GSA's National BIM & GIS Program

Federal Facilities Council

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GSA's BIM + GIS Program

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Regional BIM Champions **[http://www.gsa.gov/bim]**

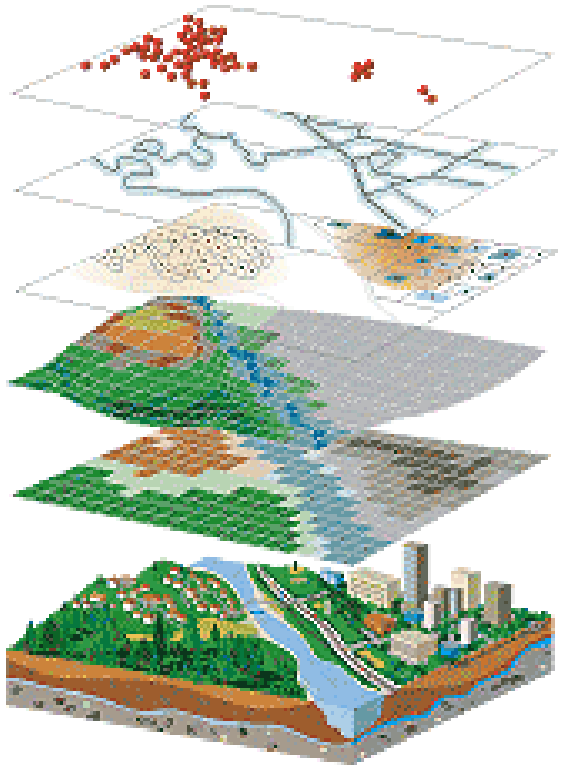
International Collaboration among Public Owners toward

Fostering open standards in the design & Construction Industry

- Joint statement in support of BIM, Smart Buildings, open standards and collaboration
- January 2008 - Public owners from United States, Finland, Norway, Denmark, and the Netherlands
- September 2011 - Expanded to 8 countries and included Smart Buildings technologies

Geographic Information Systems (GIS)

- Compile data layers from external and internal sources
  - Some examples:
    - REXUS
    - HSIP Gold
    - NOAA
    - DOI
- Provides context for decision making



GIS Users

Business Lines utilizing PBS CIO's GIS Technologies

- American Recovery and Reinvestment Act PMO
- Office of Emergency Response and Recovery
- PBS Office of Design and Construction
- PBS Office of Portfolio Management

In addition, we are working on the following projects

- White House National Wireless Initiative
- GSA Sustainability Map

Surge in Construction Investment - ARRA

GIS Example

About

- PBS PMO requested map, specificed specs and provided data
- ARRA Map

Capabilities

- Displays:
  - Funding
  - Photos
  - Individual project descriptions
  - LEED

Urban Development's FlexViewer

GIS Example

About

- A query tool developed for Urban Development
- FlexViewer

Capabilities

- Displays:
  - Walk score
  - Client
  - Transportation buffers
  - Owned and leased buildings

