Frameworks, As Proven Tools
for Functional Interoperability,
Need Managed Evolution
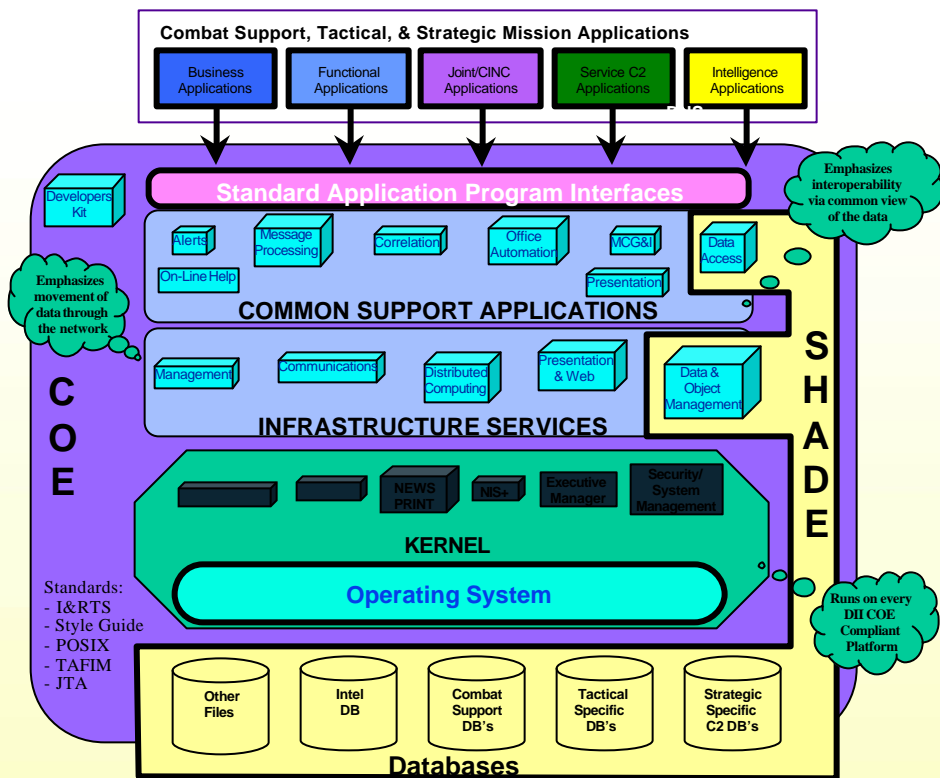
Interoperability and Systems Integration Conference
Mesa, Arizona
March 31- April 3, 2003

Christine Reynolds
Vice President, C3I Systems
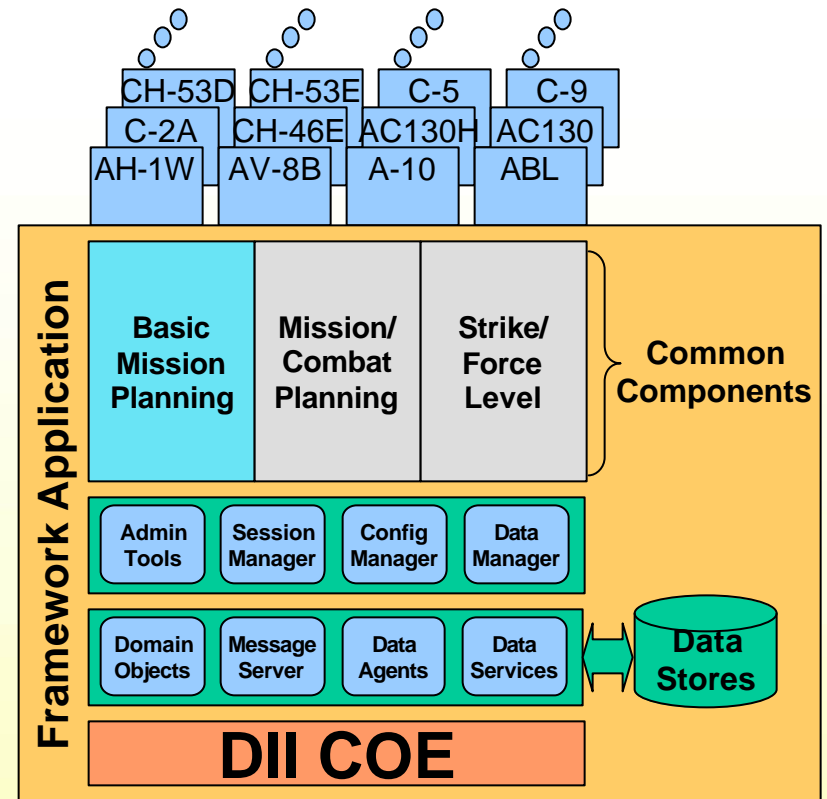**Northrop Grumman Information Technology**

