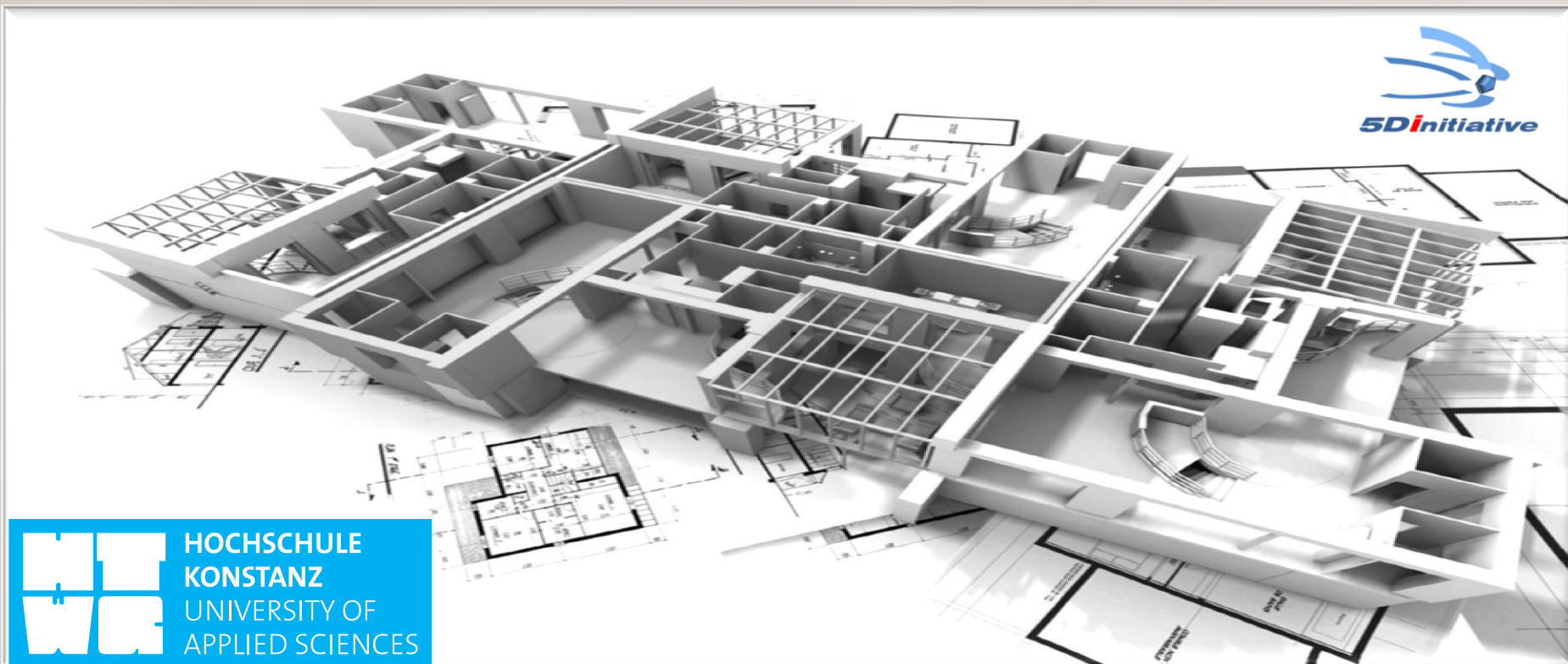




Consolidated Contractors International Company, (CCC)



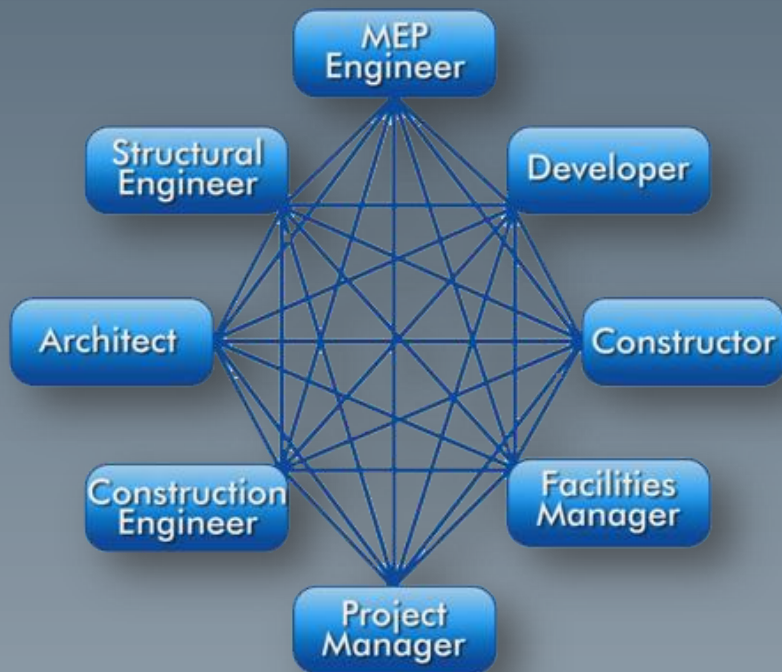
5D Technology in Use and Requirements for Further Development Lake Constance 5D-Conference 22 May 2012