Response to Threats and Current Events

GIS Example

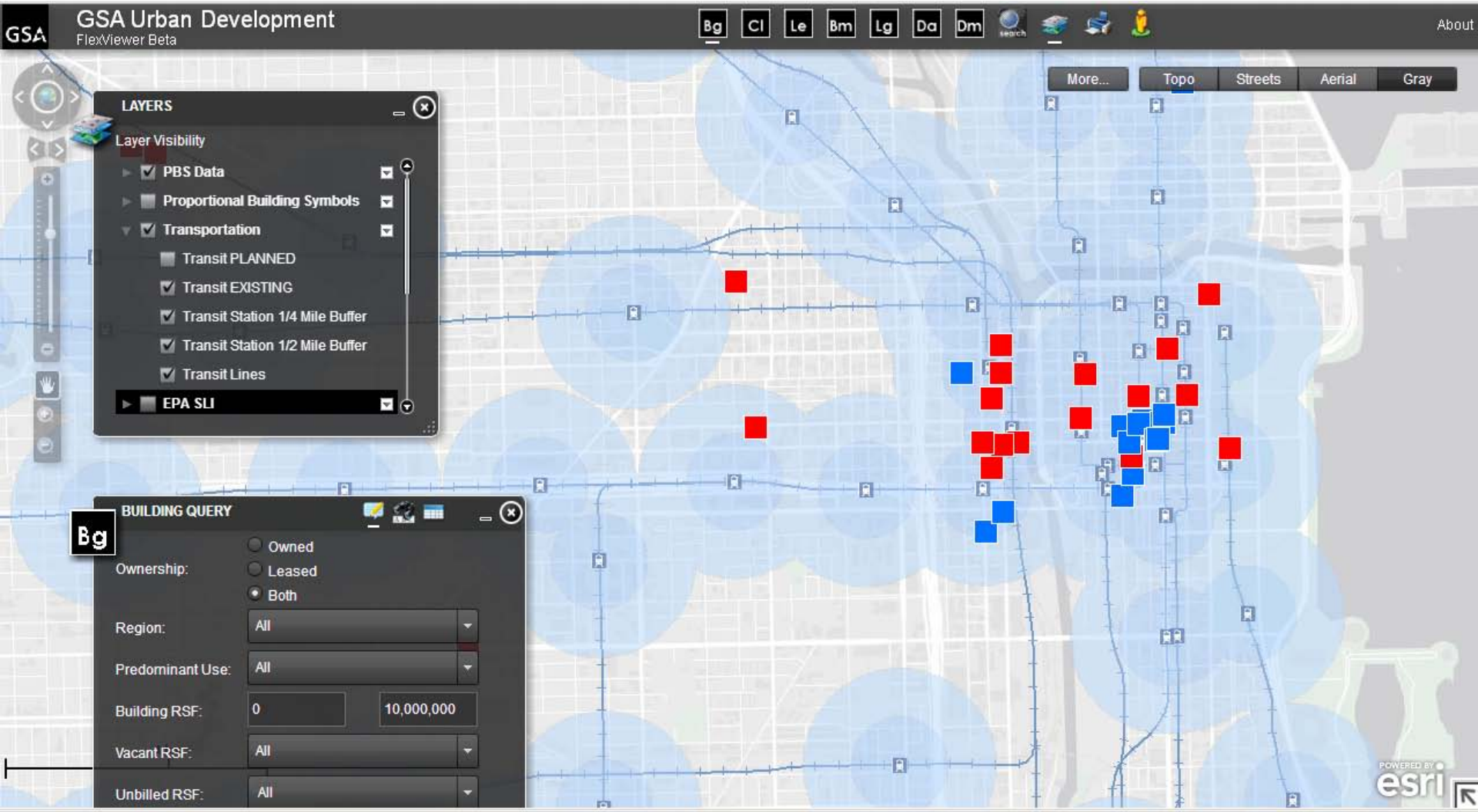
About

- OERR requested
- Built in ArcGIS Desktop Explorer

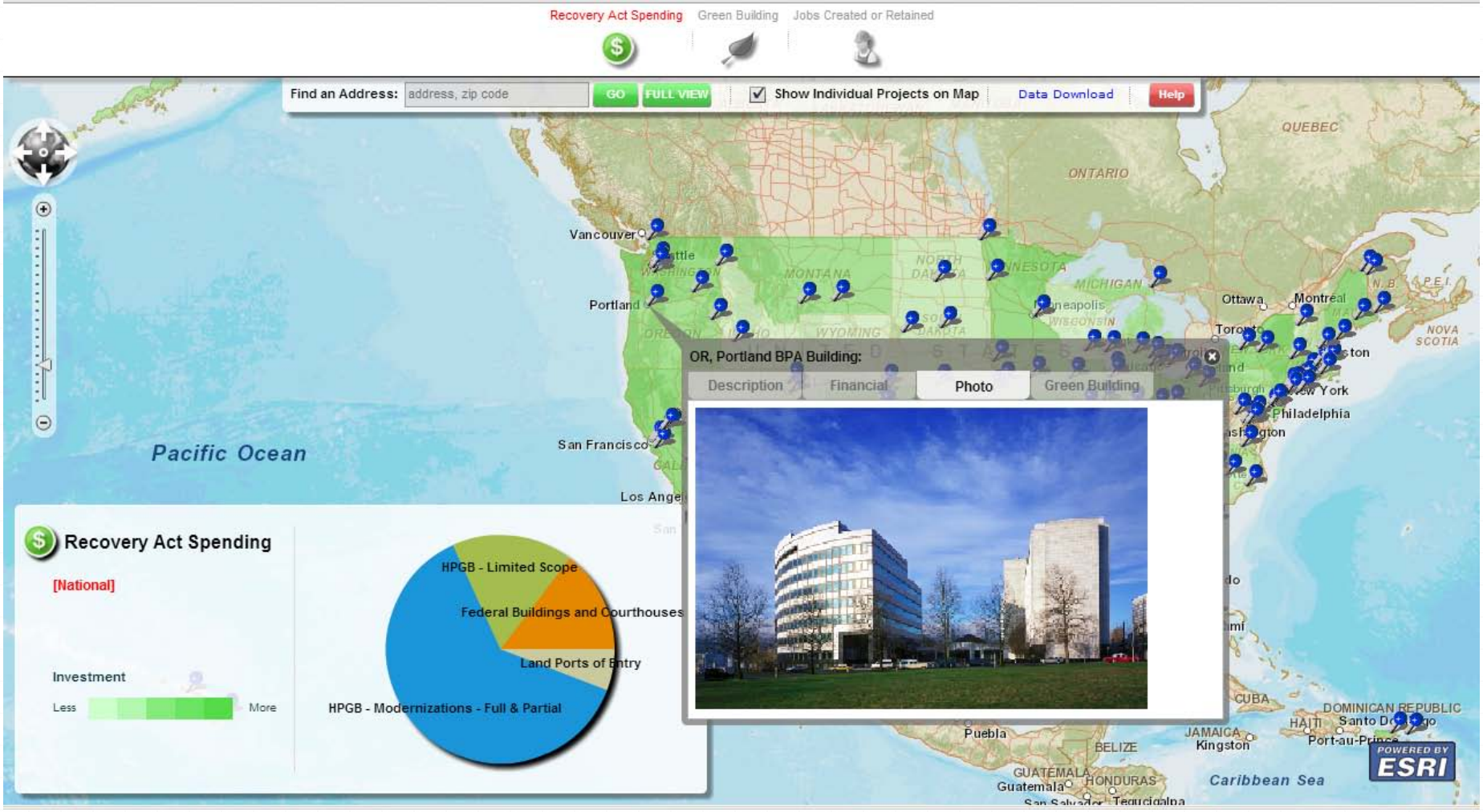
Capabilities

- Displayed
  - Buildings
  - Occupy Locations

GSA PBS Urban Development Map

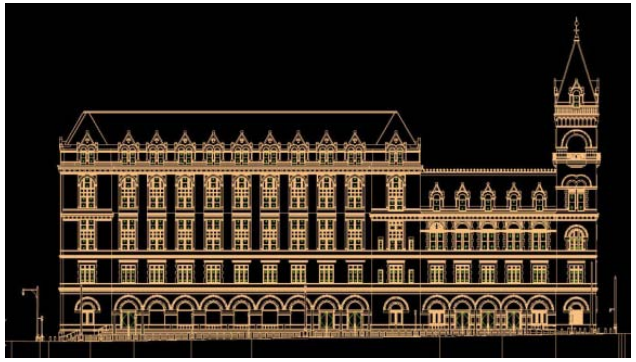


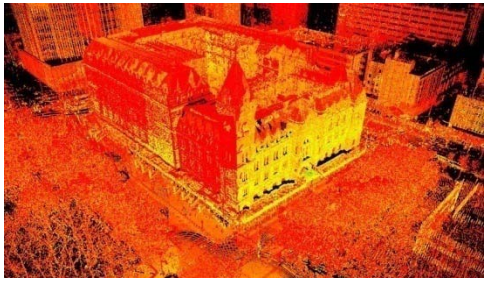
ARRA Map

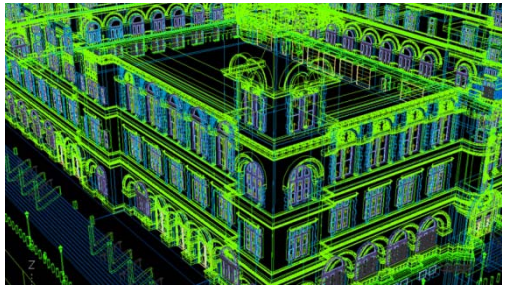

Recovery Act Spending
Green Building
Jobs Created or Retained
Find an Address:
address, zip code
GO
FULL VIEW
Show Individual Projects on Map
Data Download
Help
Vancouver
Portland
San Francisco
Pacific Ocean
Ottawa
Montreal
Toronto
Philadelphia
OR, Portland BPA Building:
Description
Financial
Photo
Green Building
Recovery Act Spending
[National]
Investment
Less
More
HPGB - Limited Scope
Federal Buildings and Courthouses
Land Ports of Entry
HPGB - Modernizations - Full & Partial
Puebla
BELIZE
GUATEMALA
Guatemala
HONDURAS
JAMAICA
Kingston
CUBA
HAITI
DOMINICAN REPUBLIC
Port-au-Prince
Caribbean Sea
POWERED BY ESRI