- **COE and JMPS as application Frameworks**

- **Frameworks provide fiscal leverage and interoperability**

- **The ISSUE**
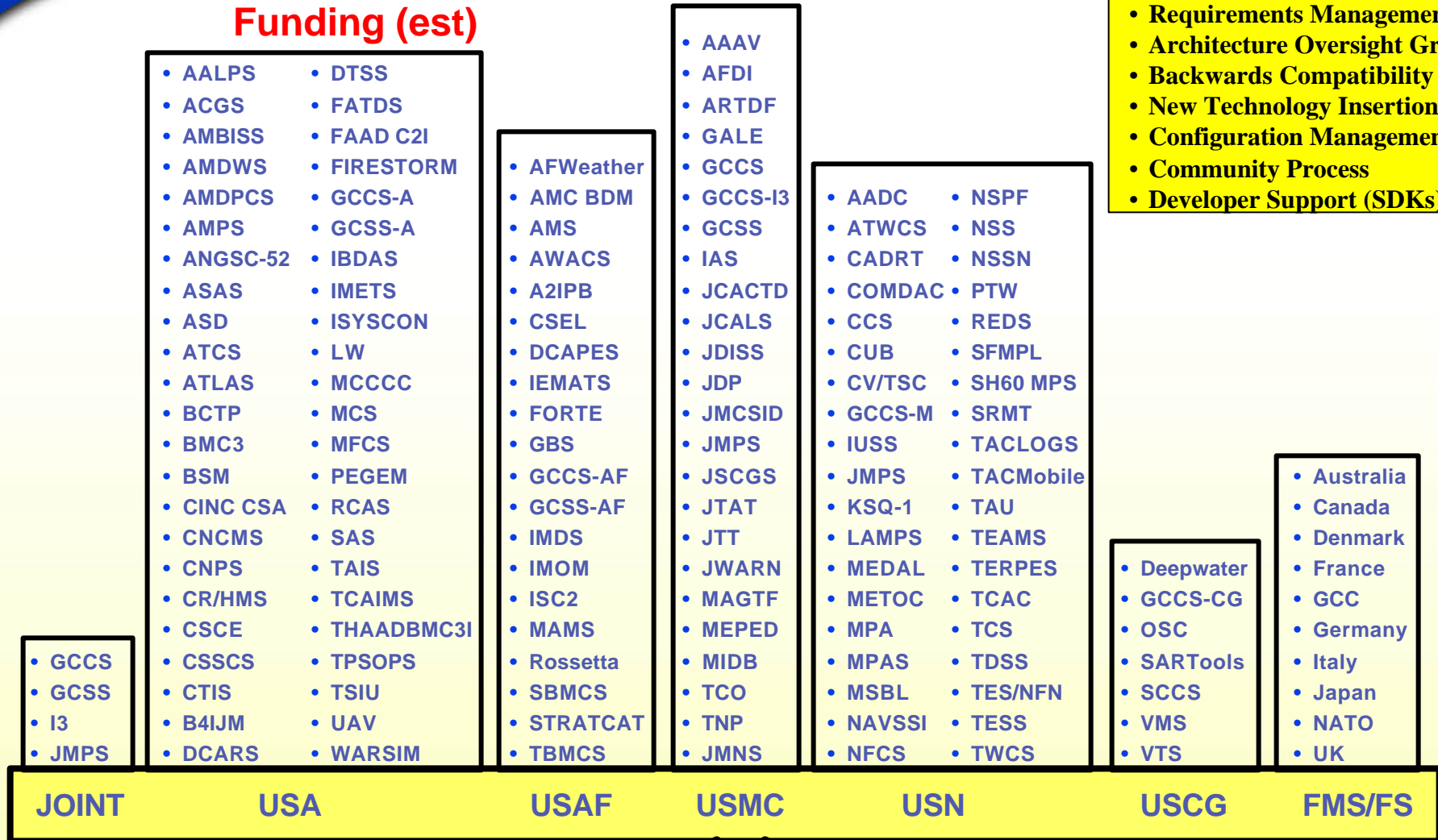
- **Summary**

- **Recommendations**

COE

JMPS

Combat Support, Tactical, & Strategic Mission Applications

Business Applications	Functional Applications	Joint/CINC Applications	Service C2 Applications	Intelligence Applications