Building Information Modeling (BIM) CCC Group

**Issam El-Absi,
General Manager BIM CCC Centers**

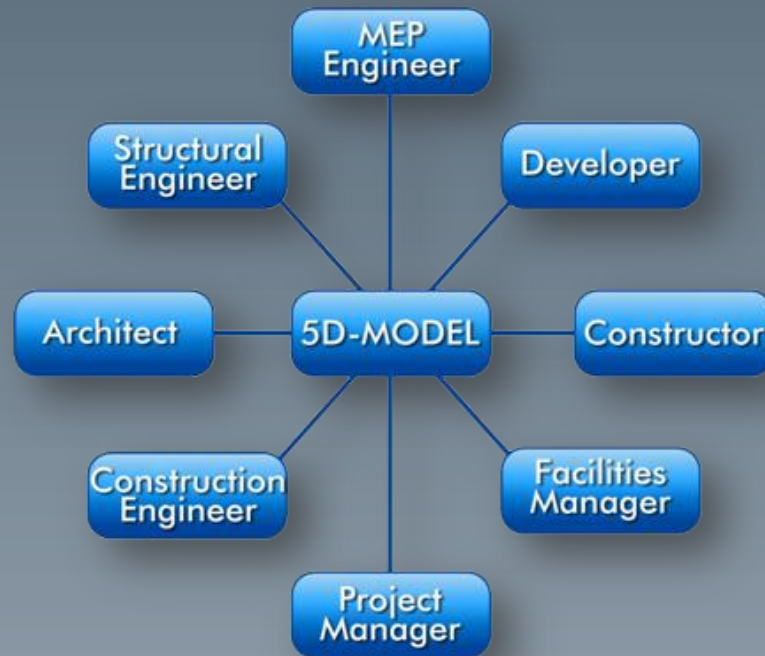


The **BIM-5D** Approach



Conventional

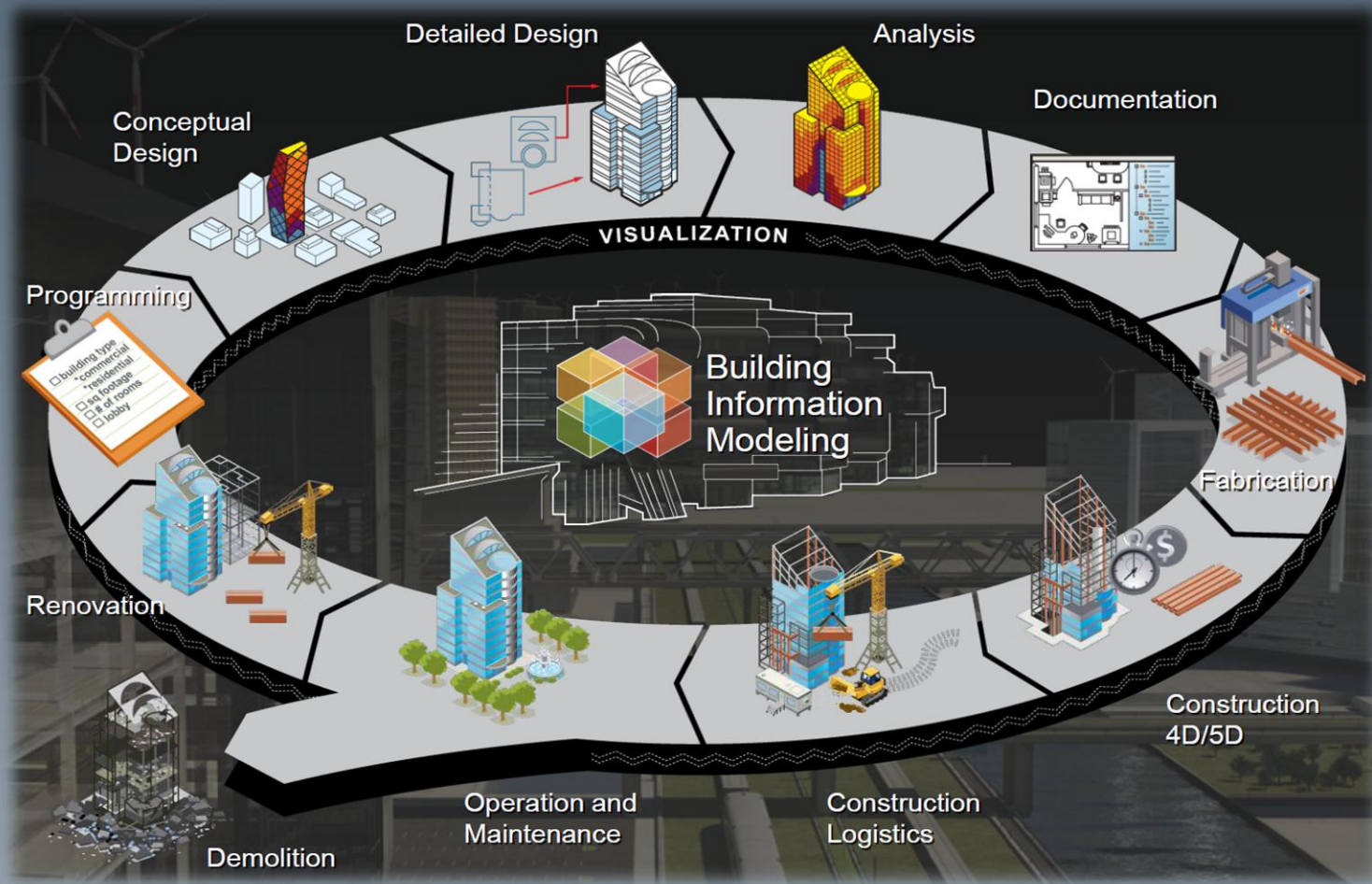
VS.