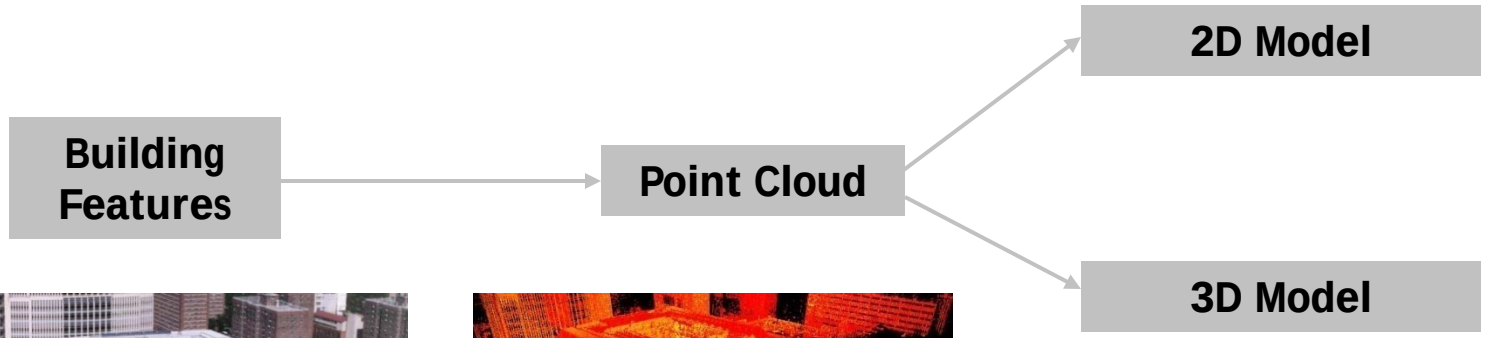
Connecting BIM & GIS

The 3D-laser scanning:
From Building Features to
3D model

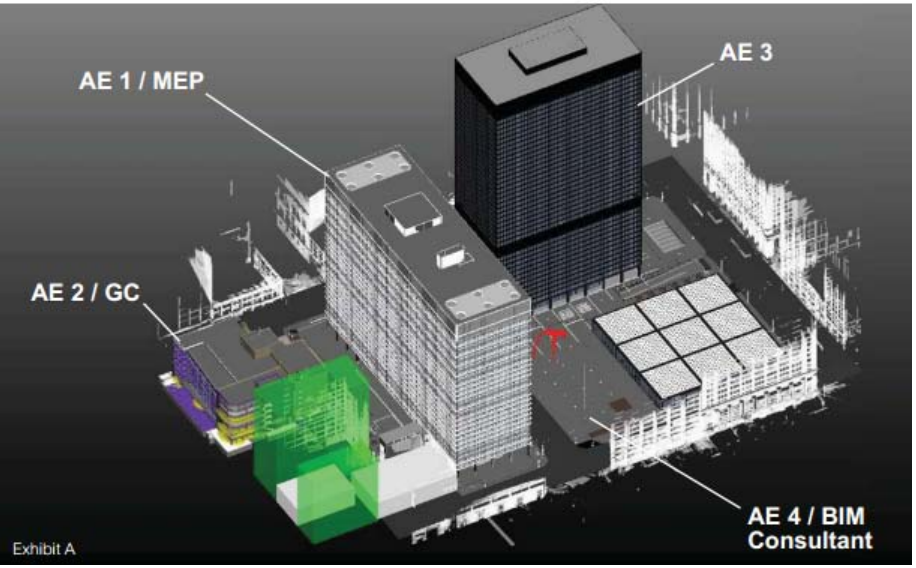








Chicago Federal Center & Plaza

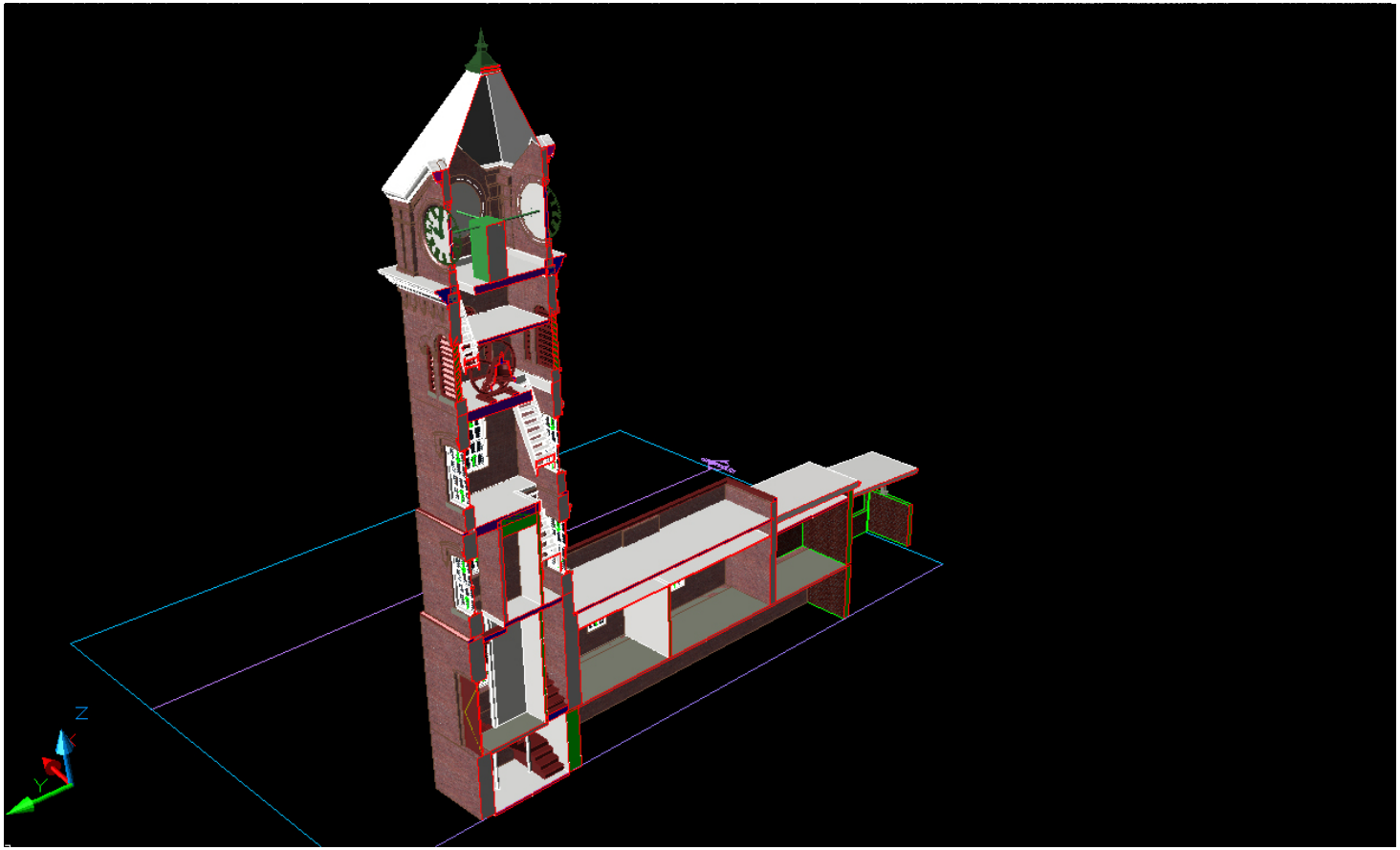


Laser Scanning provides accurate as-built conditions of the campus to created digital models

Building data can be integrated with GIS for macro- and micro-level analysis

St. Elizabeth's Campus (NCR)

St. Elizabeth Campus



GSA BIM Guide Series

- Provides best practices and implementation guidance
- Industry-reviewed and used widely by practitioners
- Adopted by other owners (within US and internationally)
- Publicly available on gsa.gov/bim

Current BIM Guide Series

01— Overview
02— Spatial Program Validation
03— 3D Imaging
04— 4D Phasing
05— Energy Performance and Operation
06— Circulation and Security Validation
07— Building Elements
08— Facility Management

GSA BIM Guide Series 08: BIM and Facility Management

Available at www.gsa.gov/bim

Section 1: BIM and Facility Management – Overall vision and objectives for using BIM during facility management.

