

Imagine...

- Small UAVs can follow an insurgent into a building and target that building for real-time coalition air strikes
- An ammunition supply team can re-direct deliveries to an unforeseen hot-spot
- A government buyer can find a new provider for a key component
- A disaster recovery team can add and dismiss critical participants from NGOs and business/industry as field conditions develop
- A re-tasked Commander can plan on-the-fly
- A training environment in which trainees can do virtual ride-alongs
- A spouse can establish a relocation plan despite a last minute change in orders
- A unit in the field can access information as soon as it is available and posted (without delays for extended analysis)
- Medical specialists can be located as battlefield wounds are being stabilized
- Assignments Officers can maintain pace with battlefield realities and academic opportunities

...We're beginning to see these happen today

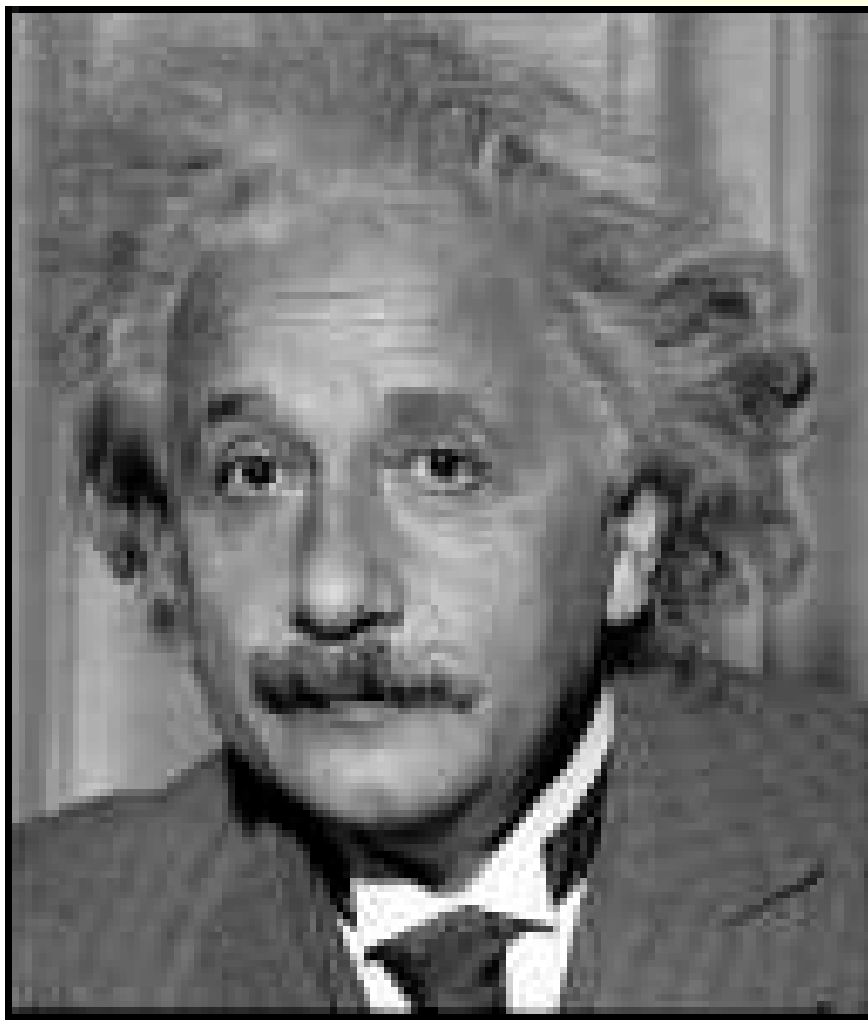


NII Support for the Warfighter

Achieving Net-Centric Operations

John Landon
Deputy to the ASD(NII) for C3ISR
& IT Acquisition
March 29, 2006





We can't solve
problems by
using the same
kind of thinking
we used when
we created
them.

Albert Einstein



What does “Net-Centric” Ops Mean?

