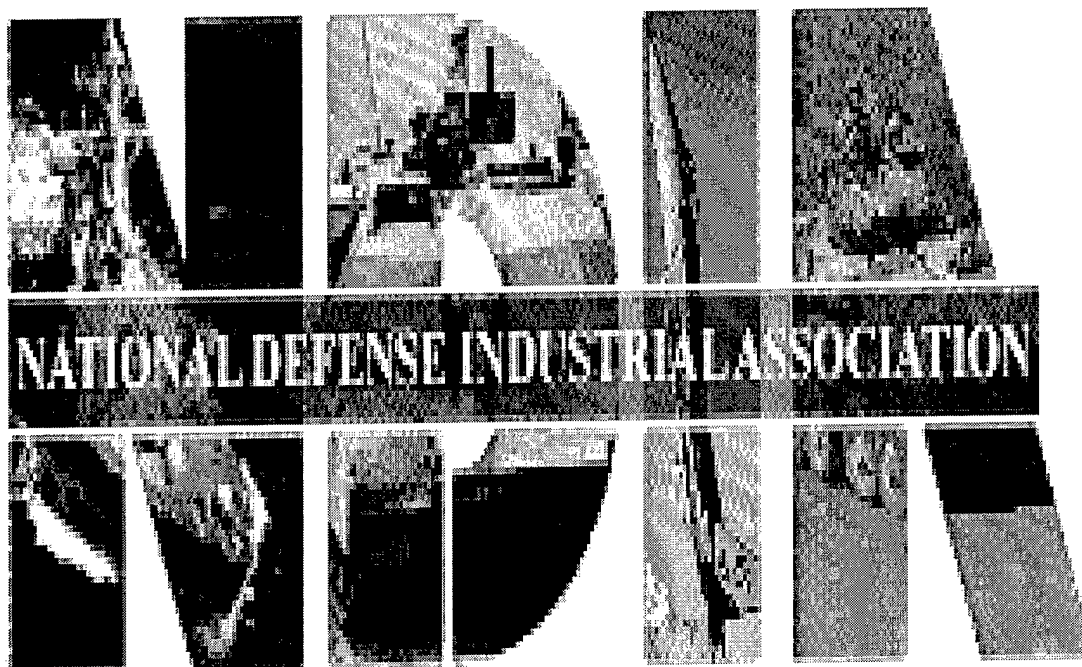




STRENGTH THROUGH INDUSTRY & TECHNOLOGY

19991022 142

2nd Annual DoD Maintenance Symposium & Exhibition

Approved for public release. Distribution is unlimited

DTIC QUALITY INSPECTED 4

2nd Annual DoD Maintenance Symposium & Exhibition

19-21 Oct. 98

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AIR FORCE AGILE LOGISTICS

Mr Tom H. Gaudin

Chief, Production Policy

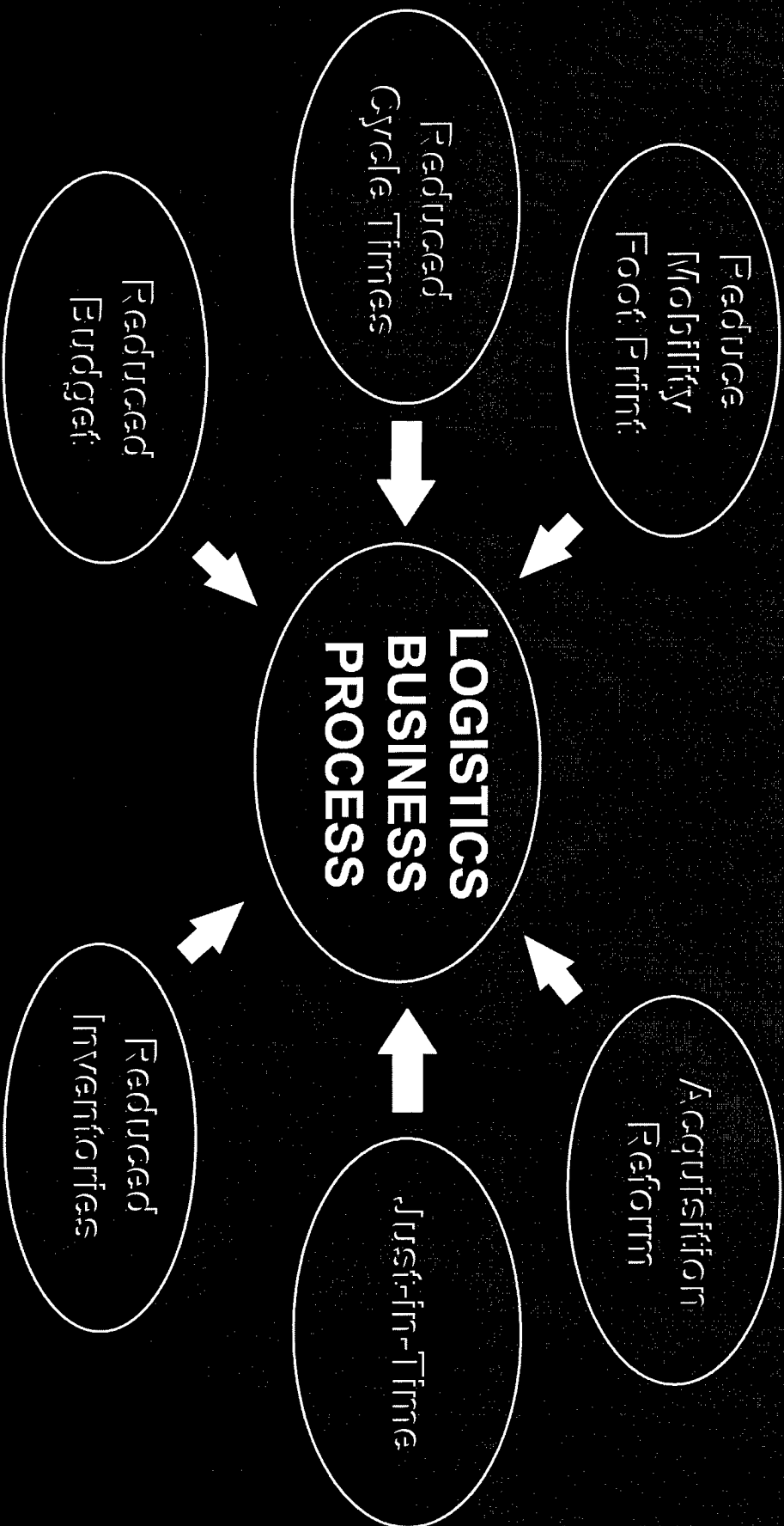
HQ AFMGLGPP

WPAFB, OH 45433-5006

OUTLINE

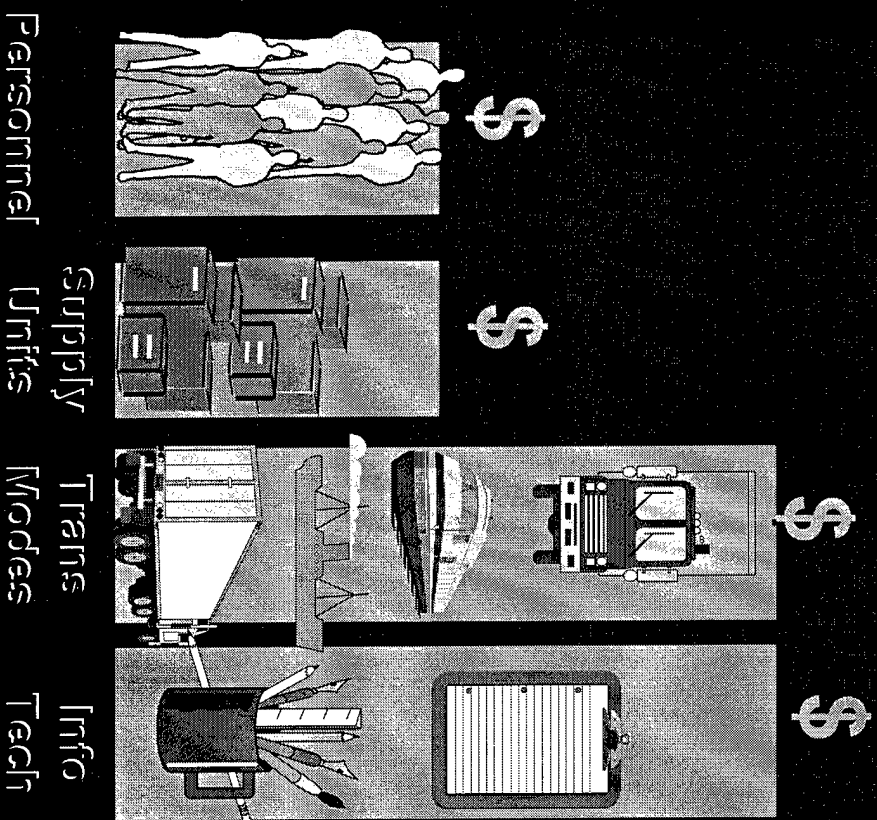
- Reasons for Change
- Lean Logistics
- PACER LEAN/Depot Repair Enhancement Program (DREP)
- Other Repair Enhancement Programs
 - Contract Repair Enhancement Program (CREP)
 - Aircraft Repair Enhancement Program (AREP)
- Agile Logistics Objectives (FY2000-2005)
- Summary
-

REASONS FOR CHANGE

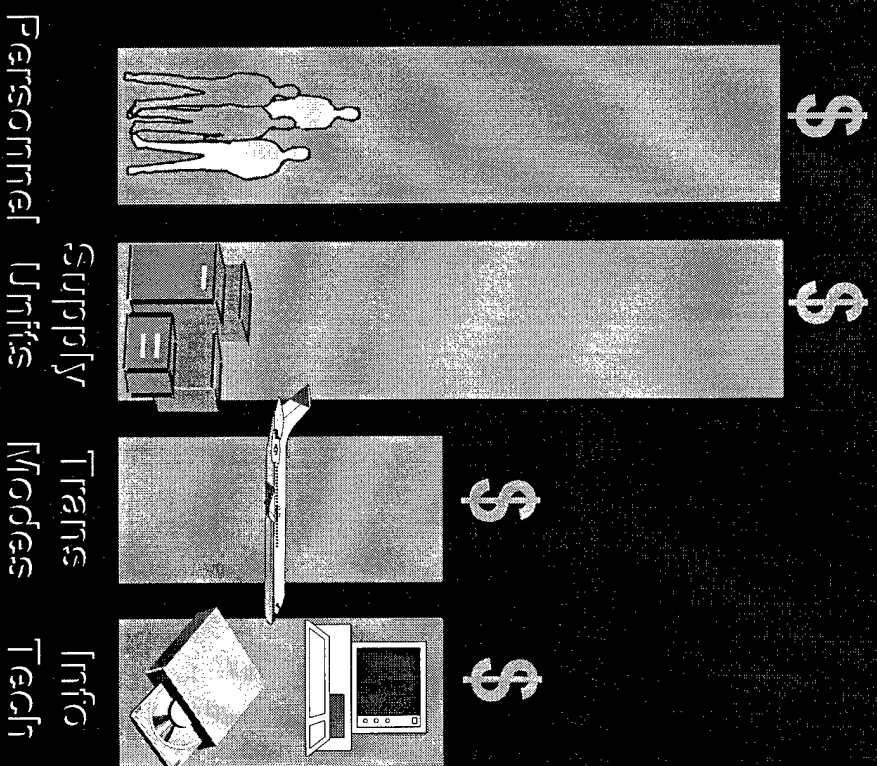


REASONS FOR CHANGE

PAST



PRESENT

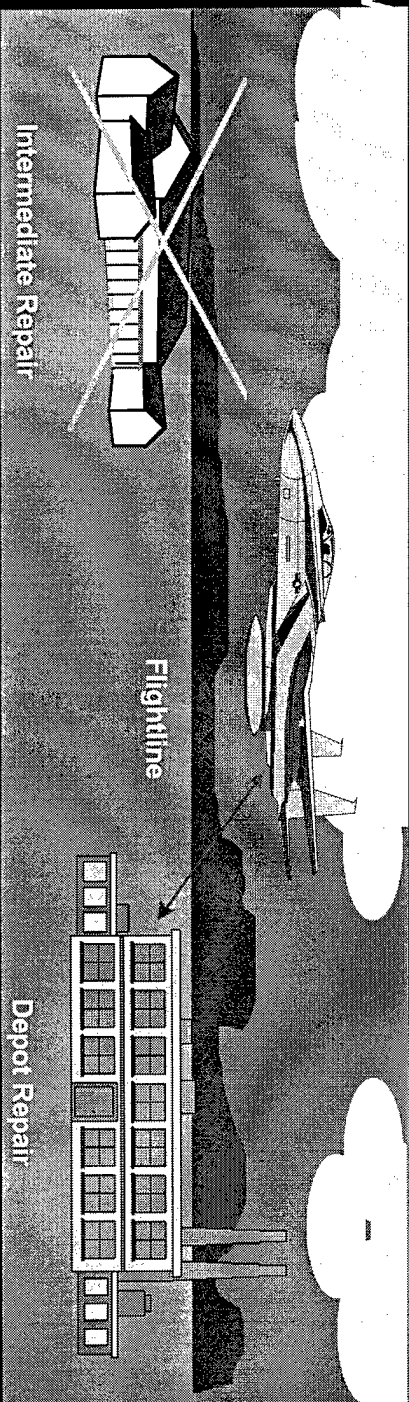


LEAN LOGISTICS TWO LEVEL MAINTENANCE

3LN



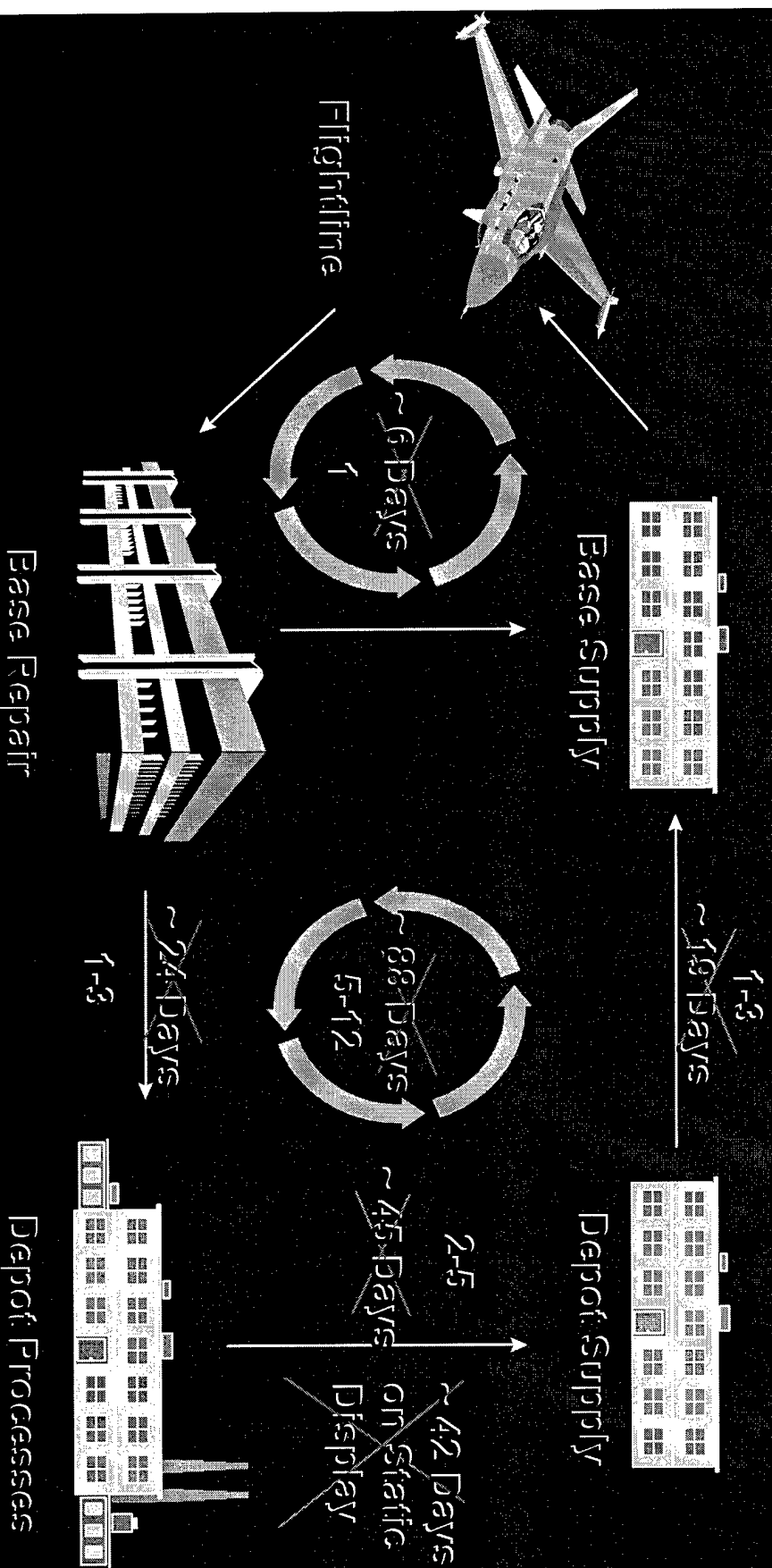
2LN



LEAN LOGISTICS

2LM MAINTENANCE EFFICIENCIES

Targets For Reduced Times

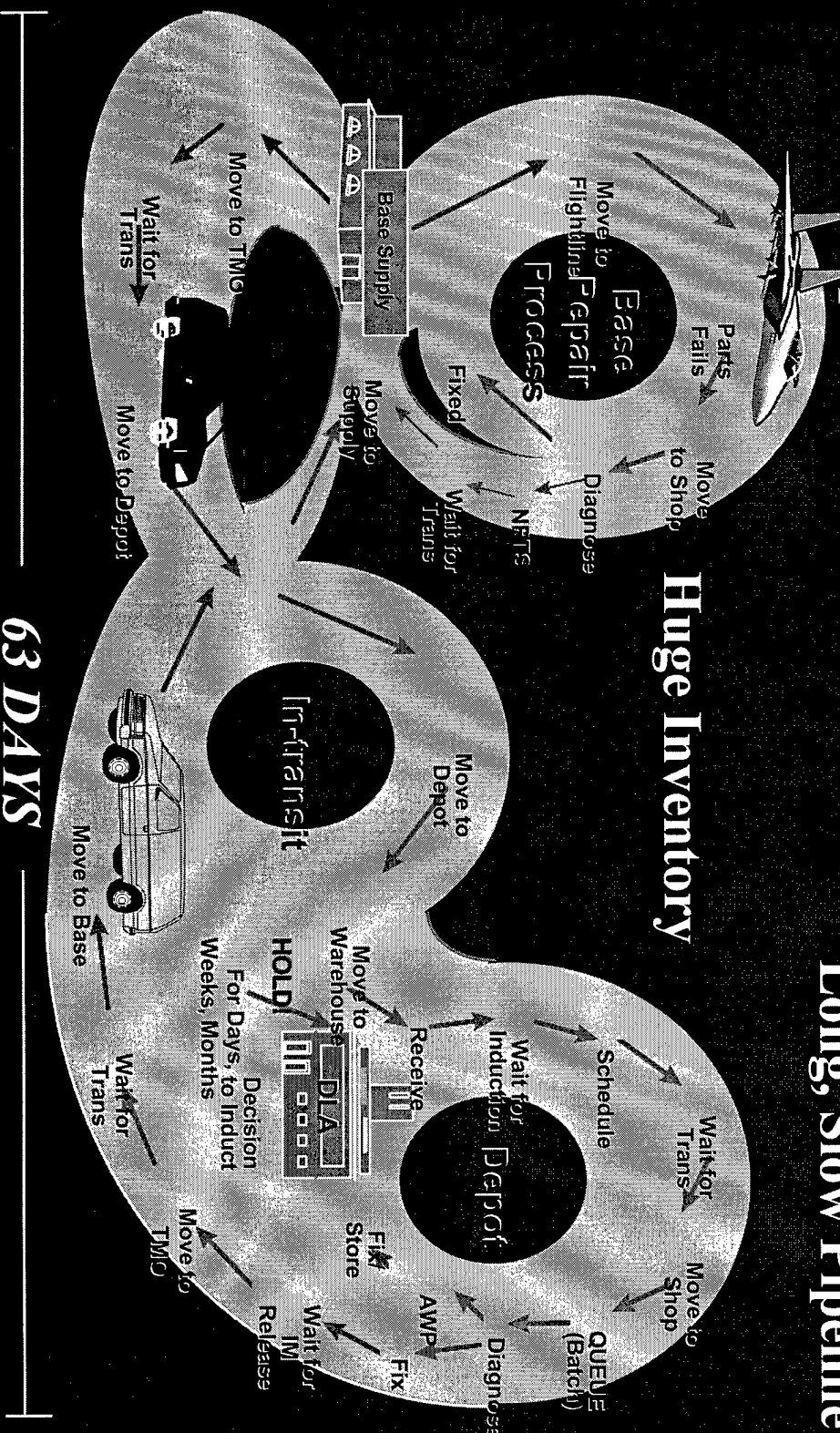


LEAN LOGISTICS UNRESPONSIVE SYSTEM

Slow Transportation

Long, Slow Pipeline

Huge Inventory

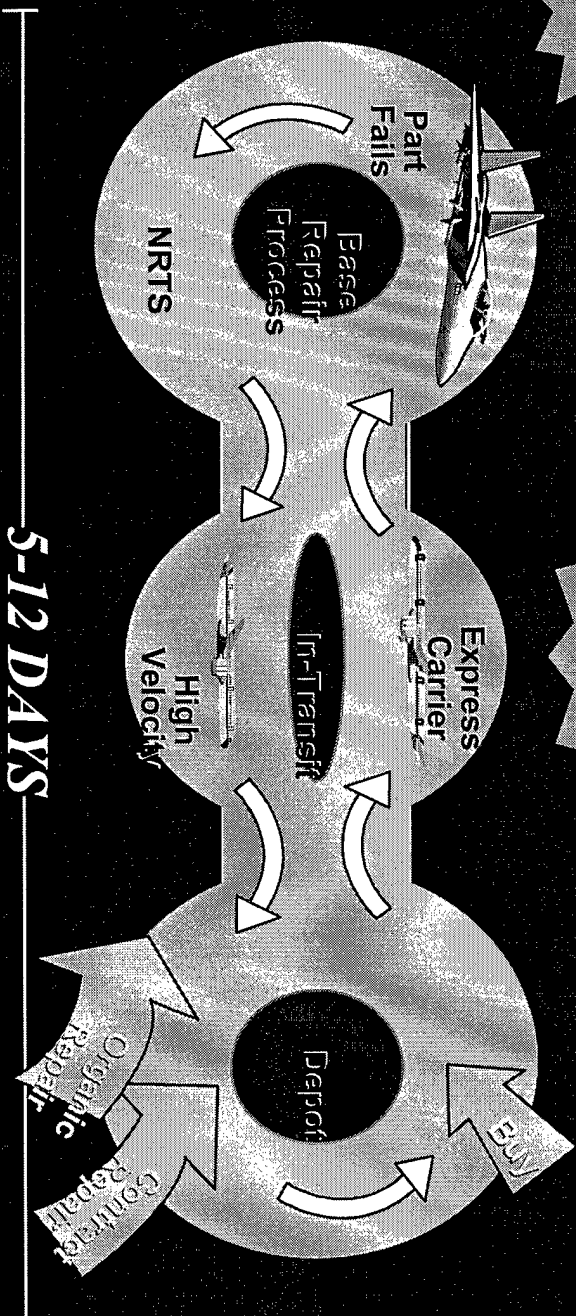


LEAN LOGISTICS KEY ELEMENTS

**EXPRESS
for REPAIR**

**FAST
TRANSPORTATION**

**REENGINEERED
PROCESSES**



**INVENTORY
AT BASES**

**INNOVATIVE
CONTRACTING**

**TOP
QUALITY**

LEAN LOGISTICS WHAT WE LEARNED

No Reddiness Based
Prioritization of Repair

For Parts
Support to Repair

Need for Focused
Organization

No Fixer
Versatility of
Requirement

Lots of Delays
and Wait Time

Weak Repair and
Demand Connection

Need for
Proactive
Management

Focus on Easy Not
Fighting the Fight Things

PACER LEAN PILOT DREP PROGRAM

Improve Support - Provide Feedback
Standardize Processes - Test/Analyze/Fix
Configuration Control

WF-ALC

E-3 Avionics - Jun 96
C-130 Prop Shop - Aug 96

SA-ALC

Exciter Shop - Jul 96
Secondary Power Systems - Sep 96

SM-ALC

HSI - Jul 96
Nav Aid - Sep 96

GO-ALC

F-16 Avionics - Jul 96
F-16 EPU - Aug 96

OC-ALC

Common Avionics - Jul 96
Oxygen Shop - Sep 96

PACER LEAN

**Two Level Maintenance and Lean
Logistics Showed Improvement but...**

**We Need
A Standard Repair
Business Process**

**We Need
"Crew Chiefs"
for Pipeline Flow**

**We Need
"Easy to Use"
Data Tools**

**We Need
Oversight and
Policy Support**

**We Need
"Institutional"
Improvements**

The Answer to Our Needs...

**Depot Repair
Enhancement Program
(DREP)**

**We Need
Customer "Pull"
to Drive Repair**

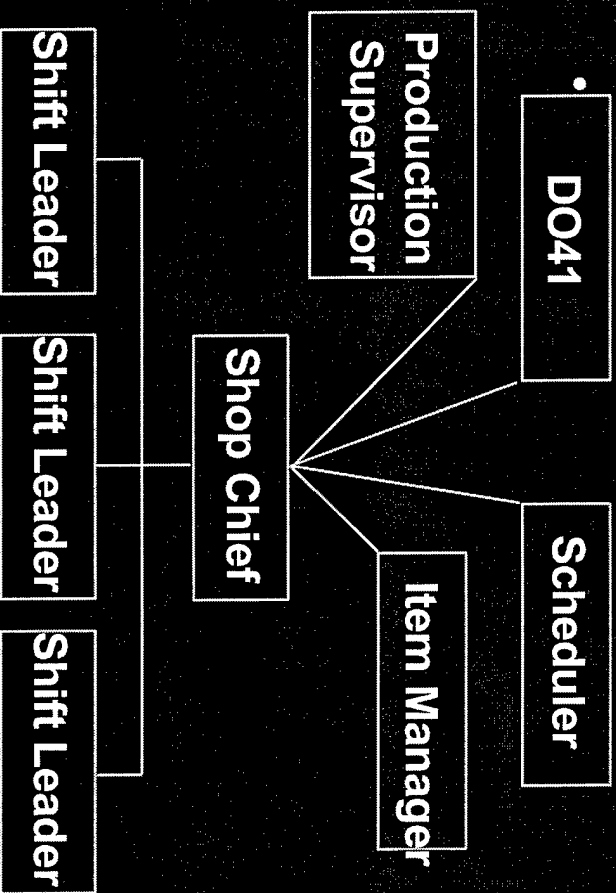
**We Need
"Metrics" to
Measure Success**

**We Need
Maximum Fleet
Readiness**



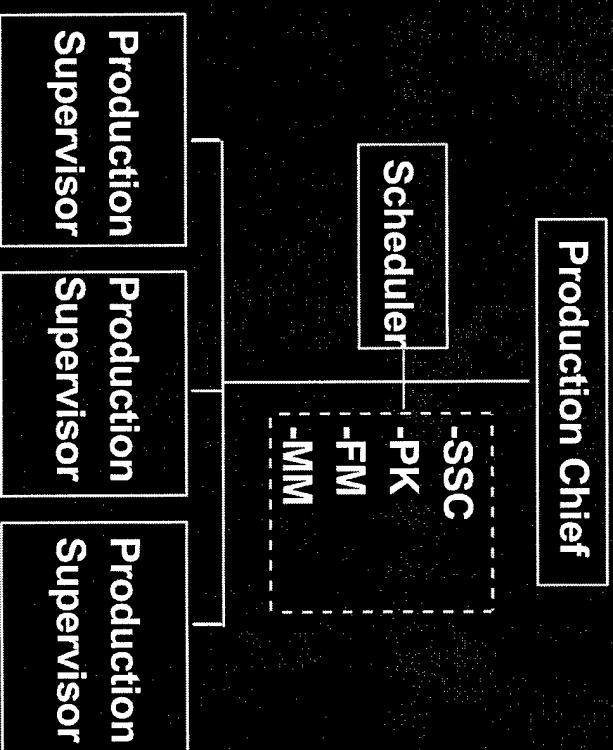
PACER LEAN DREP SHOP ORGANIZATION

• “WAS...”



- FUNCTIONAL ORIENTATION
- Fixers Often Left Waiting

“IS...”



