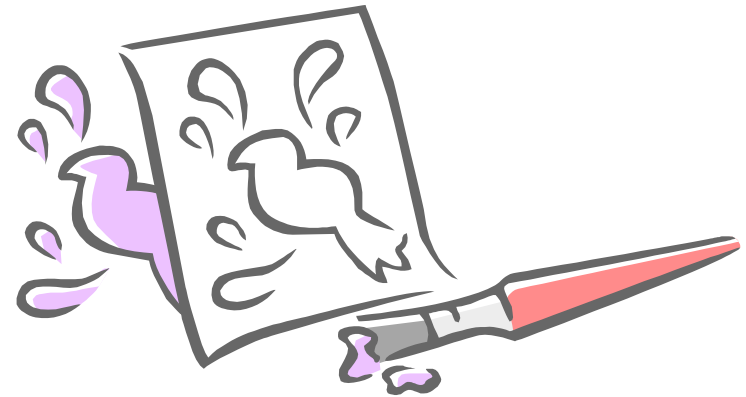




Exceeds Template Capabilities



- Consistency warnings
- Dynamic answer lists
- Dynamic text insertion

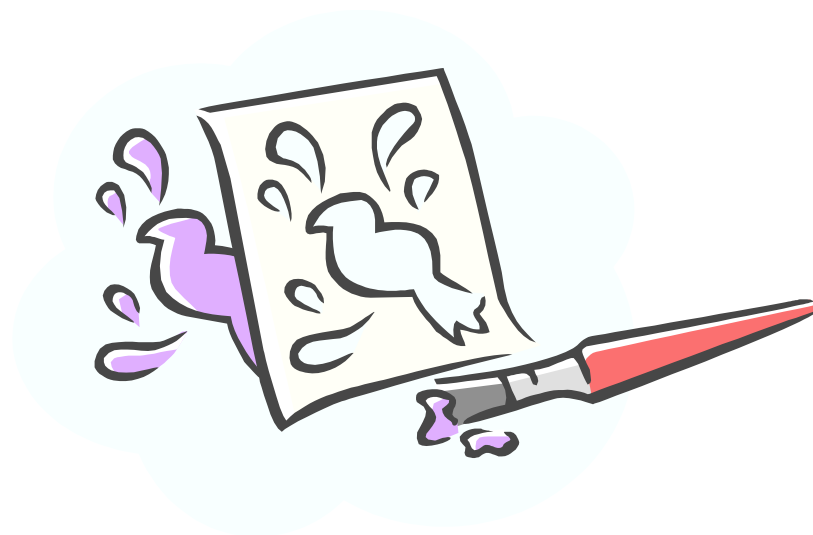




Exceeds Template Capabilities



- Consistency warnings
- Dynamic answer lists
- Dynamic text insertion
- Extensive derivation logic

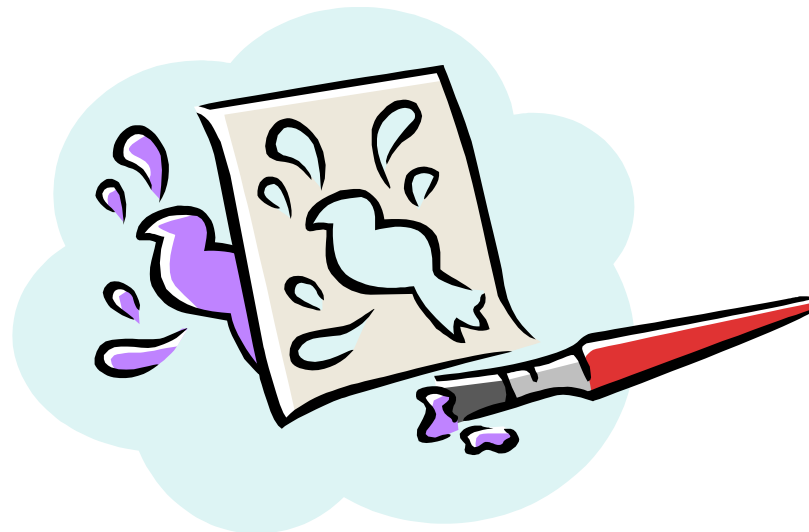




Exceeds Template Capabilities



- **Consistency warnings**
- **Dynamic answer lists**
- **Dynamic text insertion**
- **Extensive derivation logic**
- **Accommodates intricate conditional logic**





Powerful Capability



- **Model and improve your business processes**



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Powerful Capability



- **Model and improve your business processes**
- **Develop your modules locally**
 - Unlimited number of users
 - Unlimited number of modules
 - Apply to any functional area
 - No programming experience required





Powerful Capability



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- **Easy to enhance and modify**





Powerful Capability



- **Model and improve your business processes**
- **Develop your modules locally**
 - Unlimited number of users
 - Unlimited number of modules
 - Apply to any functional area
 - No programming experience required
- **Easy to enhance and modify**
- **Integrated Data Environment**

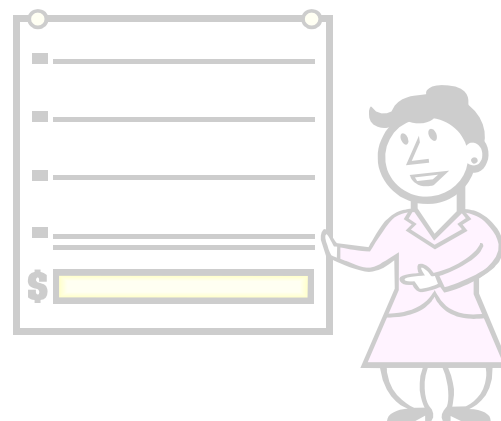




Bottom Line



- **Proven technology**
 - LOGPARS
 - Other DOCSHELL applications

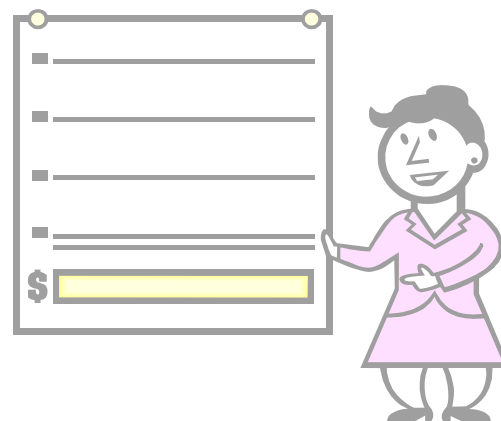




Bottom Line



- **Proven technology**
 - LOGPARS
 - Other DOCSHELL applications
- **Web-based software**

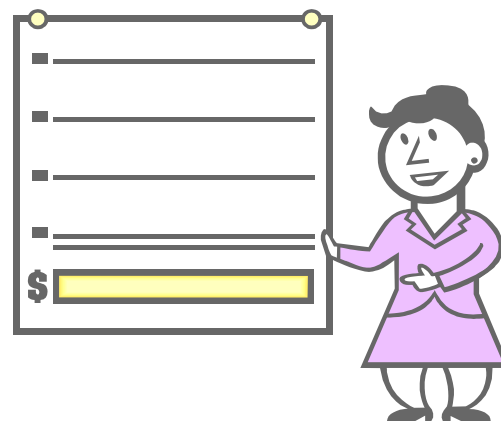




Bottom Line



- **Proven technology**
 - LOGPARS
 - Other DOCSHELL applications
- **Web-based software**
- **No software licenses**

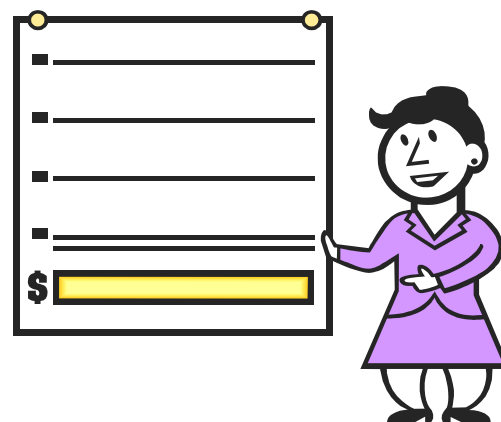




Bottom Line



- **Proven technology**
 - LOGPARS
 - Other DOCSHELL applications
- **Web-based software**
- **No software licenses**
- **Minimal cost to customize**

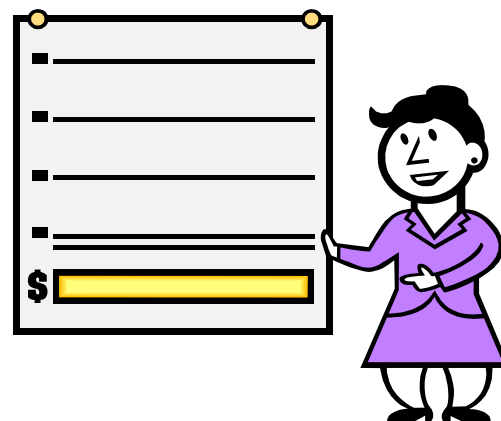




Bottom Line



- **Proven technology**
 - LOGPARS
 - Other DOCSHELL applications
- **Web-based software**
- **No software licenses**
- **Minimal cost to customize**
- **Continuous state-of-the-art improvements**





Random Humor Break



THIS IS A PROTOTYPE OF THE PRODUCT I'VE BEEN DEVELOPING FOR THE PAST YEAR.