People, processes, and technology working together to enable timely:

- ACCESS to information
- SHARING of information
- A PERSISTENT COLLABORATION CAPABILITY available to those who need it, when they need it

Better information leads to better decisions



In a Net-Centric Environment,

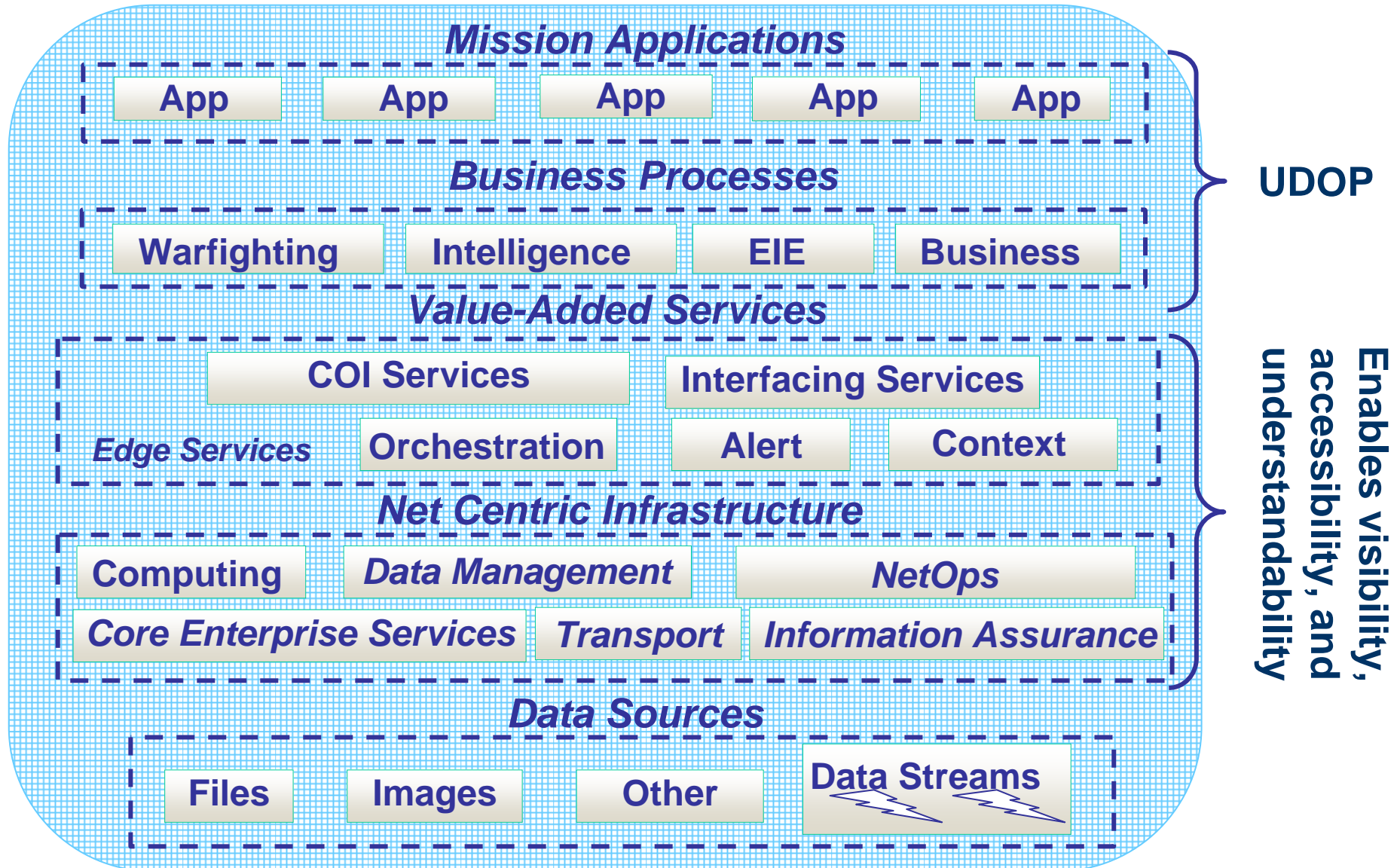
Data, Value-Added Services, and Applications are:

