



The 3rd Annual Federal Asset Management Policy Forum & Expo

Work Group: **Asset Information Management**



BIMStorm.com

People Money Stuff

“You can divide assets into, people, money and “stuff.” A lot of resources are spent on managing people and finances, but there isn't as much effort into managing “stuff”.”



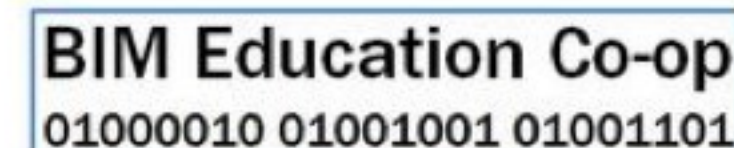
James M. Dieter
MIAM, CPPM CF



958 Participants
in last 2 months



6,427 Participants
in last 9 Years





<https://youtu.be/nY7AT-ulqB8>



Data is an Asset

Lack of Access to Data is a Risk

amazon memo from 2002

All teams will expose their data and functionality through service interfaces.

No other form of interprocess communication allowed:
no direct linking, no direct reads of another team's data store,
no back-doors whatsoever...

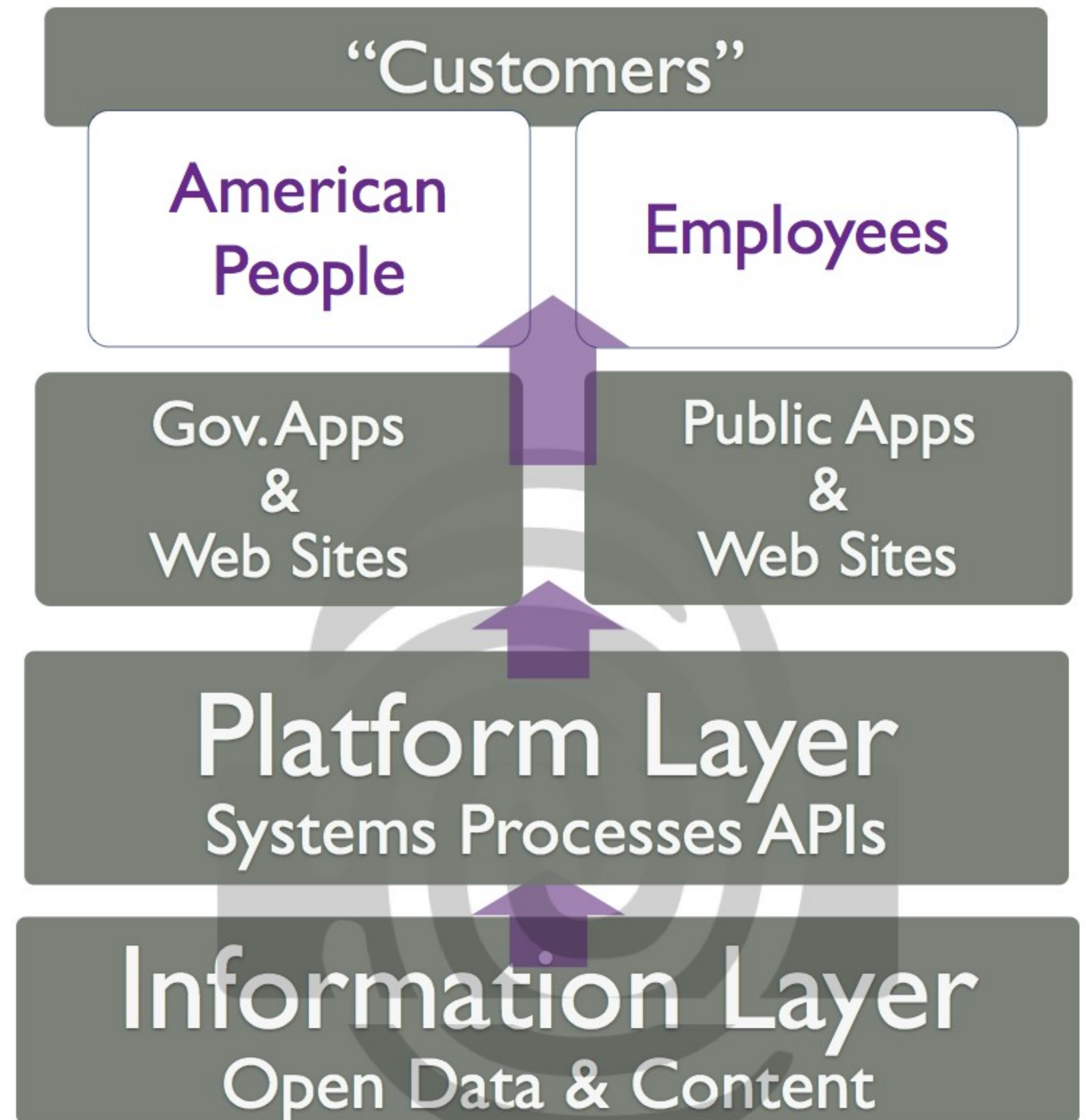
All service interfaces, without exception, must be designed from the ground up to be externalizable.

Teams must plan and design to be able to expose the interface to developers in the outside world. No exceptions.

