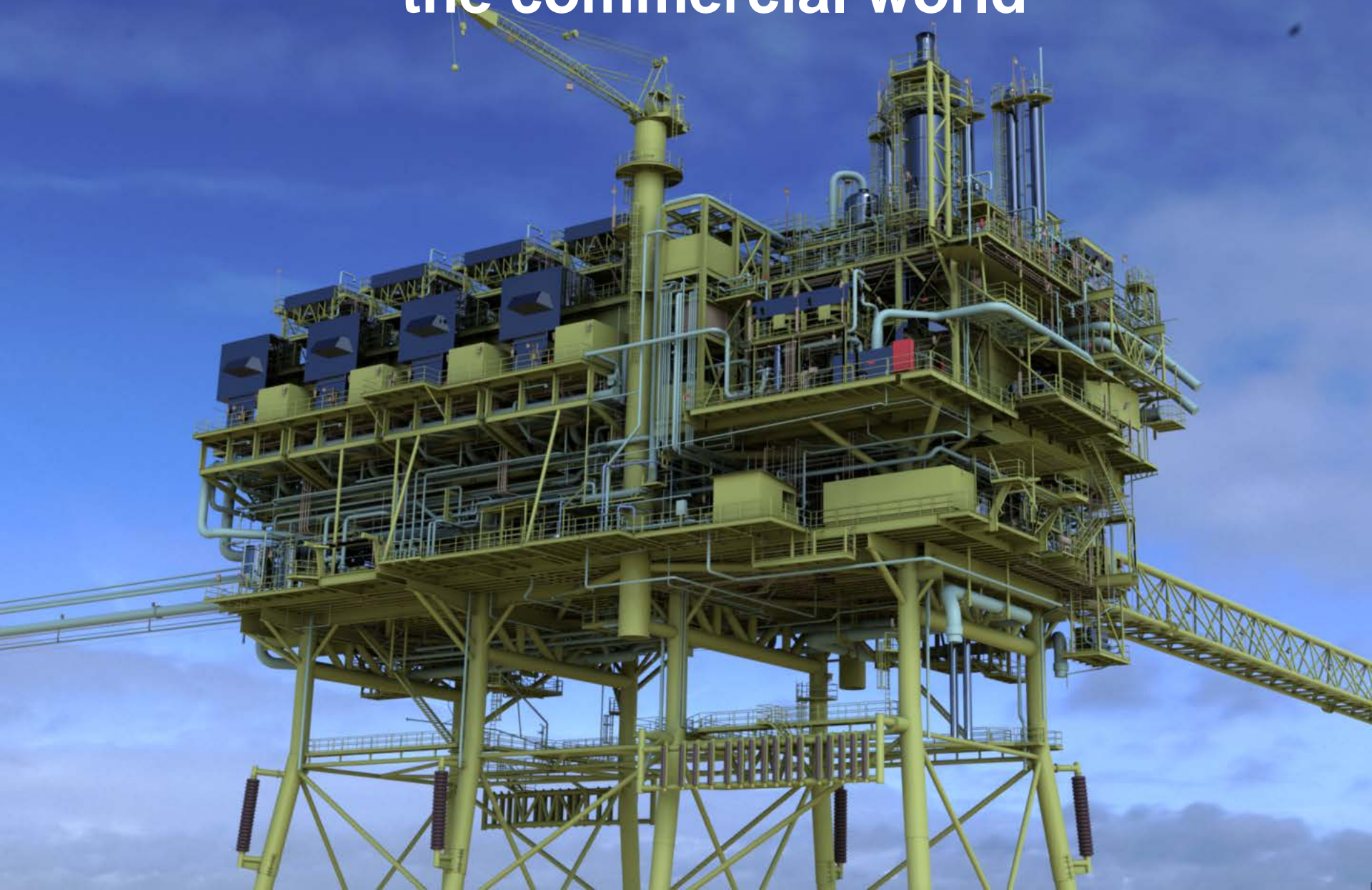
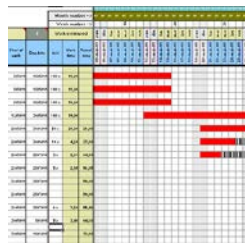
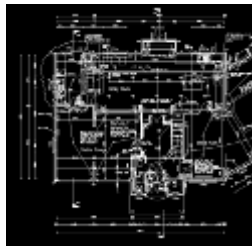