I MODIFIED A PAIR OF STANDARD NOISE-CANCELLATION HEADPHONES TO RECOGNIZE STUPIDITY AND BLOCK IT BEFORE IT REACHES YOUR EARS.

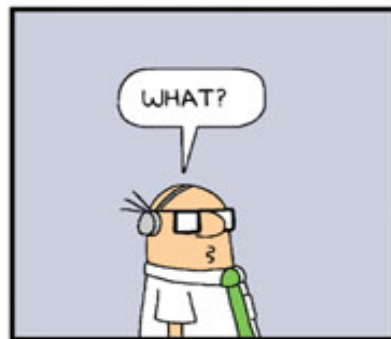
DUH!



PUT THESE ON AND YOU'LL ENJOY THE TOTAL BLISS THAT COMES FROM AVOIDING THE CHATTER OF IDIOTS.



DO THEY WORK?



WHAT?



I SAID, DO THEY WORK?!!



DOES ANYONE HAVE ANY QUESTIONS?



THOSE ARE ORDINARY HEADPHONES, AREN'T THEY?

IF YOU ACT LIKE YOU CAN'T HEAR, THEY'RE A PROTOTYPE.

© Scott Adams, Inc./Dist. by UFS, Inc.

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DMSMS Road Ahead



- **Brainstorming Session 20 Sep 05**
- **Working Group Approval**
- **Development contractor on contract for work**
- **Train development contractor**
- **Identify Experts**
- **Knowledge Engineering**
- **Document Development**
- **Test, Update, Test cycle**





Work So Far



- **20 Sep 05 Brainstorming session**
 - Initial Outline
 - Initial Questions





Work So Far



- **20 Sep 05 Brainstorming session**
 - Initial Outline
 - Initial Questions
- **Working Group approval**
 - Mostly...





Train Developers



- 16 Dec 05
 - Friday after workshop



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Train Developers



- **16 Dec 05**
 - Friday after workshop
- **Continuous help provided**





Knowledge Engineering



- **Identify experts**
 - Working group provided
 - Start with same group from brainstorming session





Knowledge Engineering



- **Identify experts**
 - Working group provided
 - Start with same group from brainstorming session

- **Interview experts**
 - Onsite initially
 - Follow up by telephone or VTC





Document Design



- Identify major and minor elements
 - By Service
 - By Acquisition phase
 - By Acquisition Type
 - NDI, Developmental, ...





Document Design



- **Identify major and minor elements**
 - By Service
 - By Acquisition phase
 - By Acquisition Type
 - NDI, Developmental, ...
- **Flowchart logic paths and possible text outcomes**

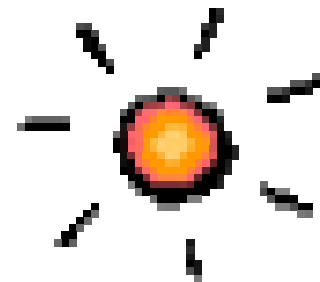




Document Development



- Code questions into Data Element Editor
- Code document logic and output text into Document Editor





Test, Update, Test Cycle



- **Alfa Test**
 - Subject Matter Experts





Test, Update, Test Cycle



- **Alfa Test**
 - Subject Matter Experts

- **Refine**
 - Questions, document logic, derivation rules based on test





Test, Update, Test Cycle



- **Alfa Test**
 - Subject Matter Experts
- **Refine**
 - Questions, document logic, derivation rules based on test
- **Beta Test**
 - Larger group, DMSMS community,
...





Test, Update, Test Cycle



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- **Refine**
 - Questions, document logic, derivation rules based on test



- **Release**

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Post Fielding -- Sustainment



- If it is not supported it will eventually not be used
 - Update knowledge base to reflect new policy
 - Update knowledge base to reflect new experience





Post Fielding -- Sustainment



- **If it is not supported it will eventually not be used**
 - Update knowledge base to reflect new policy
 - Update knowledge base to reflect new experience
- **Two support options**
 - **Option one**
 - Central funding and access to SMEs from each service
 - **Option two**
 - Service funding and access to SMEs from each service





Post Fielding -- Sustainment



- **If it is not supported it will eventually not be used**
 - Update knowledge base to reflect new policy
 - Update knowledge base to reflect new experience
- **Two support options**
 - **Option one**
 - Central funding and access to SMEs from each service
 - **Option two**
 - Service funding and access to SMEs from each service
- **Bottom line**
 - Must be updated to be meaningful
 - Remember Harvard Graphics, Lotus 1-2-3, Wordstar

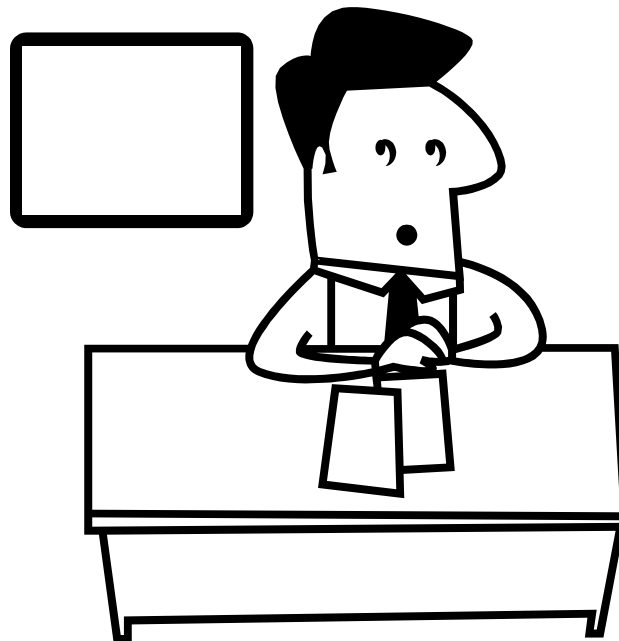




Summary



- It helps enforce policy in the planning phase





Summary



- It helps enforce policy in the planning phase
- It is supported





Summary



- It helps enforce policy in the planning phase
- It is supported
- It is adaptable





Summary



- It helps enforce policy in the planning phase
- It is supported
- It is adaptable
- It helps enforce policy in the planning phase





Questions ?



USAMC LOGSA--Supporting Warfighters Globally



Robotic Solder Dip – A Key Technique for Mitigating Reliability Risk Posed by Tin Whiskers

DoD Diminishing Manufacturing Sources
and Material Shortages (DMSMS) Workshop
San Antonio, Texas, 14-15 Dec 2005

Charlie Minter
Representing
Best Manufacturing Practices Center of Excellence
301-405-9990
charlie@bmpcoe.org

Best Manufacturing Practices Center of Excellence

- Department of the Navy Manufacturing Technology Program
 - A National Center of Excellence
 - Approximately 45 People Augmented by More Than 150 Subject Matter Experts
- Heritage
 - Transition from Development to Production Templates (1985)
 - Industry Facility On-site Surveys (1985-Present)
 - Practical Engineering Guides for Managing Risk (1985-Present)
 - Support Military Acquisition Activities (1985-Present)
 - Program Manager's WorkStation (1993-Present)
 - Integrated Digital Environment Using Web Technologies (1996-Present)
 - Winner - Innovations in American Government Award (1998)
 - Winner - Vice President's Hammer Award (2000)

www.bmpcoe.org

The Problem

- DoD Acquisition Programs are Increasingly Dependent on Commercial Electronic Parts and Assemblies - COTS
- The Commercial World is Going Lead-Free
- Lead-Free Products and Processes Pose a Host of Risks to Reliability — the Most Insidious is the Susceptibility to Growth of Tin Whiskers
- The Problem is Only Going to Get Worse
- High Reliability Systems Most Vulnerable
- Mitigation Techniques are Urgently Needed
- Robotic Solder Dip Provides One Technique for Many Package Types