Anyone who doesn't do this will be fired. Jeff Bezos

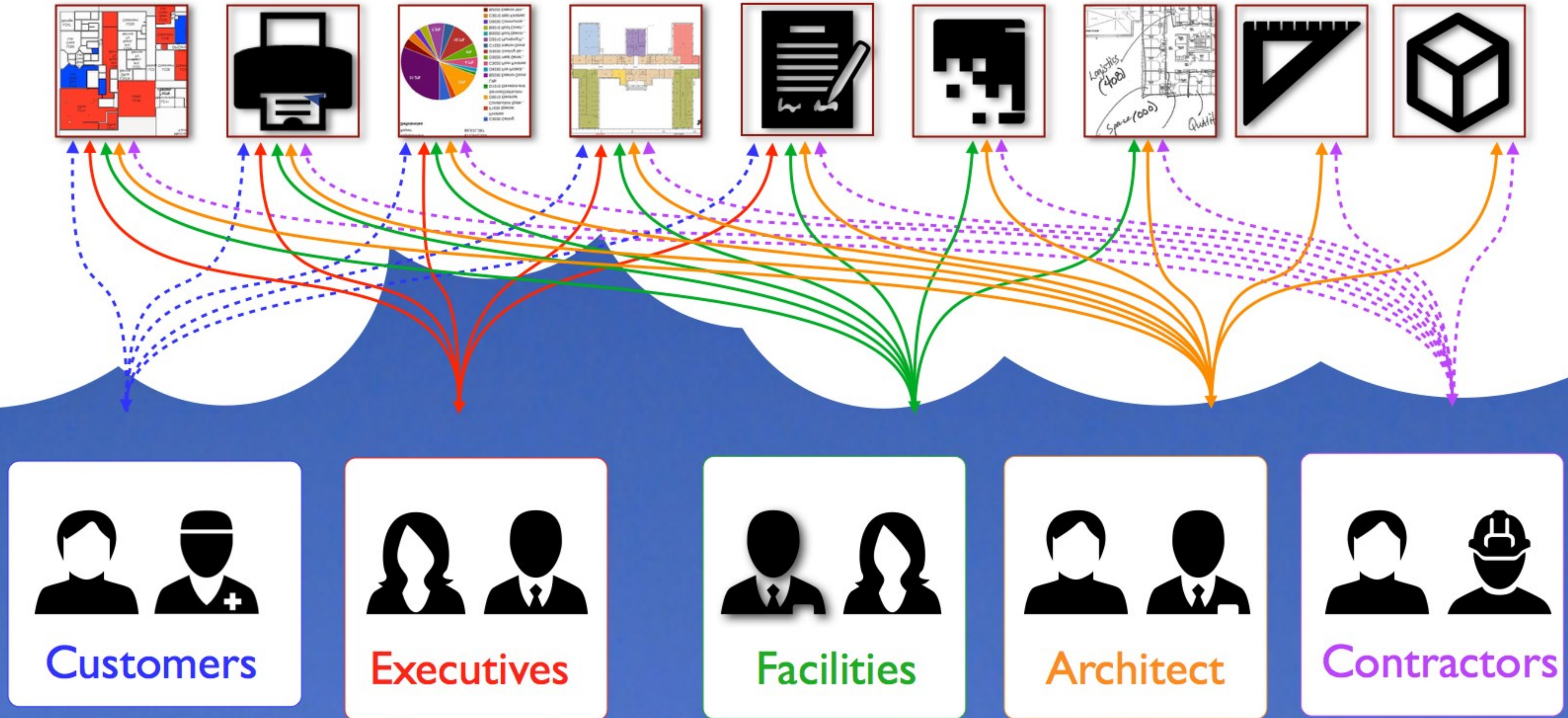


DIGITAL GOVERNMENT:
**BUILDING A 21ST
CENTURY PLATFORM
TO BETTER SERVE THE
AMERICAN PEOPLE**

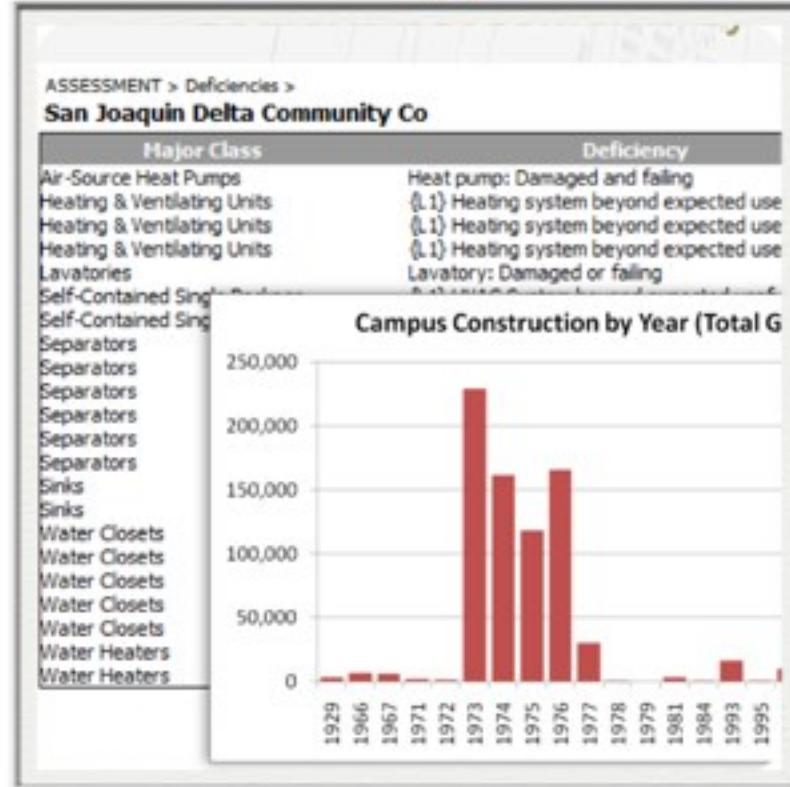


Security & Privacy

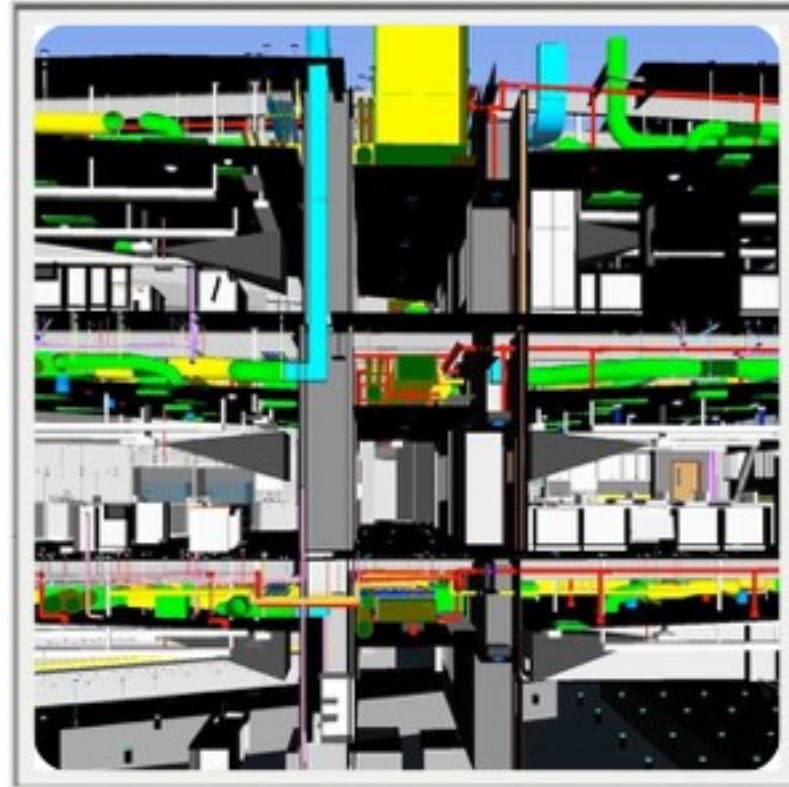
Shared Services + Access to Data



Budget



BIM



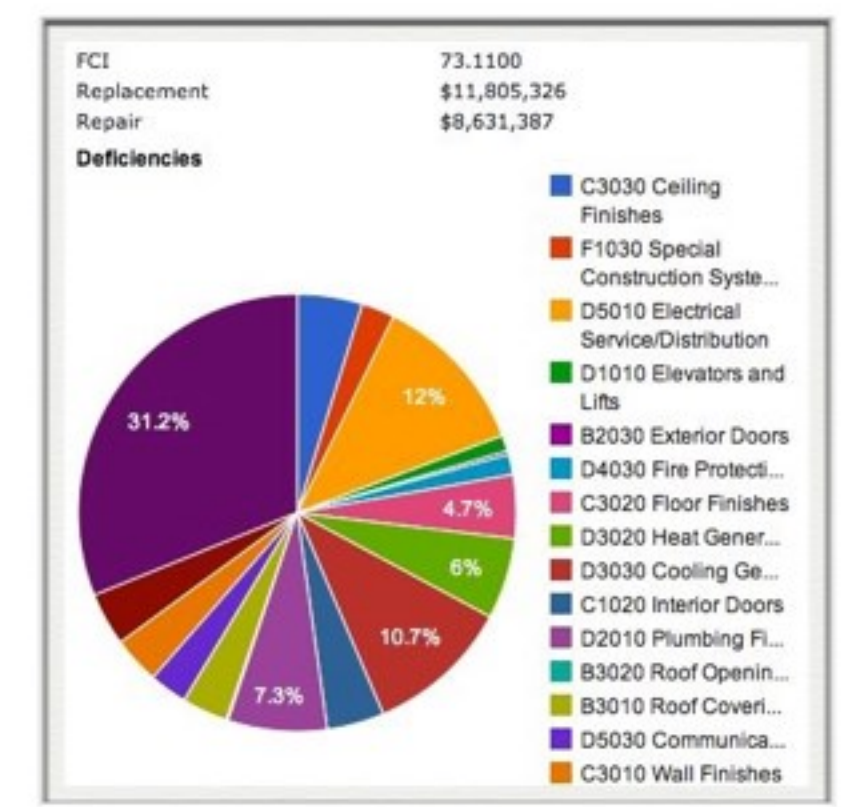
Facility

(S)	Type: Building	PCN: 37.74%						
(A)	Gross Area: 11646 S. F.							
(S)	Year Built: 1975							
(S)	Last Renovation:	Facility Condition :						
(S)	Facility Description:							
(S)	0057. Panam Hall is located on the San Joaquin Delta Campus of the San Joaquin Delta Community College District in Stockton. The two story building contains 11,646 square feet building contains meeting rooms and classrooms. Originally constructed in 1975.							
(S)	Structural/Interior Closure: The building rest on a concrete slab on grade using perimeter footings. The exterior is wood framed with stucco facing. The wood framed with wood decking and composition shingle roof s.... [more...]							
(S)	Life Cycle:							
(S)	Cost Code: CC Admin/MP C-4-P							
	System	Cost/S.F.	Life	MajorRenov	Relined	Priority	Safety	Adjusted
	A1030 Slab on Grade	\$0.00	180	100%	25%		1	1
	B1030 Roof Construction	\$0.00	180	100%	25%		1	1
	B1010 Floor Construction	\$0.00	180	100%	25%		1	1
(C)	B2020 Exterior Windows	\$0.00	25	105%	100%		1	1
(A)	B2030 Exterior Doors	\$0.00	30	105%	100%		1	1
(S)	B2010 Interior Windows	\$0.00	180	100%	25%		1	1
(S)	B3010 Roof Coverings	\$0.00	20	120%	85%		1	1
(S)	C1010 Re-Wire	\$0.00	30	110%	100%		1	1