Developers Kit

Standard Application Program Interfaces

Emphasizes interoperability via common view of the data

Alerts	Message Processing	Correlation	Office Automation	MCG&I	Data Access

On-Line Help

Presentation

COMMON SUPPORT APPLICATIONS

Emphasizes movement of data through the network

Management	Communications	Distributed Computing	Presentation & Web	Data & Object Management

INFRASTRUCTURE SERVICES

C O E

S H A D E

NEWS PRINT | NIS+ | Executive Manager | Security/ System Management

KERNEL

Operating System

Runs on every DII COE Compliant Platform

Standards:
- I&RTS
- Style Guide
- POSIX
- TAFIM
- JTA

Other Files	Intel DB	Combat Support DB's	Tactical Specific DB's	Strategic Specific C2 DB's

Databases

CH-53D | CH-53E | C-5 | C-9
C-2A | CH-46E | AC130H | AC130
AH-1W | AV-8B | A-10 | ABL

Framework Application

Basic Mission Planning	Mission/ Combat Planning	Strike/ Force Level

Common Components

Admin Tools	Session Manager	Config Manager	Data Manager
Domain Objects	Message Server	Data Agents	Data Services

Data Stores

DII COE
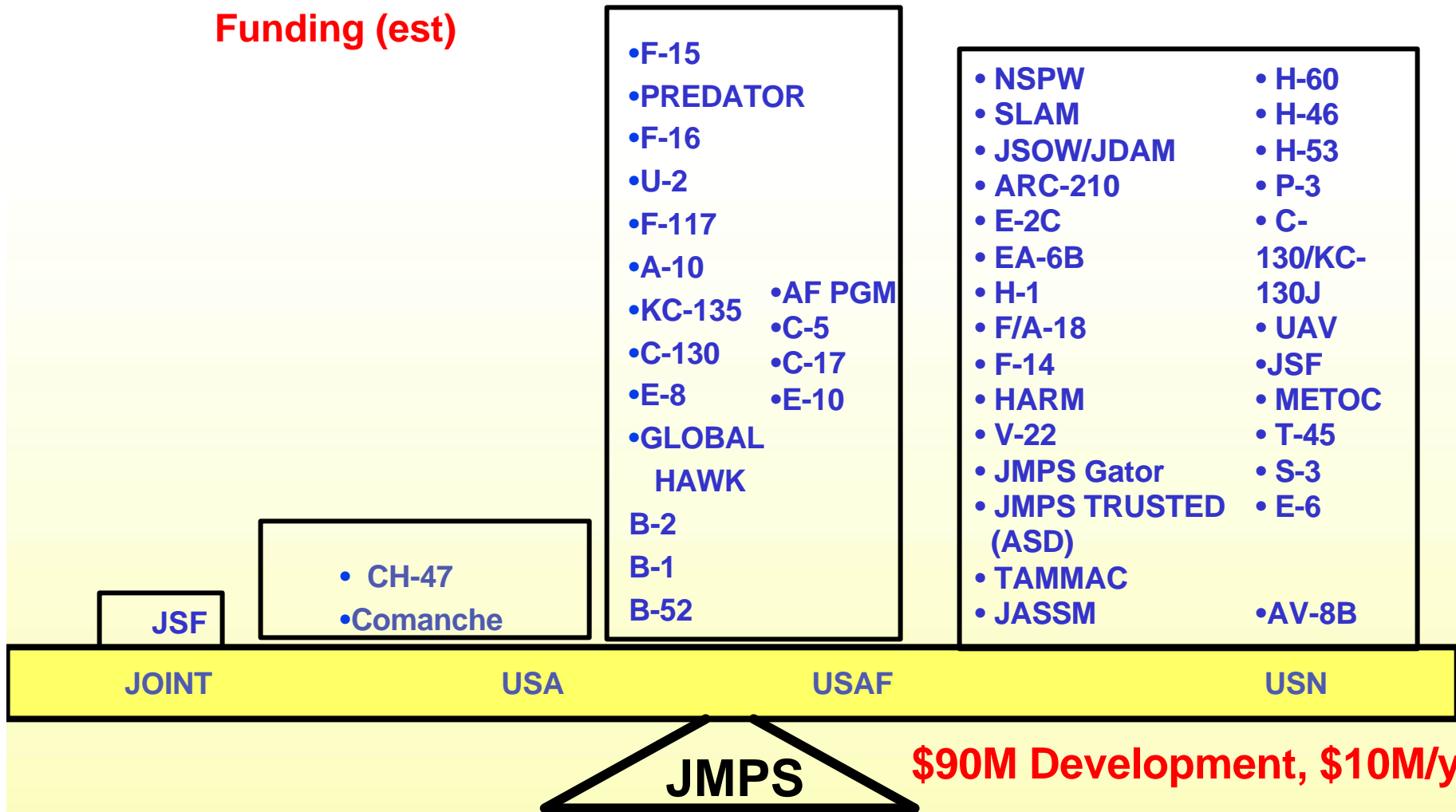
$7B Program

Funding (est)

Considerations:
- **Requirements Management**
- **Architecture Oversight Groups**
- **Backwards Compatibility**
- **New Technology Insertion**
- **Configuration Management**
- **Community Process**