- PRODUCTION ORIENTATION
- One Team, One Boss... In Charge

DREP - KEY COMPONENTS

Fixer

Throughput Growth

Material Manager

Logistics Process
Quarterback

Shop Service Center (SSC)

Provides Support to Technician

Readiness Based

Leveling (RBL)

Evening Constrained
Parts

Contract Repair

Enhancement Program (CREP)

Manages Contract Repair

Automated Tools

PARTS PRO

Gets SSC Levels

Analyze Inventory Levels

EXPRESS

Prioritize Repair
and Shipment

SHOP PRO

Identify Constraints

PACER LEAN DREP RESULTS

- **MII CAP Incidents reduced by 18 Percent**
- **MII CAP Hours Reduced by 20 Percent**
- **Number of Items On-Work-Order Reduced by 24 Percent**
- **Items Awaiting Parts Did Not Increase**

PACER LEAN “VIZ” TOOLS

- **EXPRESS**
 - Determines Repair Execution Requirements on a Daily Bases by Triggering Funding Needs in JO25A
 - Generates Prioritized Listing of Repair Requirements by Sub-group Master
 - Validates in Supportability Module
 - Checks for Carcass, Capacity, Parts and Funding
- **PARTS PRO**
 - Analyzes Inventory Levels for the Shop Service Center
- **SHOP PRO**
 - Identifies Constraints

CONTRACT REPAIR ENHANCEMENT PROGRAM (CREP)

Mirror DREP in Contract Repair

Implement Lean Logistics - Apply Acquisition Reform

Improve Support

Faster Response - Reduced Cycle Time - Minimize Costs

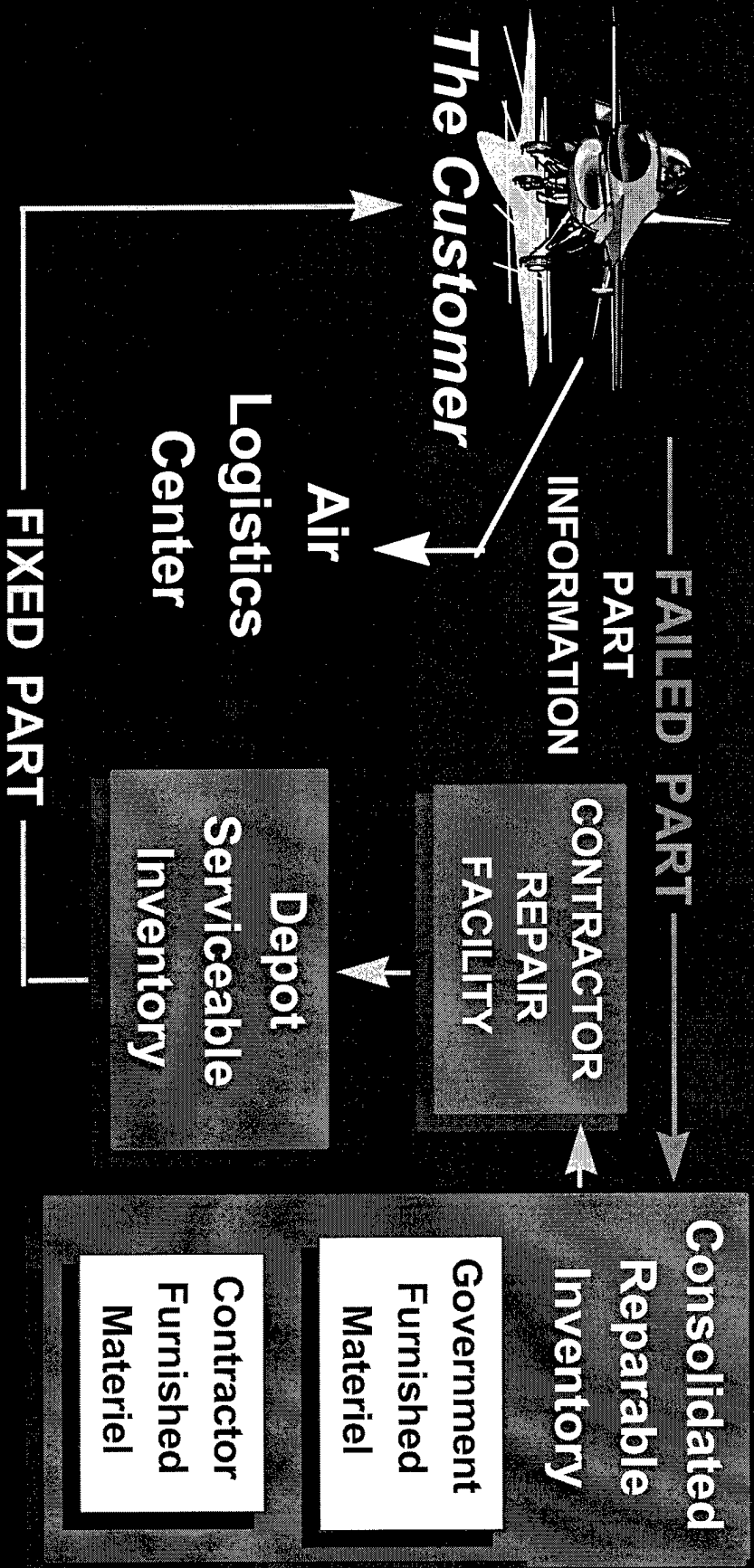
Create Partnerships with Industry

Long Term Contracts - Measure Success or Failure

Address a Variety of Contracts

Use Multiple Vendors - Use Integrated Team Approach

CREP PROCESS



CREP TENETS

- Long Term 3-5 Year Flexible Contracts
- Direct Shipment of Reparable Carcass To Contractor
- FAST Repair
- Contractor Responsible for Parts Support
- Prioritized Shipment Direct to Unit

EXPRESS PRIORITIZES REPAIR AND SHIPMENT

CREP RESULTS F-15 RADAR

Getting it Started

Contract Repair
Team Formed

Contractor ships
via next day air (as required)

Initial Lay-in of
Long Lead Parts by USAF
Inventory Maintained
and Replenished by Contractor

Benefits

Reduced Overall
Cost: 27% (\$1.67M to 1.22M)

Reduced Repair
Turn-Time 66% (90 to 30 days)

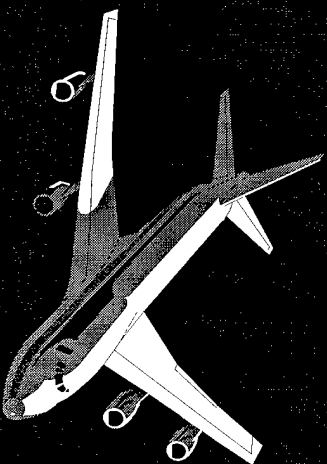
Deleted 12 hours
Additional Testing

Eliminated Unneeded
Data Collection (\$13.5K per Order)

Eliminated Unessential
Data and Military Standards

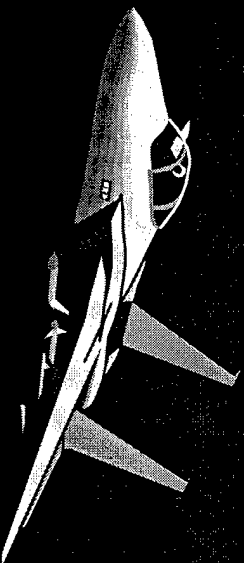
AIRCRAFT REPAIR ENHANCEMENT PROGRAM (AREP)

Commercial Flow Times - "D" Checks



Boeing 747 "D" Check - 30 Days

Depot Flow Times - PDM

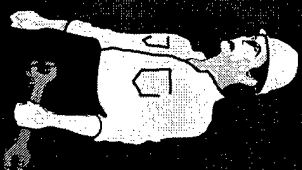


F-15 PDM - 154 Days
C-130 PDM - 243 Days
C-141 PDM - 248 Days

COMMERCIAL VRS DEPOT MANLOADING

Commercial Manloading - "D" Checks

300 TO 500 HOURS
WORK PER DAY



Depot Manloading - PDM

200 TO 250 HOURS
WORK PER DAY



AREP

IMPLEMENT LEAN AIRCRAFT SUSTAINMENT ENVIRONMENT TO
IMPROVE AIRCRAFT AVAILABILITY TO THE CUSTOMER

REDUCE MATERIAL
NEEDED TO SUPPORT PDM

REDUCE DEPOT
FLOW DAYS

REDUCE AIRCRAFT
INVENTORY

DELIVER AIRCRAFT
ON SCHEDULE

PROVIDE BEST
VALUE TO CUSTOMER

AREP GOALS

IMPROVE USER AND
SUPPLIER PARTNERSHIPS

AREP RESULTS

50% Flow Time Reductions

C-130

243 Days to 122 Days

F-15

154 Days to 77 Days

C-141

248 Days to 124 Days

Aircraft Availability Increased

More Jets on the Ramp

Decreased Costs

Less Resources Tied Up in PDM

AGILE LOGISTICS OBJECTIVES

- **Agile Combat Support**
 - Reduce Flowdays 20% By FY2000/Additional 20% By FY2005
 - Reflect Users Real Requirement Vice Standard Flowdays
 - Meet End Item Delivery Commitments 90% of the time By FY2000/95% of the Time By FY2005
- **Cost**
 - Reduce Average Customer Price 7% By FY2005
 - Consolidate Core Capabilities to Remaining Depots By FY2001
 - Develop Partnerships with Industry to Improve Capacity Usage
-

AGILE LOGISTICS OBJECTIVES

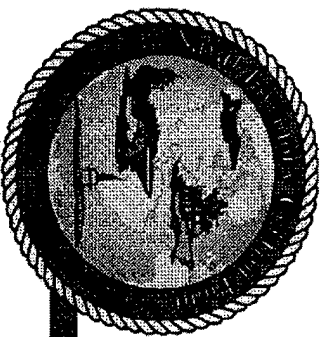
- **Infrastructure**
 - Define Facility/Equipment End State for FY2005
 - Divest Unneeded Infrastructure
- **Workforce**
 - Define FY2005 Workforce End State
-

SUMMARY

- Great Emphasis on Improving Cycle Times
- Benefits
 - Repair Time Reductions = \$775M Spares Buy Reduction
 - Contract Time Reductions = Over \$300M
 - Increased System Availability

Logistics Information Superiority Experiment (ISX)

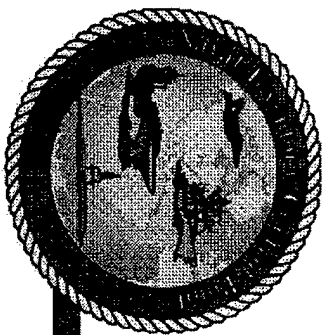
**A Proposal for Improving Warfighter Logistics Support
Through
Rapid Introduction and Integration of Advanced Technology**



Problem: DoD Depot Repair Process Takes Too Long, Costs Too Much, and Adapts Too Slowly to New Requirements

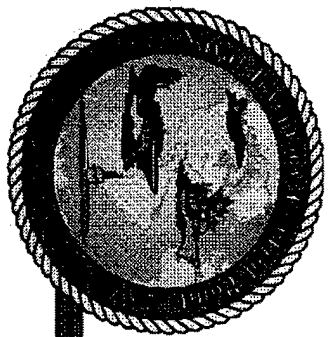
- Avg DOD depot repair cycle time (DRCT) = 83 days
@ \$51M per day
- DRCT inventory value = \$4.4 Billion
- Improvement to date inhibited by:
 - ◆ Fragmented supply chain
 - ◆ Antiquated “stand-alone” legacy systems
 - ◆ Limited asset visibility
 - ◆ Inaccurate forecasts of future requirements
 - ◆ Lack of timely performance metrics
 - ◆ Cultural resistance to change

*NAVICP Log
ISX delayed
until FY99*



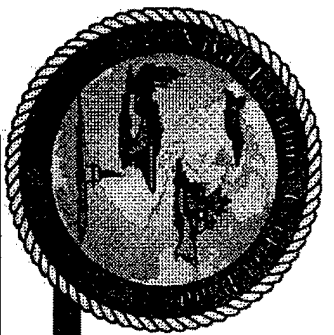
Logistics ISX Objectives

- Improve Response to Warfighter at Lower Cost
 - ◆ Advanced COTS/GOTS Information Technology
 - ◆ Integrated Supply Chain Management Techniques
- Proliferate Lessons Learned Throughout DOD

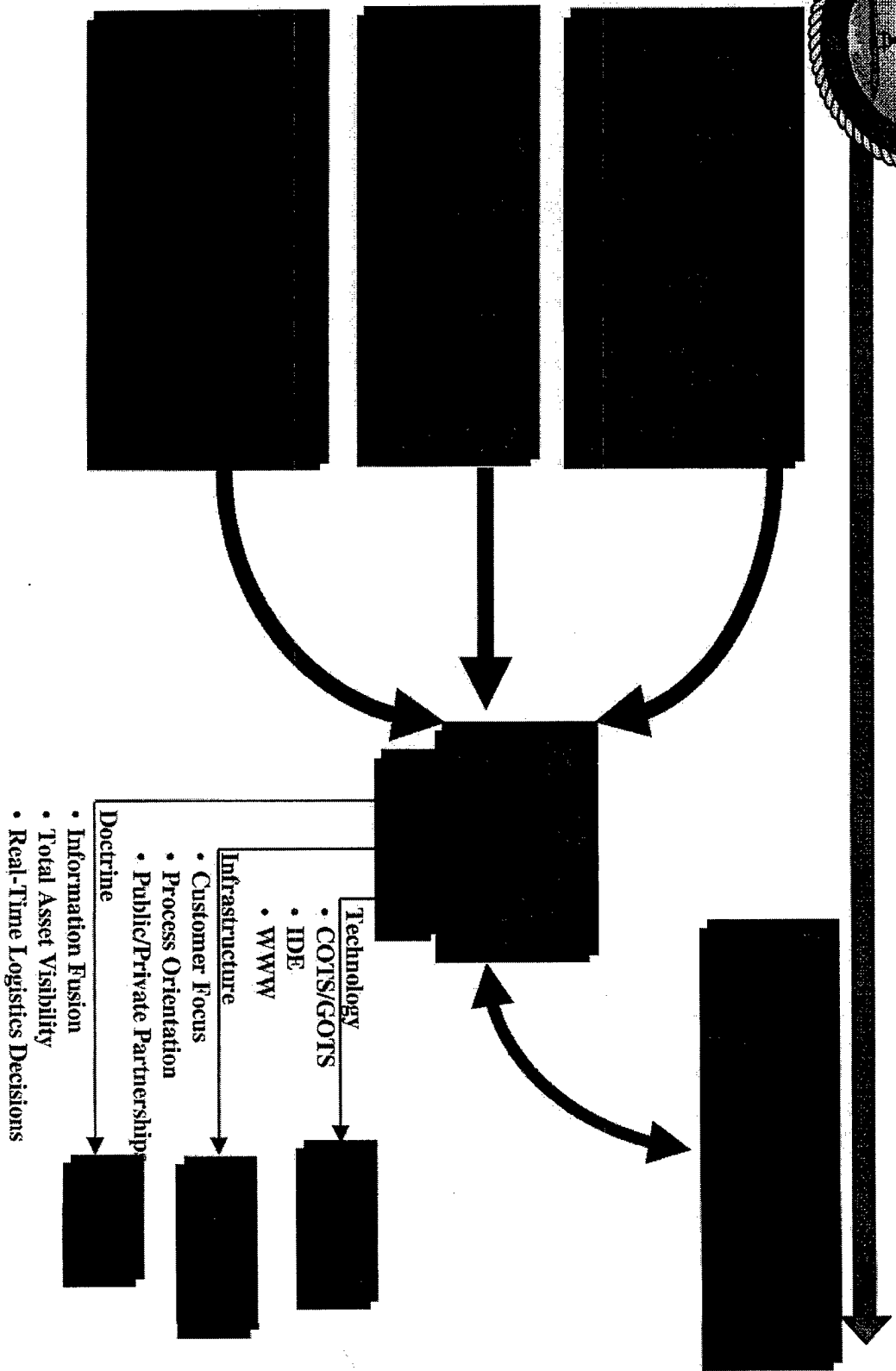


Linkage to Joint Vision 2010

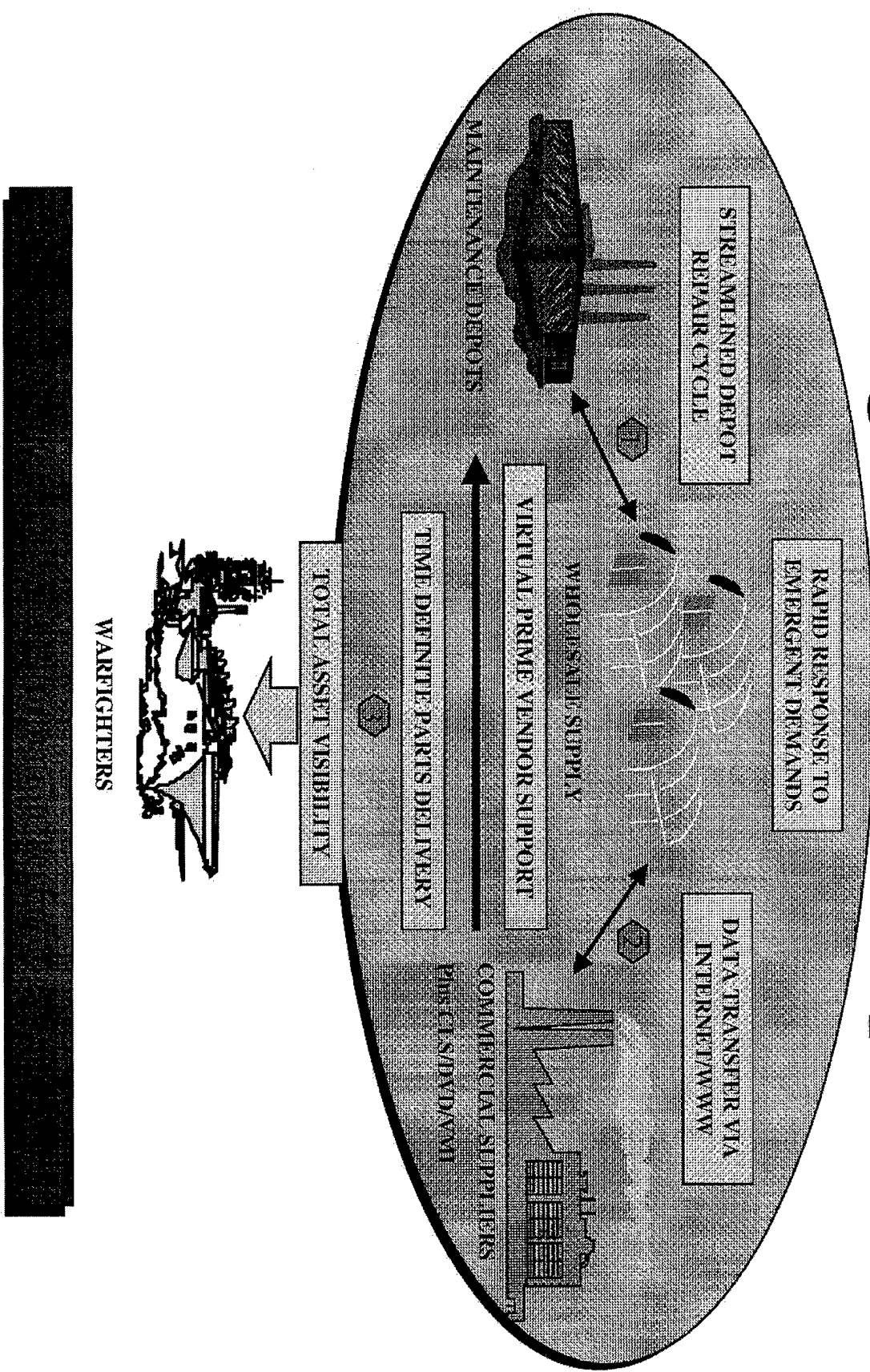
- **Focused Logistics is a key element of the JV2010 strategy for achieving Full Spectrum Dominance**
- **Providing Focused Logistics involves meeting several critical challenges, such as:**
 - ◆ **Information Fusion**
 - Near real-time command/control of logistics
 - Clear picture of overall support posture
 - ◆ **Joint Deployment/Rapid Distribution**
 - Joint/seamless materiel distribution system
 - Quick response to emerging requirements
 - ◆ **Agile Infrastructure**
 - Minimal logistics footprint in forward areas
 - Tailored combat support packages

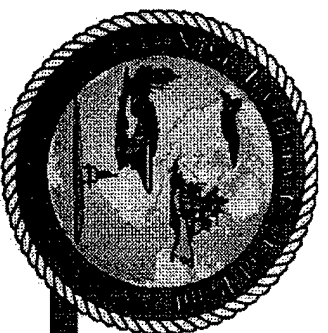


The Total Picture



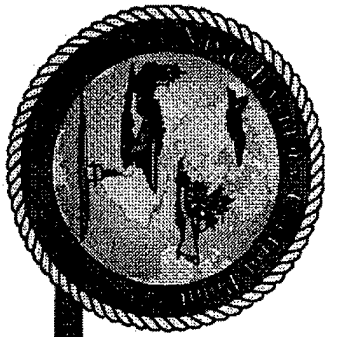
Logistics ISX Concept





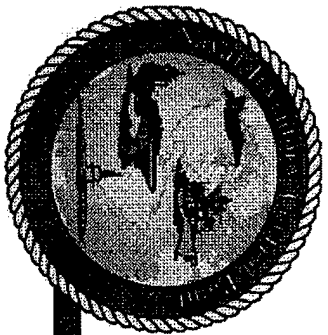
Information Network Interfaces

- **Supply-Maintenance Interfaces**
 - ◆ Integration of COTS supply chain packages and recent GOTS developments with COTS MRP II to achieve seamless information exchange
 - ◆ Shared data regarding repair requirements (priorities, due dates, & quantities) and depot production status
- **DoD-Vendor Interfaces**
 - ◆ Data transfer via Internet between COTS MRP II/supply chain management systems and virtual prime vendors
 - ◆ On-demand/just-in-time repair parts delivery to depots
- **Logistician-Warfighter Interfaces**
 - ◆ Complete asset visibility via JTAV
 - ◆ Real-time logistics decision support



Functional Characteristics

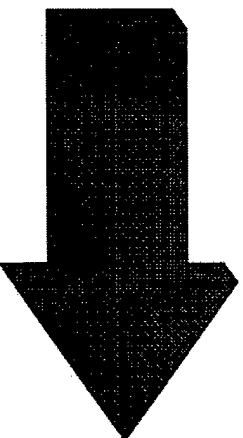
Repair Process Management • COTS MRP II Functionality • Customer-driven Inductions • Increased Responsiveness • Faster Turnaround Times	Repairable Asset Management • Integrated Supply Chain • Customer-driven Requirements • Rapid Reprioritization • Smaller Pipeline Inventories
Parts Support • Virtual Prime Vendors • Data Exchange via WWW • Time Definite Deliveries • Flexible On-demand Mfg	Asset Visibility • Warfighter Focus • JTAV Interface • Info partnerships/data sharing • Consumption • Reliability



Proposed Approach

- Identify representative systems/components for prototype tests
- Determine system interfaces/protocols needed for successful integration of depot COTS MRP II software with applicable supply processes and systems
- Utilize COTS/GOTS applications to facilitate integrated supply chain management functionality
- Establish/simulate real-time electronic connectivity for:
 - ◆ Virtual prime vendor support
 - ◆ CLS/DVD/VM
 - ◆ JTAV interface
- Develop data base that will allow sensitivity analyses and quantitative verification of test results

Success will equal



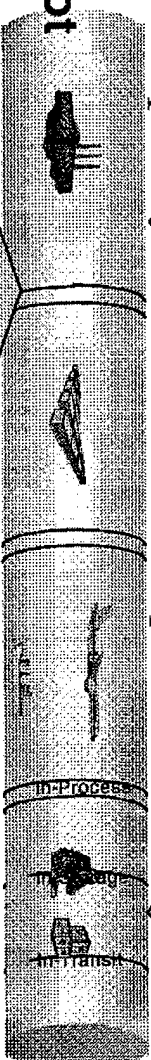
JCS View

Use COTS tools to fuse logistics information and ascertain whether integrated supply management policies can:

- reduce repair cycle time
- improve Warfighter Readiness
- reduce logistics support costs

Depot Repair Cycle Time (Maint/Repair Parts)

Factory/Depot



In-Process

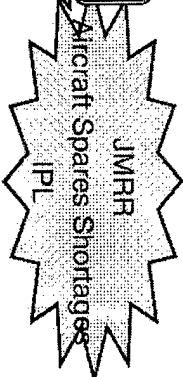
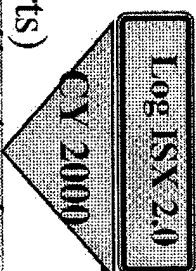
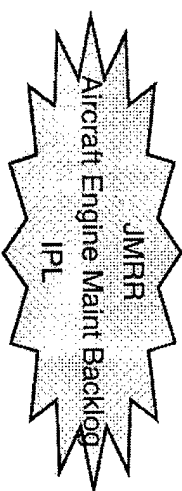
In-Storage

In-Transit

In-Theater

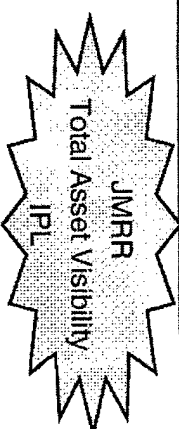


- Internally Focused
- Speed of Information
- Warfighter Focused
- Stovepiped
- Network-centric
- Integrated
- Unresponsive
- Simulation-based
- Interoperable



Foxhole, flightline, cockpit or deckplate

Readiness Enhancement thru Logistics Response Time Reduction





FY 2000

Problem Definition

Market Survey

Test Plan Development

Prototype Implementation

Data Collection & Documentation

Oversight

Proliferation Planning & Simulation

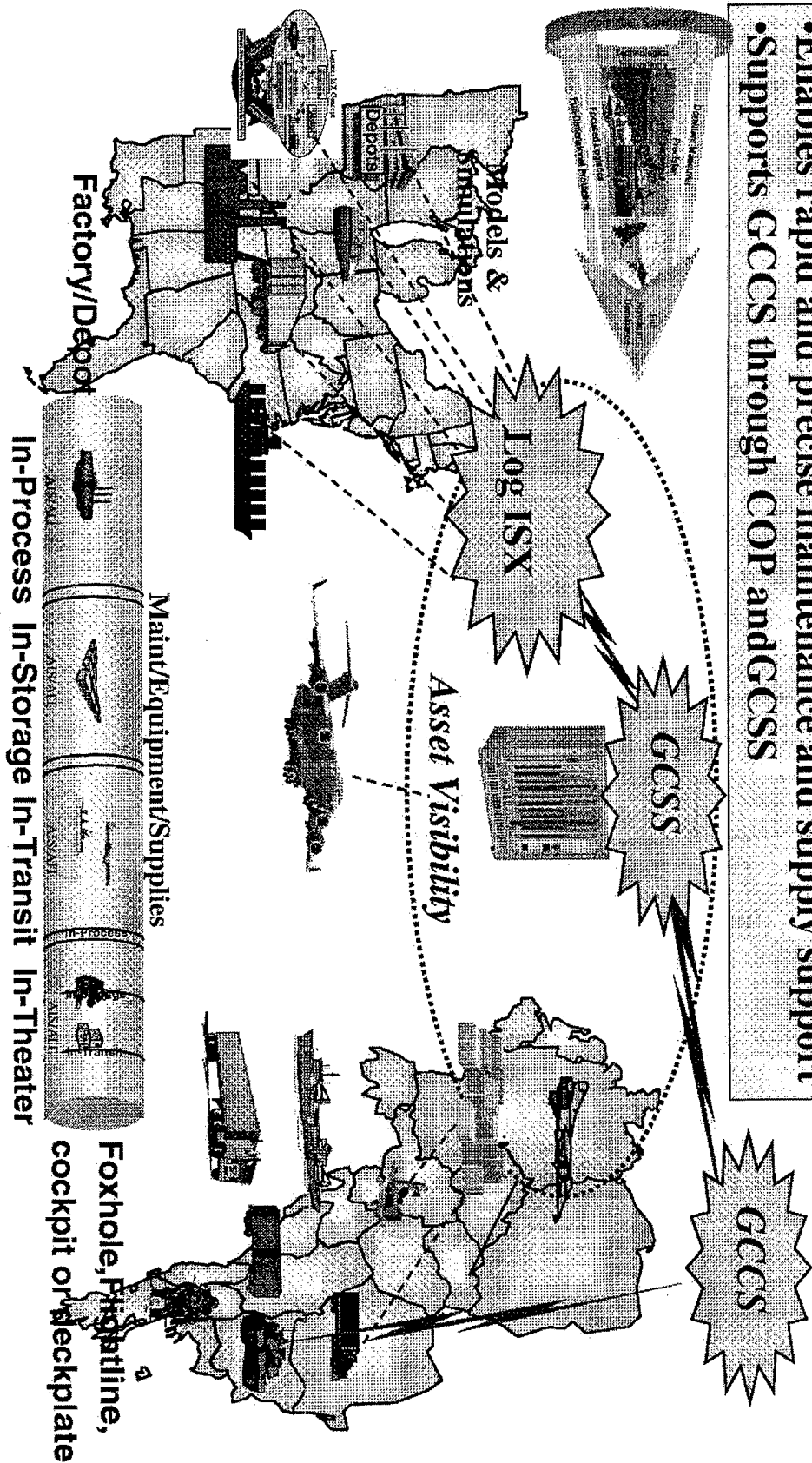
FY99: ISX Planning & CRP Simulation

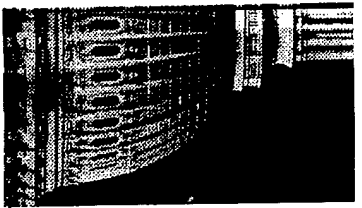
“Live Slice” Workload Demonstration

FY00: Extrapolation of CRP/Demo Results

Log ISX Value to the Warfighter

- Shorter repair cycle time enhances combat readiness
- Assists in total asset visibility, tracking, and control
- Enables rapid and precise maintenance and supply support
- Supports GCCS through COP and GCCS