(S)	C1020 Interior Doors	\$0.00	30	110%	100%		1	1
(S)	C2010 Stair Construction	\$0.00	180	100%	25%		1	1
(S)	C2020 Floor Finishes	\$0.00	20	105%	80%		1	1
(S)	C3010 Ceiling Finishes	\$0.00	25	105%	40%		1	1
(S)	C2010 Wall Finishes	\$0.00	15	100%	67%		1	1
(S)	D1010 Elevators and Lifts	\$0.00	25	75%	44%		1	1
	D1010 Plumbing Fixtures	\$0.00	35	90%	100%		1	1
	D1020 Heat Generating Systems	\$0.00	25	90%	21%		1	1
	D1030 Cooling Generating Systems	\$0.00	30	90%	37%		1	1
	D1030 Fire Protection Specialties	\$0.00	35	95%	20%		1	1

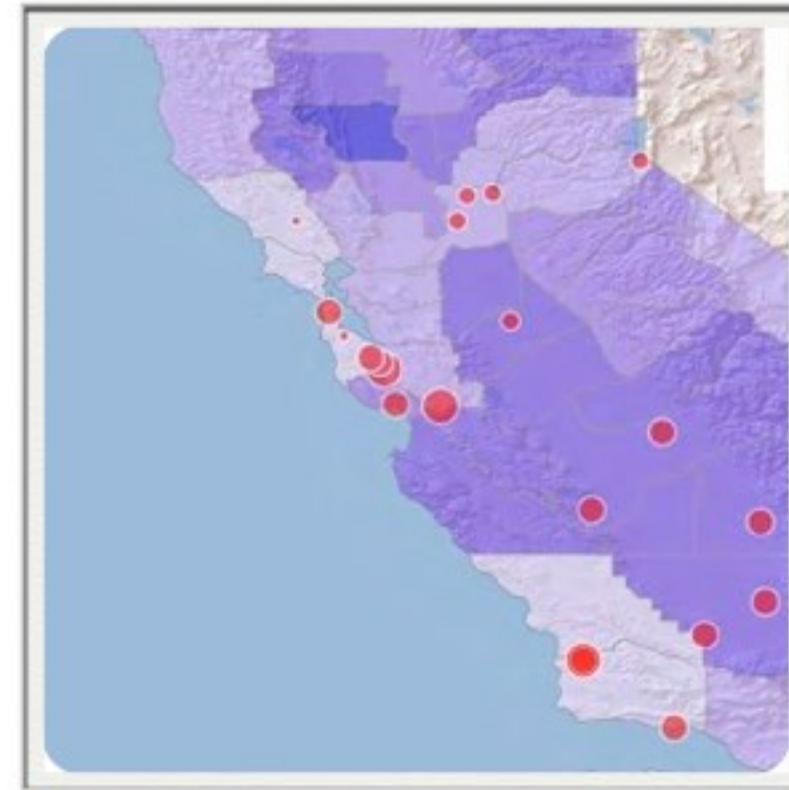
Work Order

Request Number	23-21	Click [any] to open corresponding plan in separate window/tab	Plan 1
Request Description	Plan is peeling or wall		STP - Lounge
			Based completed
Request Date	36/10/2012	Location Title	
Request Urgency	When Possible	Location Description	
Status	Assigned	Completed	
Status Responsibility	Interface	Completed By	
		Completed Hours	0
		Completed Description	
Assignment		Attachments	
Assigned To	☐ Not assigned ☒ Existing Assignees Mike Buchanan ☐ New Assignee	File	Browse Add Attachment
Name Assigned or Re-assigning a new user will automatically send an email to the current or new Recipient. Click Save to re-assign an email to Mike Buchanan.	Name Email		
Assigned Date	36/10/2012		
Assigned Hours	1		
Assigned Issue Type			
Assigned Department			
Assigned Trade	Plumb		
Assigned Priority	Within a week		
Assigned Work Type			

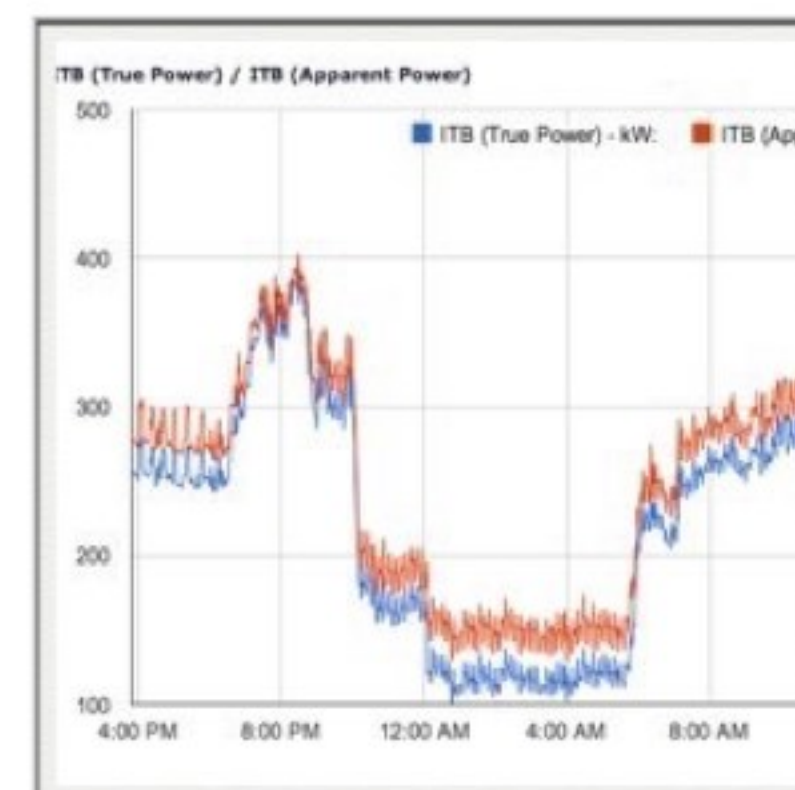
Dashboards



GIS



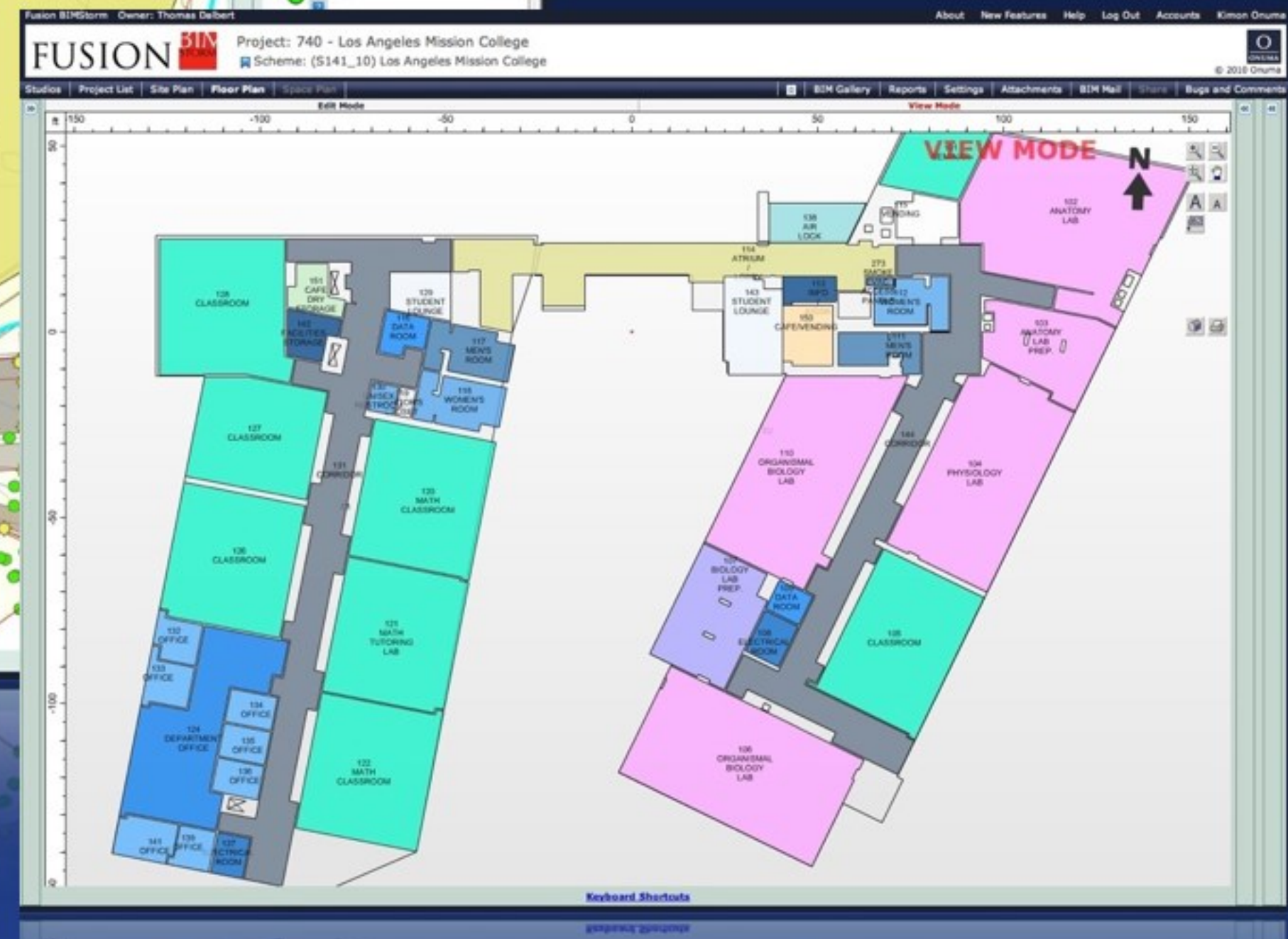
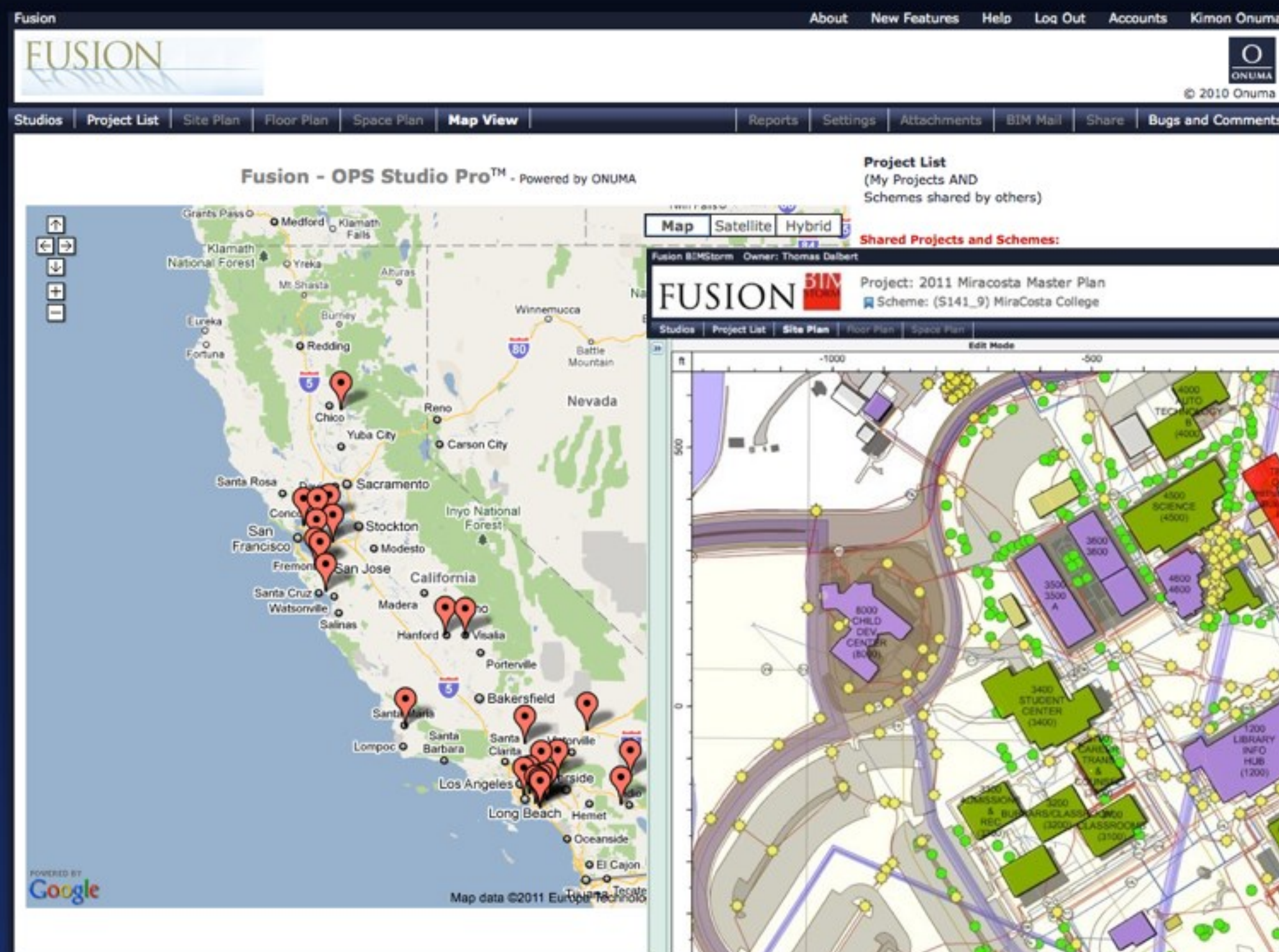
BAS