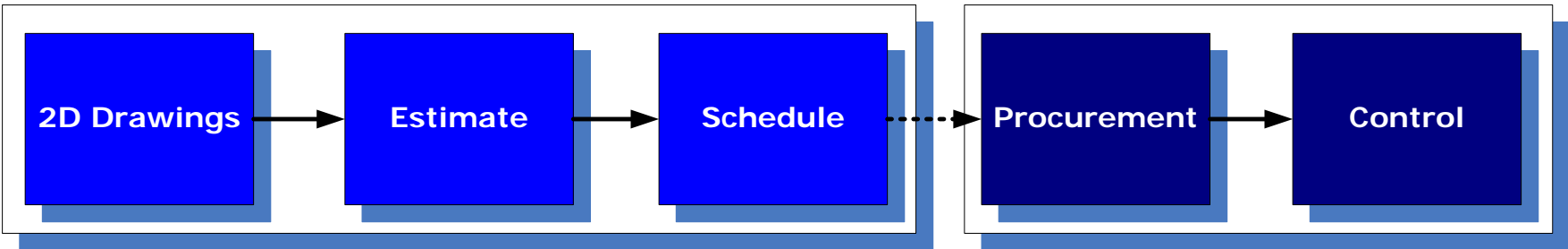
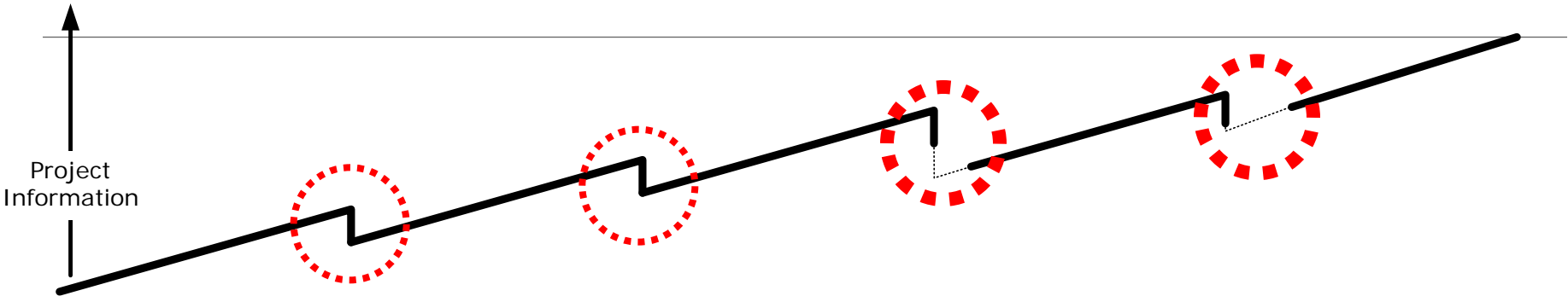


