Total Ownership Cost

Presentation to NARSOC

10 December 1998

Mr. Ron Rosenthal

OUTLINE

- DoN Weapon System Cost Reduction Program
  - R-TOC Approach and Planning / Analysis Process
  - Understanding Weapon System Costs
  - Standard Templates for Establish R-TOC Plans
- Examples of Specific Cost Reduction Accomplishments
  - Detailed Overview of H-60 Program R-TOC Process
  - Detailed Overview of CVX Program R-TOC Process
- Logistics and Infrastructure Reductions
- DoN Process Focus
- Challenges
- Conclusions

DoN WEAPON SYSTEM TOTAL OWNERSHIP COST PROGRAM

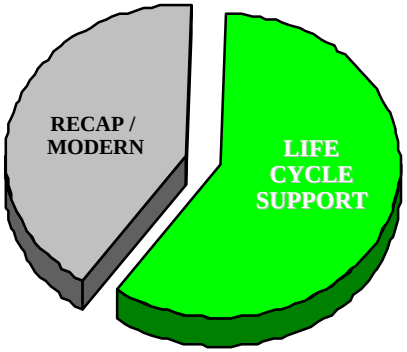
- **ASN(RD&A) Direction - Establish Total Ownership Goals for each Program**
  - **Use NAVAIR's "Affordable Readiness" Effort As Model and Adapt to All Major Acquisition SYSCOMs/related PEO Programs**

- **Establishing TOC Objective and Thresholds in Acquisition Program Baseline documents**
  - **ACAT I/II** — **31 Dec 98**
  - **ACAT III/IV** — **30 June 99**

- **Implementation Guidance Issued, including Standardized <u>Templates</u> to:**
  - **Establish Program Baseline**
  - **Summarize Initiatives**
  - **Identify Investment Requirements and Cost Avoidance/Savings**
  - **Break out Investment by Appropriation and Cost Avoidance/Savings by Element**

R-TOC APPROACH

Current TOA



INVENTORY

MANPOWER

INFRASTRUCTURE

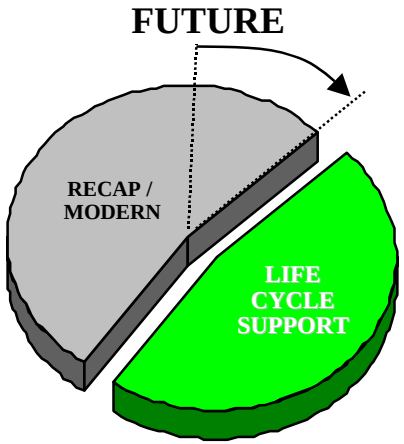
TECHNICAL DATA

SUSTAIN SAFETY AND READINESS

REDUCE LIFE CYCLE SUPPORT COSTS

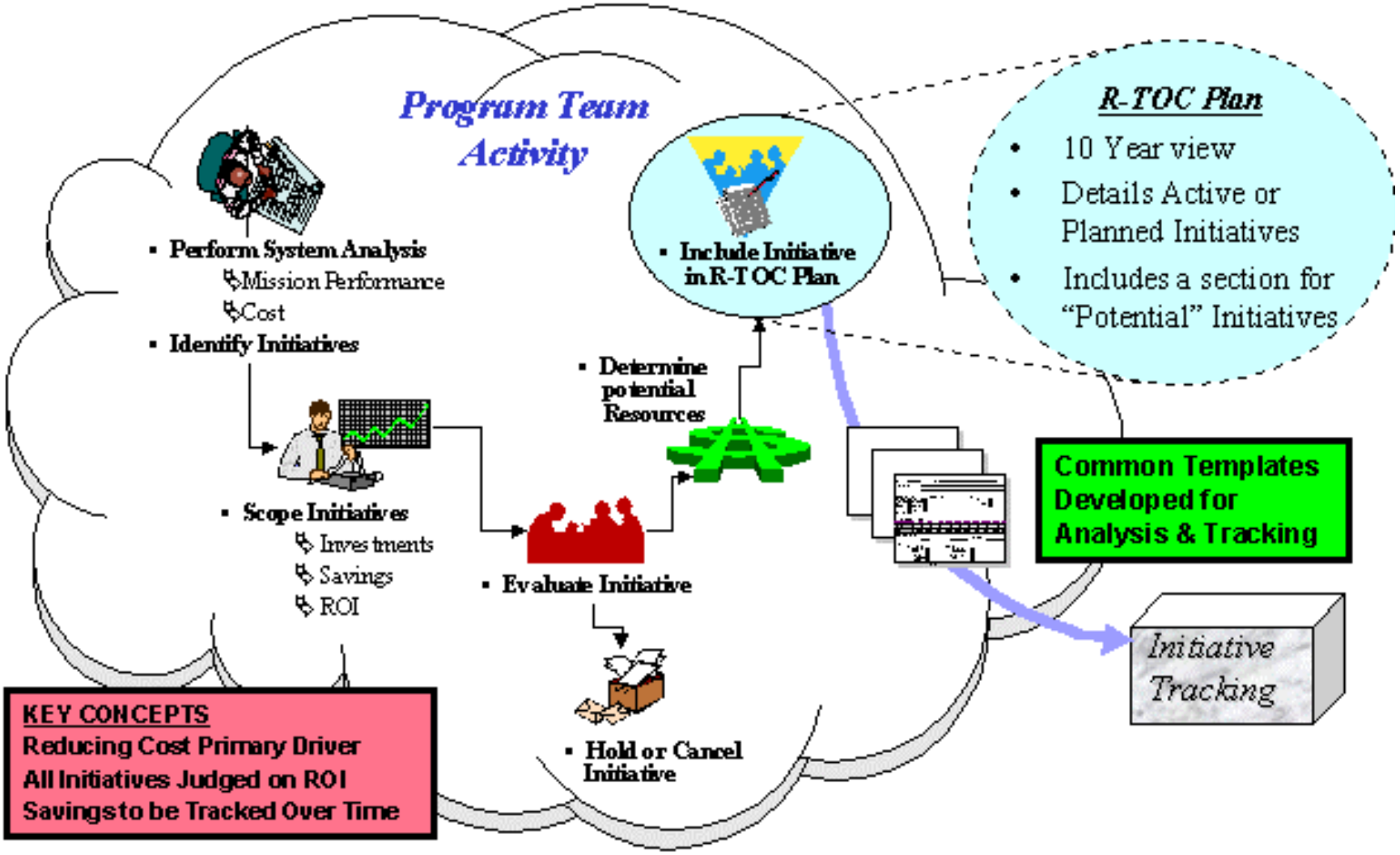
- ★ **Innovative Support Solutions**
- ★ **Reliability Investments**
- ★ **Single Process Initiatives**
- ★ **Partnerships w/ Industry**
- ★ **Technology Insertion**
- ★ **Reliability Warranties**
- ★ **Reinvention Initiatives**
- ★ **In-Service RCM, Data Collection, Analysis, and Maintenance Adjustments**
- ★ **Reduced Cycle Time**

FUTURE



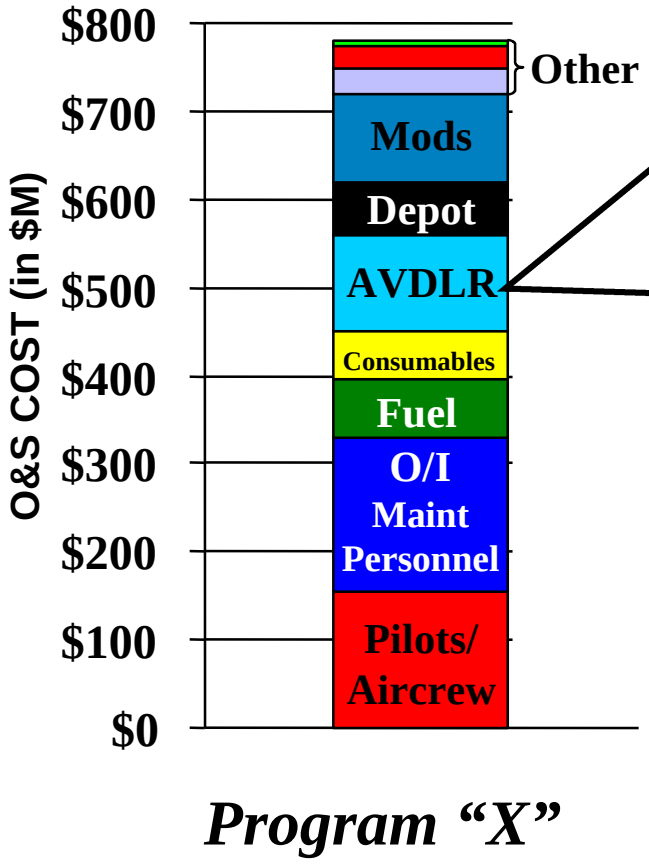
Increase funds available for recapitalization & modernization