- Visible – e.g. easily discoverable to users and applications
- Accessible – e.g. authorized users and applications have immediate access to data posted to the network
- Understandable – e.g. metadata provides a rich semantic understanding

"Smart" Pull



Net-Centric Environment Architecture



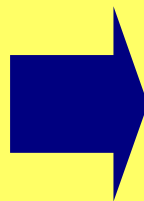
*COI is Community of Interest

*UDOP is User-Defined Operating Picture

UDOP vs COP

- A UDOP is a visual display of data sources *which are available in common to the community*
 - The information available is not pre-determined
 - The user selects the data sources, value-added services, applications, and presentation.
- A COP is a visual representation of a common database shared by some community
 - The information available is limited to pre-arranged data sources,

COP: User “gets what somebody else decided he needs”



UDOP: User “takes what he needs” and “contributes what he knows”



To Local Search Dire

g, 37.407229, -122.107162

Places

Katrina Damage Assessment and Outages	Flooded Areas
Impassable Roads	Saturated Areas
Impassable Rail	Light Damage
Impassable Bridges	Moderate Damage
	Extensive Damage
	Catastrophic Damage

Google Earth and the Keyhole Markup Language provide an example of what a UDOP might be like

[Katrina Damage Assessment 14Sep-10am KMZ file](#)

11-12-42-54_300h

Sightseeing

Start your Google Earth world tour

default

Google Earth default view.

Temporary Place

Katrina-damage-outages-14Sep-1000

This file contains flooding

Damage Le

Layers

Airports/Transportation

Airports/Transportation

Heliports (United States)

Airport Map

Airports/Transportation



roads

Transit -- Local

Transit -- County

Railroads

borders

City Boundaries

Postal Code Boundaries

Lodging

Roads

Terrain

Dining

Borders

Buildings

Pointer 30°02'09.32" N 90°02'52.31" W

Streaming 100%

Eye alt 20.48

Navigation controls: Home, Back, Forward, Stop, Rotate, Zoom In, Zoom Out, Full Screen, Print, Email

Net-Centric Ops Enablers?

- Net-Centric Data Strategy
 - Visible, accessible, usable
- A COI is ...
 - a *Community*, of people, who are all *Interested* in something, and need to share information
 - *Establish standards on how information will be exchanged*
- Information Assurance
 - More than firewalls: keeps data secure, not just safe
- GIG
 - People, processes, technology



NCO Hurdles

- **Get concepts turned into reality**
- **Get warfighter to realize value of Net-Centric Operations**
- **Get the Net-Centric Message Out**