BIM-5D



The **BIM-5D** Technology & Potentials - PLC



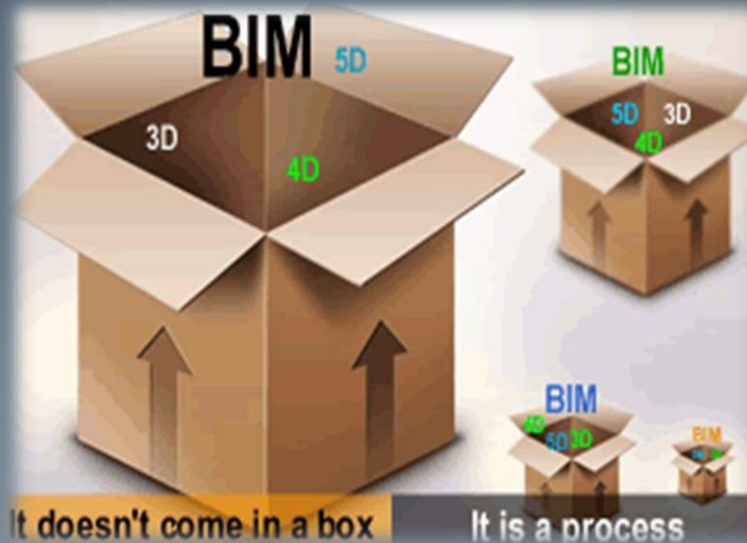
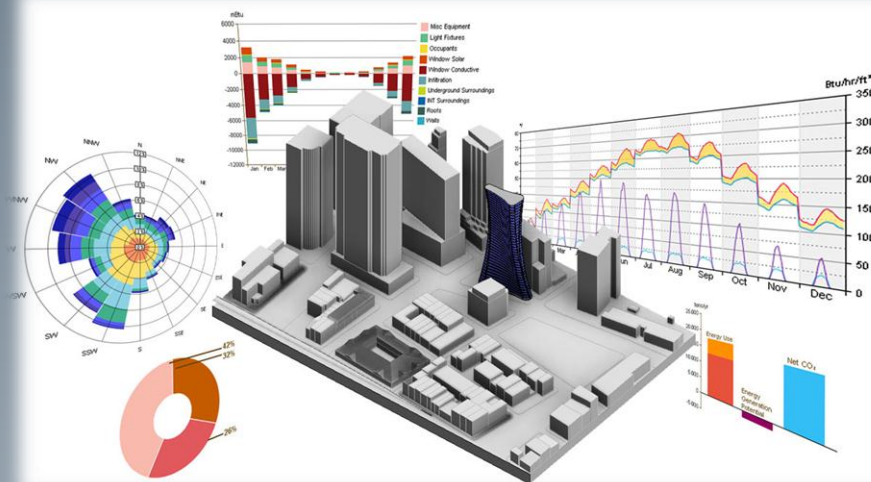


BIM-5D Challenges



Challenges *Psychological*

(Traditional Methods, Resistance to Change, Accepting IT Solutions, Trust, Complexity of the Construction Processes, Fast Increasing Demands of the Industry)