Missiles And Related Weapons Particularly Vulnerable

- Unique Vulnerability Factors
 - Components Not in Continuous Operation
 - Long Term Unobserved Dormant Storage
 - Diurnal Thermal Cycling
 - Transportation/Launch Vibe/Shock
 - Non Redundant Circuits/HW
- Other Factors
 - Generally No LRU
 - Generally No BIT to CCA Level
 - High Unit Cost (e.g., Trident, THAAD, SM-3, Nuclear Weapons)
 - Many Lives at Stake

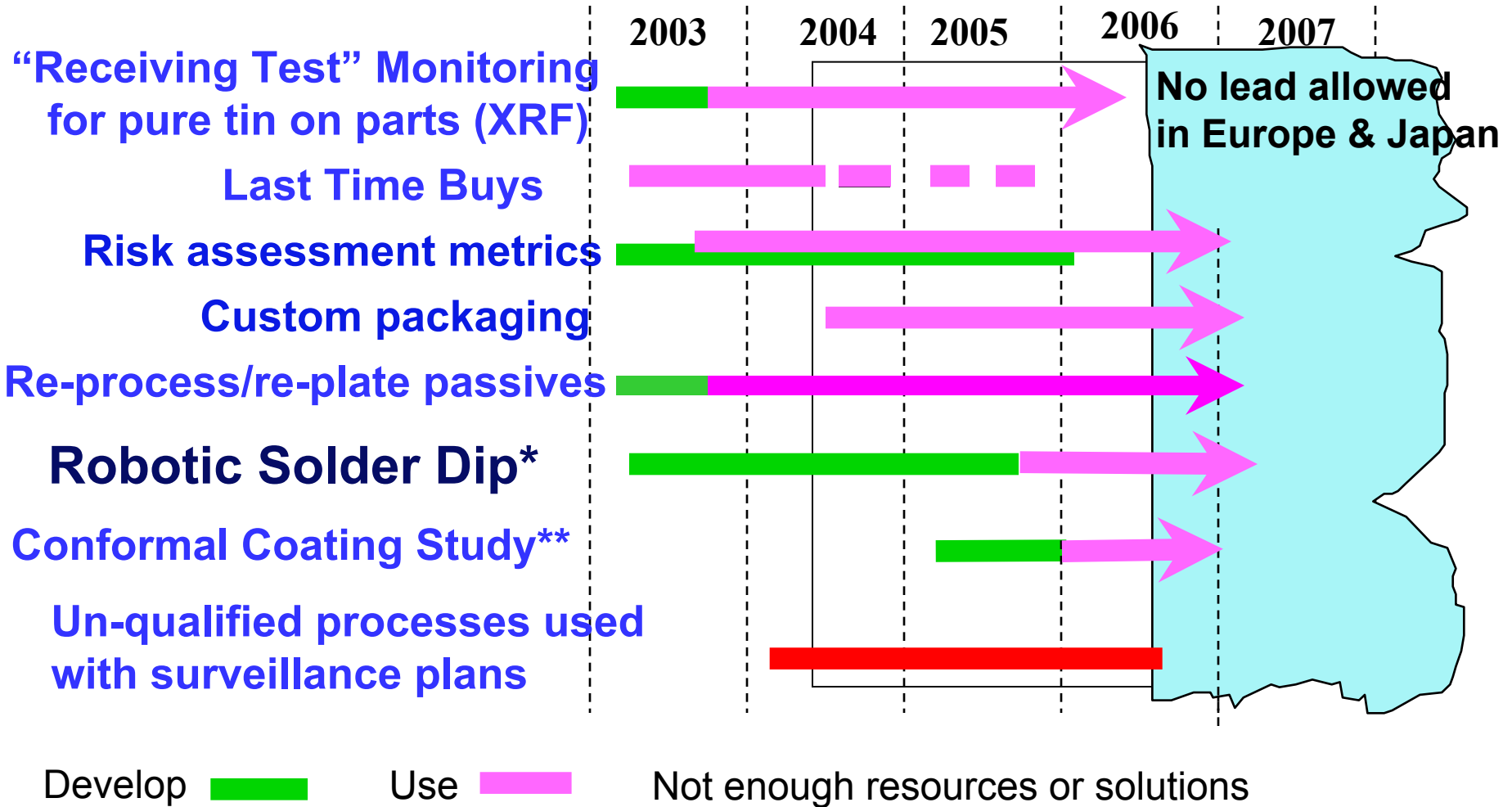
Airworthiness Advisory AA-05-01, Lead-Free Solder

- Issued 9 May 2005 by the Aeronautical Systems Center (AFMC), Wright-Patterson AFB
- Purpose: "...provides information on the trend within the electronics manufacturing community toward the use of lead (Pb)-free solder. To date, **no lead-free solders are known to have met the reliability requirements imposed upon military electronics...**"
- Scope: "...**applies to all USAF aircraft, manned and unmanned**, including those operated by the Air National Guard and the USAF Reserve. It also applies to Fielding/ Deployment, Operational Support Activities, Upgrades, and Temporary/Permanent Modifications."
- Guidance/Recommendations: "Until such time that a suitable, reliable, lead-free solder replacement is identified, **all program managers should ensure their electronic equipment suppliers continue to provide items which meet all performance, compatibility, and reliability requirements.** Failure to do so could adversely affect the reliability of weapons systems..."

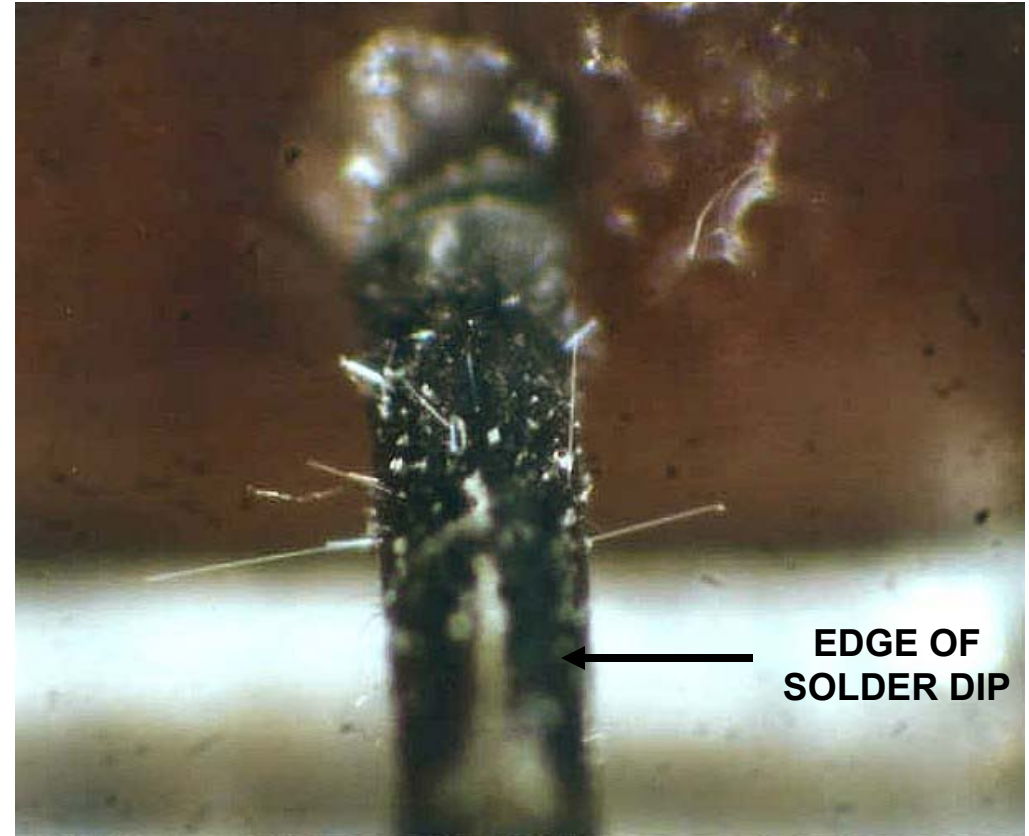
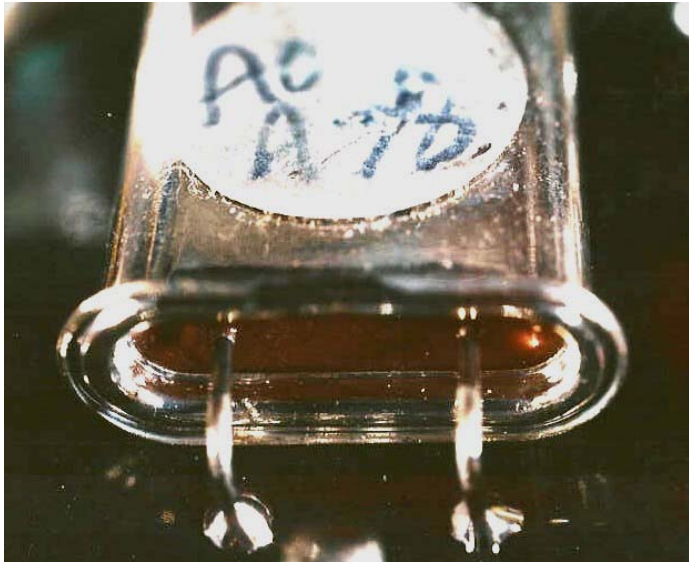
Complicating Factors