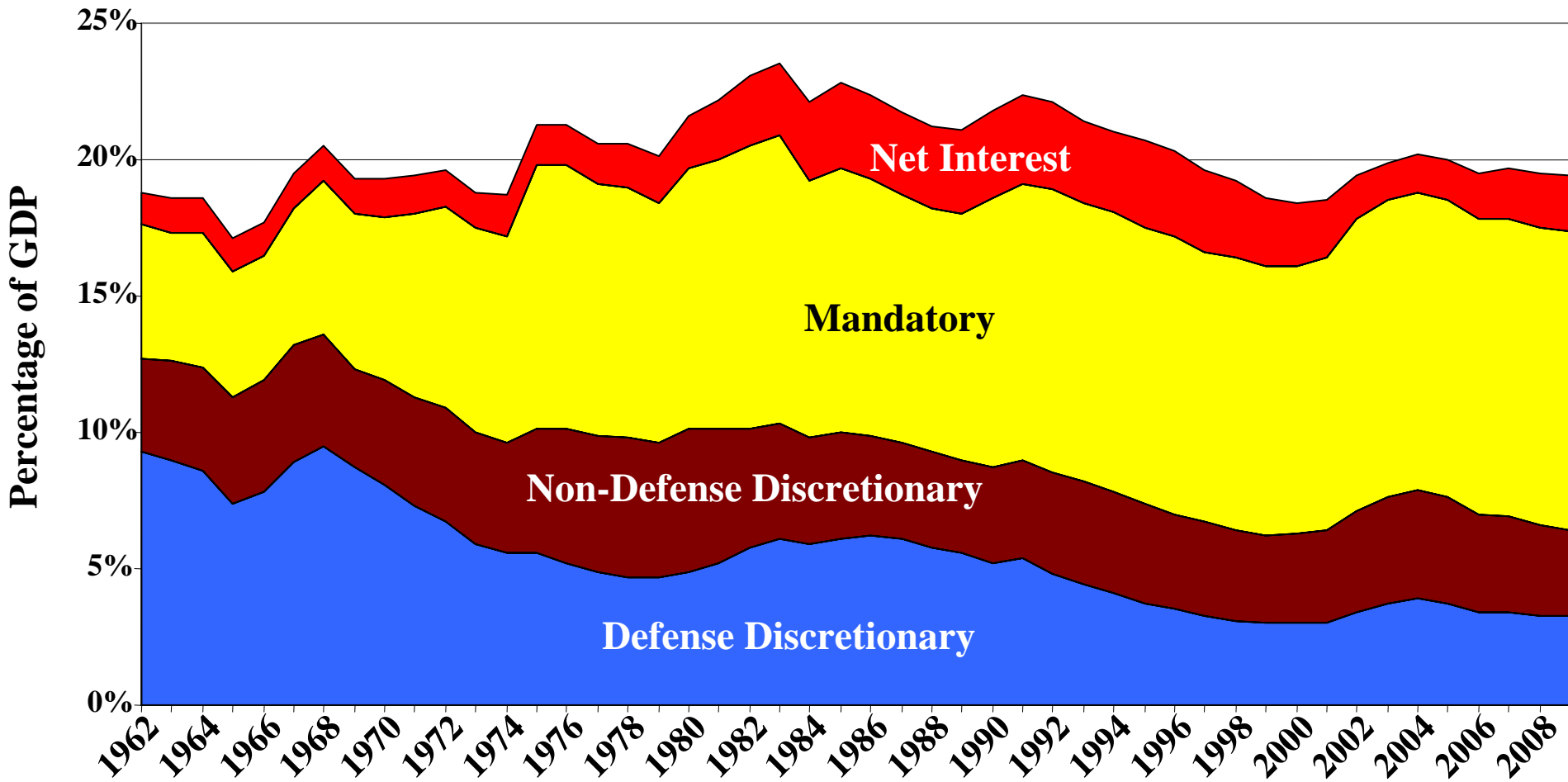
Shifting Gears





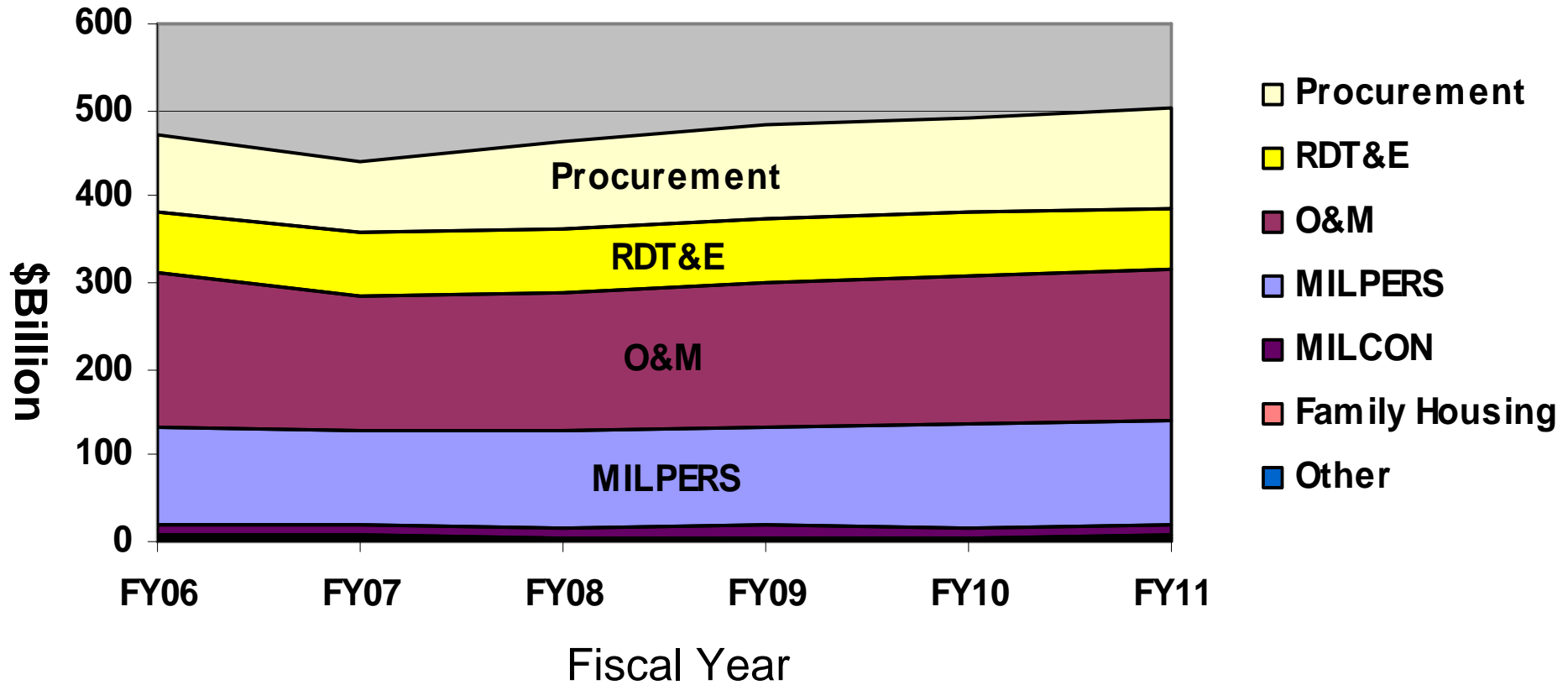
Federal Spending by Category as