Challenges *Technological*

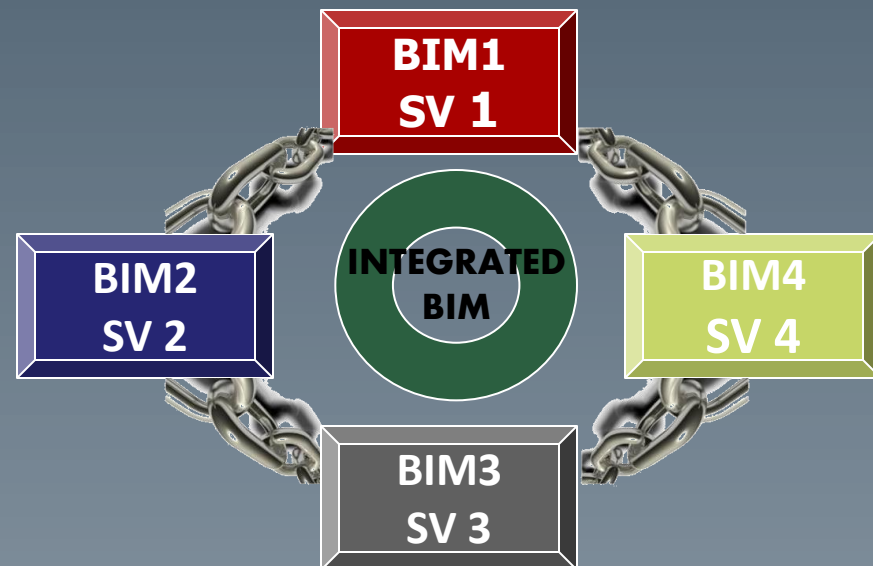
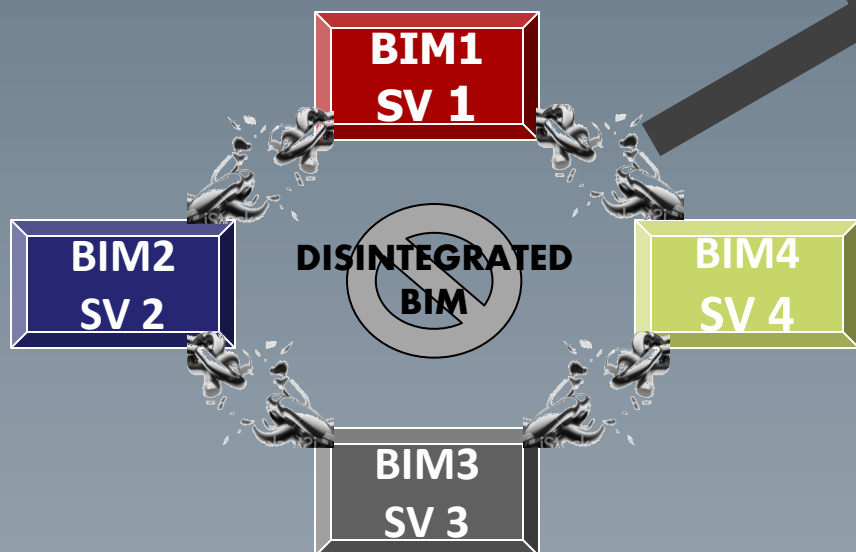
(SV competitions, Focus on Design, Interoperability, SW Pricing Strategies, Lack of Efficient Solutions, Business Logic & Communicating Business Needs)



Interoperability an Infrastructural Challenge



Different BIM Platforms
Means
Disintegrated BIM
(interoperability challenges)



How Can we
Achieve An
Integrated BIM?



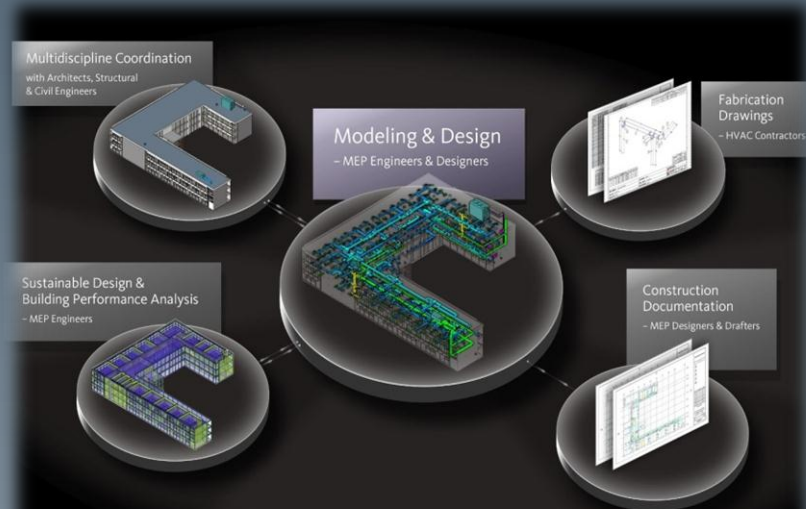
Elements For Success Of **BIM-5D** Implementation