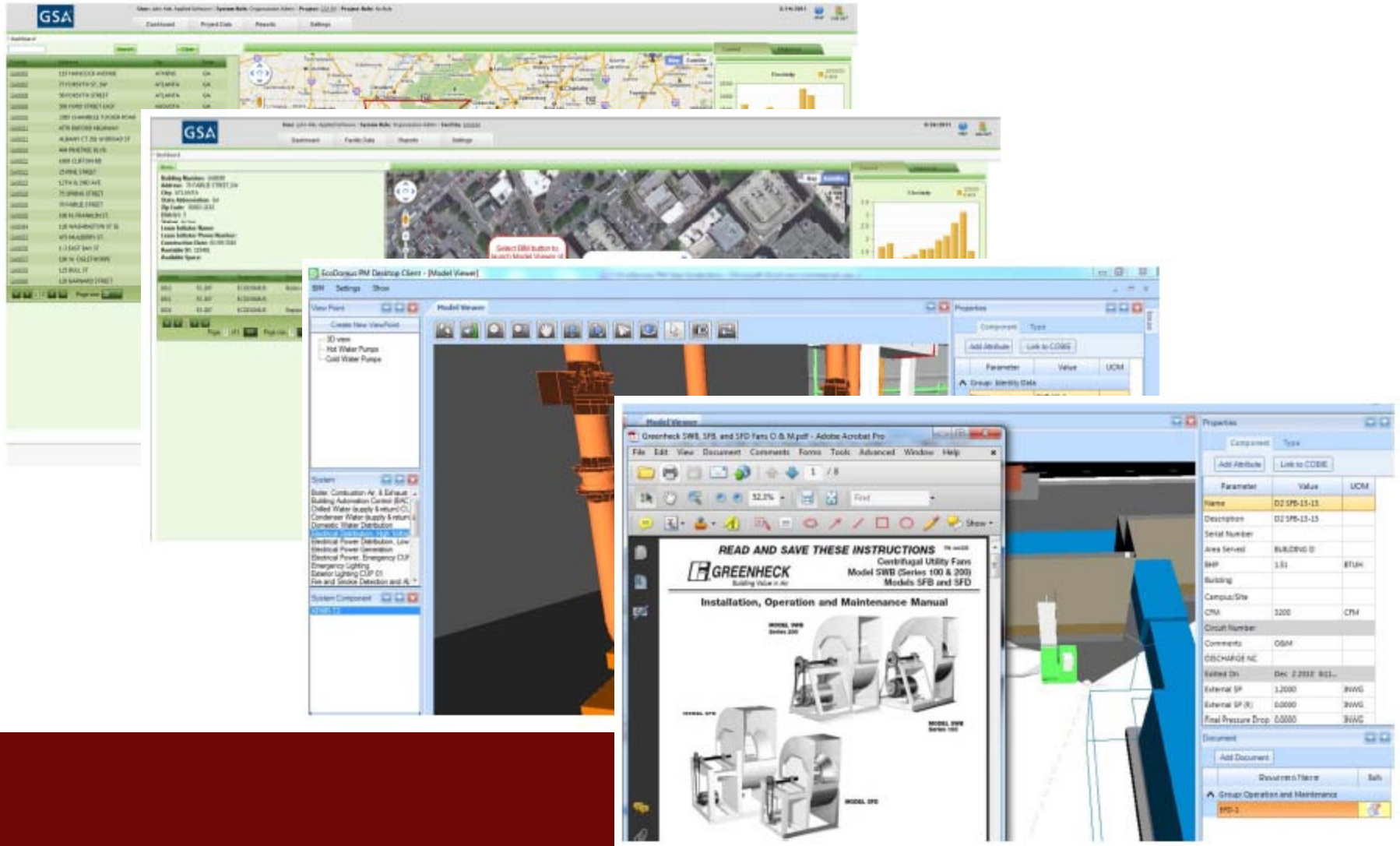
Section 2: Implementation Guidance – Implementation guidance to GSA associates and consultants.

Section 3: Technology Assessment – Technology requirements for creating and using BIMs for facility management.

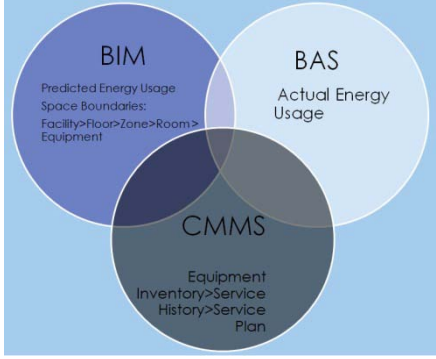
Section 4: Modeling Requirements – BIM object and attribute requirements for use during facility management.

