

1998 Munitions Executive Summit

Proceedings

September 14-16, 1998

The Ritz-Carlton, Palm Beach Manalapan, Florida

DTIC QUALITY INSPECTED 2

Meeting # 865



REPRODUCTION QUALITY NOTICE

This document is the best quality available. The copy furnished to DTIC contained pages that may have the following quality problems:

- Pages smaller or larger than normal.
- · Pages with background color or light colored printing.
- Pages with small type or poor printing; and or
- Pages with continuous tone material or color photographs.

Due to various output media available these conditions may or may not cause poor legibility in the microfiche or hardcopy output you receive.

If this block is checked, the copy furnished to DTIC contained pages with color printing, that when reproduced in Black and White, may change detail of the original copy.

	28'94 (MON) 08:20 ND1A	P. 002
	L FURTERIE LINKORMATION CONCERNING DISTRIBUTION CALL (703) 767-8040	
	PLEASE CHECK THE APPROPRIATE BLOCK BELOW:	
-	copies are being forwarded. Indicate whether Statement A. B. C. D. E. F. of X applies.	
•	Dietrubution Statement a: Approved for funlig release: Dietribution is unlimited	
	DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES ONLY: (IMILAN RAMIN ALI DIRE). OTHER REQUESTS FOR THIS FREIMENT SIJALI. TIC REFERRED TO (Indiana Constilling Ded Office).	
	DISTRIBUTION STATEMENT C: DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT ASENCIES AND THEIR CONTRACTORS: (Igdicate Region and Fine). OTHER REQUESTS EAR THIS DACUMENT SHALL HE REFERRED TO (Indicate Controlling Dad) Office)	
	DISTRIBUTION STATEMENT D: DISTRIBUTION AUTHORIZED TO DOD AND U.S. DOD CONTRACTORS ONLY: Ordinan Region and Pain) OTHER REQUESTS SHALL REFERRED TO [Unlicate Controlling DOD Office).	
	DISTRIBUTION STATEMENT B. DISTRIBUTION AUTHURIERD TO DOD COMPONENTS ONLY, (Indicale DISTRIBUTION AUTHURIERD TO (Indicale Committing Dad Office).	
	DISTRIBUTION STATEMENT 7: FUNTRER DISSEMINATION ONLY AS DIRECTED BY (Indicate Controlling Dod Office and Bai Dod Authority.	+) 41 HIGHER
1	DISTRIBUTION STATEMENT X: DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND PRIVATE INDIVIDUALS OR ENTERPRISES ELIGIBLE TO OBTAIN EXPORT-CONTROLLED FECHNIC. DATA IN ACCORDANCE WITH DOD DIRECTIVE 5230.25. WITHHOLDING OF UNCLASSIFIED TECHNICAL D. TAFROM PUBLIC DISCLOSURE 6 Nov 1984 (Indicate date of determine) CONTROLLING DAD OFFICE IS (Indicate Controlling Dad Office).	nation).
7	This document was previously forwarded to DTIC on (date) and the	
	n accordance with provisions of DoD instructions, the document requested is not supplied because:	
	t will be published at a later date. (Enter approximate date, if known).	
(Other, (Give Reason)	
ir: Æ¢	ective \$230.24Oistribution Statements on Technical Documents." 18 Mar 87. contains seven distribution in the distribution statements. A. C. F. C. C. F. C. C. F. C. C. F.	on statements, as

MKHAPL B. FINGTAN

ר. טבר טכ

Table of Contents

Monday, September 14, 1998

"Ammunition Organization Working IPT Briefing," by Mr. Rod Tozzi, Chairperson IPT, US Army Materiel Command (AMC)	4
"Business Case/Policy IPT," by Ms. Jean Ligeno, Chairperson, IPT, IOC	17
"Base Adjustments," by Mr. William Mogan, Vice President, Marketing, Talley Defense Systems, Inc	33
"Results-Bomb Base Reconfiguration," by Col. Paul L. Bradenburg, Deputy Executive Director Conventional Ammunition	69
"Replenishment," by Mr. Richard W. Janik, Deputy Chief of Staff for Industrial Readiness, IOC	75
"Acquisition Trends," by Mr. Milton I. McKinney, Command Ombudsman, HQ, IOC	87
Wednesday, September 16, 1998	
"Ammunition Update," by BG John J. Deyermond, Deputy Chief of Staff for Ammunition, AMC	106
"Privatization," by Mr. Kenneth R. Morgan, President, General Dynamics Ordnance Systems	123
"TACOM," by MG Roy E. Beauchamp, CG, US Army Tank-automotive and Armaments Command (TACOM)	133
"Program Executive Officer (PEO)-Ground Combat Support Systems (GCSS)," by MG John F. Michitsch, PEO GCSS	162
"Industrial Committee of Ammunition Producers (ICAP) Update," by Mr. Richard Loghry, President & CEO, Mason & Hanger corporation and Chairman, ICAP	190



Ground Rules

- Pacific Northwest National Laboratory study was a "launch point" only not taken as "the" answer and not evaluated by the WIPT
- the extent possible, the degree of difficulty of implementing each WIPT chartered to look at alternative organizational structures and address, to
- WIPT to determine the rough order of magnitude **POTENTIAL** for savings in terms of personnel reductions and cost associated with personnel reductions
- consideration based on Quadrennial Defense Review personnel reductions currently under desired characteristics, and derived attributes. Did not build organizations WIPT built organizations on: vision (ammo in 2003), corporate philosophy,
- construct provides time for analyses of and modifications to existing processes and policies detailed reorganization efforts - schedules for implementation of each WIPT provided resulting organizational constructs as **nuclei** for follow-on
- Use of WIPT effort by the Army is dependent on issues or questions to be solved and the goals of the Army reorganization efforts

Voting Organizations (20)

- USD(A&T) Munitions*
- **EDCA**
- HQDA/Secretariat (6)
- DCSOPS*
- SARD-ZR*
- **SARD-ZS**

DCSLOG*

PA&E*

- ASA (FM&C)*
- PEO (4)
- GCSS*
- TAC MISSILES
- AVN
- AMD

- HQAMC (2)
- DCSAMMO/SARD-ZCA*
- DCSRDA*
- AMC MSCs (3)
- IOC/SMCA*
- TACOM (ARDEC)*
- AMCOM (IMMC)
- OTHER SERVICES (3)
- USN
- USMC
- **USAF**

Overview

- ammunition management within the Army and DOD in varying degrees. Four constructs were produced that will accomplish the mission of improving
- These four constructs have been built and scored
- Ammunition Command
- Establishes a DSA for Ammo with Ammo PMs Under a MSC

007

- PM/PEO Model w/Merged MSC
- Joint Program Manager under a PEO (GCSS)
- Merges TACOM and IOC
- Family Affair-Combat Systems
- MACOM Restructure Merges PEO and AMC Organizations
- Single Service
- Ammo Organization If We Went to or Were Going to ONE Service
- Primary differences between constructs are:
- Organization
- Reductions associated with personnel and end-item cost
- Ease and timing of implementation

Construct Comparison

	**************************************	7	200000	
Single Service	FAMILY AFFAIR	U		
=:		ш		
\supset	<u> </u>	ᄪ		
(C)		റ	********	
Ī	***************************************	V	334.773	Construc
Œ	***************************************	_	VO CWI	
		ヺ		
CO	********	S		
Χ'	<i>200</i>	70	****	G
W		v	333.333	
_	SS-2000	\frown		
<u>S</u> .		•	33,000	See .
O			***	23
Ä				Prop.
V				

	****		******	•
	*********		******	
_	******		3694	Velghted Scores - Unibules
4925	****	ത	*****	· 12
(0	******	7	\$\$ \$\$	
\approx		∵:		
N		~	****	
S	8 81	4	382 XXX	
	****		******	
	*********		*******	
	******		******	() L
	******		********	
				.
			<i>*************************************</i>	
	****		******	

1789	1559	_	1084	
~1				
\sim		\sim		~-,**** ()
Ç		42		~ 0
တ	**ED**	N	***	
	****		*****	(C)
	*****			•
	*******			n n
	*****			Subjective Rating

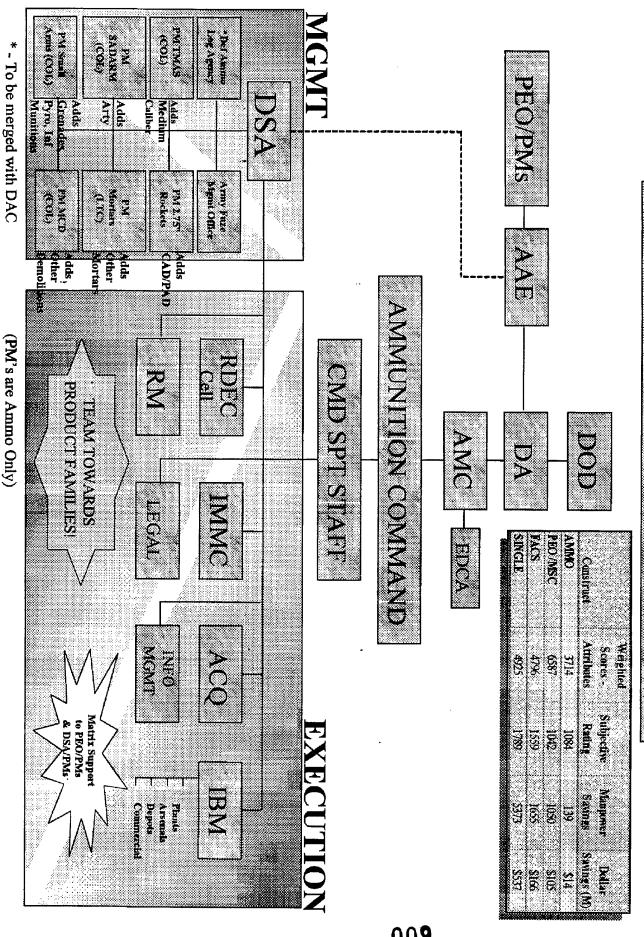
	****		******	

CT		_		
7.5		$\overline{}$		
بب		پ		
5373	1655	J	139	lanpowi Savings
ယ				7
		_	******	
	********			Manpowe Savings

	*****		*****	
44		æ	*****	
"	**************************************	7	*59 1	
Ċ	***************************************	_	******	
ယ	\$166	0		Dollar r Savings (M)
~	(33)	(Tr	*********	
4		⊸.	****	
	*****		****	
	VACANCOOO			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Notes:

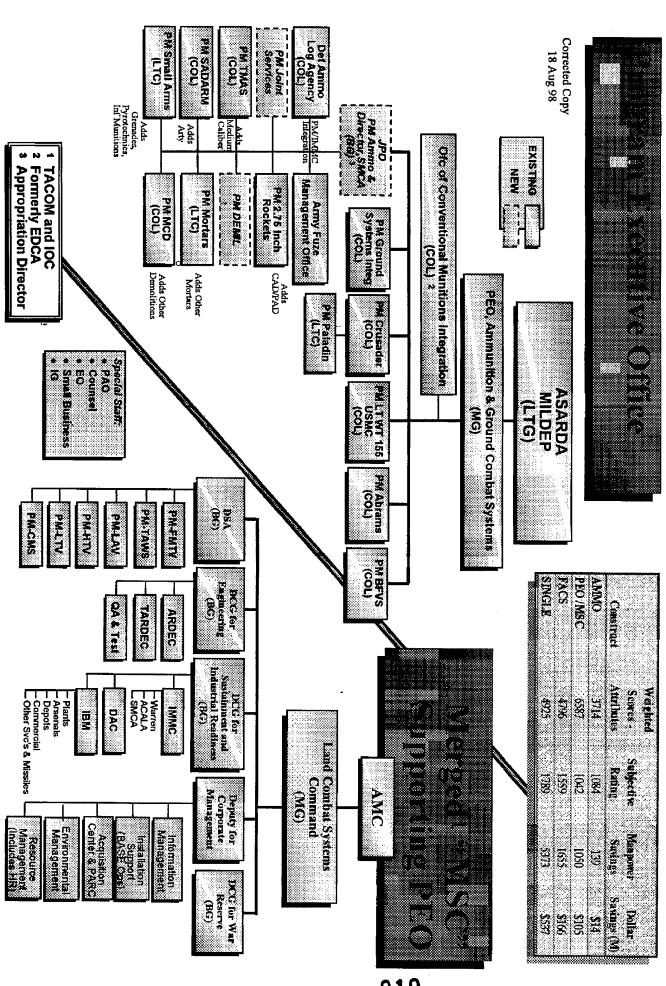
- Attribute rating/weighted scores higher score is better
- Subjective rating lower score is better (addresses the difficulty of moving to a construct of this type)
- Majority of personnel savings in PEO/MSC model derived from merging of TACOM & IOC.
- Manpower Reductions and Dollar Savings based on:
- *FY97 TDAs
- *No incorporation of QDR
- *Top line only-<u>No</u> attempt at MEO analysis



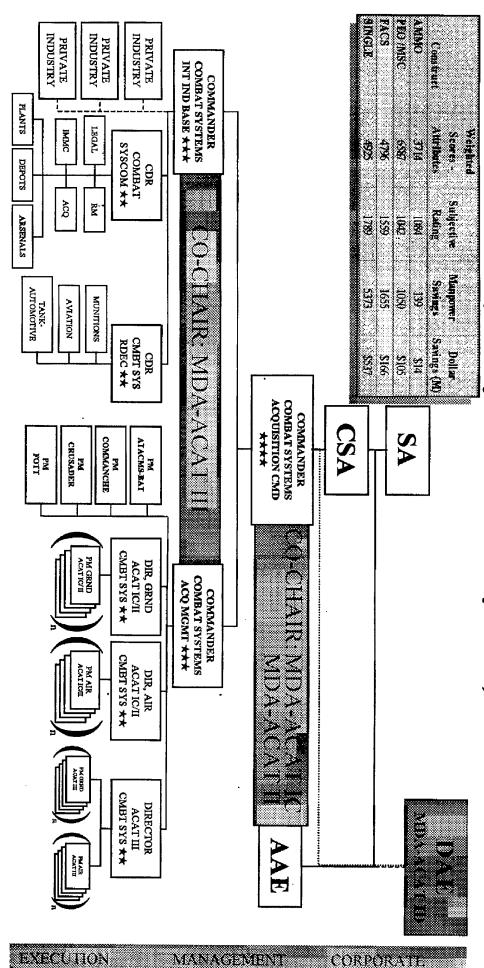
AMMUNITION COMMAND MODEL

Corrected Copy 18 Aug 98

009



("Family Affair-Combat Systems")



011

- Integrates all elements of the industrial base (Gov and private industry) for Army combat systems and ties them to the "Corporate Best Value" decisions

 Private sector utilized to the maximum (includes tech base, RDT&E, production, transportation, handling, storage, surveillance, and demil)
 SYSCOMs responsible for transportation, handling, storage, surveillance, and demil
- c. Single RDEC for combat systems includes platforms, launchers, and munitions

 2. Ensures full system integration (platform, launcher, and projectile) for system unique munitions and full coordination with platforms for common systems-A SYSTEMS APPROACH

 3. Separates systems management from execution VERTICALLY (a continuum depending on function-the CORPORATE FOCUS) as well as HORIZONTALLY

 4. "Best Value" decisions made at the Corporate level with input from the management level which was developed at the execution level.

 5. Keeps ACAT IC programs-AAE co-chairs with Cdr, CSAC (replaces VCSA as ASARC co-chair)

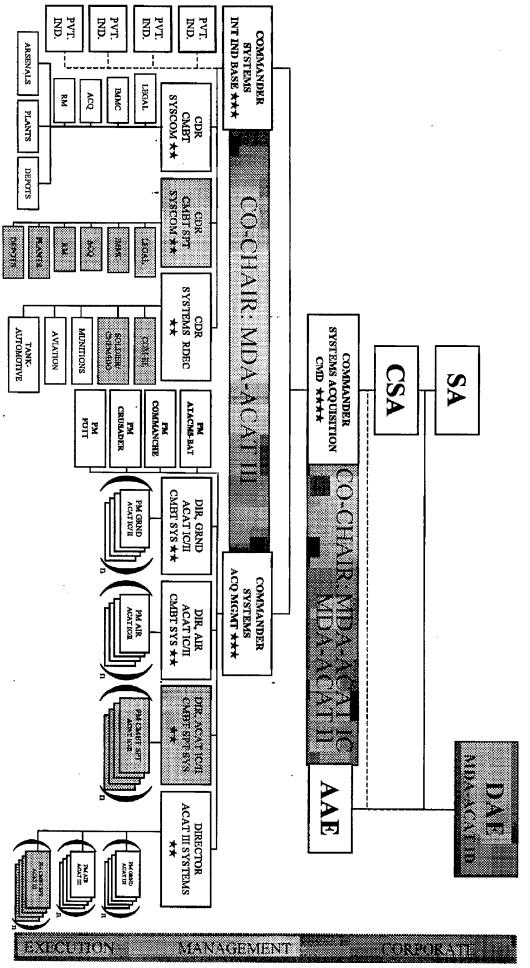
 6. Could be expanded into a total "Technology/Acquisition/Logistics Command" by adding:

- a. Cdr, Combat Support SYSCOM;
 b. chem/bio and CE elements under Cdr, Systems RDEC;
 c. Dir, ACAT IC/II Cmbt Spt Systems under Cdr, Systems Acq Mgmt, and
 d. ACAT III Cmbt Spt Systems under Dir, ACAT III Systems.

Encl

ARMY PARADIGM SHIFT

("Family Affair-Technology/Acquisition/Logistics Command")



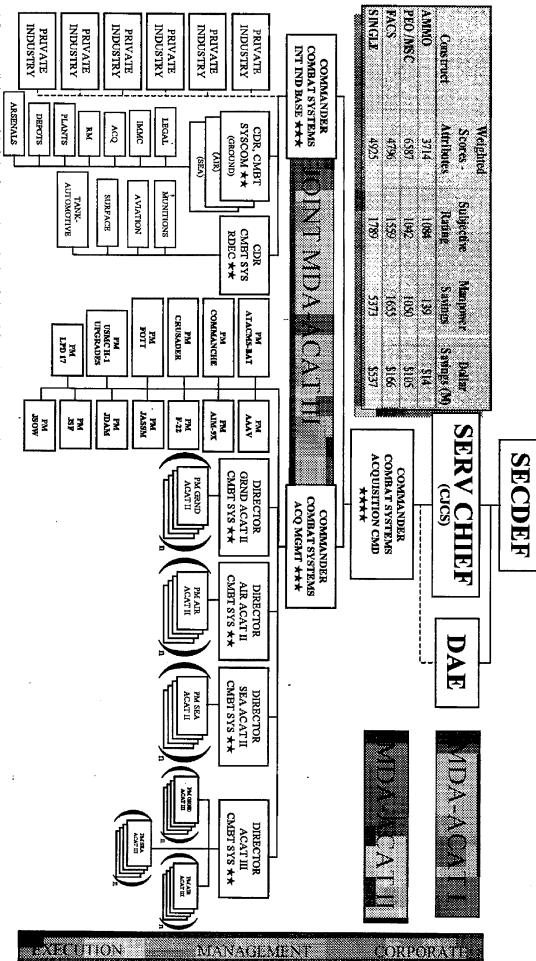
012

- 1. Integrates all elements of the industrial base (Gov and private industry) for Army combat systems and ties them to the "Corporate Best Value" decisions
 a. Private sector utilized to the maximum (includes tech base, RDT&E, production, transportation, handling, storage, surveillance, and demil)
 b. SYSCOMs responsible for transportation, handling, storage, surveillance, and demil
 c. Single RDEC for combat systems includes platforms, launchers, and munitions
 c. Single RDEC for combat systems integration (platform, launcher, and projectile) for system unique munitions and full coordination with platforms for common systems-A SYSTEM OF SYSTEMS APPROACH
 3. Separates systems management from execution YERTICALLY (a continuum depending on function-the CORPORATE FOCUS) as well as HORIZONTALLY
 4. "Best Value" decisions made at the Corporate level with input from the management level which was developed at the execution level.
- Keeps ACAT IC programs-AAE co-chairs with Cdr, CSAC (replaces VCSA as ASARC co-chair)

D PARADIGM SH

("Single Service")

Corrected Copy 18 Aug 98



- 1. Integrates all elements of the industrial base (Gov and private industry) for combat systems and ties them to the "Corporate Best Value" decisions a Private sector utilized to the maximum (includes tech base, RDT&E, production, transportation, handling, storage, surveillance, and demil)
- b. SYSCOMs responsible for transportation, handling, storage, surveillance, and demil
- Single RDEC for combat systems includes platforms, launchers, and munitions
- Ensures full system integration (platform, launcher, and projectile) for system unique munitions and full coordination with platforms for common systems-A SYSTEM OF SYSTEMS APPROACH
 Separates systems management from execution VERTICALLY (a continuum depending on function-the CORPORATE FOCUS) as well as HORIZONTALLY
 "Best Value" decisions made at the Corporate level with input from the management level which was developed at the execution level.