- **Developer Support (SDKs)**

JOINT
- GCCS
- GCSS
- I3
- JMPS

USA
- AALPS
- ACGS
- AMBISS
- AMDWS
- AMDPCS
- AMPS
- ANGSC-52
- ASAS
- ASD
- ATCS
- ATLAS
- BCTP
- BMC3
- BSM
- CINC CSA
- CNCMS
- CNPS
- CR/HMS
- CSCE
- CSSCS
- CTIS
- B4IJM
- DCARS
- DTSS
- FATDS
- FAAD C2I
- FIRESTORM
- GCCS-A
- GCSS-A
- IBDAS
- IMETS
- ISYSCON
- LW
- MCCCC
- MCS
- MFCS
- PEGEM
- RCAS
- SAS
- TAIS
- TCAIMS
- THAADBMC3I
- TPSOPS
- TSIU
- UAV
- WARSIM

USAF
- AFWeather
- AMC BDM
- AMS
- AWACS
- A2IPB
- CSEL
- DCAPES
- IEMATS
- FORTE
- GBS
- GCCS-AF
- GCSS-AF
- IMDS
- IMOM
- ISC2
- MAMS
- Rossetta
- SBMCS
- STRATCAT
- TBMCS

USMC
- AAAV
- AFDI
- ARTDF
- GALE
- GCCS
- GCCS-I3
- GCSS
- IAS
- JCACTD
- JCALS
- JDISS
- JDP
- JMCSID
- JMPS
- JSCGS
- JTAT
- JTT
- JWARN
- MAGTF
- MEPED
- MIDB
- TCO
- TNP
- JMNS

USN
- AADC
- ATWCS
- CADRT
- COMDAC
- CCS
- CUB
- CV/TSC
- GCCS-M
- IUSS
- JMPS
- KSQ-1
- LAMPS
- MEDAL
- METOC
- MPA
- MPAS
- MSBL
- NAVSSI
- NFCS
- NSPF
- NSS
- NSSN
- PTW
- REDS
- SFMPL
- SH60 MPS
- SRMT
- TACLOGS
- TACMobile
- TAU
- TEAMS
- TERPES
- TCAC
- TCS
- TDSS
- TES/NFN
- TESS
- TWCS

USCG
- Deepwater
- GCCS-CG
- OSC
- SARTools
- SCCS
- VMS
- VTS

FMS/FS
- Australia
- Canada
- Denmark
- France
- GCC
- Germany
- Italy
- Japan
- NATO
- UK

DII COE

~$20M/Year (contractor)

$1B Program
Funding (est)