Competitive Sourcing Panel

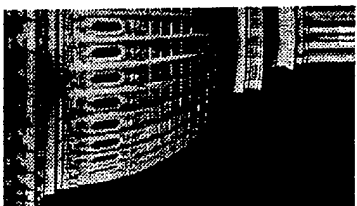
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DoD Maintenance Symposium

19 October 1998

Jim Hopp

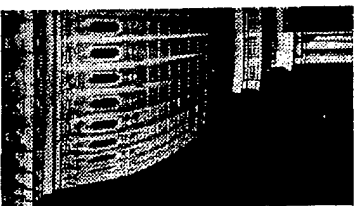




Definitions

- **Outsourcing + Privatization = Competitive Sourcing**
 - **Outsourcing:** The process of contracting-out functions that are traditionally done in-house to the private sector (or another provider). Facilities and equipment are usually furnished as GFM.
 - **Privatization:** The process of shifting in-house functions to the private sector (or another party) by selling the assets necessary to perform the function.
 - **USD(A&T):** “Competitive sourcing of all but inherently governmental functions and the rapid reduction in the civilian and military workforce...” is one of the courses of action to reduce costs within DOD.*

* USD(A&T) speech to AUSA, 9/2/98

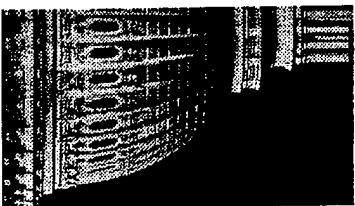


Survey Data

- 44% of retailers are outsourcing operating functions to 3rd parties
- < 30% of Supply Chain functions are outsourced, except for Transportation of goods. On average:

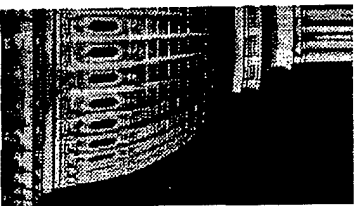
- Transportation	54%
- Information systems	26%
- Warehousing	24%
- Manufacturing	24%
- Repair/Warranty	20%
- Procurement	17%
- Inventory Management	9%

Source: KPMG Global Supply Chain Study, Jan 98. Prepared in conjunction with J.L. Kellogg Graduate School of Management, Northwestern University



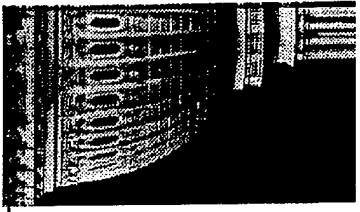
Opportunities

- Base Support Services
- Depot Maintenance
 - Aircraft PDM
 - Major end item repair & overhaul
 - Component overhaul & repair
- Supply Chain Management
- Training
- Technical Services
- Public-Private Partnerships



Public-Private Partnerships (PPV)

- PPVs are authorized by numerous Sections in 10 USC.
 - Provide increased utilization of under-utilized capacity and equipment.
 - Provide opportunity for retention and utilization of skills that are needed for wartime surge.
 - Reduce O&M costs and capital requirements to the partners
- There are examples of PPVs that are saving DOD and industry money.
- Must be a business arrangement that all parties view as beneficial and makes economic sense.
- The authority is available; direction to implement is needed.



Issues

- **Need to clearly identify “CORE” functions.**
 - 50/50 requirement
 - Different by Service
 - Confusion within DOD and Industry. What really is “CORE”:
 - Is the C-17 with its Flexible Sustainment concept?
 - Is the C-5 since it was the subject of a PPV competition?
 - Are commodity shops like Hydraulics & Instruments at SMC-ALC?
- **How to implement Public-Private Partnerships.**
- **How to make the best use of the Center for Industrial and Technological Excellence (CITE) authority for win-win business arrangements**

Logistics Transformation

DoD Maintenance Symposium

J. A. Jones

Defense Logistics Agency

October, 1998

"Maintenance: Today's Challenges—Tomorrow's Vision"

12/2/98

1

Overview

□ Themes of the QDR and DRI

□ Results in brief--1998 Defense
Science Board Summer Study,
"Logistics Transformation"

Defense Reform Initiative Mandates

Change

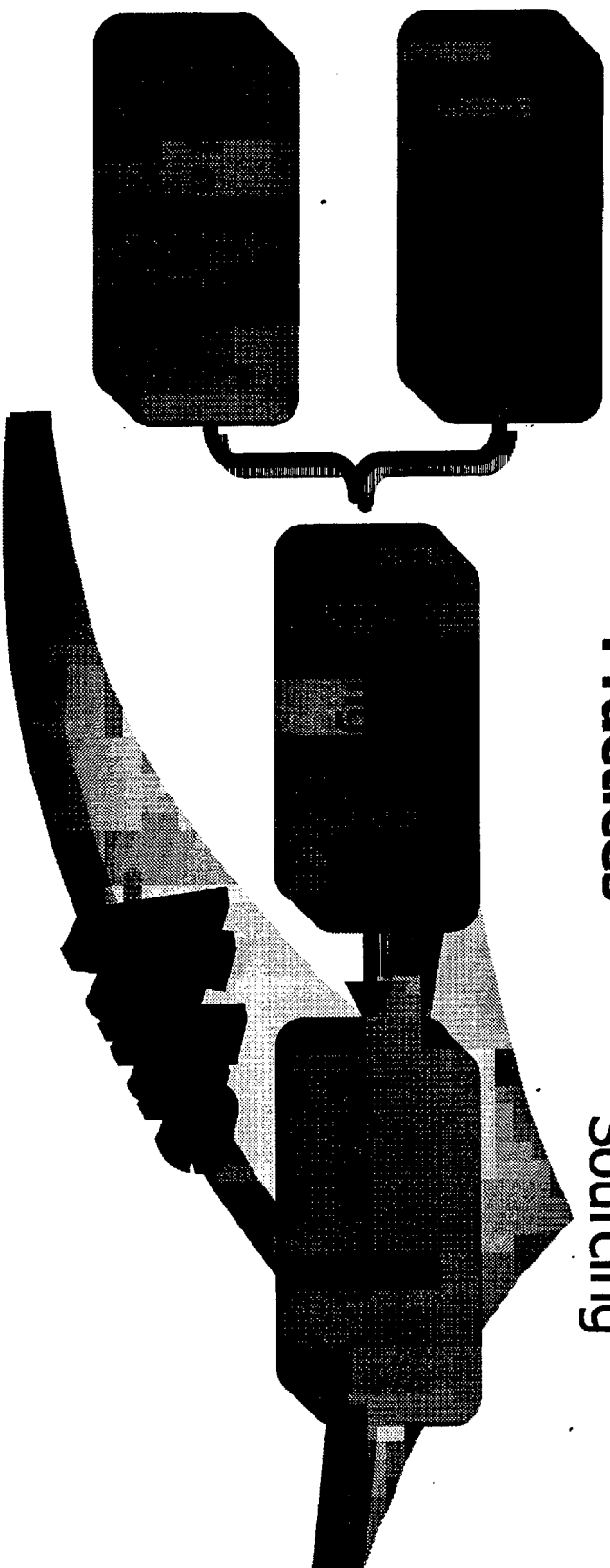
Reforming the "Business" of Defense "Strength with Speed"			
Explicit/Implicit Goals	Principles of Reform	DRI Initiatives	
1. Achieve World Class Standards of Performance	Focus enterprise on unifying vision	Reengineer: Adopt Commercial Business Practices	Consolidate: Streamline organizations to remove redundancy and maximize synergy
2. Minimize cost	Commit the leadership to change	Compete: Apply market mechanisms to improve quality, reduce costs, and respond to customer needs	Eliminate: Reduce Excess support structures to free resources and focus on core competencies
	Focus on core competencies		
	Streamline organizations for agility		
	Invest in people		
	Exploit information technology		
	Break down barriers between organizations		

12/2/96

"Maintenance: Today's Challenges—Tomorrow's Vision"

Basic Process Used Successfully at DLA

Define the Business **Best Commercial** **Best Value**
Practices **Sourcing**

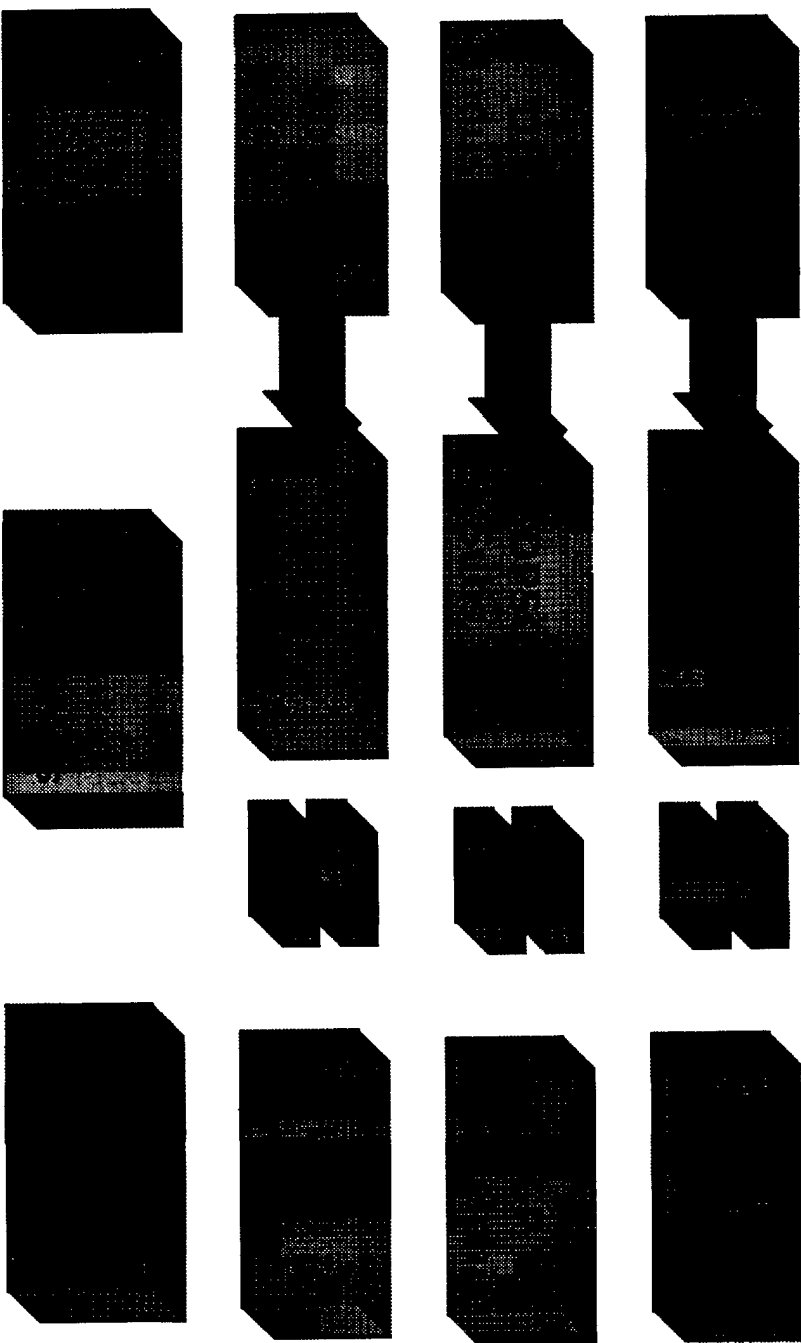


12/2/98

"Maintenance: Today's Challenges—Tomorrow's Vision"

4

Consolidate & Eliminate



12/2/98

"Maintenance: Today's Challenges—Tomorrow's Vision"

Re-engineer

- ❑ **Incorporate best business practices across the system**
- **Follow the market; don't make business emulate DoD**
- **Best practices may not be *defense* industry**
 - **Most of DLA's "Prime Vendor" arrangements are with non-defense industry**
- **Buy IT solutions where possible**

Compete

□ Look for what private sector already does best

■ Performance-oriented statements of objectives

■ Make targets attractive for complete product lines

■ Encourage broadest possible range of responses from public & private sectors

The 1998 DSB Summer Study

12/2/98

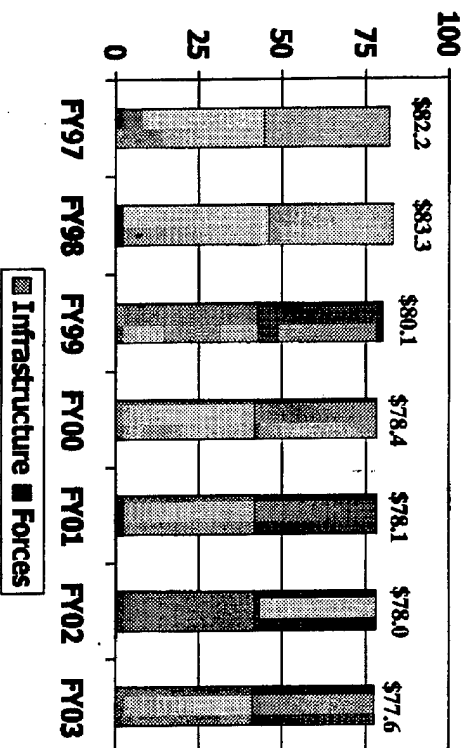
"Maintenance: Today's Challenges—Tomorrow's Vision"

8

Logistics Cost Baseline

Logistics

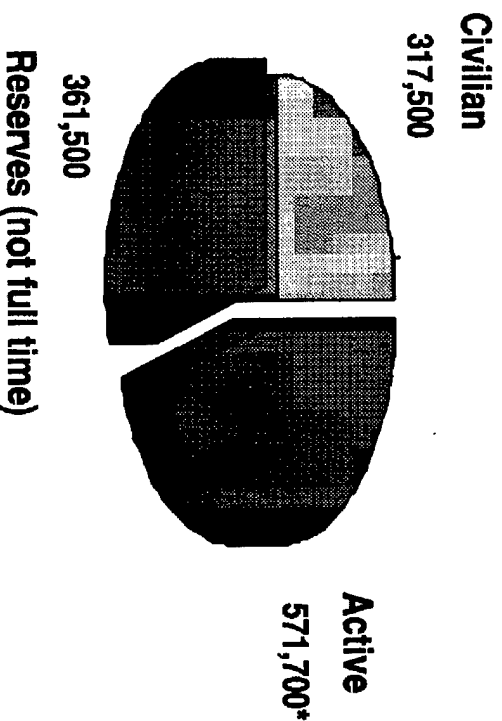
Funding in FY97 Constant Dollars (\$Billions)



Source: LMI

Logistics Personnel

Total = 1,250,000 people



* Active combat forces 290,000 -- half size of active logistics forces

1/3 of DOD budget and nearly 1/2 of DOD manpower is in Logistics

The Transformed Logistics System -- Needs/Objectives

- ☐ Support the requirements of our 21st Century strategy and forces to rapidly deploy and sustain significant combat power.
 - Operate with poorly developed infrastructure
 - Minimize the in-theater footprint
 - Be agile, responsive and survivable
- ☐ Enable the CINC/JTF Commander to execute his war plan effectively, flexibly and with limited risk
- ☐ Exploit today's technology to provide greatly enhanced logistics support at significantly less cost
 - Be well integrated with commercial logistics partners
 - Employ advanced business processes and information systems

Findings in Brief

- ① ***Theater CINCs unable to exercise Title 10 logistics responsibilities***
- ② ***DOD logistics system fragmented--No end to end control, integration, performance, or accountability***
- ③ ***Reducing demand is key to enhancing effectiveness/cutting costs***
- ④ ***Changing how we deploy and sustain is necessary***
- ⑤ ***Vulnerabilities need more attention***

Issue 1 -- CINC Pull - Findings

- **CINC's are unable to exercise Title 10 responsibility to plan and manage theater logistics**
- **Services push initial deployment supplies to theater with little CINC/theater planning and control**
 - **Unneeded materiel clogs lift and pipeline**
 - **Increases sustainment burden**
- **Combat forces lack confidence in the logistics system and build "iron mountains" to compensate**

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CINC Pull -- Recommendations

① *Designate Theater CINC logistics component commanders*

- Reports directly to theater CINC
- Manages all common support/services in theater (peacetime training and war)
- Experiment with JFACC model (task a service component commander)

② *Improve Theater CINCS logistics Information Tools*

- Dynamic planning/simulation tools
- Ability to specify deployment and sustainment packages, do consequence analysis, change "on-the-fly"
- Provide CINCS the ability to directly locate and redirect assets

Issue 2 -- Logistics Information Systems and Processes - Findings

- ❑ *Current systems are fragmented, ineffective and fail to exploit current technology and practices*
- ❑ *DOD lacks an overall vision of how to transform the logistics system to the needs of JV2010*
- ❑ *A master functional overhaul of today's fragmented logistics system is a prerequisite to "focused logistics."*
 - Major corporations (including Caterpillar, Proctor & Gamble, DuPont, Cisco, Wal-Mart, FedEx and Boeing)
 - ❑ Reengineered their logistics processes to gain competitive advantage
 - ❑ Modernized their information systems to support business goals
 - ❑ Placed control of transformation under a senior level champion
- ❑ *Commercial experience shows that tools and practices must be developed together.*

Recommendation: Appoint a Logistics System Architect who is:

- ☐ ***A senior official/ reporting directly to
USD(A&T)***
- ☐ ***Works closely with***
 - **Service/Agency/CINC logistics leadership**
 - **Industry logistics management leaders**
- ☐ ***Whose appointment***
 - **Is made by SECDEF**
 - **Is affirmed by the Chairman, JCS**
 - **Transcends administrations**

Recommendation: Appoint a DOD Logistics System Architect to:

- *Define system-wide functional performance and cost goals*
- *Lead in integrating logistics business processes -- supply chain management*
- *Co-develop logistics business practices and information systems vision*
- *Develop functional and technical architecture & execution roadmap*
- *Work with JCS/CINCs to ensure that logistics are integrated with operations*
- *Develop/manage the implementation/transition plan*
 - *Decentralized implementation by service and DLA*
- *Control funding, establish metrics and monitor performance of the Logistics System Transformation transition plan*

What Mus

- *An architecture*
practices and m
 - Functional spe
interface speci
 - Focused on wa
 - Evolutionary r
requirements
- *A supporting IT*
 - Resides within
congruent with
 - Facilitates info
systems archit
 - Measures for d
projects to the

12/2/98

"Main

Issue 3 -- Demand Reduction - Findings

- ☐ Today's forces are too heavy to permit rapid deployment unless most equipment is prepositioned in the theater
- ☐ Reducing weight and size has a big payoff for early entry and continuous combat
 - Faster deployment of combat forces
 - Smaller footprint in theater
 - More agile forces
 - Lower costs
- ☐ Reduces on-going sustainment burden
- ☐ Opportunities to reduce demand include:
 - Redesigned Force Structure and Equipment
 - Other Demand Management Techniques

Demand Reduction -- Recommendations

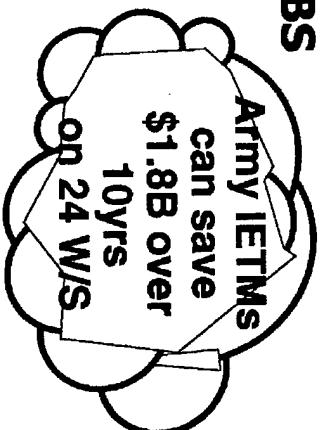
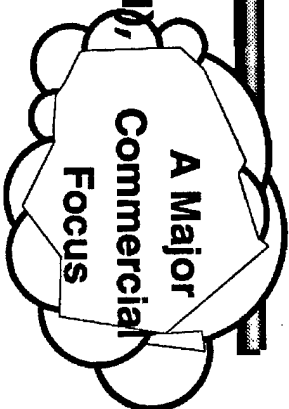
① Force Structure

- Reduce size & weight (Examples: Army After Next (AAN), Smart Ship)
 - Must overcome cultural barriers, e.g., crew size, unmanned vehicles, artillery vs. missile
 - Focus R&D on "agile force" with fewer platforms

② Equipment: Make PMS responsible for Total Ownership

Cost -- Operational Support accounts for 60% of LCC

- Demand Reduction significant objective of JROC/PBS
 - Invest to reduce life-cycle costs (set ROI of 3-5:1)
 - Improve reliability, maintainability
 - Decrease fuel/ammo/power consumption
- Reduce weight, crew size
- ③ *Competitively source weapon systems and* equipment support above organization level



Issue 4 -- Deployment and Sustainment - Findings

- ❑ *Today's capabilities fall far short of meeting 21st Century needs*
 - Only very light forces are deployable in days
 - Deploying significant land-based combat power depends on PREPO or ocean shipping (weeks to close)
 - Shortfalls in over-the-shore and primitive port capabilities are also a major limitation and risk
- ❑ *Supporting processes are inadequate and fail to exploit current technology*
 - Deployment planning systems are inflexible and slow; also data are inaccurate and often out of date
 - Responsibility for process is fragmented -- many seams
- ❑ *Commercial world is investing in related logistics capability -- all enabled by IT*

Deployment and Sustainment Recommendations

- ① ***Exploit commercial lift to meet future requirements***
 - Use the growth in large commercial airlift fleet to support strategic deployment
 - I Enhance CRAF to meet military requirements (door width & height, deck height, floor strength)
 - I Make CRAF use a key design criteria for land forces equipment
 - Aggressively pursue other lift technology in commercial sector
- ② ***Support alternatives to delivery through fixed ports***
 - Many operations will occur in underdeveloped areas
 - Example: Joint Logistics Over the Shore Sea State 3+ yields 20-180% operating time improvement
- ③ ***Execute Defense Reform Initiative Decisions (DRIDs)***
 - Need unified movement system
 - Authority to influence transportation systems acquisition

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Issue 5 -- Survivability - Findings

☐ The spectrum of threats is very broad and includes:

Adversary Actions

IW/EW against log system
Chem/bio attack on log nodes
Opposed delivery (e.g., mines, subs)
Disruption of ports, airfields

Environment

High seas, winds
Undeveloped ports, airfields
Civil disruption(e.g., refugees)
Natural disasters

- ☐ Considerable recent attention to logistics vulnerability
- ☐ Most attacks have limited impact if planning anticipates
 - Most vulnerable points are takeoffs and landings of airlift, disruption of PREPO in deployment, and civilian infrastructure during sustainment
 - Serious vulnerabilities against concerted SOF-like attack (PREPO afloat, DLA centers, supporting civilian industry and infrastructure)
- ☐ Sophisticated IW/CBW attacks could be devastating to logistics

Survivability -- Recommendations

- ① *CJCS direct J4 to review comprehensively logistics/ PREPO vulnerability and report initial results in four months and detailed results to SECDEF within nine months.*
- ② *Include Red Team assaults against logistics in wargames and simulation exercises, joint and Service (CJCS)*
- ③ *Apply same IW standards to logistics as being used for other portions of the C3I system (Process Owner)*
- ④ *CJCS direct J4 action to assure that logistics-unique aspects of CBW are included in planning for operations and logistics*

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Logistics Transformation -- Implications

Issue	End-State Cost Savings	Investment	Impact
1. <i>Strengthen CINC Pull*</i>	Significant inventory reduction \$1-2 B	Planning tools, prognostics, etc \$150M per year	Greatly enhanced theater log support, and responsiveness; reduced footprint
2. <i>Designate a Logistics Architect Develop an integrated process and system*</i>	Potential for 10-15% direct labor; 15-30% indirect (\$3-\$6B); 5-15% non-labor (\$1-3B)	Studies, focused systems, tools, etc--\$140 M; Execute systems modernization within current systems \$1.8 B budget	Ability to achieve "focused logistics"; true JTF supportability; Platform for continuous modernization; "Truly a national asset"
3. <i>Demand Reduction*</i>	\$1-2 B / Year	R&D, reliability enhancements \$500 M / year	Faster deployment of combat capability, smaller footprint, more flexibility, less maintenance; reduced lift burden, and military lift investment
4. <i>Commercial Lift Capabilities</i>	Avoid future military lift investment	\$100 M/year	Greatly increased lift and reduces need for new investment in lift assets
5. <i>Vulnerability</i>	Opportunity Cost	\$100 M / year	Avoid casualties and loss of assets: reduced risk to military support

12/2/98

"Maintenance: Today's Challenges--Tomorrow's Vision"

*Addressed in the 1996 Summer Study

The Transformed Logistics System

- ☐ Will provide the needed logistic support for our 21st Century strategy and force (JV 2010)
 - Able to rapidly deploy and sustain significant combat power
 - Deploy and operate despite a poorly developed infrastructure
 - Operate with a greatly reduced in-theater footprint
 - Be agile, responsive and survivable
- ☐ Will enable the theater CINC to execute his war plans and Title 10 responsibilities
- ☐ Will exploit today's technology and commercial capability to accomplish the above -- with fewer dollars and manpower resources

Major Action Items

SECDEF

- ☐ *Appoint Logistics System Architect*
- ☐ *Refocus logistics system to CINC Pull*
- ☐ *Designate CINC / JTF CINC Logistics Component Commander*

CJCS

- ☐ *Refocus logistics system to CINC Pull*
- ☐ *Designate Theater CINC Logistics Component Commander*
- ☐ *Provide requirements for dynamic planning/simulation tools to tailor deploying forces*
- ☐ *Establish requirements to integrate logistics and operations*
- ☐ *Implement survivability recommendation*
- ☐ *Add demand reduction to JROC criteria*

Summary

- ❑ Focus moving to customer-defined outcomes
- ❑ Role of maintenance is key to size of in-theatre footprint
- ❑ Deliberate planning to reduce maintenance requirements is important to getting forces to the fight on time
- ❑ *Tomorrow's vision--less maintenance is better!*

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"Maintenance: Today's Challenges--Tomorrow's Vision"

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Thanks for Having Me!