WIPT ORGANIZATION COMMENTS

-	1	7	13	2	TOTAL '
			X		ARMTEC
		X (follows)	X (leads)		ALLIANT
					INDUSTRY
X					TACOM
				×	IOC
			X		AMCOM
			X (w/mods)		DCSRDA
			X		DCSAMMO
	•				AMC .
			X		TACTICAL MISSILES
			X		GCSS
			X		AVN
			X		AMD
					PEOs
	-	X			PA&E
		X			DCSOPS
		serious look	X		SARD-ZS
			X		ASA (FM&C)
					HQDA
		ok	ok	ok	U.S. NAVY
		investigate	X		EDCA
	investigate	X			USD (A&T)
					OSD/OTHER SERVICES
OTHER	SINGLE SERVICE	FACS/ TALCOM	PEO/PM w/ MERGED MSC	AMMO CMD	CONSTRUCT ORGANIZATION

STAFF DRAFT

COMPARISON OF CONSTRUCTS

TIME TO EXECUTE	W/LIFE CYCLE MANAGEMENT	INTEGRATES REQUIREMENTS	VALUE	CORPORATE BEST	LEVEL OF	AUTHORITY	APPROVAL	CONSTRUCT	MGMT & EXEC	SEPARATES	TECH BASE	INTEGRATES	via	INDUSTRIAL BASE	MUNITIONS	INTEGRATES	MANAGEMENT	SYSTEMS	INTEGRATED	MANAGEMENT	MUNITIONS	MANAGER	APPROPRIATION	LEVEL OF PAA	ACAT LEVELS	MANAGES ALL	CONSIDERATION
IN YEARS	NO	YES _	UOU		MSC/PEQ	OSD		AMC _	VERTICALLY	HORIZONTALLY	NO	YESYES	INTERNALLY		OFFICE	COORDINATING	PLATFORM	LAUNCHER	AMMO	MISSILES	AMMO	DA/DoD	MACOM	MSC/PEO	NO	YES	CONSTRUCT
2	X	! ! ! . ! !			 × -				X	<u>x</u>	X				X				X		X			<u>x</u>	$\bar{\mathbf{x}}$		AMMUNITION COMMAND
3	X				 	X				X		X _		# 1 1	×		$\overline{X} = \overline{X}$		X		X			X		<u>X</u>	PEO/PM w/ MERGED MSC
4		! ! ! ! !		 		X			X	_ X		X	×	1 1	•		X		X	- X	X				1	X	FACS/ TALCOM
8		} ! × ! ! !	×			?				X		X	X				X		X	X	X	X				<u>x</u>	SINGLE SERVICE

Graybeard Comments

- only or the larger reorganization task facing AMC? Each construct addresses a different problem. A fundamental question becomes, do we address ammunition
- Separating guns from ammo is a "fatal flaw". Integration problems have arisen in sustainment as well as RDT&E and production
- the PEO/PM w/Merged MSC constructs). AMC PMs are second class citizens; PEO PMs make it to BG (criticizes both the Ammunition Command and
- Secretariat (criticizes the PEO/PM w/Merged MSC Construct). Procurement drives the industrial base which should be an issue for the uniformed Service and not the
- future. Combining Technology, Acquisition, and Logistics in a single organization may be a good strategy Answering the critical question, "where will acquisition be in the Army organization," will shape AMC's
- for a post 2002 AMC; maybe TALCOM, maybe something different The PEO/PM w/Merged MSC construct is seen only as an incremental step; something broader will be required
- FACS and TALCOM may provide a way (or a spingboard) forward
- some good press for the Army just by proposing it. it would appear. While it [TALCOM] would be difficult politically to pull off, it would probably generate Merging AMC and the PEOs is probably not as dramatic a reorganization move from the Army perspective as
- Congressional constraints will limit the Army's ability to close or privatize plants, arsenals, and depots
- (specifically Single Service). Constructs that further migrate responsibilities to Joint Agencies or the Secretariat should be resisted
- Strong roles and responsibilities on the SARDA side are defining characteristics of the organizational structure that would have to be clearly defined
- competition). However, placing the Appropriations Director at the highest level possible would assist An organizational change within the Army will not solve industry's problems (funding and foreign

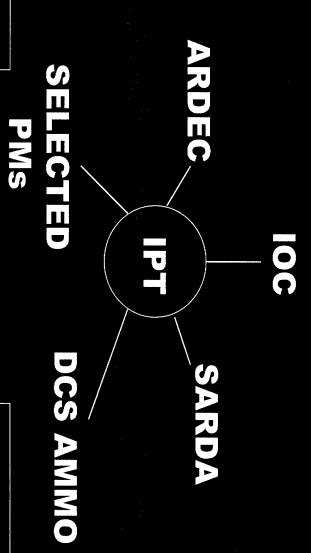
BUSINESS CASE I

Jean L. Ligeno
Industrial Operations
Command
DSN 793-6894

READY



TEAM COMPOSITION



Tom McWilliams
TACOM-ARDEC
Vice Chair

RELEVANT

READY

Jean Ligeno

IOC Chair

2 of 16

BUSINESS CASE IPT BACKGROUND

PNNL STUDY

Assess current munitions base

Ammunition Production Base is:

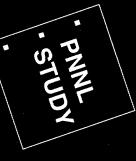
- Oversized

- Inflexible

- Inefficient

- Obsolete





BACKGROUND

(continued)

GEN Wilson e-mail GEN Reimer - 28 Jul 97

- Agree in Principle with Recommendations

Manage base through competition vs. workloading

Commercialize organic base

Smart acquisition practice - long term, consolidation, link peacetime/ replenishment

Consolidate munitions management

2 or 3 prototype plants

2 IPTs



FAMILY BUSINESS READY **AMMUNITION CASES APPROACH** 2 PRONG Integration Prototype Plants 5 of 16

AMMUNITION FAMIL BUSINESS CASES

Competition Multi-Year Replenishment Options Consolidated Buys MORTARS PM - LEAD IOC - Requirements Replenishmeni Component Integration Institutionalize Process ARTILLERY TANK/ MED CAL SMALL

MINES

READY

No Cookie Cutter Approach

6 of 16

PREJIMINARY REVIEW PROTOTYPE PLANTS

XMAT Active (HOLSTON)

Louisiana Inactive

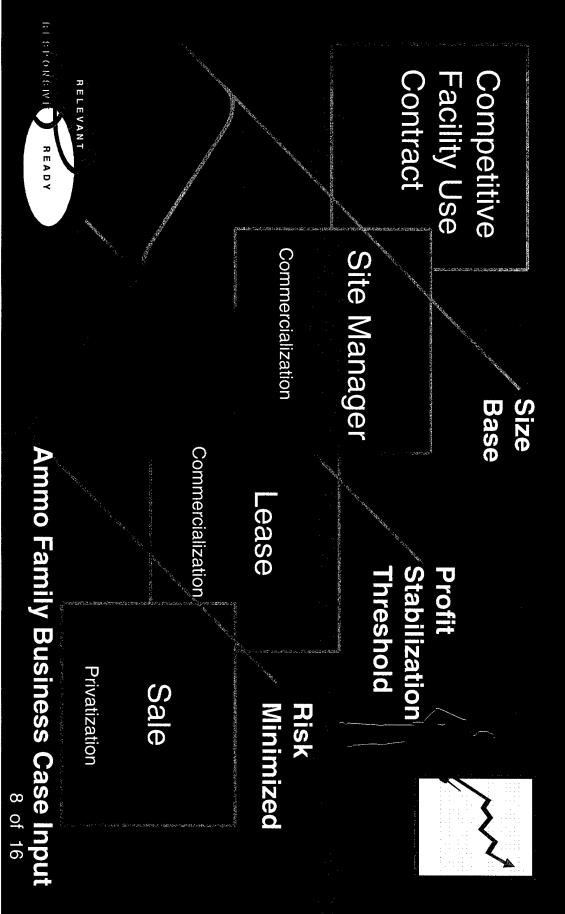
Scranton Inactive

On-going Actions

Reviewed Against Site Manager Attributes of the Study. XMAT met 14 out of 16 Attributes. Louisiana met 12 and Scranton 10.



MANAGER CONCEPT PHASED SINE



Actual Cases

FY 98/00 FY 98/99

FY 02/03

FY 03/05

Small Caliber Competition

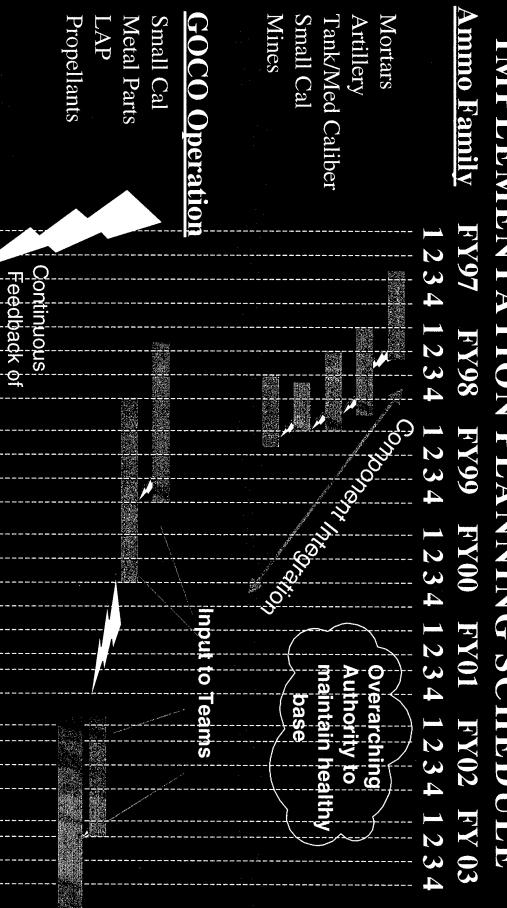
Metal Parts

Load, Assemble & Pack

Propellant



IMPLEMENTATION PLANNING SCHEDULE PRODUCTION BASE ASSESSMENT



READY

Strategy Adjustment

10 of 16

rather than direct workloading of plants. Manage the base through competitive acquisition

ACTION: Increase Competition

EXAMPLES: IOC Plan to be out of GOCO workloading **Ammunition Family Business Case** Tank Ammo Mortars **XMAT** by 2001



Longhorn

Commercialize the organic base: Make it work for us.

ACTION: Selected prototypes.

EXAMPLES: XMAT

Scranton Louisiana

Louisiana
Proposed schedule for GOCO
Competitions to size base.

Small Cal (LCAAP) Competition team established.

5-Excess Plants

Badger, Indiana, Kansas (partial), Sunflower, Volunteer 12 of 16



IIIBM 3

and replenishment requirements contractually. longer-term consolidated procurements - link peacetime Stabilize the market through smart acquisition practices -

ACTION: Started Ammunition Family Business Case Sub-IPTs

Implementing Acquisition Reform

Developed methodology to incorporate replenishment into Best Value competitive contracts

EXAMPLES: Procurement Consolidation - Most med cal 25/30mm

Tank Training Ammo M865/M831

Grenade Fuzes M213/M228

120mm Mortar

Multiple Year Procurements - (Rule rather than exception)

Med cal (5 yrs)

Tank Training FY 95-98/FY 99-03

M550 Fuze

Hand Grenade Fuzes M213/M228

120mm Mortar

13 of 16



SARDA 98-1 POLICY

- cycle acquisition process. Manage ammunition using DOD's life-
- Use acquisition reform initiatives to in the production base. stabilize the business environment and provide incentives for private investment



POLICY SARDA 98-1 (CONTINUED)

- replenishment contracts. Rely on the private sector to create and sustain ammunition production assets in response to production and
- operations safely. owned ammunition production assets to the private sector while preserving the ability to conduct explosives handling To the maximum extent feasible, transition government-



CONCLUSIONS

- Developed timeline for completion of Ammunition Family Business Cases and actual ammunition plant cases.
- 2. PNNL recommendations will work for some families of approach. ammunition and plants but cannot be a cookie cutter

034

- 3. Site Manager Concept needs to be a phased approach.
- 4. Army initiatives already underway match PNNL recommendations.
- 5. IPT will be dissolved and monitoring of the planned actions will be accomplished by DCS Ammo.



SOUTH TOUS AND A SOUTH TOUR SOUTH

MUNITIONS EXECUTIVE SUMMIT

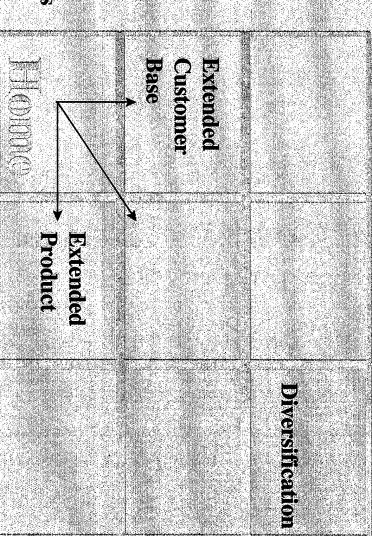
- 50 Years of base adjustments
- WWII
- Vietnam
- 1998 Talley Defense Systems
- Sermon

BUSINESS Specialin

New customers

Extended Customer Base

Existing Customers



Current

Improvements

New

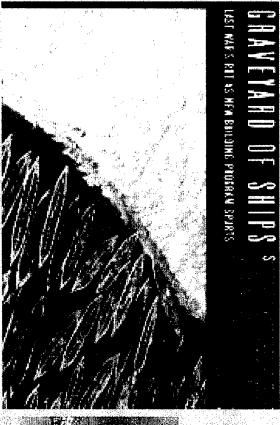
Product Technology

- Products: Hardware, Warranty, Service, Regulations, Product Liability Quality, Rate of Technological Change,
- People: Skills, Wages, Benefits, Education
- * Plant: Environmental, Location, Transportation
- Market: Competition, Brand Loyalty, Sales Methods, Credit policies, Buying Motivation

1910's Presidental Inage

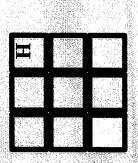








*Liberty ships *Escort carriers







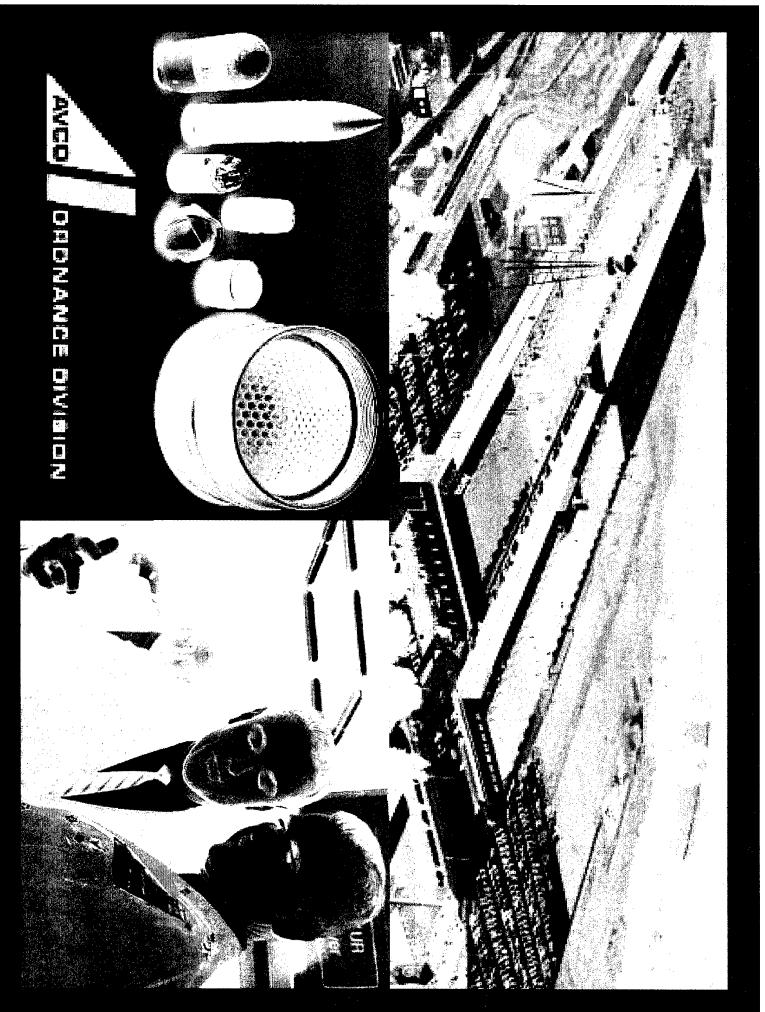
: "I knew it would be risky, but I never the automotive pond without even a ripple." expected my \$400 million to disappear into



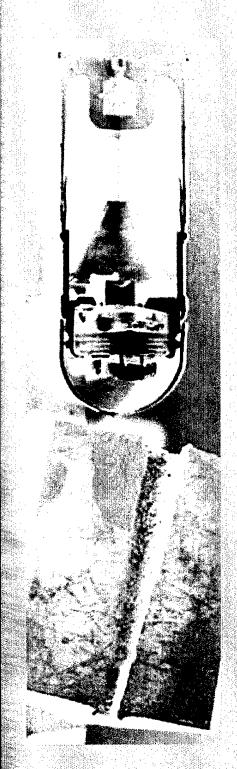


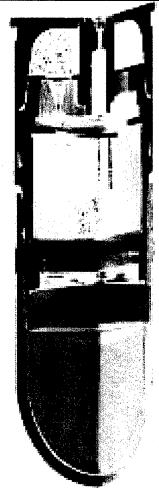
JC Higgins bikes never made Schwinn sweat!





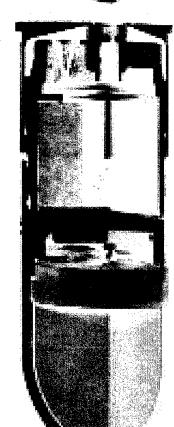
- Cost effective, "Cavitating" fragments
- ICM munitions
- 40mm DP ammo first used in Desert Storm
- M42/M77 grenade "Steel rain"











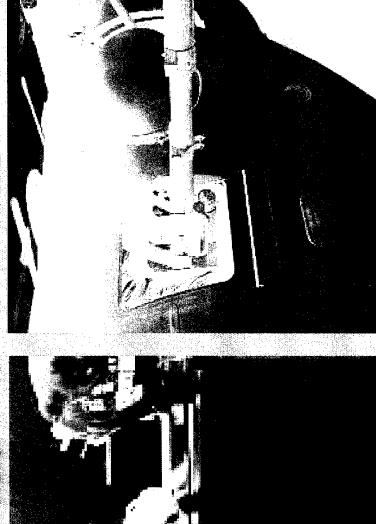


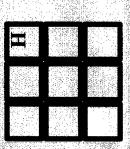
Behind wall effects

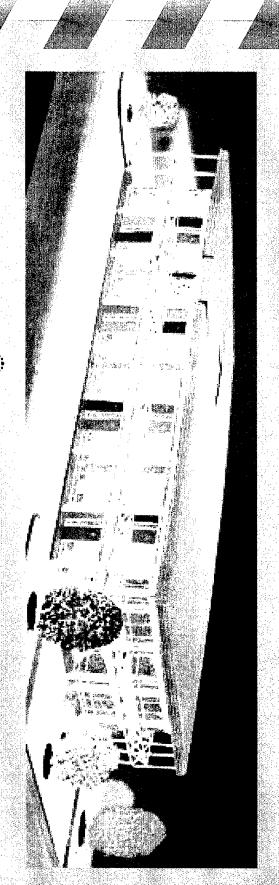
•Line of sight 40mn

- Dual Purpose
- Grenade insertion

Initial mounts of both 40mm Bofors and 105mm on USAF gunships



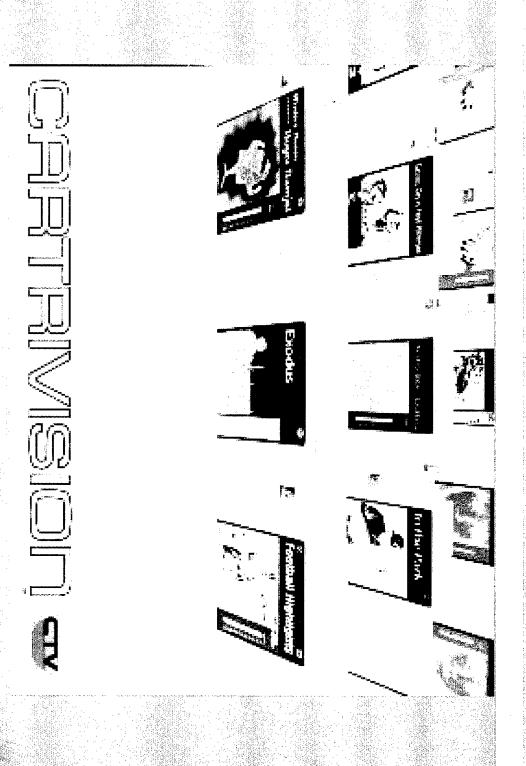




- Dedicated 25% of factory space
- Built four motels
- Hidden costs killed program

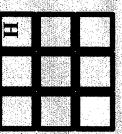
- Early TV maker Competition victim
- AVCO Embassy motion pictures stockpille
- Cartrivision Patent License
- Three head tape playback system
- 200,000 sq. ft. NASA level "Clean room"
- AVCO isolated from marketing & sales



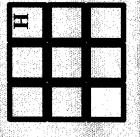








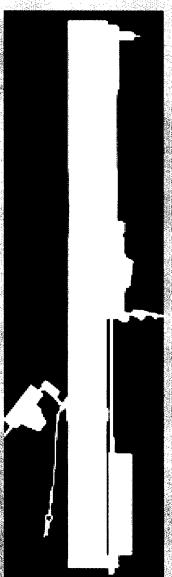




- 2800 units manufactured
- Sears Chicago first outlet Engineering changes (tape head problems)
- Sales training cancelled.
- Sold to consumers = 0
- Died in Fall 1972

- Shutdown announced January 1973
- Closed by Jan 1974
- \$\pi\$ 40mm rocket boosted, ICM self-destruct, other ordnance development stopped

- Source for M72 launchers
- Converted at end of Vietnam
- NI Thermador (Luxury kitchen appliances)
- Exhaust Systems
- Compactors
- Products eventually went to Mexico





