T&E Transformation

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Changes Underway or Planned

- Missile Defense Agency
- Spiral Development
- Information Assurance
- T&E Resource Management Center
- Joint Test and Evaluation
- Base Realignment And Closure
- New Acquisition Regulations

The Past is Prologue

- Last year I said, "I've seen all this before."
- This year I say, "It hasn't gotten any better."

    – "Streamlining" is not a means to cut test
    – You don't "Save" time and money by cutting test
    – Confrontation is not more effective than cooperation

–T&E Transformation– What should motivate it?

- To be more useful and responsive to our combat forces and the development process, we need to fix
  - Inability to reliably identify immature technology, or understand risks associated with technology development
  - Failure of the feedback loops that should integrate testing with systems engineering
  - Insufficient or inadequate reliability testing

(To be continued)

–T&E Transformation– (2)

– Inability to track and evaluate software

– Insufficient prototypes and other test resources

– Lack of adequate engineering and technical human resources
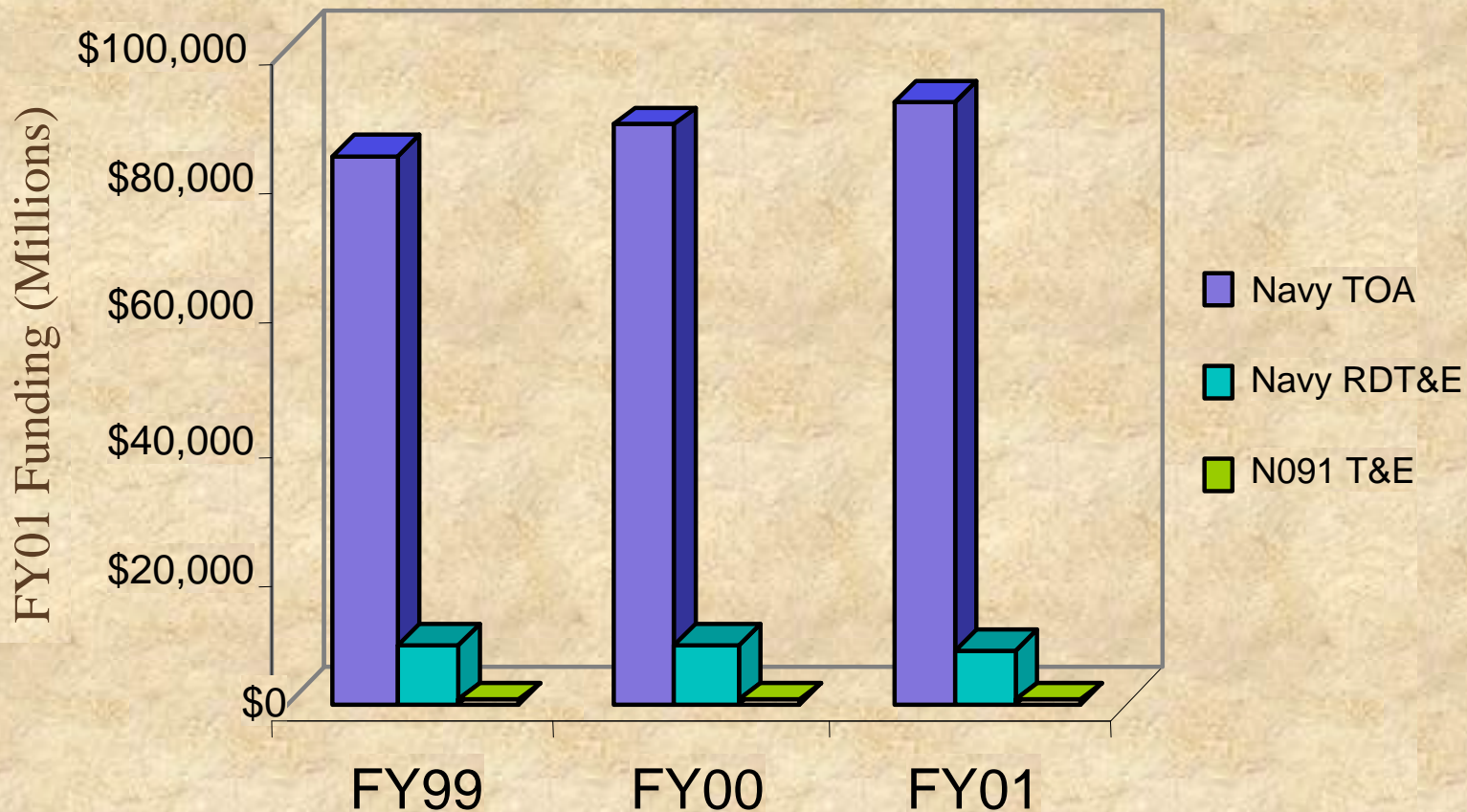
– Late and inadequate evaluation of training