Integration of the design/engineering and the commercial world



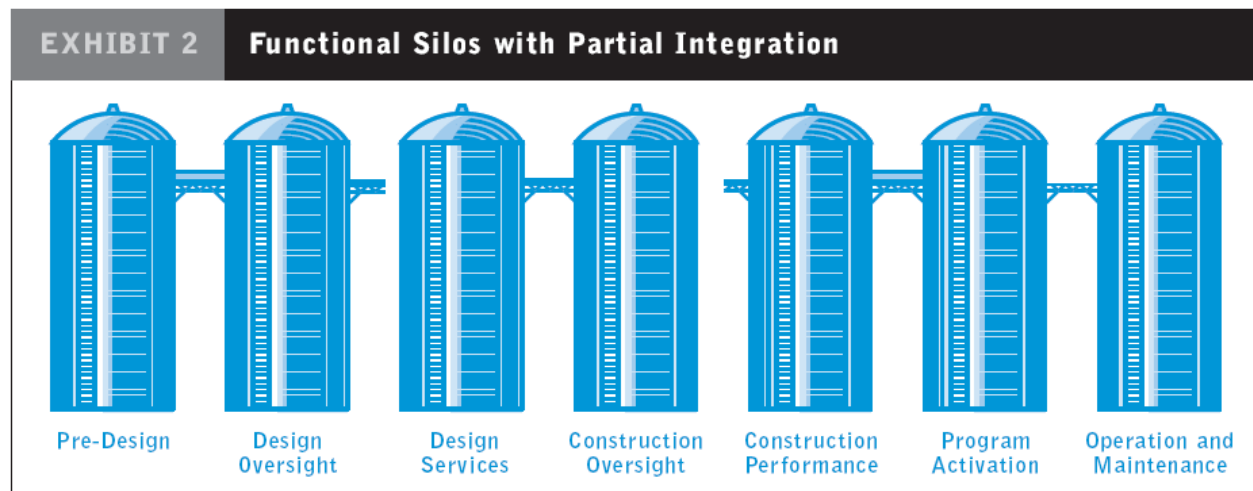
The Construction Process (GIAC 2008)



BIM The present (2008)

THE PRESENT.

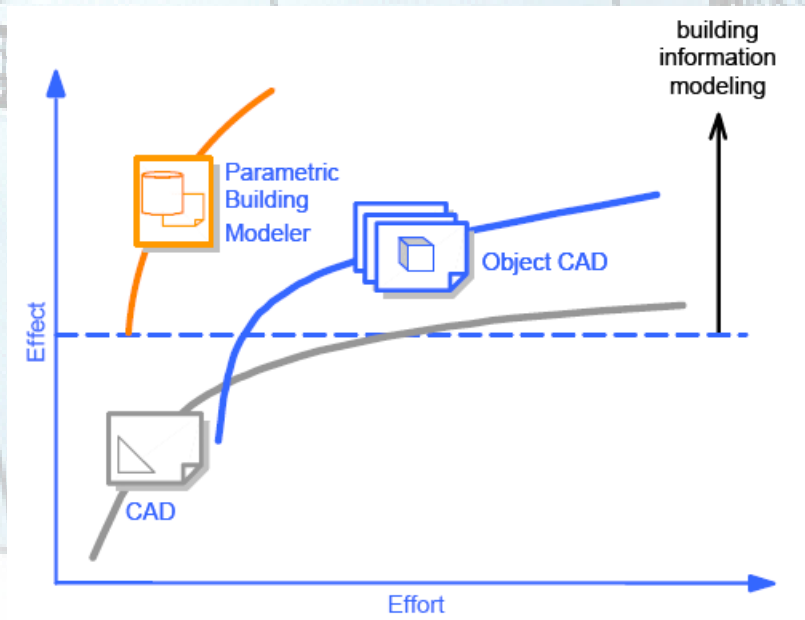
Bridging the gap between functional silos through the use of design/build and program management techniques is occurring. **Exhibit 2** demonstrates the bridging of the functional silos and movement toward more integrated and collaborative business processes is accelerating based upon feedback from this eighth annual owner's survey. Artificial barriers are beginning to fall as state governments approve legislation allowing alternative-delivery-systems use to widen and increase. Leaders of educational institutions are designing joint-degree programs to reflect and respond to industry drivers. Industry associations, like CMAA, are making no distinction between educational experience or employment type, and focusing on recognizing professionalism and accomplishment in the construction industry. Perhaps the best example of this narrowing gap is owner increased use of integrated and collaborative project delivery systems.



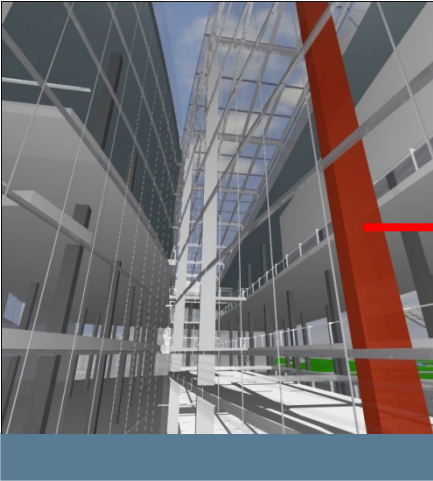
BIM Technologies (GIAC 2008)

What Technologies Can Be Used to Implement Building Information Modeling?