- US Auto market penetration
- Erosion of US national hard goods base
- World market awakens (Mexico \$10/day), China, Eastern Europe, PACRIM



to enjoy

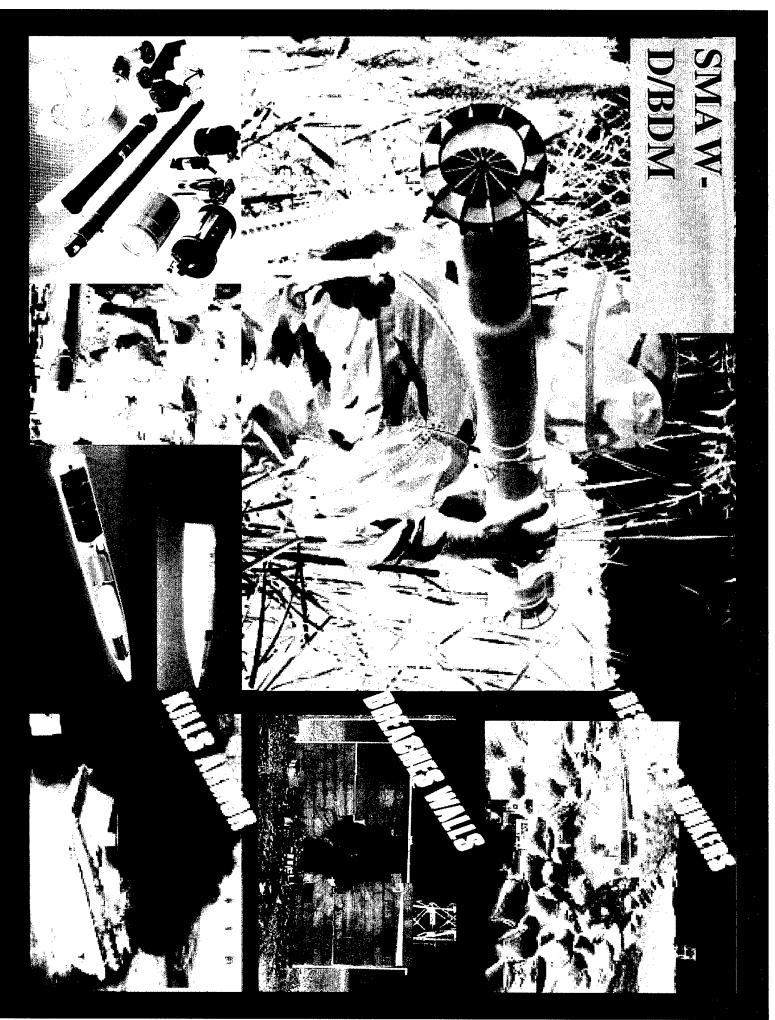
inhale

as better

LITTLE CIGARS

need not

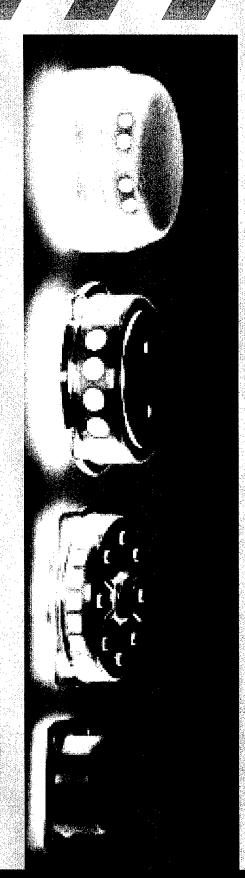
YOU





- Auto airbag pioneer (Late 1960's)
- Transferred airbag technology to defense products (munitions dispersion)
- Escape slide inflators
- Fire suppression

- Invented Azide propellants
- Talley Market Share 1989 100% Ford Driver driver; 80% GM driver; & 100% Honda
- 1989 Sale of airbag to TRW (\$ Hundreds of millions in sale & royalties)



Early 70s

Late 70s

Late 80s

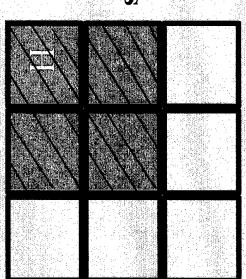
Present

- Talley develops non-azide inflator
- Smaller, simpler
- Less costly
- Tighter performance
- Re-entered maturing market
- Formed Delphi (GM) JV
- Achieved re-entry in four years



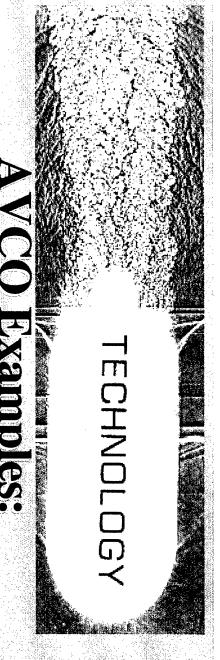
- Internal diversification
- Dual use propellant capability
- Technology development (Engineering, Propellant)
- Manufacturing advances
 Quality (CP2, ISO, QS)
- Marketing & sales

Markets



Success lies in extending...

Products



AVCO Examples:

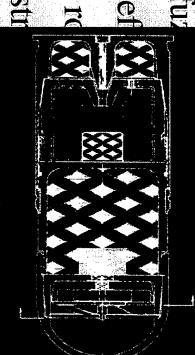
Rocket ammo technology - Grenade insertion

-Time to fire fur

-Behind target ef

-Dual Purpose re

-ICM self destr



- MPTR is no mystery
- 1. OPTEMPO deployments (OOTW-Close combat, & Artillery fan fire support
- 2. Missile defense
- 3. Terrorism
- 4. Longer term needs (Countering Peer battlefield adversaries)

- Situational awareness (SA) kills nothing
- SA supported by effective weapons and ammunition mean capable defense
- Balance among SA, Leap ahead & effective close combat and fire support fan lacking
- Too much leap ahead is unaffordable
- Close combat technology base unsupported

- There will be no defense without a balanced industrial base
- Technology moves forward, even if America ignores it
- DoD /Army have stake in the defense industry freefall

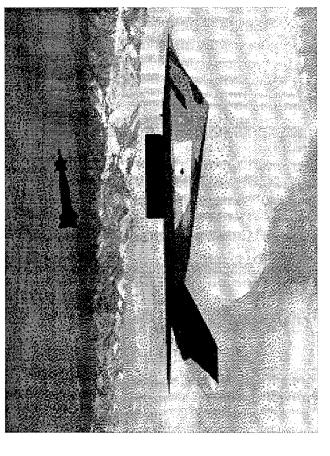


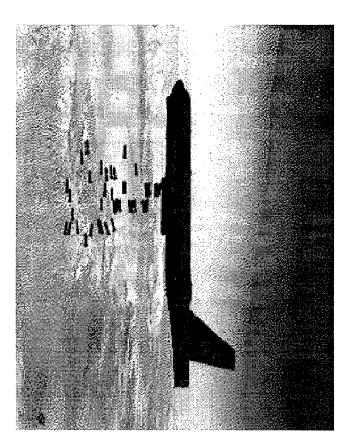


- Insufficient hard goods industrial base means insufficient combat power
- Restore spending balance (SA/Leap ahead & killing systems)
- Forge hard goods base preservation policy suddenly



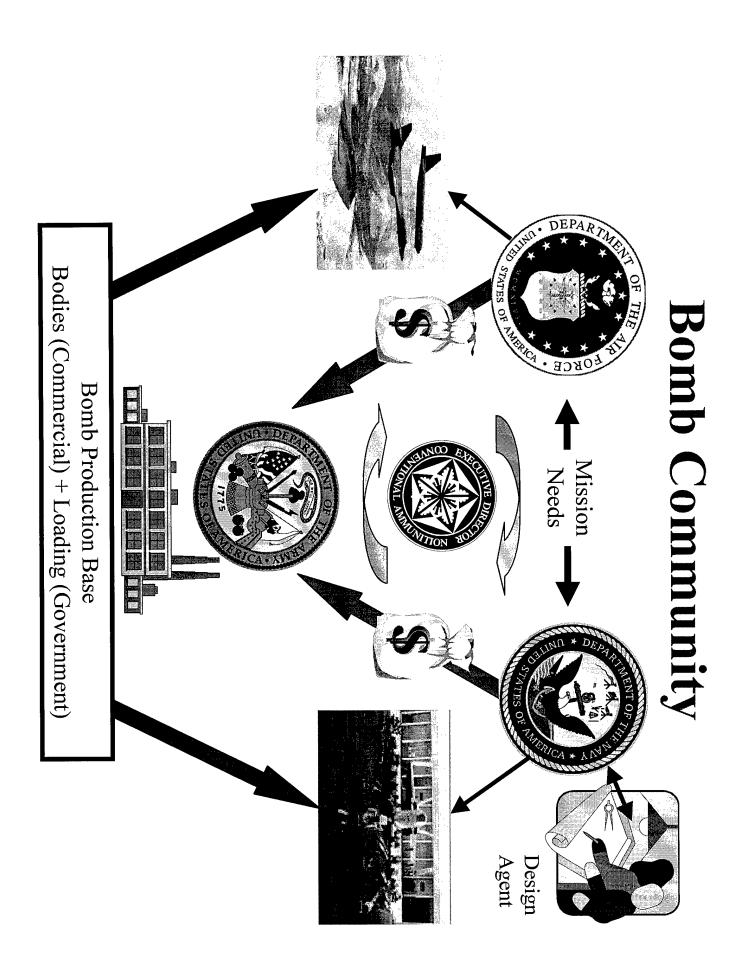
Col Paul Brandenburg, USAF Deputy Executive Director

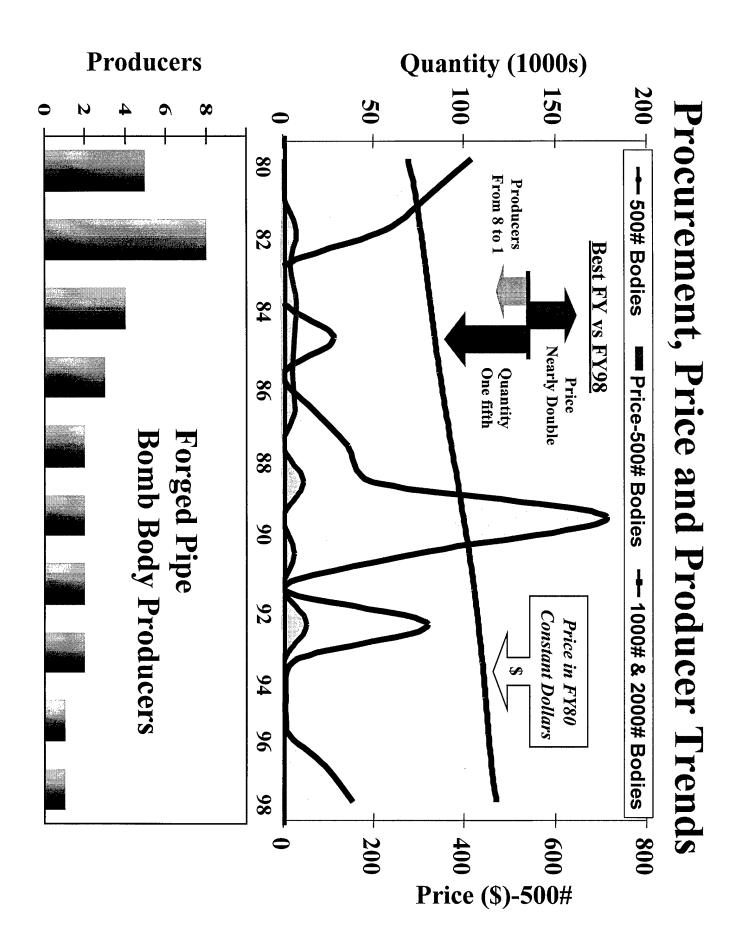




Introducing Cast Ductile Iron Bombs Toint Parsnactiv

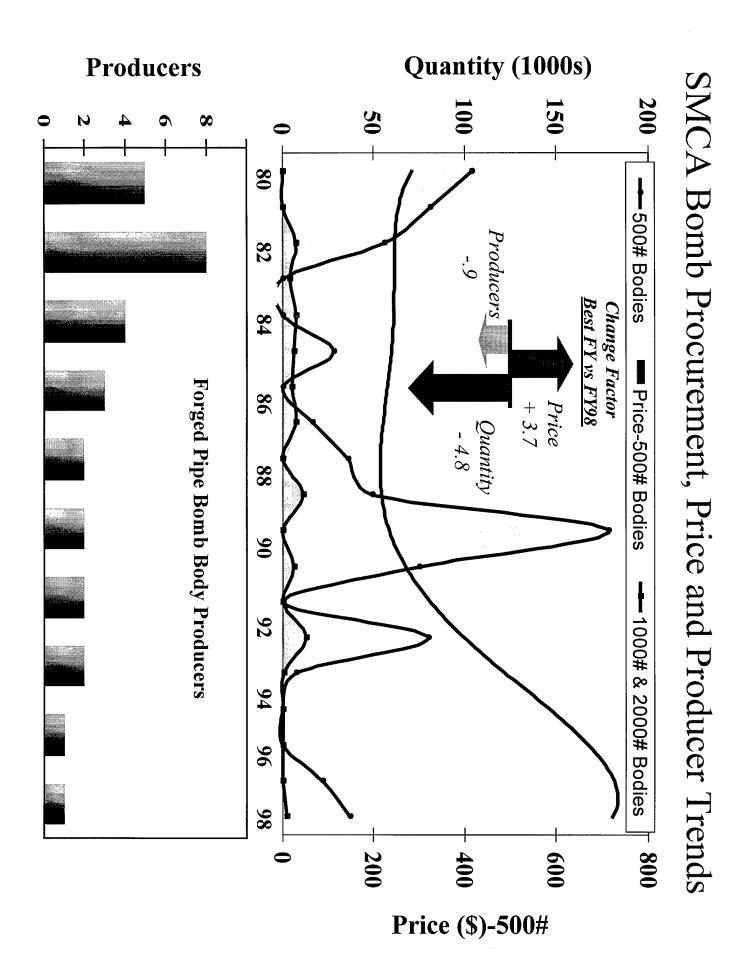
A Joint Perspective 15 September 1998

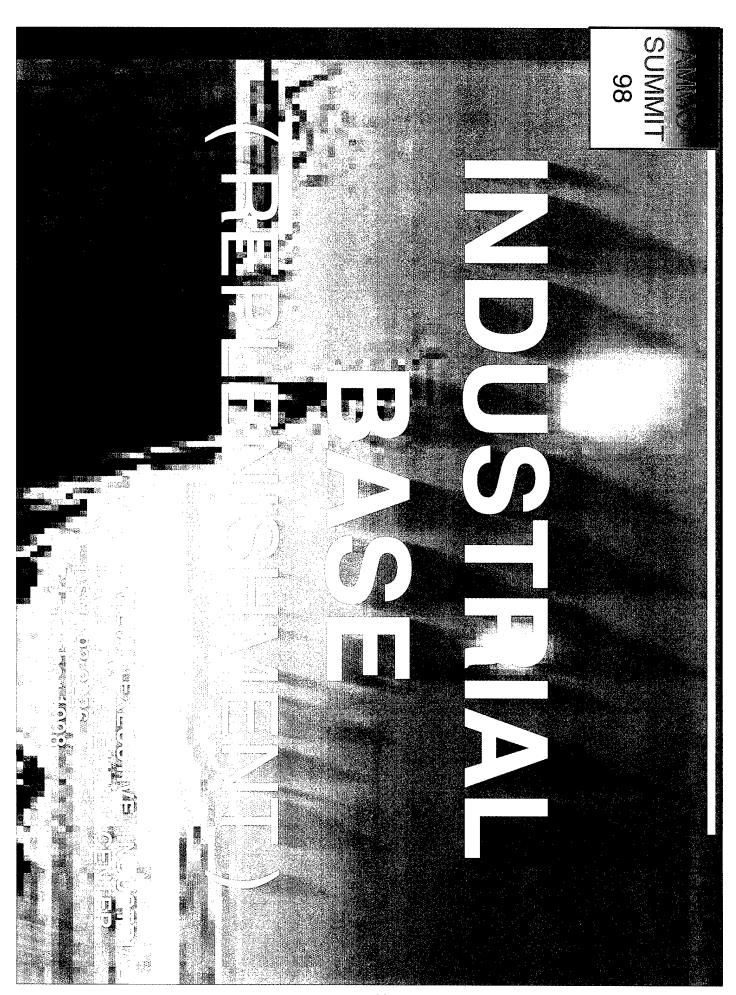








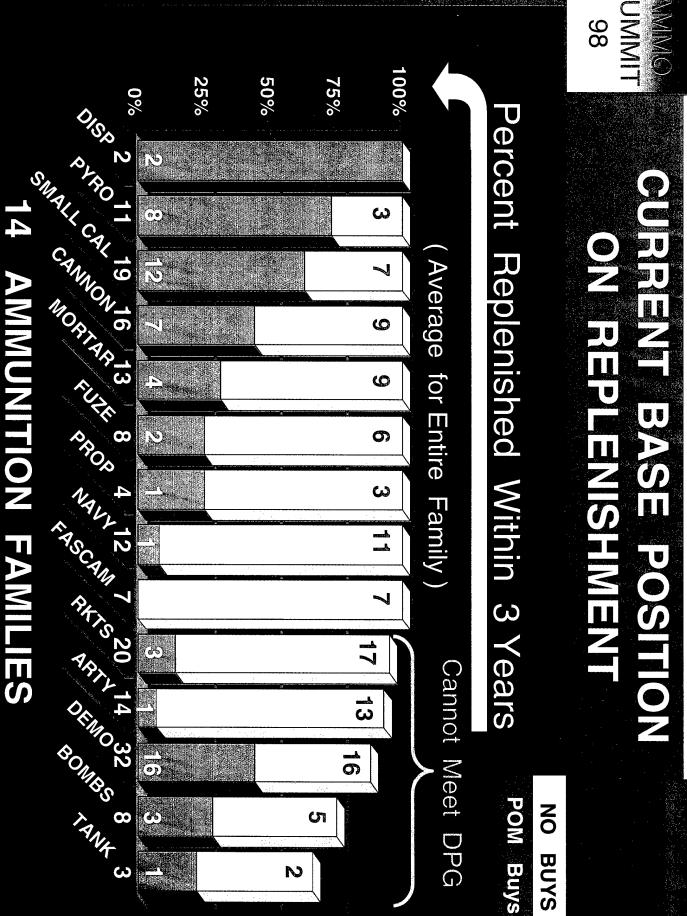




Over 3-Year Period Following Conflict

61	9		169	
_	_	130,000	ဒ	TANK
12		1,400,000,000	19	SMALL CAL
ယ	1	1,200,000		RKTS/WHD
8		10,700,000		PYRO
1		2,200,000		PROP CHG
_		200,000	12	NAVY GUN
4		1,700,000	13	MORTAR
2		3,200,000	8	FUZE
		600,000	7	FASCAM
2		5,500,000	2	DISP MUNITIONS
16	4	5,100,000	32	DEMO/MIINES/GREN
7		31,800,000	16	CANNON CAL
သ	2	300,000	8	BOMBS
_	1	2,400,000	14	ARTY
POM BUYS	CANNOT SATISFY	QTY REQD <u>IN 3 YRS</u>	NO. ITEMS PER FAMILY	

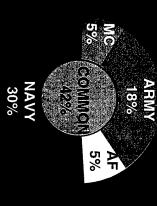
TIMMUS TIMMUS



SUMMIT

AMENION HEMS

SMCA Replenishment



169 ITEMS

ALL SMCA REPLENISHMENT PLANNED ITEMS

SHORTFAL 9 with a

ARMY ITEMS 94 ITEMS

30 Army Unique + 64 Common to other services

WAR RESERVE

(POM) **-**

6 with a

SHORTFALL

SHORTFALL 29 with a

OPLAN (Go to war today) SHORTFALL 46 with a

IMMUS **APPROX 68% CAPACITY REDUCTION 163 CONTRACTORS** 28 GOVERNMENT 36 WITH GOV'T INVESTMENT FY 1990 -SHUTDOWN NOMANI POST-BASE KOREA BASE 13 GOVERNMENT **72 CONTRACTORS** 16 WITH GOV'T INVESTMENT MAINTAINED KOREA **OTHERS** POST-FY 1998 EVOLUTION VETNAM VIETNAM COLD WAR 1500d To Be Disposed Disposed ਜ਼ਿੰਦੁਸ਼ BASELINE AUG 91 CAPACITY POST-31% INACTIVE

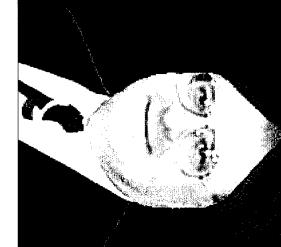
16 PEPs: Reduce thru Excess - to - Ownership

MSAAP: **Explore Relocating Grenade Line**

SCAAP: Pursue Excess - to - Ownership

RBAAP: Pursue Competitive Excess - to - Ownership

Pursue Reducing



ENDS ANEXD TO ... 2 of 12

ORGANIC PRODUCTION BASE

POTKE

LAP

> IOWA, MILAN & LONE STAR

PROPELLANT > RADFORD

EXPLOSIVE > HOLSTON

V PINE BLUFF

SMOKE

SMALL ARMS > LAKE CITY

BOMB McALESTER

NAVY GUN & PYRO CRANE

ARTILLERY > LOUISIANA
SHELL

CTG CASES GRENADES

GRENADES

> MISSISSIPPI

> RIVERBANK

ARTILLERY SHELL

SCRANTON

1 of 12

ACHONS

XMAT approach for Holston AAP

Disposal contract for Longhorn AAP

Test with COE:

Cornhusker AAP

Teaming with GSA, COE, AMC, DA: Indiana AAP

Combining / grouping items Linking replenishment and peacetime in acquisition

Multiple-year contracts

Facility contracting

Delta contracting

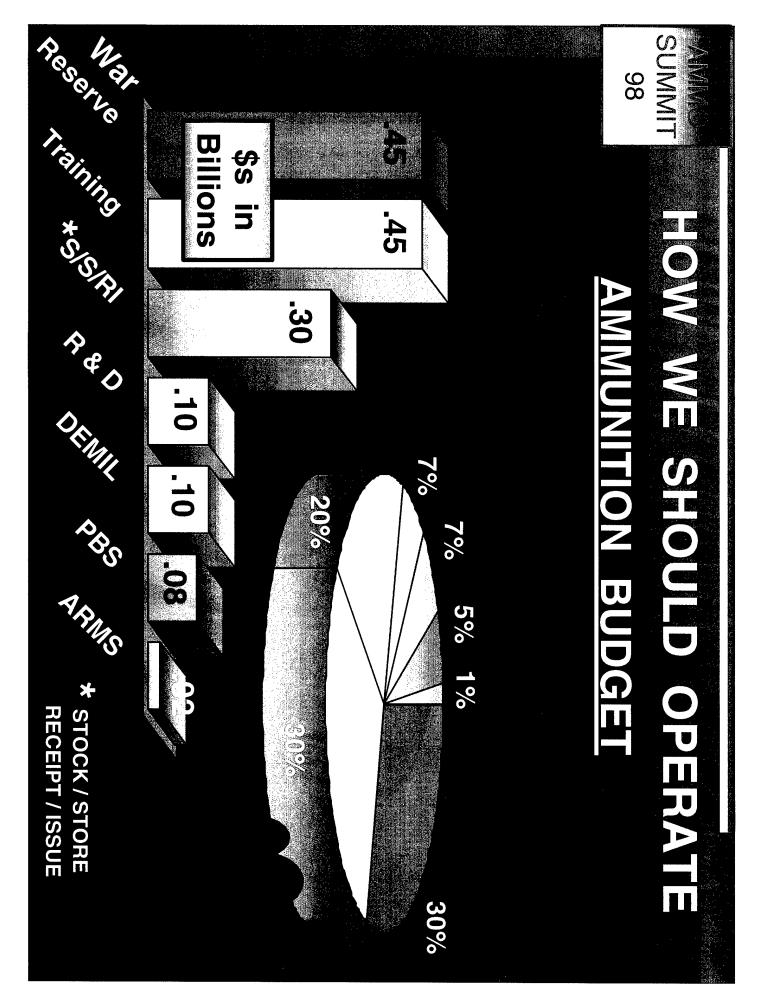
Excess to ownership

Sub Optimization of Existing Base

Base Sized for Only Peacetime

Site Manager - No Production Skills

Repetitive Investment Costs & Learning Curve



SUMMIT 98

VOST LIKELY SCENARIO

"It's tough to make predictions, especially about the future."