a Percentage of GDP

FY 1962 - FY 2009





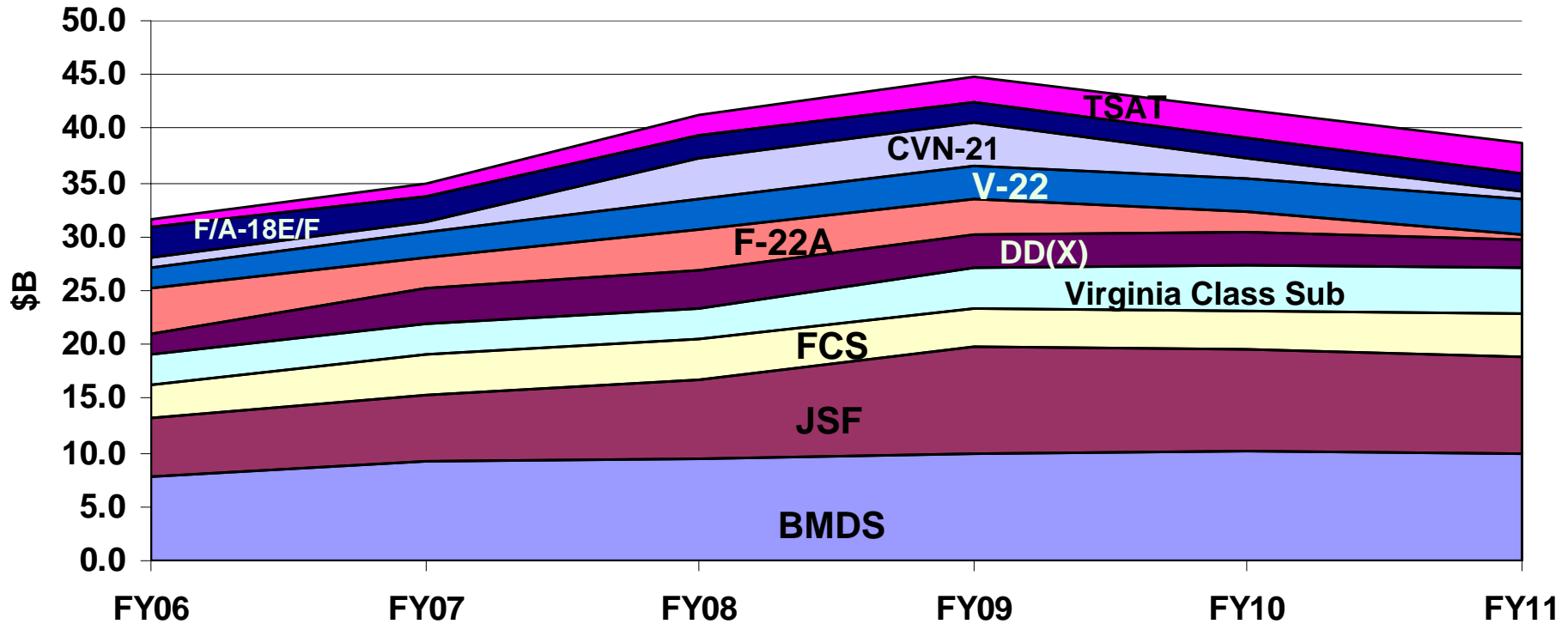
Total DoD Topline FY 2007 President's Budget