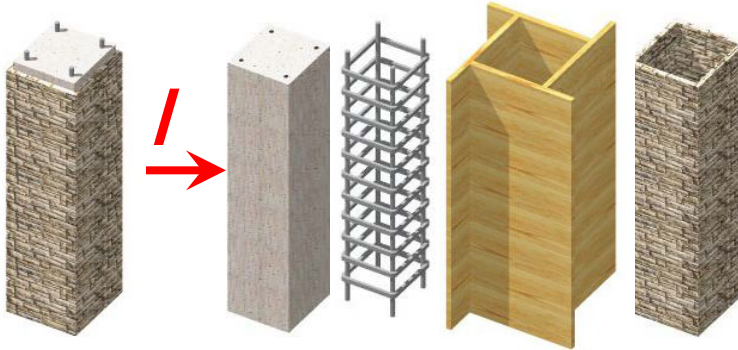
- CAD (2D Drawings)
- Object CAD (3D Drawings with calculation of bill of quantities)
- Parametric building modeling (Object CAD plus time plus resource information in one model permanent integrated, in conjunction with ERP capabilities)



BIM Graphisoft example

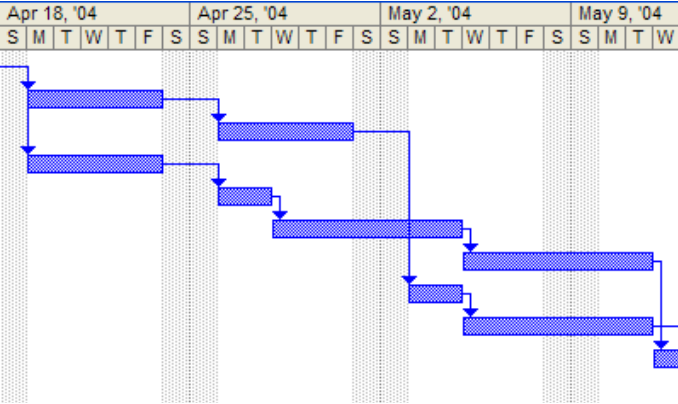


**GRAPHISOFT
5D**

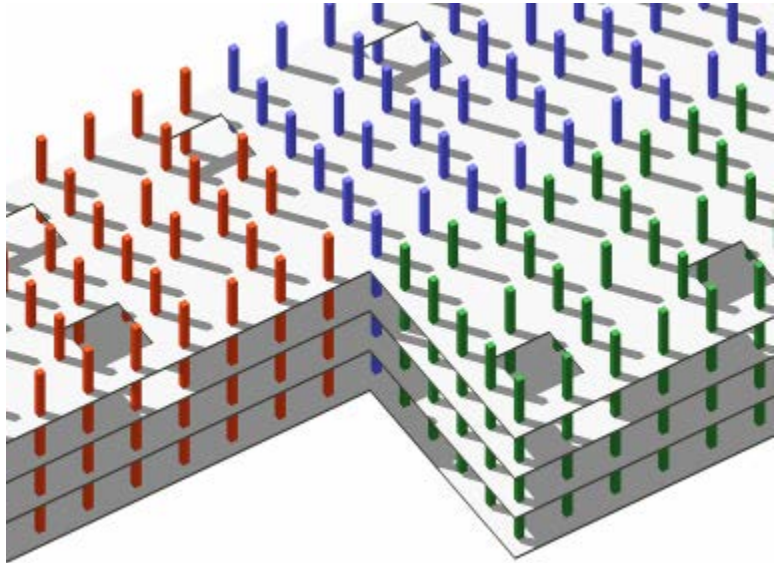


Zones/Floors

+ ↓



≡ ←



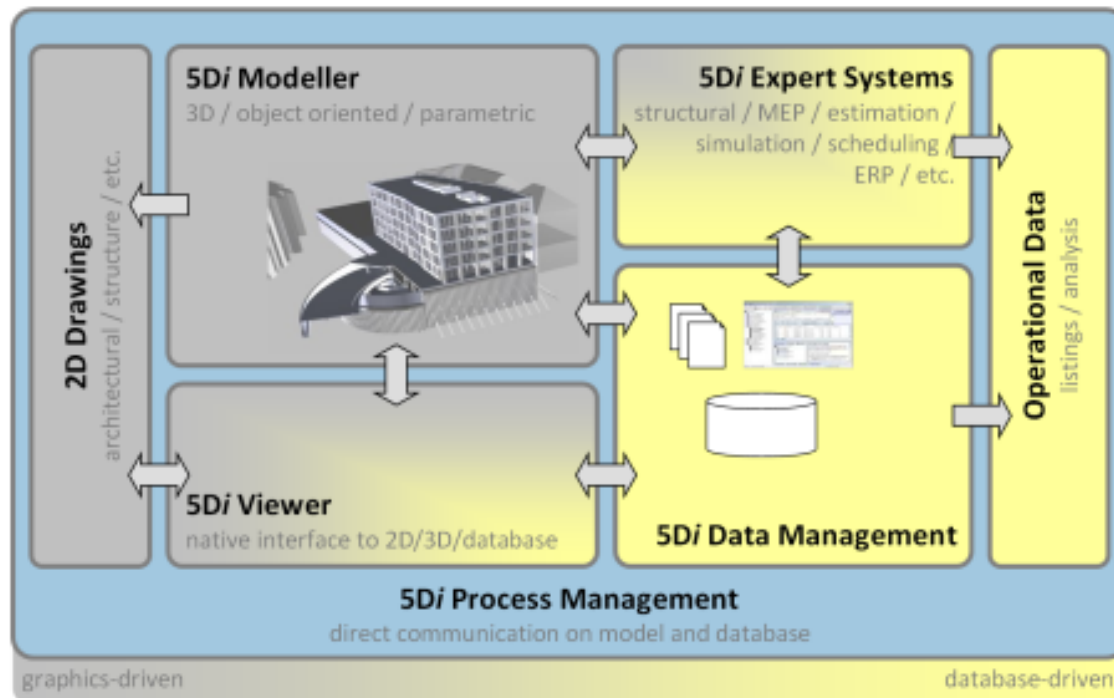
BIM the Goal (GIAC 2010)