Questioned to death. Less money for base with increasing F&O competition.

More studies.

Bill payer material.

Companies hanging on until all profit is gone.

Encourage private / contractor investment...

...saves 20% so we can compete.

More mergers.

International buys.

"It's deja vu all over again!"

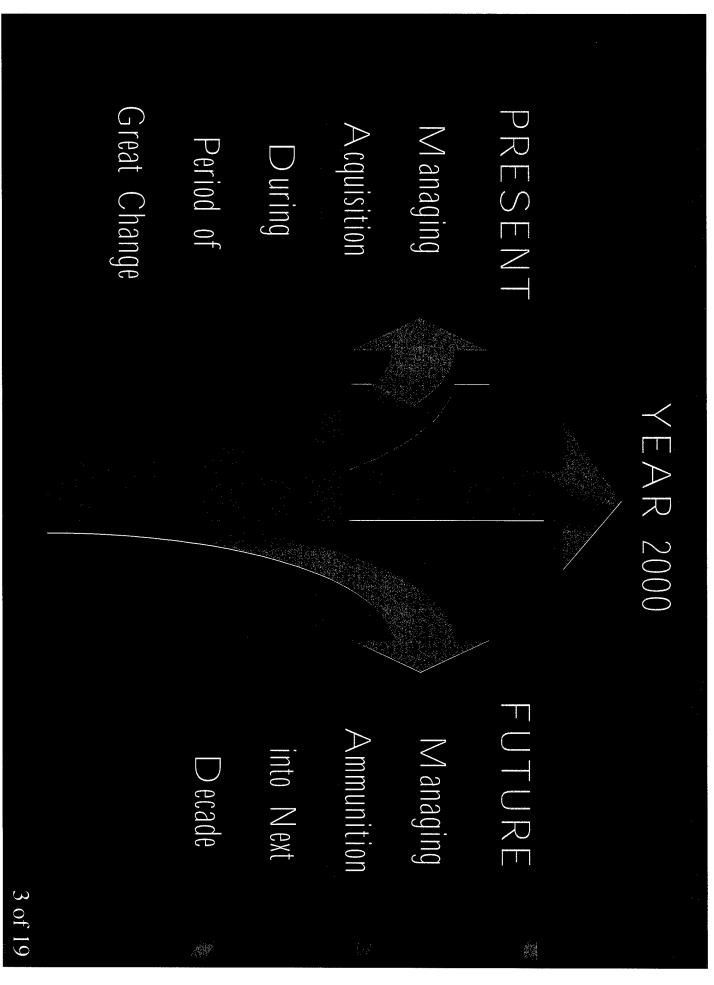


Acquisition Strategies



Milton I. McKinney HQ, IOC 15 September 1998

Industry asked for And another thing -- I want - Sharing the good & bad - Flexible requirements - Combined products - Long term commitments - Partnership - Fair play Input to solving problem Yes dear Acquisition Household In the past Government listened, but did nothing



Acquisition Strategies

- Tank Ammunition
- Explosives
- Small Caliber Ammunition
- Medium Caliber

Load, Assembly, Pack

- 20mm
- 40mm
- Demil
- GOCO

4 of 19

Multi-year I Program Structure 120mm Tank Ammunition

- Program management (Training Rounds)
- IOC cross functional co-located team
- Contract structures
- 4 year multi-year with restricted sources
- System Contractors: PRiMEX Technologies and Alliant Techsystems
- Sub-tier Production Base: IAAAP (Mason & Hanger), RAAAP (Alliant Techsystems), Armtec Defense Products
- Results
- 21% savings (\$136 million)

120mm Tank Ammunition MYII Acquisition Strategy

- Best value source selection criteria
- Key factor → risk mitigation
- Source selection objectives

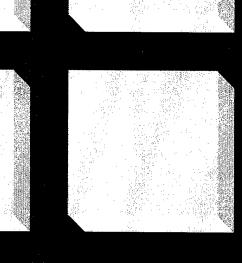
 Timely delivery
- Quality product
- Affordable price
- Partnering mindset

6 of 19

MYII Acquisition Strategy (Cont'd) 120mm Tank Ammunition

- 5 year multi-year restricted competition
- Incumbent system contractors
- No sub-tier restrictions
- J&A approved under "Exception 1" on 19 Feb 98

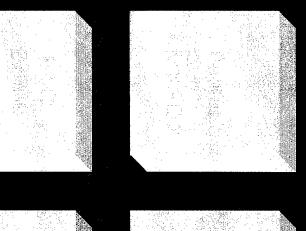
Explosives Compete the Problem

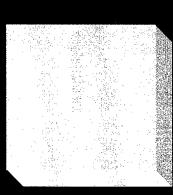


- HMX/RDX at the best cost and quality and on time
- Provide R&D for products of the 20th and 21st century
- Have replenishment capacity
- Develop/execute a future strategy for the Holston facility

Involve industry in developing the solution

The Solution Explosives











- R&D = pilot throughThiokol) production (ARDEC, Indianhead, DERA, and
- Use Holston with efficiencies for replenishment
- Facility use, to be marketed

Royal Ordnance of North

America is the successful

offeror

Savings - \$184 million

Small Caliber Ammunition Acquisition Strategy

- Presolicitation Conference 9 Jul 98
- Industry to provide solutions
- Manufacturer small caliber ammunition at the best cost and quality, on time including NATO approved U.S. design
- Provide for R&D
- Capacity for replenishment
- Facility use at Lake City AAP and NATO Test Facility that makes sense

Small Caliber Ammunition Acquisition Strategy

- Full and Open competition
- technical Best value (price, past performance, and
- Long term
- Firm fixed price
- Range prices
- Two separate contracts: Ammunition items and facility use

Load, Assemble, & Pack Ammunition "Best Value"

Army Commits

- Indemnification
- 5 yr facilities-use contract (same as Iowa AAP)
- Maintain or compete workloaded items. Intend to workload for at least 2 years
- Follow through on planned investments
- Total customer partnering

Savings 25.5% (\$153 million)

American Ordnance Commits

- reduction on IOC projected workloaded items; reduction % ramps up from 1999, 2000, & 2001 to 20% by 2002 & in 2003
- Fixed viability
- Sensible investment (up to \$10M)
- Radical & continuous improvement
- Facilities use management
- Total customer partnering

25mm-30mm Ammo Acquisition Strategy FY 99-03

- Restrict to the United States and Canada
- Retain two sources via split awards
- Consolidate 25mm/30mm Cartridges when prudent
- Award multi or multiple year contract(s) in FY 99 for FY 99 - FY 03
- Exclude M919 25mm APFSDS-T Cartridge due to non-transition

20mm Ammo Acquisition Strategy FY 99-03

- Restrict to the United States and Canada
- Compete annually
- annually Award single "winner take all" contract
- requirements increase in later years Reexamine strategy if 20mm ammo

40mm Acquisition Strategy M918 Projectile Assembly

- Competitive 8(a) procurement
- Largest 8(a) concern set-aside in IOC
- Firm fixed price contract
- 100% unevaluated option
- LAP at American Ordnance

Potential future multi-year systems buy

Ammo Demil Acquisition

- Enhanced small business participation
- 5 year ID/IQ long term contract
- Munitions greater diversity
- Two awards to maintain out year competition
- Government/industry shared risk
- Less reliance on firm fixed price contracts Contractors will have on-line access to TDPs
- Teaming with organic operators

Proposed Active GOCO Strategies

Holston

Lake City

Awarded

priced 1 yr. options Award 2000 -5 yr. award +5

Hawthorne

priced 1 yr. options Award 2000 -1 yr. award +6

Lone Star

Compete within 5 yrs.

Milan & Iowa

Non compete award thru 2003

Radford

Compete 2003

Household

Finished projects - IPT

- Partnering
- Army Credit Card Program
- Restructuring Organizations
- & Processes
- Electronic Commerce Information Technology and

Use Common Processes

- Performance Based
- Contracts
- Removing Barriers to Business Judgment
- Market Research
- Innovative Contracting
- System Contracting



18 of 19

IOC APB

2 - 3 March 1999

Holiday Inn, Moline, IL

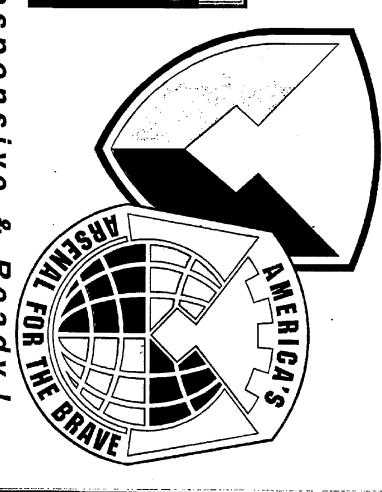
19 of 19

Presented by:

Brigadier General John Deyermond

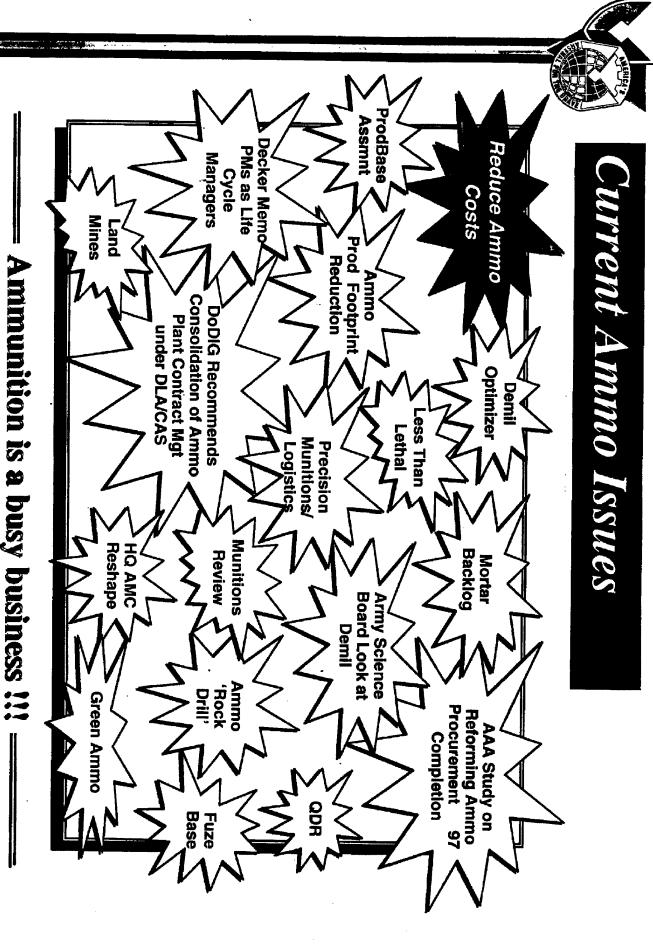
DCS Ammunition

Materiel Command



Ammunition Update to
MUNITIONS SUMMIT
15 September 1998

AMC – Relevant, Responsive & Ready!

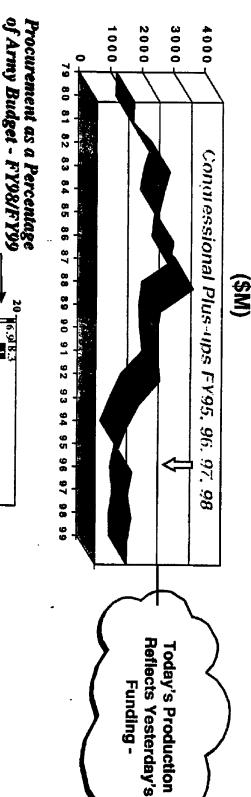


Fiscal Years



AA - Funding Profile

PAA Historical Trend



•		91
2		91 92 93
t		93
2		94
	F	94 95
•	13.9	96
	13.	97
:		96 97 98 99
:		99
1		

BRAC

TOTAL.

*Totals may not add the to roughly a

60,442

62,512

EHA

6,752 377 400

20,468 8,373 386 524

PROCUREMENT

MCA OMA

20,656

4,511 597

4,487

ROTE X

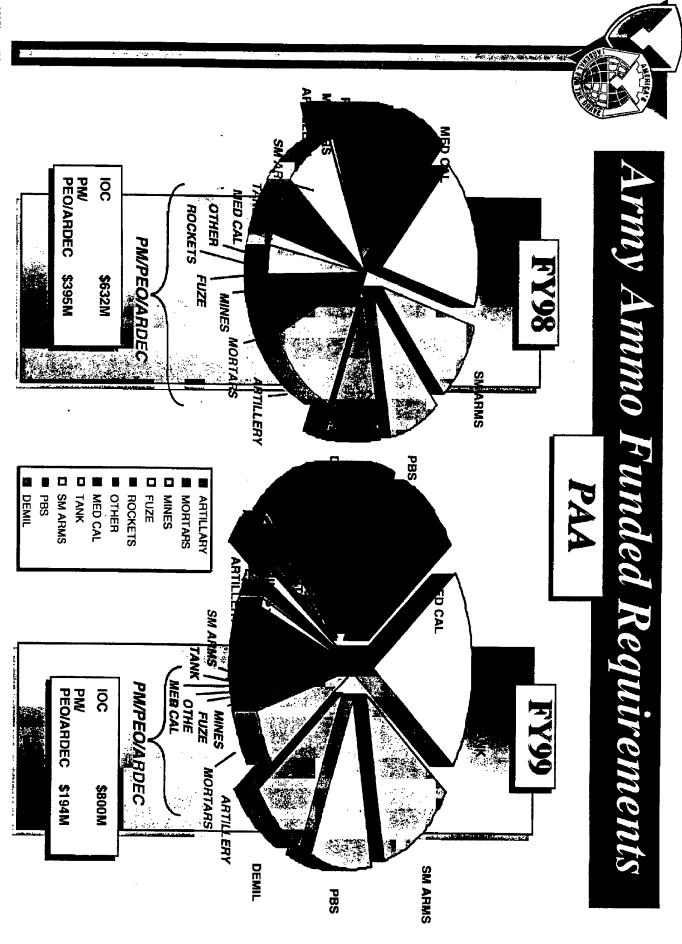
APPRIOPRIATION FY98
FAMILY HOUSING 1,292
MIL PERSONNEL 25,754

EY99 1,256 26,211 Army Budget (\$ in Millions)

TOTAL	OTHER PROCUREMENT	AMMUNITION	WICV	MISSICES	AIRCRAET	APPROPRIATION	(\$ in Millions)	Grocurement Appropriation
6940	2563	1020	1291	744	1323	FY98		ation
8	31	1009	1434	1206	1326	FY99		

Ammunition as a Percentage of The Procurement Budget - FY98/FY99

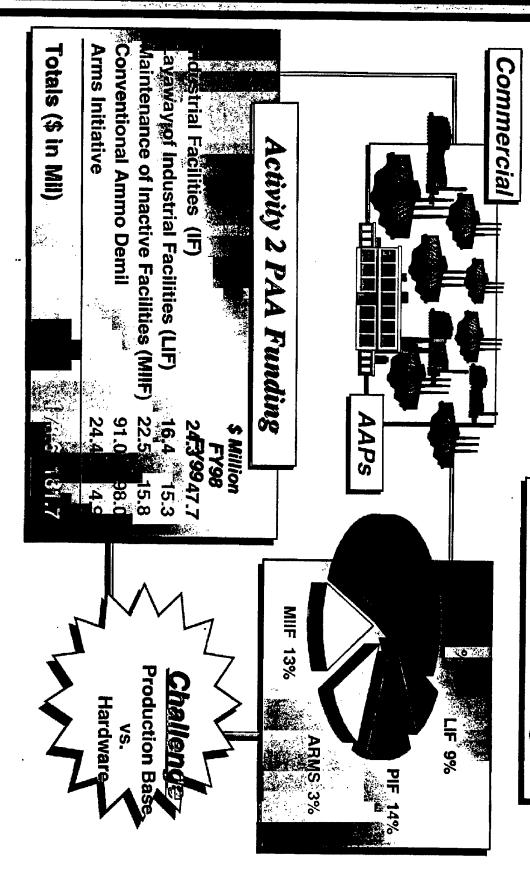
U 108





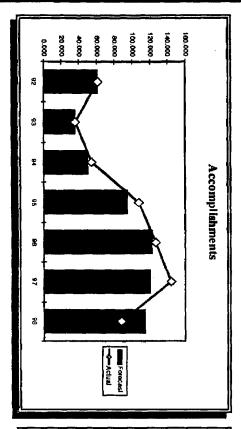
amunition Production Base

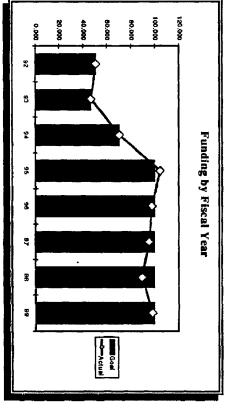
FY98-99 Budget

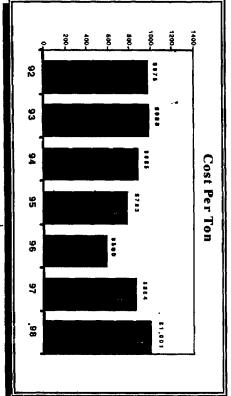




unition Demilitarization Accomplished/Forecast







Note 1: Cost spike during FY97 was due to greater than normal use of incineration @ approximately \$2,000 per ton. Note 2: Includes reimbursable projects.