- Reliability is the Issue, but No Quantifiable Means of Prediction (e.g., Cannot Predict MTTF/MTBF)
- COTS Assemblies (e.g., IMUs)
 - Little Control Over Design/Manufacturing Processes
- Risk Assessment Methodology Still Being Developed and Proven
 - Five Standard Whisker Mitigation Levels
 - Risk Assessment Algorithm
- Most Proposed Partial Mitigation Techniques Still Unproven/Unqualified (e.g., Matte Tin, Manual Hot Solder Dip, Annealing, Nickel Underplate, Conformal Coatings)

Timeline For Tin Whisker Risk Mitigation Tool Development And Implementation



Tin Whisker Crystal Solder Dip Failure

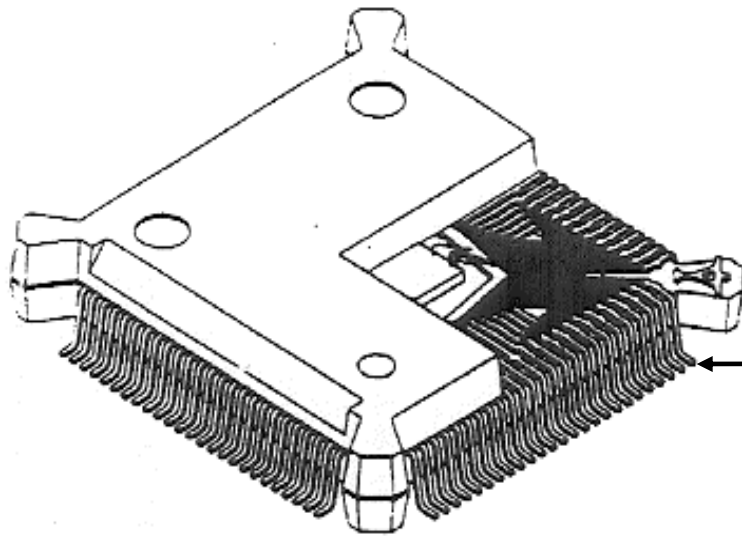


- Through Hole Crystal
- Lead Diameter 18 mils
- Bright Tin Finish Leads and Case
- Manually Solder Dipped within 50 mils of Glass Seal and hand Soldered to PWB

Tin Whisker Growth Noted from Seal to about 20 mils from Edge of Solder Coat. Electrical Failure was Traced to a 60 mil Whisker that Shorted Lead to Case

The Solder Dip Technical Challenge

- Smaller Circuit Geometries
 - Partial Coverage
 - Solder Bridging
- Plastic Packages
 - Thermal Effects



Typical Quad Flat Pack

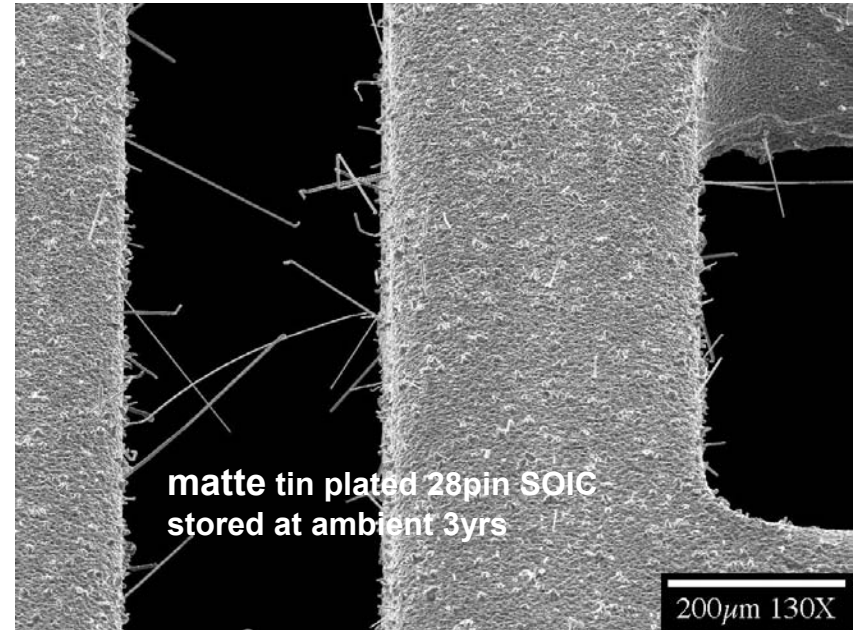


Photo Courtesy Peter Bush, SUNY

← Typical PQFP Lead Spacing
9 mil (229 micron)

One Partial Solution

- Navy ManTech TMTI* Robotic Solder Dip Project Funded by the Office of Naval Research Has Qualified a Process for Use with Many Package Types
- This Presentation Provides an Overview of the Project and Its Results

* Transformational Manufacturing Technology Initiative

TMTI Participants

- Sponsoring Program Offices: Aegis Ballistic Missile Defense (MDA); NAVSEA Program Executive Office for Integrated Warfare Systems (PEO IWS)
- Management: NAVY BMPCOE, Raytheon Tucson, CALCE (University of Maryland)
- Part Selection: Raytheon Tucson, Raytheon Tewksbury, Raytheon Sudbury, CALCE UMD, Corfin Industries, NAVY BMPCOE
- Test and Analysis: Raytheon Tewksbury (Lead), Corfin Industries, CALCE UMD
- Guideline Document: BMPCOE, Raytheon, CALCE



STANDARD Missile-3 (SM-3)

TMTI Project Plan

- Team Participants Mutually Developed Detailed Project Plan
- Team Developed List of Candidate Component Packaging Designs to be Subjected to Solder Replating Process (Favored Missile Use)
- Applicable Participants Ordered Parts
 - 23 Individual Part Numbers (Fit the Overall Budget)
- Conducted Part Functional Tests, plus Acoustic Microscopy
 - Checked for Delaminations (Pre-existing Damage)
 - Control Samples Were Retained at Each Stage of the Test
- Performed Solder Pot Dip Process on Parts
 - Pre-dip Bakeout to J-STD-033A for MSL 5, for All Parts
 - All Dip Processes Robotically Controlled
 - Edge of Component Was Depressed into Flowing Molten Solder at 245 degrees C for 3 Seconds
 - All Pure Tin Was Removed and Replaced with SnPb

TMTI Project Plan (Cont'd)

- Conducted Post-Dip Functional Tests & Acoustic Microscopy
 - Checked for Functional Failures from Fractures and Delaminations (Damage Caused by Solder Dip)
- Conducted Environmental Life Test
 - Test Designed to Expose the Thermal Shock Failure Modes Normally Associated with the Solder Dip:
 - Immediate Failures: Fractured Wire Bonds
 - Delayed Corrosion Failures from Delaminations
 - Thermal Cycling: 150 cycles, -55C to 125C
 - Temperature-Humidity: 85°C / 85% Relative Humidity, 500 hrs
 - Only Solder Dip Failure Modes Were Relevant to This Test