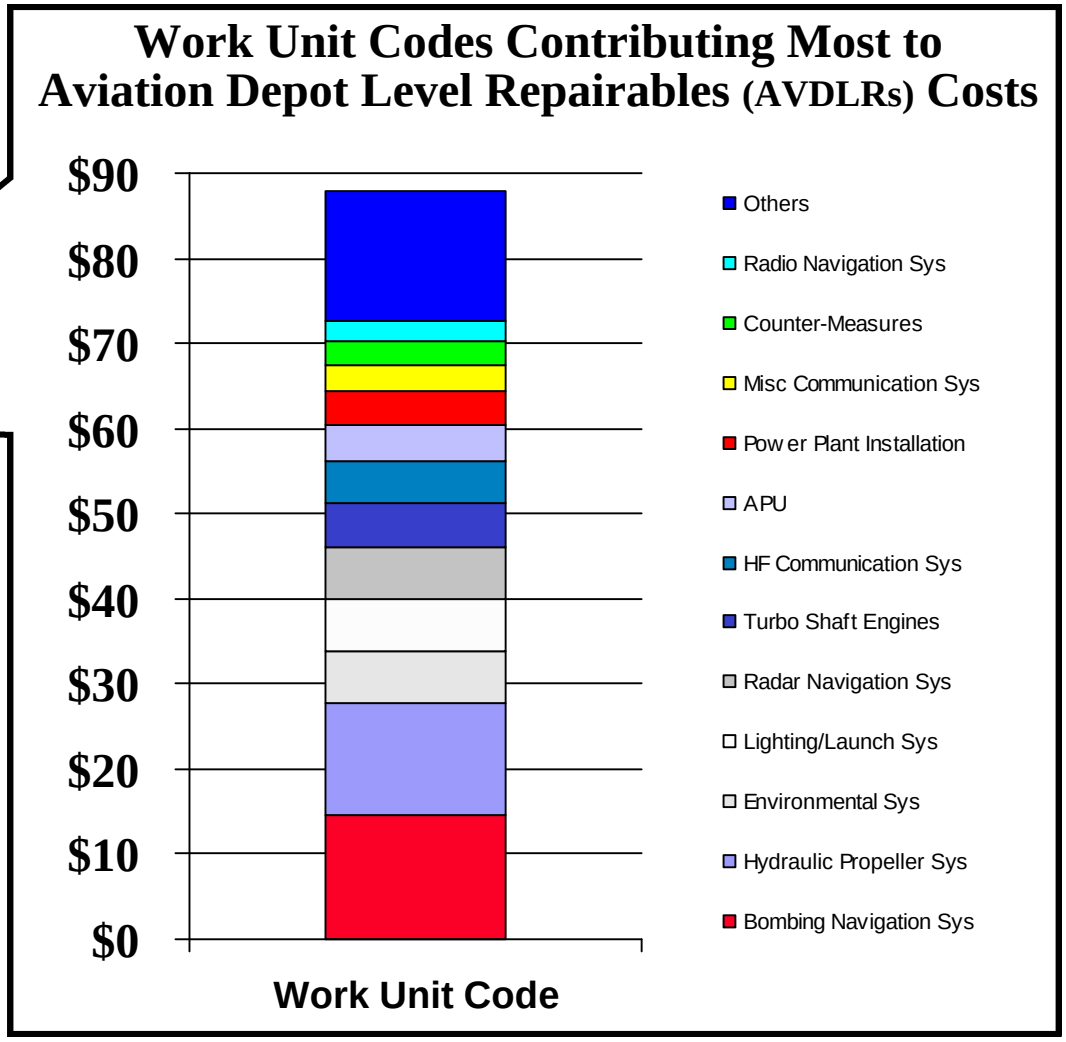
R-TOC PLANNING PROCESS



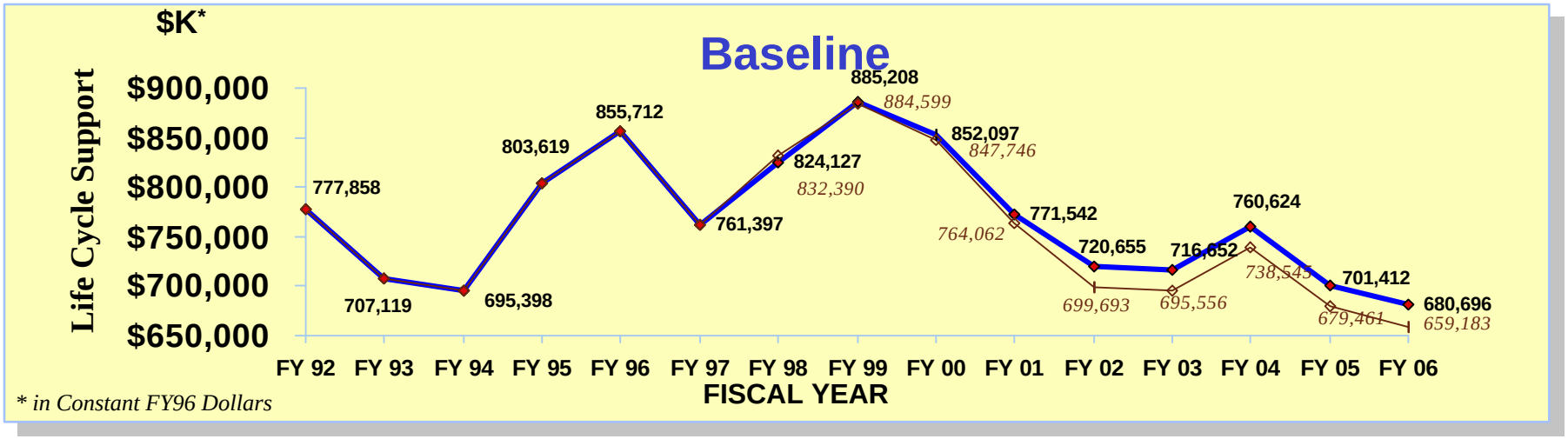
Know Your Costs:

"Minimize TOC by better utilizing information..."