Goals-

- Continue to avoid demilitarization through services and use in training whenever possible direct sales, FMS, cross-leveling between
- Execute a balanced program between destructive and non-destructive technologies
- Maintain a balance between government capability installations and the growing private industry
- Continue with our successes

M:\Sharon\Munsum98 *

(data as of 8/17/98)



CA WCF Closure

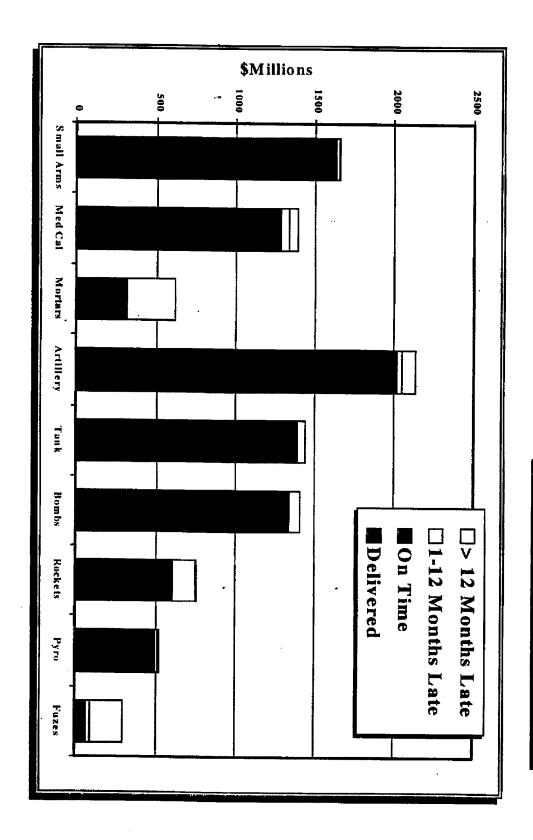
Direction/Plan

- * DOD Comptroller Directs CAWCF Close-out Beginning FY 99 [PBD 432, Nov 1996]
- Separate Financial System for Ammunition Considered an Unnecessary Expense
- Directed APIT Be Formed by OSD(A&T) To Determine Follow-on Procedures and Oversee CAWCF Closure
- * Army Develops Closure Plan
- All Orders Delivered and Fund Closed by FY05
- **Army Audit Agency to Validate Closure Cost**
- Plan Approved by All Services & OSD in May 97
- ✓ Fund Obligation Closely Scrutinized
- Accurate Pricing
- ✓ Reduce Lead Times
- ✓ Fixed Price Contracts with Options
- ✔ Increased Systems/Bundle Buys



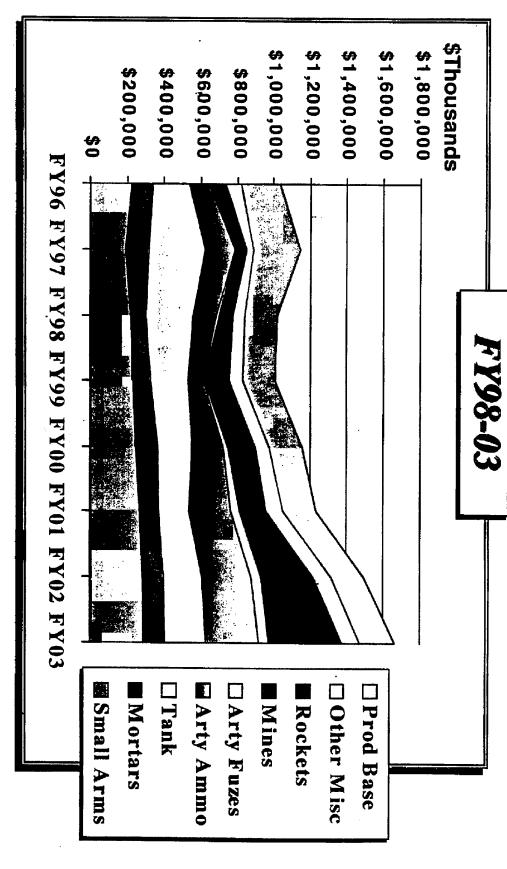
Work in Progress FY90-97 CAWCF Orders







Ammunition Procurement Projection by Categories



+

¥R

FY95

FY00

FY05

FY10

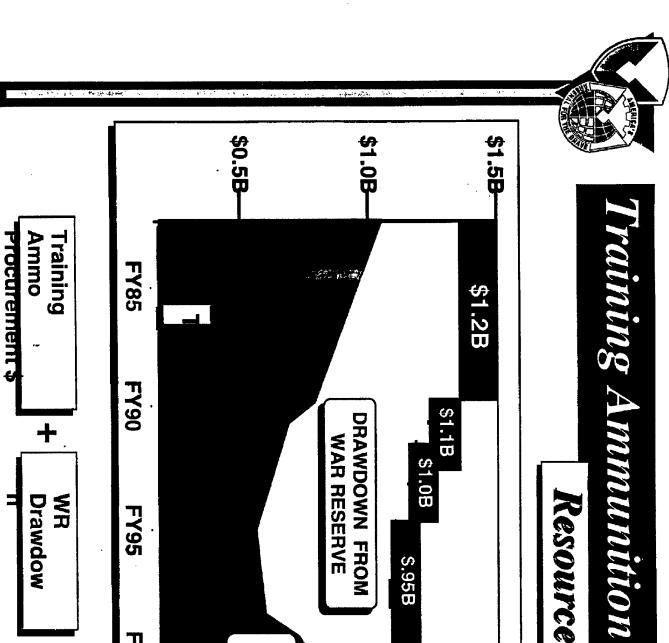
 Increased costs Modernization WR Drawdown Ending

Drawdow

H

Resourcing

Training





Precision Musitions/Logistics Study Broad Study Questions

- Given the warfighting strategies of Force XXI and Army non-precision munitions [only]? use of precision munitions [heavy mix] versus the use of After Next, what are all logistics impacts that result in the
- strategy and Army force composition? What are those Given these logistics impacts, what are the resulting costs? possible implications on Army force modernization
- and O&S? What are those costs? across all combat, combat support, CSS force structure, What are the true burdens (deltas in logistics) of precision munitions versus non-precision munitions
- For the decided upon scenario, time frame, and weapon precision munitions and non-precision munitions? comparisons to acquire and sustain a realistic a mix of mixes, determine the level of investment and cost

CGs AMC & TRADOC, Study Sponsors DA DCSLOG

Study Advisory Group Co-chairs

AMC DCS AMMO

Study Agency/AMC-SWMO Sp. Sal Study Group HQ TRADOC ADCSCD

Study Director/PM & Tech Dir.

"Integrating IPT"

Engineering and 184th IMA Det. (Acq & Log) (USAR)

Support Services Contract Supports Technical

Logistics Analysis "Working IPT" CASCOM IPT Lea

M:\Sharon\Munsum98 *

IPT Lead / USAFAS "Working IPT"

IPT Lead / AMSAA "Working IPT"

Analysis

Reference Terms of

Munitions/Mission

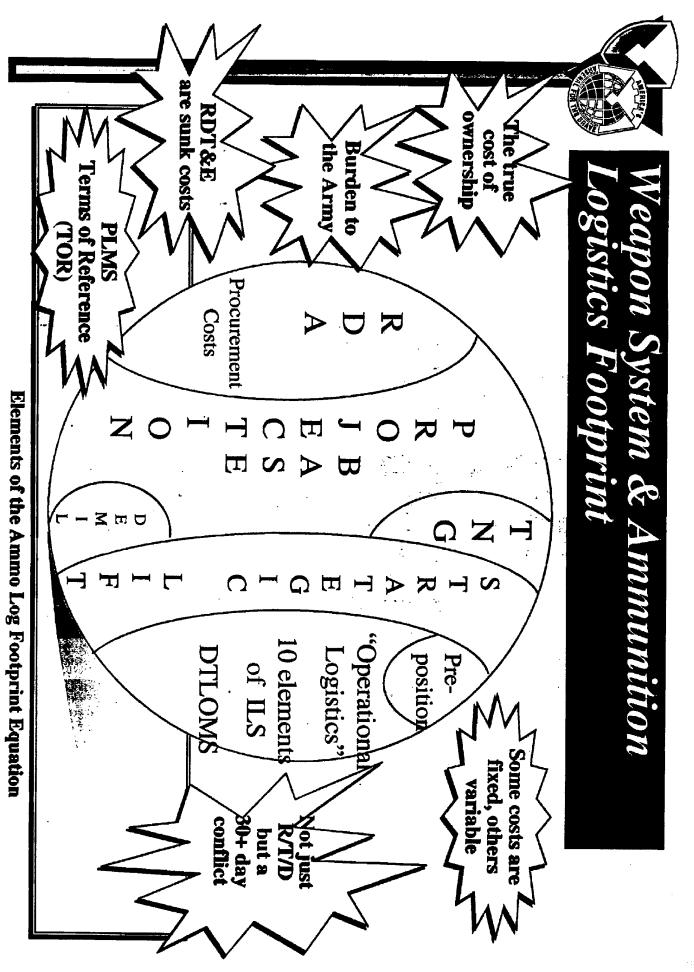
OPT Lead / AMSAA "cost of ownership" **Decision Costs** "Working IPT"

Program" FY99 *Army Studies Rand Arroyo **FFRDC**



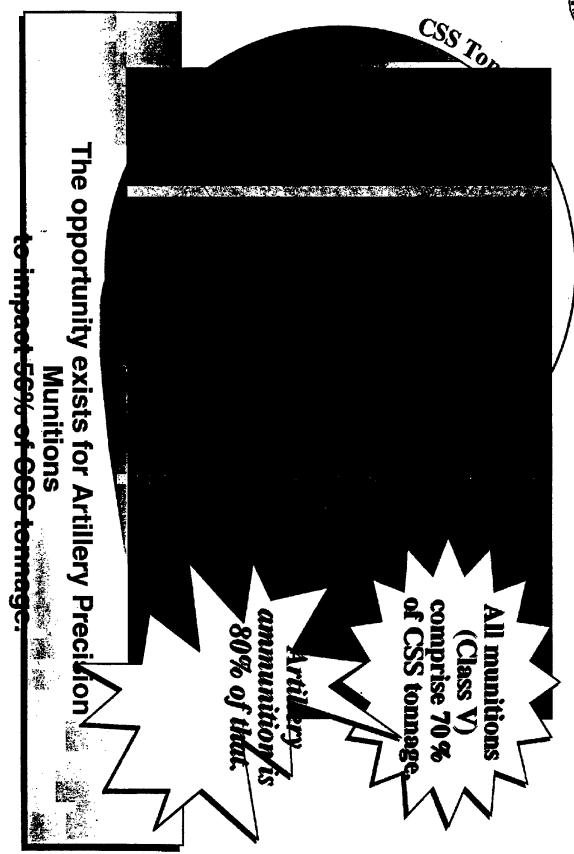
PMLS Conventional and Precision Munition Candidates (12)

Target Description	Current / Conventional Munition	Next Generation Precision Munition	PMLS Comments/Benefits
Bunkers, soft targets	Bunker Defeat Munition	PGMM	1200
Anti-armor	Family of 120mm tank main gun ammo	Tank extendec TF	Tank extended ran ige marcid e ntrivability by engaging THRM targets in defilade
All targets	155mm, DPICM base bleed, M864	ER XM982 DI	9
Bunkers	155mm, HE w/deluy fuze	ER XM983 H	ER XM983 HE delayed flaunker engagement
Counter Battery	155mm, DPICM	XM898 P	XM898 PISANALEM Ticient counter battery killer
All targets	155mm, DPICM	ISSmm. Low Munition (LC on M86	155mm. Low Cost Compained accurate registration Munition (LCCM) Fultapperes target engagement on M854/MARBuces munition requirements
All targets but heavy armor	MLRS DPICM, XM85	MLRS DPICM with GP.	MLRS DPICM Exterbret nds gange and significantly with GPS guidance Improves accuracy
Anti-armor	No current in-direct rocket launched capahility	MLRS	MLRS MSTMBTAR kills ACV targets deeper Diminishes intensity of close fight Improves force survivability
All targets but heavy armor	ATACMS APAM	ATACM	ATACMS IA ORGuracy independent of range
Anti-armor and High Value targets	No current in-direct missile launched deep capability	ATACMS II / B	ATACMS II / BAKMS/High Value targets deep, improves force survivability
Soft point targets and bunkers	Hydra 70, and sometimes Hellfire II (LSA)		Advanced Precision Killetheapsmocket requirements System (AHKWS) (B864)ces collateral damage
Heavy armor targets and	Hellfire II (LSA)	Apache Lon	Apache Longbow Extra by platform survivability Provides all weather capability





Most Likely Area of Impact





Precision Munitions and Logistics Study (PMLS) Synopsis

- total logistics footprint and in battlefield performance munitions and future precision munitions, across the Quantify deltas in cost of ownership**/burden to the Army** between current conventional non-precision
- warfighting, and logistic analyses (WARREQ, IOC Draw from previous and ongoing effectiveness, Rock Drills, Crusader Ammunition Supply Study, etc.)
- Identify and quantify value of Revolution in Military Logistics (RML) between conventional and precision munitions
- 07 process in FY 99 recommendations for decision makers for the POM 02-Develop data, findings, conclusions, and



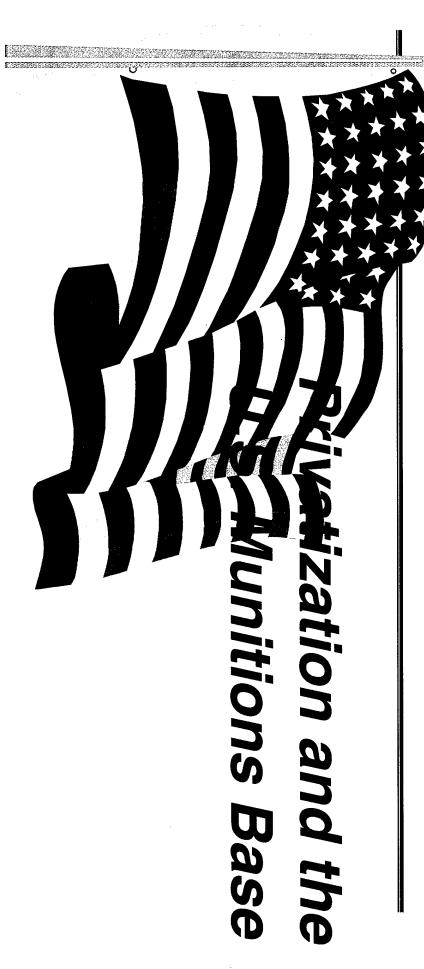
Summar

Imperatives:

- Reduce Cost of Ammunition
- Production
- Storage / Maintenance
- Demilitarization

* Maintain Readiness

- Replenishment Capacity
- **Ability to Produce Future Requirements**

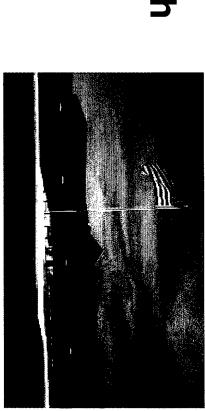


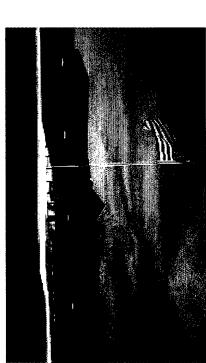
General Dynamics Ordnance Systems Ken Morgan **President**

16 September 1998

- **Definitions**
- Differing Views of Privatization
- **Comments on Study Recommendations**
- An Alternate Approach

Depot Privatization





PRIVATIZATION

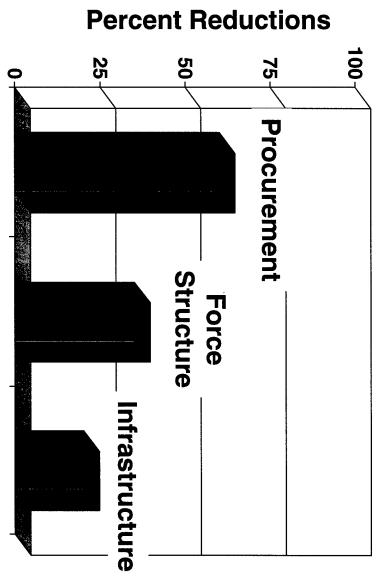
 The transfer of assets from government ownership to private ownership

OUTSOURCING

Contracting out for services and support formerly accomplished with internal government resources

Terms Often Used Interchangeably

- FY97 01 DoD Infrastructure Costs: \$740 Billion
- **Budget Reductions since 1989:**



Infrastructure Not in Sync with Today's Realities

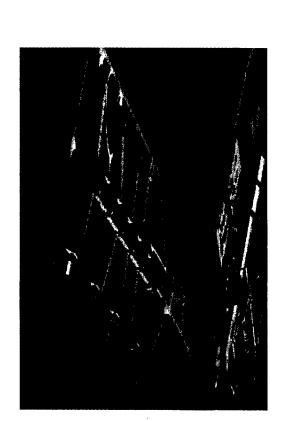
- "Field Of Dreams" Theory:
- If you build it, they will come
- **Government Privatization Corollaries:**
- If we offer it, they will come

If we own it, it must have commercial value

- Industry Executive Reverse Corollary: If you don't want it, neither should we

Much talk about business-case analysis, but little real appreciation of market forces

- industrial parks -- "magnets" for ammo producers Government owns selected real estate as ammo
- Operated by private site manager
- » Invests to attract tenants
- » Uses site assets to generate revenue



assets; invests to modernize Industry finances, owns, & operates production

- Must provide increasing shareholder value
- Driven by Return on Investment (NPV/IRR)
- Key factors:
- Stability/predictability
- Ability to control variables
- Ability to leverage assets for maximum return
- Ability to be lean and agile
- Ability to create and sustain a competitive advantage
- Think: strategic, integrated, expandable
- Not: limited-use, single program, disassociated

- Full-service Commercialization at lowa & Milan AAPs
- Government retains ownership
- **American Ordnance:**
- Operates both plants under FUC
- Has flexibility to consolidate/transfer operations and integrate systems



- Maximizes use of Best Commercial Practices
- Commits to 5-year fixed catalog pricing
- Commits to invest
- Enhances competitiveness for international/ third-party sales
- Preserves key production base resources

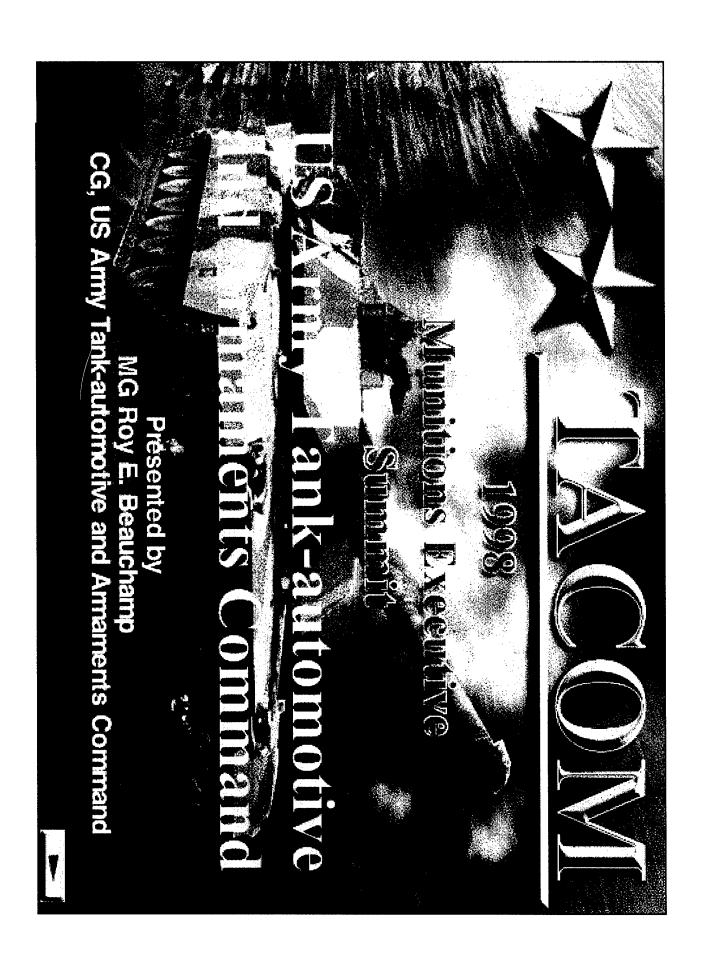
- Complicated by numerous laws & regulations
- Typical scenario: BRAC, Outsourcing, Real **Estate Transfer**
- NAWC Examples of Privatization In Place -- NOSL &
- Pass-through leases + work contracts
- "Hot Turnovers"
- NAWC seen as most successful
- » Viewed differently by contractor
- Alternative: Public/Private Partnering

- of more government functions and assets High infrastructure costs mandate spin-off
- Privatization comes in many forms

Market factors not often understood

- Not a panacea
- alternatives Commercialization and Partnering offer Achieve most objectives of
- privatization
- Faster, Cheaper, Better a win-win framework





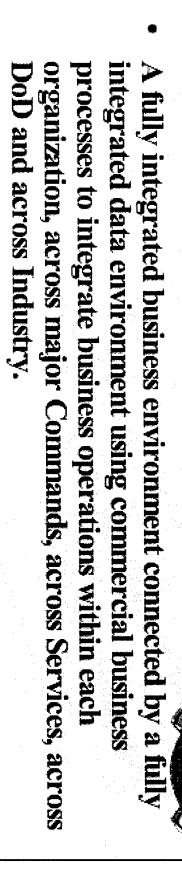


Corporate Vision

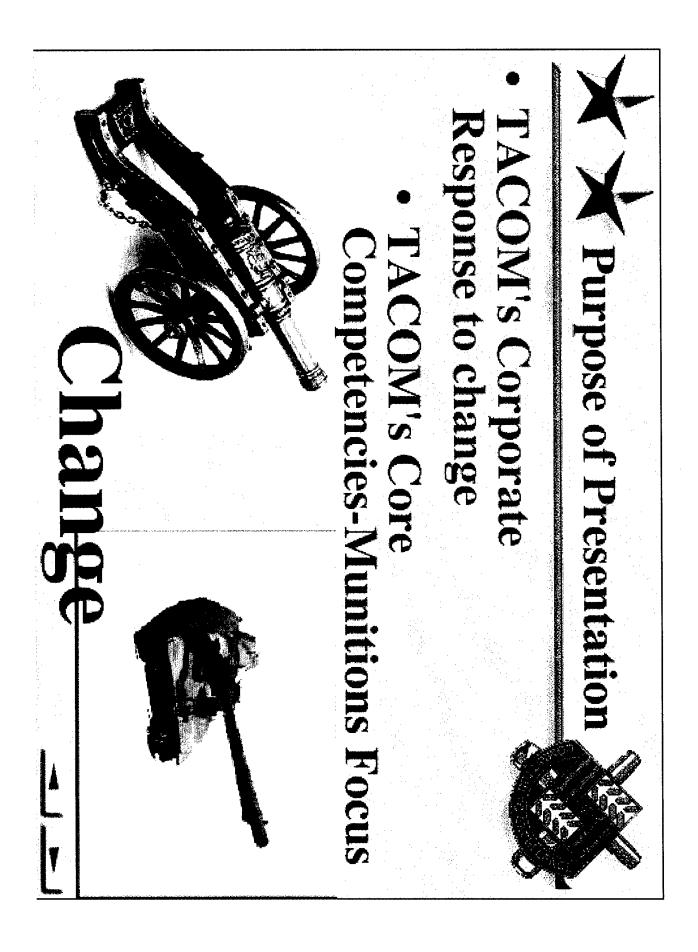
- Sustainment and Soldier Readiness. systems work for soldiers through the seamless To make the technology and sustainment integration of S&T, R&D, Acquisition, Log
- their inherent responsibility to do so. where every associate understands the To create a business environment at TACOM the customer perspective and understands requirement to control costs and manage from



BUSINESS VISION



A corporate management structure for which the organizing business operations at reduced cost. actionable information to enable more efficient, fully integrated desk top "servers" to facilitate the transformation of data into structure which uses the integrated data environment to link concept of integrated process teams; a highly decentralized principle is multi-functional work teams to institutionalize the