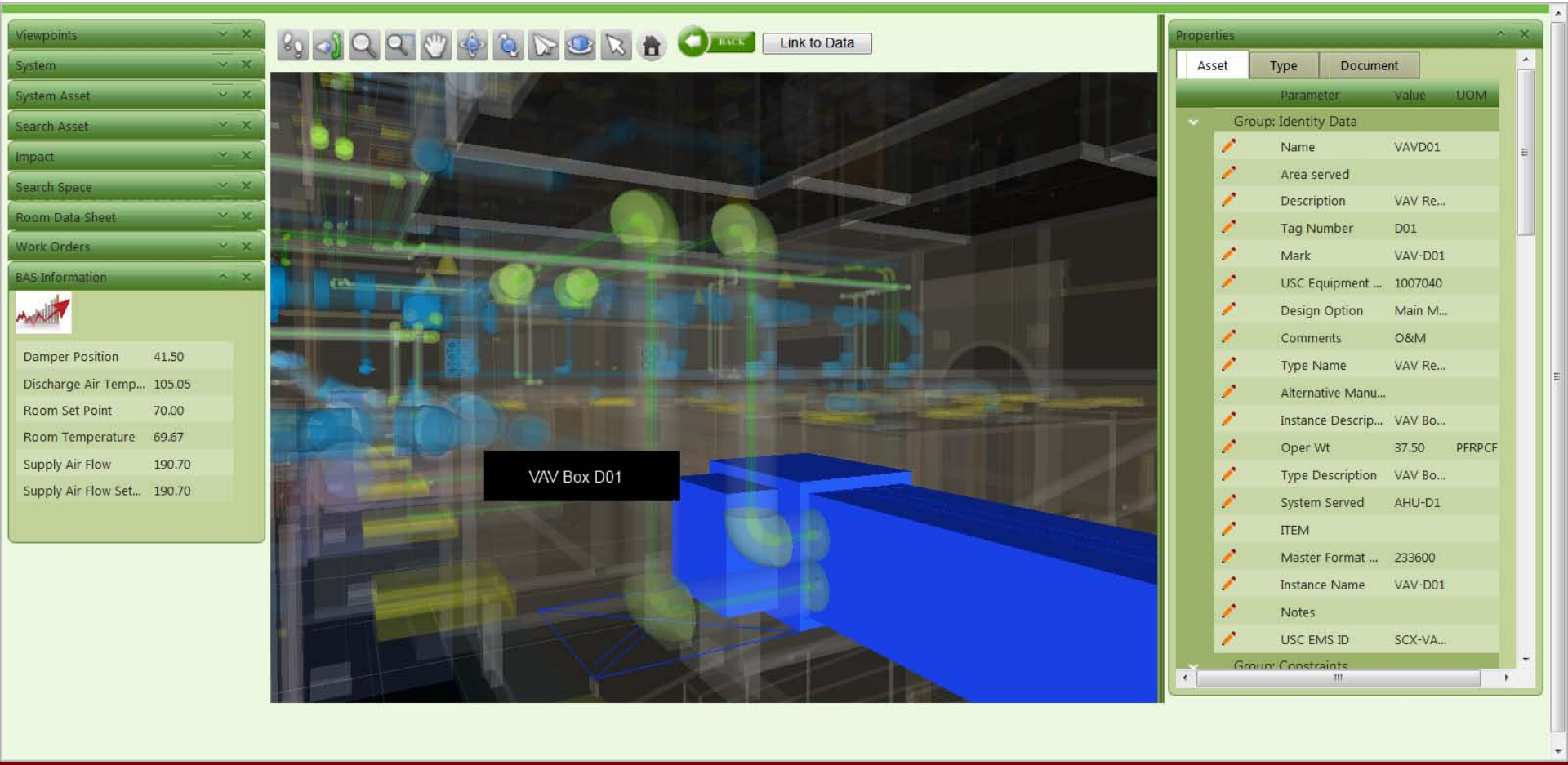
Section 5: Pilot Projects – Description of GSA Pilot Projects for BIM and FM

BIM-FM across GSA (Region 4 Prototype)



BIM / BAS / CMMS Integration





EcoDomus

User: Igor Starkov, EcoDomus | System Role: System Admin | Project: EnergyModelingProject

Settings | Help | Logout

- Dashboard
- COBie
- Reports
- BIM Server
- Activities
- Project Setup
- Integration
- Energy Modeling
  - Facilities
  - Utilities
  - Projects

Statements | Rate Schedules

EDIT

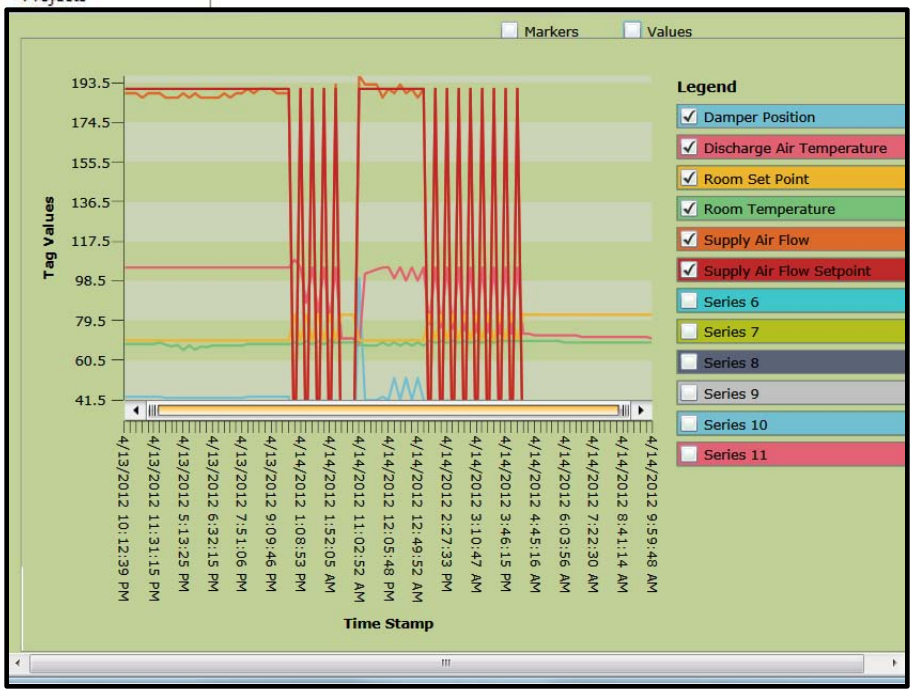
Facility Billing Statements

Search

Type of Service	Meter#	Read Date	Previous	Current	Multiplier	Usage	Amount
Electric Utility	100589656	Feb 21 2013 12:00AM	123456	123456	123456	123456	4456.09
Natural Gas	100788332	Feb 1 2013 12:00AM	100065412398	120065412398	1000	1056	2045.32