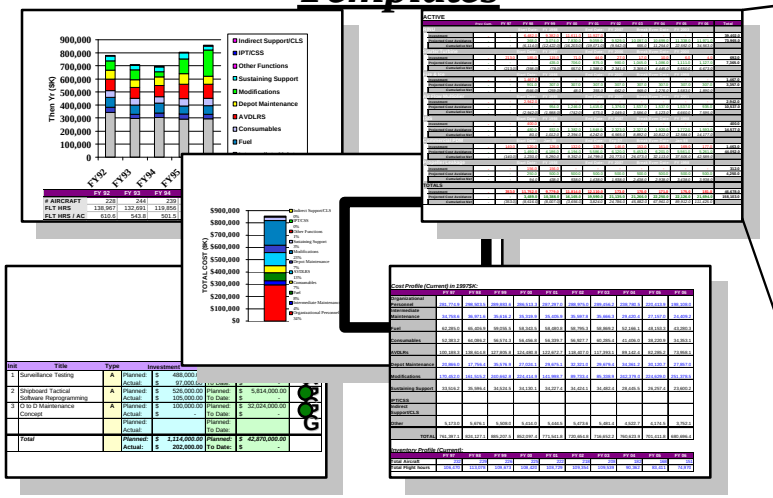




R-TOC PLAN
Establishing New Targets



Templates



- 10 Year Projections
- Annual Updates

Active Initiative Investment/Cost Avoidance Roll-up

ACTIVE

	Prev Cum.	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	Total
RINU			Start Date:	FY 1998		End Date:	FY 2007	Break Even Date:	FY 2003			
Investment	-	-	6,482.0	9,382.0	11,611.0	11,927.0	-	-	-	-	-	39,402.0
Projected Cost Avoidance	-	-	368.0	3,074.0	7,830.0	9,059.0	9,529.0	10,097.0	10,699.0	11,338.0	11,971.0	73,965.0
Cumulative Net	-	-	*(6,114.0)*	*(12,422.0)*	*(16,203.0)*	*(19,071.0)*	*(9,542.0)*	*555.0*	*11,254.0*	*22,592.0*	*34,563.0*	
Starter Turbine			Start Date:	FY 1997		End Date:	FY 2006	Break Even Date:	FY 2000			
Investment	-	213.0	185.0	115.0	71.0	44.0	27.0	17.0	10.0	6.0	4.0	692.0
Projected Cost Avoidance	-	-	-	435.0	706.0	875.0	980.0	1,045.0	1,086.0	1,111.0	1,127.0	7,365.0
Cumulative Net	-	*(213.0)*	*(398.0)*	*(78.0)*	*557.0*	*1,388.0*	*2,341.0*	*3,369.0*	*4,445.0*	*5,550.0*	*6,673.0*	
Fire & Ice			Start Date:	FY 1998		End Date:	FY 2007	Break Even Date:	FY 1998			
Investment	-	-	1,467.0	-	-	-	-	-	-	-	-	1,467.0
Projected Cost Avoidance	-	-	901.0	307.0	307.0	307.0	307.0	307.0	307.0	307.0	307.0	3,357.0
Cumulative Net	-	-	*(566.0)*	*(259.0)*	*48.0*	*355.0*	*662.0*	*969.0*	*1,276.0*	*1,583.0*	*1,890.0*	
Air Flow Multiplier			Start Date:	FY 1998		End Date:	FY 2007	Break Even Date:	FY 2001			
Investment	-	-	2,942.0	-	-	-	-	-	-	-	-	2,942.0
Projected Cost Avoidance	-	-	-	954.0	1,246.0	1,415.0	1,376.0	1,537.0	1,537.0	1,537.0	935.0	10,537.0
Cumulative Net	-	-	*(2,942.0)*	*(1,988.0)*	*(742.0)*	*673.0*	*2,049.0*	*3,586.0*	*5,123.0*	*6,660.0*	*7,595.0*	
ISIS			Start Date:	FY 1998		End Date:	FY 2007	Break Even Date:	FY 1998			
Investment	-	-	400.0	-	-	-	-	-	-	-	-	400.0
Projected Cost Avoidance	-	-	480.0	932.0	1,382.0	1,848.0	2,323.0	2,327.0	1,920.0	1,772.0	1,593.0	14,577.0
Cumulative Net	-	-	*80.0*	*1,012.0*	*2,394.0*	*4,242.0*	*6,565.0*	*8,892.0*	*10,812.0*	*12,584.0*	*14,177.0*	
Commercial PDM			Start Date:	Jan-98		End Date:	Sep-07	Break Even Date:	Jan-98			
Investment	-	140.0	120.0	126.0	132.0	139.0	146.0	153.0	161.0	169.0	177.0	1,463.0
Projected Cost Avoidance	-	-	1,490.0	4,186.0	4,194.0	5,586.0	6,120.0	5,453.0	6,201.0	5,561.0	5,261.0	44,052.0
Cumulative Net	-	*(140.0)*	*1,230.0*	*5,290.0*	*9,352.0*	*14,799.0*	*20,773.0*	*26,073.0*	*32,113.0*	*37,505.0*	*42,589.0*	
Propeller Leakage			Start Date:	FY 1998		End Date:	FY 2007	Break Even Date:	FY 1998			
Investment	-	-	156.0	156.0	-	-	-	-	-	-	-	312.0
Projected Cost Avoidance	-	-	250.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	4,250.0
Cumulative Net	-	-	*94.0*	*438.0*	*938.0*	*1,438.0*	*1,938.0*	*2,438.0*	*2,938.0*	*3,438.0*	*3,938.0*	
TOTALS												
Investment	-	353.0	11,752.0	9,779.0	11,814.0	12,110.0	173.0	170.0	171.0	175.0	181.0	46,678.0
Projected Cost Avoidance	-	-	3,489.0	10,388.0	16,165.0	19,590.0	21,135.0	21,266.0	22,250.0	22,126.0	21,694.0	158,103.0
Cumulative Net	-	*(353.0)*	*(8,616.0)*	*(8,007.0)*	*(3,656.0)*	*3,824.0*	*24,786.0*	*45,882.0*	*67,961.0*	*89,912.0*	*111,425.0*	

H-60

H-60 Program
TOC Reduction in Action

- Operations and Support Cost History / Trends
- Identification of Cost Drivers / Affordable Readiness Degraders
- Process Used To Determine Cost Reduction Candidates Which Are Economically Viable
- Helicopter Master Plan as a Top Level Initiative to Provide a Cost-Effective Helicopter Fleet
- Examples of Current O&S Cost Reduction Initiatives

*H-60 PROGRAM 5 YR TEAM GOALS**
PRODUCT

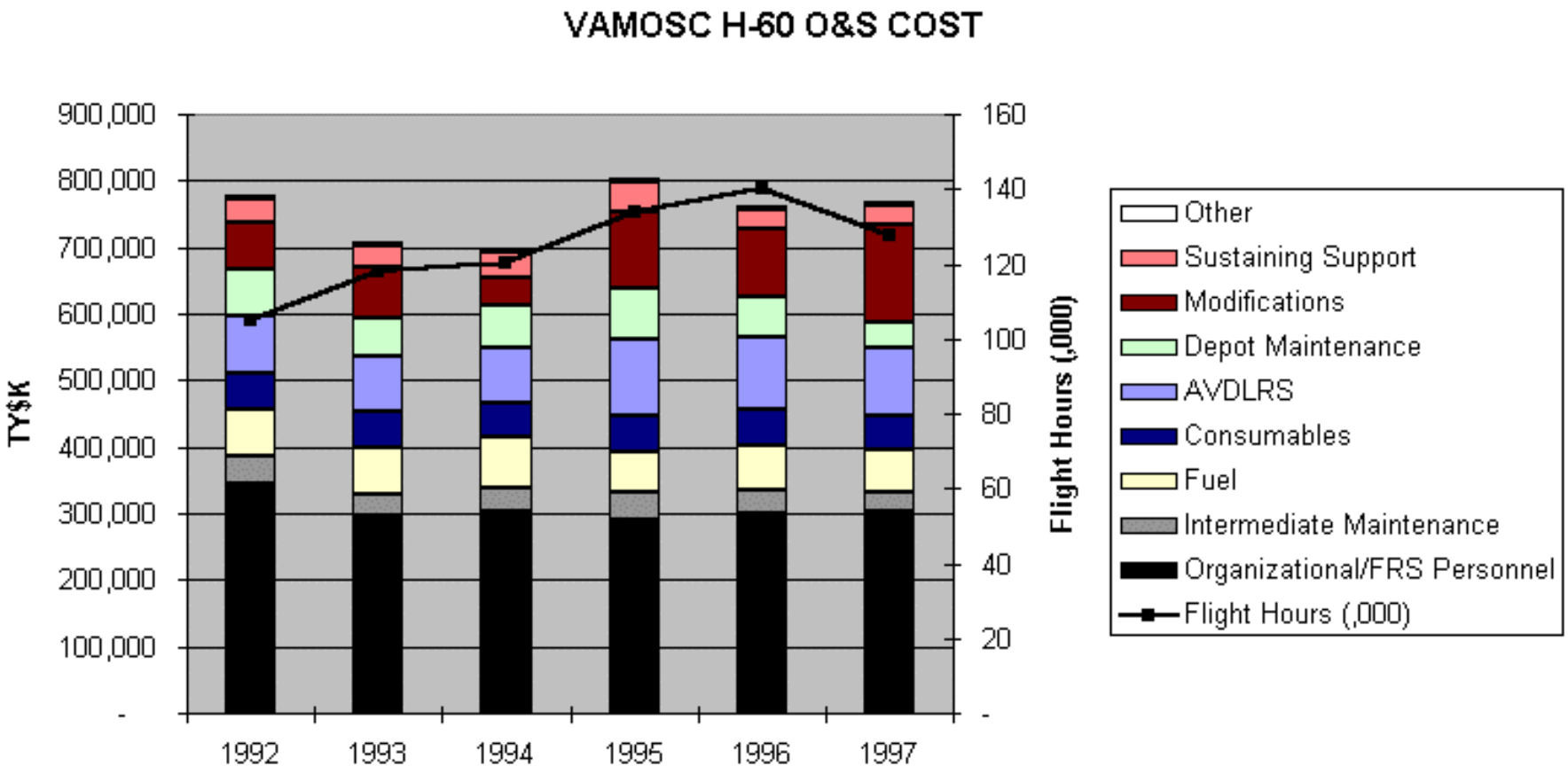
- Reduce the mishap rate for H60 aircraft by an order of magnitude
- Reduce program development time for completion - 40%