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"Maintenance: Today's Challenges—Tomorrow's Vision"

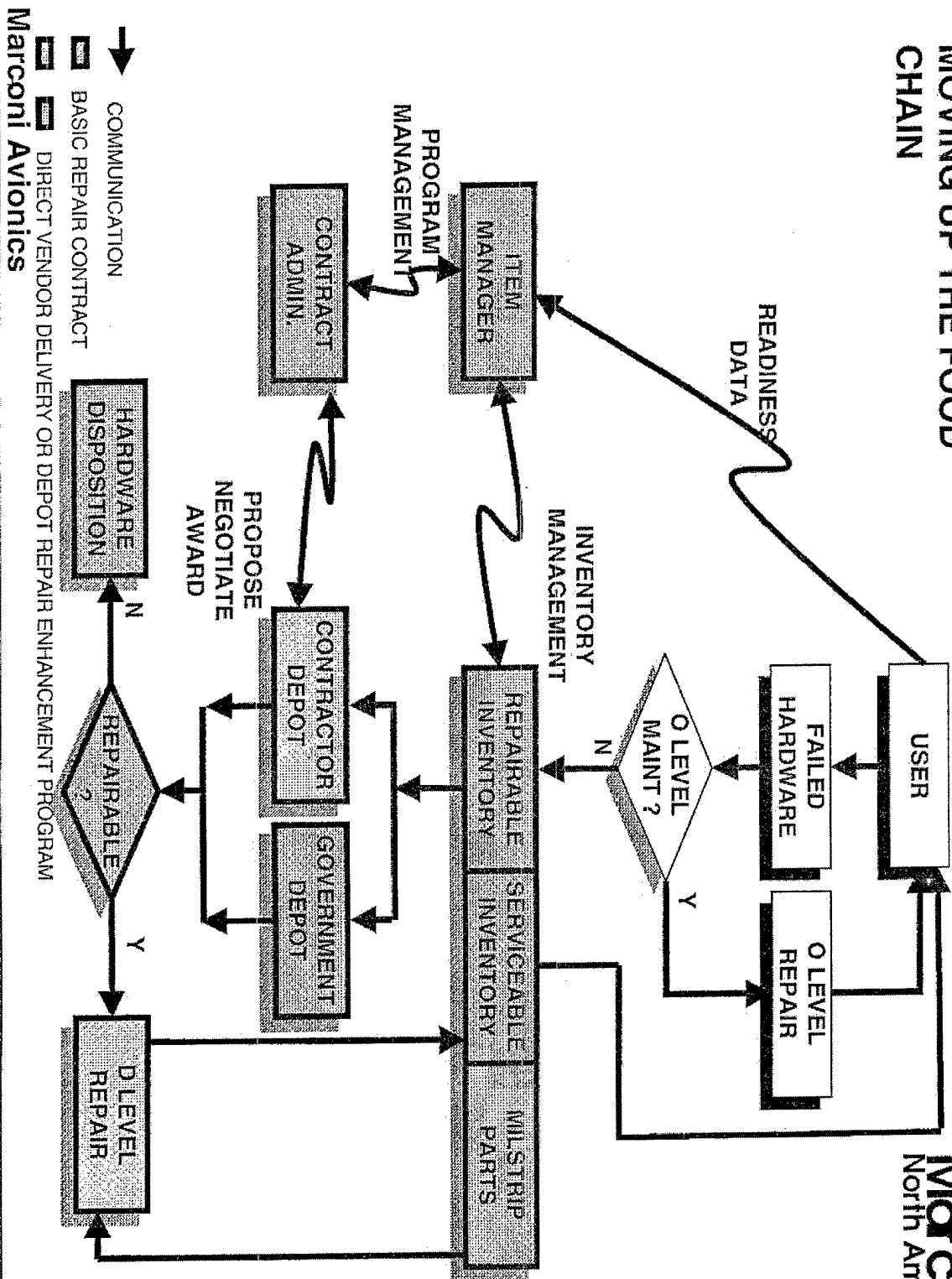
28

Reducing Response Times - A Contractor Perspective

- Marconi Avionics operates in three support contracting modes:
 - Traditional - FFP or T&M Contracts
 - F-16, C-17, AC-130H/U Head Up Display repair
 - Contemporary - Contractor Logistics Support (CLS)
 - AC-130U All Light TV Turret, AH-1S Weapon Aiming System, F-22 Head Up Display
 - Modern - Direct Vendor Delivery (DVD)
 - Standard Central Air Data Computer and Digital Signal Data Computer for C-2/E-2, S-3, F-14, & EA-6B

MOVING UP THE FOOD CHAIN

Marconi
North America



Reducing Response Times - A Contractor Perspective

- A Definition of Direct Vendor Delivery
 - The provision by a vendor of serviceable material to meet the user's requirements without the intervention of, or need for, organic inventory managers, warehousing, material handling, and transportation systems, while providing increased product reliability and reduction of total cost of ownership.
 - (Paraphrased from Navy definition)

Marconi Avionics

Reducing Response Times - A Contractor Perspective

- Using DVD, DoD wants:
 - Increased Supply Availability
 - Single inventory management point
 - Electronic Data Interchange (EDI)
 - Improved Reliability
 - Technology Insertion
 - Control of Obsolescence
 - Lower Cost of Ownership
 - Reduced Inventory,
 - Reduced Oversight
 - Reduced Manpower
 - Acceptable Exit Criteria
 - Orderly close-down and completion at contract termination

Marconi Avionics

Reducing Response Times - A Contractor Perspective

- We provide:
 - Rapid Supply Support Response
 - Rotable Pool (48 hrs max. to user's dock)
 - Inventory Warehousing, including Consumable Parts Stock
 - Fast Transportation
 - Reduced Repair Turnaround Time
 - Reliability Improvements
 - Reliability Tracking
 - Repair/Replacement/Overhaul at our discretion
 - Modification and Product Improvement
 - Configuration Control and Status Accounting
 - Field Service Support, User Training, and Maintenance of Technical Documentation

Marconi Avionics

Reducing Response Times - A Contractor Perspective

- Enhancing the DVD environment
 - Web-accessible database
 - Tiered access based on need-to-know
 - Serial number tracking
 - Immediate visibility of what, where, and when
 - Read/write "touch button" available now
 - On-unit log book provides total maintenance history
 - Rapid recognition of, and reaction to, pattern failures
 - Paperless environment
 - User friendly, pull-down menus minimize data entry for mechanics/technicians
 - Provides ready access to MTBR incentive-related data
 - Streamlines contract and accounting processes.

Marconi Avionics

Reducing Response Times - A Contractor Perspective

- Contract issues that inhibit efficiency
 - Excessive application of Government Source Inspection
 - Traditional and CLS contracts
 - Not applied to DVD contracts
 - Legacy QA processes
 - Older contracts still subject to MIL QA requirements
 - Use of ISO9000 requires separate approvals
 - FFP contracts requiring individual repair POs
 - Accommodation of Over and Above repairs

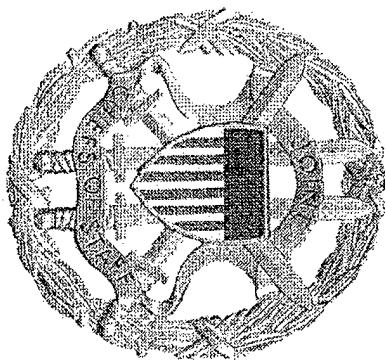
Marconi Avionics

Reducing Response Times - A Contractor Perspective

■ In Summary

- User improves readiness
- Government reduces cost of ownership
- Contractor increases revenue
- A win-win solution!

Marconi Avionics

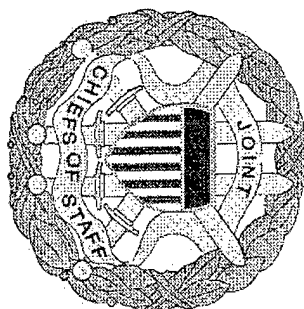


Focused Logistics - Phase II

1998 Defense Maintenance

Symposium

As of 1 October 1998



AGENDA

- ✓ Changing Environment
- ✓ Focused Logistics
- ✓ Maintenance Operations

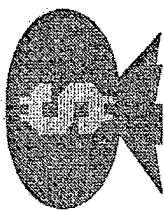
Coping With A Changing Environment

- ✓ Base Force Review (1991)
- ✓ Bottom-Up Review (BUR) (1993)
- ✓ Commission on Roles and Missions of Armed Forces (CORM) (1995)
- ✓ Quadrennial Defense Review (QDR) (1997)
- ✓ National Defense Panel (NDP) (1997)
- ✓ Defense Reform Initiative (DRI) (1997/98)
- ✓ Mobility Requirements Study (MRS 05) (1998/99)

Balanced, Capable and Affordable Defense Program



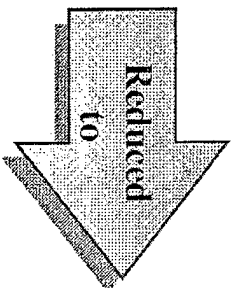
A Changing Environment



The Defense Budget

WHERE WE WERE

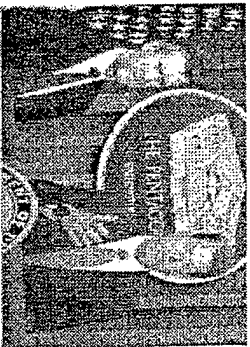
A DOD Budget that consisted of 28% of our national budget and 7% of our nation's gross national product



WHERE WE ARE TODAY

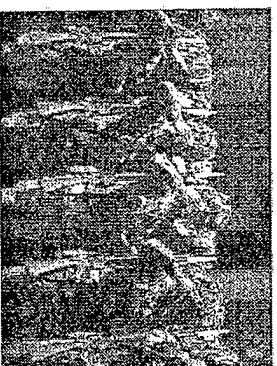
A DOD Budget that consisted of 15% of our national budget and 3.5% of our nation's gross national product

40% defense budget reduction



A Changing Environment

Force Structure



WHERE WE WERE

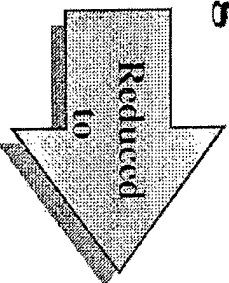
An armed force consisting

of 2.2M men and women

500K overseas

1.1M Reservists

1.1M DOD civilians



WHERE WE ARE TODAY

An armed force consisting

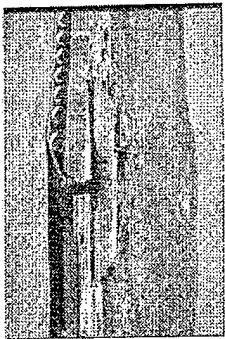
of 1.45M men and women

200K overseas

900K Reservists

800K DOD civilians

33% reduction in force structure



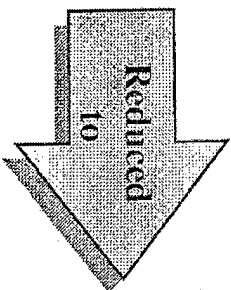
A Changing Environment



Industry and Procurement Programs

WHERE WE WERE

An industrial base where defense contractors employed 3.7M workers and procurement contracts consisted of \$120B of the total DOD budget



WHERE WE ARE TODAY

An industrial base where defense companies employ about 2.2M workers and procurement contracts account for \$44B of the total DOD budget

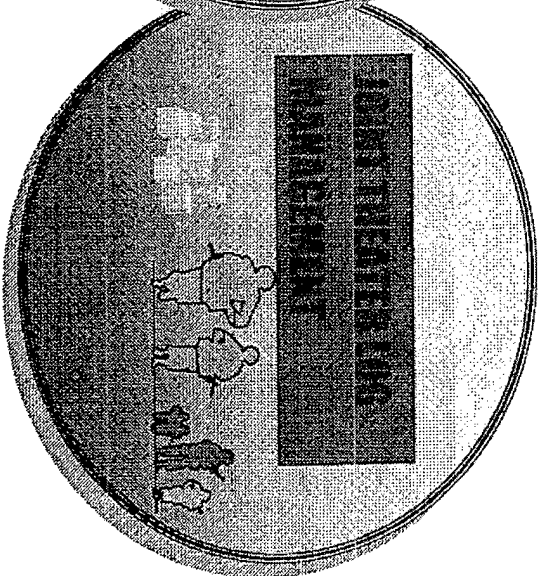
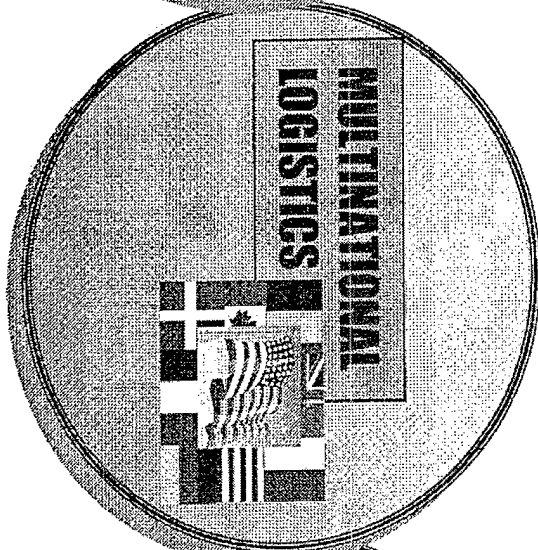
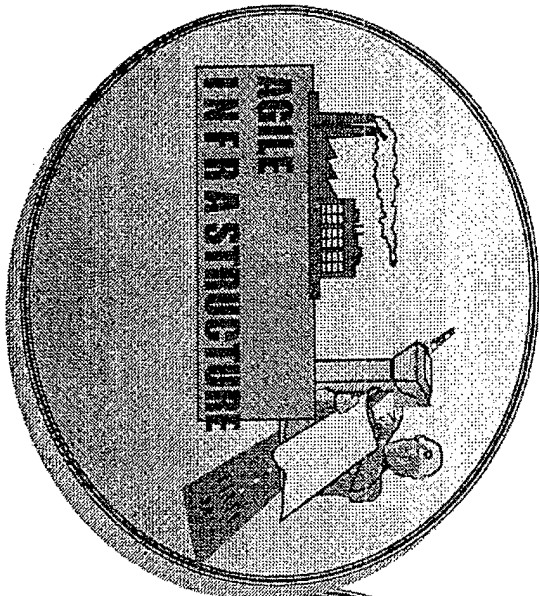
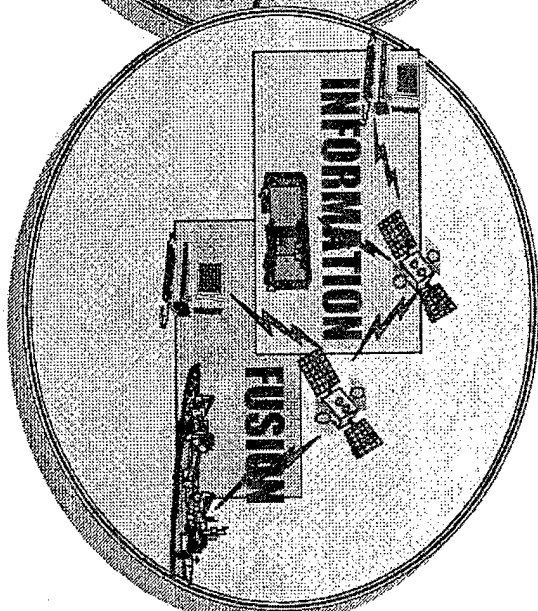
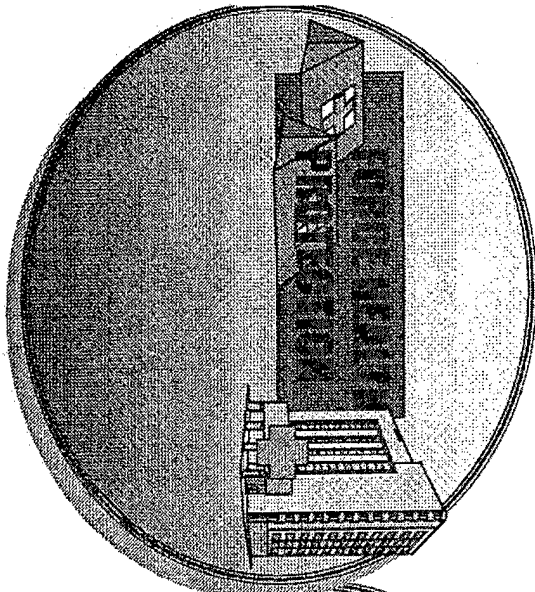
63% reduction in procurement programs

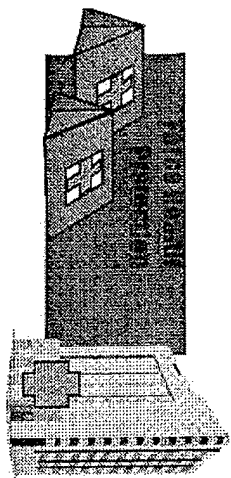
Where Are We Going?

“Defense strategy must shape the strategic environment to advance US interests, maintain capability to respond to the full spectrum of threats, and prepare now for the threats and dangers of tomorrow and beyond.”

The Honorable William S. Cohen
Report of the Quadrennial Defense Review
May 1997

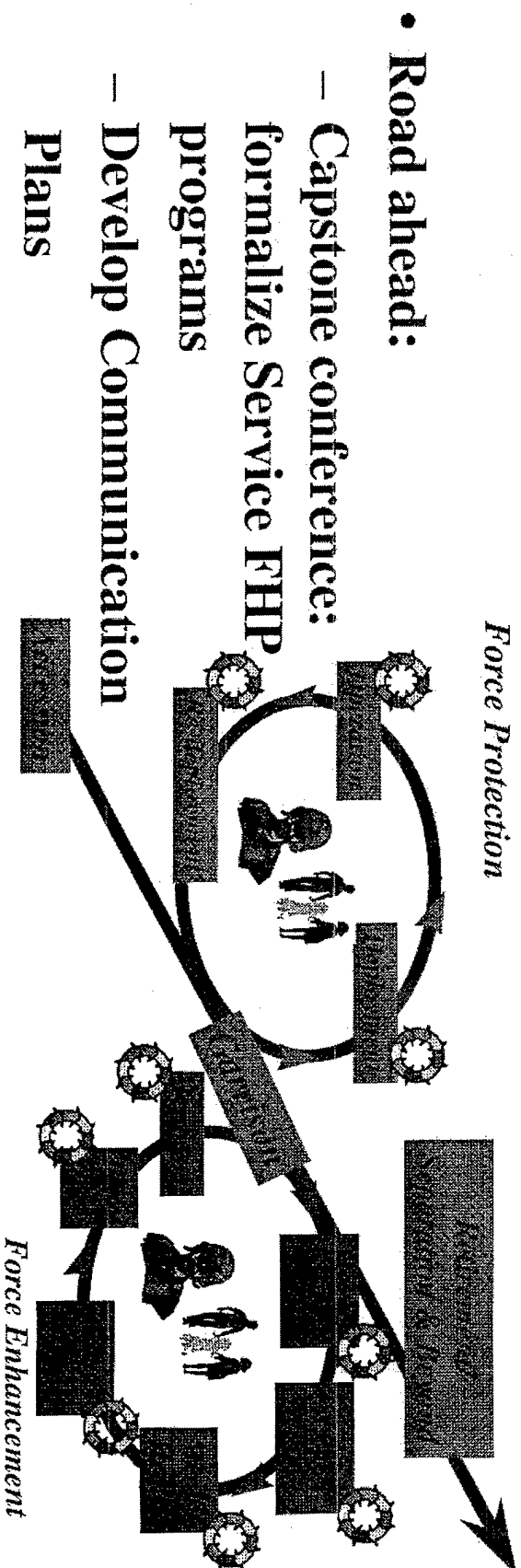
The Challenges of Focused Logistics





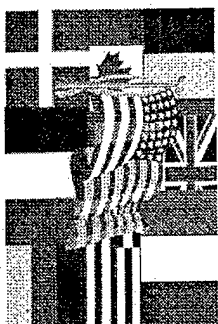
Force Health Protection

- Strategy to protect service members from all health and environmental hazards associated with military service. Focus on healthy and fit forces, casualty prevention, and casualty care



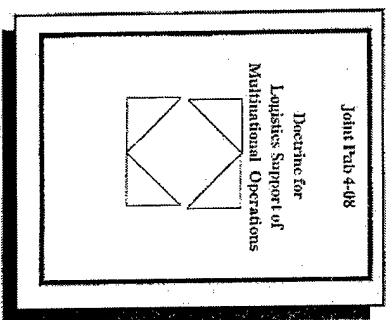
Multinational Logistics

*...mutual logistics support relationships
between the U.S. and allied/coalition partners.*



★ Released 1st Draft of Joint Pub 4-08
(Doctrine for Logistics Support of
Multinational Operations)

★ Completed ACSAs with 12 Nations last 2
years (total of 34 in place)



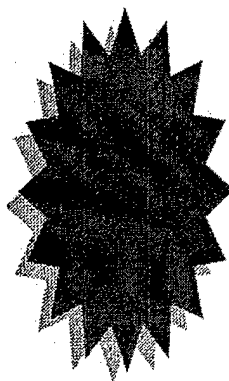
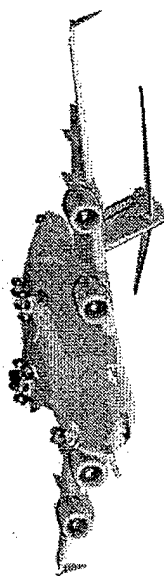
★ Drafted a Multinational Asset Visibility
concept document

Integrate and Improve Interoperability

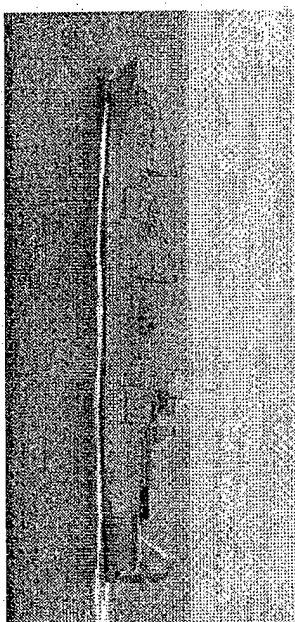
Joint Deployment & Rapid Distribution



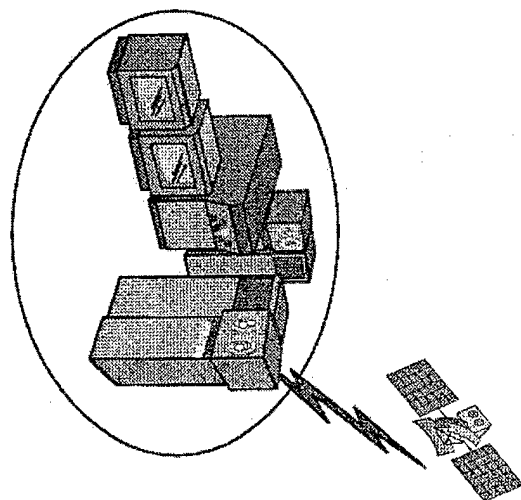
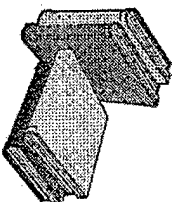
★ *Strategic Airlift*



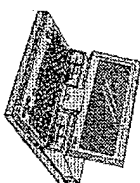
★ *Strategic Sealift*



★ *Mobility Studies*

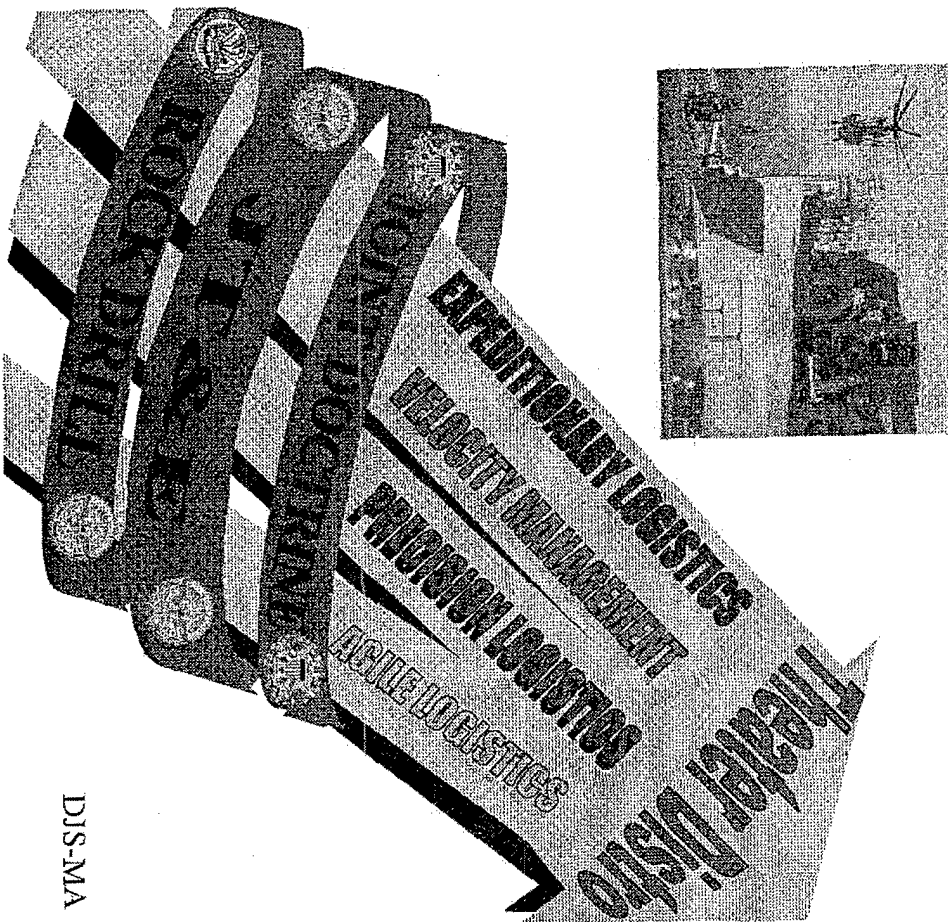


★ *Joint Deployment Process Owner Initiative
Joint Deployment Training Center*

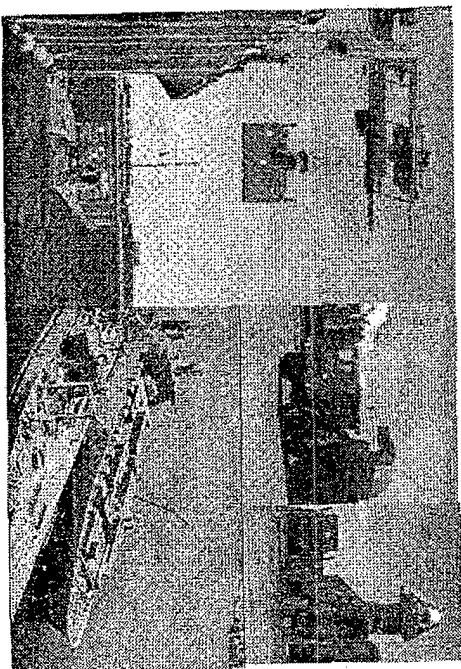
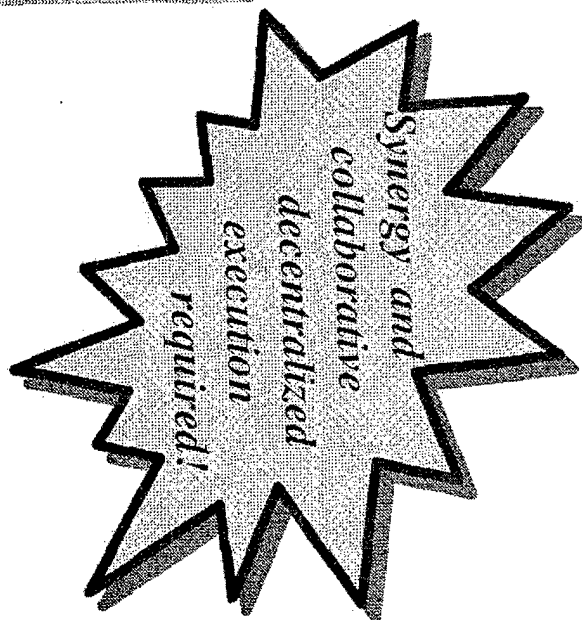


...process of moving multi-Service forces to an operational area coupled with the accelerated delivery of logistics resources.

