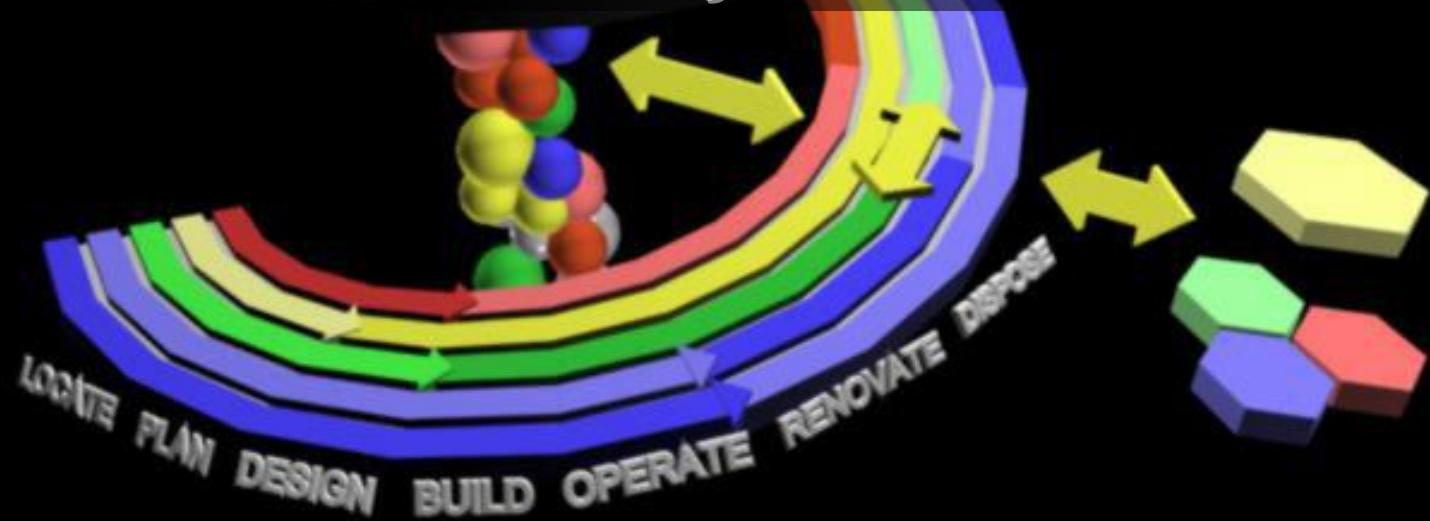


buildingSMART with COBIE

Bill Brodt, NASA

Bill East and Jeff Kirby, USACE ERDC



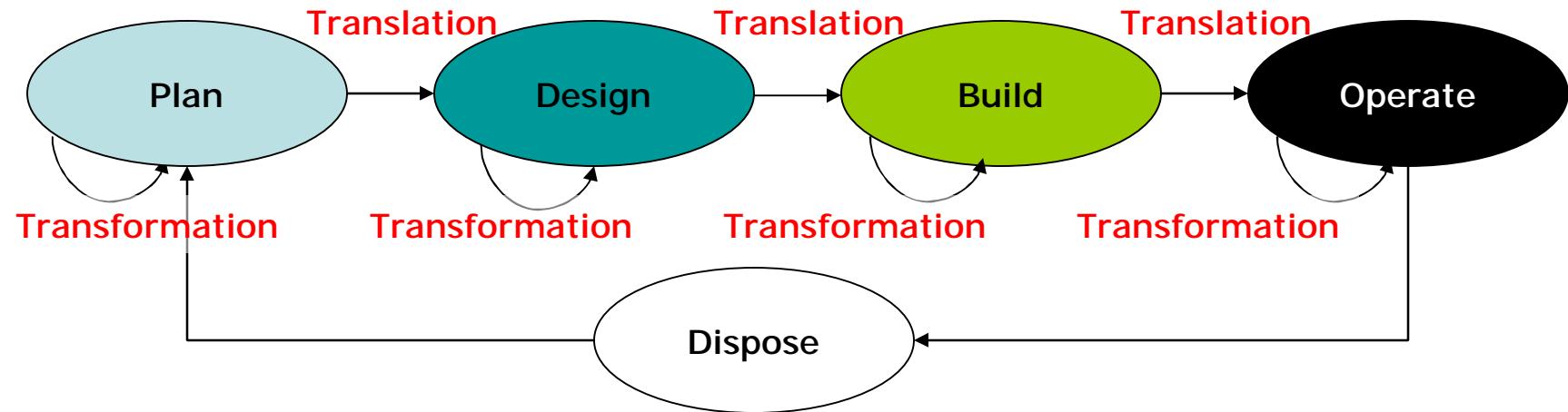
Problem – The Cost of Data Entry Precludes Full Use of Maintenance Management Software



Problem - Building Documentation is Fragmented . . .