FY06-11 Investment Averages 37% of Topline
FY06-11 O&M Averages 35% of Topline
FY06-11 Military Pay Averages 24% of Topline



PB07 Top 10 Investment Programs



FY06-11 Cumulative Total = \$233B
Approximately 22% of total Investment consumed by Top 10 Programs



What's the Message?

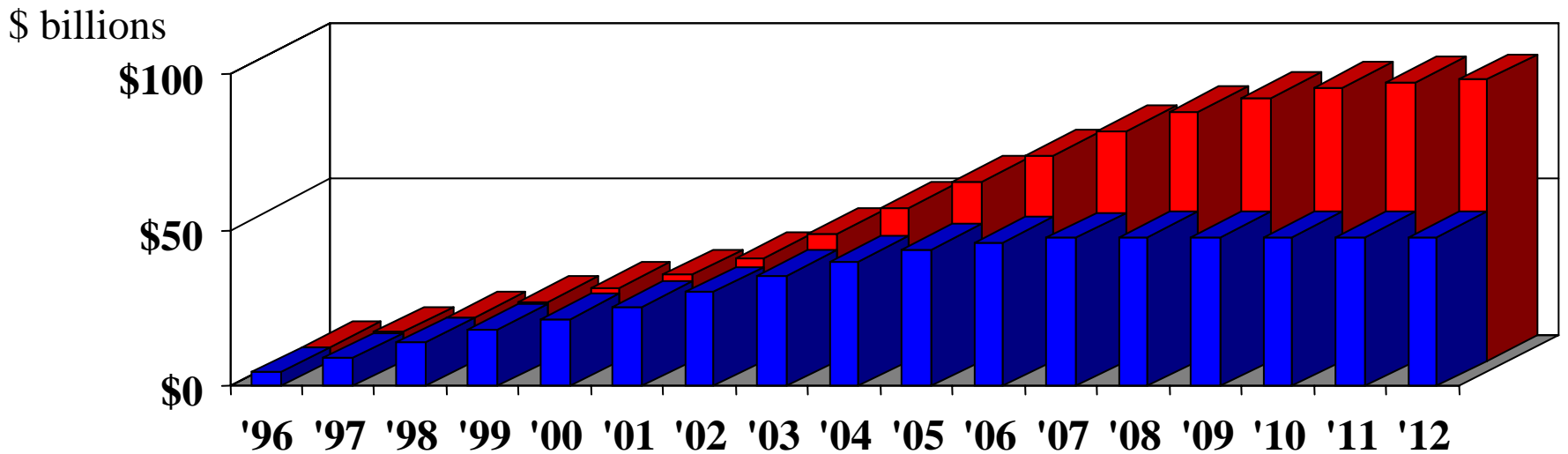
- **Federal Budget seeks Equilibrium**
- **Mandatory Payments are Growing**
.....But Federal Topline remains at 20% GDP
- **DoD Investment remains fairly stable**



What's Our Performance?