–T&E Transformation–
1. Avoid Myths about Cost

- T&E, especially OT&E, is not a big fraction of the overall budget and schedule:

  - "I think there are a number of things that have got to be done here, because . . . we cannot keep spending what it's costing to test systems [and] so we can more quickly get capabilities in the hands of the user."
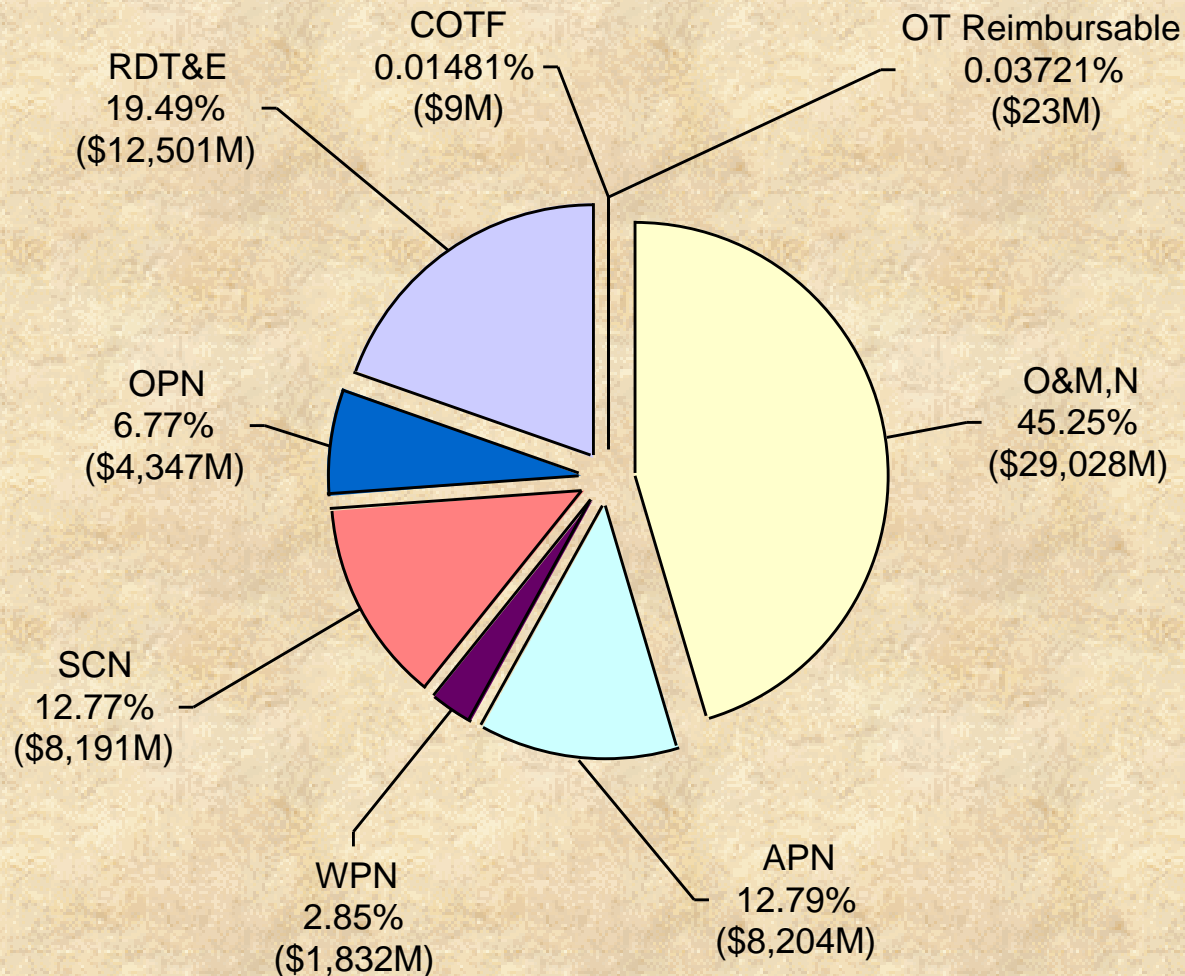
N091 T&E Funds
Relative to Navy RDT&E and TOA

