

2011 BizCon™

Integration

Trends & Context

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Florida becomes the third state to say "no thanks" to federal high-speed rail money

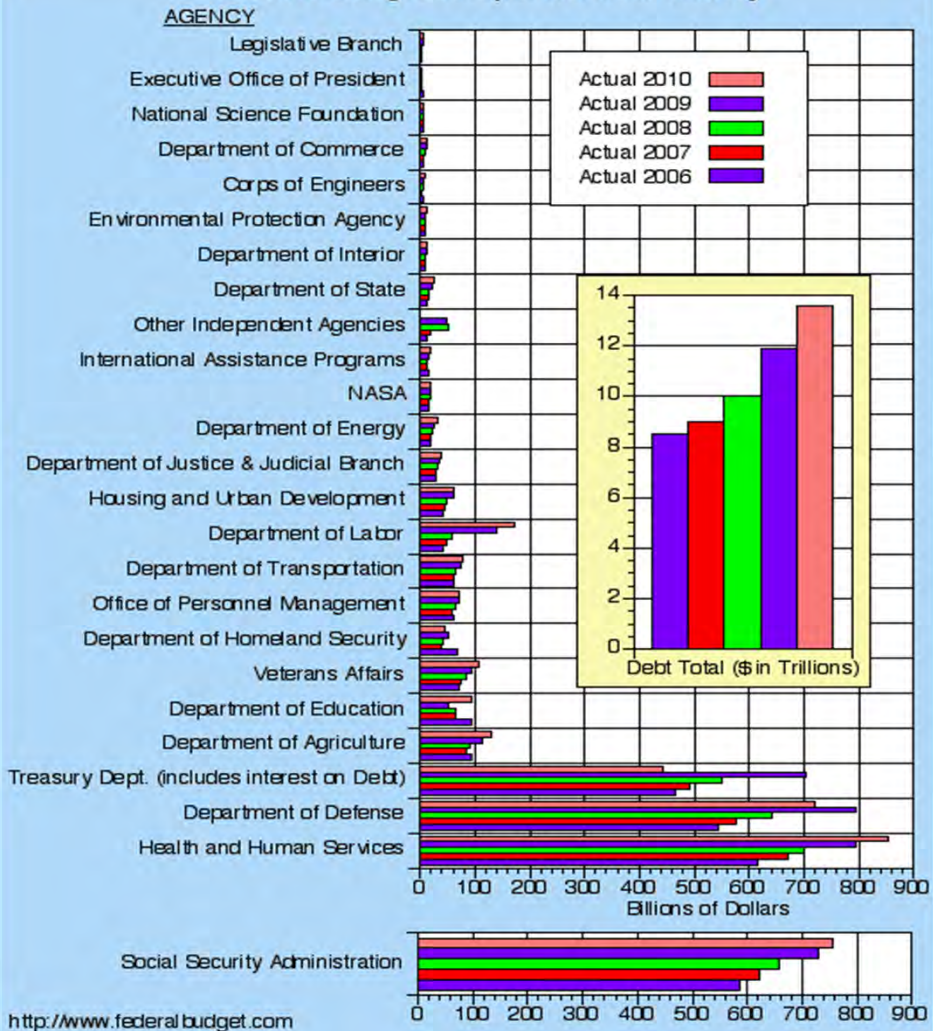
Government

1

"Deficit" vs. "Debt"---

Suppose you want to spend more money this month than your income. This situation is called a "budget deficit". So you borrow (ie; use your credit card). The amount you borrowed (and now owe) is called your debt. You have to **pay interest on your debt**. If next month you don't have enough money to cover your spending (another deficit), you must **borrow some more**, and you'll still have to pay the interest on the loan. If you have a deficit every month, you keep borrowing and your debt grows. **Soon the interest payment on your loan is bigger than any other item in your budget**. Eventually, all you can do is pay the interest payment, and you don't have any money left over for anything else. This situation is known as [bankruptcy](#).