Architects, Engineers and Construction Contractors each submit design plans, operating instructions and repair manuals in hardcopy which must be organized and maintained in order to support building operations, maintenance and renovation throughout the building's life

Problem - Critical data is lost ...



- decisions made as ideas & parts are **transformed** into designs & buildings are not captured
- **translation** of information for downstream use loses much of what is known during the previous phase
- increased “owner” cost due to data losses = \$14.8B annually “**Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industries**,” **NIST GCR 04-867/Aug 2004**.

Prelim + schematic design

Working drawings, specifications, commissioning

For portfolio and asset management:
review of key indicators, not in-depth investigations

For property management:
condition review and prioritization of projects

For maintenance:
product data, maintenance records, work orders

For operation:
operating manuals, set points, procedure routines

In-Depth investigations

O&M - Operation and Maintenance

Roof suitability, drainage condition

Plumbing and piping systems

Electrical and electronic systems

Heating, Ventilating, and Air Conditioning System

Energy conservation, e.g.: BEPAC, BREEAM

Electromagnetic radiation

Indoor Air Quality

Water and waste management

Life cycle costs and value engineering

Life cycle analysis

Security: Threat and risk analysis

Financial analysis and audit

Real Estate market analysis

POE - Post Occupancy Evaluation

And many other types of in-depth investigations . . .

For specific priorities and projects, e.g. repair, LEED, ADA, code compliance: *roll ups of focused data*

Past Practices . . .

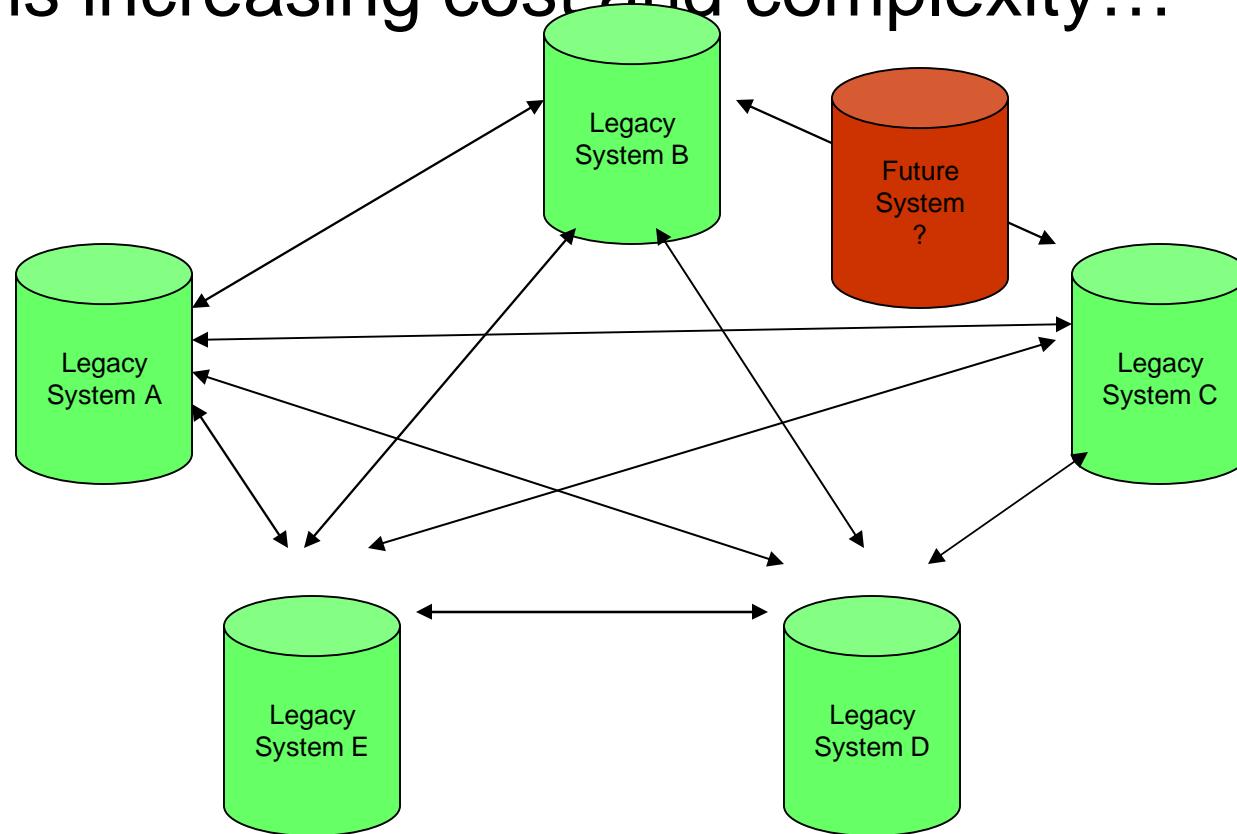
- O&M submittals in unusable format - boxes, piles
- Data quickly lost
- Poor preventive maintenance
- More costly repairs
- Warranties not maintained or lost