Theater Distribution Initiatives

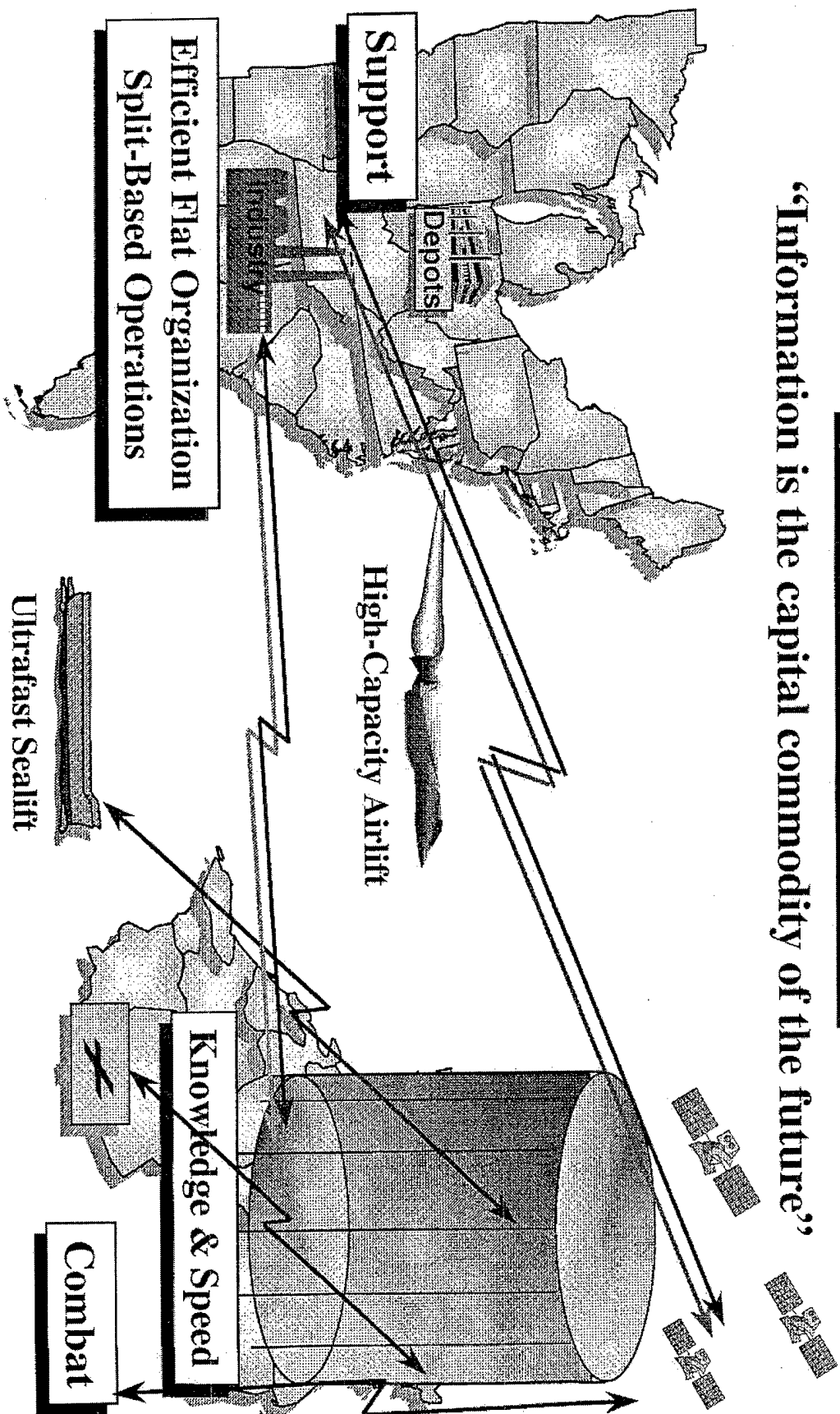


DJS-MA



Information Fusion

“Information is the capital commodity of the future”



Enhance Capabilities Provided by Information Systems

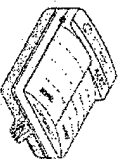
- ★ *Track Personnel and Materiel through the Transportation System*
- ★ *Know the Contents of Containers without opening them*
- ★ *Maintain Visibility over Stocks throughout the Pipeline (in transit and in storage)*
- ★ *Automated Tools to assist in Decision Making*
 - Situational Awareness
 - Force Closure
 - Analysis of Courses of Action
- ★ *A Common Picture of Key Logistical and Operational Information on a Single Computer*



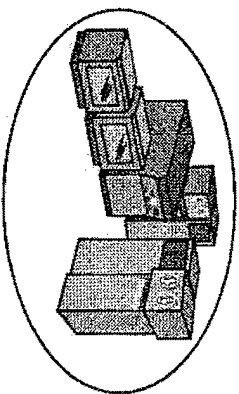
Bar Codes



Radio
Frequency
Tag



Optical
Memory Card



- Determine most effective & efficient suite of AIT
- Validate and Evaluate AIT Concept of Operations
- Incorporate into DOD AIT Implementation Plan
- Define Fly-Away Kits for other CINCs

DLA is the AIT Executive Agent

CINCs, Services, and Agencies are Involved

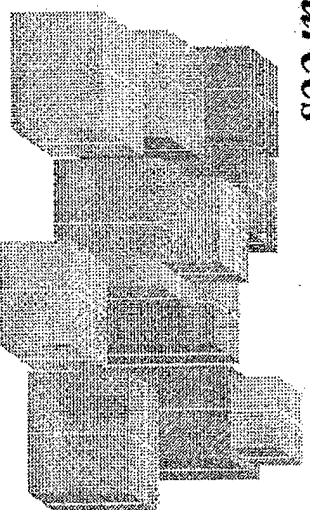
- Infrastructure In Place for Unit Move
- Have TC-AIMS II-JFRG II-JOPES Interface
- Created Business Process Server

Joint Theater Logistics Management

...a concept to synchronize theater logistics functions to achieve efficiencies

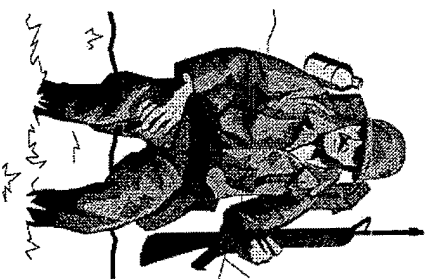
** "Fusion Point" Between Strategic and Tactical Logistics*

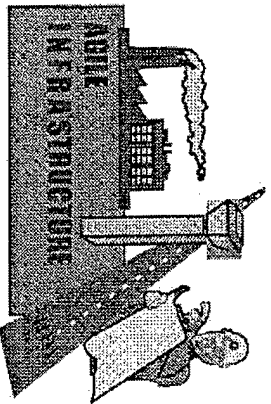
- *Consolidate Like-functions to Achieve Efficiencies*
- *Prioritize Distribution/Use of Limited Resources*
- *Efficiently Task Common User Assets*



** Implementation Actions*

- *Incorporate into Joint Doctrine - April 99*
- *Integration into OPLANS, CONPLANS and Functional Plans as part of the 1998 JSCAP Deliberate Planning Process - October 00*

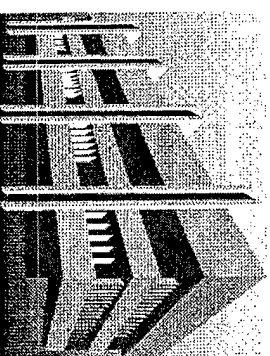




Agile Infrastructure

...right-sizing the logistics footprint (forces, airfields, ports, equipment and supplies), while improving effectiveness of support.

★ *Strategic Enroute Infrastructure
Ports and Airfields shortfalls being identified*

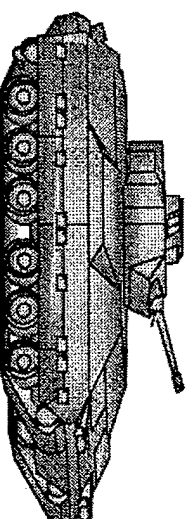
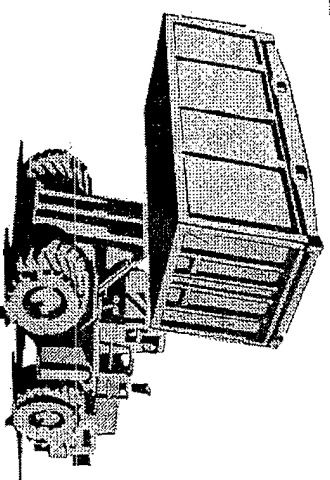


★ *Virtual Prime Vendor Contracting being expanded*

★ *Wholesale / Intermediate supply
inventories reduced by \$8B in 2 years*

★ *Competitive Sourcing*

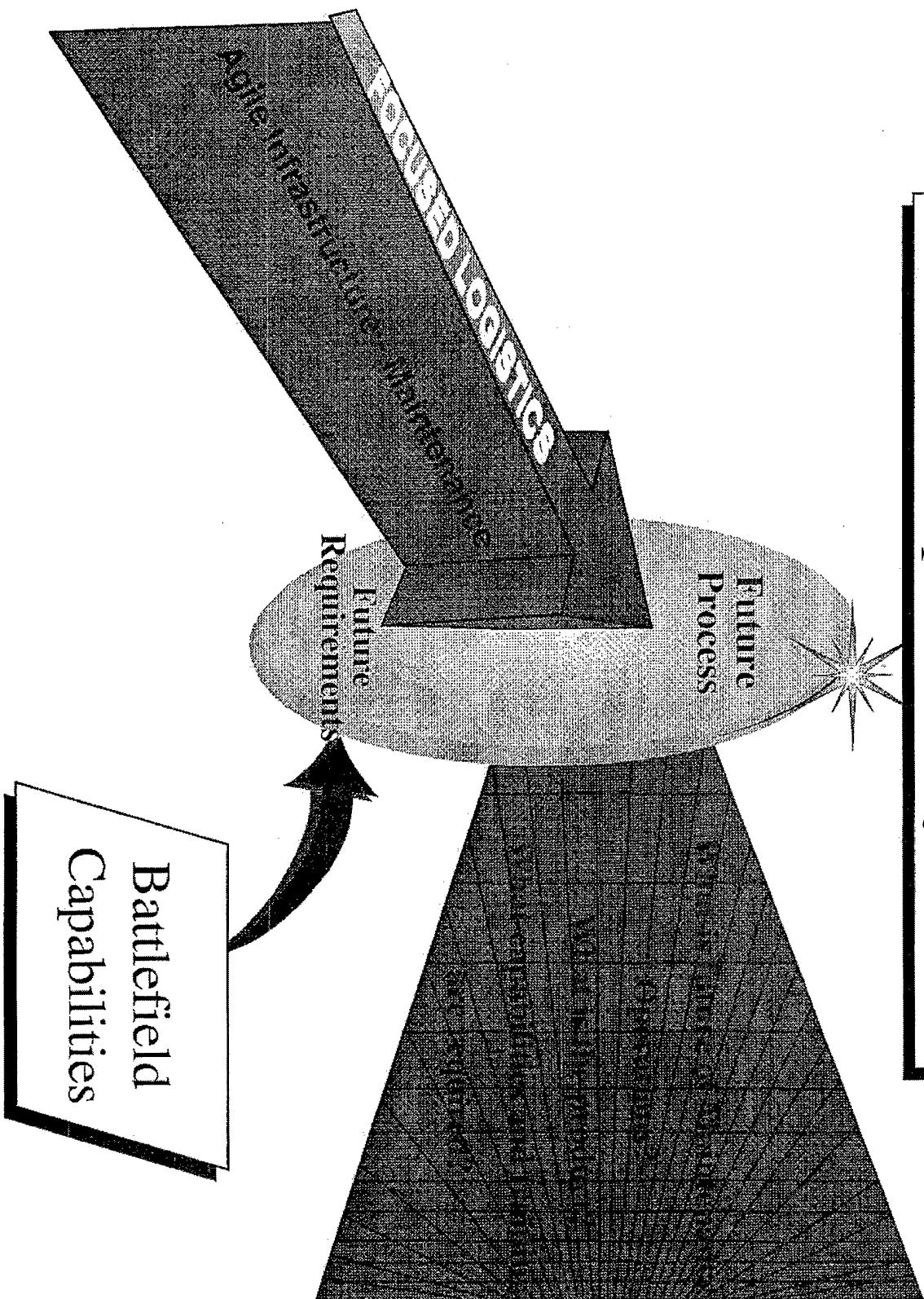
★ *Wholesale logistics response times
decreased by 7 days in past 2 years*



Focused Logistics



Maintenance Operations Beyond 2010

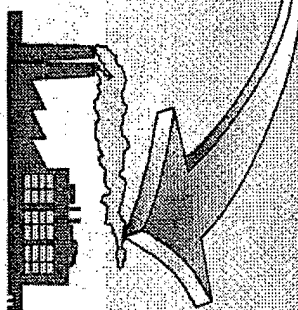


MAINTENANCE CONCEPT

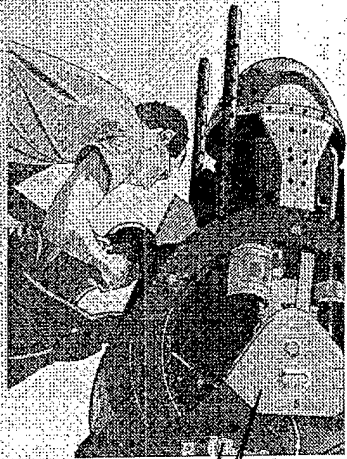


Enhanced Partnership with Industry

CLASSROOM



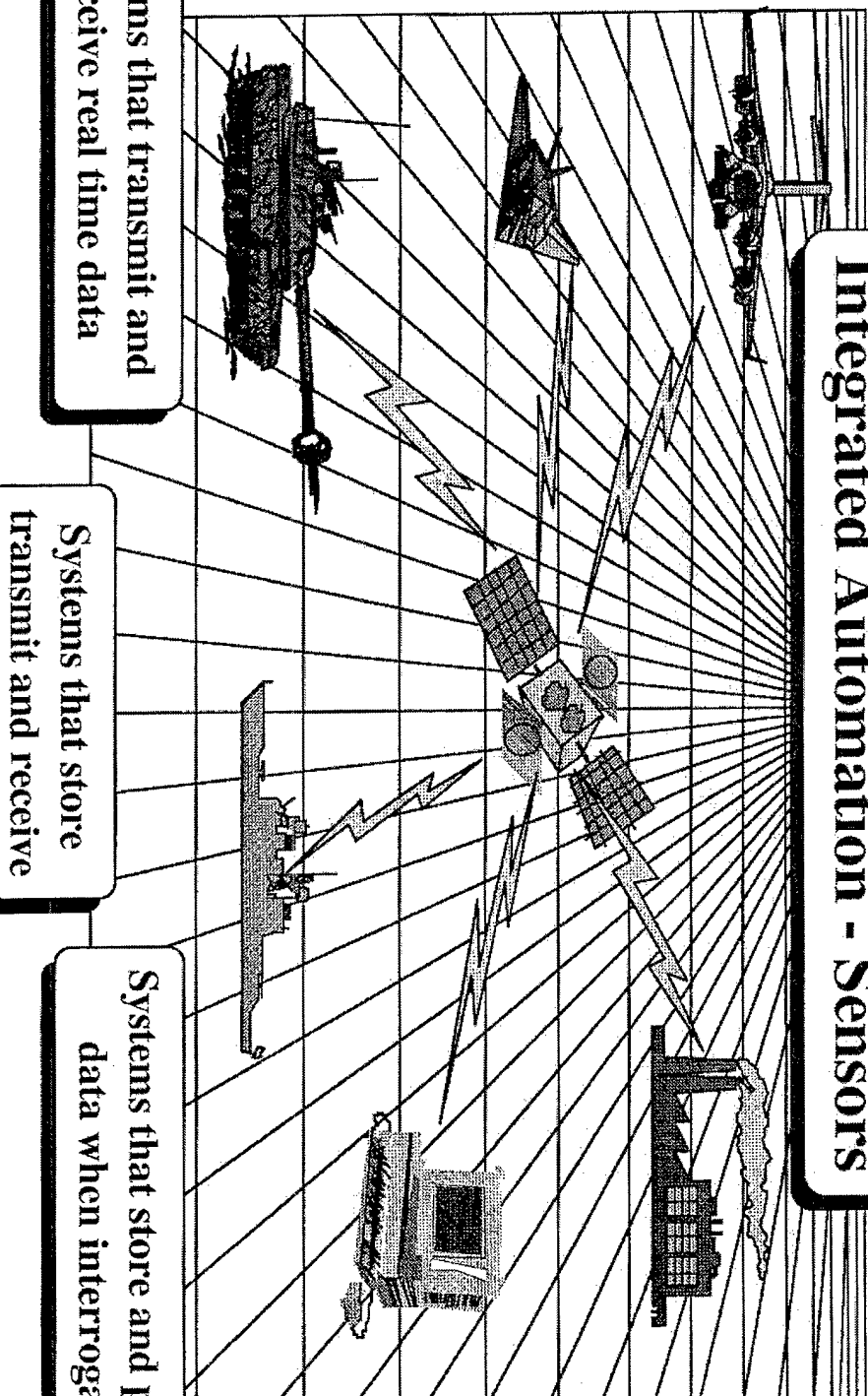
Train to Skills not Tasks



Enhanced Tele-Maintenance Capabilities

MAINTENANCE ENABLERS

Prognostics - Diagnostics
Integrated Automation - Sensors



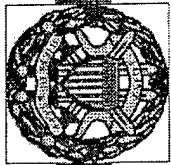
Focused Logistics - Maintenance Operations

Desired Outcome

- Reduce Workload
- Increase Reliability
- Enhance Training
- Digitize Logistics Data Bases
- Leaner, Flexible & Technical Force
- Reduce Cost

Criteria for Measurement

- Integration & Synchronization
- Concept Validations
- Expertise & Technical Proficiencies Demonstrations
- Advance Technologies
- Efficiencies Determination
- Civilian Contractor Dependence & Functionality



How Do We Get There?



Continuous Process

Focused
Logistics

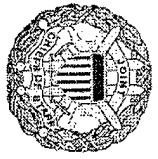
Ultra-Reliable Equipment
Maintained By Leaner, Mobile,
Technically Proficient Maintainer
Workforce

Maintenance
Concept

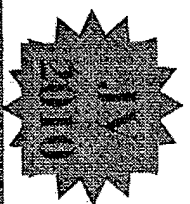
Maintenance
Enablers

Partnership with Industry
Multi-capable maintainers
Two-level maint concept

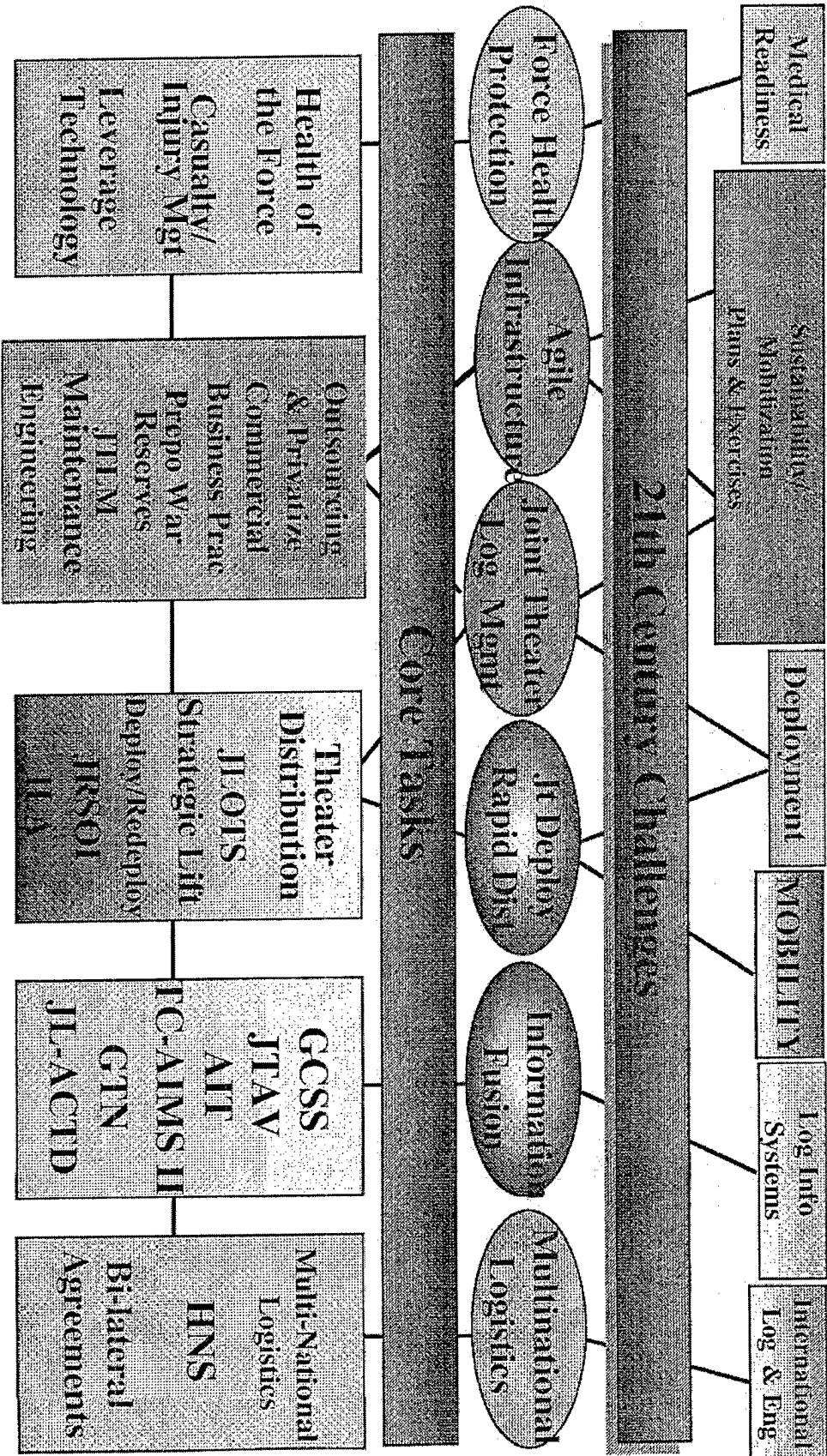
Prognostics - Diagnostics
Integrated Automation



Institutionalizing Focused Logistics



Logistics Directorate Organization



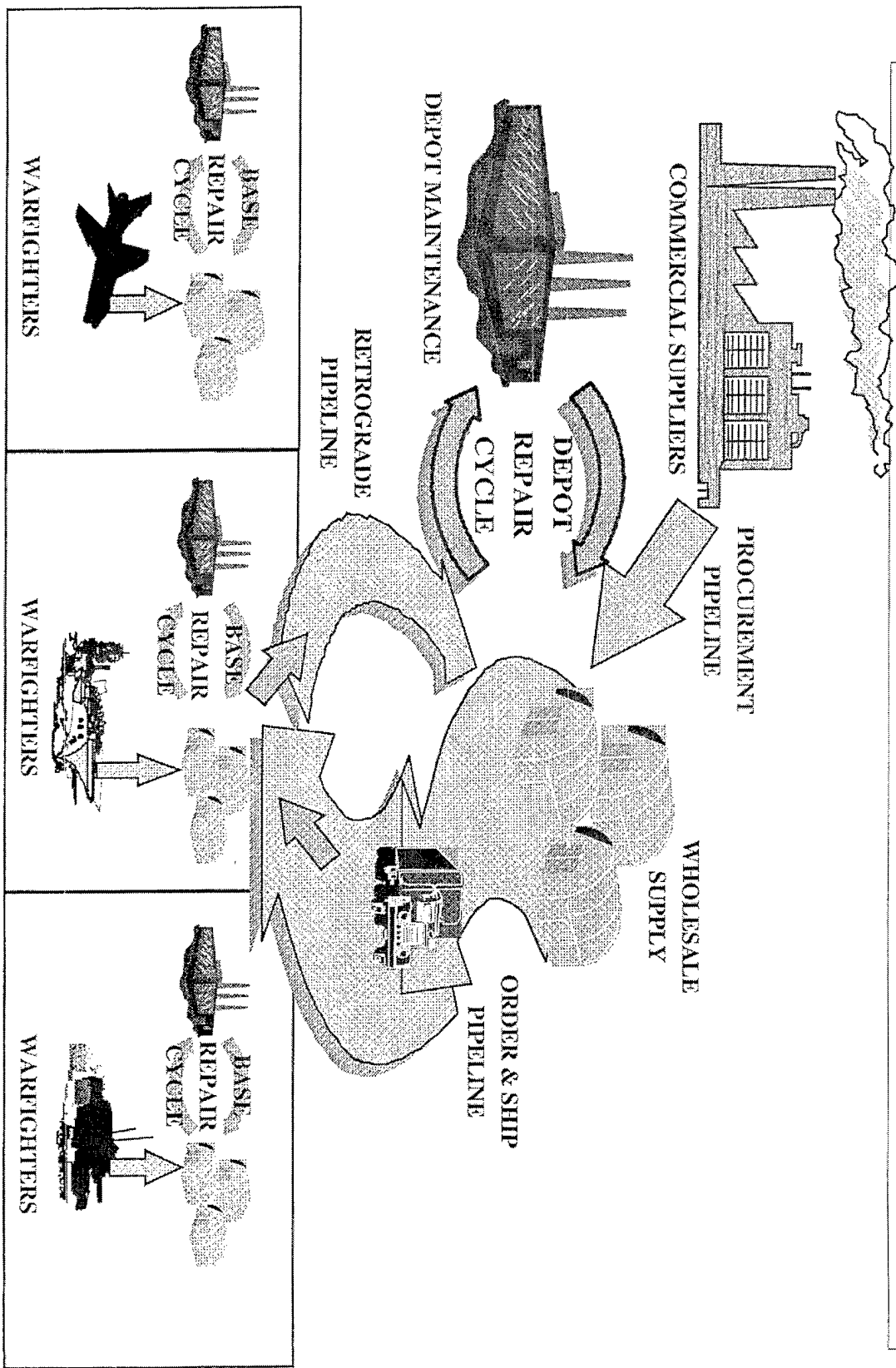
Reducing Logistics Response Times

DoD Maintenance Symposium
October 19, 1998

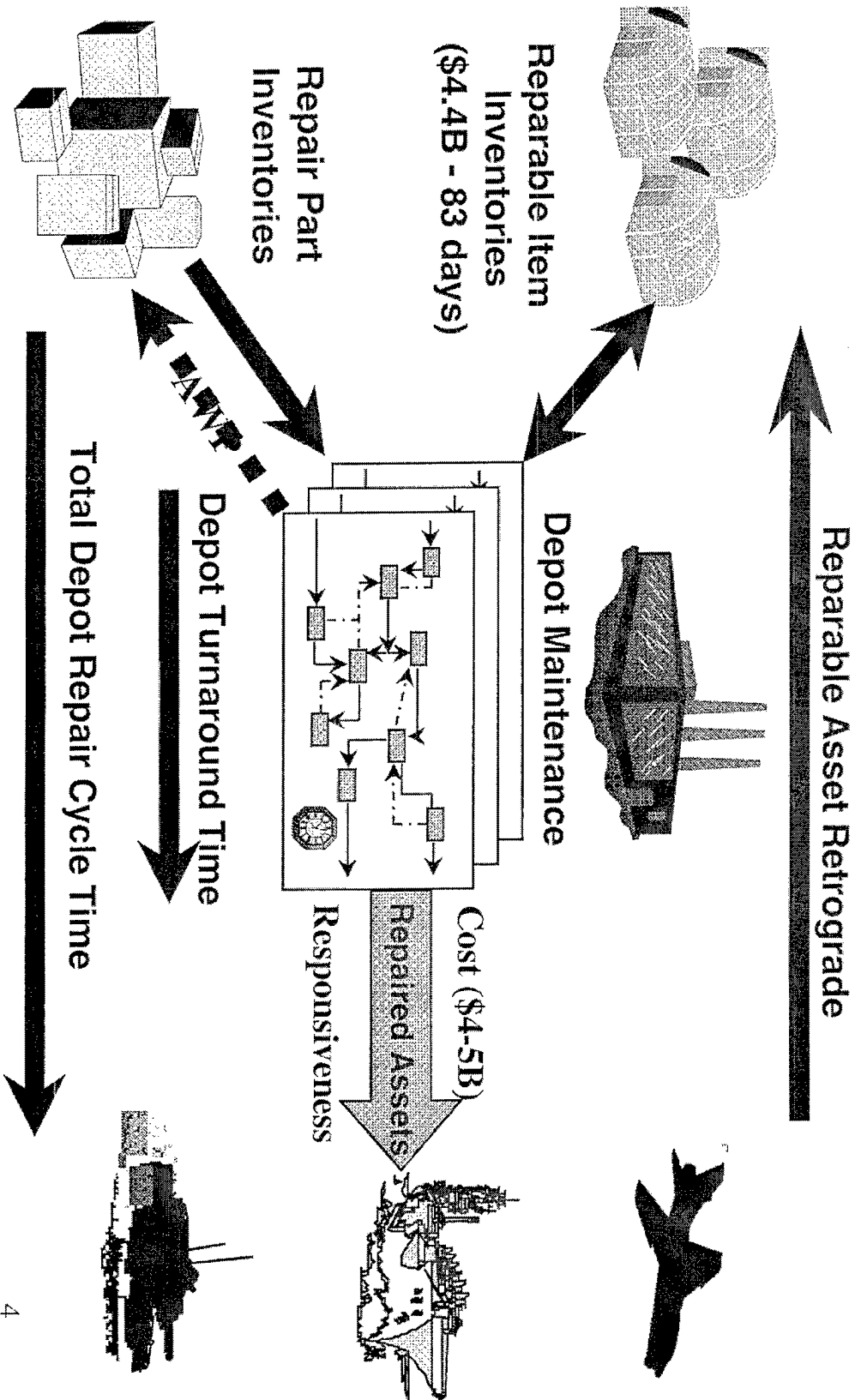
Objective

Repair the **right** quantity
of the **right** item
at the **right** time
for the **right** price!