How Congress Spends Your Money



Government

1

policy certainty
is the "single
biggest thing"
that could help
CEOs decide to
invest in
technology



Economy

2

COST PLUS
WORLD MARKET

You can save **2,400 lbs.** of carbon dioxide per year by recycling just half of your household waste.

Scientists project that if heat-trapping carbon emissions aren't reduced, average surface temperatures could increase by **3 to 10 degrees Fahrenheit** by the end of the century.

25% Amount our demand for electricity is expected to grow in the next two decades.

For the fourth consecutive year, wind power was the second-largest new resource added to the U.S. electrical grid, and the **United States surpassed Germany** as the world leader in wind electricity generation in 2008.

1° F Average global temperature increased during the 20th century.

A single tree will absorb **one ton** of carbon dioxide over its lifetime.

AIR

Energy

3

By 2030 the world will consume **2005 1/4** the amount of energy that we use today.

Air conditioning and heating account for almost **HALF** of electricity use in the average American home.

Arch2030 carbon EO 13514 - Life cycle efficiency

Waste to energy Codes + Standards

The Arctic ice pack has shrunk by **10 percent** since the mid-1970s.

Sea levels have risen **10 inches** in the past century. Projections could continue to rise between **4 inches** to **6 feet** in the next 100 years.

A **36-inch** increase in sea levels could swamp every city on the East Coast of the United States.