- Management Embracement of the 5D-BIM Methodology
- Availability of Professional BIM Resources and Ensuring Their Commitment & Quality
- Strong IT Infrastructure and Capabilities
- Availability of Cost Effective Project Controls Solutions
- Strong 5D Collaboration Platforms
- Cultural Change & Transparency Building
- Integrating BIM within Company's/Project's Workflows and Processes
- Developing 5D-BIM Awareness & Training Strategies

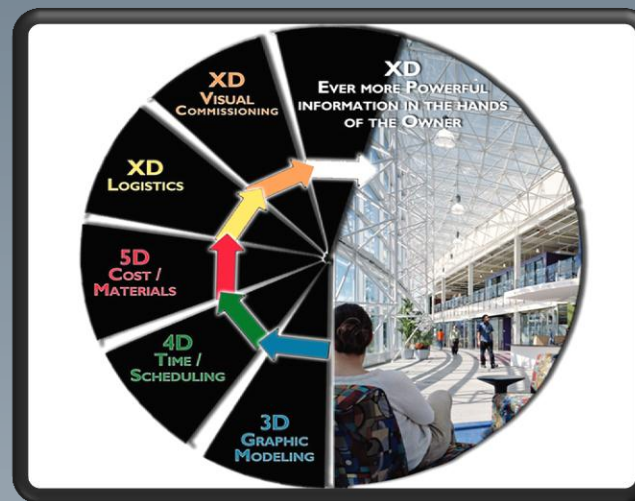


BIM-5D requirements for further response



Towards BIM for Construction (5D)

- **BIM-5D** is about access to rich integrated information
- **BIM-5D** is a work process that streamlines your operation
- **BIM-5D** is a management paradigm
- **BIM-5D** Enhances project delivery to be more efficient and more effective





CCC **BIM-5D** History



Engineering Workflows Automation Concept was the Entrance

- **1995** - CCC was awarded the first project to be delivered in Bentley Microstation Format
- **1996** - There was a need to find a solution that can enhance and automate the process of quantification – 1996 (Traditional techniques are inaccurate and time consuming)
- **1996 - BRICS**, Belgium SW, was proposed as a solution
- **Bentley** bought BRICS end of 1996 and called it **Triforma**
- **Beginning of 1997** - CCC Bought three licensee of **Triforma** for testing
- After extensive testing by an Automation / Civil Engineer **Triforma** was to be an efficient & promising 3D based (model based) quantification solution
- In three months, 1 senior engineer and two draftsmen were self trained on 3D Information modeling for buildings (**BIM**) using Bentley **Triforma**
- **End of 1997** – The first challenge – Ritz Carlton Hotel – Doha – Qatar – First model based Estimation Project



First Success Story



CCC BIM-5D Centers of Excellence



- **Information System Department (ISD)** has established professional BIM Centers (**Centers of Excellence**), where a group of specialized engineers have been recruited, then intensively trained to be able to develop efficiently quality BIM with the controls methodology in the background.
- The main center is located in Cairo, another two branches already exist, one in Athens and the other one in Palestine, in addition to some BIM resources that are offering BIM services in several projects across the globe.





CCC BIM-5D Services



▪ Contractual, Quantity Surveying and Material Take-off Services

- Develop BOQs based on CSI coding or any other coding required by the client
- Develop summarized and detailed Material Take-Offs (MTOs) per BOQ (Bill of Quantity) aggregated on any Work Breakdown Structure (WBS) level for planning and scope of work definition
- Develop Material Take-off reports per BOQ per object (coded as per the unique project object coding system) to link the 3D BIM with in-house as well as other project controls system
- Develop and implement a 3D BIM based Quantity Surveying (QS) system with automatically generated valuation sheets
- Support procurement operations
- Change Management Support