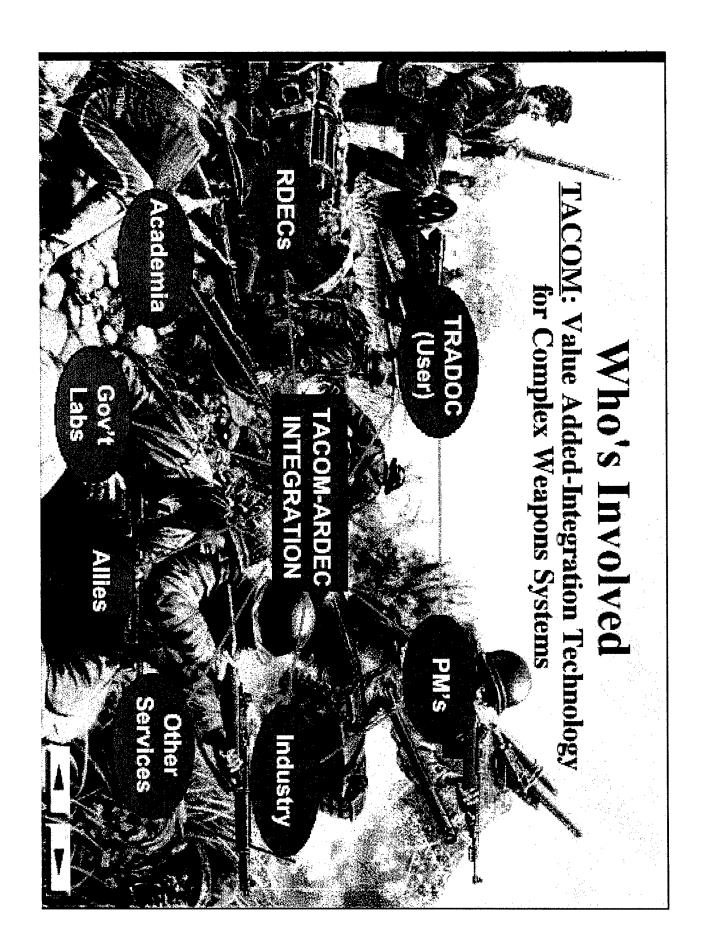




Briefing Outline



- A Changing Military Perspective
- Impact on Ammunition Systems
- Integration is a TACOM Core Competence
- **TACOM Mission**
- ARDEC/TARDEC focus
- Organization for the future
- TACOM Meets the challenge of doing business in the Future
- TACOM of the Future
- Integrated Ammunition Systems



TACOM MISSION

-To Generate Warfighting Capability for the Army

ORCE

-To Sustain the Warfighting Readiness of the Army

-To manage the Army's Investment in S&T, R&D and

Sustainment for the Army

3,341 Weapon Systems)

300 Systems in Acq Pipeline

-Serve as the Life Cycle Manager and Integrator for Ground Combat Equipment

Tank-automotive & Armaments COMmand

Research, Develop, Field and Support

Mobility and Amaiament Systems Total Life Cycle

Combat Vehicles Tactical Vehicles

Trailers
Construction Equipment
Materiel Handling Equipment

Tactical Bridges

Shop Equipment
Chemical Defense Equipment
Howitzers

Sets, Kits & Outfits

Fuel & Water Distribution Eqpt

Large Caliber Guns

Mortars Rifles

Rail

Machine Guns - P.etr.n & Լան է Ammo

Ammo Aircraft Armaments

Demolitions & Explosives

mmo Mission

Mounted Operations

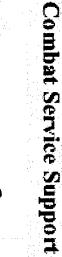
Fire Support



Special Operations







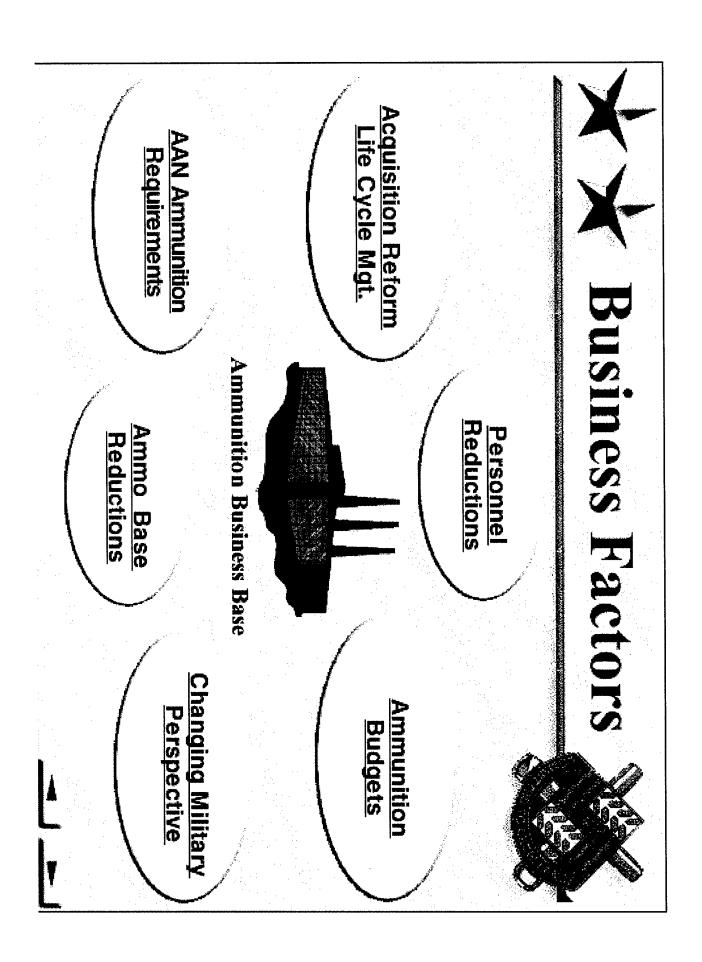


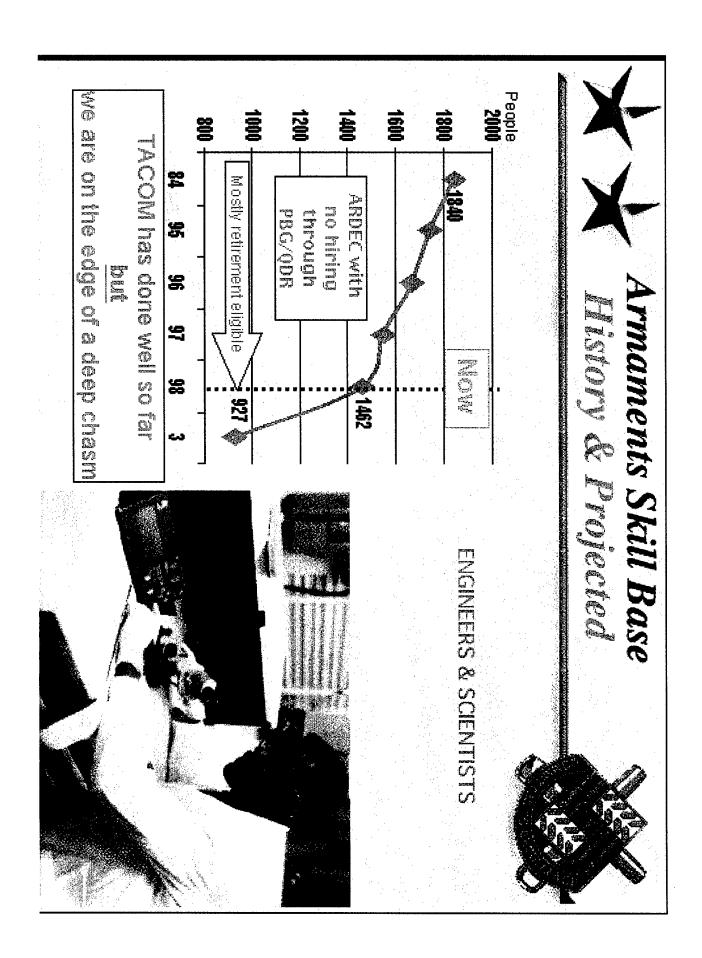
Aviation Armament

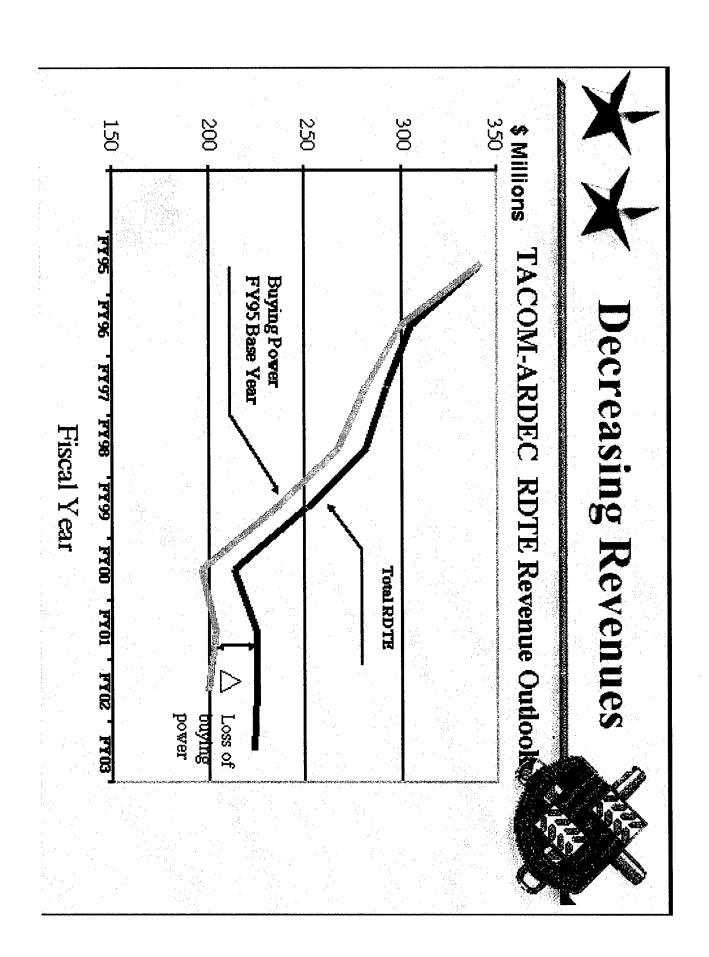


Dismounted Operations











Changing Perspective

Changed Military Threat

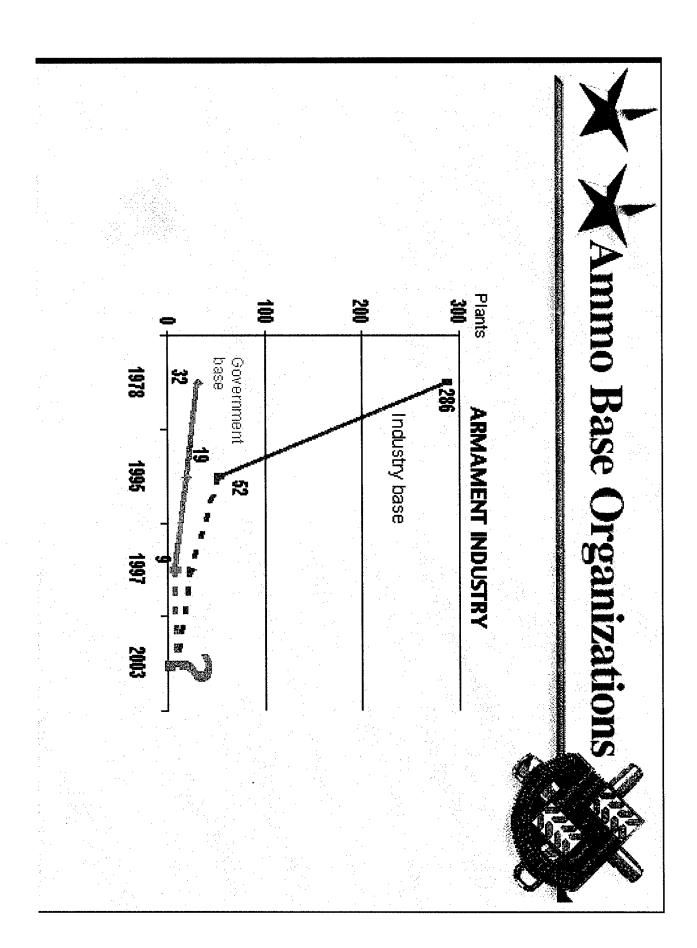
- Regional Conflicts
- Proliferation of Chemical/Biological/ Conventional Arms

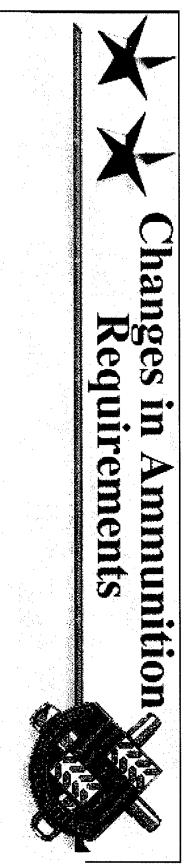
Changed Military Tactics/Strategy

- US Forces Will Be CONUS-Based
- Light, Deployable, Lethal Forces
- Emphasis on Deep Strike, Early Entry Forces, Real-Time C41

Smaller Army

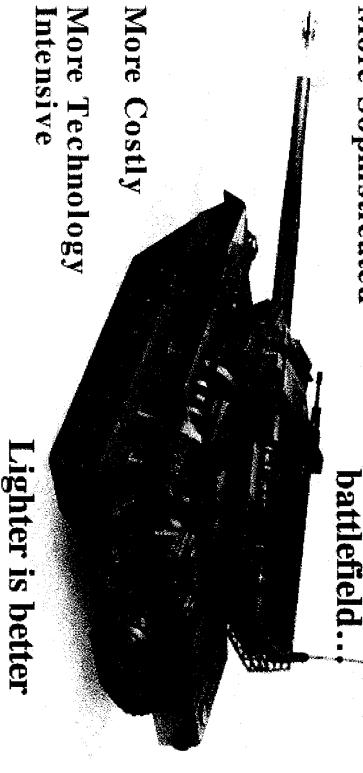
More Lethal/Survivable





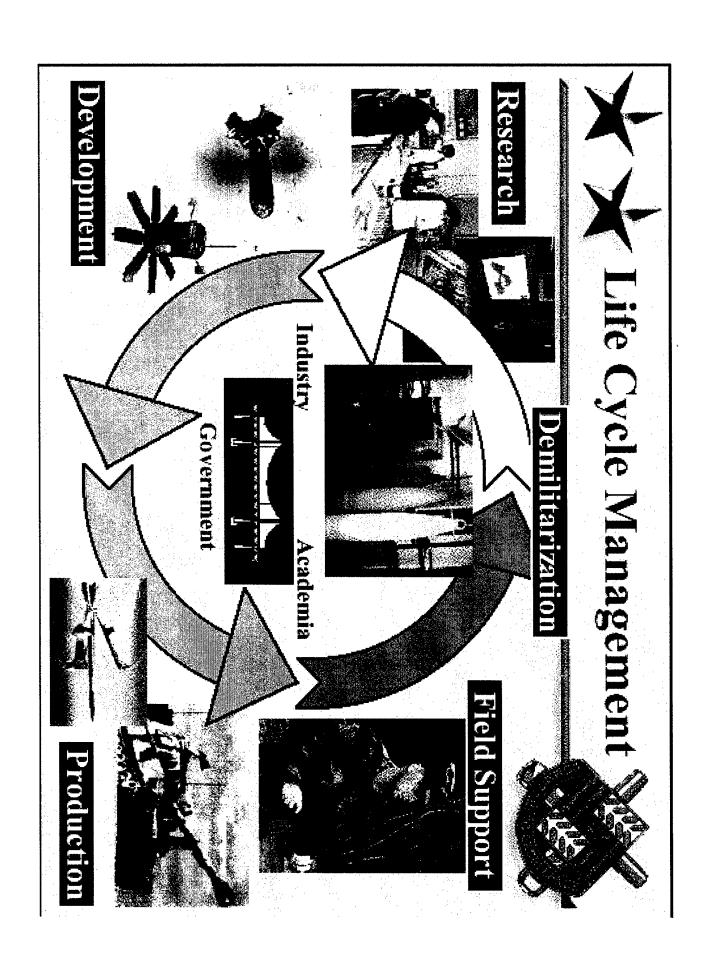
- Highly Specialized
- More Sophisticated

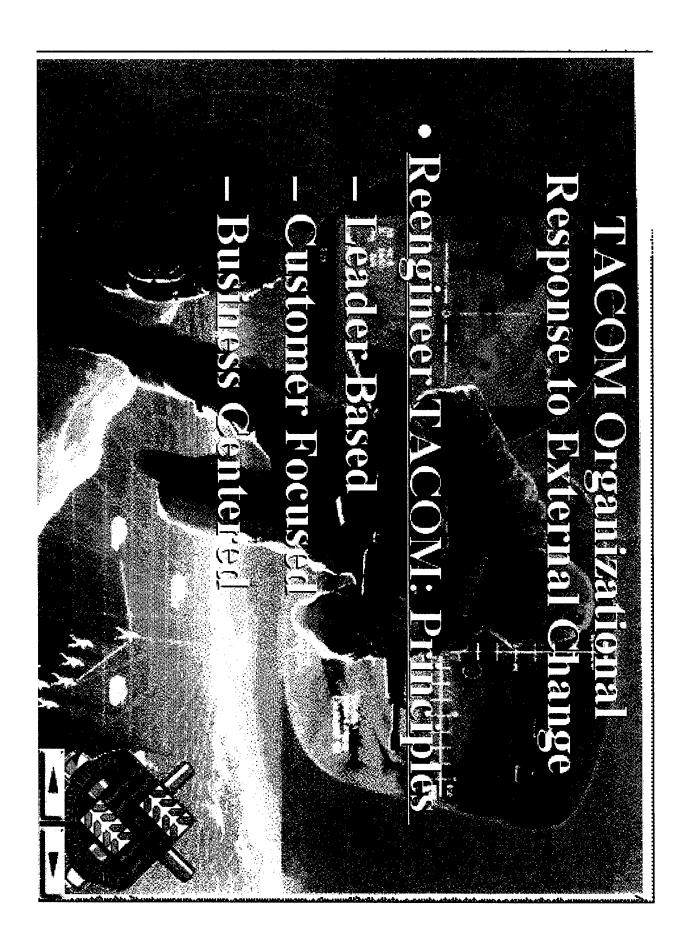
Next to fuel, ammo is the largest tonnage on the

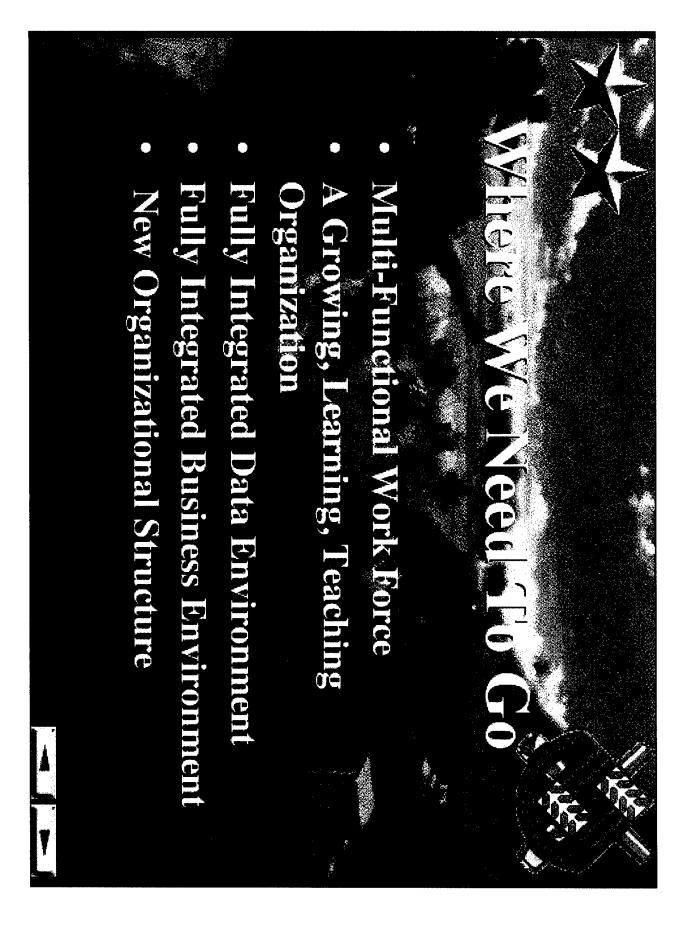


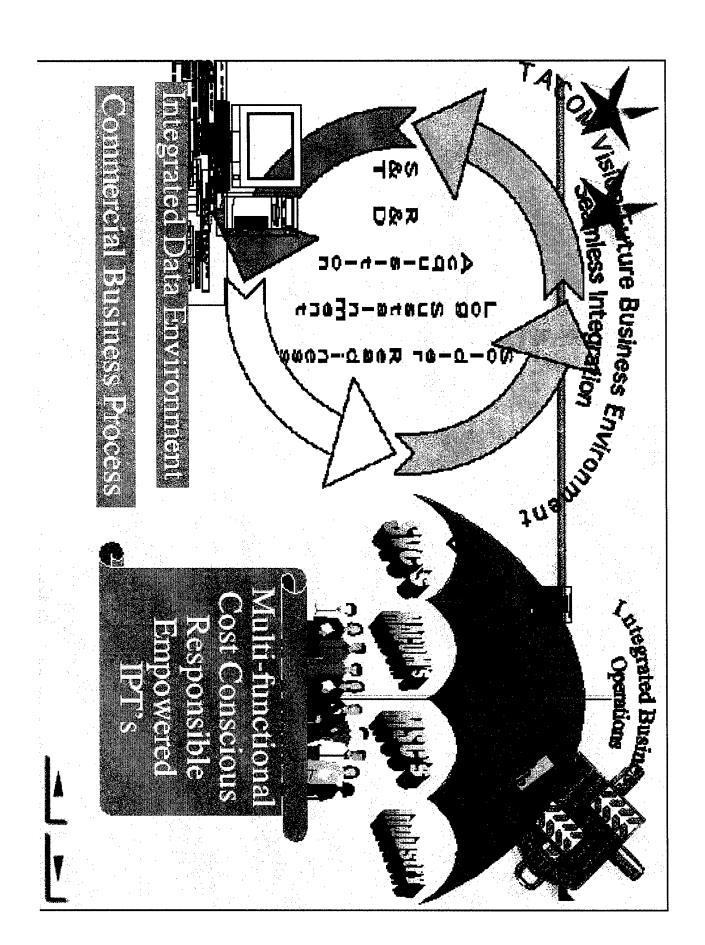


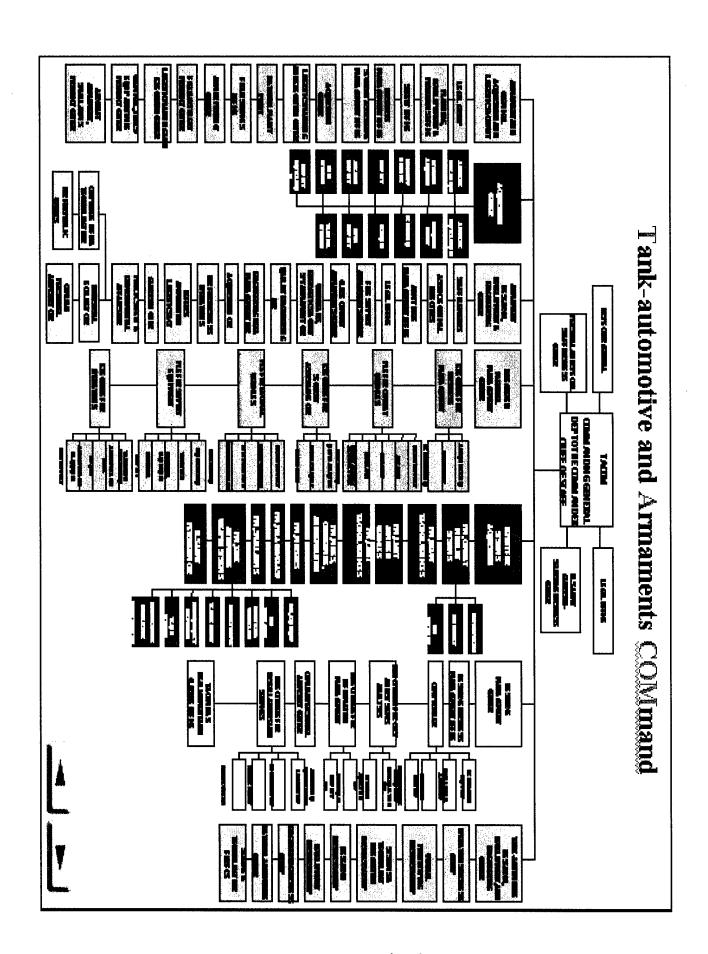
- Army XXI Reinvention Laboratory
- Cost Reduction and Reinvestment Initiatives
- PEOs and Major Commands required to focus on Management of Total Life Cycle
- Modernization Through Spares Initiative
- Army Purchase/Credit Card usage
- Established a Paperless Contracting PM Office Single Process Initiative (SPI) implementation
- Past Performance Information Management System (PPIMS)
- DOD Standard Procurement System (SPS)