WATER

Changing Constructs

The cost of generating value through the Lifecycle

Design

Construction

Business Costs

Business Outcomes

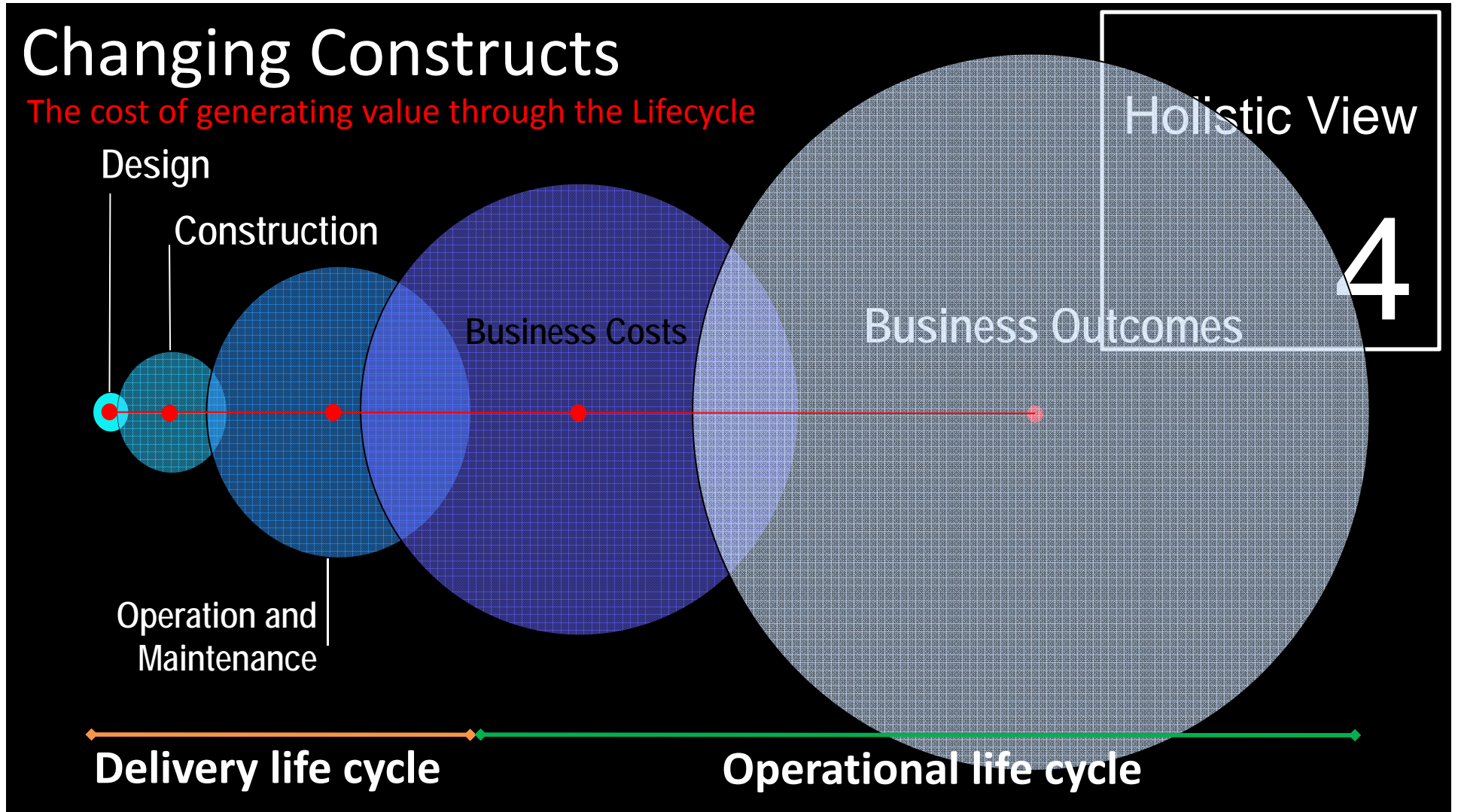
Operation and
Maintenance

Delivery life cycle

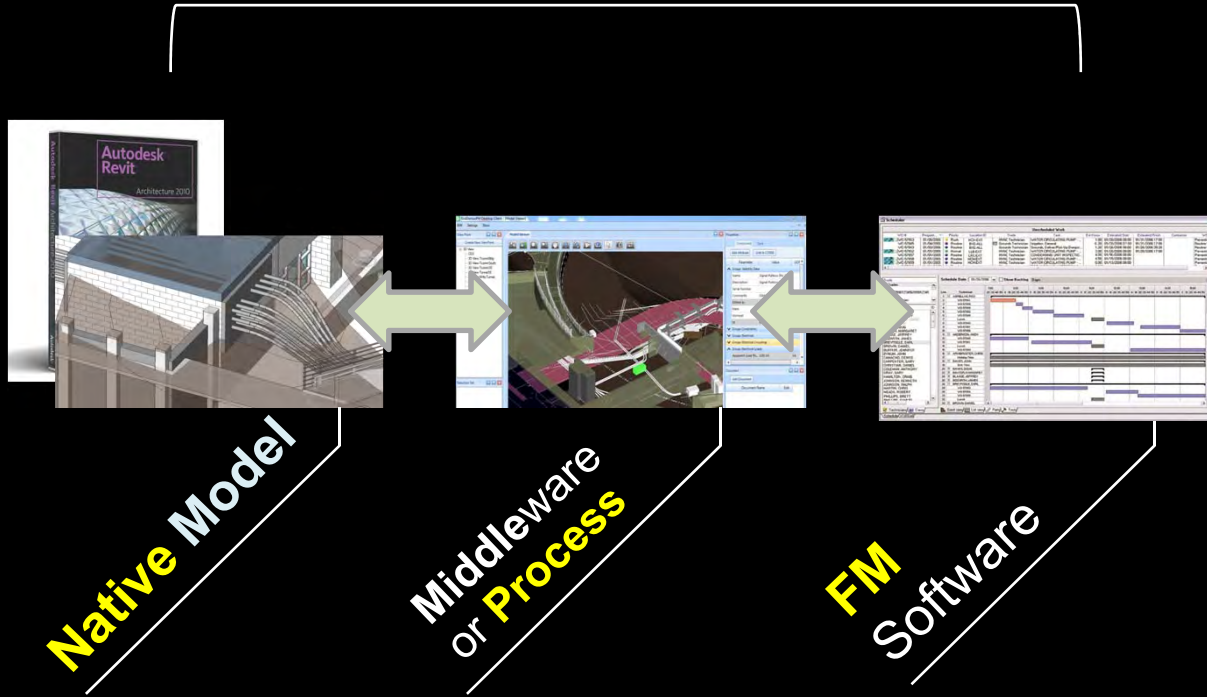
Operational life cycle

Holistic View

4



FiM

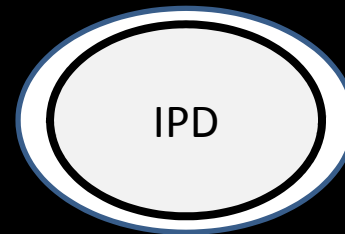
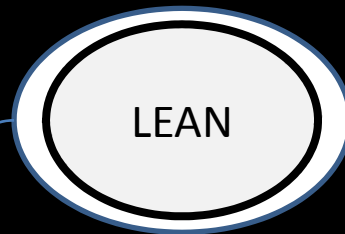


Investing

5



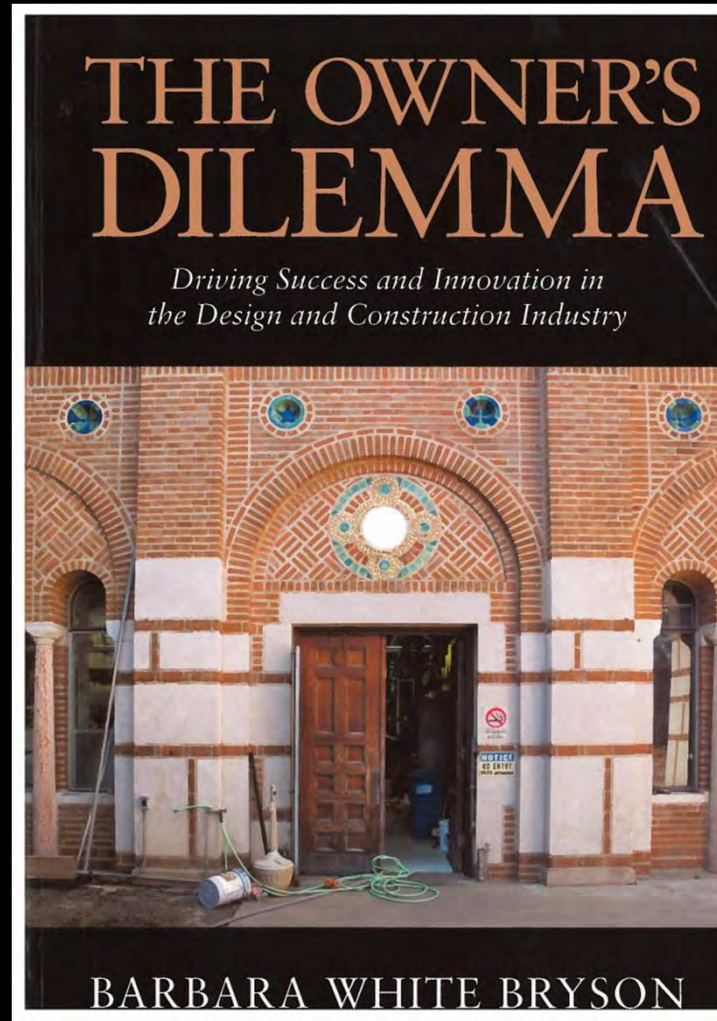
**DATA
DRIVEN**



Early partner involvement
Set and buy in to project goals
Joint project governance
Shared risk/reward in commercial terms
Technology platform for big BiM

Impeccable coordination
Project as a production system
Collective enterprise

A call to owners to be more accountable and to expect more from themselves and their teams



“In fact, it is easy to illustrate that more money on building projects is lost (or spent) by the lack of timely, collaborative decision making than could ever be gained through any clever delivery process or lucky market timing.”

book 1

Platforms : **Invitations**

Make **sharing** and
decision making
contagious

Social play



7



ONUMA - Floor Plan | Onuma - Web Services | My Yahoo!

onuma.com/products/WebFeatureServices.php

3D View - Google Chrome

www.onuma.com/plan/OPS/viewSite3d.php?sysID=110&JD=188&bldgID=402&spaceColorCoding=DEPARTMENT