DoD Reparable Asset Supply Chain



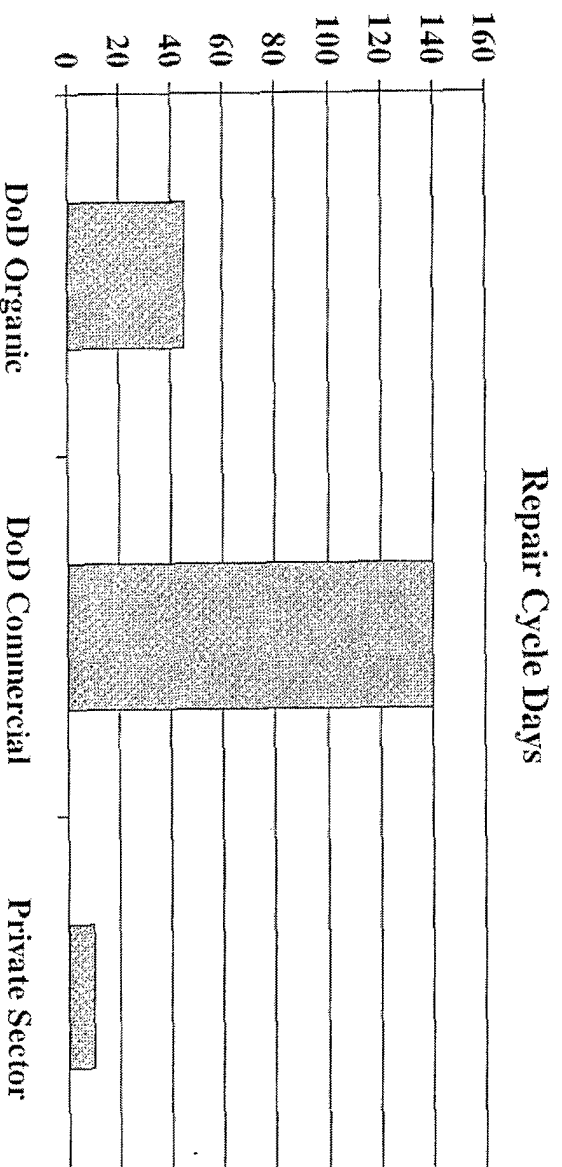
Depot Repair Cycle



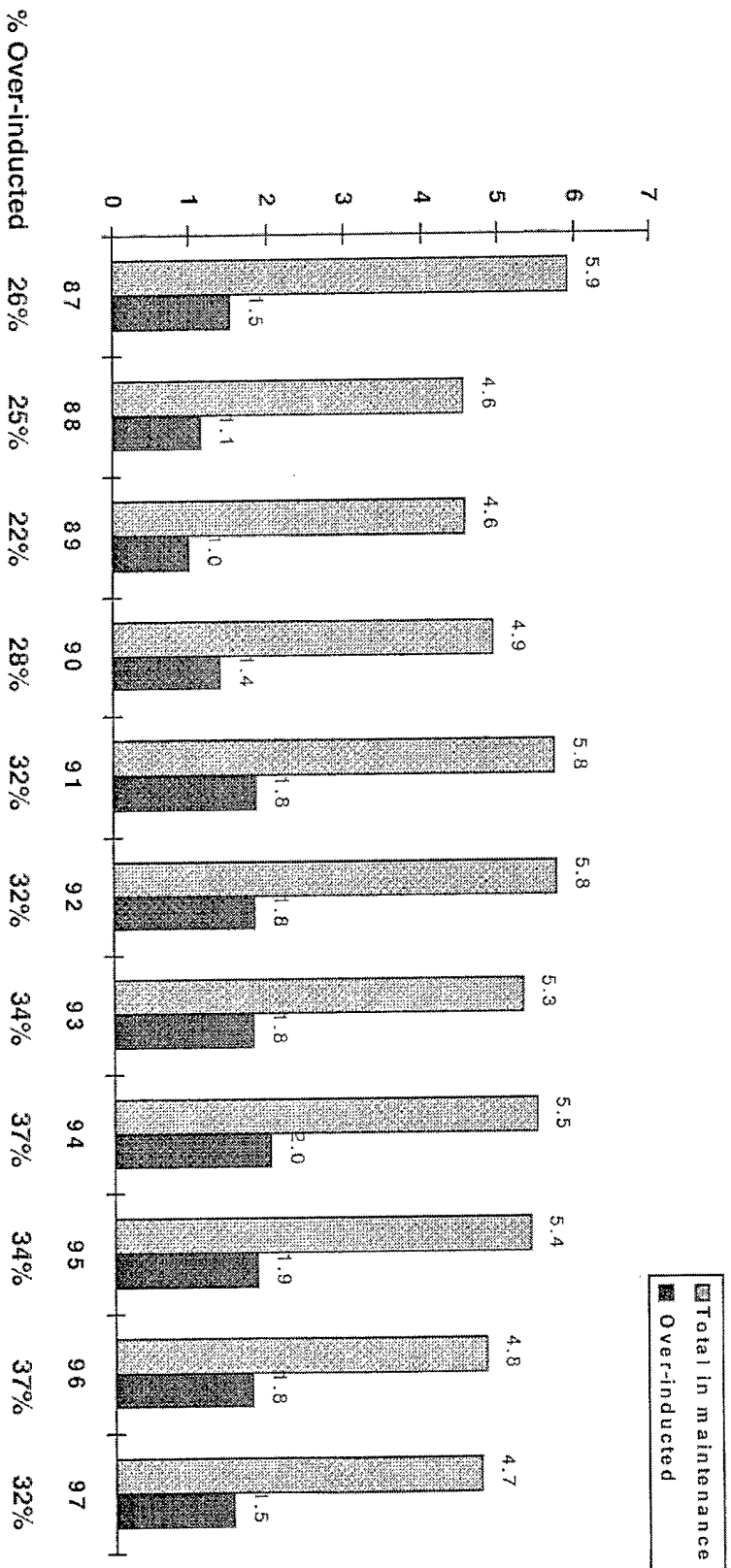
Nominal Depot Repair Cycle Metrics

DoD Vs Private Sector

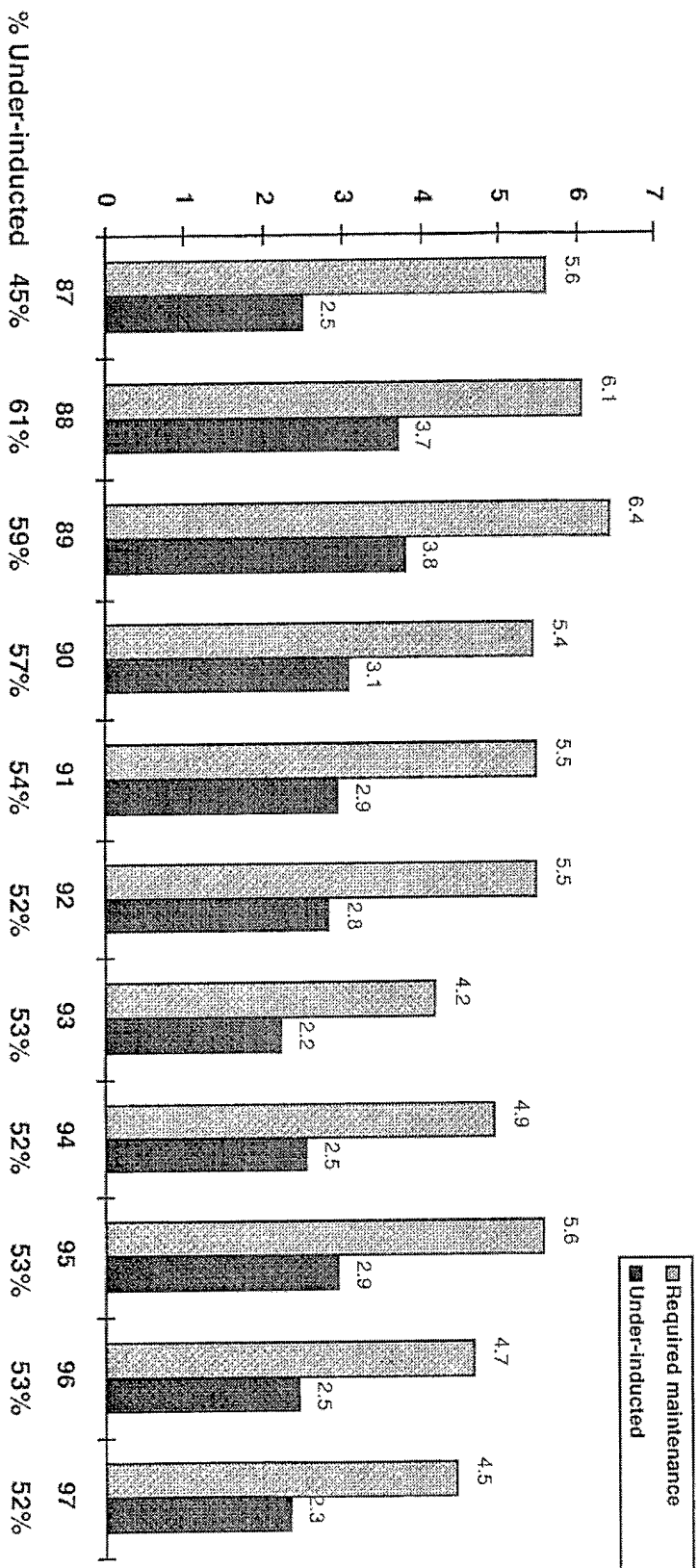
Characteristic	DoD	Private Sector
Induction Quantities	> 5	≤ 5
Schedule Timeframes	Quarterly - Annually	Weekly
AWP Percent	10 - 20	Under 1
Parts Support to Maintenance Percent	65 - 70	90 - 95
Inventory Levels - Parts (months)	1.5	2-3



DoD-Wide Depot Repair Over-Inductions



DoD-Wide Depot Repair Under-Inductions



Panel Perspectives

- RADM(s) Steve Heilman (NAVAIRSYSCOM): Naval Aviation Depot implementation of Manufacturing Resources Planning (MRP II) using commercial off-the-shelf software.
- CAPT Jim DeLorenzo (NAVICP): Proposed Logistics Information Superiority Experiment (LOG ISX) regarding integrated supply chain management of reparable assets.
- Mr. Tom Caudill (AFMCC): Air Force depot repair enhancement program (DREPP) and repair on demand.
- Mr. Brian Lewis (Marconi): DoD contractor experience with improving depot process times and supply chain management.

"The Future of Defense Maintenance & Support"

2nd Annual DoD Maintenance Symposium

James C. Restelli
Vice President and General Manager, Aerospace Support
The Boeing Company

October 19, 1998

Good morning, ladies and gentlemen. I'm delighted to be here with you this morning.

As you know, the theme of this conference is "Maintenance: Today's Challenges...Tomorrow's Vision" Discussing the topics of vision and future, much less the future of a complex subject such as defense maintenance, is obviously influenced by our individual experiences and views. Nonetheless, we in industry and government...even the leaders of this country and the world as a whole...must confront tomorrow's challenges today, and make the changes which will decide our future, in this case, the future of maintenance and logistics support.

As a matter of coincidence, a few weeks ago I had the opportunity to be part the second-annual Logistics Reform Day at the Pentagon. The forum was a roundtable discussion with the DoD's senior logistics commanders. The theme of the roundtable discussion in the Pentagon was "Seamless Support for the 21st Century Warfighter." It is clear, that roundtable theme and the topics on this conference agenda are totally aligned.

Those of us who participated in the Pentagon roundtable were, as we said, in "violent agreement" that we, who are in the business of providing products and services supporting the defense needs of this country, have one mission:

To assure we provide to the warfighters who depend on us everything they need, when they need it, to enable them to successfully accomplish their mission.

I hope all of you here today are equally in "violent agreement" that that is our mission!

As you know better than I, effective, efficient maintenance modification and modernization are key elements of an integrated approach to support the defense needs of this country and those of our allies. Addressing the issues of cycle time, quality and affordability are essential to supporting the warfighters' mission.

The future of logistics support must be addressed in the context of *reducing customer cost of ownership*, and that must be the focus of this conference. I'd like to spend some time this morning giving you my views on how we achieve that future and what I believe we need to do to get there.

Let me frame my comments in the context of a management process many industry and government leaders use to chart a course for organizational change and growth. There are three major tenets:

- First, we must understand and define our current state;
- Then, we should project the attributes of our desired future state;
- And finally, we must define the key actions and strategies necessary to fill in the gaps to achieve our future state.

Let me start by offering my views of the current state of logistics support. The industry and government infrastructures engaged in providing maintenance and logistics support today have developed over the last 75 to 80 years. If we look back at history over those decades and the changes related to aircraft maintenance, repair and overhaul, we are provided some insight as to where we find ourselves today.

Early pilots not only in many cases built and flew, but, as well maintained, repaired and supported their own aircraft, even if it meant sleeping under the wings. With the advent of commercial air travel and more rigorous operational schedules, airlines established logistics support and maintenance capabilities as a stand-alone function.

Then came World War II. At first, the military was desperate for all the help they could get in supporting their rapidly growing defense fleets. They invited...in reality they commandeered...the support services of the private sector to maintain military fleets.

Later on, the military services began to worry that private contractors, in returning to civilian pursuits, would abandon the business of support and maintenance. As a result, the military began to establish infrastructures of their own, both inside and outside the United States.

To some extent, the concern of the military services regarding support by the private sector of defense products is well founded. Internal to our industry, our infrastructure was, and in many cases still is, focused on providing weapon systems and component product sales, not the business of providing logistics support of those products as a *business*!

In my view, the current state is manifest in a number of different attributes endemic to our industry:

- Support of products has been viewed by some as a "cost of doing business," rather than an essential, required and profitable business opportunity;
- Organizational infrastructures exist that are disproportionate to the level of support they are required to serve;
- Support organizations are largely transaction focused;
- Clearly many redundancies remain in competencies between the customer and the supplier...public and private;
- In many ways, the result of these attributes are large stocks of spare parts and supply inventories sitting in multiple warehouses with slow inventory turns and long lead times for delivery; and finally,
- As often is the case, the parts needed are not the parts readily available in the warehouse or the supply system!

I firmly believe a clear focus on our common support mission – putting in the hands of the warfighters everything they need, when they need it – will bring all of us in both the public and private sectors to the second stage of my management process, that is our desired future state. Here is what that means to me. The future state will be founded on attributes such as:

- Largely commercially based support systems and infrastructures that allow the cost efficiencies inherent in peacetime to be flexibly deployed to support rapid transition and surge capability when our warfighters are called upon;
- Prime contractors partnered with their military customers as well as preeminent suppliers with complimentary, integrated competencies;
- Fewer, more preeminent suppliers who are willing to invest the brainpower and resources on behalf of the support mission to be preeminent in their competency;
- Paperless, electronic supply systems that take advantage of the seemingly unlimited electronic infrastructures that enable boundless communication;
- Support requirements dependably delivered anywhere in the world in an extraordinarily fast system, just like FedEx and UPS do today.
- Concepts such as prime vendor support, flexible sustainment, supply chain management, and trigger-based item management deployed in support of all essential military products;
- A streamlined acquisition process institutionalized that has a fundamental bias for ease and speed.
- A cultural change evident within industry such that innovative business-based solutions to customer support needs exist to the same extent innovation is focused on cost-effective development of complex weapon systems.

- And lastly, and perhaps the result of those preceding elements being brought to bear, future logistics support budget levels that are lowered and thereby evidence we have in fact reduced the customer's cost of ownership.

Progress is being made. Events like this one show that our industry and our customers recognize change is essential to reducing cost of ownership. But if we look honestly, it's clear significant gaps remain in where we are today and where we need to be.

Again, following my management process approach, let me present five thoughts as to how we might close these gaps.

First, culturally, both the DoD and industry must recognize we need to be in this together. Public/private partnerships are powerful tools. They allow both sides to better understand each other through closer communication, and they allow innate competencies on both sides to be captured so public and private organizations become complementary rather than redundant.

When Boeing formed a partnership with Ogden Air Logistics Center earlier this year to compete for the McClellan workload, there were a good number of people who were skeptical on the eventual outcome. Could a public/private team come together in a relatively short period of time to first, collectively produce a winning proposal for the competition, and then put the planning in place to execute effectively?

In the process of doing that, we learned a lot about each other, found ways to capitalize on our unique capabilities, and came up with a solution that offered the Air Force real cost and effectiveness benefits. In fact, the Air Force estimates taxpayers will save \$638 million over the nine-year span of the contract. That's a 30 percent reduction in the customer cost of ownership!

As an aside, I will note the team at Ogden found out how hard it is to compete and how complex and incredibly laborious are the requirements of the government acquisition processes. That insight alone may have been a worthwhile reason for our partnership.

Secondly, we need to continue to eliminate redundancies. On both the DoD and industry sides, we need to find the overlaps and make rational decisions on where the competencies should reside. This should be based on a simple criteria...the competencies should reside with the provider who is committed to preeminence in that competency, and is committed to investing the brain power and resources necessary given the core military need! Second best isn't good enough!

This redundancy issue is one that applies to both the public *and* private sector. As an example, as a prime system contractor, we at Boeing have traditionally had design teams overseeing suppliers in the detailed design of their systems. It baffles me as to why we believe we have to know as much about component design as the supplier providing the system. We are now dealing with those redundancies and we are in the process of collapsing to those staffs that support value-added requirements.

Our infrastructures, which remain today, in some cases, result from a question of trust or confidence between the parties and a willingness to "let go." We need stronger, slimmer, more efficient and responsive organizations focused on value-added benefit, not oversight for oversight's sake.

We need to sort out our roles and missions. Our suppliers should be fewer, but preeminent in what they do. In true partnership fashion, we must work together to deliver the promised end product to the customer, with the quality and at the cost we promised.

Through our preferred supplier program at Boeing, we've been able to reduce our number of suppliers by about 50 percent by partnering with preeminent companies, both large and small, with the specific competencies our customers require. As well, we have seen a reduction in cost to our customers of approximately 6 percent per year in real terms over the last four years as a result of focusing on improvements with suppliers, rather than investing our resources maintaining poor performers.

Third, we need to focus on systems, processes, skills and cost infrastructures aligned to the business needs of supporting products and services, rather than maintaining those which are primarily focused on defining and producing weapons systems and components.

If we use the right tools, systems, skilled people, processes and cost infrastructures, we in industry have seen incredible cycle time and cost improvements. In our Boeing structural repair business, for example, we assigned a dedicated team with dedicated tools and processes, and a rate structure tailored to the "business" of repairing and modifying aircraft structural flight control surfaces.

With this new business focus on an area that was once viewed as a necessary but generally undesired customer-support activity...not a business...we have seen turnaround times slashed by a factor of five and repair costs reduced by more than 60 percent. We are looking to expand our product repair competency to other products, including non-defense opportunities.

Fourth, we need to recognize that consolidating, reducing and even closing operations, including those resulting from the BRAC process, doesn't need to be the end of the world.

Today a substantial business is being built in Texas in a former Air Force facility. Our Boeing Aerospace Support Center at Kelly Air Force Base is succeeding because it was built on a strong business plan and makes good business sense. We have taken a tremendous facility with a skilled work force, and by applying many tailored, commercial processes, we are creating a low-cost, quick-response, top-quality maintenance and modification center for large, missionized aircraft.

That facility is dedicated to preeminence and we have taken the actions required to institutionalize that capability. C-17s, KC-10s, KC-135s and even MD-10 passenger-to-freighter conversions will all benefit from that preeminence! The revitalization of Kelly is an on-going success story that provides a future for thousands of people who only several months ago believed they had no future.

In turn, it's important to recognize that some facilities need to be closed down, both public and private. We cannot continue to shelter ourselves from making hard decisions with the hope that the future will somehow rationalize today's infrastructure. I believe in that context, the future is today.

Fifth and finally, we have to address some fundamental issues in the acquisition and contracting processes. While we strive toward commercial practices and contracting, it clearly is not as innovative as it should be.

Let me draw a contrast. Through a joint venture between Boeing and GKN Westland Helicopters, the United Kingdom Ministry of Defense is acquiring a helicopter training capability for its Apache helicopters. The joint venture, known as Aviation Training International Limited, is using private financing to develop the training systems and facilities.

The training services are being provided to the MOD under a commercial business arrangement based on a pay-for-services concept, which includes a 20-year guaranteed student throughput from MoD. We as the training provider warrant the quality of the student to perform the required mission.

That type of contracting is difficult in the United States because of acquisition regulations and the inability of the services to make long-term commitments. This needs to change if the benefits of commercial contracting are to be made available to defense contracting.

That having been said, we must also recognize that commercial practices are not always the right solution. While they allow more flexibility, and may have the perception of being faster, better and cheaper, commercial practices at times are not totally structured for meeting defense needs. It is hard for industry to warrant the outcome of battle, unlike commercial airline reliability. So we need to carefully tailor commercial approaches to military needs.

In closing, let me summarize what I believe are the keys to achieving our future state:

Both industry and the public sector must be prepared to go out of some businesses as we reduce redundancies and focus on preeminent competencies.

We need to institutionalize the mechanisms that make possible rational public/private partnerships enabling the easy exchange of work in both directions to take advantage of preeminent competencies on both sides.

And lastly, we need to take the message to Congress that doing business in these new ways is absolutely required. There must be a balance between maximizing efficiencies and reducing logistics support costs, and the political objective of retaining jobs.

Is change underway? Yes, I think we all see it. We have a long way to go, and the gaps are deep in places. But I'm confident that if we first have a clear focus on those changes that result in better, faster, cheaper preeminent maintenance and logistics support...and second, have the resolve to make the hard decisions required to drive those changes, we will deal with today's challenges *and* move to a future state of logistics support founded on industry and government partnerships, which provide timely, cost-effective "seamless" support, thereby enabling fully mission-capable warfighters in the 21st century.

That must be the mission we collectively undertake here today!

Thanks very much for listening. I've enjoyed being here with you this morning.



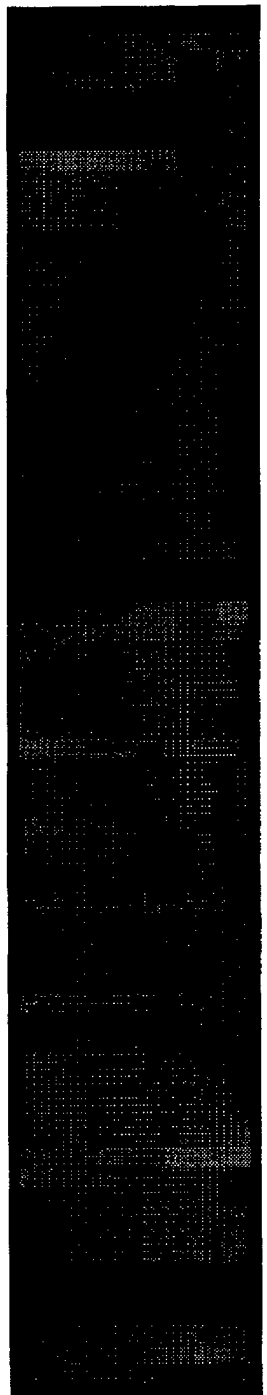
PACFLT REGIONAL MAINTENANCE

RADM TAYLOR

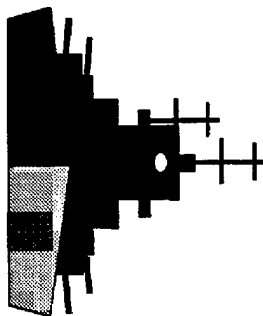
FLEET MAINTENANCE OFFICER

DOD LOGISTICS CONFERENCE

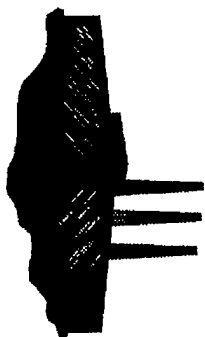
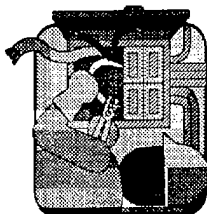
OCTOBER 1998



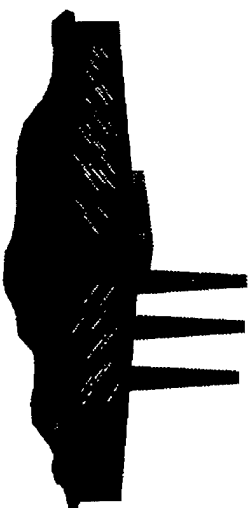
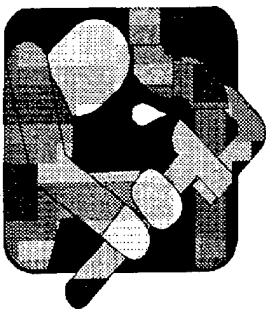
ORGANIZATIONAL (SHIP CREW)

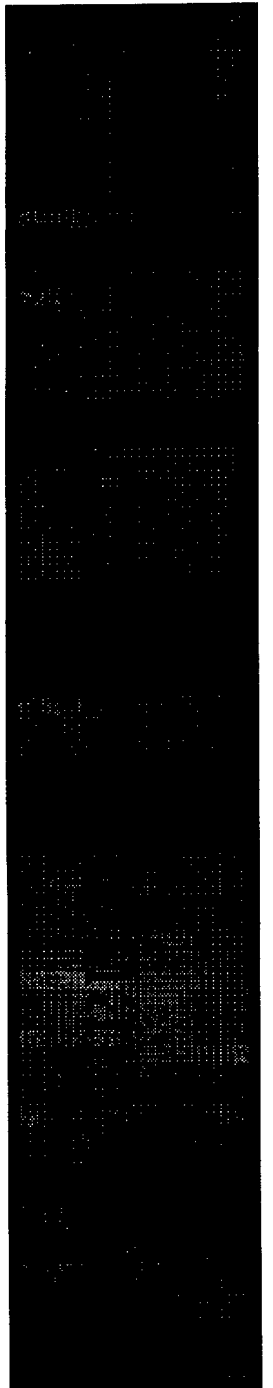


INTERMEDIATE (PRIMARY SAILORS)

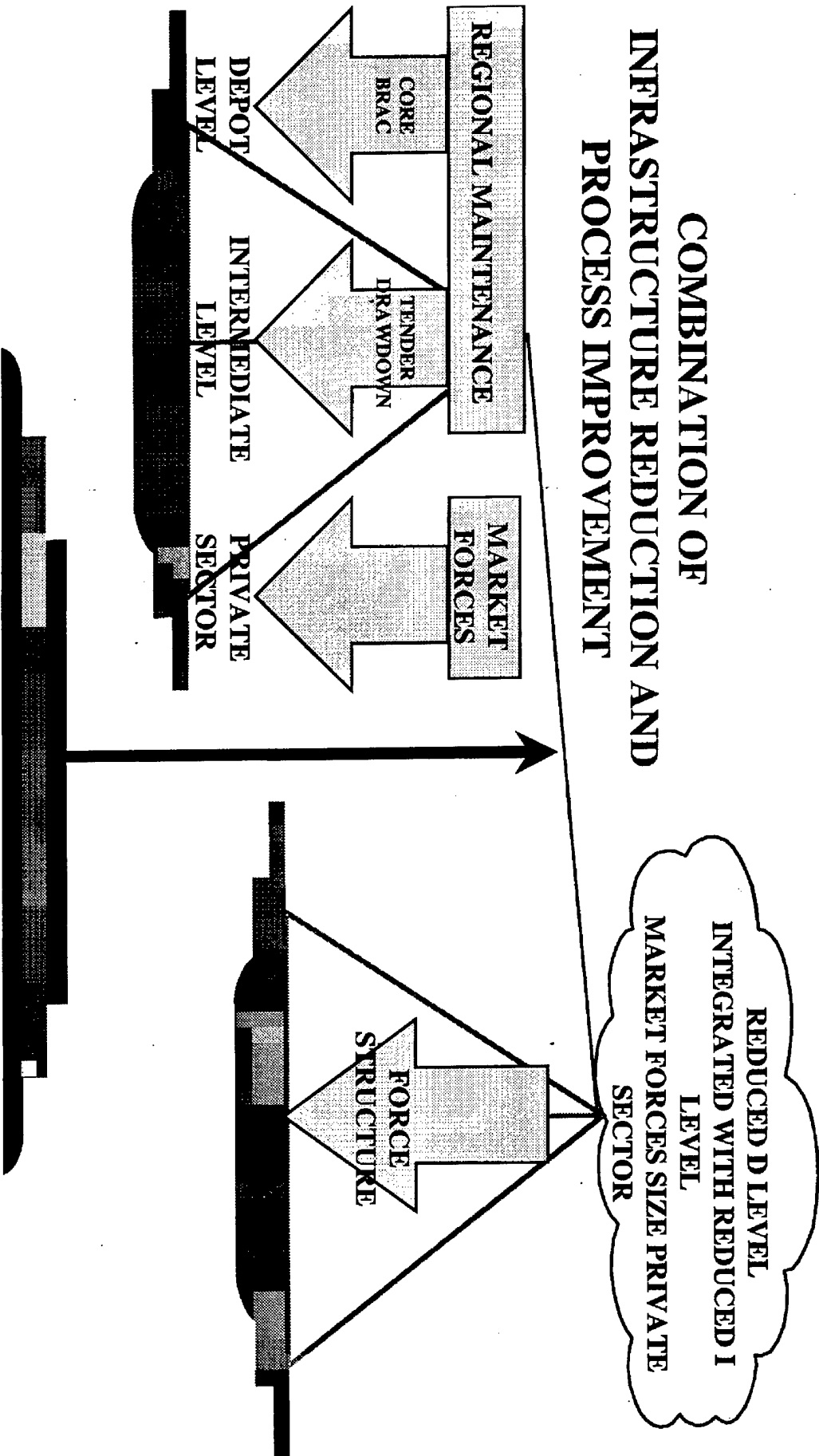


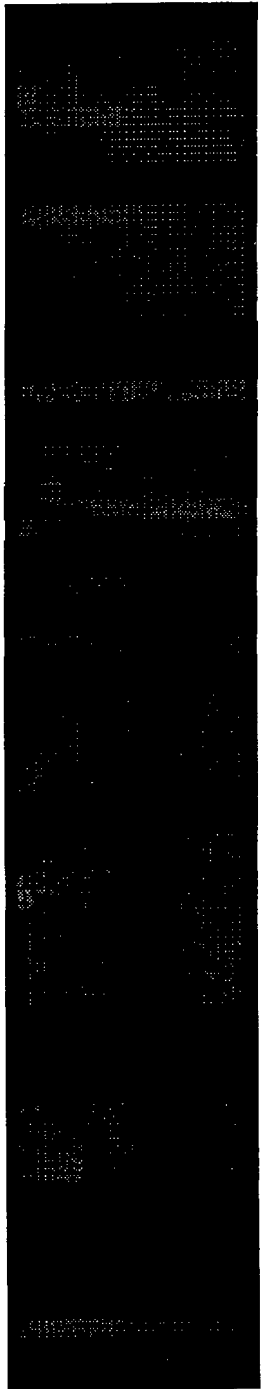
DEPOT (CIVILIAN ARTESANS)