5D Initiative Europe

Our Goal

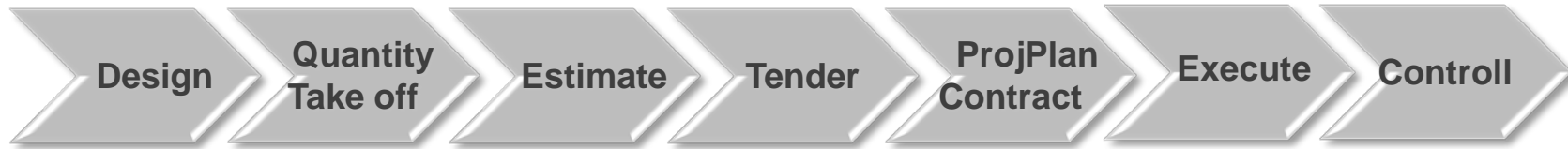
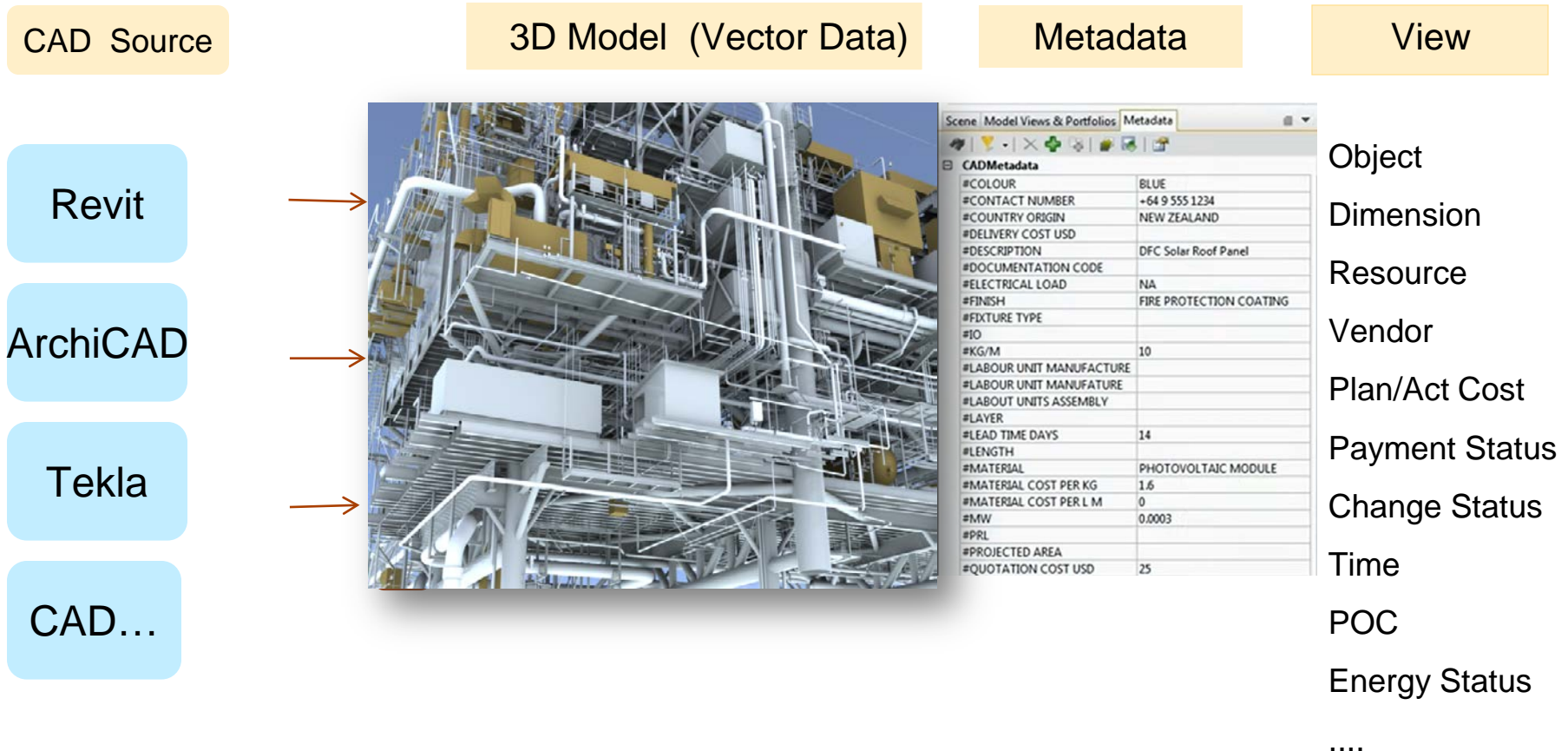
As the largest single group within the construction sector, the construction industry is prepared to face the challenge of adopting and implementing revolutionary approaches to our way of working. Besides massively adapting current work processes, new hard- and software tools must be developed. In order to accelerate and coordinate the development of these IT tools, leading