- Eliminate MMH / FH for aircraft and avionics support - 30%
- Reduce the "Total Cost per Flight Hour" for H60 aircraft by 25% (and again by 25% within the following 5 years)
- Increase "Total Availability" FMC (all assets) - 30% or a minimum of 88% (whichever is less)
- Remove non-operational support infrastructure requirements - 50%

- Increase Foreign Military Sales business base by 100%

* Excerpt from PMA-299
Program Goals of 7Nov97

Metrics
Fleet Cost of Ownership



Top Affordable Readiness Degraders

Data Source: NALDA Type Aircraft: SH-60B, SH-60F, & HH-60H Reporting Period: October 1996 through September 1997

RANK	Average % of EFFECT	WUC	SYSTEM DESCRIPTION	READINESS			SUPPORTABILITY					AFFORDABILITY			
				NMC/PMC			O-LEVEL			I-LEVEL		MAINTENANCE COST			
				TOTAL	MAINT	SUPPLY	OAR	CANN	RMVL	I-RFI	I-BCM	O-MHRS	I-MHRS	AFM	AVDLR
1	2.92%	03000	MAINTENANCE INSPECTION	1.65%	2.40%	0.00%	0.00%	0.00%	0.00%	1.22%	0.00%	25.60%	0.71%	0.00%	0.00%
2	1.74%	42110	SEAT WELL BATTERY INSTALLATION	0.24%	0.21%	0.32%	0.27%	0.90%	5.63%	3.98%	0.12%	0.24%	5.14%	0.91%	0.00%
3	1.67%	15122	MAIN ROTOR HEAD HUB ASSEMBLY	2.26%	2.34%	2.09%	2.77%	1.27%	2.48%	1.21%	2.91%	1.02%	1.49%	1.26%	0.04%
4	1.51%	1513F	ELASTOMERIC BEARING ASSEMBLY	0.50%	0.45%	0.61%	0.00%	0.31%	1.11%	0.56%	1.32%	0.27%	0.73%	9.57%	0.71%
5	1.47%	15135	MAIN ROTOR HEAD DAMPER ASSEMBLY	1.11%	1.38%	0.52%	0.49%	0.90%	1.71%	1.94%	2.30%	0.28%	2.48%	0.22%	3.24%
6	1.41%	13161	SHOCK STRUT ASSEMBLY	1.31%	1.27%	1.39%	1.51%	0.72%	1.59%	2.69%	1.24%	0.51%	1.80%	1.81%	0.92%
7	1.37%	04000	CORROSION PREVENTION	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.54%	0.17%	0.00%	0.00%
8	1.18%	13111	MAIN LANDING GEAR ASSEMBLY	0.50%	0.55%	0.39%	1.41%	0.35%	1.89%	3.86%	0.35%	0.41%	1.87%	1.10%	0.07%
9	1.14%	22100	T700-GE-401( ) TURBOSHAFT ENGINE	1.11%	1.26%	0.79%	0.28%	0.97%	0.80%	2.67%	0.55%	0.58%	4.45%	0.00%	0.00%
10	1.12%	564A1	SBK11A/A24G26 DISPL GYROSCOPE	0.38%	0.34%	0.47%	0.00%	1.58%	1.51%	0.16%	2.47%	0.11%	0.36%	0.00%	4.66%
11	1.00%	42X13	BB716/A STORAGE BATTERY	0.00%	0.00%	0.00%	0.11%	0.27%	2.19%	4.09%	0.14%	0.11%	2.81%	0.28%	0.00%
12	0.97%	13191	MAIN/PROBE/RAST/ASSEMBLY	0.93%	0.94%	0.90%	0.29%	0.66%	0.85%	1.20%	0.94%	0.19%	1.43%	1.08%	2.18%
13	0.97%	14711	SWASHPLATE LINKAGE ASSEMBLY	2.35%	2.53%	1.96%	0.48%	1.27%	1.15%	1.73%	1.20%	0.35%	0.92%	0.00%	0.28%
14	0.96%	11000	AIRFRAME	1.09%	1.39%	0.45%	4.97%	0.14%	0.13%	0.64%	0.00%	2.19%	0.44%	0.00%	0.00%
15	0.95%	738BJ	TR348/AQS13F SONAR TRANSDUCER	0.49%	0.25%	0.99%	0.00%	1.21%	0.50%	0.40%	0.72%	0.14%	0.72%	2.96%	2.38%
16	0.91%	111J3	CENTER STABILATOR ASSEMBLY	1.12%	1.20%	0.94%	0.48%	0.80%	0.42%	0.92%	0.52%	0.28%	1.03%	0.12%	3.38%
17	0.89%	15410	MAIN ROTOR BLADE ASSEMBLY	1.08%	1.32%	0.58%	0.36%	0.97%	0.37%	0.00%	0.62%	0.21%	0.11%	0.00%	5.14%
18	0.87%	57R1G	STABILATOR ACTUATOR ASSEMBLY	0.93%	0.96%	0.86%	0.14%	1.56%	1.01%	0.75%	1.03%	0.31%	0.67%	1.74%	0.58%
19	0.86%	49353	RESCUE HOIST ASSEMBLY	1.07%	1.11%	0.98%	0.58%	0.97%	0.44%	0.15%	0.50%	0.23%	0.25%	0.42%	4.01%
20	0.84%	15540	TAIL ROTOR BLADE ASSEMBLY	0.42%	0.44%	0.38%	0.67%	0.53%	0.31%	0.00%	0.58%	0.24%	0.09%	0.00%	5.54%
21	0.82%	51H71	EAK13/A37J10 ENG TORQUE-ROTOR SP	0.00%	0.00%	0.24%	0.00%	0.58%	0.99%	3.36%	0.55%	0.06%	1.14%	1.20%	0.35%
22	0.78%	72R15	WAVEGUIDE PRSRZ SYSTEM INSTL (APS	0.14%	0.00%	0.23%	0.26%	0.14%	1.41%	2.68%	1.27%	0.10%	0.89%	0.37%	0.58%
23	0.69%	15171	MAIN ROTOR BLADE ASSEMBLY	1.31%	1.45%	1.01%	0.53%	0.68%	1.40%	0.00%	2.23%	0.27%	0.18%	0.25%	0.00%
24	0.64%	15136	PITCH LOCK ASSEMBLY	1.14%	1.33%	0.72%	0.46%	0.97%	0.78%	0.33%	0.79%	0.22%	0.34%	1.31%	0.09%
25	0.56%	26184	TAILCONE DISCONNECT COUPLING ASSE	0.92%	0.67%	1.47%	0.39%	0.78%	0.35%	1.11%	0.72%	0.19%	0.64%	0.20%	0.25%
	27.0%	TOTAL PERCENT OF EFFECT		22.0%	23.8%	18.3%	16.5%	18.5%	29.0%	35.7%	23.1%	47.7%	30.9%	24.8%	34.4%

Determining Top Affordable Readiness Degraders

Overall Top Affordable Readiness Degraders

- Maintenance Inspection
- BA0205 Battery
- Main Rotor Head Hub Assembly
- Elastomeric Bearing Assembly
- Main Rotor Head Damper Assem
- Shock Strut Assembly
- Corrosion Prevention
- Main Landing Gear Assembly
- T700-GE-401() Turboshaft Eng
- Displacement Gyro
- Rescue Hoist
- Tail Rotor Blade Assembly
- Forward Bridge Assembly
- Transmission Beams