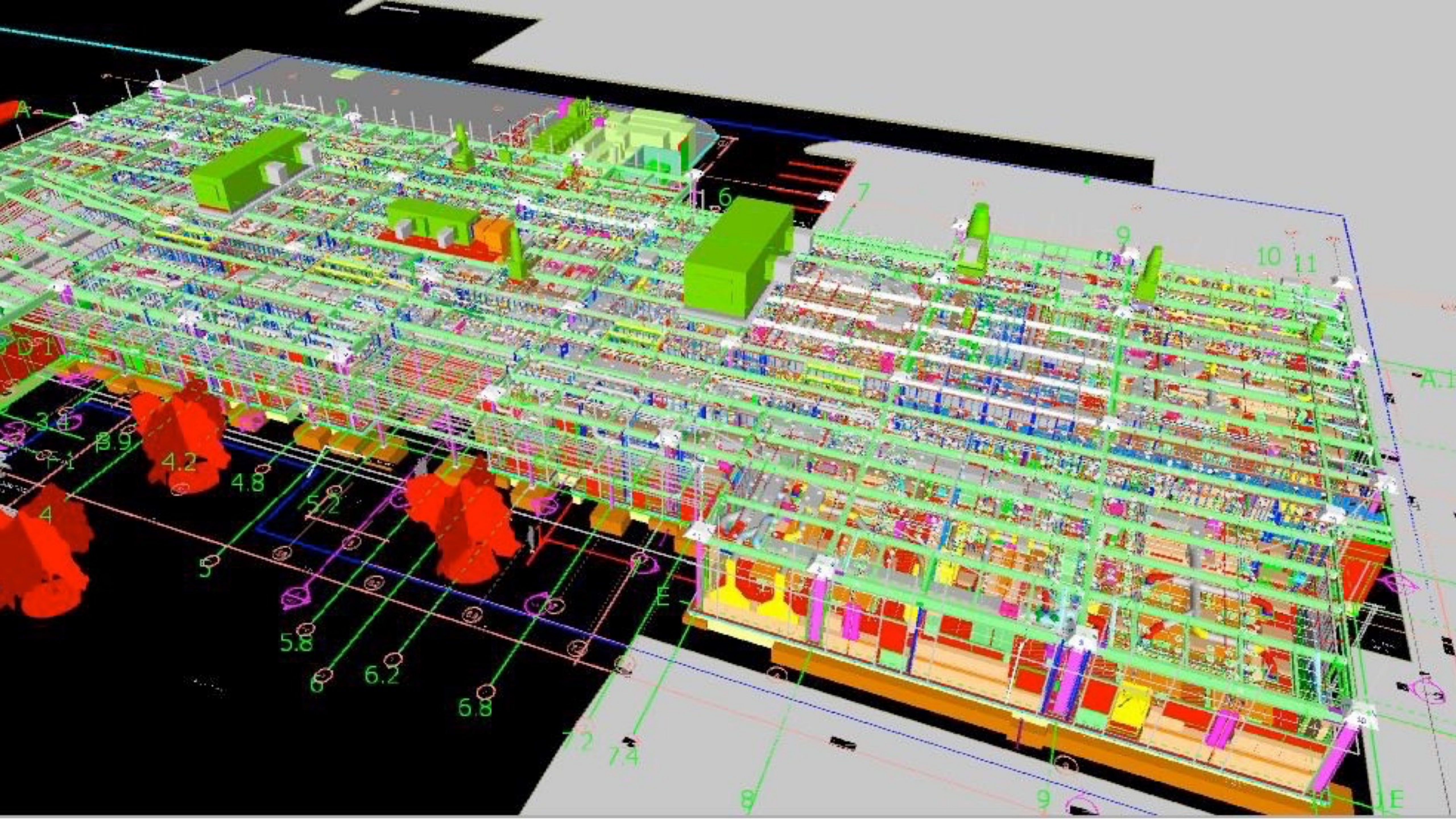


CALIFORNIA COMMUNITY COLLEGES

75M SF - 112 SITES in FUSION as BIM

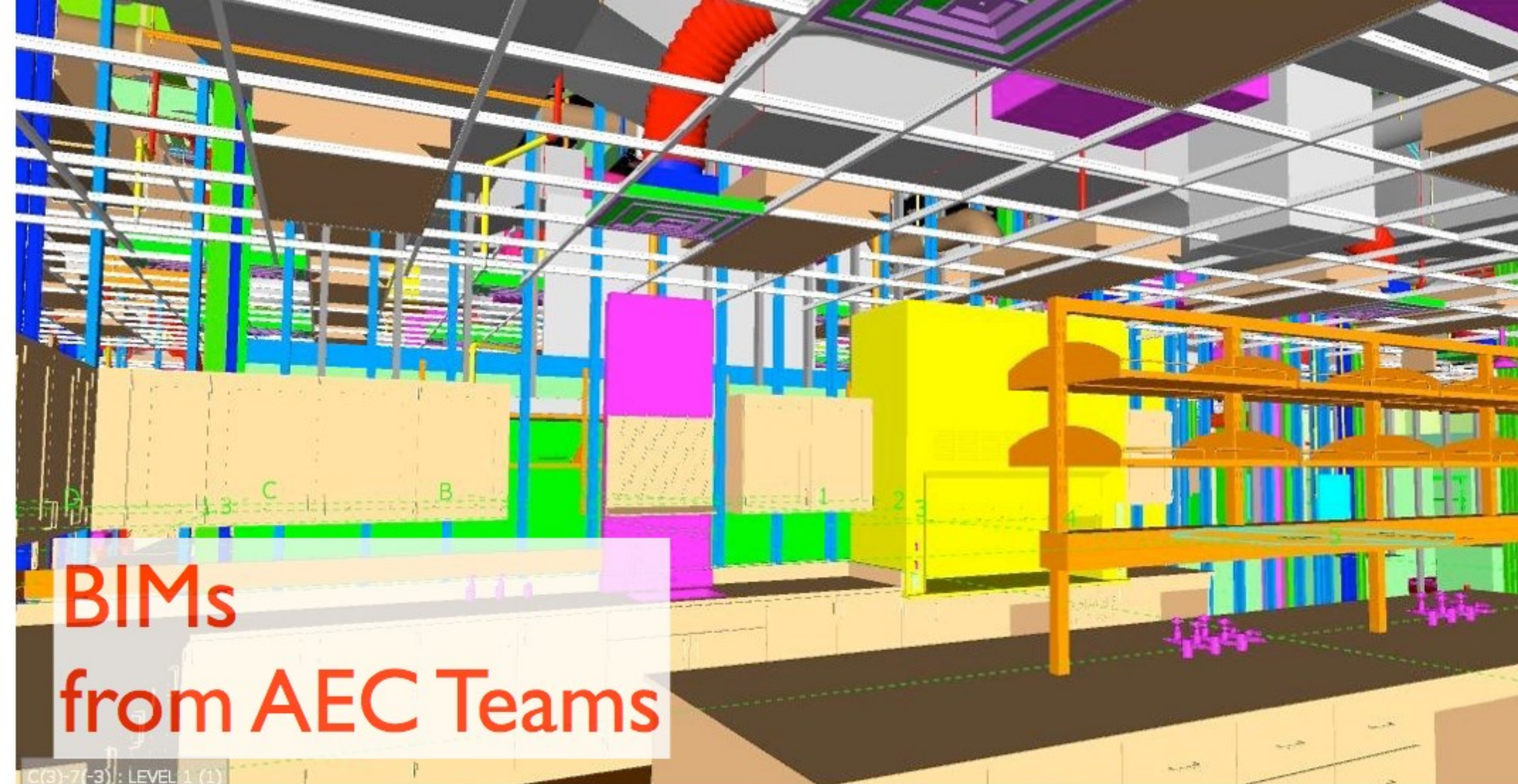
5,000 Buildings



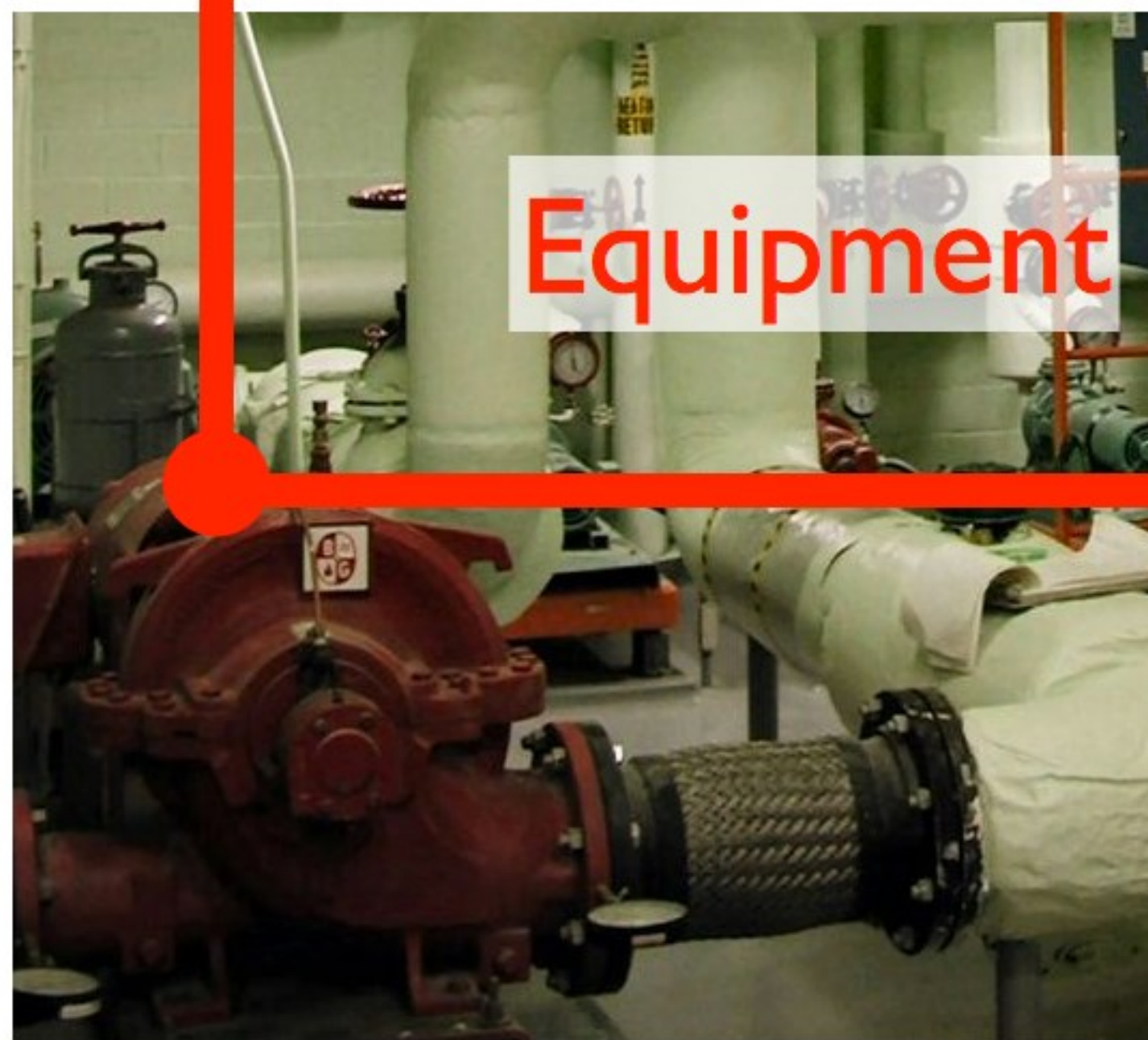




9/2016
Construction



BIMs
from AEC Teams



Equipment

Type Workbook						Manufacturer and Model		Warranty Information						Life and Cost		Only needed for newly added Types		Pump Specs							
sequential serial	serial	Description	Type Name	Manufacturer Email or HTTP address	Manufacturer Name	Model Number	Parts Warranty Guarantor Email	Parts Warranty Guarantor Name	Parts Warranty Duration	Labour Warranty Guarantor Email	Labour Warranty Guarantor Name	Labour Warranty Duration	Warranty Duration Unit	Warranty Description	Expected Life	Expected Life Duration Unit	Installation Cost	Nominal Length	Nominal Width	Nominal Height	Pumps	Pump Type (double suction, end suction, inline, centrifugal, axial, rotary, turbine, submersible)	Design Flow Rate (GPM)	Design Head (Feet)	Pump Motor Power (Hhp)
16	2586	Mechanical Equipment 7																							
17	2587	Mechanical Equipment 8																							
18	2616	Pump-Horizontal_Flexible-End_Suction-Aurora_Pump-344A-Steel_Base	Horizontal Flexible End Suction Pump	Aurora Pump	Aurora Pump	344A - 1.25x1.5x1.5																			
19	2597	Pump-Inline-Taco-1900 - ERROR_LOAD TYPE CATALOG	In-Line Pump	TACO	TACO	1911 - 1.5x1.5																			
20	2716	RooftopVentilator_v02		Greenheck Fan	Greenheck Fan	Model Text																			
21	2474	Thermostat - Standard																							
22	2676	VALVE-REC-Submittal - 1/2" SEWAT FAN																							
23	26																								
24	26																								
25	26																								
26	26																								
27	26																								
28	26																								
29	26																								
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35	27																								
36	25																								
37	25																								
38	25																								
39	25																								

Component Workbook

4 individual instances of pumps

ID	Floor Name (not modifiable)	Space Name (not modifiable)	Space Number (not modifiable)	Equipment Name	Type (not modifiable)	Component Name (Mark / Symbol)	Description	Serial Number	Installation Date	Warranty Start Date	Bar Code	Asset Identifier	Custom Attribute 1
26735	LEVEL 1	JAN	1135B	Pump-Inline-Taco-1900	2597	PUMP-03							
26861	LEVEL 1	SERVICE YARD	1143	Pump-Horizontal_Flexible-End_Suction-Aurora_Pump-344A-Steel_Base	2616	PUMP-01							
26862	LEVEL 1	SERVICE YARD	1143	Pump-Horizontal_Flexible-End_Suction-Aurora_Pump-344A-Steel_Base	2616	PUMP-02							
27769	LEVEL 1	MECH RM	1141	Pump-Inline-Taco-1900	2597	PUMP-04							

typical "instance data" (serial, inst. date, warranty start date, bar code, etc.)



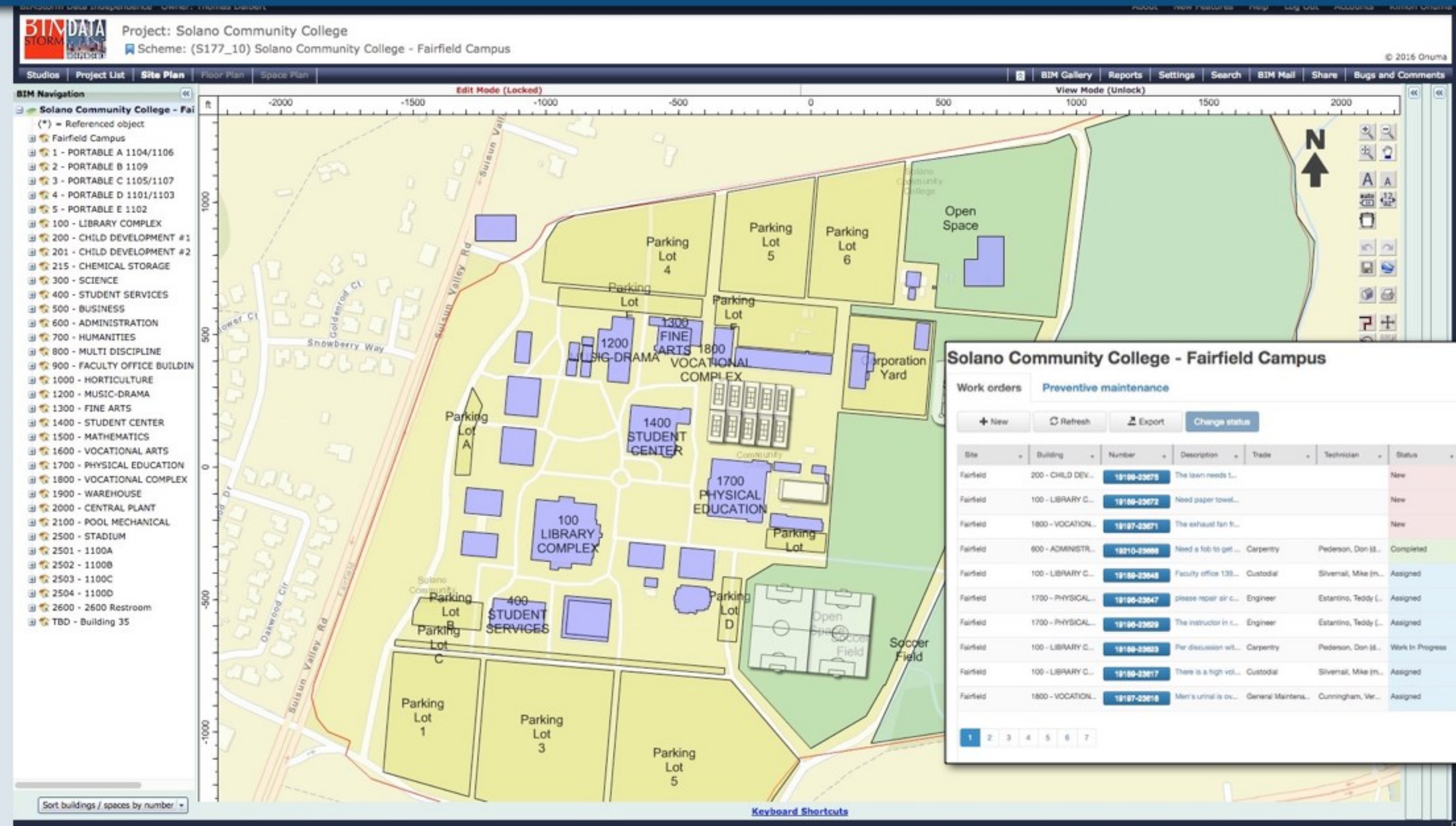
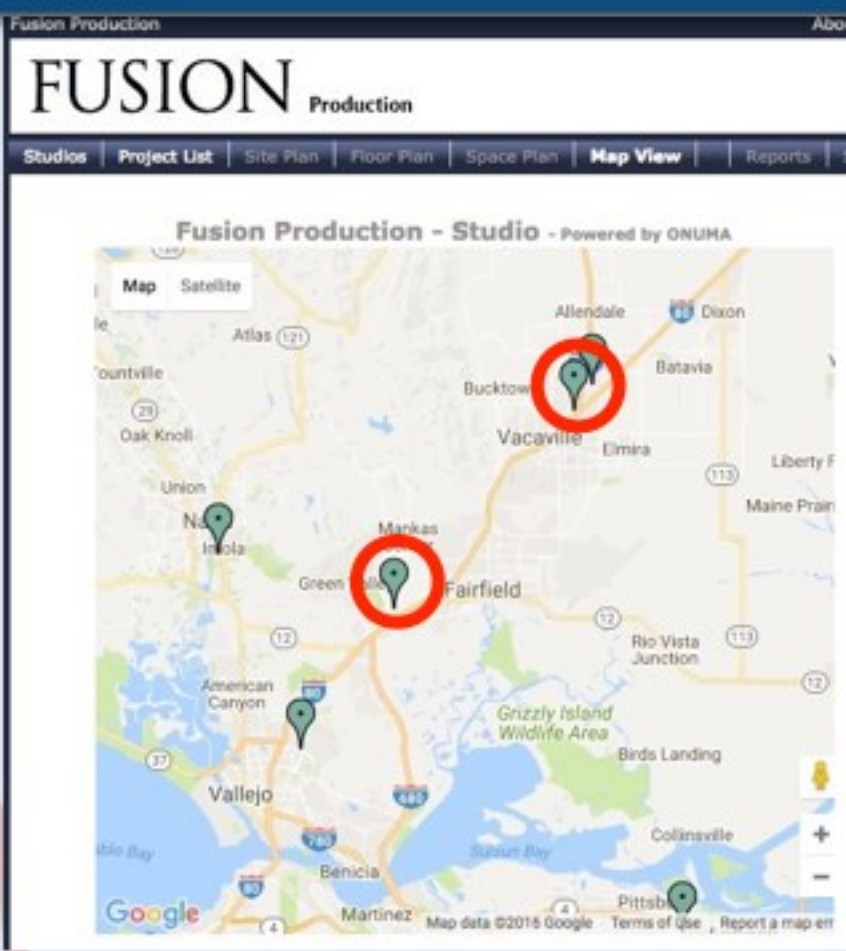
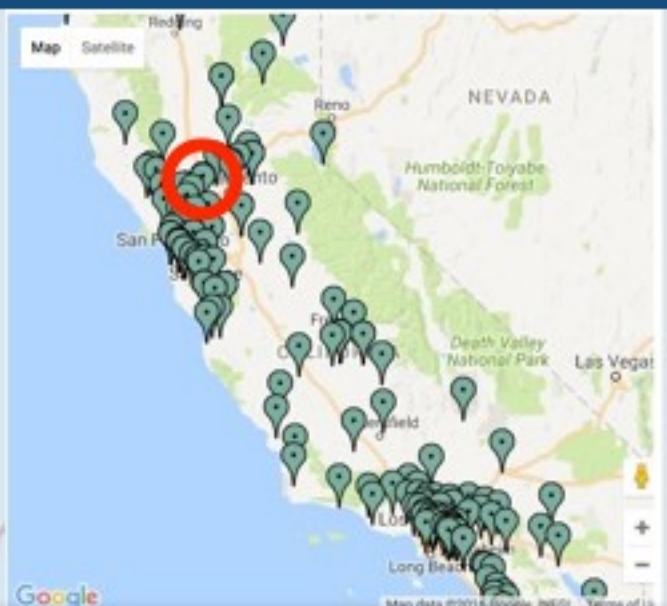
SOLANO
COMMUNITY COLLEGE

Component Workbook

4 individual instances of pumps

typical "instance data"
(serial, inst. date, warranty start date, bar code, etc.)