- F-15
- PREDATOR
- F-16
- U-2
- F-117
- A-10
- KC-135
- C-130
- E-8
- GLOBAL HAWK
- B-2
- B-1
- B-52

- AF PGM
- C-5
- C-17
- E-10

- NSPW
- SLAM
- JSOW/JDAM
- ARC-210
- E-2C
- EA-6B
- H-1
- F/A-18
- F-14
- HARM
- V-22
- JMPS Gator
- JMPS TRUSTED (ASD)
- TAMMAC
- JASSM

- H-60
- H-46
- H-53
- P-3
- C-130/KC-130J
- UAV
- JSF
- METOC
- T-45
- S-3
- E-6
- AV-8B

- CH-47
- Comanche

JSF

| JOINT | USA | USAF | USN |

JMPS

$90M Development, $10M/yr

Primary Issues

- *Frameworks Aren't Programs of Record – Lack Visibility*

- *Annual support funding flat*
  - Must support maintenance of all fielded programs, those in production and development

- *Subscriber requirements are voluminous and increasing*
  - Joint Requirements
  - Service Unique Requirements
  - System Developer Reqs (i.e. APIs)
  - Security Requirements

Customer Satisfaction has the potential to decline rapidly

Secondary Issues

- *Maintaining Interoperability*
- *Inserting New Technology*
- *Maintaining Backwards Compatibility*
- *Enforcing mandates*
- *Managing multiple baselines*
  - Fielded, production, development
- *Maintaining Single Source Baseline*
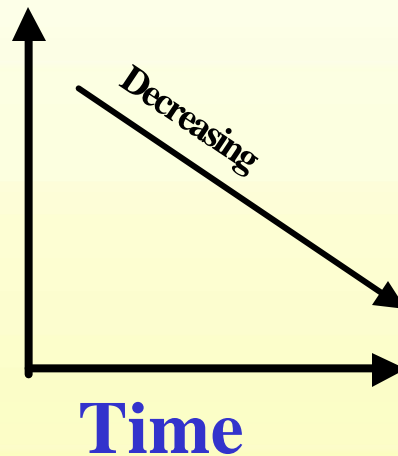- *Achieving architectural compliance*
- *Contracting (Moving $$$)*

$

Limited

Funding

Time

Constant

+
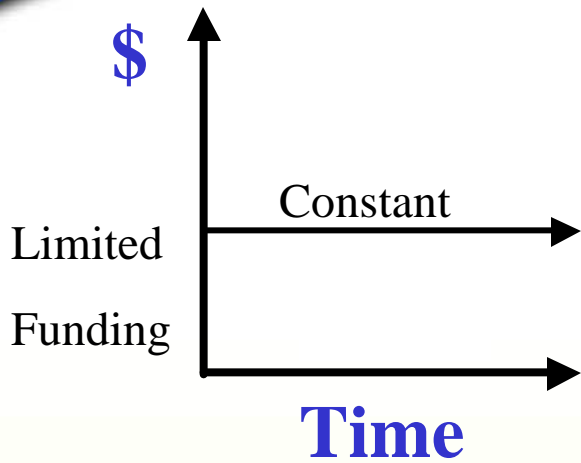
Reqts

Increasing
Program
Requirements

Saturation

Time

=

**Customer
Satisfaction**

Decreasing

Time
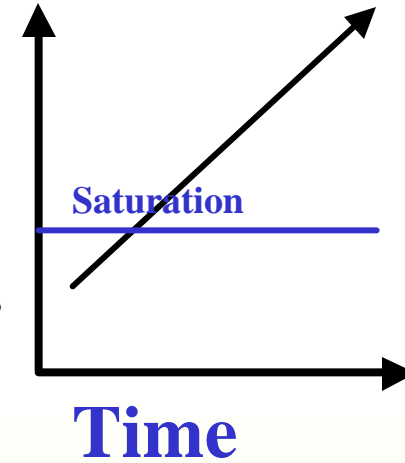
*Result is loss of
interoperability*

- **Use of application frameworks only proven way of providing interoperability in an efficient manner**
  - DoD has received tremendous leverage from the COE investment, will also from use of JMPS

- **Frameworks need continued emphasis to meet evolving requirements and to ensure original investment will be protected**
  - Otherwise, PORs will provide their own solutions, which are not designed to be interoperable

- **Establish frameworks as programs of record and manage at the appropriate ACAT level**
  - NCES will have own line in 2005
  - But also need POR identification for current frameworks which will be maintained for a number of years

- **Must evolve these frameworks so that they can keep up with emerging requirements to support service customers**