ROI

Technically Feasible

Available Resources

Other Affordable Readiness Efforts

- Maintenance Inspection
- Corrosion Prevention

Affordable Readiness Candidates

- BA0205 Battery
- Main Rotor Head Damper
- Shock Strut Assy - TLG
- Main Landing Gear Assy
- T700-GE-401C Turboshaft Eng
- Stabilator Actuator Assy
- Rescue Hoist
- Tail Rotor Blade Assembly
- Forward Bridge Assembly
- Transmission Beams

Unaffordable

- Elastomeric Bearing Assembly
- Displacement Gyro

Resolved/Track

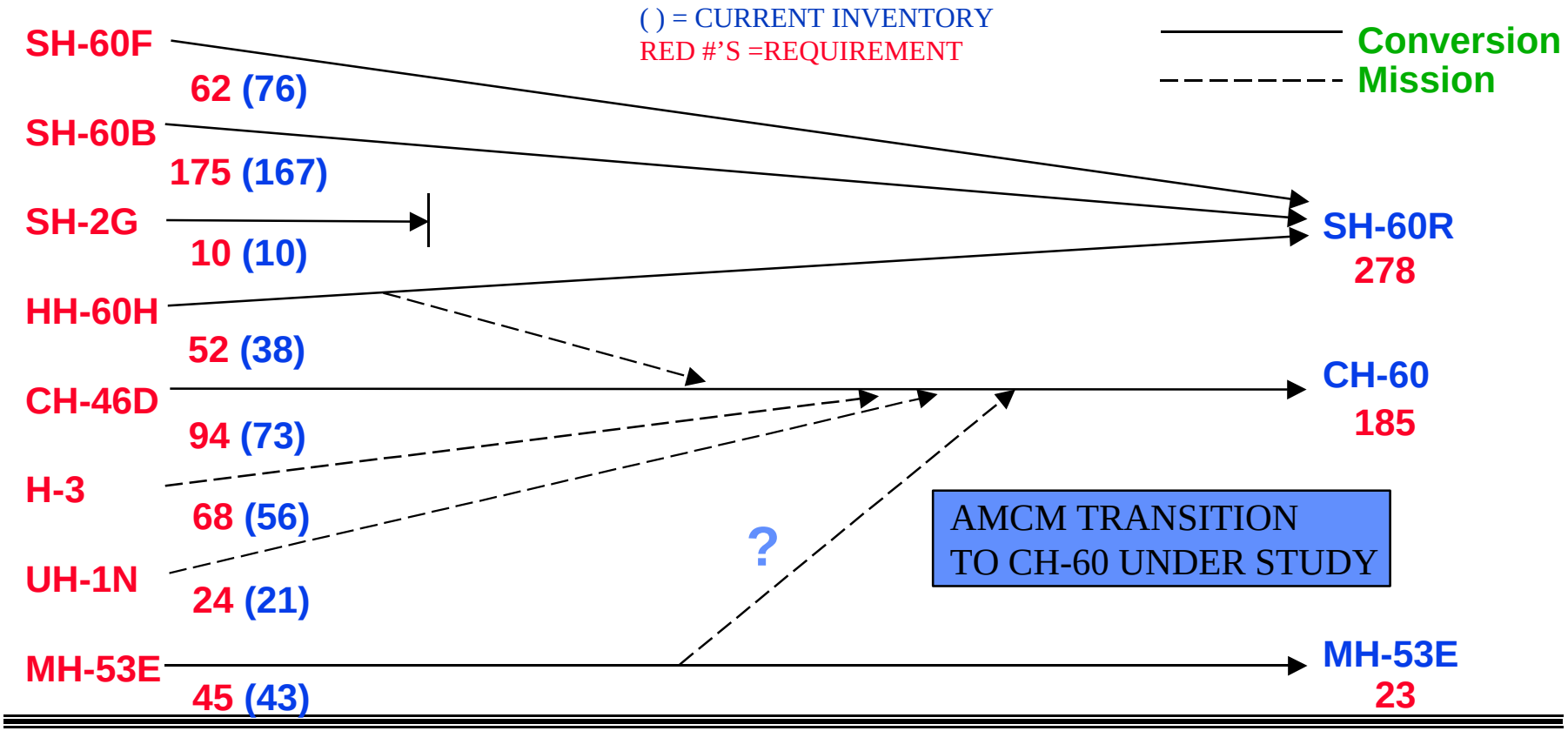
- Main Rotor Head Hub Assy
- Swashplate Linkage Assy
- MR Tip Cap Assy

Helicopter Master Plan
Cost Analysis

Overview:

- Initiated as business case of Helicopter Master Plan
- Uses Operation and Support Costs and Out Year Force Structure Requirement Costs.
- Takes Into Consideration Inflation and Aging Factors as Applicable To the Various Cost Factors.
- Used as a basis for LCC/program decisions.

HMP Roadmap



TMS REDUCTION: SH-60B/SH-60F/HH-60H/CH-46D/SH-3/SH-2G/UH-1N

Corrosion Preventative Compounds

- Corrosion #1 driver for unscheduled maintenance.
- External application of CPC's has been developed.
- Two SH-60Bs are being used in comparison test, one with Dynol and one with Fluid Film. Inspection results will be reported at each 112 day inspection for a minimum of one year.
- The prevention and early detection of corrosion will significantly reduce MMHR/FLTHR as well as $/FLTHR

FUNDING STATUS: **PROGRAM SELF FINANCED**

FY	1999	2000	2001	2002	2003	2004	2005	2006	2007	To Compl	Total
CPCs	Start Date: FY1999			End Date: INDEF			Break Even Date: FY2000				
Investment	277	0	0	0	0	0	0	0	0	1,108	1,385
Proj Cost Avoidanc	0	5,036	5,036	4,564	4,652	4,401	4,385	4,614	4,753	55,405	92,847
Cumulative Net	-277	4,759	9,796	14,360	19,012	23,413	27,798	32,412	37,165	0	

INVESTMENT $1.3M

COST AVOIDANCE $92.8M

ROI: 71.4

Interactive Electronic Technical Manuals(IETMS)

- By Consolidating Publications and Training Content we will reduce Net Development Costs for both by 20%, And Realize Lower Configuration Management Costs In Out Years.
- Eliminate Technical Manual “Paper Ready” Preparation Costs.
- Eliminate Paper Distribution Infrastructure
- Automate Technical Manual Management Tasks At User Level
- Minimize Change Incorporation Errors
- Incorporate Expert Systems Fault Diagnosis In IETMS To Reduce, Mean Time To Diagnose Faults, Maintenance Induced Maintenance, Unnecessary Maintenance And Incorrect Component Removals.

FUNDING STATUS: **FUNDED NAVAIR O&MN**

FY	Prev. Cum.	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	To Compl.	Total
ITEMS	Start Date:		FY1999		End Date:		Indef	Break Even Date:			FY2000		
Investment	0.0	0.0	0.7	0.9	0.7	2.0	0.7	0.0	2.0	0.7			7.6
Projected Cost Avoidance	0.0	0.0	0.0	5.4	3.4	5.4	3.4	3.4	3.4	3.4	3.4	0.0	31.0
Cumulative Net	0.0	0.0	-0.7	3.8	6.5	9.9	12.6	16.0	17.4	20.1	23.5	23.5	

ROI: 4.07

INVESTMENT $7.6M

COST AVOIDANCE $31.0 M

Health and Usage Monitoring System(HUMS)

- Usage monitoring and improved rotor track and balance
- Investigating leasing of HUMS system.
- Savings only account for reduction of non-revenue producing flights and decrease in AVDLR due to usage monitoring.
- Does not account for increased avionics life due to reduced vibration, reduction in personnel costs, increased dynamic component lives from monitoring.