FY01 Funding (Millions)

$100,000 —
$80,000 —
$60,000 —
$40,000 —
$20,000 —
$0 —

FY99   FY00   FY01

- Navy TOA
- Navy RDT&E
- N091 T&E

N091 T&E funds represent only 5% of all Navy RDT&E and .5% of Navy TOA

Source: Mr. George Ryan, Jr. 21 Aug. 2001

FY 03 Navy OT&E Costs as Compared to Warfighting Capability Investment

COTF
0.01481%
($9M)

OT Reimbursable
0.03721%
($23M)

RDT&E
19.49%
($12,501M)

OPN
6.77%
($4,347M)

O&M,N
45.25%
($29,028M)

SCN
12.77%
($8,191M)

WPN
2.85%
($1,832M)

APN
12.79%
($8,204M)

* As of 31 Jan 03

Data extracted from FY2003 Department of the Navy Budget: Section VI – Financial Summary

COTF and Reimbursable number as of 31 Jan 03, average annual reimbursable = $43M

Air Force OT&E Cost Data

Program	Status	Status Date	Acquisition Cost	OT&E cost (Total)	% $ OT&E/$Acq
JDAM MK-84	Completed	1/29/03	$ 2,386 M	$ 2.0 M	0.085 %
JHMCS	Completed	9/13/02	569 M	1.0 M	0.179 %
B-1CMUP D	Completed	10/30/00	669 M	0.9 M	0.148 %
B-1 CMUP E	Completed	1/27/03	840 M	0.3 M	0.041 %
Cheyenne Mtn Upgrade	Completed	10/1/98	1,800 M	2.1 M	0.118 %
APG-63 Upgrade	Completed	6/1/01	1,000 M	1.6 M	0.160 %
WCMD	Completed	9/30/00	650 M	1.2 M	0.186 %
JSOW	Reporting	1/15/03	6,000 M	2.2 M	0.036 %
Total (Completed)			$ 7,915 M	$ 9.34 M	0.118 %