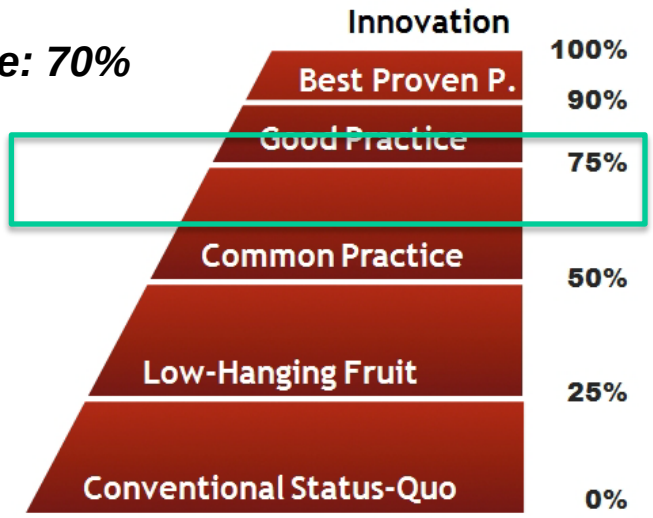
1 | Page: 1 of 1 Go | Show Rows 2 Change | Item 1 to 2 of 2

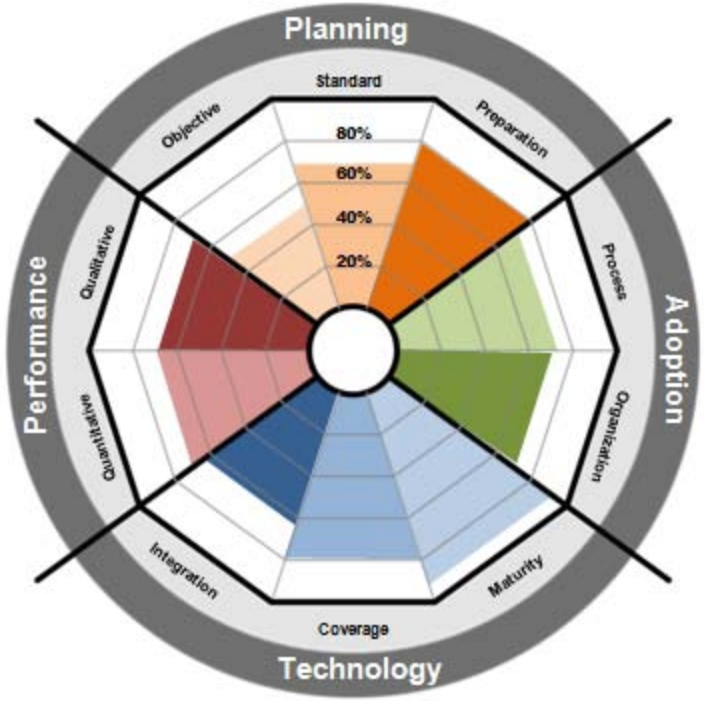
+ Add Utility Data

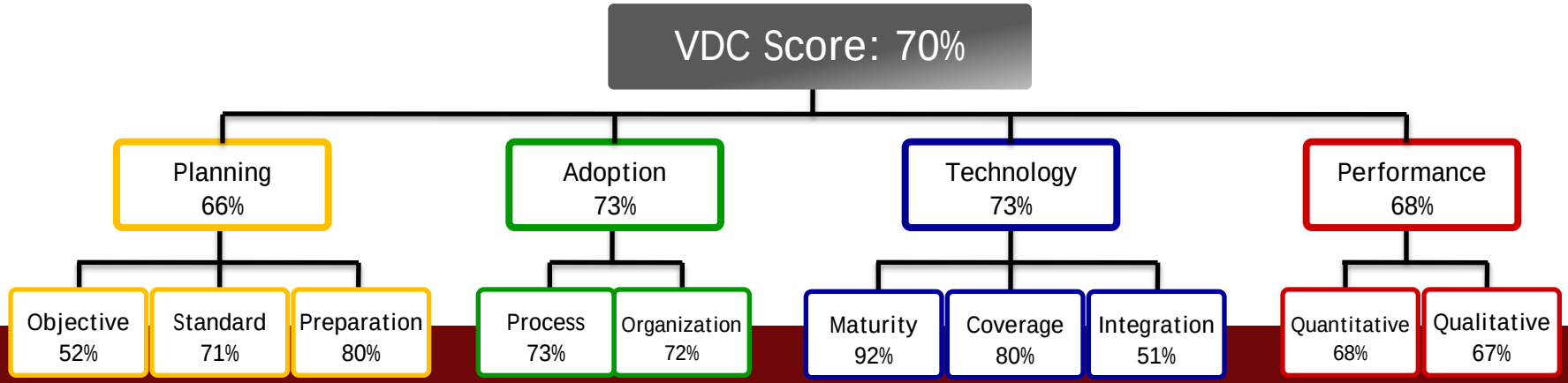


BIM Scorecard

VDC Score: 70%

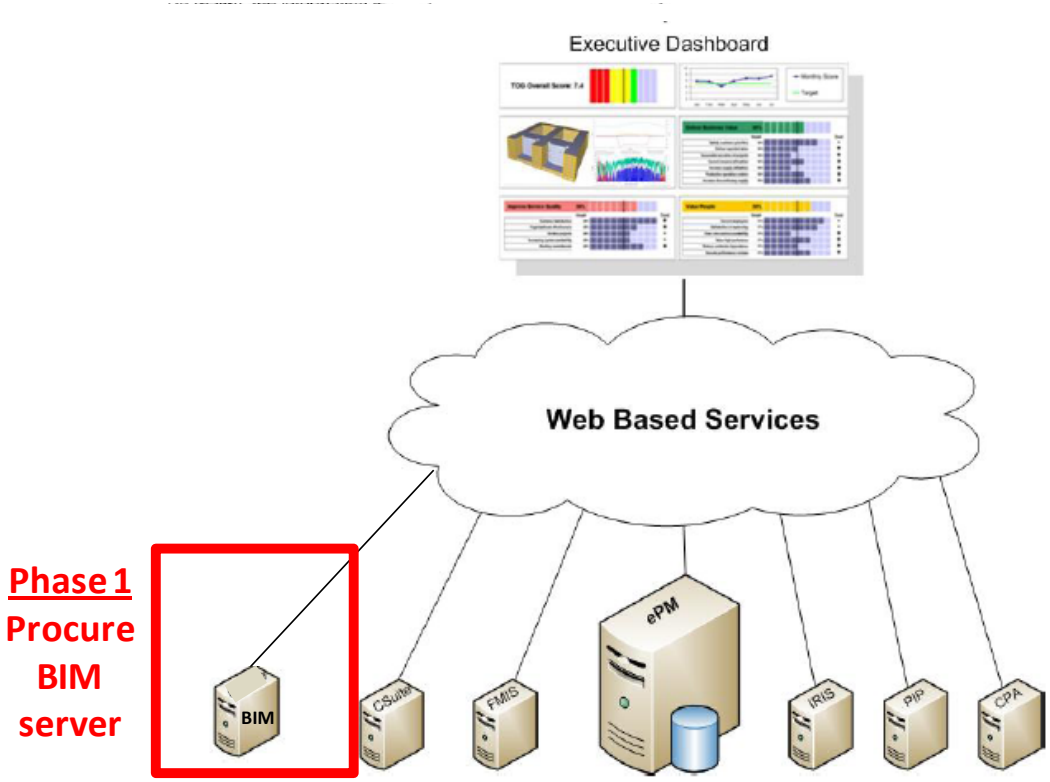






BIM Server

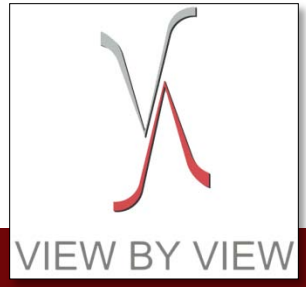
- Central, secure location to store all BIM models
- Allows users across GSA business lines to see what has changed in previous versions of BIMs
- Completed market analysis and looking at various procurement options
- Coordinating with Statsbygg (Norway) to share lessons learned



IDIQ Contracts

- 9 IDIQ Contracts for BIM Services
- 6 IDIQ Contracts for Laser Scanning

- Task orders for:
  - BIM Training
  - Feasibility studies
  - Sculpture Scanning
  - Program Development



http://www.gsa.gov/bim

Design & Construction
- Overview
- Architecture & Engineering
- CAD Standards
- 3D-4D Building Information Modeling
- 3D-4D-BIM Overview
- Spatial Program Validation
- 3D Laser Scanning
- 4D Phasing
- Energy Performance and Operations
- Circulation and Security Validation
- Building Elements
- BIM Champions
- BIM Program In The News
- BIM Video
- BIM Mailing List
- BIM Library
- Commissioning
- First Impressions
- Construction Excellence
- Design Excellence and the Arts
- Facility Access for the Disabled
- Sustainable Design

3D-4D Building Information Modeling

In 2003 the General Services Administration (GSA), through its Public Buildings Service (PBS) Office of Chief Architect (OCA), established the National 3D-4D-BIM Program. OCA has led over 30 projects in its capital program, and is assessing and supporting three dimensional (3D), four-dimensional (4D), and Building