8/27/2012
1/2012 12/2012

3D View

Objects

- Site
- Floor Slabs
- Space Volume

Color Coding

Space: (none)

Space Attributes

Department	Color
(none)	
A-Courtrooms	Light Blue
B-Judiciary	Yellow
C-Courts Services	Orange
D-Prisoner Handling	Red
E-Police Court Bureau	Pink
F-Crown Attorney	Purple
G-Victim Witness Program	Green
H-Consel Services	Brown
J-Public Services	Light Green
K-Building Services	Grey
L-Program Parking	White
M-Non Court	Olive

3D Navigation

- Drag with left mouse click to Pan
- Use the scroll wheel to Zoom
- Drag with left mouse click in combination with the Shift key or the Control key to Rotate and Tilt

For more information, review the user manual for Google Earth:

- [3D Viewer Navigation](#)
- [Navigating in Google Earth](#)

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Google

position of ONUMA, Inc. allowed us to participate in this first of a kind demonstration of linking BIM to GIS using OGC standards.

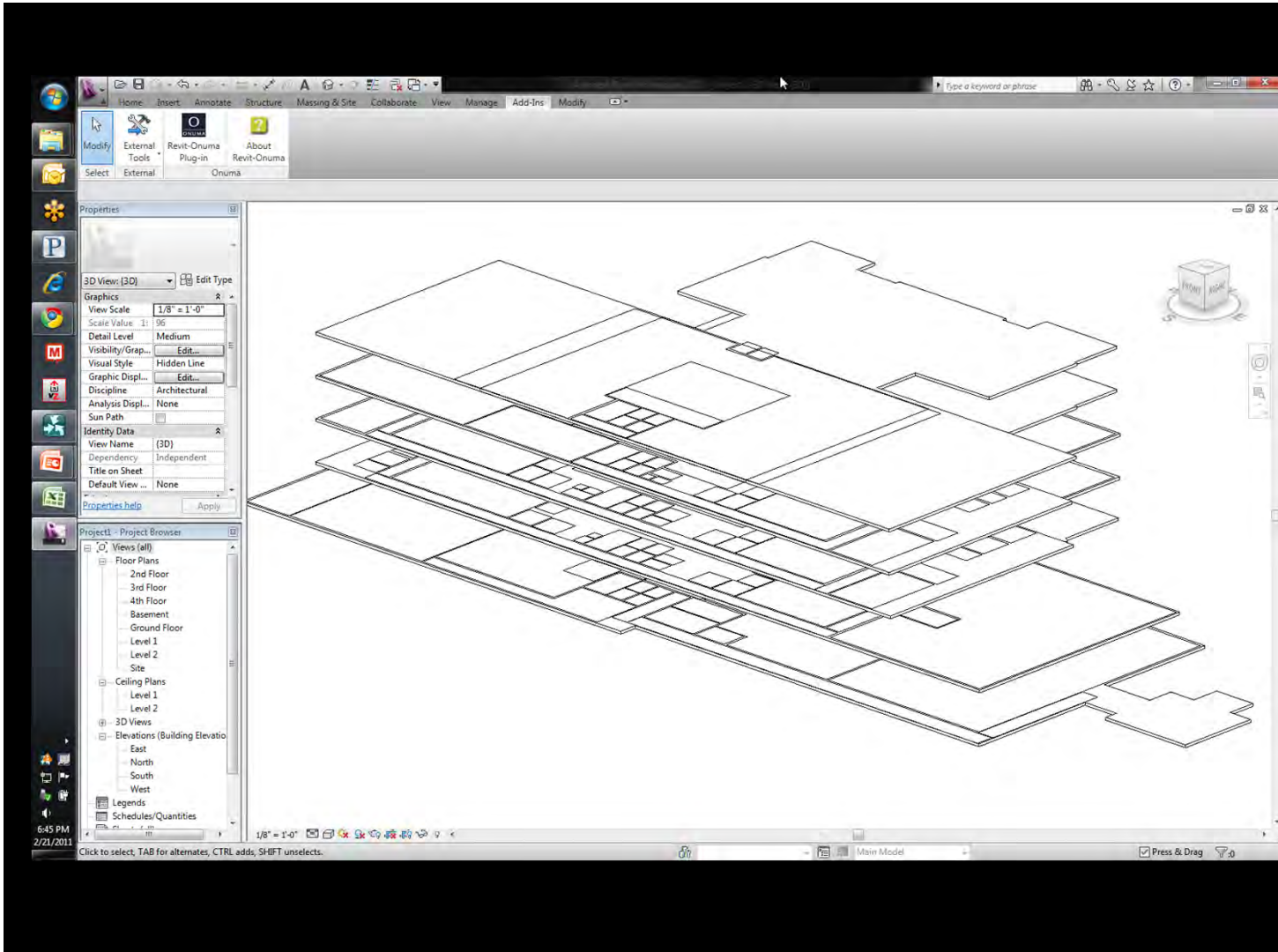
6:16 PM
Monday
February 21, 2011

Social play



7





Social play



7



13 5 14

ONUMA - Floor Plan

https://www.onuma.com/plan/OPS/editFloor.php?sysID=110&bldgID=402&ID=1212

Balfour Beatty Construction Owner: HUGH MCGLOUGHLIN

Project: St Thomas 8-4-10 Schemes
Scheme: (S110_188) St Thomas Scheme B1

Studios | Project List | Site Plan | **Floor Plan** | Space Plan | BIM Gallery | Reports | Settings | Attachments | BIM Mail | Share | Bugs and Comments

BIM Navigation

- (S110_188) St Thomas Schem
- (*) = Referenced object
- (B110_402) Scheme B1
 - Add / Delete Floor
 - 4th Floor
 - 3rd Floor
 - 2nd Floor**
 - Ground Floor
 - Basement

Floor Level Data

(No ghost floor)

Site context is off

Edit Floor Slab(s) Calc M2