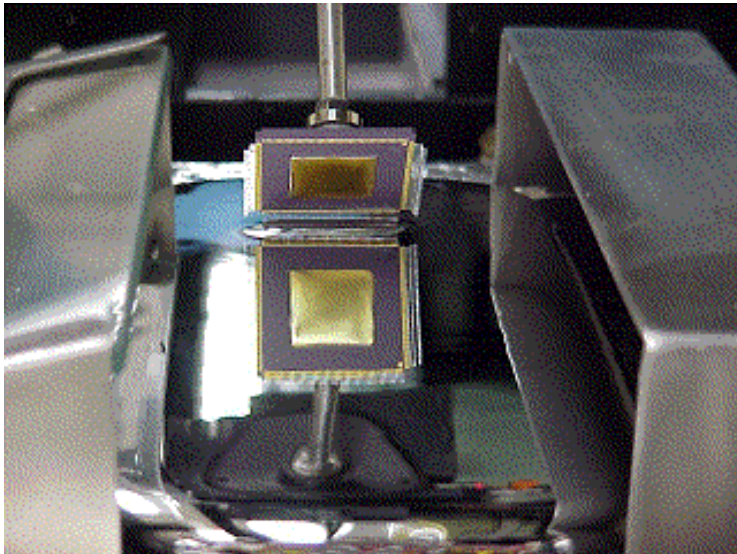
TMTI Project Plan (Cont'd)

- Conducted Final Functional Tests and Acoustic Microscopy
 - Checked for Failures and Delaminations Exposed by the Environmental Life Test
- Conducted Destructive Physical Analysis of Parts
- Analyzed Results: Were the Observed Failures Caused by the Solder Dip, or Were They From Pre-existing Damage or Damage Induced by Handling or Testing?
 - Only Failures Caused by the Solder Dip Were Relevant
- Producing a Guideline Document for Employing the Process
- BMPCOE and Raytheon to Communicate and Help Implement Guidelines in Acquisition Programs; Initiated a Commercialization Process to Create a Niche Supply Chain for Defense Industry

Robotic Solder Dip Process

Keys for Success:

- Precise Control Over Process Temperature Profile
 - Pre-heat, Solder & Cool Down Temperatures & Dwell
 - N₂ Soldering Environment
 - Eliminated Bridging, Icicles and Dross Buildup on Solder
 - Dynamic Solder Wave
 - Aids in Dross Elimination
 - Facilitates Dipping of Unique Lead Forms and Packages
 - Control of Insertion and Removal Speed & Angle
 - Viscosity and Surface Tension Effects on Adjacent Leads
 - Control of Solder Runoff
 - Control of Solder Wicking onto Lead



TMTI Robotic Solder Dip Project Results

- Root Cause Failure Analysis Indicates that Most of the Microcircuit Failures in this Test Were Due to Small Pre-existing Delaminations Over the Die
 - Substantial Delamination Observed in those Cases After the Life Test, Whether Solder Dip was Performed or Not
 - Extra Tests Performed to Verify This
 - Rule for Solder Dip or Use in Harsh Environment: Always Use Parts that Have No Delaminations Detectable by Acoustic Microscopy
- 22 of 23 Package Styles Tested approved for Robotic Solder Dip
 - Only one package (100 pin plastic Thin Quad Flat Pack) had failures that could not be verified as being independent of the solder dip
 - Not enough information in this test to make that determination
- Note: Not All Available Package Styles Could be Included in this Test, and Those that Were Chosen Had a Reasonable Chance of Success Based on Knowledge from CALCE (UMD)
 - Those Package Styles Chosen Are Widely Used

TMTI Robotic Solder Dip Project Benefits

- TMTI Robotic Solder Dip Project has Qualified a Commercial Process to Completely Replace Pure Tin with Tin-Lead without Damaging the Microcircuits
 - Will be Usable for at Least 80% of Microcircuit Package Styles
 - Will Allow Use of Many Microcircuits made Obsolete (for Users Requiring High Reliability) by being Only Available in Pure Tin
 - Will Allow Many Programs to Avoid Redesigns and Production Interruptions
 - SM-3 will Employ Near Term for a Fairchild IC Going to Pure Tin
 - Guideline Document Soon Available; GEIA Plans to Develop into an Industry Standard
- Some Component Package Styles Do Not Qualify
 - Additional Mitigation Techniques Still Needed
 - Conformal Coatings Offer Most Promise; New, Tougher Ones Need to be Developed

Information Sources

- NASA Goddard Space Flight Center Basic Info/FAQ
<http://nepp.nasa.gov/whisker/background/index.htm>
- UMD CALCE
<http://www.calce.umd.edu/lead-free/>
- TMTI Project
<https://www.twg.bmpcoe.org/>
- **Article in April 05 DMSMS COE Newsletter - Tin Whiskers: A New DMSMS Issue**

BACKUP

MDA-Sponsored Conformal Coating Study

Just Getting Started – Goals:

- Compile What is Known and What is Unknown about the Ability of Conformal Coating to Contain Tin Whiskers
- Recommend those Coating Materials and Process Parameters Most Likely to Provide Best Risk Mitigation
- Recommend Surveillance Plans and Tests for MDA Systems that Require a Conformal Coating to Mitigate Tin Whisker Risk
 - Would Allow Risk Assessments to be Made Throughout the System's Service Life
- Identify Mission Assurance Risks Associated with Current Lack of Knowledge on Conformal Coating Use for Tin Whisker Mitigation
- Compile Study Data into a Guideline and Widely Distribute

GIDEP Issued by Nuclear Regulatory Commission (NRC)

GIDEP Agency Action Notice AAN-U-05-093 13 Sept 05

- NRC INFORMATION NOTICE 2005-25: INADVERTENT REACTOR TRIP AND PARTIAL SAFETY INJECTION ACTUATION DUE TO TIN WHISKER
- 17 April, 2005 – Millstone Nuclear Generating Station experienced an unexpected safety injection actuation and reactor trip caused by a fault on a solid state protection system (SSPS) circuit card
- Caused “...safety train actuation and reactor trip”
- A single tin whisker created a bridge (short circuit) between a diode and the output trace on a circuit card
- The incident “...demonstrates that a single tin whisker can cause a protective feature to actuate. It is reasonable to assume that the same phenomenon could also prevent a protective system actuation.”

List Of 23 Part Types Employed In Robotic Solder Dip Project And The Test Flow Applied To Each

Part Number	Package Type	Functionality	Manufacturer	Test Flow	Electrical anomalies from solder dip
MMBT2222ALT1	SOT 23	Bipolar transistor	ON Semi	MSL Plastic	None
IDT720415SOI	SOIC-28	CMOS ASYNCHRONOUS FIFO	INTEGRATED DEV. TECH. INC	MSL Plastic	None
ADG608TRU	TSSOP 16	Analog	Analog Devices	MSL Plastic	None
IDT72V11081	PLASTIC, TQFP-32	3.3 VOLT CMOS SYNCFIFO	INTEGRATED DEV. TECH. INC	MSL Plastic	None
EPM256SRC208-7	208 pinpower quad flat pack	Eraseable PLD	Altera	MSL Plastic	None
EPM7128T1100-10	100 pin plastic thin plastic quad pack	Eraseable PLD	Altera	MSL Plastic	Possible
DAC8412FPC	PLASTIC, LCC-28	QUAD DAC	ADC	MSL Plastic	None
IDT7201LA12J	PLASTIC, LCC-32	AsyncFIFO, 5.0V	IDT	MSL Plastic	None
54ACT00LMQB	54ACT00LMQB	CERAMIC, LCC-20	QUAD 2-INPUT NAND GATE	Hermetic	None
DS26LS32MJ	16 lead ceramic dip	Quad diff. line rec.	NSC	Hermetic	None
LT1058MJ/883B	CERDIP-14	QUAD OP AMP	Linear Tech.	Hermetic	Possible
AM26LS31DC	CERAMIC, DIP-16	Quad Differential Line Driver	TI	Hermetic	None
SN75ALS195J	16 lead ceramic dip	Quad differential line receiver	TI	Hermetic	None
OP490AY	CERDIP-14	QUAD OP AMP	ADC	Hermetic	None
OP284ES	8-lead SOIC	Amplifier, Operational	Analog Devices	NON-MSL Plastic	None
1N4148W-7	SOD-123	Diodes and discrete	Diodes Inc.	NON-MSL Plastic	None
74HC00N	PDIP 14	Logic	Fairchild	NON-MSL Plastic	None
74HC540N	PDIP 20	Logic	Fairchild	NON-MSL Plastic	None
74AC14SC	SOP	Logic	Fairchild	NON-MSL Plastic	None
2N3906	TO-92	Small signal transistor	On Semi	NON-MSL Plastic	Possible
EPM7256AQC208	208 pin plastic quad flat pack	eraseable PLD	Altera	NON-MSL Plastic	None
SI4967DY	SO	Transistor	Siliconix	NON-MSL Plastic	None
FQFP47P06	TO-220 (3-lead)	MosFET	Fairchild	NON-MSL Plastic	None