European construction companies launched a common initiative of the European construction industry.

By describing common requirements in a catalogue aimed at the hard- and software industry, this initiative has the goal of coordinating the development of powerful tools which are tailored to the needs of the construction industry, thus enabling their sustainable and accelerated implementation.



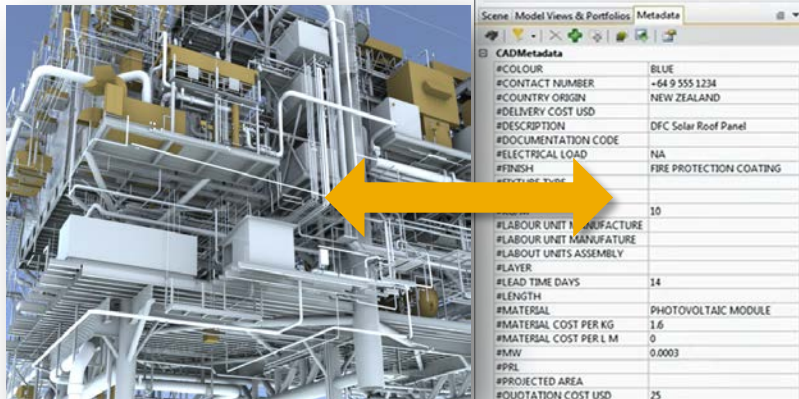
Construction 3D Model Harmonization (Today)