Result ... Adverse impact on mission of the building occupant

What people have tried . . .

Directly linking contractor and government systems means increasing cost and complexity...



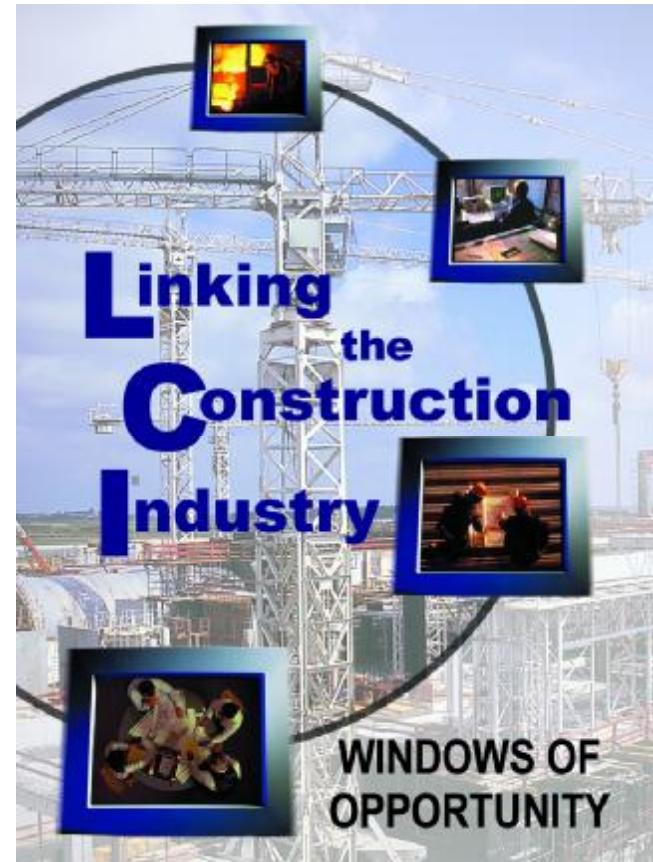
Federal Agencies Confirmed Interest

Developing Data-Input Standards for Computerized Maintenance Management Systems: Summary of a Symposium/Workshop
1994

Information Technology Innovations Award, National Partnership for Reinventing Government, 1999

Linking the Construction Industry: Electronic Operation and Maintenance Manuals: Workshop Summary,
1999