DMSMS Workshop
December 14-15, 2005

Presented by:
Jack Snapp
210-308-1653
jsnapp@arinc.com



- **Combines best proactive practices for managing the risk of obsolescence from various DoD DMSMS documents into a central repository for quick reference.**
- **Ensures that principles of TLCSM and PBL are supported.**
- **Identifies additional practices that may be needed to ensure that the risk of obsolescence can be mitigated.**
- **Develops measurements for tracking DMSMS management programs.**
- **Current Guidebook is dated 7 April 2005.**



- **October 2005 – Guidebook to DMSMS Working Group**
 - Received WG comments and incorporated changes
- **November 2005 – Guidebook to TLCSM Executive Council**
 - Currently reviewing the Guidebook
- **December 2005 - TLCSM comments will be reviewed and incorporated**
- **January 2006 - Final draft will go to print**



1. Introduction
2. Encompassing TLCSM and PBL
3. Establishing a DMSMS Program
4. Analyzing Results (Measures)
5. Summary
6. Acronyms
7. References



- **Grammatical changes to make it read better.**
- **Fuzzy graphics updated with originals.**
- **Clarified that Guidebook pertains to all products (electrical and mechanical)and not electronics-specific.**
- **Updated acronym list.**



2. Encompassing TLCSM and PBL

- **PBL discussion expanded significantly**
- **Ref CM data**
 - PBL structured to allow access to latest CM data from provider.
 - Added that contractual exit criteria should state that all CM data is turned over to USG.
- **Referenced MIL-HDBK-512, Parts Management**
 - Help manage selection and use of parts.
- **Referenced AFI 6-1201, Assurance of Operational Safety, Suitability, and Effectiveness**
 - Emphasis on risk mgt and configuration mgt
 - OSS&E baseline must be considered when making PBL decisions.



3. Establishing a DMSMS Program

- **Added affects on Unit Design and Design Interface**
- **Under BOM Development**
 - Stressed contract exit clause and criteria to protect the USG if provider pulls out.
 - Identified the minimum BOM data needed.
- **COE changed to DKSP**
- **DAU training resources added**
 - **LOG courses**
 - Sustainment Management
 - Configuration Management
 - PBL
 - Systems Engineering
 - COTS
 - Evolving Acquisition
 - **DMSMS courses**



3. Establishing a DMSMS Program (cont.)

- Identified “fee-based” and “free” sources in Table 3-4, Potential Data Sources.
- Updated Resolution Alternatives by Life Cycle Phase, Table 3-5
 - Added
 - PBL Support Strategy
 - Continuous Modernization
 - SLEP
 - Expanded applicable resolutions in the Systems Acquisition and Sustainment Phases
- Updated Resolution Definitions
 - Expanded Continuous Modernization
 - COTS/NDI
 - ECPs/VECPs
 - Open System Architecture



3. Establishing a DMSMS Program (cont.)

- **DoD Risk Management Guide referenced.**
- **Expanded discussion of Emulation.**
- **Expanded discussion of Shared Data Warehouse.**



4. Analyzing Results (Measures)

- **ACAT I metrics updated to include written obsolescence plan.**



- **7 April 05 Guidebook being updated**
- **TLCSM Reviewing**
- **DoD Buy-In**
- **Current Guidebook on DAU website**





DMSMS Interoperability

Presented to:
DMSMS Workshop
12/14/2005

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Agenda

- Purpose
- Background
- Objective
- Approach
- Status



Interoperability - Purpose

- Coalition Warfare dominance requires data dominance
- Data dominance requires data sharing
- Sharing requires data interoperability
- Results of Interoperability:
 - Increased readiness
 - Increased safety
 - Decreased Total Ownership Cost



Interoperability - Background

Interoperability Committee of DoD DMSMS WG

- Established to work with specific Military Allies
- To enhance ability to share DMSMS information
- To improve ability to resolve DMSMS as early as possible
- To understand breadth and depth of issues



Interoperability - Objective

Objective: To promote information interoperability between Coalition Warfare partners for early identification and resolution of DMSMS issues.



Interoperability - Approach

Phased, 3 Prong approach:

- Establish data exchange standards (DEXs)
 - work with Governments and Industry Standards Organizations

- Charter data exchange pilot programs
 - common systems, missions and platforms
 - U.S. program paired with Ally program

- Explore a centralized system for data sharing



Interoperability - Status

- U.S. DoD components have been asked for their representatives to participate on U.S. committee.
- Chair has been in meetings with UK counterparts on several occasions to discuss broad principles.



Questions?

***CORONA DIVISION
NAVAL SURFACE WARFARE CENTER***



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MAKING SEA POWER 21 A REALITY



Focus

Money IS even tighter

- War efforts
- Natural disasters

A New Approach

- **Proactive**
 - Upfront and early insight
- **Effective**
 - Cost Less than the “way we’ve always done it”
- **Partnership**
 - Give and Take, share risk

Policy & Guidance

Page 1 of 2

- **Assistant Secretary of the Navy (RD&A) DMSMS Management Guidance of 27 Jan 2005 ([SSB recognized](#))**
- **Deputy Assistant Secretary of the Navy for Logistics (DASNL) Memorandum of 20 Aug 2004 update to NAVSO P- 3692. ([DMSMS Update](#))**
- **Under Secretary of Defense Memorandums of 16 Aug 2004.**
 - **Performance Base Logistics: Purchasing Using Performance Based Criteria. ([PBL Metrics](#))**
 - **Microelectronics Strategic Management. ([Emphasizes importance of microelectronics](#))**
- **NAVSO P- 3692: Independent Logistics Assessment Handbook of December 2003. ([Established Detailed ILA Requirements](#))**
- **SECNAVINST 5000.2C: Implementation of Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System. ([Systems Engineering Requirements](#))**
- **SECNAVINST 4105.1A: Independent Logistics Assessment and Certification Criteria. ([Implementation of ILA Requirements](#))**

TOP 10 Ways to Deal with COTS Obsolescence Mgmt

10. Let the Contractor Take Care of it
9. Survey the COTS Manufacturers
8. Make Life-Type-Buys
7. Redesign...that'll fix it
6. Reverse engineer it
5. Technology Refresh
4. e-Bay® (aftermarket)
3. Let's cannibalize!
2. Let's find an Alternate
1. Worry about it later

SSB Success Example #1

CWCEC: SVME-166-177-VX Single Board Computer

- **Ship Control System**
- **119 Required @ \$8.3K**
- **Life-Type Buy Cost: \$1M**

SSB Solution \$25K in components

Upfront Cost Avoidance: ~\$1M

SSB Success Example #2

BEI: MT40D-X-HSS8192N & 512N Encoders

- **Weapons Handling System**
- **356 @ \$5K and 110 @ \$7K Required**
- **Life-Type Buy Cost: \$2.6M**

SSB Solution \$32K in components

Upfront Cost Avoidance: ~\$2.6M

SSB Success Example #3

Radstone: PMCGA2-201 Graphics Board

- **Ship Control System**
- **35 Required @ \$4.1K**
- **Life-Type Buy Cost: \$143.5K**

SSB Solution \$17K in components

Upfront Cost Avoidance: ~\$125K

DAICO Industries: CSWA9077 Switched Attenuator

- “Top Hat” Assembly
- 56 Required @ \$1.4K
- Life-Type Buy Cost: **\$78K**

SSB Solution \$5K in components

Upfront Cost Avoidance: \$73K

Qualitative Successes

- **RD Instruments**
- **North Atlantic Industries**
- **Curtiss-Wright DY-4**
- **Agilent**
- **SBS Technologies**

Sunset Supply Base *Process*

- **Programs Disconnected from COTS manufacturers**
- **Limited access to technical and market data needed to manage obsolescence**