Visibility in all projects of interest



3D Model Harmonization

Metadata Source



View/Perspective

Data Source

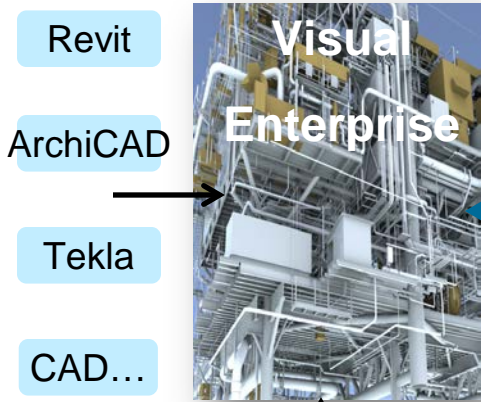
Object	←	CAD
Dimension	←	CAD
Resource		Estimating, ERP
Delivery Status	←	ERP
Plan/Act Cost		Estimating ,ERP
Payment Status		ERP
Change Status	←	ERP
POC		ERP
Time	←	Scheduling
Energy Consumption		Sustainability Sol.

....

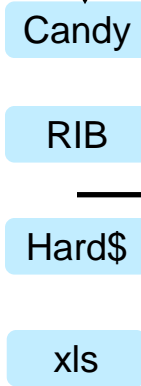


Dataflow Architecture

Source Design

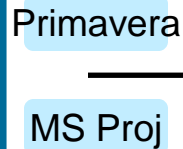


Source Control



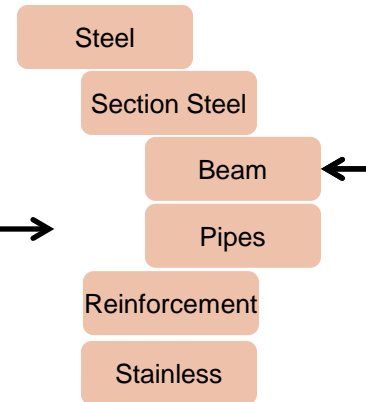
Source Estimate

Source Plan/Schedule

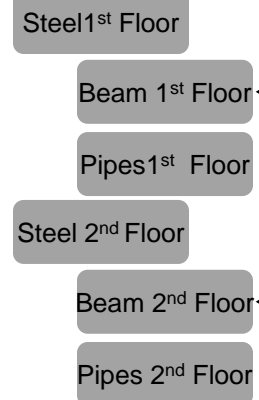


Permanent Model Integration

SAP Project Execution



Funct. Location & BOQ & Cust. Structure



WBS - Activities

Which would you take pride and pleasure in managing?

An interactive 3D plant model

or a text and spreadsheet based model

My Menu

Equipment Selected

V-2140

Edit Equipment Record

Run WO Report List

Enter Measurement Dev

Create Maint. Request

Work Description

Priority

Very High

High

Medium

Low

Work Order No.

Metadata

Banner	Model Courtesy of www.expert
Component Type	Vessel
DOCKNR	xxx
EQNAM	xxx
Inspected By	Jacques Clouseau
Last Maintained	1/1/2001
Main System	Equipment
Maintained By	Jacques Clouseau
Pressure Rating PIG	?
ProcessName	Maintenance
Reason for Failure	Maintenance
Supplier	Cres Ocean Bsp.
TRFNO	xxx
Volume CuffT	?
Weight	?