Cumulative Effect of R&D Cost Growth on Developing Weapon Systems¹

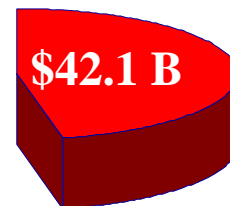


8 Programs: JSF, Comanche, SBIRS-H, F/A-22, V-22, EFV, DDG-51, SSN-774

■ FY 1998 Plan ■ FY 2005 Plan

FY '05: \$89.95 billion total

FY 1998 plan for completing development of 8 programs



Additional investment needed under FY 2005 plan for completing the 8 programs

Source: GAO Analysis of SAR data (12/31/96 and 12/31/03) on the 8 weapon systems among the highest R&D budget requests for FY 2003.

Note: All dollars are in constant FY 2005 dollars.



DOD Programs Frequently Rebaseline

- GAO found that 49 of the 81 major defense programs (60 percent) reporting in 2003, rebaselined more than once during the life of the program.
- Programs with largest number of rebaselining:

Program	Year of Program Start	Latest Rebaseline	Number of Rebaselinings
F/A-22	1992	April 2004	14
DDG 51	1988	August 2002	11
SM-2 Block V	1993	August 1999	11
SSN-21	1988	April 2000	10

Based on Analysis of DOD SAR Data

Source: GAO Report 05-182, Defense Acquisition, March 2005



GAO Analysis of 26 DoD Acquisition Programs

Cost and Cycle Time Growth for 26 Selected DoD Weapons Systems

FY05 \$ Billions	First Full Estimate	Latest Full Estimate	Percent Change
Total Cost	\$479.6	\$548.9	14.5
RDT&E Cost	\$102.0	\$144.7	41.9
Simple Average Cycle Time	94.9 Months	114.7 Months	20.8
Weighted Average Cycle Time	146.6 Months	175.3 Months	19.6

26 Programs Assessed: AESA, AEHF, APKWS, C-5 AMP, C-5 RERP, CH-47F, CEC, E-2 AHE, EA-18G, Excalibur, EFV, ERGM, F/A-22, FCS, Global Hawk, JASSM, JSOW, JSF, JTRS Cluster 1, Land Warrior, NPOESS, Tomahawk, SDB, V-22, WIN-T, and WGS