Copy Slabs, Columns, Walls

Spaces

Space Attributes

Circulation Requirement Selection

(None)

Public Access Only

Private Access Only

Secure Access Only

Public and Private Access

Public Private

Secure Access

Edit

Space Relationships

Space Furniture

Background Setting Lock

Background: Sketch Plan

Upload Background

Choose File No file chosen

(Background Name) Upload

Sketches And Annotations

Show Annotations

Show Sketches

1 null

2 null

3 null

Select / deselect all sketches

Delete selected sketches

Preset Views

Import / Export

6:07 PM
Monday
February 22, 2011

Scale by moving one point of background to corresponding point of plan and press "K".

Social play



7



13 5 14

- + Achates IntelliTrak
- + Autodesk 3ds Max
- + Autodesk AutoCAD
- + Autodesk AutoCAD Civil 3D
- + Autodesk Constructware
- + Autodesk Ecotect Analysis
- + Autodesk Green Building Studio
- + Autodesk NavisWorks Manage
- + Autodesk Quantity Takeoff
- + Autodesk Revit Architecture
- + Autodesk Revit MEP
- + Autodesk Revit Structure
- + Beck Technology DProfiler
- + CCIP
- + Concur Expense
- + Deltek Time & Expense
- + Deltek Vision
- + FrontRange ITSM
- + Google SketchUp
- + GPSR
- + Historical Costs Database
- + Insurance Database
- + iSqFt Private Construction Office
- + Kenexa WebHire
- + LATISTA Field Management
- + MC2 ICE
- + Meridian Prolog
- + On Center On-Screen Takeoff
- + Oracle JD Edwards EnterpriseOne
- + Primavera P3
- + Primavera P6
- + Primavera SureTrak
- + Subcontractor Prequalification Database
- + Tr@ction
- + Vela Systems Field Management

- Knowledge Sharing/Collaboration**
- + balfourbeattyus.com Site
 - + BBnet
 - + box.net
 - + Citrix GoToMeeting
 - + SharePoint Team Sites