Equipment V-2140 **Category** Machines

Description Tank 2

Status INST **0001**

Valid From 03/11/2012 **Valid To** 12/31/9999

General data

Class: E0121 Electric engines

Object type: 1003 Electro motor

AuthorizGroup: 1000 Work scheduler

Weight: 5,900 KG

Inventory no.:

Shift Note Type:

Report Type:

Site/dimension: 140*45*34

Start-up date:

Reference data

AcquistnValue: 180.00 USD

Acquistn date:

Manufacturer data

Manufacturer: Strobel Gerätebau GmbH

Model number: E-455

ManufPartNo.: GSF-14674

ManufSerialNo.:

Name	Name2	Name3	Attributes
143 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-1			Attributes: SPINR ?
149 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-1			Attributes: Weight ?
150 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Banner Model Courtesy of www.expert
151 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Branch n/a
152 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Component Type n/a
153 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Last Maintained ?
154 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Length n/a
155 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Main System Industrial Safety
156 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Maintained By n/a
157 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: MaterialID PANEL 1 of FRMWORK /CMP/S-I
159 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Pressure Rating n/a
159 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Sub System Electrical
160 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Supplier ?
161 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: User n/a
162 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Voltage n/a
163 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Watts n/a
164 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Banner Model Courtesy of www.expert
165 /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Component Type Steel Plate
166 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: DOCKNR xxx
167 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: EQNAM xxx
169 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Inspected By Jacques Clouseau
169 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Last Maintained 1/1/2001
170 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Main System Industrial Safety
171 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Maintained By ?
172 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: MaterialID PANEL 2 of FRMWORK /CMP/S-I
173 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: ProcessName ?
174 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Reason for Failure Maintenance
175 PANEL 1 of FRMWORK /CMP/S-I/R-E/NIV-4/SEÑALAMIENTO-3			Attributes: Sub System Electrical

File Edit View Favorites Tools Help

Technical Object : V-2130

Technical Object Type: Equipment Description: Tank 1 Category: M-Machines Valid From: 03/11/2012 System Status: REIT User Status: 0001

Buttons: [Save] [Read Only] [Check Entries] [Status Information] [Change Structure] [Additional Functions]

General Date Location Date Organization Date Structure Documents Classes Characteristics: V1 1.0.0.0

Long Text:

Description: Tank 1

Class: E0121 Electric engines

Object Type: 1003 Electro motor

AuthorizGroup: 1000 Work scheduler

WeightList of Measure: 5,900 KG

SizeDimension: 140*45*34

Manufacturer Date

Manufacturer: Delta Mly

Model Number: E-455

Manufacturer Part Number: GSF-14674

Inventory Number:

Start Up Date:

Shift Note Type:

Shift Report Type:

Country of Manufacture: DE

Month/Year of Construction:

Manufacturer Serial Number:

Browser: http://localhost:63863/iRise/reader/reader;jsessionid=6D57D2B41C70408423916CA9F375E BIM

Simulation Document BIM / Page 4 File View

Project Edit Goto Extras Settings System Help

Project Builder: Project A-00003

Project Structure: Description Identification

- 210_King Project A-00003
 - 210_King A-00003
 - Mechanical Appliance A-00003-01
 - Electrical Appliance A-00003-02
 - Mullians A-00003-03
 - Glass A-00003-04
 - Concrete Beams A-00003-05
 - Timber Beams A-00003-06
 - Structural A-00003-07
 - External Lines A-00003-08
 - Internal Walls A-00003-09
 - External Walls A-00003-10**
 - Floors A-00003-11
 - Network Sensors A-00003-12
 - Furniture A-00003-13
 - Stone Facade A-00003-14
 - Internal Walls A-00003-15
 - Aluminum Panels A-00003-16
 - Wood Panels A-00003-17
 - Cubicle Walls A-00003-18
 - Toilets A-00003-19
 - Stairs A-00003-20
 - 5th Floor Railings A-00003-21
 - 5th Floor Furniture A-00003-22

Identification and view selection

WBS Element: A-00003-10 External Walls

Detail: [Icon]

Overview(s): [Icons]

Basic Data Dates Assignments Control User fields Administr. Superior Progress Long Text Cust. Enhancement

External Walls

Worklist Templates

Templates: Name	Project object
Individual Objects	50%
Projects	100%
Standard Templates	Electrical
Queries	Mechanical

Views Add Comment