▪ Engineering Services

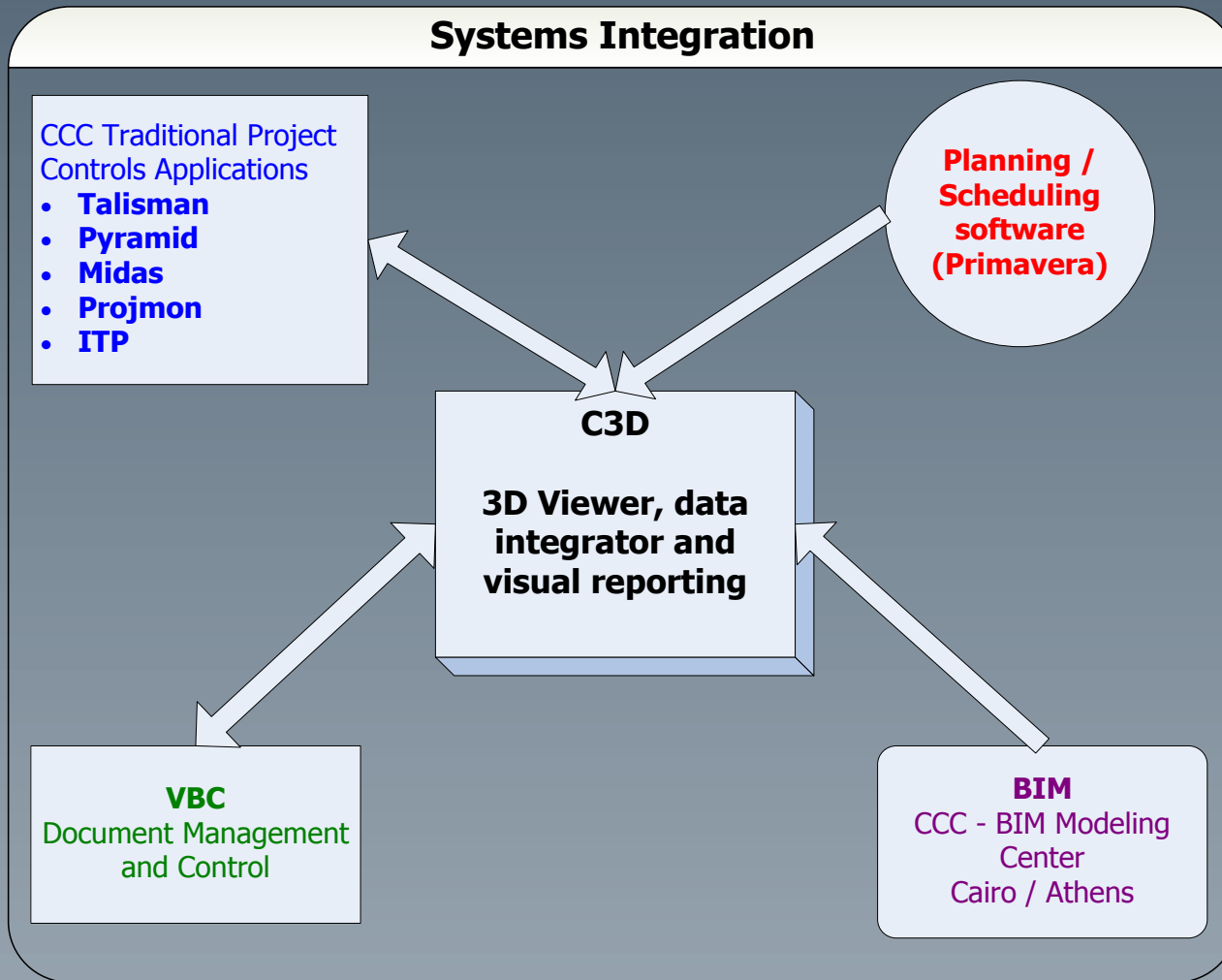
- Develop professional high quality presentations and photo-realistic images (Digital Mockups)
- Support and automate the engineering production of design drawings
- Act as an integrated system for design coordination and clash detection
- Assist in value engineering studies

▪ Construction and Project Controls Services

- Provide visual planning and visual progress monitoring functionalities
- Establish visual reporting and querying systems
- Establish 3D crane layouts and utilization studies
- Develop logistic plans, site accessibility & constructability studies
- Develop visual simulations for construction method statements
- Support and validate subcontractors' work and integrate their systems with CCC in-house systems using EDI procedures