COMBINATION OF INFRASTRUCTURE REDUCTION AND PROCESS IMPROVEMENT



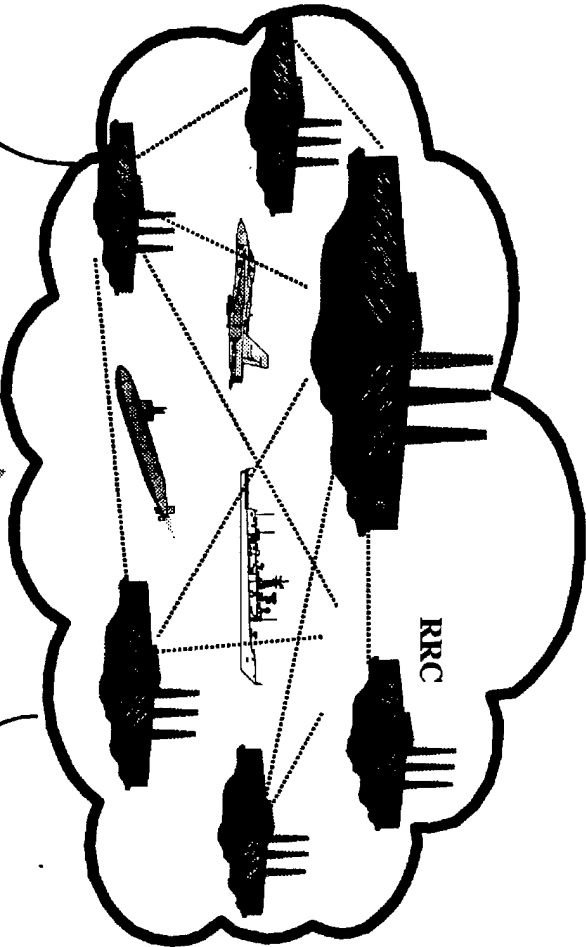


SYSCOMS

Technical oversight/authority remains with the SYSCOMS

National prebrokered workload determination remains with SYSCOMS

Maintenance Plan maintained by SYSCOMS

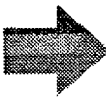


FLEETS

Fleet maintenance to be conducted using an integrated maintenance process

Common data foundation between Fleets with common business and support processes

AVIATION
I & D LEVELS



SHIP I & D LEVELS

I & D, I & I
INTEGRATION/
CO-LOCATION
CAPABILITIES

AIMD

STOVE PIPES OF I AND D LEVEL MAINTENANCE ACTIVITIES

SIMA



Northwest RMC
Bremerton, WA

Westpac
RMC
Yokosuka

Southwest
RMC
San Diego, CA

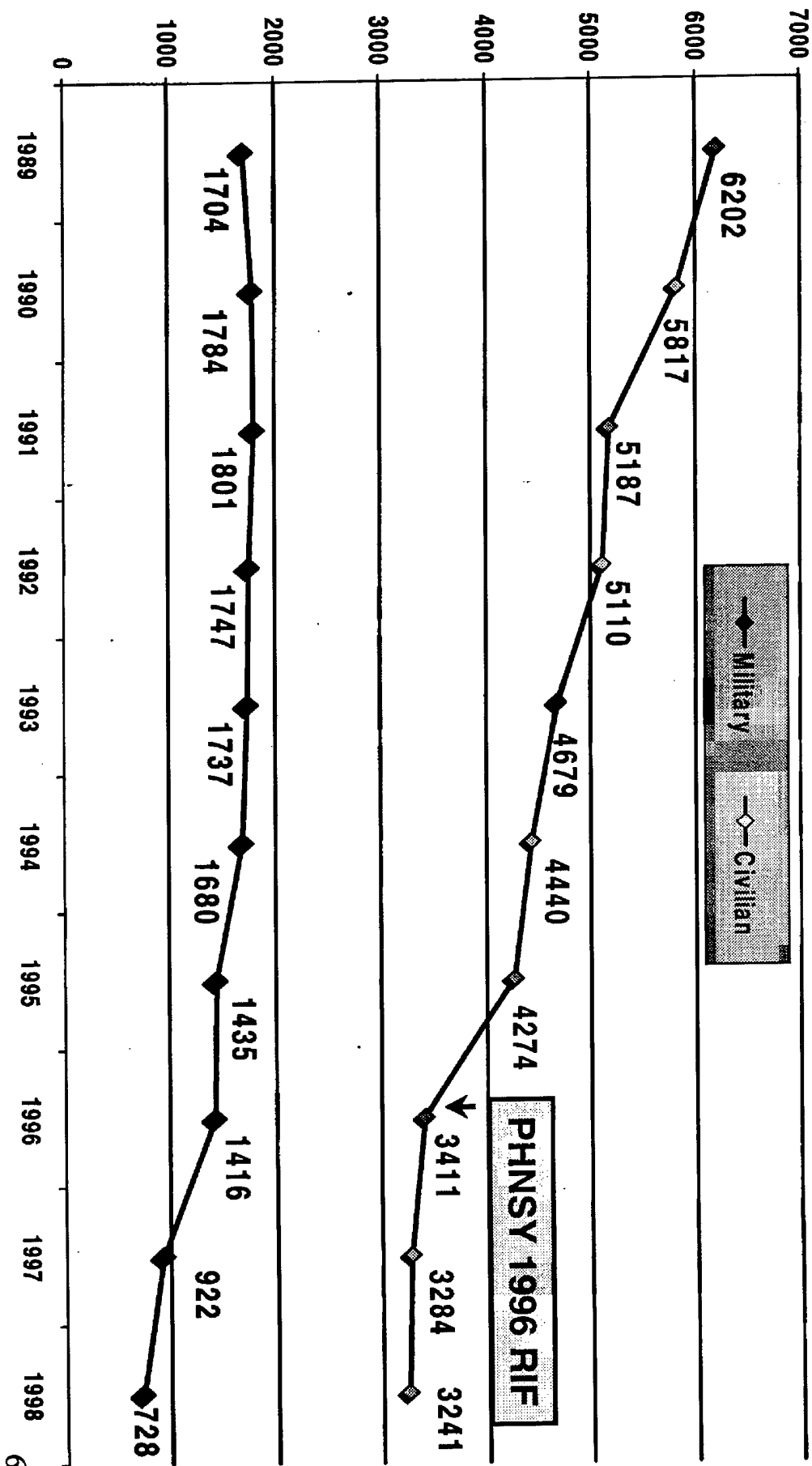
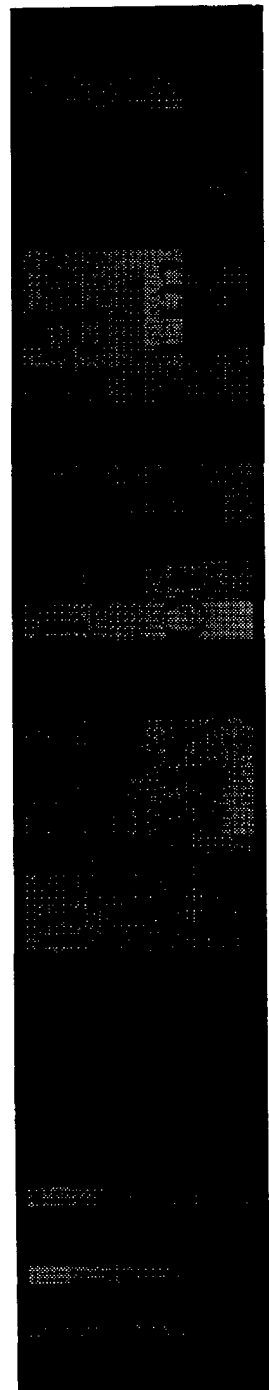
Hawaii RMC
Honolulu, HI

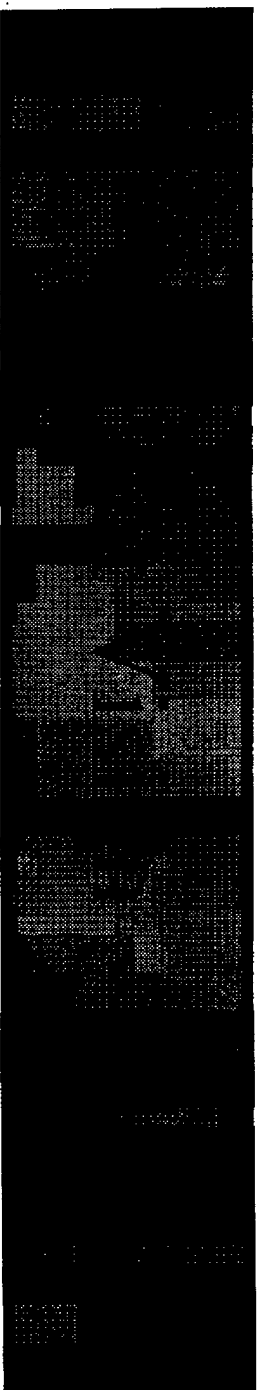
South Texas RMC
Ingleside, TX

Southeast RMC
Mayport, FL

Mid Atlantic RMC
Norfolk, VA

Northeast RMC
New London, CT

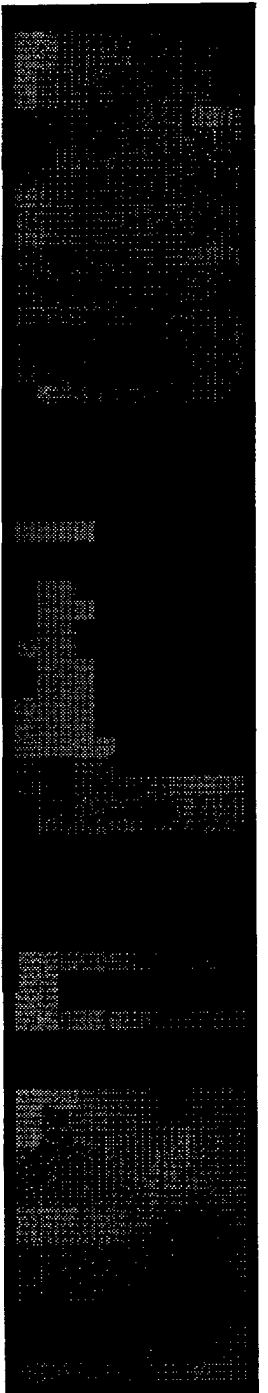




Increase the quantity of ship work accomplished in the region by integrating I and D level resources

- **Reduce infrastructure**
- **Reduce overhead**
- **Improve processes**

Better use available manpower



Pearl Harbor NSY
2,680 CIVPERS
44 Military

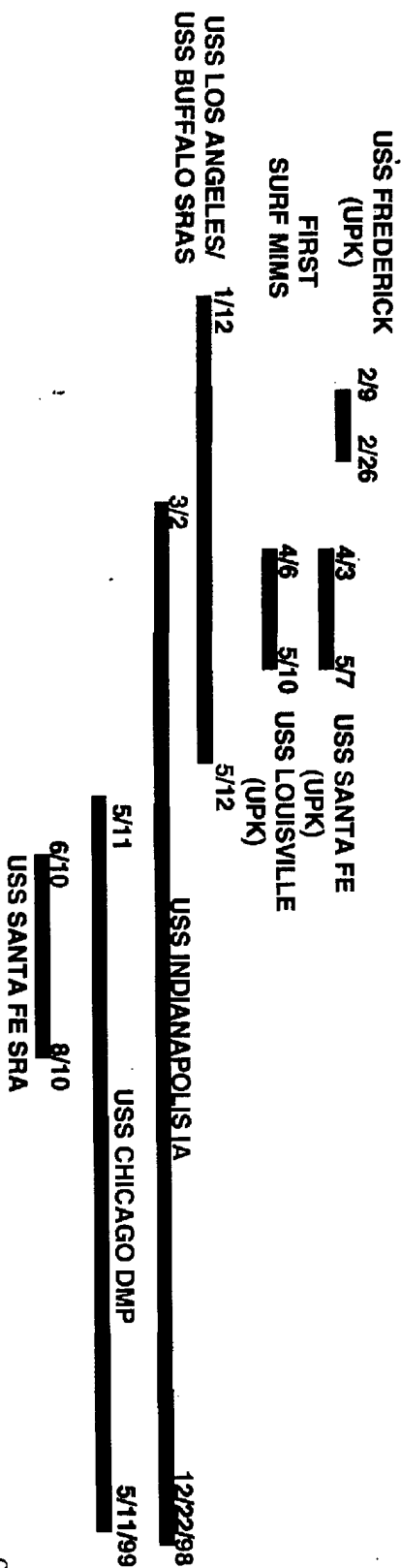
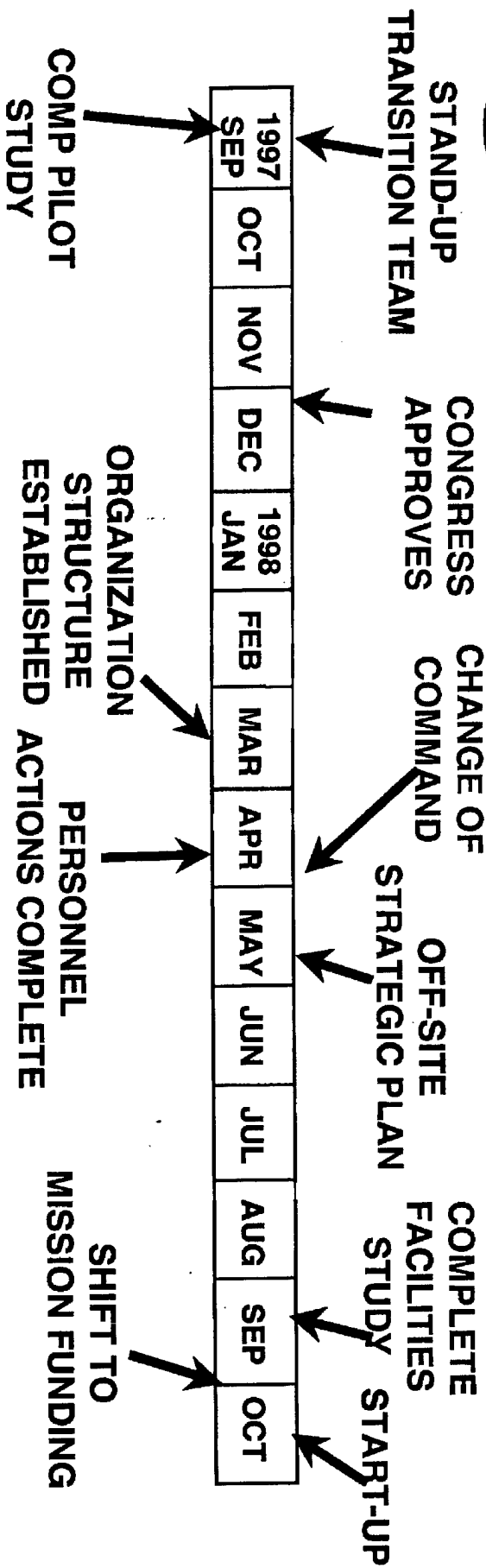
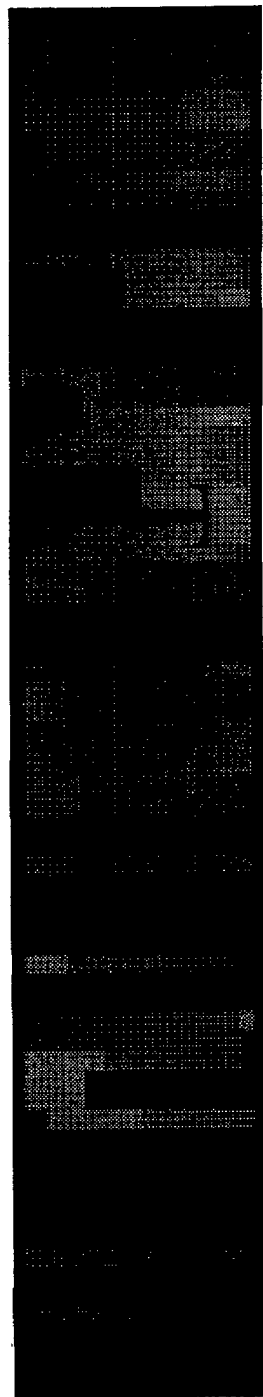


PHNSY & IMF
Pearl Harbor Naval
Shipyard and
Intermediate
Maintenance Facility



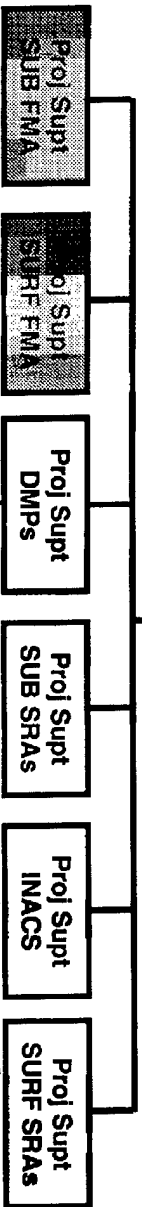
Intermediate
Maintenance
Activity
593 CIVPERS
712 Military

- ❖ Single Activity Commander
- ❖ Maximize Shipboard Productive Work
- ❖ Minimize Overhead
- ❖ Eliminate redundant functions & facilities
- ❖ Capture "Best Practices"
- ❖ Single up
 - Processes
 - Instructions
 - Training





**Operations
Officer**
300N



Projects

Resource Allocation Process

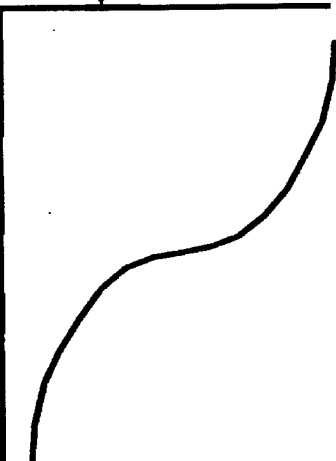
**APPRENTICES &
NEW HIRES**



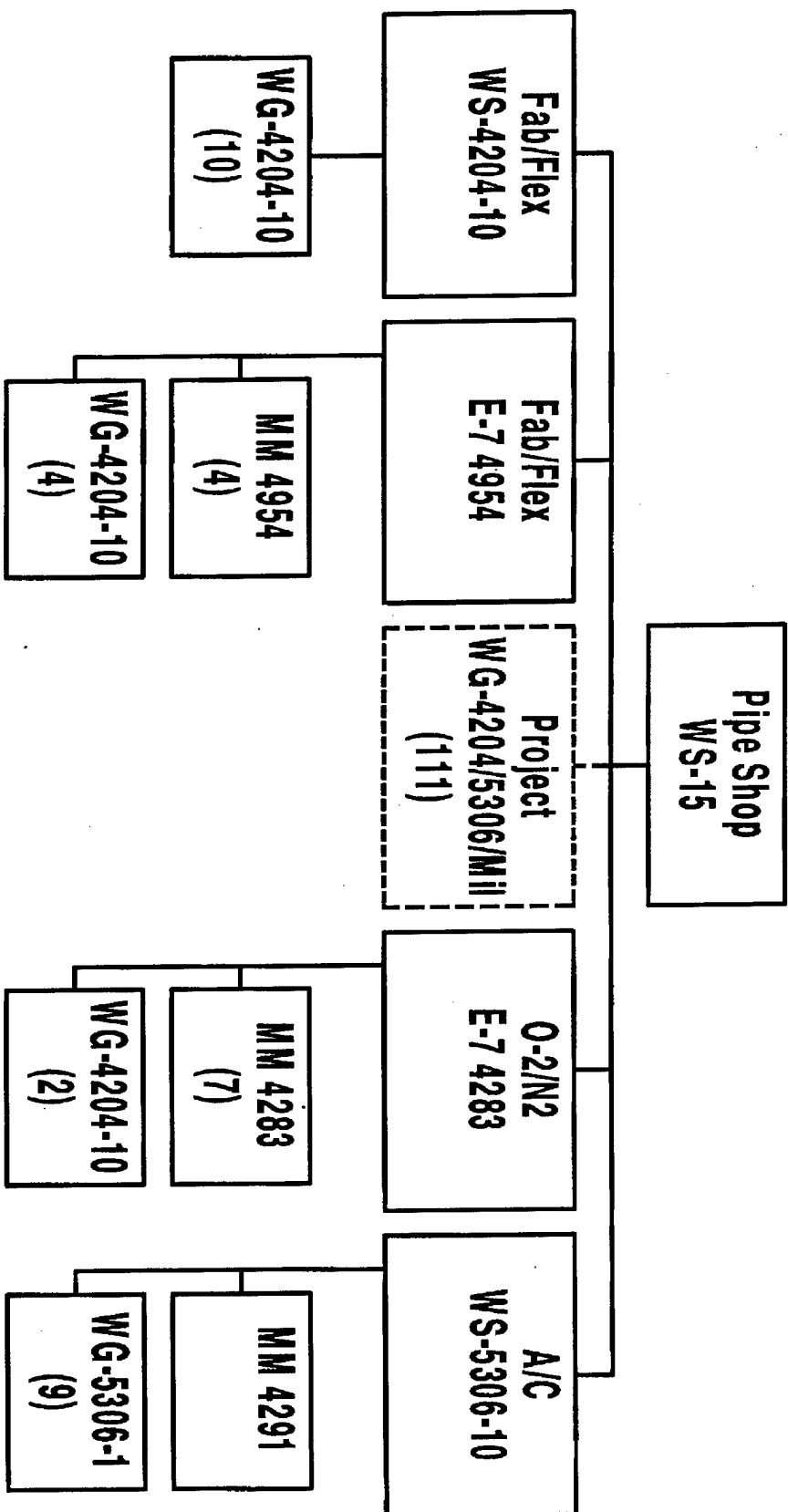
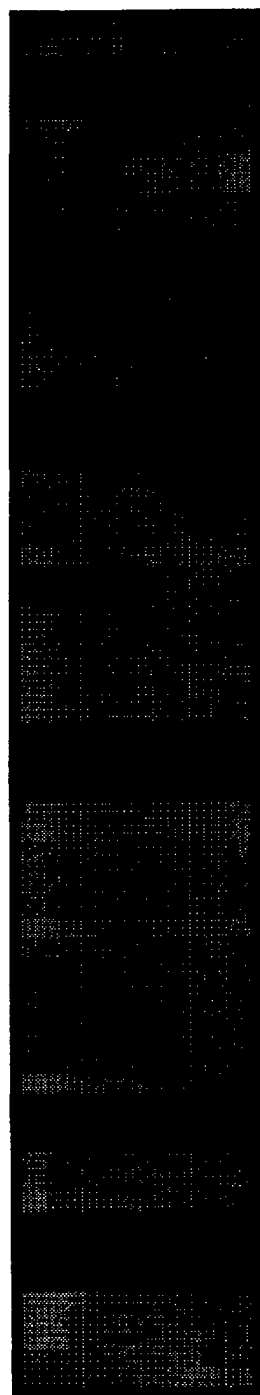
ATTRITION

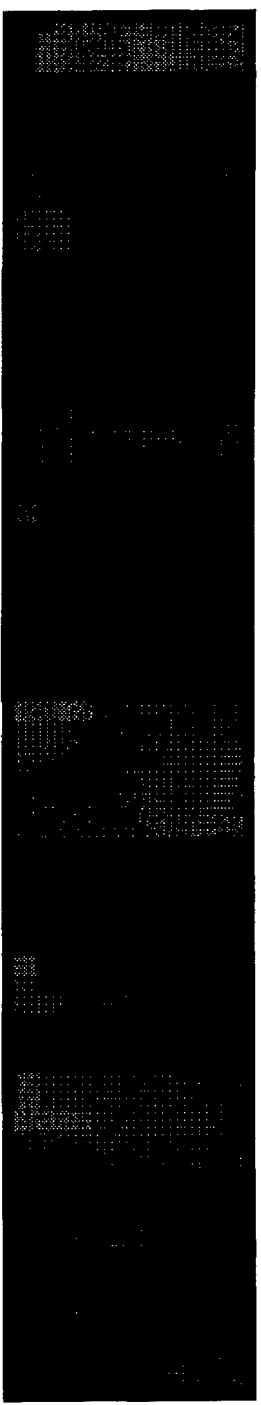


**PEARL HARBOR
SHIPWORK BACKLOG**

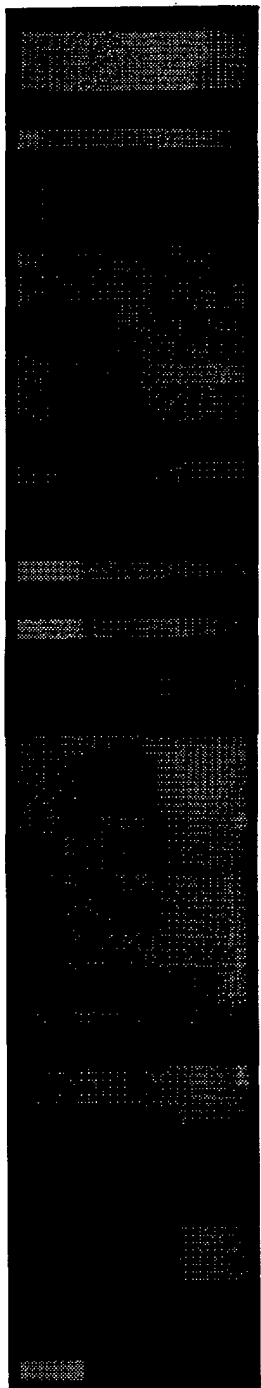


10





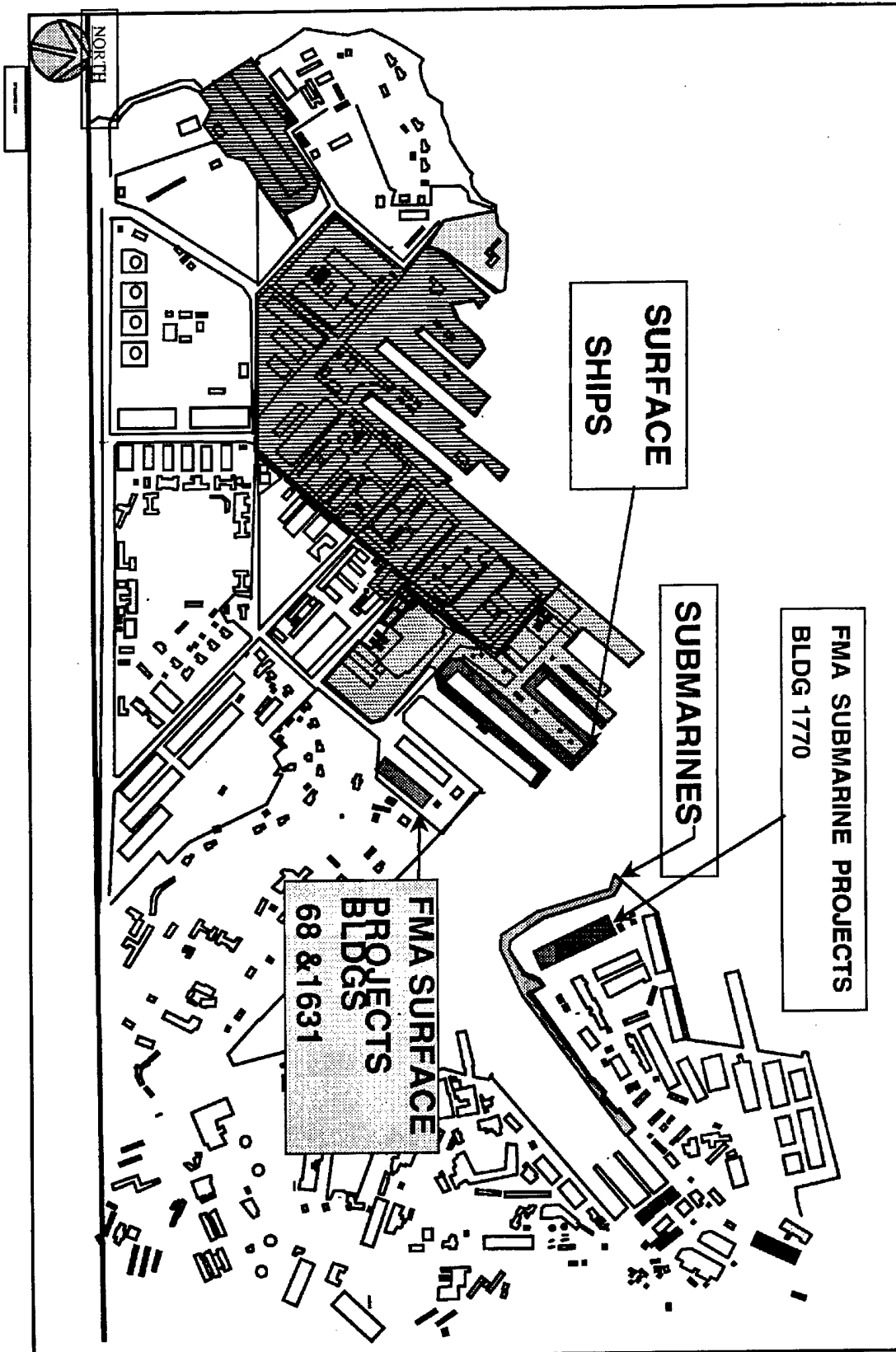
- ❖ **Availability Planning**
- ❖ **Work Induction**
- ❖ **Job Planning**
- ❖ **Resource Allocation**
- ❖ **Quality Assurance**
- ❖ **Work Certification**
- ❖ **Industrial Management Information Systems**