Operations

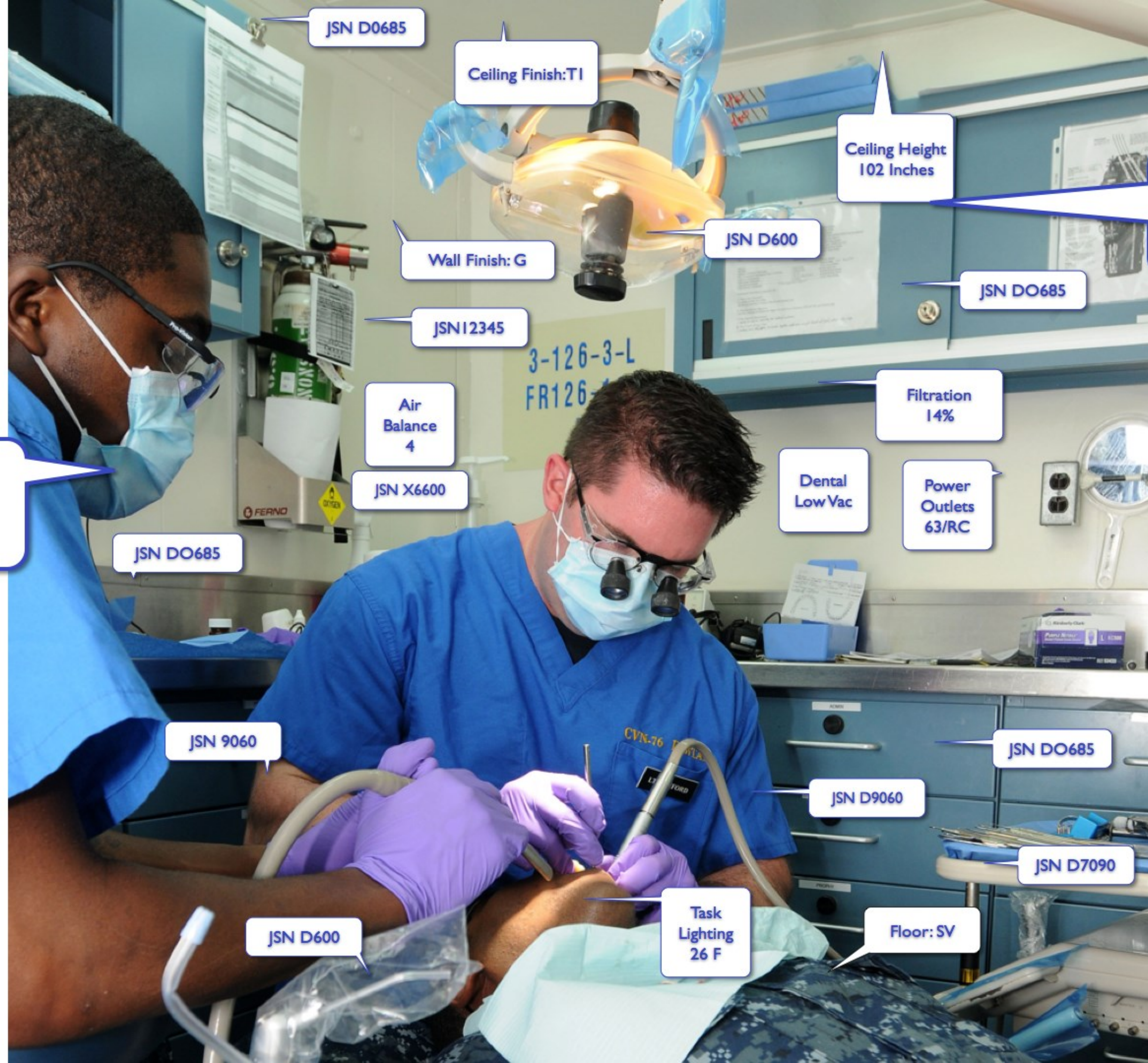


Space

Equipment

SEPS
2BIM

VA



JSN D0685

Ceiling Finish:TI

Ceiling Height
102 Inches

JSN D600

Wall Finish: G

JSN DO685

JSN I2345

Air
Balance
4

JSN X6600

Filtration
14%

Dental
Low Vac

Power
Outlets
63/RC

JSN DO685

JSN 9060

JSN DO685

JSN D9060

JSN D7090

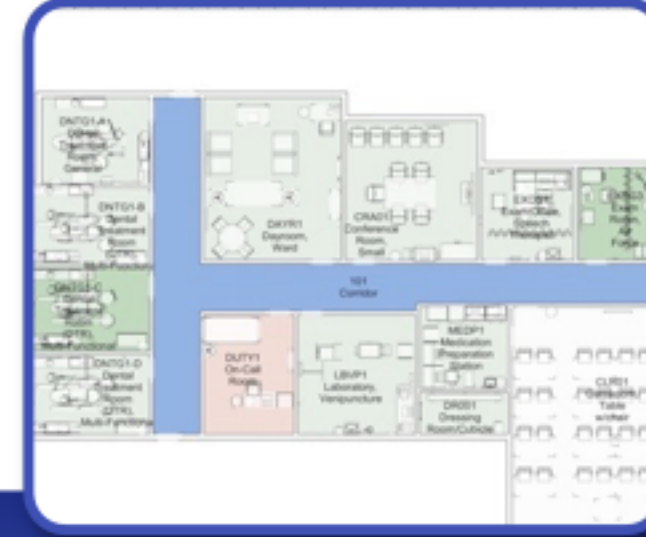
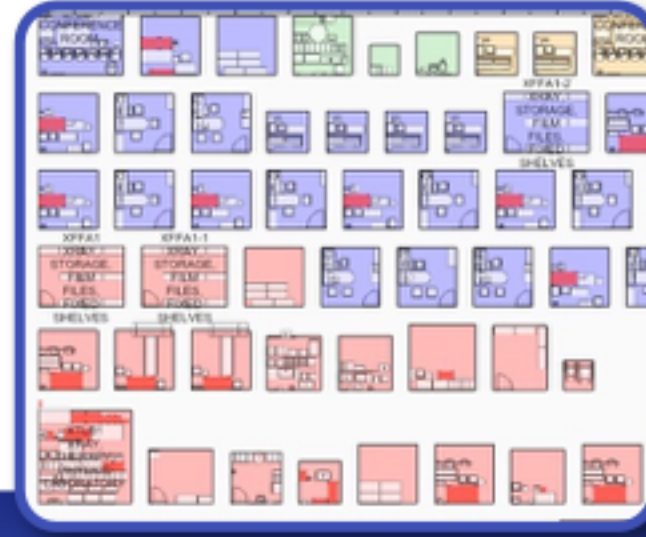
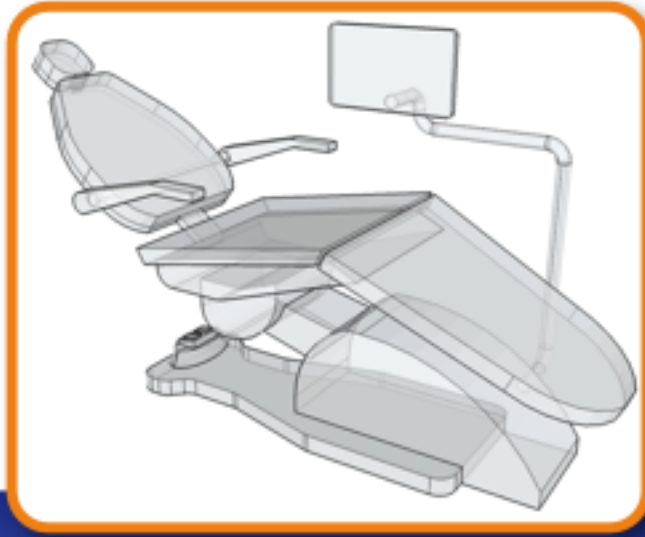
JSN D600

Task
Lighting
26 F

Floor: SV

SEPS2BIM Web Service

Authoritative Source Data for Design & Construction



SEPS2BIM

EQUIPMENT
Web Service

SPACES + EQUIP.
Web Service

PROGRAM FOR
DESIGN
BIM EXCEL FILE

EQUIPMENT
MILSTD 1691

SPACES + EQUIP.
MASTER TABLES

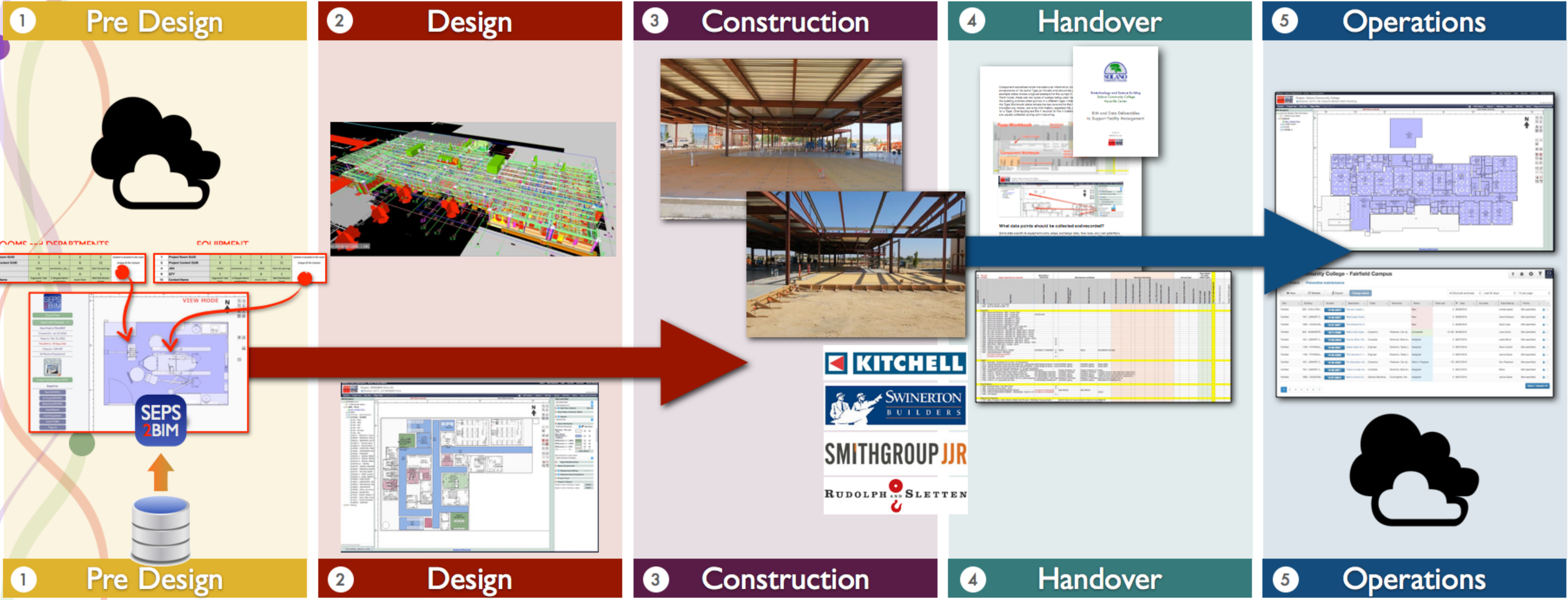
SEPS

FACILITY DESIGN
PROJECT TABLES

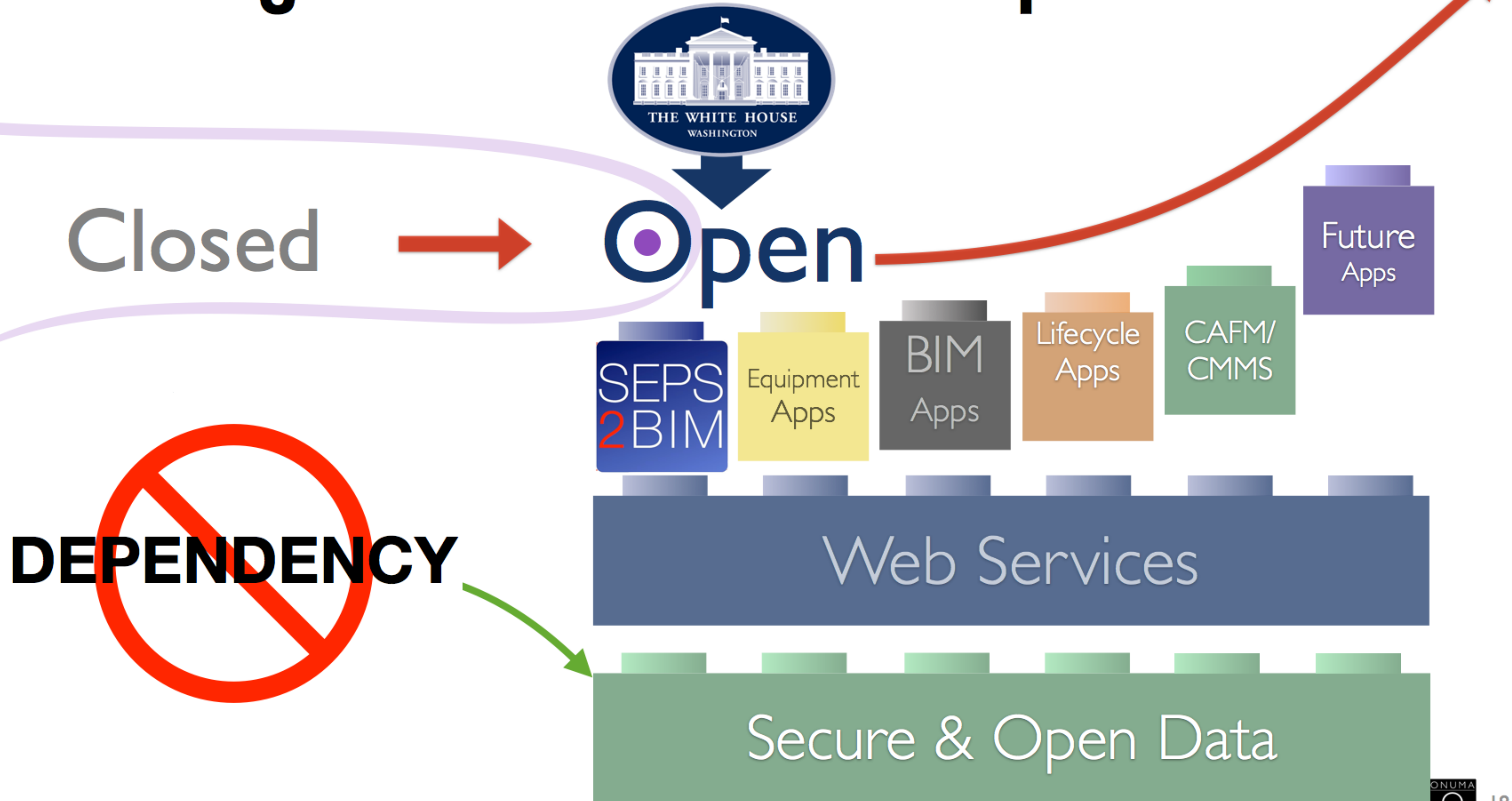
DIGITAL GOVERNMENT:
**BUILDING A 21ST
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TO BETTER SERVE THE
AMERICAN PEOPLE**