Information Modeling (BIM) applications in over 35 ongoing projects across the nation. The power of visualization, coordination, simulation, and optimization from 3D, 4D, and BIM computer technologies allow GSA to more effectively meet customer, design, construction, and program requirements. GSA is committed to a strategic and incremental adoption of 3D, 4D, and BIM technologies.

There is a progression from 2D to 3D, 4D, and BIM. While 3D models make valuable contributions to communications, not all 3D models qualify as BIM models since a 3D geometric representation is only part of the BIM concept.

Critical to successful integration of computer models into project coordination, simulation, and optimization is the inclusion of information—the "I" in BIM—to generate feedback. As a shared knowledge resource, BIM can serve as a reliable basis for decision making and reduce the need for re-gathering or re-formatting information. GSA is currently exploring the use of BIM technology throughout a project's lifecycle in the following areas: spatial program validation, 4D phasing, laser scanning, energy and sustainability, circulation and security validation, and building elements.

CONTACTS

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National 3D-4D-BIM Program
- bim@gsa.gov
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NONGOVERNMENT LINKS
- GSA Earns CoreNet Global Innovator Award
- Digital Modeling, Early Adopters Find the Best Models are Digital Virtuosos. Sawyer, Tom, Engineering
- 3D Laser Scanning in GSA's 3D 4D BIM Program. Jenkins, B., Spar Point Research LLC, SparView Vol. 4
- BIM: The GSA Story in JBIM
- Building Better: GSA's National 3D-4D-BIM Program

Q&A

GSA National BIM Program