FUNDING STATUS: **NRE - FY98 COSSI**
RECURRING - OM&N LEASE
(OR APN-1)

FY	1999	2000	2001	2002	2003	2004	2005	2006	2007	To Compl.	Total
HUMS	Start Date: FY1999		End Date: Indef			Break Even Date: FY2001					
Investment ($M)	11.6	34.9	15.4	16.5	16.2	15.8	14.9	13.8	12.2	35.8	187.2
Proj Cost Avoidance($M)	0.0	35.9	38.1	40.6	43.1	45.5	48.0	50.4	52.5	691.7	1045.8
Cumulative Net ($M)	-11.6	-10.7	12.1	36.2	63.0	92.7	125.8	162.4	202.8	0.0	
Potential Cost Avoidance	49.5	51.3	54.4	57.9	61.5	65.0	68.5	72.0	75.0	987.4	1542.5

INVESTMENT **$187 M**

ROI: 5.59

COST AVOIDANCE **$1045 M**

Integrated Maintenance Concept

- Preventative maintenance concept vice restorative maintenance.
- Avoids 300+ day unavailability during SDLM.
- Keeps aircraft in better material condition.
- 3 week IMC phase every year - increases availability.
- Integrates O, I and D level preventative maintenance.

FUNDING STATUS: OM&N/AVDLR

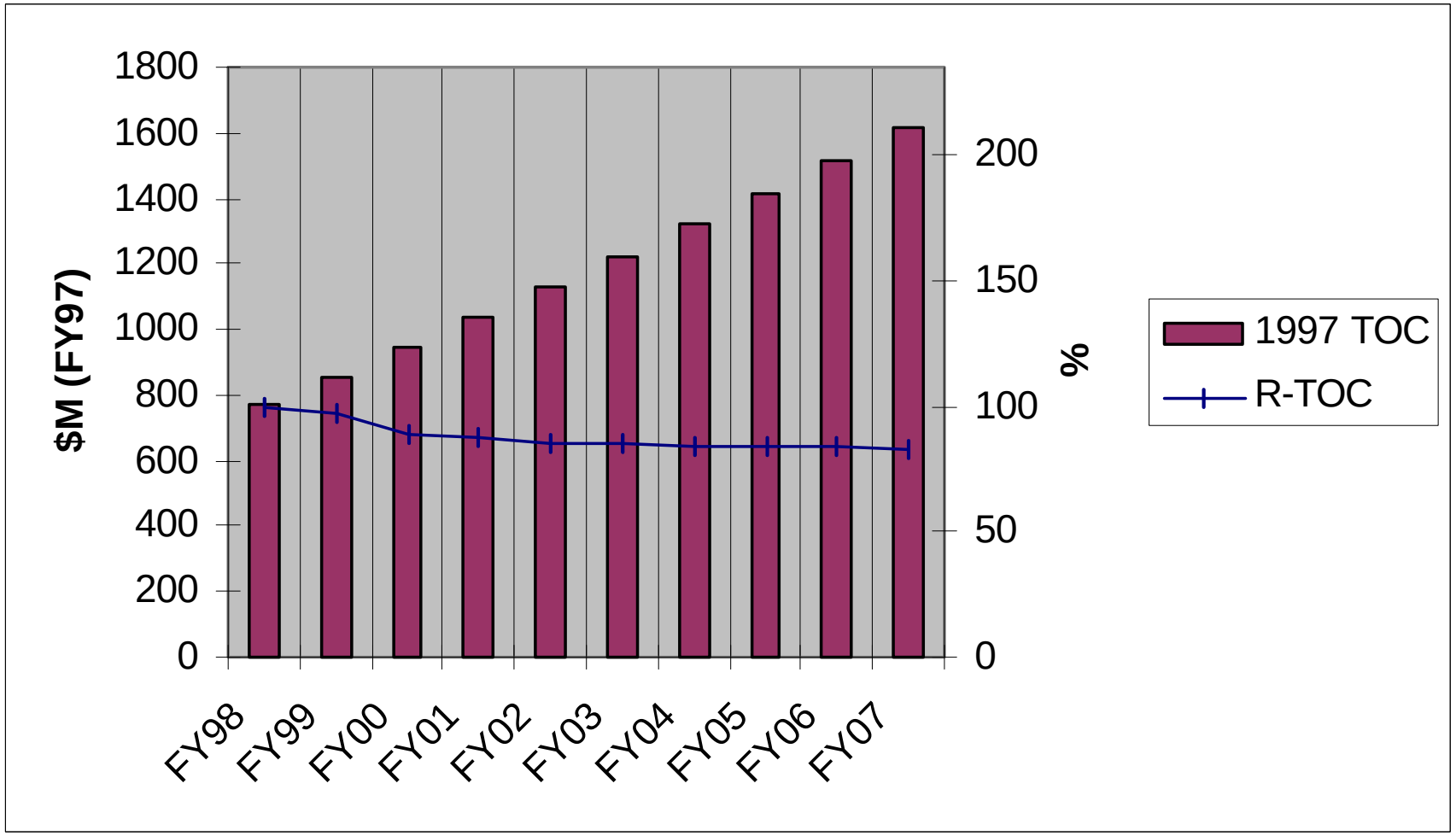
FY	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	To Comp	Total
IMC	Start Date	FY1999		End Date:	2015		Break Even Date:	FY2000				
Investment	3,414	17,267	19,501	18,738	16,626	18,193	15,374	16,325	19,878	22,336	169,740	337,691
Projected Savings	-	15,064	17,623	16,156	22,817	16,723	17,766	17,766	17,766	20,521	329,007	491,208
Projected Cost Avoidance	-	102,000	105,000	119,000	120,000	120,000	127,000	131,000	142,000	148,000	1,400,000	2,514,000
Cumulative Net	-3,714	81,020	166,518	266,780	370,154	471,961	583,588	698,263	820,385	946,049	2,176,309	