KS

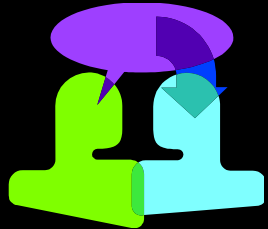
A3s

information
management

Tools
8

iLS

Communication protocol



- **Transfer**

- ✓ **Unable** to transfer knowledge easily



- **Search**

- ✓ **Unable** to find information / people

- **Hoarding**

- ✓ **Unwilling** to help and share



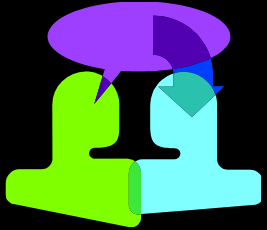
- **Not Invented Here**

- ✓ **Unwilling** to go outside unit for help



Behaviors

9



Ability to apply knowledge across situations

BROAD



D
E
E
P

Functional / disciplinary skill

Behaviors
9



COLLABORATION

HARVARD
BUSINESS
PRESS

HOW LEADERS
AVOID THE TRAPS,
CREATE UNITY, AND
REAP BIG RESULTS

MORTEN T. HANSEN

book 2

Lack of Prefabrication Could Mean:

- You are unable to design and plan your work.
- Your project has no flow and reliability.
- You do not care about safety.
- The owner has money to waste.
- The job has a fat schedule.

Invention is the flower, innovation is the weed...

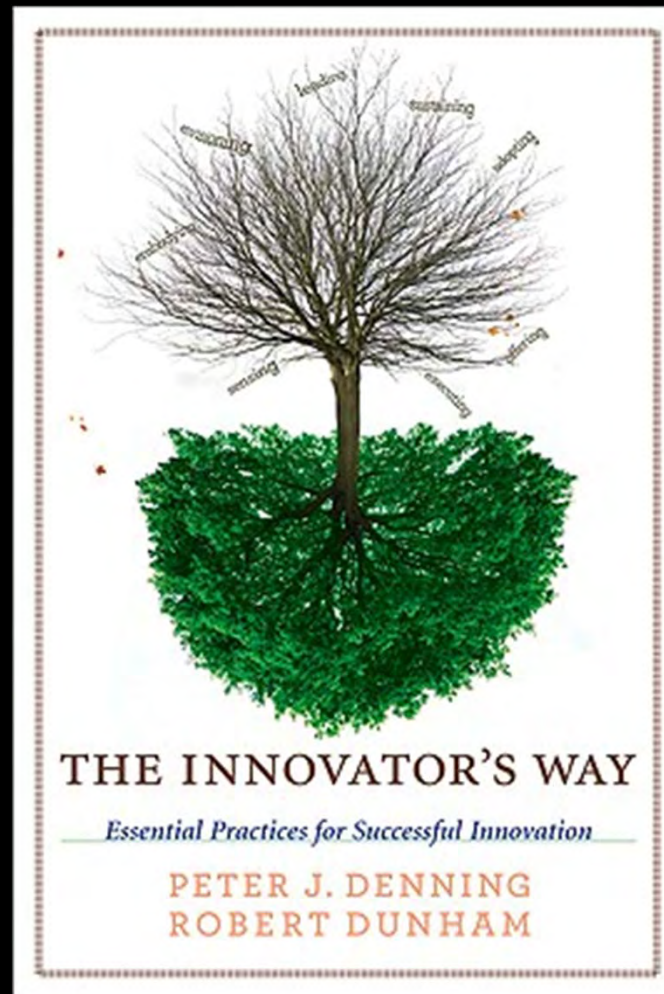
Why Innovate?

- **Budget pressures:** 25% growth in program to accommodate clinical delivery model; can we reduce the overall cost of building a hospital?
- **Safety:** 10 million man-hours forecasted on a very congested site; how much of that can we move off-site?
- **Quality:** Can we achieve a better end product by changing the work heights, welding and assembly environments?

Why Not?

- Whole industry established around work put in place:
- Cost reimbursement
- Dividing lines between trades well-defined, protected
- Insurance industry organized around these lines
- Prevailing wages, unions
- Human nature works against us.

- Innovation is
the adoption
of a new
practice in a
community



book 3

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Balfour Beatty
Construction