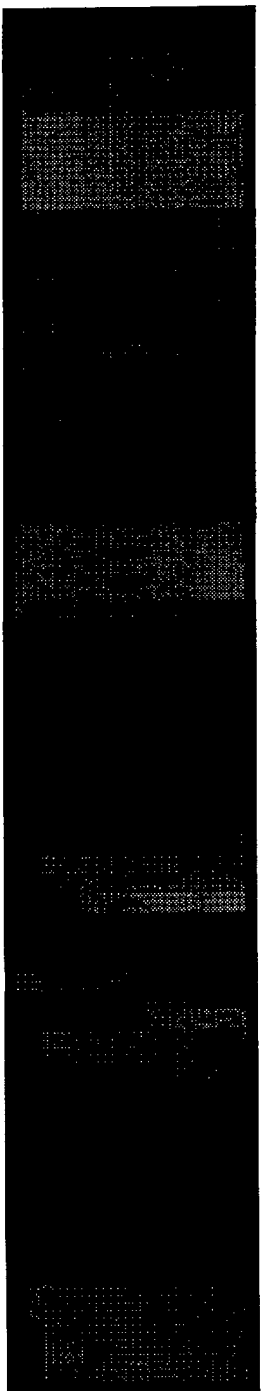


❖ **Singling up Backshops**

❖ **Demolition Plan**

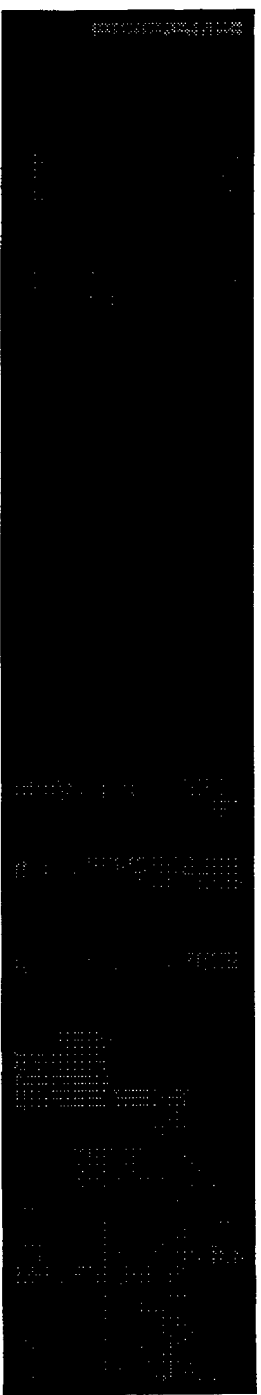
❖ **Consolidation/Modernization**





❖ Fleet Maintenance Availabilities and CNO Availabilities

- Quality
- Schedule
- Cost
- Responsiveness
- Productivity
- ❖ Customer Interface Process
- ❖ Relocation of Personnel
- ❖ Shift to Mission Funding
- ❖ Balancing Resources
- ❖ Workforce Revitalization
- ❖ Refining Processes
- ❖ Facility Management
- ❖ Attitude Improvement



FY97 is the baseline year

❖ **Navy Audit Service, DOD IG and GAO involved**

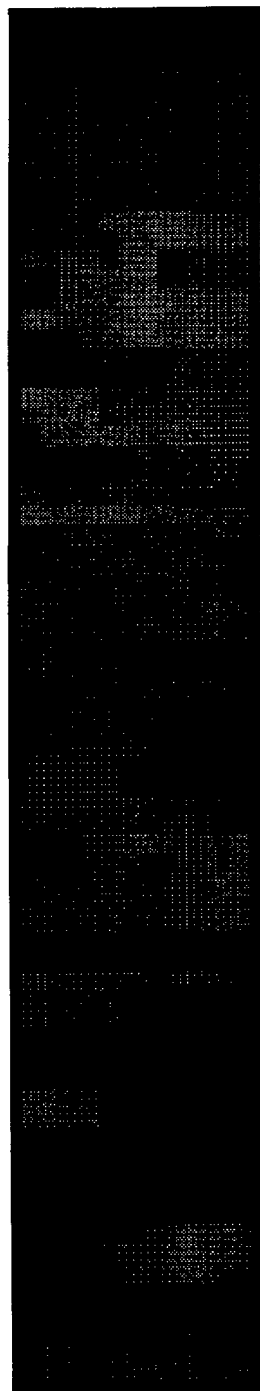
❖ **Assessment metrics are as follows:**

- **QUALITY** - Data collection and analysis and Formal customer surveys covering product reliability and operability.
- **COST PER UNIT OUTPUT** - Cost per Production Shop man-hour delivered.
- **PRODUCTION EFFICIENCY** - Total activity manhours (direct/indirect) to deliver one Production Shop man-hour.
- **SHIP MATERIAL READINESS** - CSMP Work Items Accomplished.
- **SCHEDULE ADHERENCE** - On time completion of availabilities.
- **EARNED VALUE** - Compare cost to perform similar work before/after.

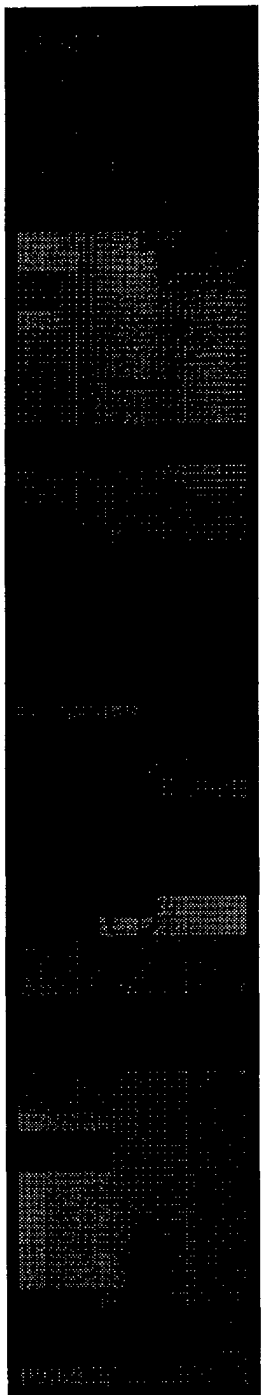


- ❖ **MEO (Design & populating)**
- ❖ **Union Survivorship/Partnership (IMF was non-union)**
- ❖ **FMAs under “Total Project Management”**
- ❖ **Co-Location of FMA Project Teams with Customers**
- ❖ **ALS system requirement**
- ❖ **Tailoring Shipyard Processes (60 RPPM) to the FMA pace (1200 RPPM)**
- ❖ **Full time Transition Team**
- ❖ **Metrics**
- ❖ **Facility Consolidation Plan**



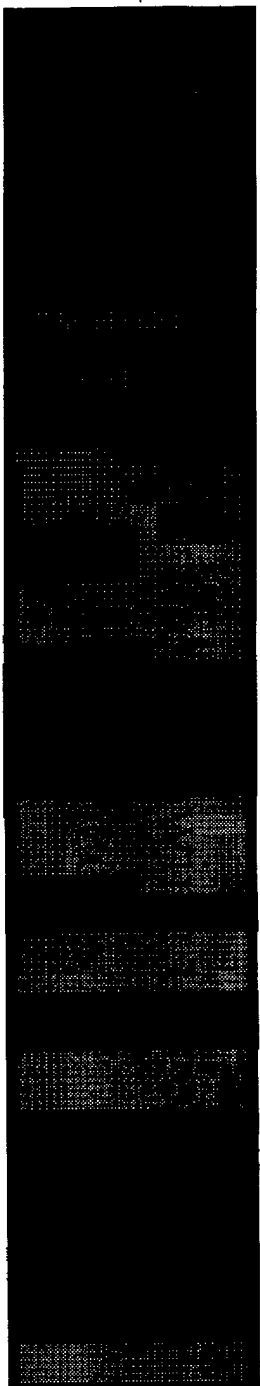


BACKUP



- ❖ **Union/Management Partnership Council**
- ❖ **Planning Board for Training**
- ❖ **Operations/Resources Leadership Council**
- ❖ **PHNSY & IMF/FISC Partnership Council**
- ❖ **Facilities & Tooling**
- ❖ **Position Management Board**
- ❖ **Financial Control Board**
- ❖ **Audity Council**
- ❖ **Occupational Safety & Health Committee**
- ❖ **Environmental Compliance Committee**
- ❖ **Customer Relations**

Committees are appointed to address issues of long-term concern. Each committee will manage the business of PHNSY & IMF to meet the specified objectives.



Target 1: FY 1999 Cost Targets:

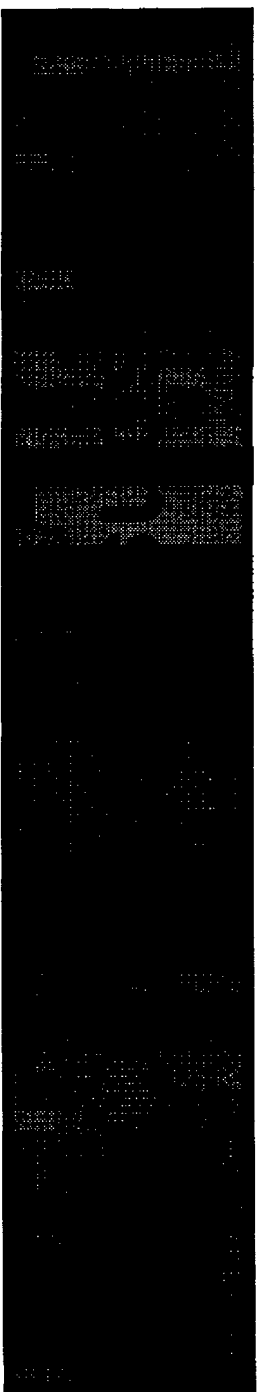
- ❖ **Complete all work assigned within customer budget for each avail**
- ❖ **Reduce direct OT by 10% (\$2.2M savings) C/300 responsibility**
- ❖ **Reduce direct material costs by 10% (\$3.6M savings) C/200 responsibility**
- ❖ **Reduce non-labor overhead costs by 5% (\$2.8M savings)**

Target 2: FY 1999 Work Accomplishment:

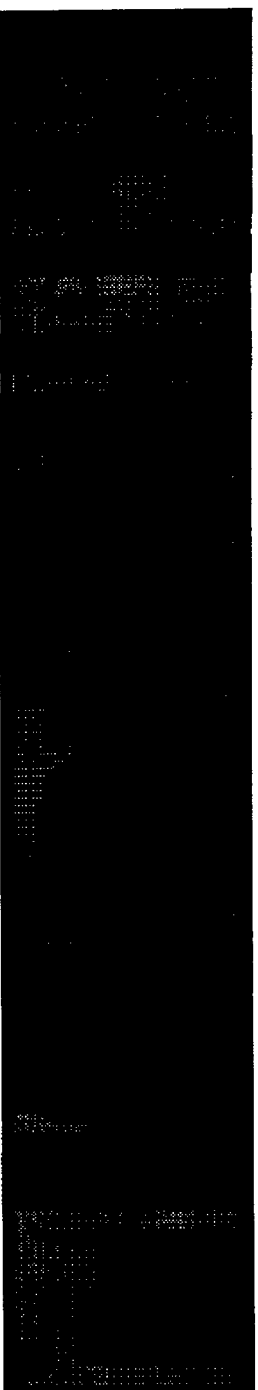
- ❖ **Reduce the total CSMP for PH home ported ships by 10%**
- (Note: The Operations Officer has the lead on determining methods to achieve this target)

Target 3: Schedule Adherence:

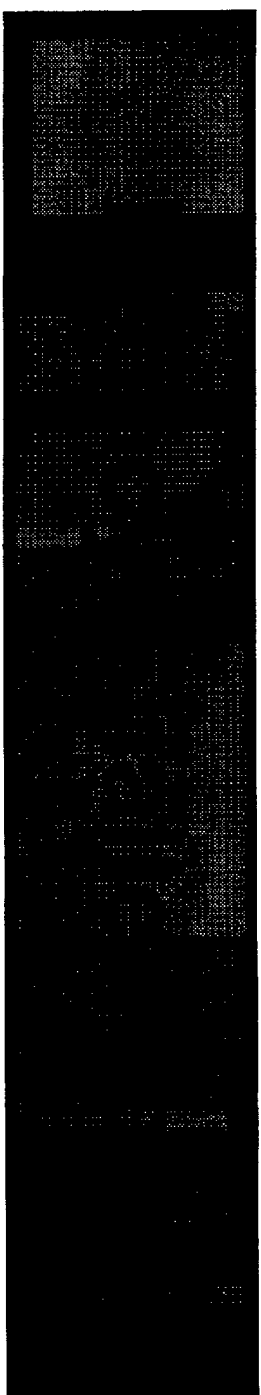
- ❖ **100% on-time completion.**



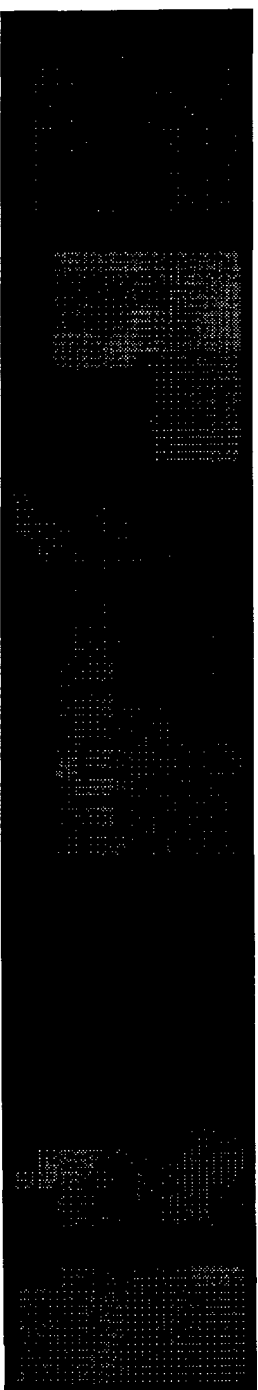
- ❖ **MEO (Design & populating)**
- ❖ **Union Survivorship/Partnership (IMF was non-union)**
- ❖ **Pre-engineering Process changes**
- ❖ **FMAs under “Total Project Management”**
- ❖ **Co-Location of FMA Project Teams with Customer N4’s**
- ❖ **MIMS**
- ❖ **Resource Allocation under “Total Project Management”**
- ❖ **Tailoring Shipyard Processes (60 RPM) to the FMA pace (1200 RPM)**
- ❖ **Full time Transition Team**
- ❖ **Metrics**
- ❖ **Facility Consolidation Plan**



- ❖ 1996 RIF
- ❖ SHAPEC
- ❖ BAIM
- ❖ Budget (CIVPERS Manning)
- ❖ Sea-Shore Rotation (Military Manning)
- ❖ Crane Department
- ❖ Supply Partnership
- ❖ Workload



- ❖ **Productivity**
- ❖ **Overtime**
- ❖ **Fragmentation**
- ❖ **Training**
- ❖ **Revitalization**
- ❖ **Quality**
- ❖ **Passive Resistance to change**
- ❖ **Passive Acceptance to failure**
- ❖ **Union/Management Relationship**
- ❖ **Accountability of Senior Civilians**



- ❖ Union - Management Partnership
- ❖ Civilian - Military Workforce synergy
- ❖ Sharp focus on Fleet Operational Readiness
 - “We Keep Them Fit to Fight”
- ❖ Develop and deploy departmental metrics & goals
- ❖ PDCA Processes
- ❖ Stable employment for people of the Islands:
 - Continuously Revitalized workforce
- ❖ Expand the Strategic Plan to 5 year horizon

**DEPOT MAINTENANCE SYMPOSIUM
SENIOR LOGISTICIANS PANEL
SCRIPT FOR MAJ GEN ZETTLER**

I WOULD LIKE TO ENTER THESE DISCUSSIONS BY SHARING THREE POINTS WITH YOU FROM MY PERSPECTIVE AS THE AIR FORCE DIRECTOR OF MAINTENANCE:

- THE CRITICALITY OF MODERNIZING INFORMATION SYSTEMS TO ACCOMPLISH OUR 21ST CENTURY MISSION RESPONSIBILITIES
- PROVIDING THE LOWEST COST DEPOT MAINTENANCE TO OUR FORCES
- FACTORS WE SHOULD CONTEMPLATE IN OUTSOURCING UNIT LEVEL MAINTENANCE FUNCTIONS

FIRST, **MODERNIZING INFORMATION SYSTEMS.**

THE FY 1996-2001, DEFENSE PLANNING GUIDANCE STATED:

“IN ORDER TO SUPPORT INCREASING FUNCTIONAL REQUIREMENTS FOR INFORMATION WHILE IMPLEMENTING OVERALL REDUCTIONS IN THE BUDGET, THE DEPARTMENT MUST ACCELERATE THE PACE AT WHICH IT SELECTS AND DEPLOYS MIGRATION SYSTEMS, IDENTIFIES STANDARD DATA, AND CONDUCTS BUSINESS PROCESS REENGINEERING ACROSS ALL FUNCTIONS.”

IN THE MAINTENANCE ARENA, THE AIR FORCE HAS TAKEN ON THIS CHALLENGE THROUGH DEVELOPMENT OF THE INTEGRATED MAINTENANCE DATA SYSTEM, OR IMDS. IMDS IS AN EVOLUTIONARY DEVELOPMENT PROGRAM THAT WILL PROVIDE THE AIR FORCE WITH A SINGLE MAINTENANCE INFORMATION SYSTEM, REPLACING OR INTEGRATING ALL--AND MY VISION IS

ALL--EXISTING MAINTENANCE INFORMATION SYSTEMS--FROM THE FLIGHTLINE THROUGH THE DEPOTS. IMDS WILL NOT ONLY ALLOW US TO ELIMINATE THE NUMEROUS LEGACY SYSTEMS, BUT WILL ALSO PROVIDE THE TECHNOLOGY AND ENVIRONMENT TO REENGINEER THE WAY WE DO BUSINESS, SUCH AS: CREATING A PAPERLESS ENVIRONMENT AND ELIMINATING THE NUMEROUS FORMS CURRENTLY REQUIRED; AUTOMATICALLY COLLECTING DATA, THUS ALLOWING THE MAINTAINER TO BETTER PROVIDE SUPPORT TO OUR COMBAT FORCES; ALLOW DATA ENTRY AT THE POINT OF MAINTENANCE, THEREFORE, INCREASING DATA ACCURACY AND PREVENTING REDUNDANT DATA ENTRY; AND AUTOMATICALLY SCHEDULING INSPECTIONS, TCTOs, TIME CHANGE ITEMS, ETC.

IMDS HAS ALSO BEEN IDENTIFIED AS ONE OF OUR LOGISTICS INFORMATION SYSTEMS THAT WILL FIT UNDER THE GLOBAL COMBAT SUPPORT SYSTEM UMBRELLA; THUS LEADING TO AN INTEGRATED LOGISTICS SYSTEM RATHER THAN JUST ANOTHER STOVE-PIPED MAINTENANCE SYSTEM. AS IMDS IS BEING DEVELOPED, WE ARE WORKING WITH THE OTHER LOGISTICS FUNCTIONAL AREAS TO ENSURE THEY CAN ALL SHARE AND EXCHANGE INFORMATION. FOR EXAMPLE, IMDS WILL PROVIDE THE MAINTENANCE TECHNICIAN WITH THE CAPABILITY TO ORDER PARTS FROM FLIGHTLINE AND WHILE TRANSPARENT TO THE USER, IMDS WILL BE

INTERFACING WITH THE SUPPLY SYSTEM [EITHER SBSS OR INTEGRATED LOGISTICS SYSTEM-SUPPLY].

WHILE IMDS HAS MADE IMMENSE PROGRESS, THERE ARE STILL NUMEROUS MOUNTAINS AND CHALLENGES THAT WE MUST OVERCOME BEFORE WE CAN DECLARE VICTORY. THE FIRST IS REENGINEERING THE PROCESSES. REENGINEERING AT THE BASE-LEVEL IS SLOWLY UNDERWAY, BUT IT IS A MAJOR CHALLENGE STANDARDIZING THE PROCESSES FROM COMMUNITIES AS DIVERSE AS THE COMBAT AIR FORCES, STRATEGIC AIRLIFT, GUARD AND RESERVE FORCES, AND SO ON. AN EVEN BIGGER CHALLENGE IS TO REENGINEER THE DEPOT MAINTENANCE PROCESSES! THE AIR FORCE HAS NOT YET BEGUN TO GET THEIR ARMS AROUND THIS MASSIVE PROBLEM. OUR DEPOTS HAVE A UNFATHOMABLE NUMBER OF LEGACY INFORMATION SYSTEMS, MANY OF WHICH ARE UNIQUE AND STOVE-PIPED.

DESPITE THESE OBSTACLES, WE ARE COMMITTED TO FIELDING THE INITIAL INCREMENT OF IMDS AT THE END OF FY 00.

WE STILL HAVE MUCH TO ACCOMPLISH--IN FACT WE ARE REALLY ONLY EMBRYONIC--BUT WE ARE MAKING PROGRESS AND WE ARE COMMITTED TO MAKING THIS SYSTEM A SUCCESS--BECAUSE IN OUR CURRENT ENVIRONMENT AND LEVELS OF ACTIVITY, WE CAN'T CONTINUE TO MAINTAIN OUR READINESS WITHOUT TOOLS LIKE IMDS.

TURNING TO THE SECOND AREA OF ADEPOT STRATEGY..

MOST ORGANIC DEPOT WORKLOAD IS ASSIGNED BASED ON MISSION, COST CONSIDERATIONS, AND OCCASIONALLY EMOTIONS. HOWEVER, WE RETAIN "CORE" SUSTAINING WORKLOADS TO ENSURE RETENTION OF THOSE ORGANIC CAPABILITIES WE DEEM CRITICAL TO THE CONDUCT OF OUR WARTIME TASKINGS. IN RESPONSE TO INCREASINGLY ROBUST PRIVATE SECTOR MAINTENANCE SOURCES, MORE RELIABLE WEAPON SYSTEMS AND DECREASED FORCE SIZE, WE'VE REDUCED DEPOT CORE REQUIREMENTS BY A FOURTH OVER THE PAST 3 YEARS. IN DETERMINING THE BEST SOURCE FOR NON-CORE REQUIREMENTS, I AM CONVINCED THAT PUBLIC - PRIVATE COMPETITION WORKS. FOR THE TWO MAJOR COMPETITIONS WE'VE COMPLETED THUS FAR, WE'RE PROJECTING AN ANNUAL SAVINGS OF APPROXIMATELY \$800M OVER ~9 YEARS, WHEN COMPARED TO PROJECTED COSTS FOR THE SAME WORKLOAD FOR THE SAME PERIOD. THESE SUCCESSES SUGGEST WE SHOULD CONTINUE TO EMPLOY THESE COMPETITIONS TO WORKLOAD ASSIGNMENTS PAST THE CURRENT ROUND OF DEPOT CLOSURES. WE'VE GONE TO EXTRAORDINARY LENGTHS TO LEVEL THE PLAYING FIELD AND HAVE ENFORCED THE RULES IN OUR COMPETITIONS – THERE SHOULD BE NO QUESTION AT THIS POINT AS TO THE INTEGRITY OF THE PROCESS. INDUSTRY NEEDS TO STEP UP TO THIS CHALLENGE AND ENTER COMPETITIONS WHERE THEIR CORE COMPETENCIES AND GOOD BUSINESS PRACTICES WILL YIELD COMPETITIVE BIDS. LIKEWISE, I FIRMLY BELIEVE THAT THE DEPOTS SHOULD BE FORCED TO RE-ENGINEER THE CORE WORKLOAD PROCESSES TO ACHIEVE THE SAME SAVINGS ACHIEVED IN THE COMPETITIONS. THE WINNER FROM ALL THESE

ACTIVITIES WILL BE NOT ONLY THOSE ENTITIES GAINING THE WORK, BUT THE AMERICAN TAXPAYERS.

FINALLY, I'D JUST LIKE TO SAY A FEW WORDS ON OUTSOURCING OF FIELD LEVEL MAINTENANCE..

WE NEED TO CAREFULLY SELECT AND EVALUATE OUR TARGETS FOR OUTSOURCING MAINTENANCE FUNCTIONS AT THE WING/UNIT/BASE LEVEL-- EVERYTHING IS NOT UP FOR GRABS! CLEARLY IN OUR PEACETIME GARRISON ROLE, AIRCRAFT MAINTENANCE APPEARS TO BE A LUCRATIVE AREA FOR COMPETITIVE SOURCING. HOWEVER--AND IT IS A BIG HOWEVER--WITH THE PULLBACK FROM OVERSEAS BASES AND THE EVOLUTION TO AN EXPEDITIONARY FORCE, A CLEAN LINE OF DEMARCATION NO LONGER EXISTS BETWEEN CRITICAL AND NON-CRITICAL FUNCTIONS. FOREMOST IN OUR MINDS DURING OUTSOURCING DRILLS SHOULD BE THE FACT THAT OUR PEOPLE, WHILE EXTRAORDINARY LOYAL AND DEDICATED TO THE MISSION, HAVE THEIR LIMITS. AS CONUS FUNCTIONS BECOME INCREASINGLY OUTSOURCED, OUR OVERSEAS TASKING FOR THE REMAINING SPECIALISTS RAMPS UP SIGNIFICANTLY. THE RESULT: OUR FINE AIRMAN, SOLDIERS AND SAILORS, WHOM WE'VE SPENT MEGABUCKS TO TRAIN AND WHO PROVIDE THIS COUNTRY ITS WARFIGHTING EDGE, ELECT TO GET OUT. WHY SHOULD THEY STAY? THEY CAN WORK FOR A CONTRACTOR DOING THE SAME JOB, WITH FAR GREATER STABILITY, USUALLY WITH GREATER PAY AND BENEFITS. WE'VE ALREADY SEEN THIS EMERGE AS A SIGNIFICANT FACTOR IN REDUCED RE-ENLISTMENT STATISTICS. IT'S CRITICAL THAT WE PRESERVE A QUALITY OF PROFESSIONAL LIFE FOR OUR MAINTAINERS AND NOT SACRIFICE IT TO MEET OUTSOURCING TARGETS.

SO, WHY IS IT CRITICAL? BECAUSE THERE'S NO GUARANTEE THAT THE NEXT TIME WE NEED THEM--REALLY NEED THEM--THE CIRCUMSTANCES WILL BE NEAT AND CLEAN AND SHORT. WE NEED THEM AS PART OF OUR COMBAT FORCES. WE NEED THEM READY TO GO--NOT READY TO HAVE A CONTRACT CHANGE--AND WE NEED THEM TO DO WHATEVER TASK IS NEEDED IN THE THEATER--NOT JUST WHAT THEY ARE ON CONTRACT FOR!