OT&E Costs less than 0.2% of Acquisition

OT&E Cost = .91% of Acquisition

US Army Programs
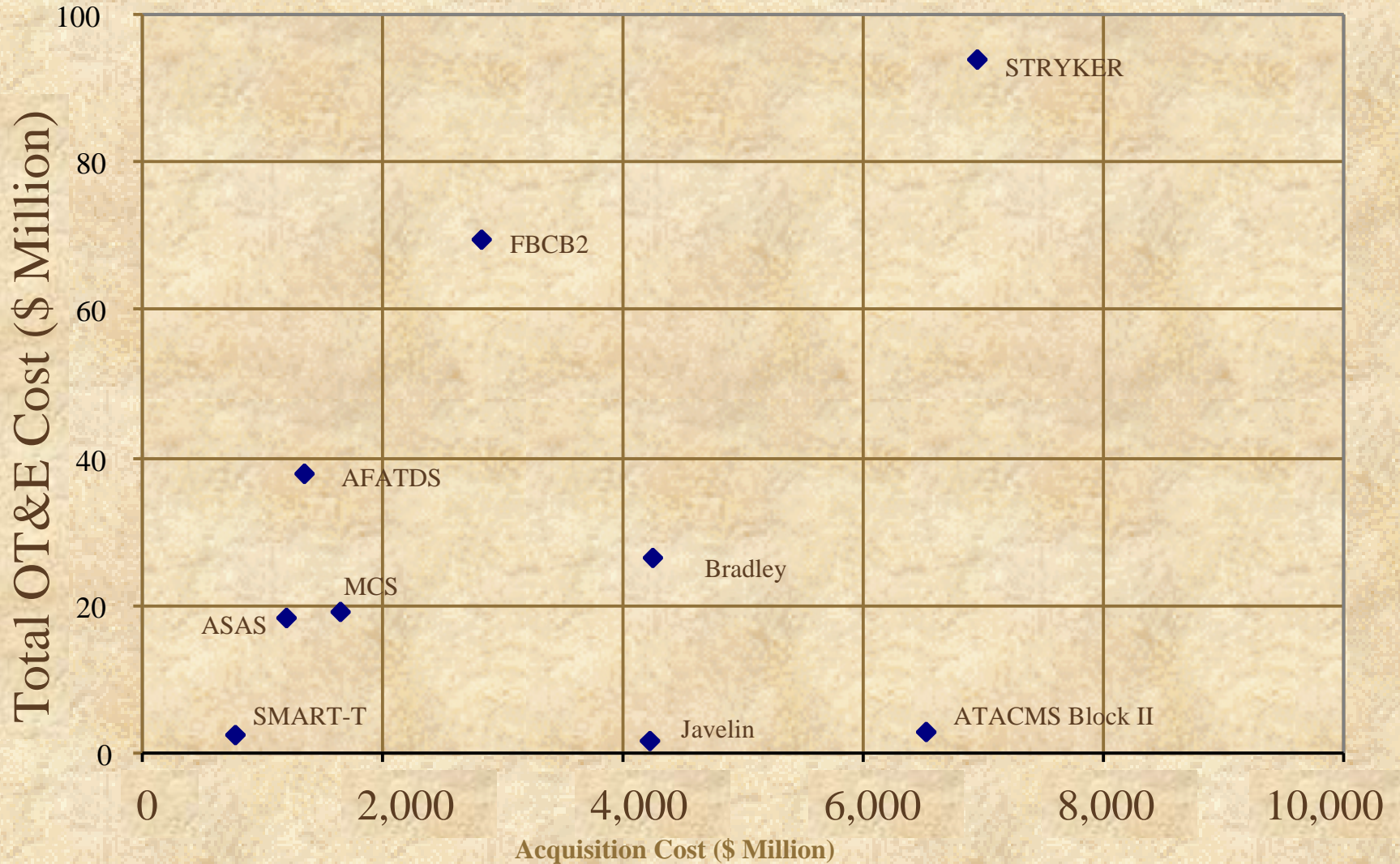
2. Avoid Myths about Time