MAY 23, 2012

MAX.gov



Moving from Closed to Open



Thought Leadership Subcommittee

The Thought Leadership subcommittee is focused on providing the visionary leadership for the Alliance.

buildingSMARTalliance

NIBS.org



Chair Kimon Onuma Bim Stormtrooper Onuma, Inc	Vice Chair John Roach Ecosystem Captain Murphy Tate LLC	Secretary Mike Bordenaro BIM Agent BIM Education Co-op	BOD Liasion Van Woods USACE
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Members



Yong Ku Kim BIM Skywalker ONUMA, Inc	Renee Tietjen Owner's Voice Department of Veterans Affairs	Joe Manganelli Fluor	Ilana Hellmann General Services Administration	Monte Chapin Graphisoft US
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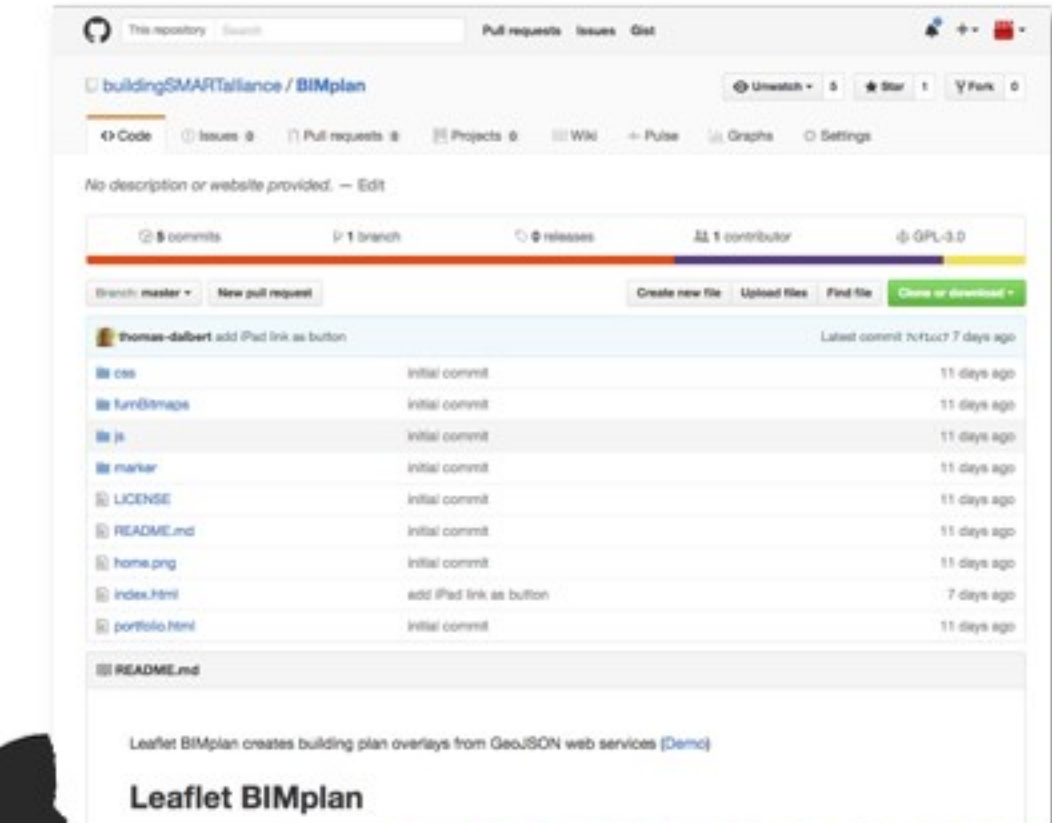
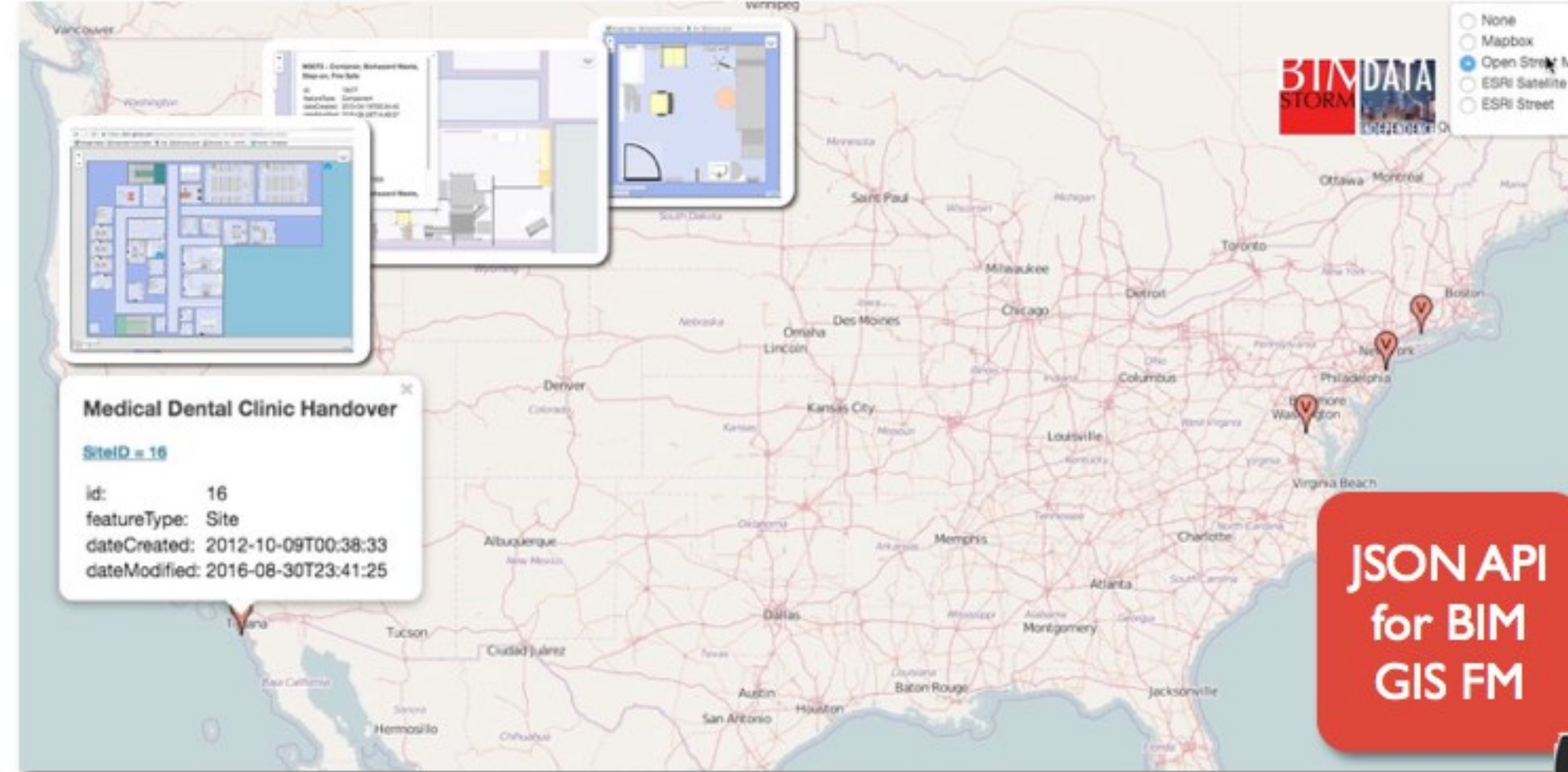


Brad Dubinsky BIM Commander Klaros Technologies	Mike Chipley Cyber BIM Master PMC Group	Bill Napier Wisconsin Department of Administration	T.J. Gottwalt Allegion	Stephen Hagan The BIM Father Hagan Technologies
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DATA INDEPENDENCE



buildingSMART
alliance
Thought Leaders

Collaboration Site

Open Source
GeoJSON
BIM, GIS, FM Viewer

Open
Source
Code

Community

Real Time Rapid Prototyping of BIM, GIS, FM: Standards Development, Documentation, Deployment



ASSET TRACKING

Prototype

USACE Facility Data Workbook (FDW) - Version 0.6 (MAY-9-2016)

INSTRUCTIONS

QUICKSTART

- 1 Enter Data in "1. Facility Data"
- 2 Enter data in "2. Space Data"
- 3 Enter data in "3. Asset Data"

TABLE OF CONTENTS

- 1 Introduction
- 2 Facility Data (Tab 1)
- 3 Required
- 4 Required

USACE Facility Data Workbook (FDW) - Version 0.6 (MAY-9-2016)

ASSET DATA

Asset Designation	Asset Description	Space
A6025	A6025 - Mirror, Safety, Convex	BRNP5
A6025-1	A6025 - Mirror, Safety, Convex	BRNP5
Door-18	Single-Flush	BRNP5
M7011	M7011 - Bed, Platform, Without Visible Legs, Psychiatric	BRNP5
M7011-1	M7011 - Bed, Platform, Without Visible Legs, Psychiatric	BRNP5
A1010-64	A1010 - Telecommunication Outlet	CRA01
A1010-76	A1010 - Telecommunication Outlet	CRA01
A1010-80	A1010 - Telecommunication Outlet	CRA01
A1011-6	A1011 - Telephone, Desk, 1 Line	CRA01
A5145-2	A5145 - Hook, Garment, Double, SS, Surface Mounted	CRA01
A5145-4	A5145 - Hook, Garment, Double, SS, Surface Mounted	CRA01
A5212-6	A5212 - Bracket, Television, Wall-Mounted, Tilt/Angle	CRA01

Copyright © 2016

Import

File

SELECT FILE or drop file here

Type

☐ COBie ☒ USACE workbook

SUBMIT

COBie or USACE
Excel Worksheet

Unique mark	Name	Space	EDIT	DELETE
A6025	A6025 - Mirror, Safety, Convex	BRNP5 - BEDROOM, SECLUSION		
A6025-1	A6025 - Mirror, Safety, Convex	BRNP5 - BEDROOM, SECLUSION		
M7011	M7011 - Bed, Platform, Without Visible Legs, Psychiatric	BRNP5 - BEDROOM, SECLUSION		
M7011-1	M7011 - Bed, Platform, Without Visible Legs, Psychiatric	BRNP5 - BEDROOM, SECLUSION		
Door-18	Single-Flush	BRNP5 - BEDROOM, SECLUSION		
A1010-64	A1010 - Telecommunication Outlet	CRA01 - CONFERENCE ROOM, SMALL		
A1010-76	A1010 - Telecommunication Outlet	CRA01 - CONFERENCE ROOM, SMALL		
A1010-80	A1010 - Telecommunication Outlet	CRA01 - CONFERENCE ROOM, SMALL		
A1011-6	A1011 - Telephone, Desk, 1 Line	CRA01 - CONFERENCE ROOM, SMALL		
A5145-2	A5145 - Hook, Garment, Double, SS, Surface Mounted	CRA01 - CONFERENCE ROOM, SMALL		
A5145-4	A5145 - Hook, Garment, Double, SS, Surface Mounted	CRA01 - CONFERENCE ROOM, SMALL		
A5212-6	A5212 - Bracket, Television, Wall-Mounted, Tilt/Angle	CRA01 - CONFERENCE ROOM, SMALL		
A5220-6	A5220 - Bracket, Television, Wall Backing	CRA01 - CONFERENCE ROOM, SMALL		
A6046-2	A6046 - Artwork, Decorative, With Frame	CRA01 - CONFERENCE ROOM, SMALL		