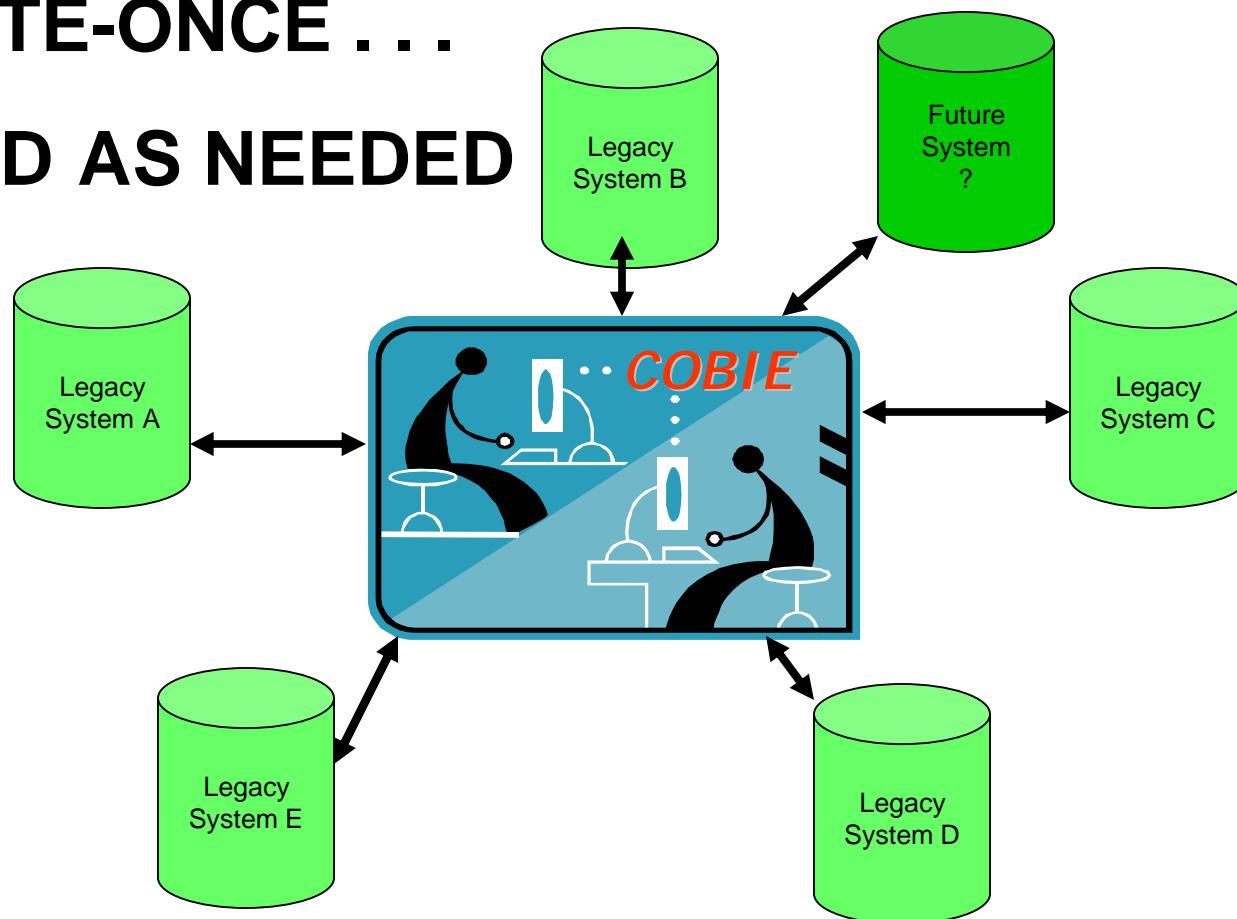
Incorporated into IAI IFC buildingSMART Model, 2003



COBIE Captures Information at Source – Designers, Constructors & Manufacturers



**COBIE uses internationally recognized
standard and data definitions requirements . . .
WRITE-ONCE . . .
READ AS NEEDED**



COBIE Incorporates Related Efforts . . .

- NAVFAC Operations & Maintenance System Information (OMSI)
- NIBS Facility Maintenance and Operations Committee (OMSI XML/IAI 2x2)
- U.S. Army, Department of Public Works, Fort Lewis, WA
- Specification software exports construction submittals
- m-BOMB project. International Alliance for Interoperability (IAI)
- FIATECH Automated Equipment information eXchange (AEX)
- Machinery Information Management Open Systems Alliance (MIMOSA)
- Open Standards Consortium for Real Estate (OSCRE)
- National Institute of Science and Technology (NIST)
GSA Preliminary Design information Exchange

WBDG
WHOLE BUILDING DESIGN GUIDE

HOME | ABOUT WBDG | SITE MAP | SEARCH SITE:

News, Events & Training Design Guidance Project Management Mandates / References

PRODUCT GUIDE

Product Guide is a new online service that features only products that comply with federal guide specifications. Product Guide was developed for A/E/C professionals researching products for federal construction projects. With Product Guide, architects, engineers and general contractors can quickly identify whether the products they want to use meet all applicable federal guide specs.

Key Features include:

- Reduces time needed to identify products that comply with federal guide specs
- Displays product information in an easy to understand format
- Provides product information directly to those with a need to know

[Explore Product Guide](#)