**Acquisition Support
Team**

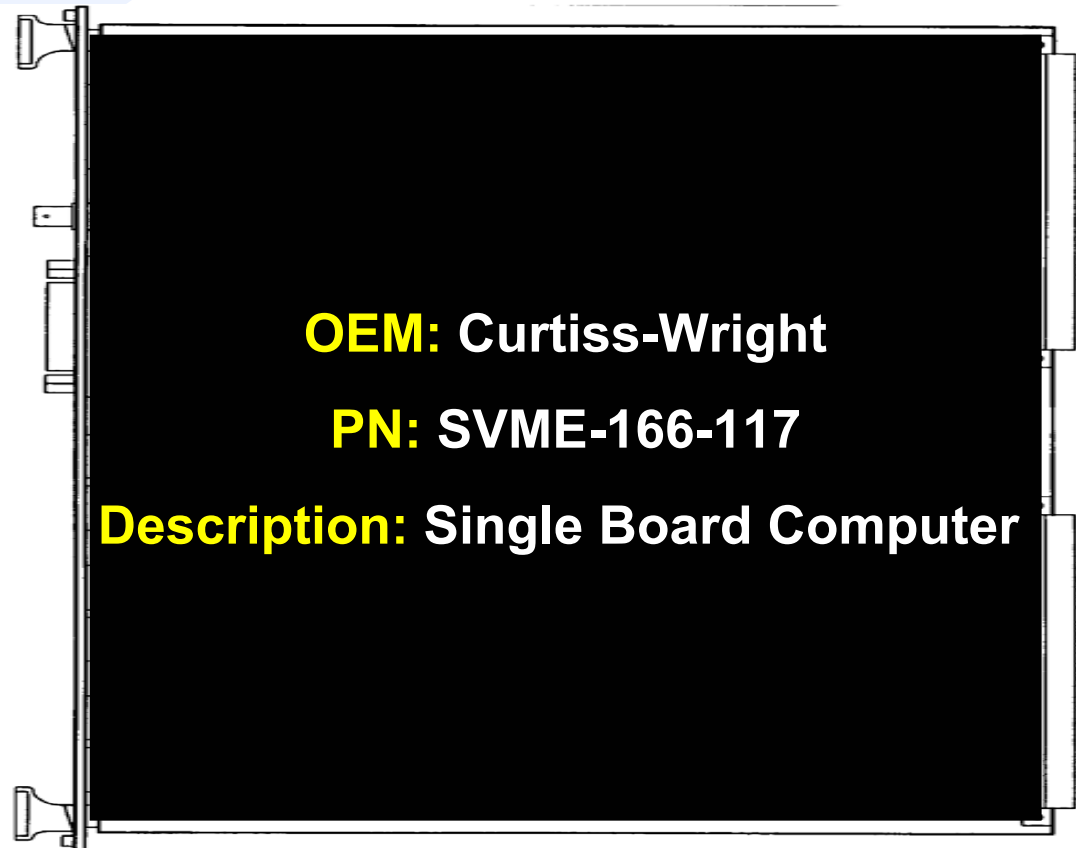


SSB - Bridging the Gap

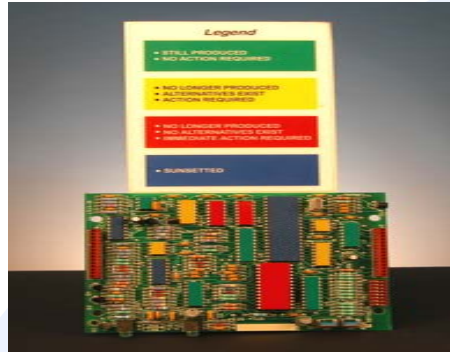
Sunset Supply Base Obsolescence Analysis

Before **SSB**....

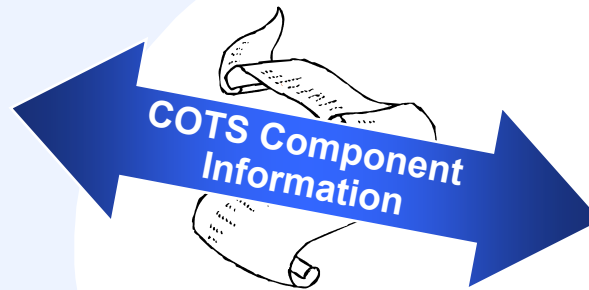
...Limited COTS
Information



Sunset Supply Base Process



SSB



OEM Partners

CURTISS WRIGHT Controls, Inc.
 Embedded Computing
hp
 RD Instruments
PENTEK
R RADSTONE
BEI
RAMIX INC.
 Voiceboard Corporation
KARTEK POWER

SSB is an Independent Government Agency

- No business threat
- Non disclosure agreements are signed
- Single POC to OEMs

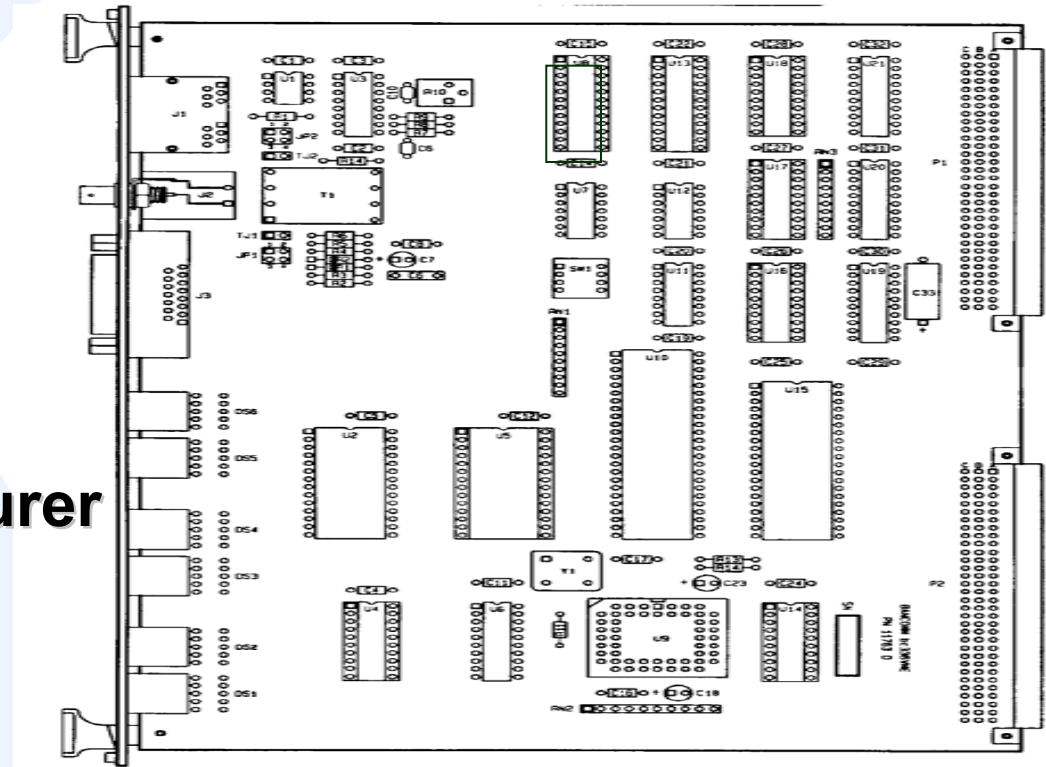
Partnership

Sunset Supply Base Obsolescence Analysis

With **SSB**....