API requests made

GET: https://www.bim-cloud.com/api/e0807ead-1d9d-478e-83b8-6dd1851e53c

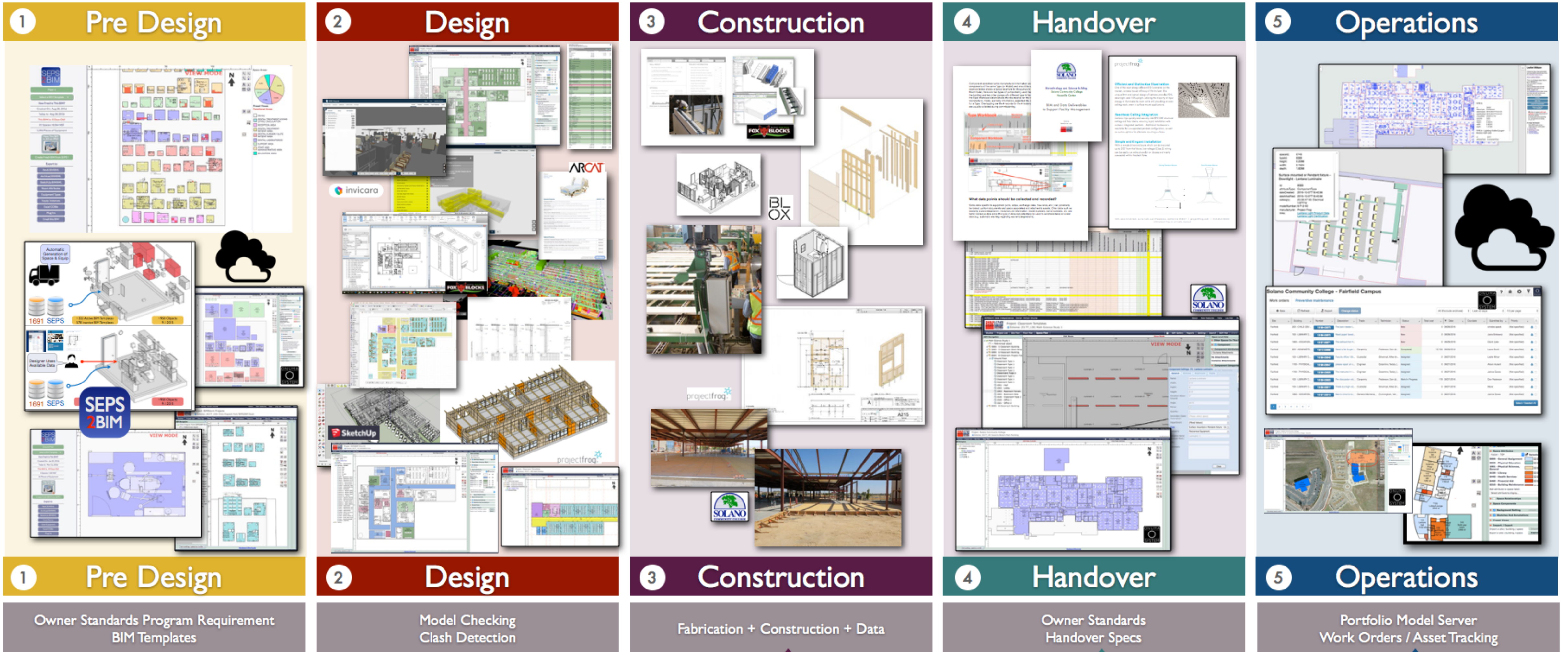
GET: https://www.bim-cloud.com/api/e0807ead-1d9d-478e-83b8-6dd1851e53c

GET: https://www.bim-cloud.com/api/e0807ead-1d9d-478e-83b8-6dd1851e53c

This all happened within a few short weeks during:



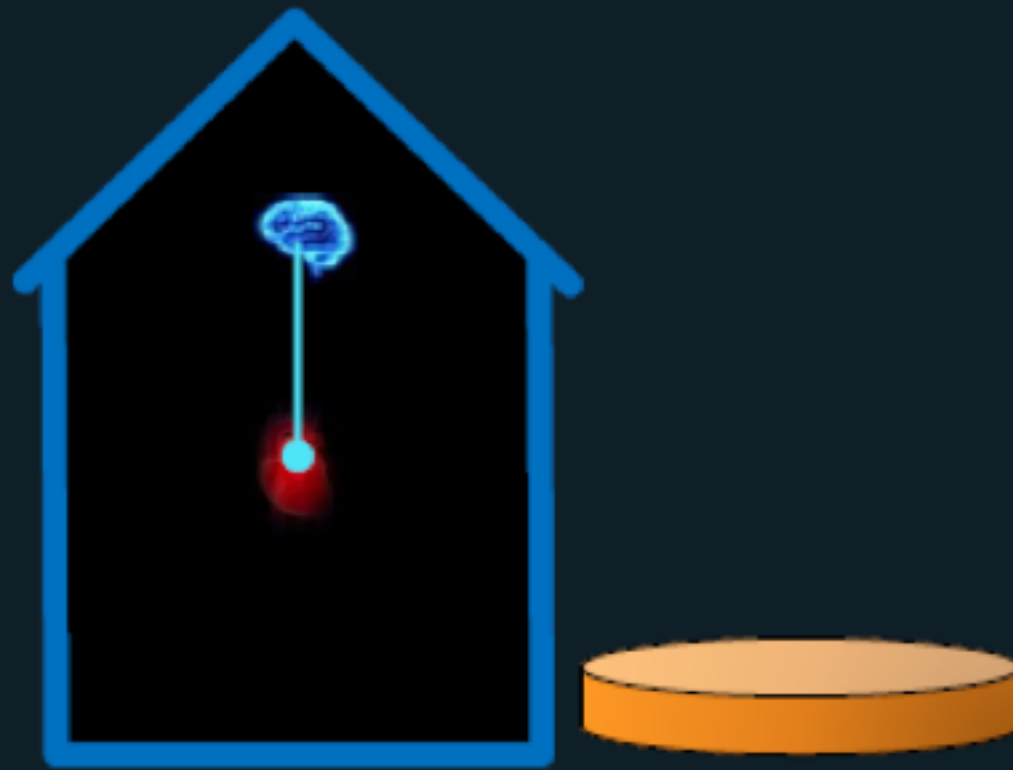
Join BIMStorm.com for free to become part of this.



Industry Perspective on Digital Transformation and Asset Management

Building Maturity and the “Internet of Building Things”

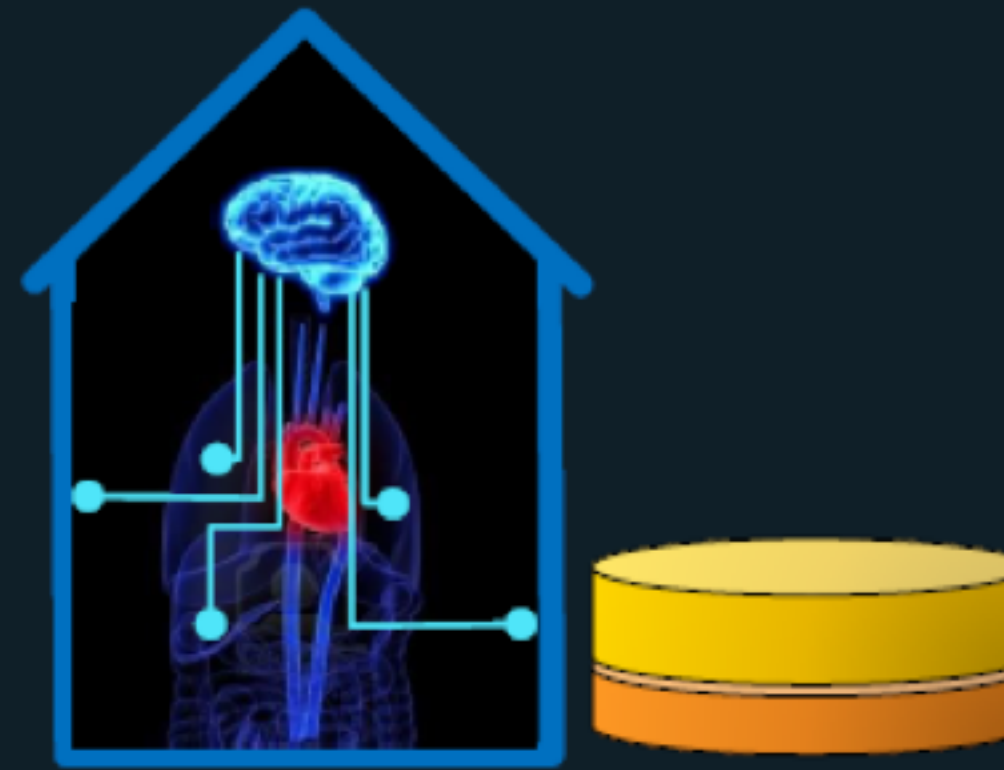
Automated Buildings (1980 – 2000)



Visualize KPI

- + Good for ratings
- + Allows identifying general issues
- Bad for identifying energy waste

Smart Buildings (2000 – 2015)



Analyze Energy Consumers

- + Understand consumption of rooms and central assets
- Only primary datapoints are analyzed

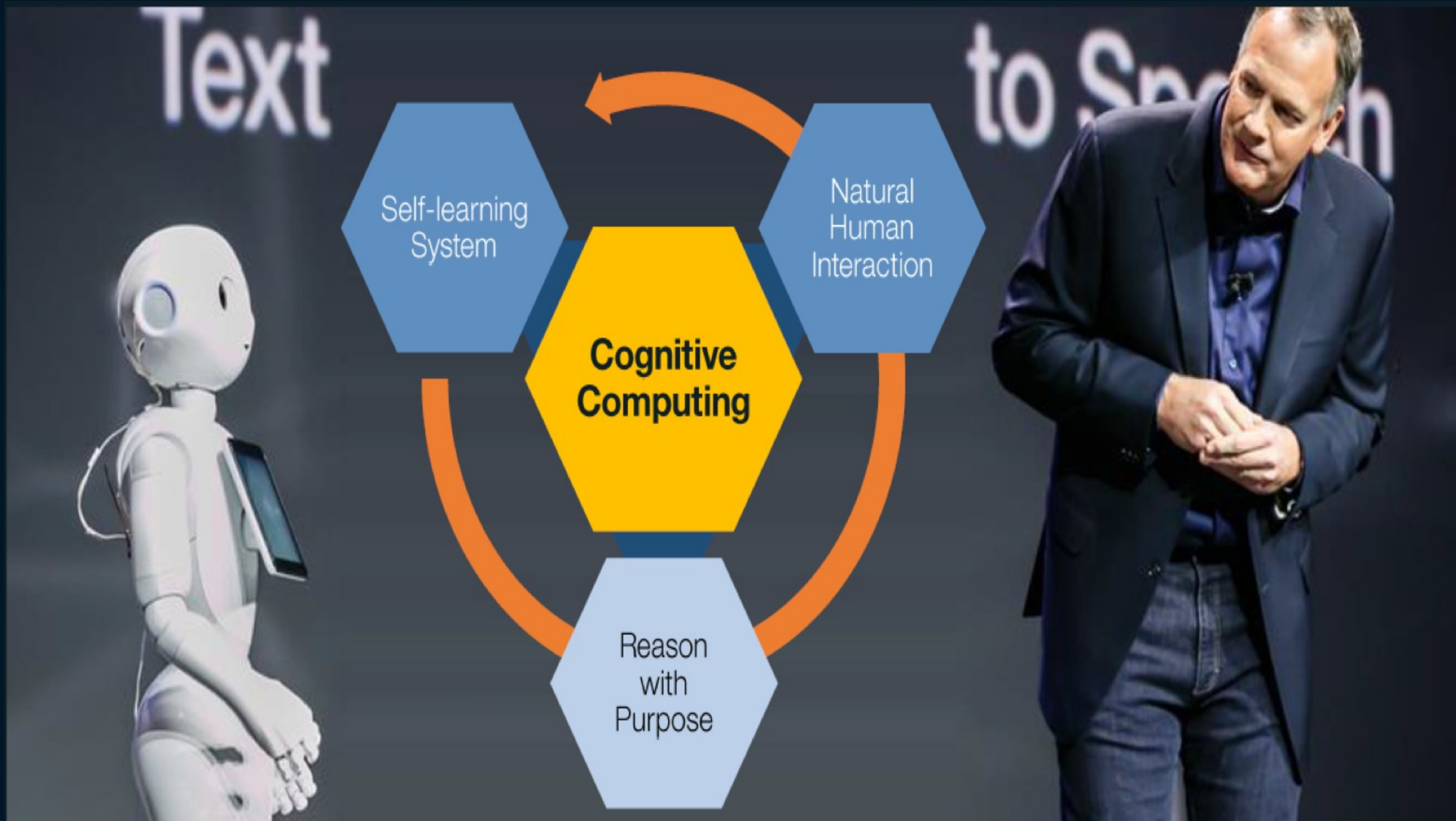
Cognitive Buildings (> 2015)



Learn Behaviour

- + Predictive control down to desk level
- + Understand energy flow and building occupancy
- + Consider comfort preferences of users
- + Collect context such as weather and meetings
- Too data points even for advanced analytics

Cognitive Computing and Asset Management



3 Industry Perspectives

1. Data is the world's natural resource for the next century
2. Data is essential with the industry shift to platforms, IoT, and Cognitive
3. Organizations are moving to cognitive buildings
 - **ISS:** A leading global provider of facilities, is using data and cognitive IoT to transform the management of over 25,000 buildings around the world
 - **Carnegie Mellon University:** A leading higher education institution is using cognitive IoT to understand and optimize their facility footprint while opening up platforms of innovation across campus.



Integrated
Facility Management

Harnessing Life Cycle
Data

An Open Platform for All



Owners

How many
square feet are
in my portfolio
worldwide?



Staff

This equipment
is not working.



Customers

Where is the
nearest hospital
with an MRI?



Administrators

How do we
schedule room
use?



Operators

Where is the
faulty
equipment?



Many More...

Consultants
Architects
Engineers
Developers
Vendors, etc.

The facility industry today is ready for a change. Tremendous shifts in technology in the last few years create the potential for cost and time savings for owners of facilities.

iFM was a two year effort initiated by a project through the National Institute of Building Sciences.

The initial focus was on government healthcare facilities, but the findings



Federal
Integrated
Facilities

Government Agencies and FED iFM

Government agencies have major problems managing facility data in disparate monolithic systems. FED iFM looked at how to address managing facility data within any agency. FED iFM builds a platform of shared services with modular facility life cycle solutions. Significant savings are possible compared to the current monolithic systems that are in place.

Global Positioning Systems (GPS) that were initially created for defense purposes, today can be used to find the nearest coffee shop. FED iFM was started as an initiative to bring facilities into the 21st century. This initial two years + investment is the catalyst for the industry. Other government



Applications + Proofs of Concept + Prototypes + Developer Tools

A low-barrier facility life cycle ecosystem enables rapid deployment of applications and a modular approach to creating new solutions.
Build in once, use it many times.

Space and Equipment Planning

The Space and Equipment Planning System (SEPS) was moved into MAX.gov in 2013. Since then new functionality has been added. Data such as the 1691 equipment database are now hosted on MAX and accessible to other applications. SEPS Master Tables are available as a web service for other applications to connect to.