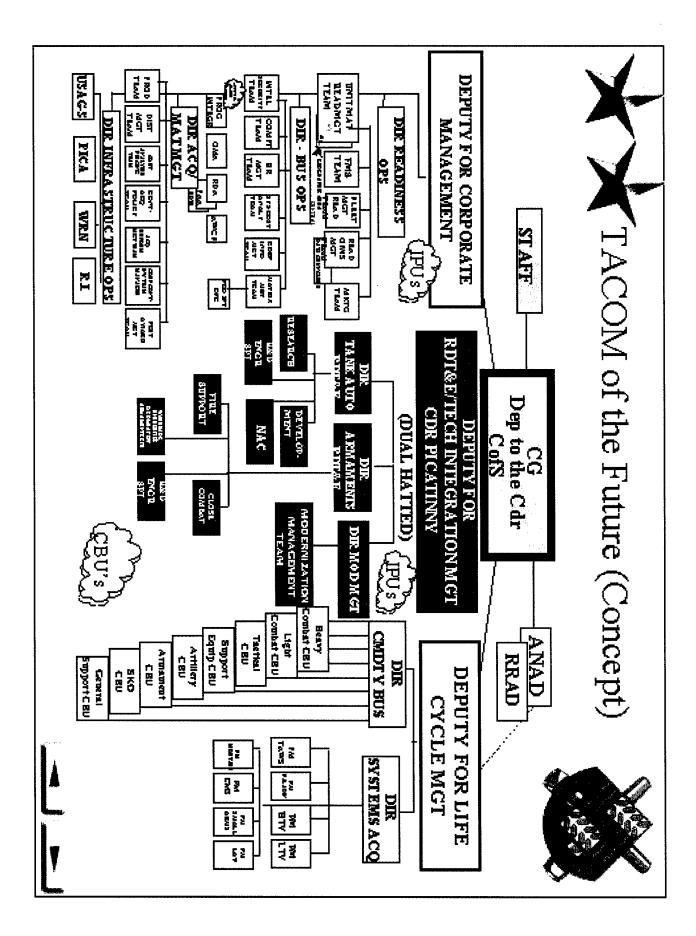






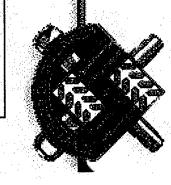








ntegrating ARDEC With TARDEC: Synergy



Key Areas

- **Tech Base**
- IC, Material Release, Environmental
- Life Cycle Software Engineering
- Tech Data
- Modernization through Spares, Engineering Support, OSCR Depots, DCA
- support Organic vs Matrix Engineering
- Pollution/Corrosion Prevention
- **Modeling and Simulation**
- Strategic Planning
- Mantech
- Configuration Management
- Small Business Innovative Career Development CRDA, Dual Use Technology and
- Research CP2, Government Source, QSL

Z

- resources Relocation of human
- Homogenization of organizations

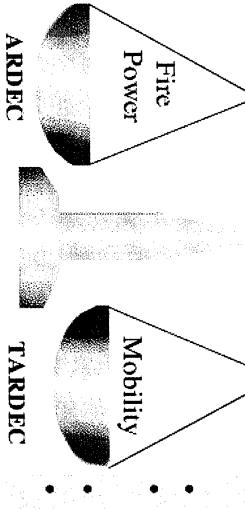
Yes

Harmonization of business processes



The Future TACOM RDTE Challenge

CSA rep AAN = "Knowledge and Speed"



Find the Balance

Balance = Integration

- Modeling and Simulation
- User Requirements range, speed, lethality, etc
- People Skills
- Electronic Data Management
- Fire Control + C3I

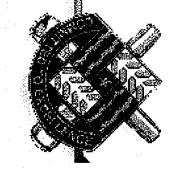


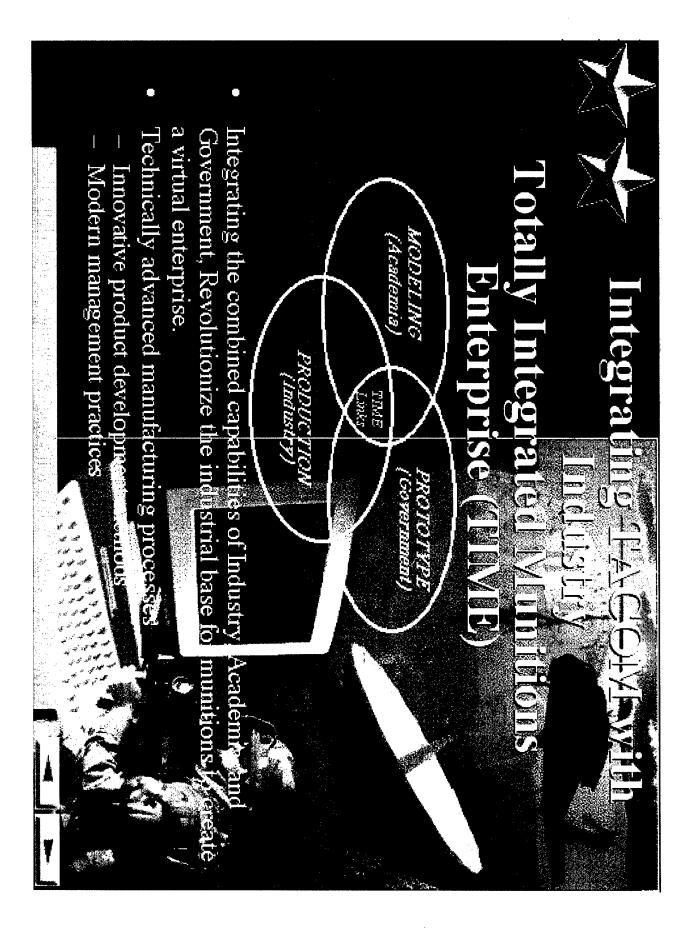
Integration Levels Multiple Ammo

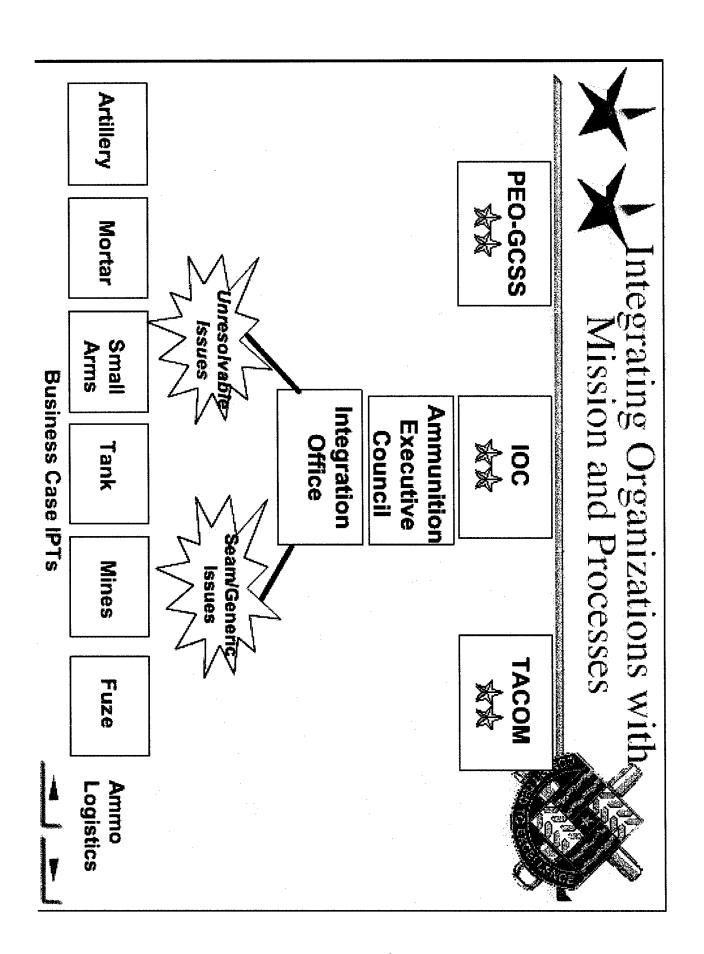
- Air Land/Army-Joint Services
- **TACOM** with Industry
- TACOM with Ammo Community & PMs













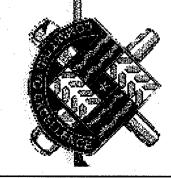
harmonizing the following capabilities: **FERM integration into M1A2 SEP requires**

- Global Positioning System (GPS) and Inertial
- Measurement Unit (IMU)
- Turret/Hull position sensor and Hull Cant sensor
- Fire Control Computer software development/validation
- FBCB2 communication methods and protocols
- Crew interface for firing non line of sight missions





Closing



Critical to the future

Warfighter

Integration of Ammo processes

- TACOM
- industry and the private sector
- Dod
- Major points:
- Smaller technology based Army
- Ammunition is most critical commodity
- Investment in technology to enhance: lethality, survivability, and producibility is essential
- Integration of complex guns, ammo, & fire control technology into weapon systems is our core competency



Conclusions



- Current business environment is effecting the ammunition business
- Meeting the mobility and firepower ammo and platform technology necessitate the systems integration of gun, requirements of future warfighters will
- The TACOM of the future is posturing itself to meet both the technology and business challenges of the 21st Century



16 September 1998

Munitions Summit

Presented by

MG John F. Michitsch

Program Executive Officer

Ground Combat and Support Systems



- Mission
- Organization
- **PEO GCSS Focus**
- **Munition Programs**
- Our Role in Life Cycle Management

Total Life Cycle Management Policy & Approach

- Business Plans Considerations
- **Advanced Warfighting Experiments**
- Thoughts to Leave You With



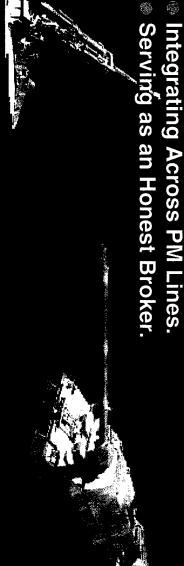
EO GCSS Wission

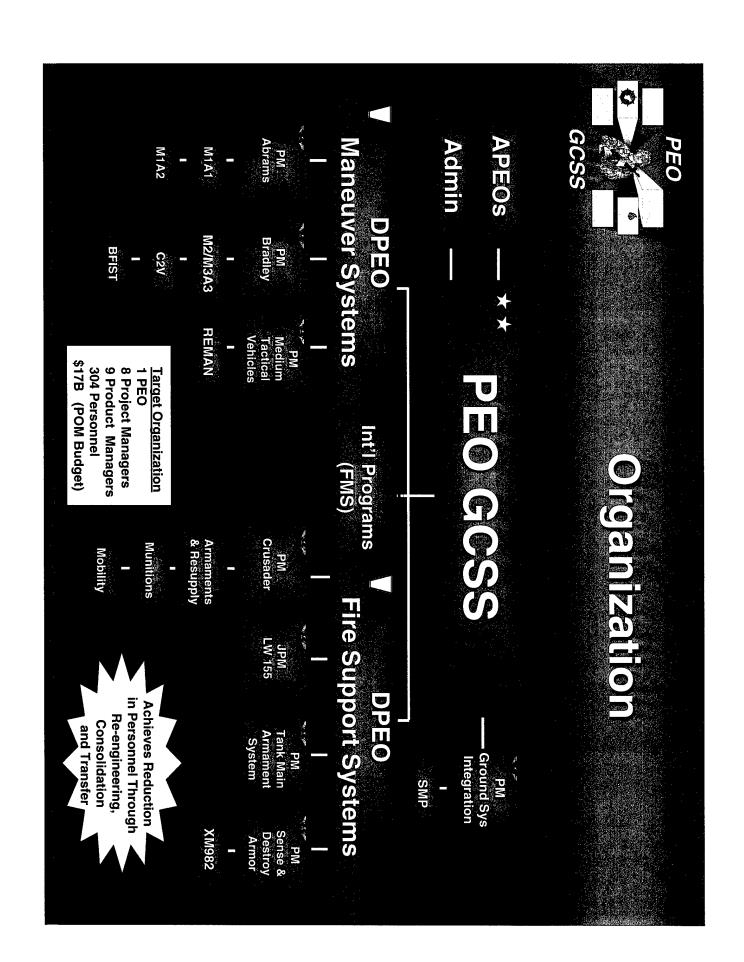
Provide Programmatic Oversight and Direction.

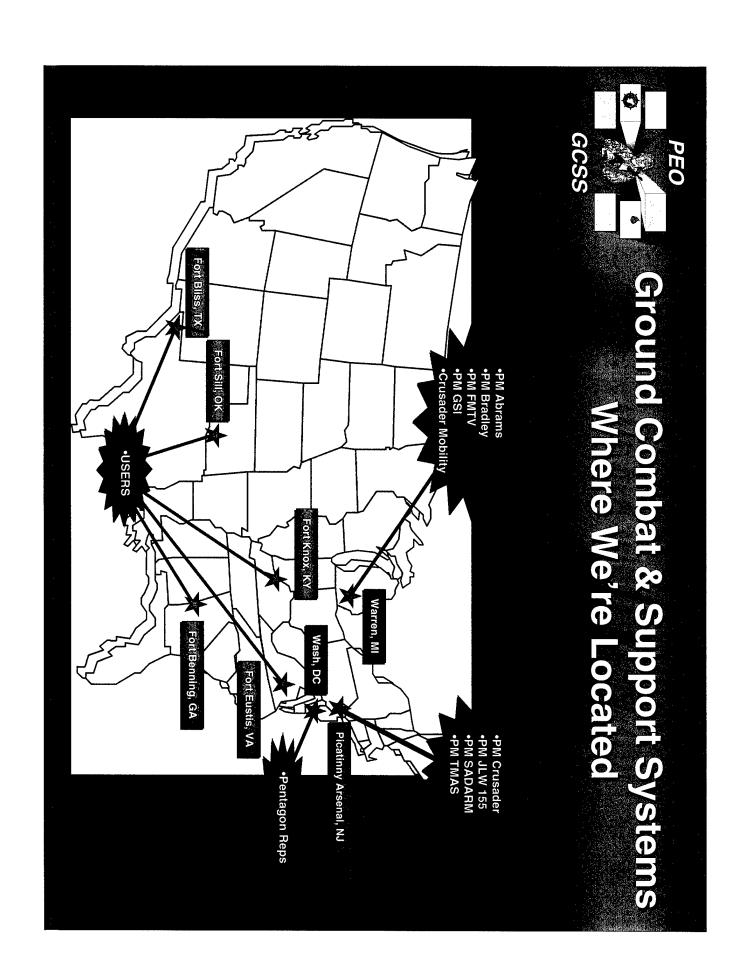
CONTONE Productor Peding Cas and a

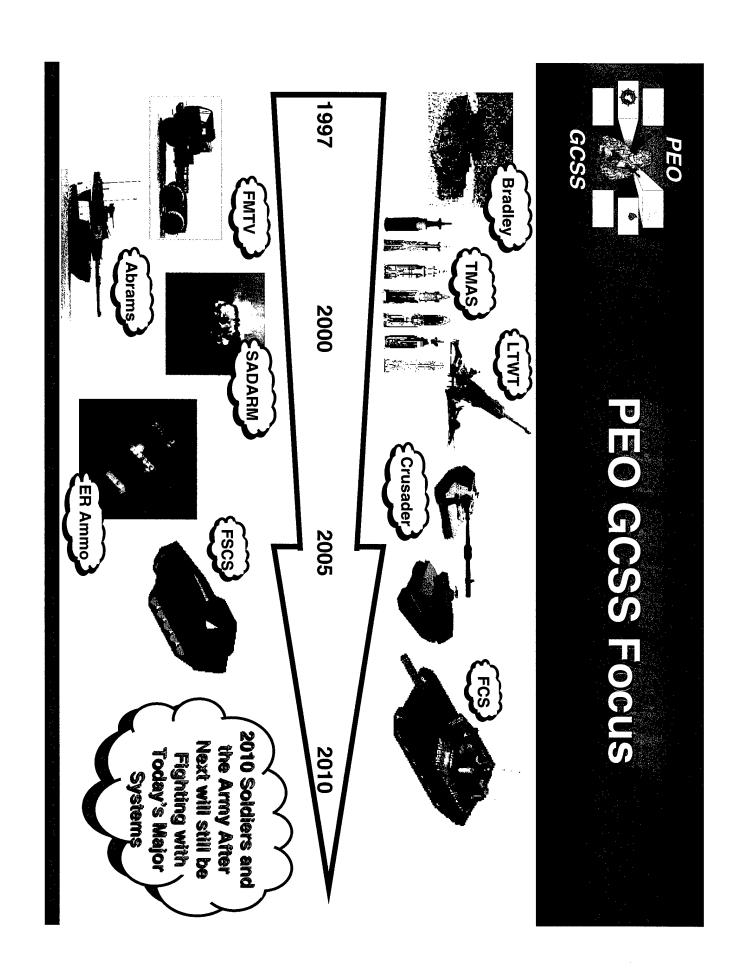
ITEGASO ITESAS HATAGESES

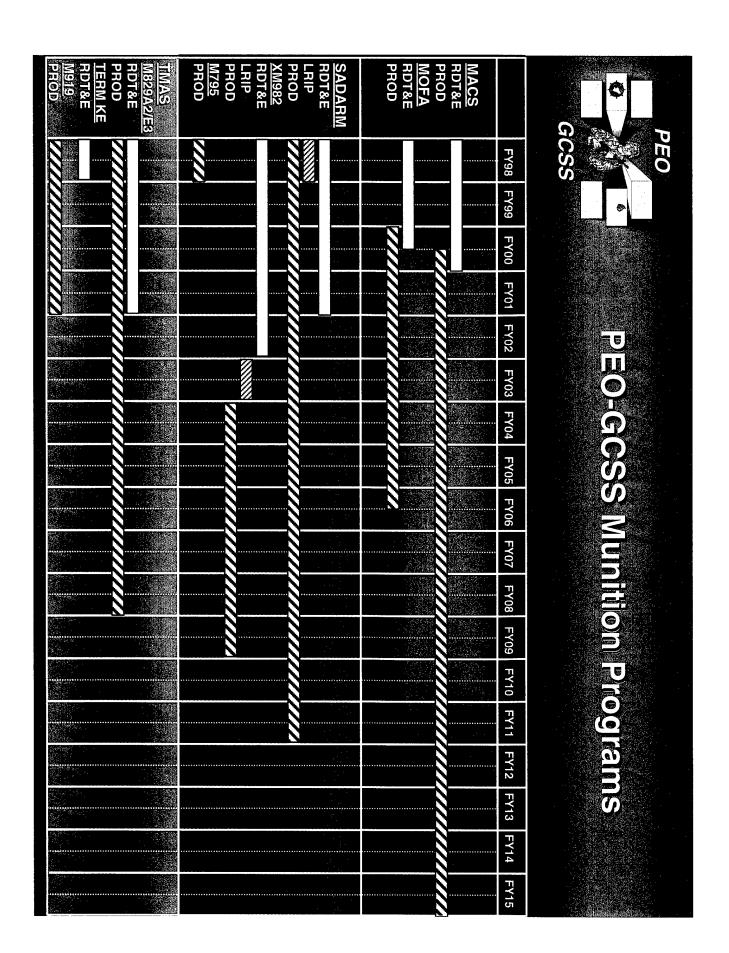
- Ensure PMs are Adequately Resourced.
- Enforce Program Baseline.
- Life Cycle Management
- Represent PMs with DA, OSD, Congress. Add Value to PMs' Activities by:
- Providing Broader Perspective.