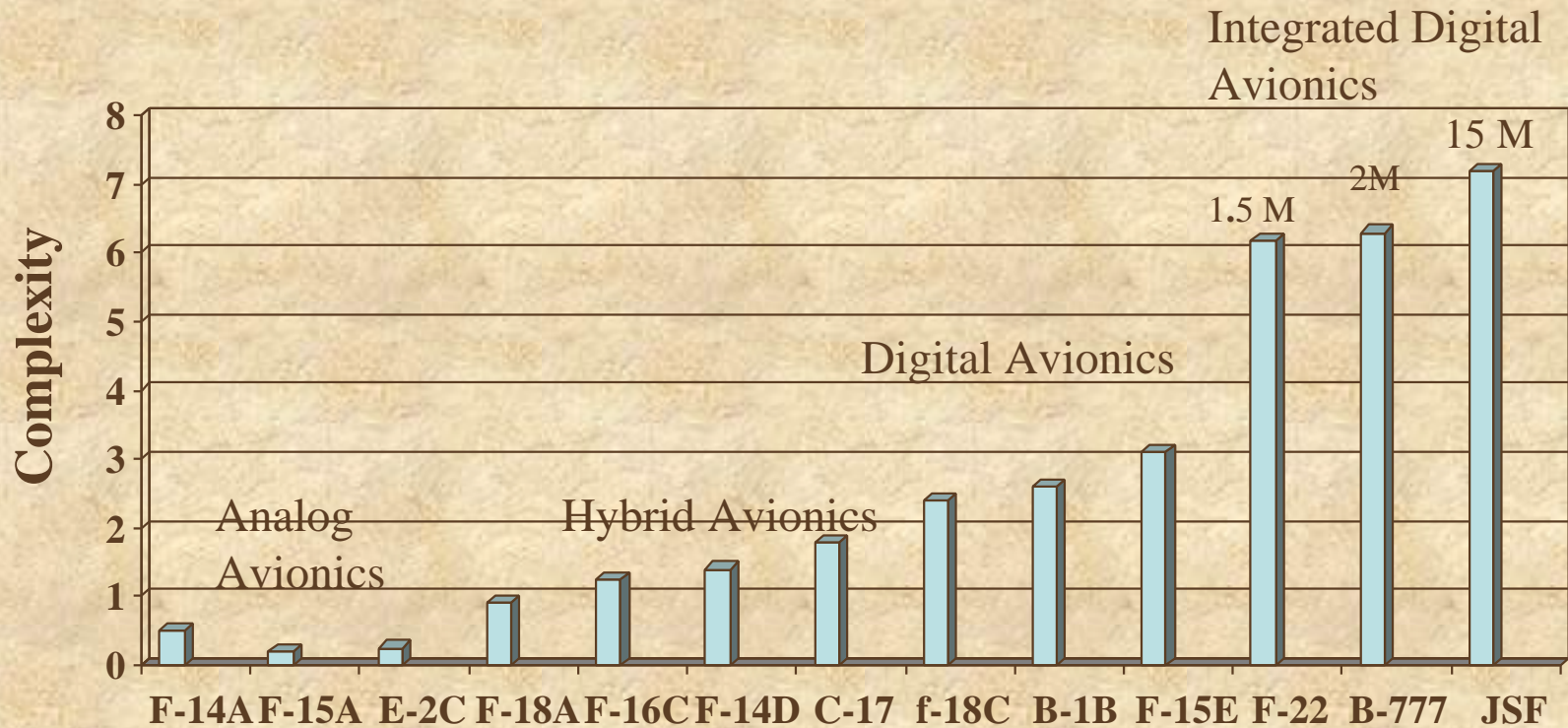| System	Development Time	Planned Length of IOT&E	Comments
F-22	SON: 9 Nov.1984 19+ years MS I Oct 1986	6 mo.	IOT&E of 2001 is yet to occur
V-22	FSD 1986 20+ years MS I Oct 1981	7 mo.	OPEVAL initially for 1989
JSF	Planned 15 years		IOT&E initially for FY08 now FY10
SSN-21	20 years	18 mo.	
AIM-9X	5 years	6 mo.	FRP for 1 Q FY02 Decertified after first shot
Shadow UAV	COTS (+1 year of fixes)	2 weeks (April 2002)	Stopped first IOT&E (2001) after two days.

2. Avoid Myths about Time

- Recognize that production does not stop when the IOT&E starts.

- One of the purposes of Low Rate Initial Production is to insure that production is not broken; but continues to ramp up.

- SARs provided to Congress since 1999 (9 sets) reported no program delays/cost increases attributed to OT.
  - There were delays (and cost increases) in testing due to program design changes or program restructuring and there were test failures that caused cost increases.

–What can NDIA do?– Observe

- The environment and systems are more complex
- The experiment with Total Contractor System Responsibility is over
- Demonstrated and measurable improvement in system performance is the goal
- Testing finds what needs to be done
- Testing confirms that performance is improved

Complexity*

Integrated Digital Avionics

Digital Avionics

Analog Avionics

Hybrid Avionics

15 M

2M

1.5 M

•For Integrated Digital Avionics,
Aviation Week used
Complexity = Log(Number of lines of Code)

Sources: Aviation Week & Space Technology Nov. 3, 1997
And other sources

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–What can NDIA do?– Orient to

- Get new systems to the warfighter faster:
  - Warfighter capabilities improved
  - Profits come from production not RDT&E
- Improve T&E contribution to development
  - Through more and better testing
  - Complexity requires the user to be in early
- Look to government as a partner in development (before it becomes a customer of the product)

–What can NDIA do?– Decide

- You want profitability sooner
- You need the user in development
- To catch the problems early is a help not a threat
- The best PR you can get is demonstrated performance during testing - especially operational testing

–What can NDIA do?– Act

- Work to encourage an increase in the TEMPO of testing
- Work for more user involvement early
- Give spiral development a chance with continuous testing and lead-the-fleet operations

Summary Thought

- I've been around a long time and know many who have fought for their country and had friends killed or almost killed.

- They never came to me complaining that a weapon had slipped a development schedule by six months or a year.

- They never complained to me that the unit cost had grown.

- They did, and do, complain when their country gave them systems that did not perform.

- We must realize the ultimate cost of sacrificing performance.