ROI: 8.92

INVESTMENT $337M

SAVINGS/COST AVOIDANCE $3,005M

*Resultant H-60 TOC Reduction**



**If all initiatives remain fully funded*

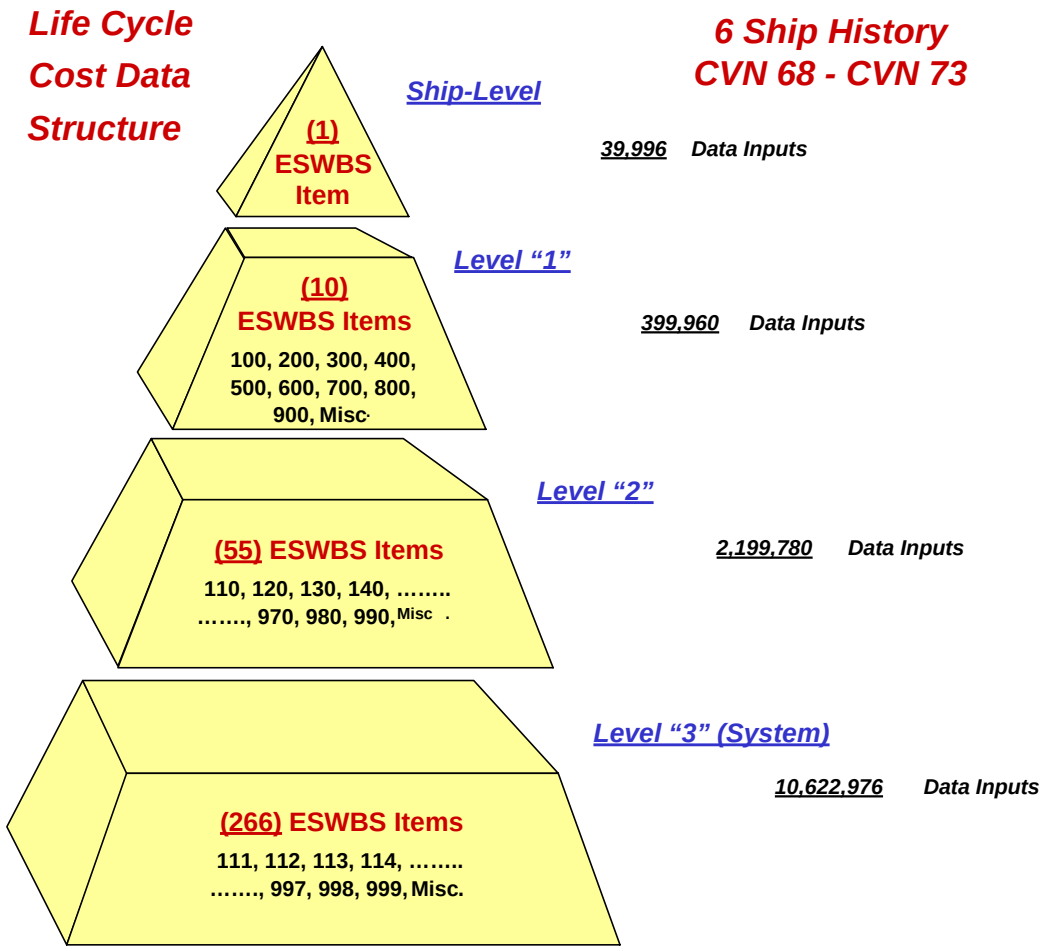
H-60 Conclusion

- H-60 Program has an Ongoing Aggressive Cost Reduction Program With Funded and Unfunded Initiatives Identified
- Some Initiatives Represent both Savings and Avoidance of Unbudgeted Yet Real Out-Year Requirement Costs
- In Order to Achieve the “Stretch Objective” of 20% Reduction in Costs Per Flight Hour by 2005 Significant Additional Investments Must Be Made Along with Cultural Modifications to “Business as Usual”
- A Stable Helicopter Master Plan Initiative Will Provide Substantial Additional Savings to Those Described


CVX

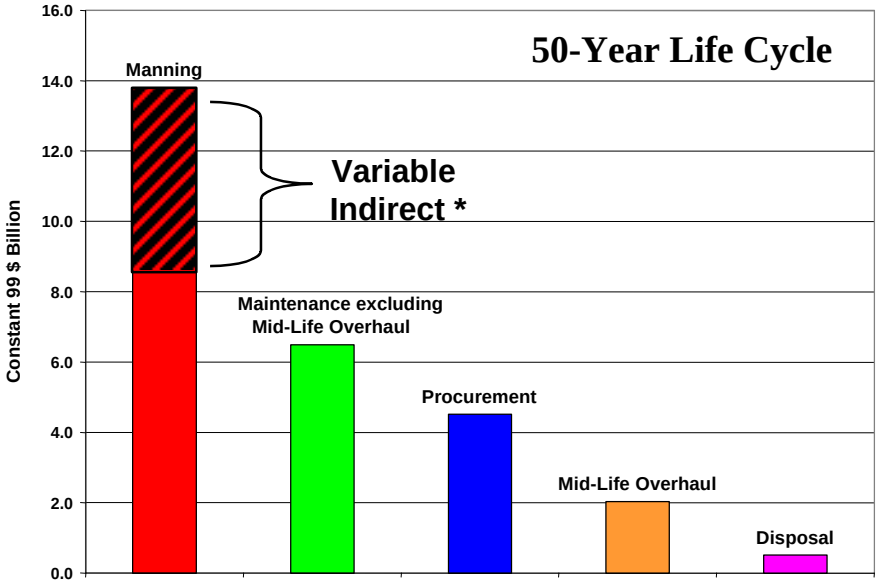
"First Seek to Understand," then…
What are the costs?

- CVNX Program with shipbuilder underway to gather the data in the designer's/shipbuilder paradigm.
- Costs have been gathered and organized into NAVSEA's Work Breakdown Structure
- Decompose costs to find opportunities for reduction
  - Manning
  - Maintenance
  - Midlife Overhaul
  - Disposal