We Know the

- Part number
- Component Manufacturer
- Quantities per Board



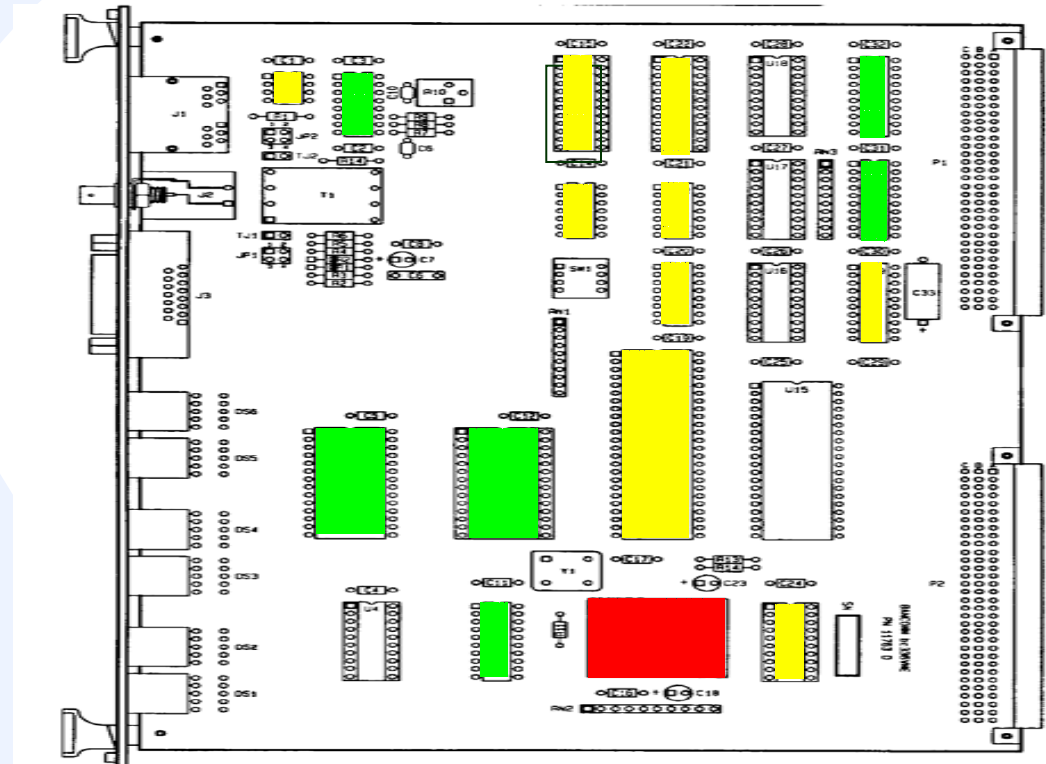
**Proactive Obsolescence
management**

Sunset Supply Base Obsolescence Analysis

- Still Produced
- No Actions

- No longer produced
- Action Required
- Alternative components available

- No longer produced.
- Immediate Action Required.
- No alternatives exist

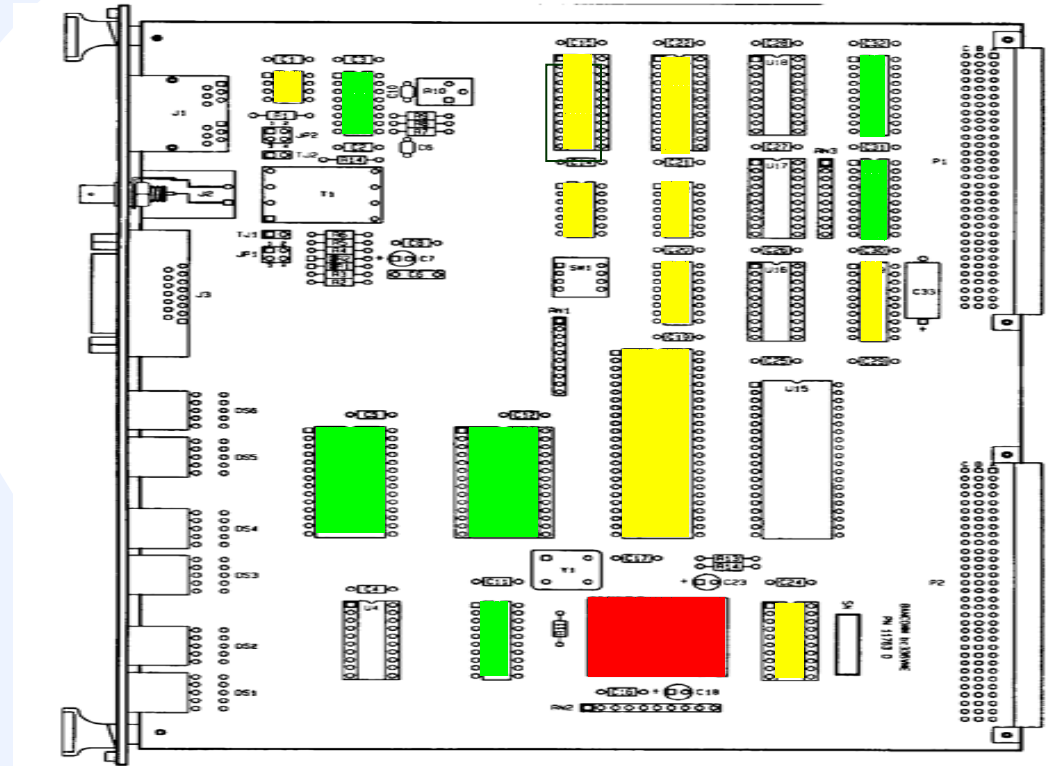


Sunset Supply Base Obsolescence Analysis

- Still Produced
- No Actions

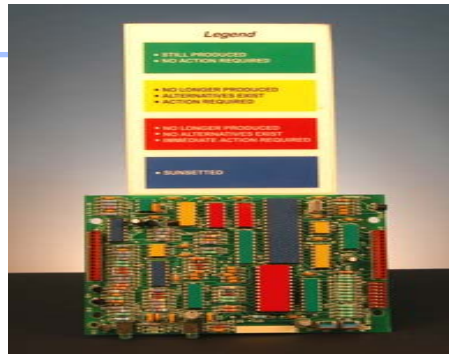
- No longer produced
- Action Required
- Alternative components available

- No longer produced.
- Immediate Action Required.
- No alternatives exist



**Proactive Obsolescence
management**

Sunset Supply Base Process



Parts
Obsolescence
Report



Acquisition Support
Team

- **Obsolescence issues are reported to the support team**
- **Provides new information critical to selecting the RIGHT support strategy**
 - Life of Type Buy
 - Alternate
 - **SSB**
 - Combination

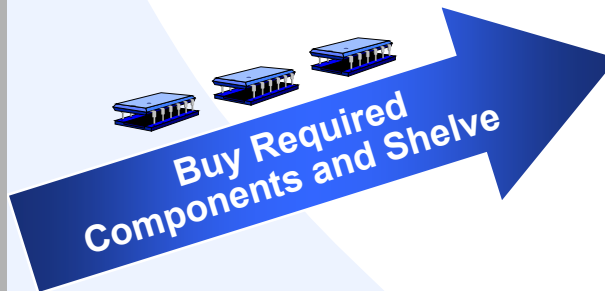
A Better Decision

Sunset Supply Base Process

- OEM Agrees to continue production & repair
- Components are purchased



Acquisition Support Team



OEM Partners

CURTISS WRIGHT Controls, Inc. Embedded Computing

hp

RD Instruments

PENTTEK

RADSTONE TECHNOLOGY

W

KARTEK POWER

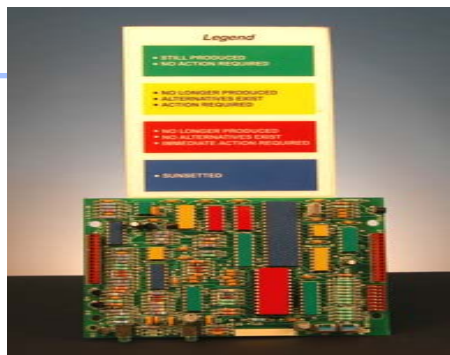
BEI

ramix

Voiceboard Corporation

Buy CCA If or When Needed

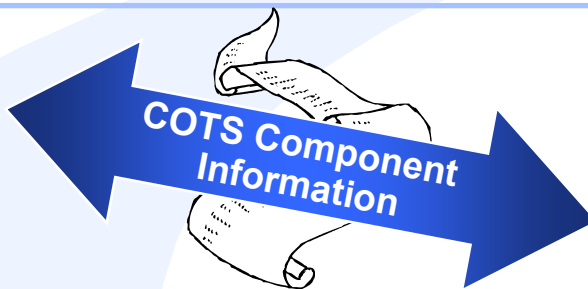
Sunset Supply Base Process Summary



Parts
Obsolescence
Report



Acquisition Support Team



OEM Partners

CURTISS WRIGHT Controls, Inc. Embedded Computing

hp

RD Instruments

PENTEK

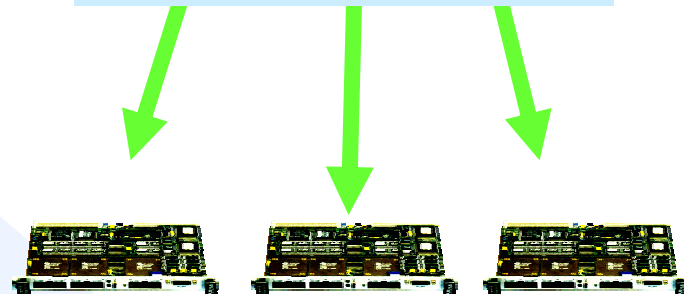
RADSTONE

BEI

ramix inc.

KARTEK POWER

Voiceboard Corporation



SSB Summary

- **Configuration Management**
- **Less Cost**
- **Stable Logistical support**
- **Technology Insertion Planned NOT REACTIVE**
- **Allows Continued Production of COTS Item**
- **Fleet Supportability & Availability**
- **Long Term Relationship with COTS Manufacturers**

Proactive

Effective

Partnership



Life of type buy...\$1M

Redesign...\$3M

**Saving money and achieving
long-term support...Priceless**

Happy Holidays & Happy New Year!



*From our Family to yours...we wish you
a Happy and Safe Holiday Season.*