Technical Data

- PDF format
- link to URL
- or XML database

Benchmarking Participants



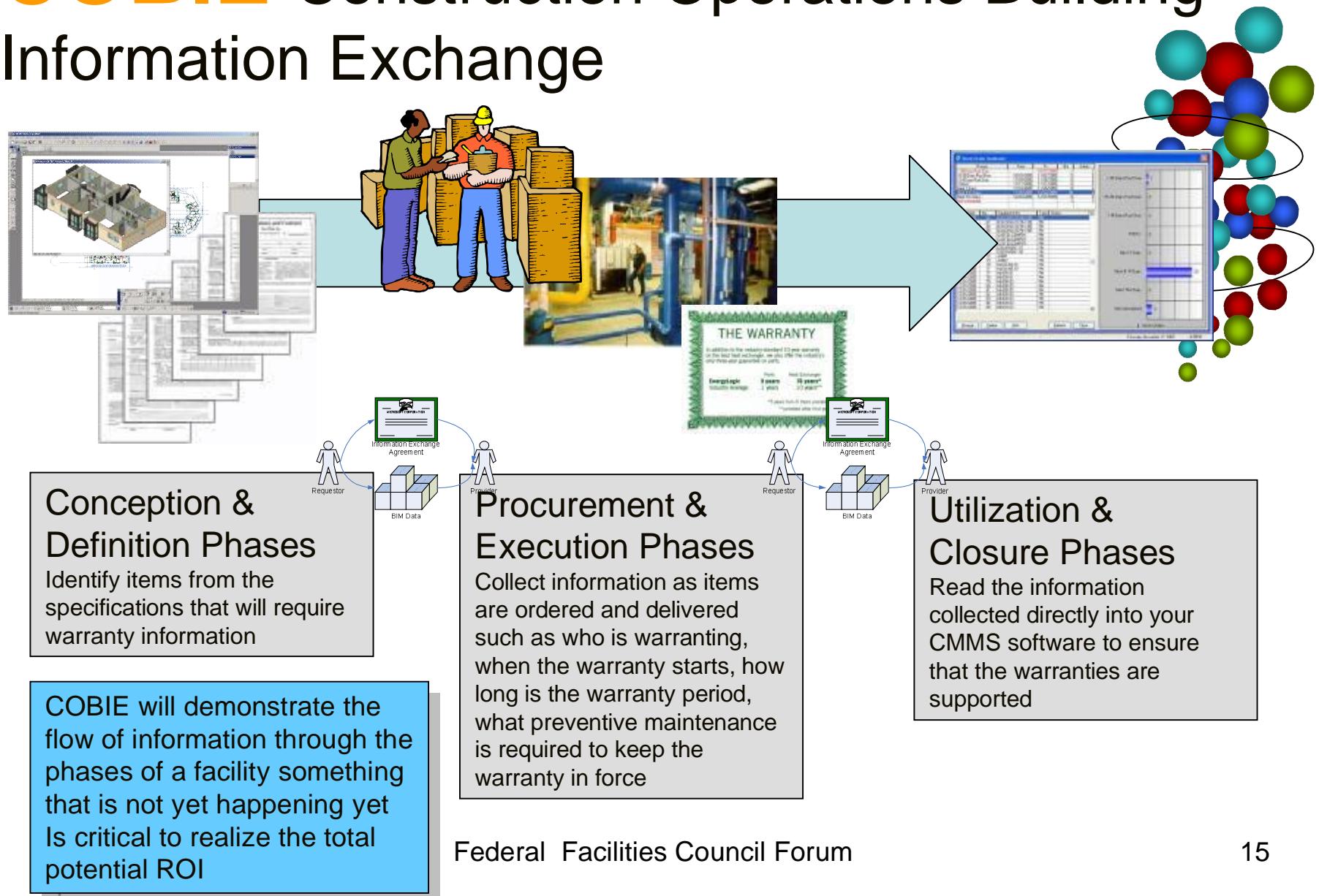
US Army Corps
of Engineers

Owners	A/E/C Firms	Software Firms	Other
DoD	Burns & McDonald	Archibus	
GSA	CH2M	Autodesk	International Code Council
Navy	HOK	Bentley	
State	Jacobs	Digital Alchemy	National Institute of Building Sciences
UNC-Chapel Hill	Judd Allen	e-specs	
VA	LS3P	Green Building Studio	
	Lynn Blair Associates	Infor	
	O2 Resources	Instep	
	Onyx Group	Mapcon	
	Rush Inc	Micromain	
	TRM	MRO	
	Woolpert	TMA Systems	
		Tririga	

How will we know when it's right?

- User transparent
- No cost to O&M office
- Costs less than current paper-based method
- Requirements are clearly identified
- Information can be captured as work is accomplished with option for real-time information exchange
- Acceptable to all tiers of contractors, suppliers, subs, etc.
- Simple update format for existing deliverables/contracts
- Framework to store information for later exchange/retrieval
 - Cost of information exchange must be nil

COBIE Construction Operations Building Information Exchange



How can I get started?

- **Owner**
 - Join **buildingSMART**
 - commit to and communicate a FY07 roll-out
- **Software producer/vendor**
 - Join **buildingSMART**
 - make import/export transparent
- **Designer, consultant, builder, subcontractor**
 - Join **buildingSMART**
 - Participate in COBIE pilot projects
- **Manufacturer/supplier**
 - Use **buildingSMART** standard templates