BIM-5D Based Visual Project Controls System

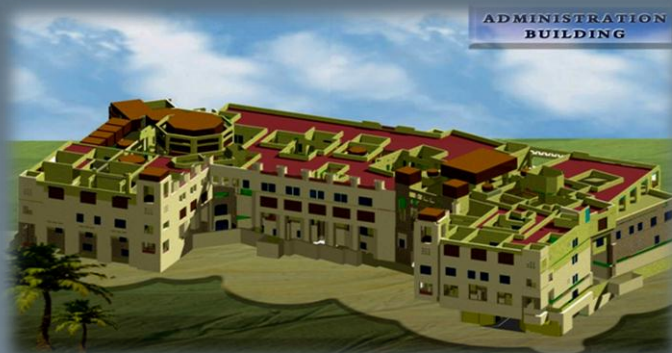




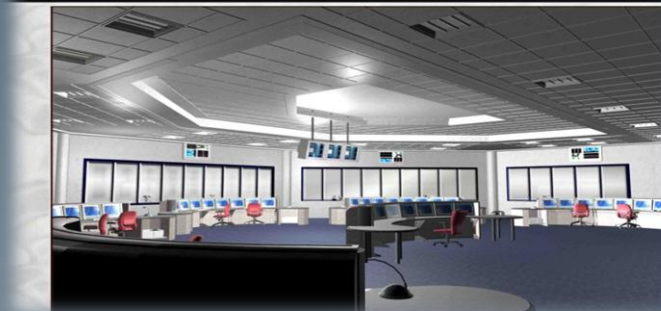
BIM-5D Projects at CCC



Aramco Hawiyah Gas Plant Control Room (KSA)



AUC New campus (Egypt)



College of Business and Computer Science



Esquissée (Algeria)





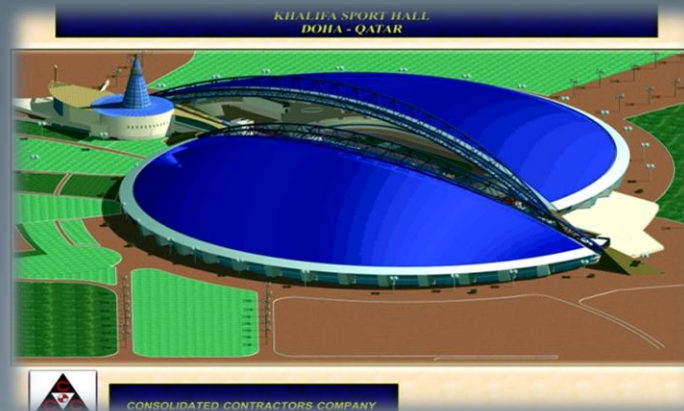
BIM-5D Projects at CCC



Mubadala Erwda (UAE)



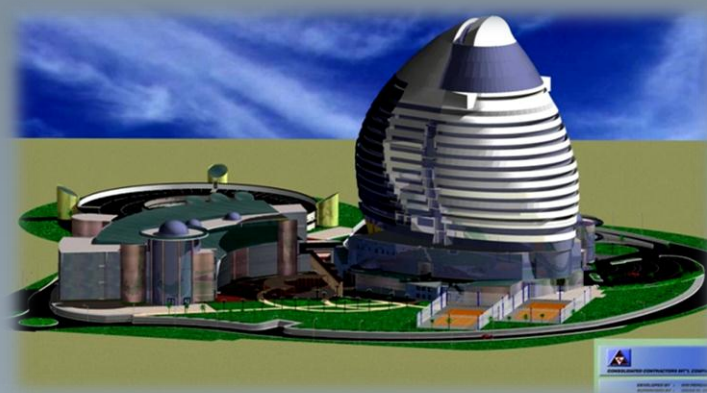
Khalifa Sports Hall (Qatar)



Saudi Embassy (Egypt)



Khartoum (Sudan)





BIM-5D Projects at CCC



Ahmadi Hospital (Kuwait)



Jumirah Island Heights (UAE)



Qatari Emiri Naval Forces



Mubarak Al-hassawi - Medical Institute





BIM-5D Projects at CCC



Novotel Resort (Jordan)



West Bay Lagoon (Qatar)



Haradh Project Plant (KSA)



Central Bank (Kuwait)