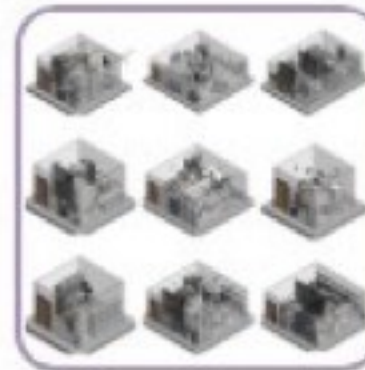
SEPS 2 BIM

Two large healthcare owners have made their facility requirements data accessible. SEPS2BIM is a resource for tools, APIs and processes.



Spaces

The SEPS2BIM Space Aggregator is a free online utility that uses the SEPS Web Services to create SEPS spaces and equipment in real time and then view them in BIM, Mobile Devices and Reports



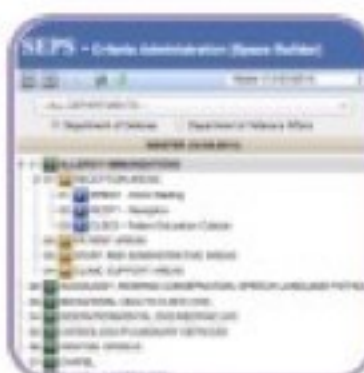
Departments

The SEPS2BIM Department Aggregator is a free online utility that uses the SEPS Web Services to create SEPS Departments in real time and then view them in BIM, Mobile Devices and Reports



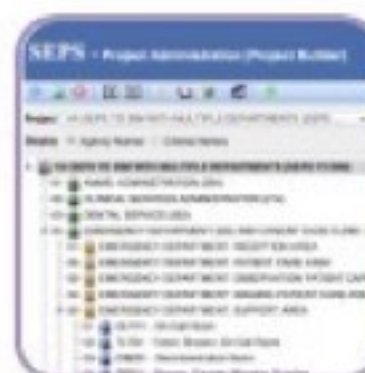
SEPS

Space and Equipment Planning System hosted on MAX.gov since 2013. SEPS users now authenticate through MAX.gov to access



Master Tables

Space and equipment standards from SEPS are accessible via Web Services. Up until this year, the only way to get to this data was by



Project Tables

SEPS generated project tables are now accessible through MAX.gov as a web service after authenticating through MAX.gov.



Federal Integrated Facilities

Government Agencies and FED iFM

Government agencies have major problems managing facility data in disparate monolithic systems. FED iFM looked at how to address managing facility data within any agency. FED iFM builds a platform of shared services with modular facility life cycle solutions. Significant savings are possible compared to the current monolithic systems that are in place.

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The Budget Line of Business (BFELoB)

Shared Services as Common Solutions

Analytical Tools

Collaboration

Data Collection & Tracking

Document Production

Knowledge Management

Generally
Applicable
Gov't-wide
Services
via MAX.gov

Agency Budgeting Tools

Budget Execution and Financial
Management Integration

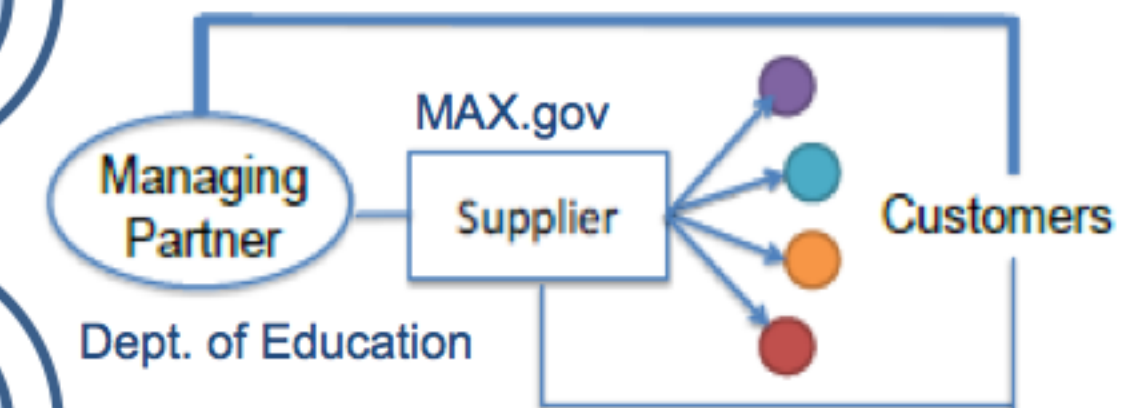
Budget Performance Integration

Human Capital (Federal Budgeting Profession)

Program Management
(Coordination, Standards, Architecture)

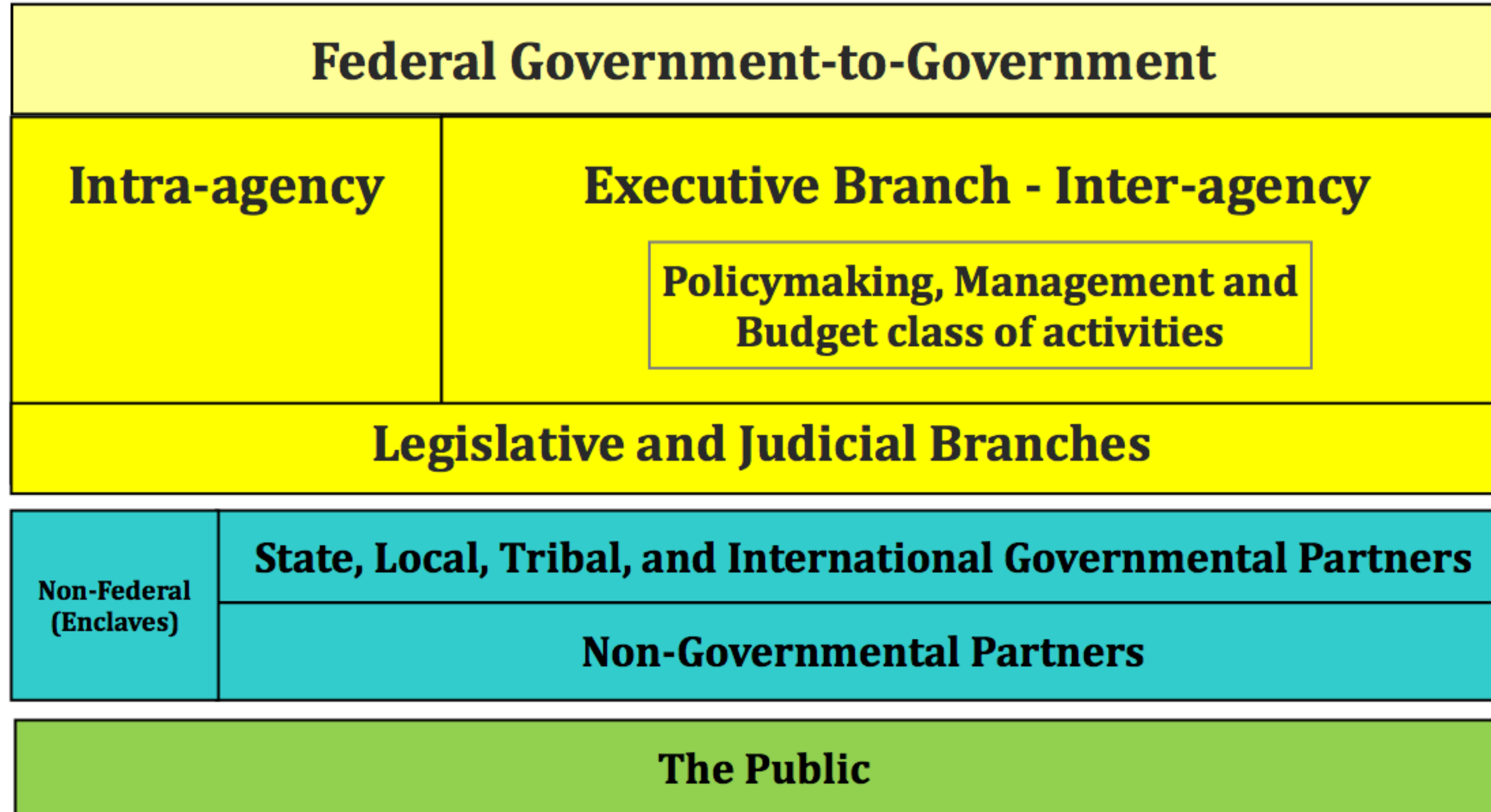
Budget
Formulation
and
Execution
Specific
Services

Shared First



Government-wide Scope

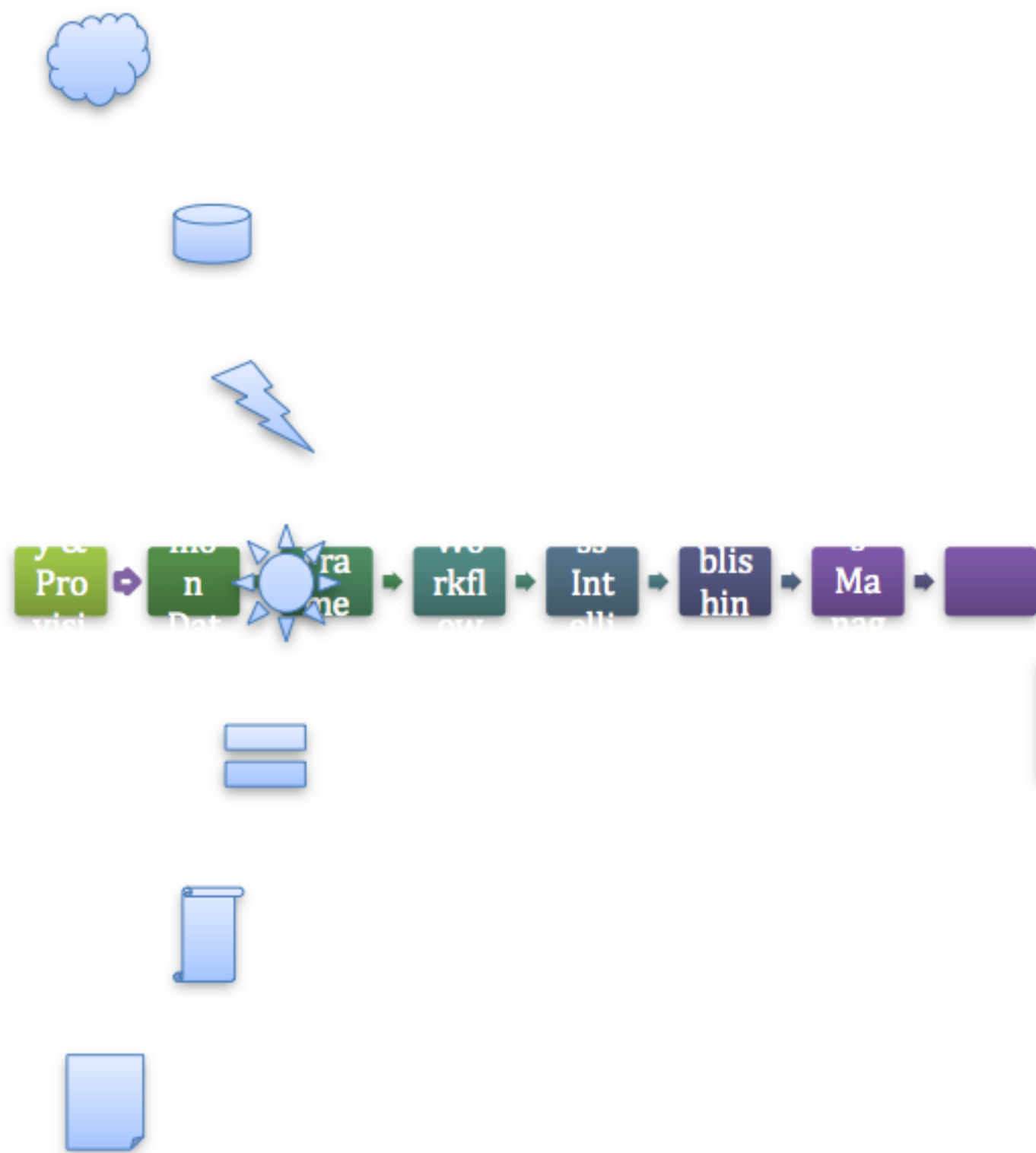
Plus Non-Federal Partners



- Used for inter-agency, intra-agency, and government-wide activities
- Interactions with state, local, tribal, territorial, international, and non-governmental partners in secure *Enclaves*

MAX Service Oriented Architecture

Agility and cost effectiveness through modular web services, open source, open standards, and web-oriented APIs.



Platform as a Service (PaaS)

Many more...



Collaboration & Information Sharing

- *MAX Federal Community*
- *MAX Calendar*
- *Online Meetings, MAX Shared Desktop*



Data Collection, Analysis, Publications

- *MAX Collect, MAX Analytics, Modeling*
- *MAX Publishing*
- *MAX Survey*



Specialized Applications

- *A-11 (President's Budget), Appendix Text, Apportionment, Monthly Outlays, Earmarks, Stock Act, Uncle Sam's List, CIO.gov, Permitting, IT Dashboard, ...*



BIMStorm.com





Work Group: **Asset Information Management**

1. BIMStorm.com
2. <http://MAX.gov>
3. <http://SEPS2BIM.org>
4. <http://FEDiFM.org>
5. <http://NIBS.org>
6. <http://buildingsmartalliance.org>