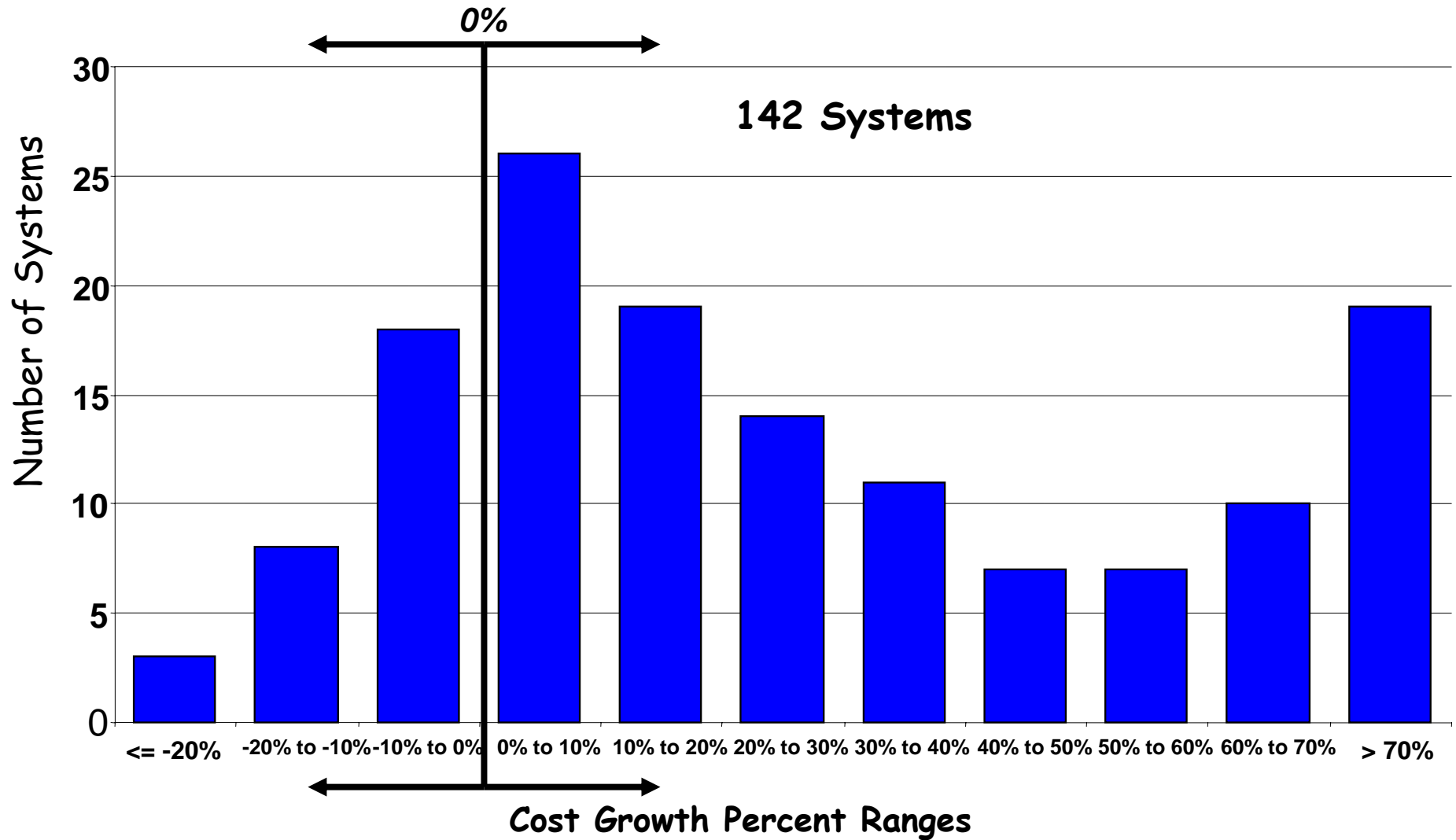
Weighted Average Cycle Time: weighted estimate of average acquisition cycle time for the 26 programs based on total program costs for first and latest estimates.

Source: GAO Report 05-301, *Assessments of Selected Major Weapons Systems*, March 2005



OSD CAIG Study January 2003 Cost Growth Summary

Source: OSD Cost Analysis Improvement Group (CAIG) Study: Cost Growth of Major Systems





Causes of Program Cost and Schedule Growth

- Immature Technology
- Design Instability
- Funding Instability & Budget Constraints
- Workforce Experience
- Poor Risk Estimation & Management
- Underestimating Integration
- Unrealistic Scheduling
- Unrealistic Requirements
- Requirements Instability
- Contractor Performance
- Parts Reliability
- Supporting System Readiness



Effects of Cost and Schedule Growth

- **Delays Needed Capability to Warfighter**
- **Promotes Hardware and System Obsolescence**
- **Strains Service's Support and Sustainment Systems**
- **Unnecessary Strain on limited O&M Funding**
- **Increases Sustainment Costs at Expense of Modernization**
- **Limits Number of Program New Starts**
- **Stretches-Out Procurement**



Summary

- **Discretionary funding is shrinking**
- **Programs are taking longer and costing more**
- **Investment appropriations are decreasing**

**Bottomline:
It's Time to Change Our Behavior**