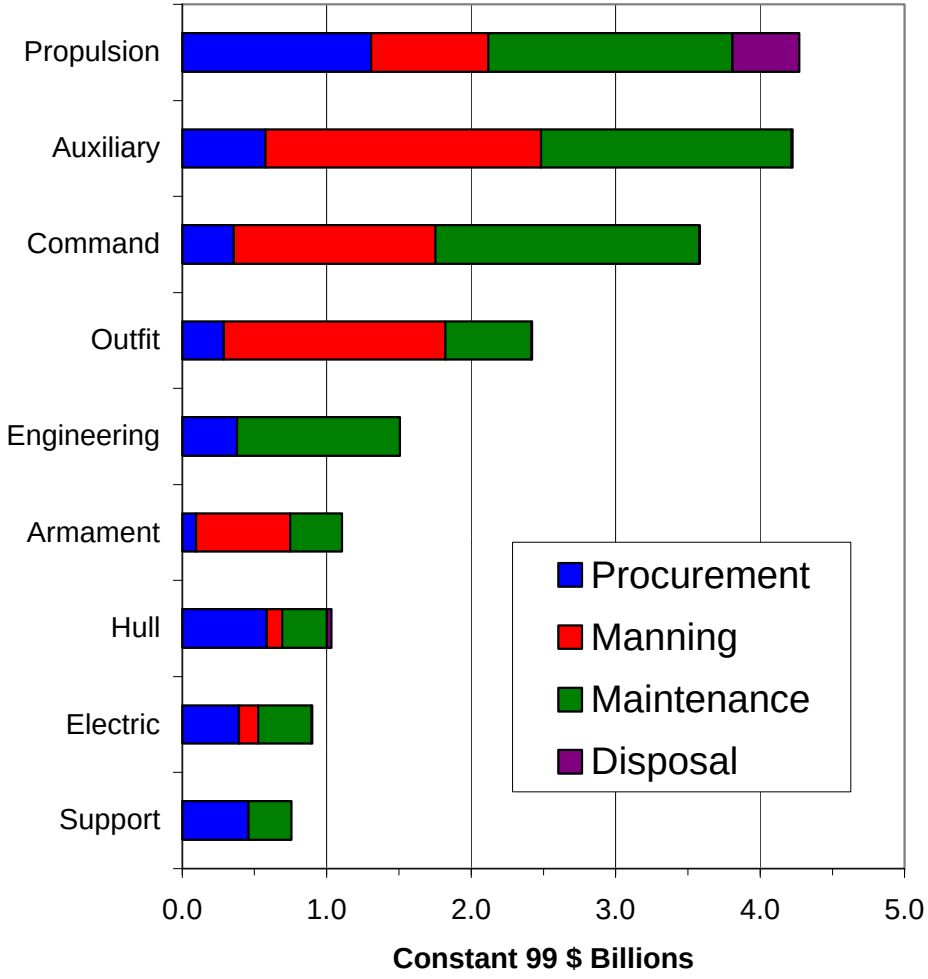
Nimitz Class Life Cycle Cost per Hull

Summary Life Cycle Cost

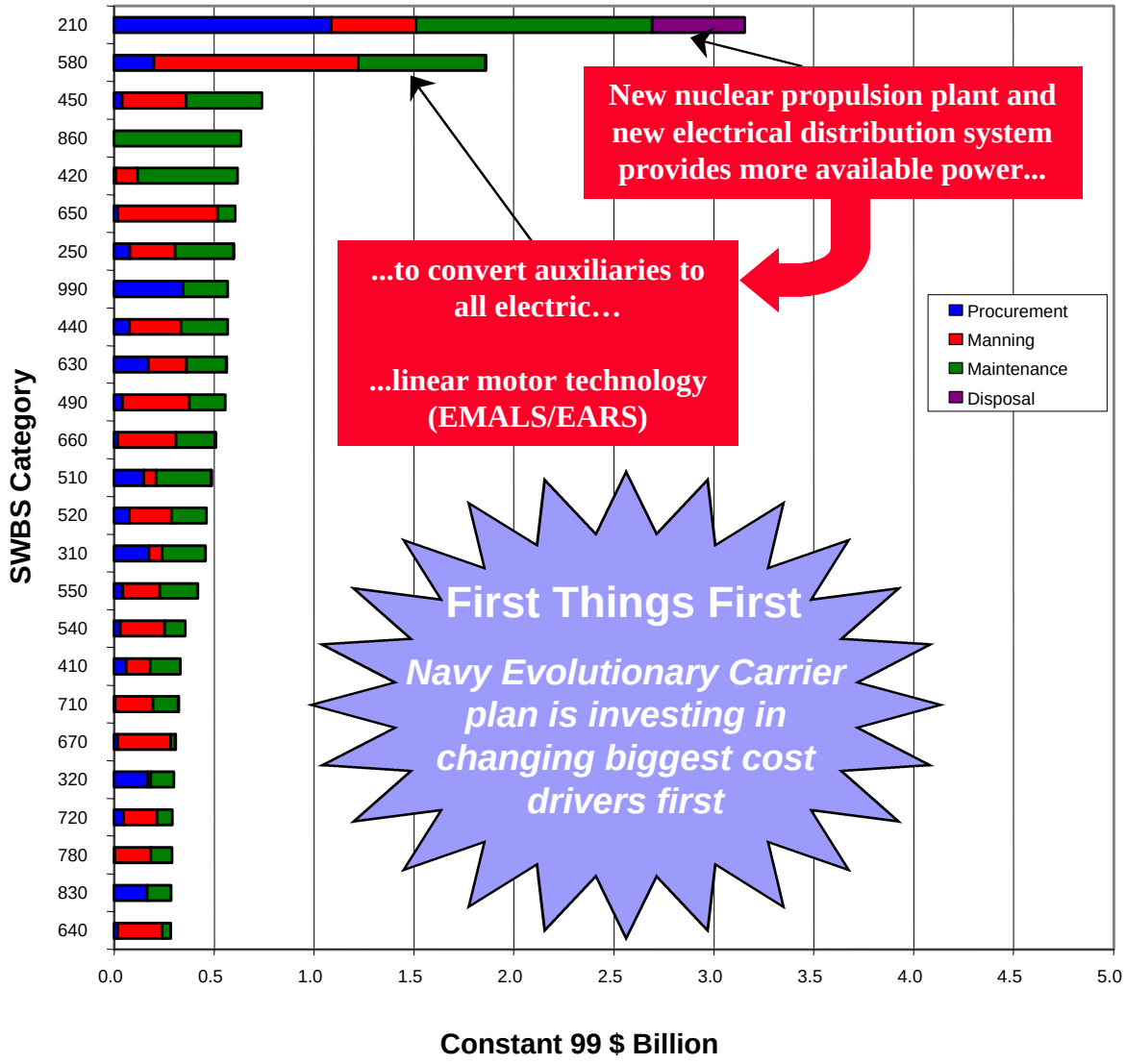


* Variable indirect not included in SWBS breakdown above

Level 1 SWBS*
CVN Life Cycle Cost Breakdown



Nimitz Class Life Cycle Cost Drivers
2 - Digit SWBS Breakout



210 = Nuclear
580 = Auxiliary Mechanical Systems
450 = Surveillance Systems
860 = Support Services
420 = Navigation Systems
650 = Service Spaces
250 = Propulsion Support Systems
990 = Construction Support
440 = Exterior Communications
630 = Preservatives and Coverings
490 = Special Purpose Systems
660 = Working Spaces
510 = Climate Control
520 = Sea Water Systems
310 = Electric Power Generation
550 = Air, Gas and Misc. Fluid Systems
540 = Fuel and Lubes, Handling & Stowage
410 = Command and Control Systems
710 = Guns and Ammunition
670 = Stowage Spaces
320 = Power Distribution Systems
720 = Missiles and Rockets
780 = Aircraft Related Weapons
830 = Design Support
640 = Living Spaces

What's Next?

Attack Top Cost Drivers

Design Tools & Processes to address Cost Drivers:

- Modeling & Simulation
- IPPD / IPDE

Battle Damage Prevention and Recovery

- Sprinkler & Fire Extinguishing Systems

Combat & Intelligence Systems

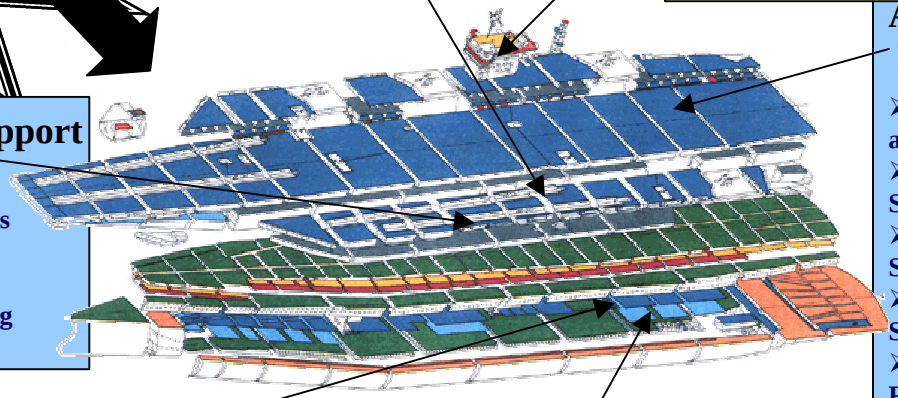
- Radio Systems
- Special Purpose Intelligence Systems
- Aircraft Control Radar Systems
- Guns & Missile Launching Devices

Aircraft Launch, Recovery & Support

- Aircraft Handling, Servicing, and Stowage
- Aircraft Launch Support Systems
- Aircraft Related Weapons Stowage
- Aircraft Recovery Support Systems
- Aviation and General Purpose Fuels
- Aircraft Related Weapons Handling
- Aircraft Related Weapons Elevators

Manpower & Material Support

- Commissary Spaces
- Officer Berthing & Messing Spaces
- Lockers & Special Stowage
- Storerooms & Issue Rooms
- Ship Stores & Equipment Handling Systems



HM&E and Auxiliaries

- Workshops, Labs, & Test Areas
- Ventilation and Air Conditioning
- Painting & Deck Coverings
- Ship Service Power Generation
- Sprinkler & Fire Extinguishing Systems
- Hull Decks
- Hull Structure, General
- Trunks and Enclosures

Propulsion & Power Generation

- Reactors
- Nuclear Steam Generator
- Ship Service Power Generation

CVN 77

CVNX 1

CVNX 2

Note (1) Design Tools & Processes Addresses most of the Top LCC Drivers

Logistics and Infrastructure Reductions

- **Regional Maintenance (FY99-08) $1.6B***
- **Infrastructure (FY98-05) $8.0B***
  - **SMART BASE $0.3B**
  - **Regionalization $1.0B**
  - **Competition $5.0B**
  - **Other (Utilities, Local Initiatives, etc.) $1.7B**
- **Naval Wholesale Inventory (FY98-03) $2.9B**
  - **FY(89-97) Reduced Inventory Holdings $11B**
  - **Reductions Caused by Removing Obsolete Parts and Implementing Readiness Based Sparing**

*** Savings reflected in POM 98**

DoN Process Focus

- **DoN is actively pursuing implementation of Activity Based Costing / Management (ABC/M)**

- **Many Navy program/project specific efforts are underway**
  - **Naval Air Systems Command Business Process Re-engineering (BPR) Effort**
    Field Activities and Warfare Centers
  - **San Diego Regionalization Initiative**
  - **Naval Shipyards**
  - **Fleet Industrial Supply Center (FISC)**
  - **Norfolk Information Technology Pilot**
  - **Naval Surface Warfare Center, Dahlgren Division**

- **Many USMC program/project specific efforts underway**
  - **Installations ABC project covering nine sites**
  - **HMMWV total cost analysis pilot**
  - **29 Palms Enhanced Equipment Allowance Pool (EEAP) TOC pilot**

Challenges

- **Improving Availability of Investment Resources**
- **Incentivizing Program Teams Is Key to the Success of Reducing TOC**
- **Cost Reporting Systems (e.g., VAMOSC) Must Be Improved to Insure Timeliness and Completeness**
- **Top Management Commitment Is Critical for ABC/M Successful Enterprise Wide Implementation**
- **Reduction of Total Ownership Cost Must be Expanded Beyond the Acquisition Community**

CONCLUSION

- **DoN Reducing Total Ownership Program In Place**
  - **Establishing Baselines**
  - **Defining Specific Initiatives**
  - **Results Drive Ownership Cost Targets**
  - **Tracking Execution**
- **Programs That Have Gone to Milestone Decisions over the Last Year Have Included Major TOC Reductions in their Baselines**
- **Innovative Approaches Are Being Used**
  - **Support Concepts**
  - **Technology Insertion**
  - **Process Improvement**
- **We Have Changed Our "Corporate" THINKING!**
  - **Reducing Ownership Cost is a Primary Goal of Every Program Manager**