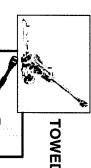
OURRENING! MRGES

M2A1 (Green Bag)

M119A2 (Red Bag)

M203A1

M4A2 (White Bag)



TOWED

PALADIN



XM232

TOWED



PALADIN

CRUSADER

XM231

- Compatible With All 39-cal and ERO 155mm Artillery Systems:
- Fielded: M109 series SPH, M198 Towed
- In Development: Crusader SPH, JLW-155 Towed
- **Automated Handling Compatible:** Distinguishable for Manual
- Rigid Combustible Case
- MANPRINT:
- Bi-Directional Igniter
- Any Order
- **See "No-Excess" Propellant**
- Cost Savings for Training & Operations
- Modular Charge System (MCS) for 155mm Artillery JBMOU
- Milestone II 23 Sep 96
- **Enter Production in FY2000**





Multi-Option Fuze for Artillery

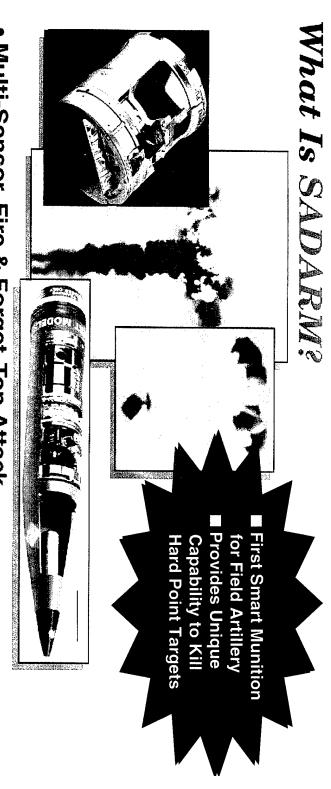
Performance Features

- Integrates Four Function Settings for Bursting Projectiles:
- Proximity, Time, Point Detonating, and Delay
- Cannon Artillery Systems Fuze Compatible with All Current 105mm and 155mm
- Inductive (Man-Out-of-Loop) Setting Capabilities for **High Rates of Fire**
- **Advanced Technologies Include:**
- Monolithic Microwave Integrated Circuit (MMIC)
 Chip, Patch Antenna, Harmonic Signal
 Processing, and Electronic Counter Measure
 (ECM) Chip
- Successful Qualification Test July 96
- **Pre-Production Qualification Test (PPQT) In Progress**





M898 SADARW



- Multi-Sensor, Fire & Forget, Top Attack Counterbattery Weapon, Secondary Anti-Armor
- **Countermeasure Resistant**
- Explosively Formed Penetrator Defeats All Known Armored Targets From Top







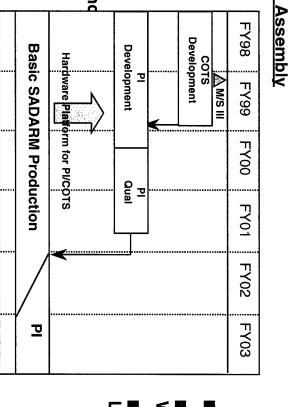
Electronics Module Millimeter Wave (MMW)

Objectives

- Reduce Submunition Unit Cost By 22%
- **Eliminate Custom Components**
- **Insert Into Basic Production In FY02**
- Increase Effectiveness

Key Features/Benefits

- Fewer Parts
- **Commercial Packaging**
- **Less Complexity**
- Structural Improvements
- **Avoids Parts Obsolescence**
- Higher Yield MMW



Linkage to Basic

- Parts for Qualification
- Support Personnel Working Both Programs
- Learning Production Line



XM982 System Description

<u>Mission</u>

 Provides the maneuver force with improved fire support through an Extended Range, fratricide reducing, accuracy enhancing, more lethal family of 155mm projectiles in support of Force XXI operations.

DPICM with 64 Submunitions
SADARM with 2 PI-SADARM Submunitions

Unitary with Bunker Penetrating HE Warhead

Capability/Improvements

Increased Range:

- Paladin / M198 / JLW155:

28 to 37 Km

Crusader: 40 to 47 Km

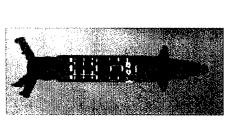
Increases Survivability Through Greater Stand-off Ranges

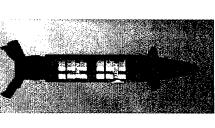
<u>Initial Operational Capabilities</u>

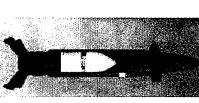
- DPICM
- SADARM
- Unitary

1Q FY07 1Q FY08

1Q FY04







Characteristics/Special Features

- One Meter Length / 106 lb
- **DPICM Submunitions with Self-Destruct Feature**
- On-Board Self Locating System (SLS)
- GPS / INS Guidance
- Inductive Set Integral Fuze PIAFS
- Fin Stabilized Glide Air Frame
- Anti-Jam Features
- Modular Projectile Configuration



WI795 System Description

Mission

Provides Extended Range Fire Support for: Harassment and Interdiction (H&I), Fragmentation, Mining, and Blasting Effects.

Paladin Range (Km)Crusader Range(Km)	Weight (lbs.)Pavload (lbs.)	<u>Performance</u>
17.5 2) 17.5 26	95 1 15.0 2	M107
2.5 to 28.5	03 3.8	M795 M
28.5)4 to 36	22 03	795 E 1

Special Features

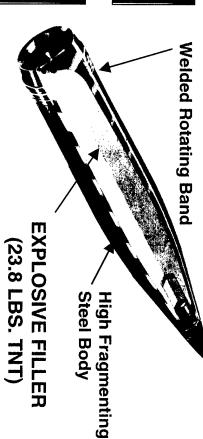
 Significant Lethality Increase Over M107 Personnel 1.5 to 2.0

•M795 Compatible with M203A1 and MACS 6 Ballistic Similitude for M483A1 & SADARM

•Trucks 1.2 to 1.8 1.0

d⊦ard Targets

•Train Like we Fight M795 Training Round (Proposed)



		unded	is not Func	M795E1		
		80,000	84,210	130,956	79,468	Quantity
		\$35.2	\$39.9	\$51.6	\$53.6	Funding
9	FY99	FY97 FY98	FY97	FY 96	FY95	M795

Materiel Release 1QFY99 <u>Delivery Data</u>

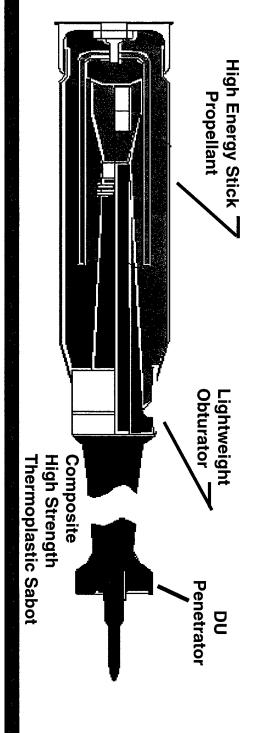
On Track



VI829E3

- **SOURCE SELECTION**
- **ORD & MSII Approved**
- **TEMP Signed**
- **Contract Signed**
- **ATK Awarded Contract**
- **EMD Kick-off 21 SEP**









25MM DU Kinetic Energy Round T-SUS-INA 616M





- Performance Spec.
- **Primex is the Prime Contractor**
- **Production Restart Scheduled for Oct 98**
- Swiss Propellant Qualified
- Tracer Visibility Inadequate
- 12 Month Tiger Team Effort Underway to Correct
- Production Limited While Tracer Fix is Developed



Total Life Cycle Management Policy & Approach

- Why are We Involved in Life Cycle Management?
- I PEO GCSS Approach to Life Cycle Management





Management oil otal Life Cycle - ACAT Systems

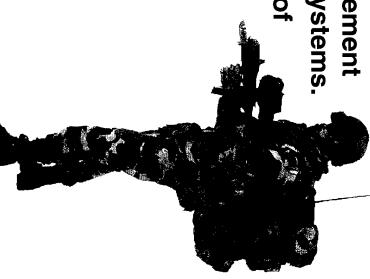
of the Total Life Cycle Costs for these Systems. Systems are Responsible for the Management PEOs, and MACOMs Who Manage ACAT

Minimize Estimated Sustainment Costs of

Developmental Systems

Reduce the Actual Sustainment Costs of Fielded ACAT Systems

Prepare Sustainment Budgets for Each System



ASA (RDA) 29 April 1997

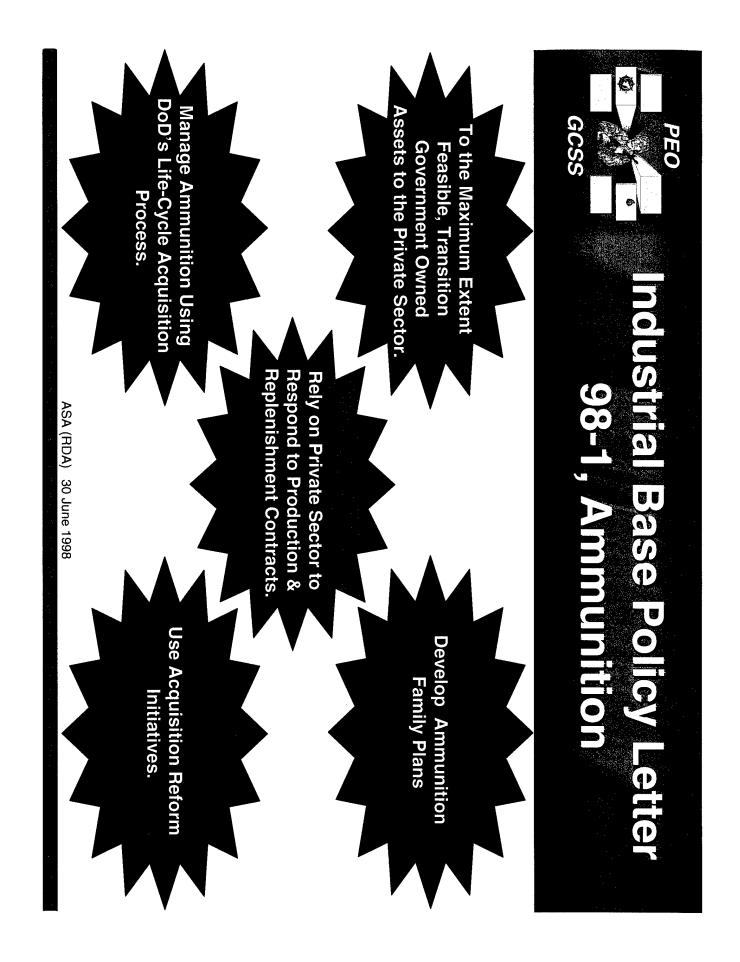


otal Ownership Cost Reduction

- Vital to Realizing Modernization Objectives
- **Element of Milestone Decision Review Process**
- Top Ten Cost Drivers Identified
- PMs Have Begun Developing Strategies to Manage the Life Cycle Cost.

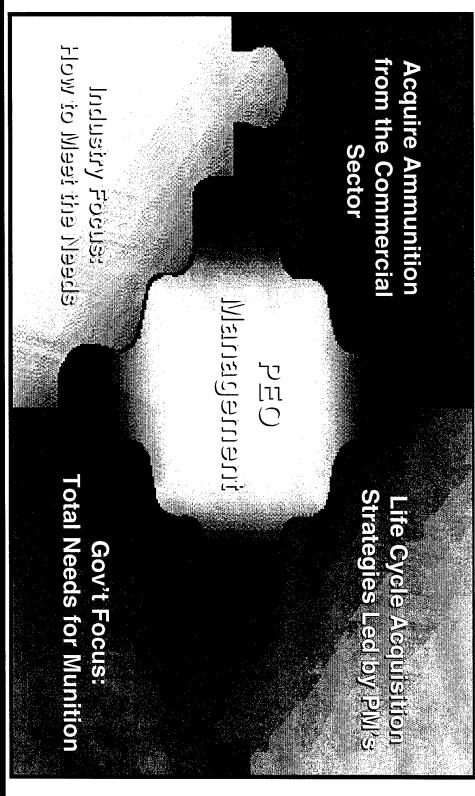
ASA (RDA) 4 May 1998

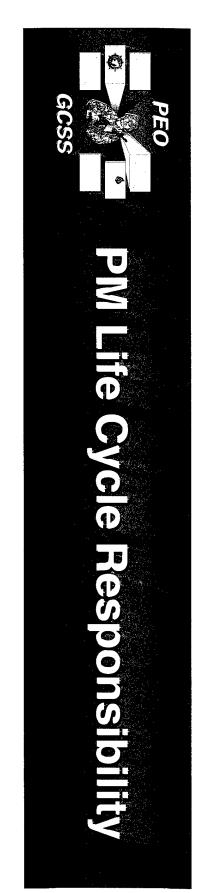
The Challenge is to Reform "Traditional Practices" and Implement Measures to Ensure PMs can Manage the Total LCM of their Systems



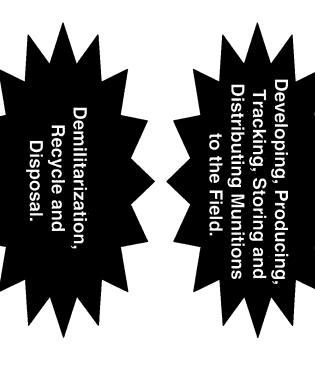


Industrial Assessment of Industrial Base Pacific Northwest National Lab (PNNL)





The PM, or Their Agent, are the Wholesale Manager, Responsible from Milestone 1 thru Demil









What is the Goal?



Use Cost Savings to

Promote Modernization.







Implementation

- PM Charters then Chairs an Integrated Process Team to Develop the Family Acquisition Strategy.
- The IPT Develops Business Plans to Optimize Life Cycle Readiness by Integrating R&D, Technology, Industrial and Facility Planning.
- The PEO Integrates the Business Plans into one **Economical Munitions Business Plan.**





Smart Munitions - Killing More With Less

220 Rounds <u>Fired</u>

SADARM

MSTAR

204 Rockets

<u>BDA</u> 100 FV

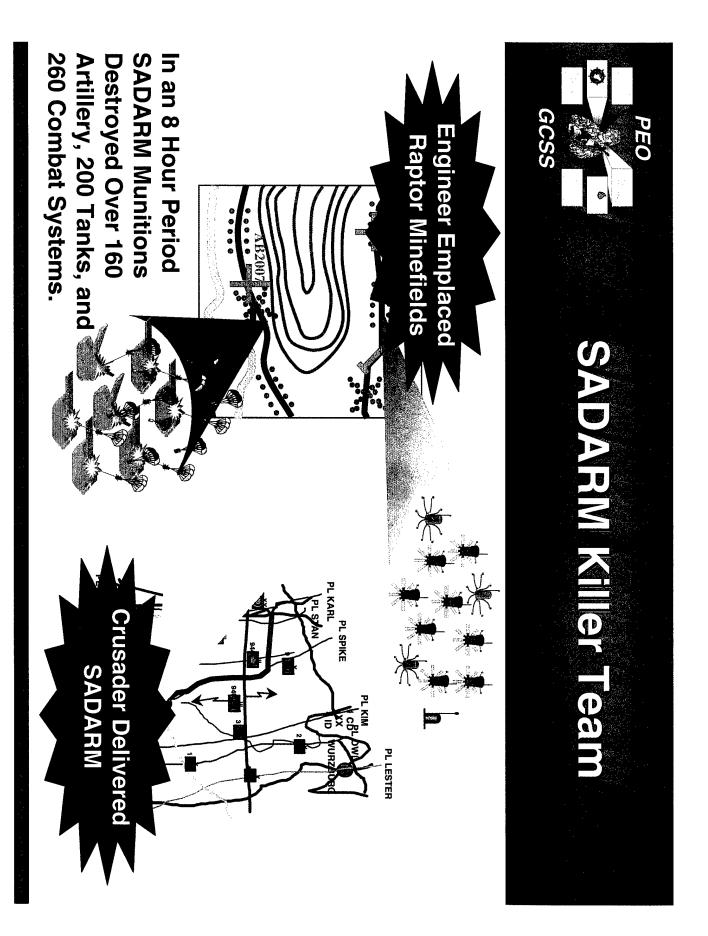
DPICM req'd (JMEMS)

3,600 **Rounds**

324 Rockets 280 Rockets **60 Rockets**

664 Rockets







An Operational Concept for Shaping

- (Maneuver)" Validated in Various Simulations Operational Concept of "Find (Intel) - Kill (Fires) - Finish
- Maneuvering to Exploit Effects of Fires Possible
- **Armor Formations Now Legitimate Target Sets for FA**
- Division Effective in Optimizing Sensor-to-Shooter Linkages
- Combined Arms Ambushes / SADARM Killer Teams Effective
- Comanche-MLRS (Cmd and Atk Bn) Link Proven Winner
- UAV Exceptional Targeting Platform
- SADARM and MSTAR Provide Capability to Strike Decisively Without Large Ammunition Expenditures





Thoughts I Want to Leave You With

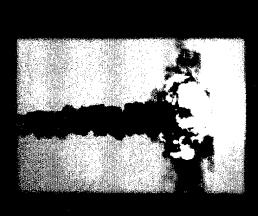
PEO GCSS is Committed to Life Cycle Management

Providing the Latest, Most Lethal Ammunition to the Soldier

Using the Savings for More Ammunition Buys

Finding Efficiencies Through Industry/Government Partnering
Need Industries Help in How Best to Partner

Need to Strengthen Communication







TOTAL COLUMN AREA CARRENTE

Children Composition & Action

The Color of the C

MDIA MEMBERS

ASSECTED VICE PROPERTY OF CONSIDERS

ALTERNATION OF THE PROPERTY OF

* D. Peer A. Burowick

* Warleads & Norgan

X Targo Caliber

X Section Canagro

- PROVING TES IVACE OF ANNUALION IN
- * GOOGGO CONCERNO MOR THE FUTURE
- * ACCURATOR FOLICY AND BUSINESS ISSUES
- * TRUST ISSUES COVERNIVER TO & INDUSTRY THOUSE
- * PROCESS HOR EXCESSING INSIDE ATIONS
- * ANDREON PRODUCTION BASE ASSESSMENT
- Parameter of the state of the s

Number Of Competitors + ARROWN OF WORK + Capacity For Needs +

Replenishment Needs + Desire For Multiple Year Contracts + Desire To

Bundle + Requests To Direct Work - Industry Consolidation -

+ Vertical Integration + Smaller Profit Margins + Full &

Open Worldwide Competition + Low Price Awards - Concerns For Foreign

Competition Equity - Special Interest Civages -

+ Studies, Studies, Studies - Political Help - Conflicting

Objectives - Attractiveness To Commercial Companies - ROL Uncertainties

Legal Paralysis - Cycle Time - Success based On Words +

- Cost Of Competition + Safety + Successful Defense

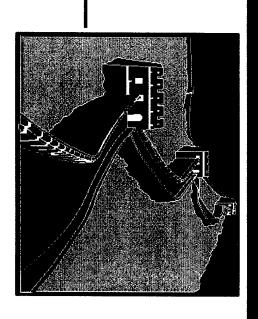
Conversion + PPP = Tilt

TROCKSON TO THE TOTAL



VERTICATE BOURTON.

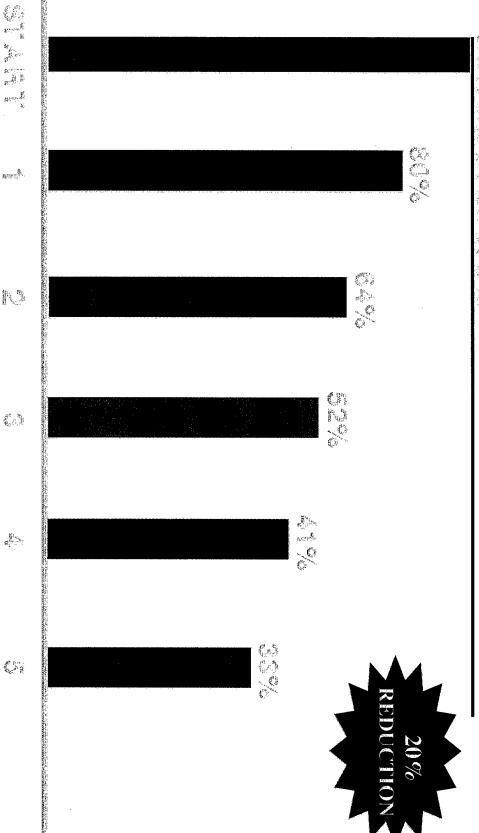
TRUST TO BUILDAMENTAL TO SUCCESSUE PARTICIANO



It - Surprises + Clear Objectives + Kilowi Desired Results + Way to Measure Head + Tell Me The Whole Story - Don't Compete Just To Do Fix Problems Together + + Team Building + One Accountable Voice + Walk The Talk + + Try It + Take Some Wisks - Don't Go Over My The second secon

Communicate Success = Better Trust

COMPUTE ON MACES



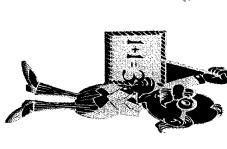
CONFETTION

Acres

600

#13.

WILLIS VROIS WITH THIS ROUSTION?



AND SACE OF THE SECTION OF THE SECTI CONTITION

- COVERNMENT & CONTRACTORS WITH FARD TO RETIDED COST & INTEROVE EFFECTIVENESS CONTINUOUSLY?
- ANT PROCEEDEMINES TACS? THERE IS A PEASIFE LIVET FOR COST RETUCTION CEVEN
- PERSONANCE SPECE CHEEN STANFALLE SOME STEED TO A STANFALLE STEED FIRM FIXED FILES IS ALMAIS FIER REFEE ANSWERS AND PROSCRIPTIVE RECULATIONS?
- AND OPEREDAD FARE ANDOUGH FROM ANTITY FOR ALL COST VARIABLES LIED LABOR, BEINDETS, NATERIAL,
- MOST BASY OVEREEAD REDUCTIONS EAVE BURN TAKEN? REORGANIZATION ARE THE ANSWERS? THE PART BECORDING MOTERATION AND SOVER THE BETT





- CONTINUO COCUMENTO COCUMEN
- BOARDS WATCH OUT FOR STOCKHOLDER
- * XXX TO GUESS AT BOUGHTS, CUSTOMER TO ACT OF RESPECTED AND STRAIBCY, QUANTITY OF BACK FIEW, AND