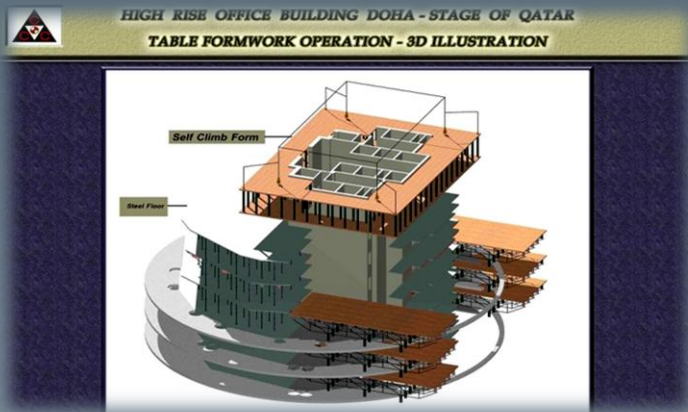




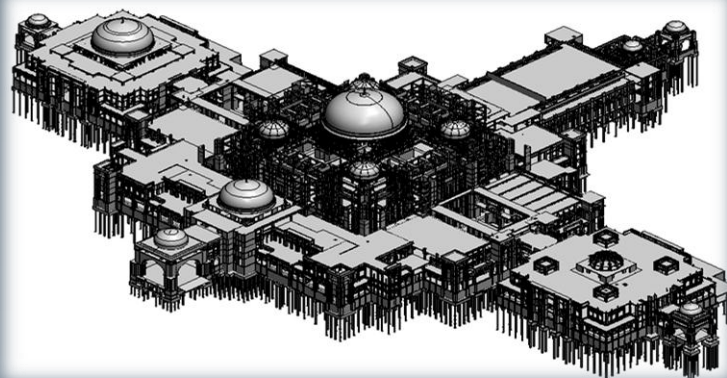
BIM-5D Projects at CCC



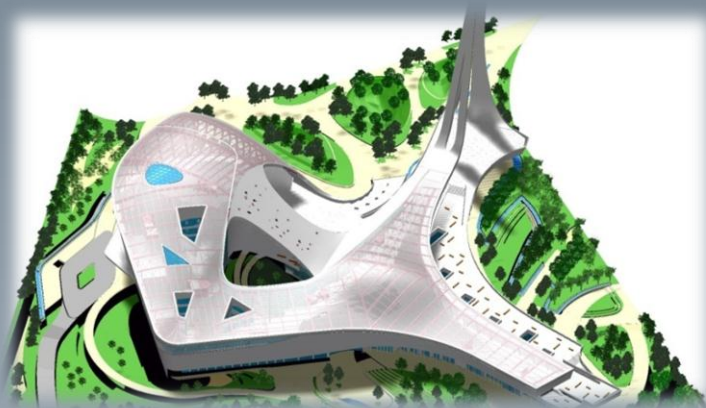
High Rise Office Building (Qatar)



Presidential Palace (UAE)



Qatar Faculty Of Islamic Studies (Qatar)



New Administration Building (USA)





Meeting European Construction's **BIM** Requirements



- CCC is an ENCORD member www.encord.org

The European Network of Construction Companies for Research and Development (ENCORD) is a network of active members from the construction industry, represented by decision-makers and executives working on research, development and innovation (R,D&I) and providing service to experts and the operational sites within the member companies

ENCORD Members





Meeting European Construction's **BIM** Requirements



- CCC is a founding member for the 5D*i* Group www.5d-initiative.com

A group of international European contractors who emerged from the ENCORD organization with a target Initiative to develop new IT tools for design, realization and operation of buildings and infrastructure

5D Initiative
Initiative of the European construction industry for the development of new IT tools for design, realisation and operation of buildings and infrastructure

Members of 5D Initiative

- Ballast Nedam N.V.**
Ringwade 71
3439 LM Nieuwegein, The Netherlands
Menno de Jonge
Phone: +31 30 285 40 78
Dr. Arjen Adriaanse (Vice Chairman)
Phone: +31 30 285 31 73
- Royal BAM Group N.V.**
Runnenburg 9
3981 AZ Bunnik, The Netherlands
Wilfred van Woudenberg, Virtual Design and Construction Coordinator
Phone: +31 30 659 8911
Wim Nijman, Director BAM Group ICT
Phone: +31 30 659 8992
- Consolidated Contractors Company**
P.O. Box 61092
Amaroussion 15110, Athens, Greece
Harry Lakeman
Phone: +30 210 6182 945
Issam El-Absi
Phone: +30 210 6182 968
Evrydiki D. Fekka (General Secretary)
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- Max Bögl Bauservice GmbH & Co. KG**
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92301 Neumarkt, Germany
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Jens Higgen
Phone: +49 9181 909-11233
- STRABAG SE / Ed. Züblin AG**
Albstadtweg 3
70567 Stuttgart, Germany
Konstantinos Kessoudis (Chairman)
Phone: +49 711 7883 345



The 5D*i* Response

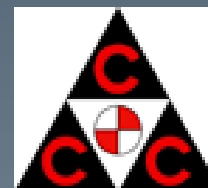


Founded in 1869
HQ in Netherlands
5,4 billion Euro
26.000 employees



Ballast Nedam

Merged in 1969
HQ in Netherlands
1,4 billion euro
4.000 employees



Founded in 1952
HQ in Greece
5,3 billion Euro
165.750 employees



MAX BÖGL

Fortschritt baut man aus Ideen.

Merged in 1929
HQ in Germany
1,4 billion Euro
6.000 employees



5D*i* MEMBERS

STRABAG

ZÜBLIN

Merged in 2006
HQ in Germany
12,8 billion Euro
73.600 employees



ENCORD and ENCORD VCP support 5D Initiative in which many of their members are actively involved



Achievements – 5D*i* Use-Cases



Building Process Integration – Systems Engineering and
BIM / Client Requirements Processing



Manage Change – Change Δ Managed



Progress Collection, Monitoring and Control



Design to Fabrication

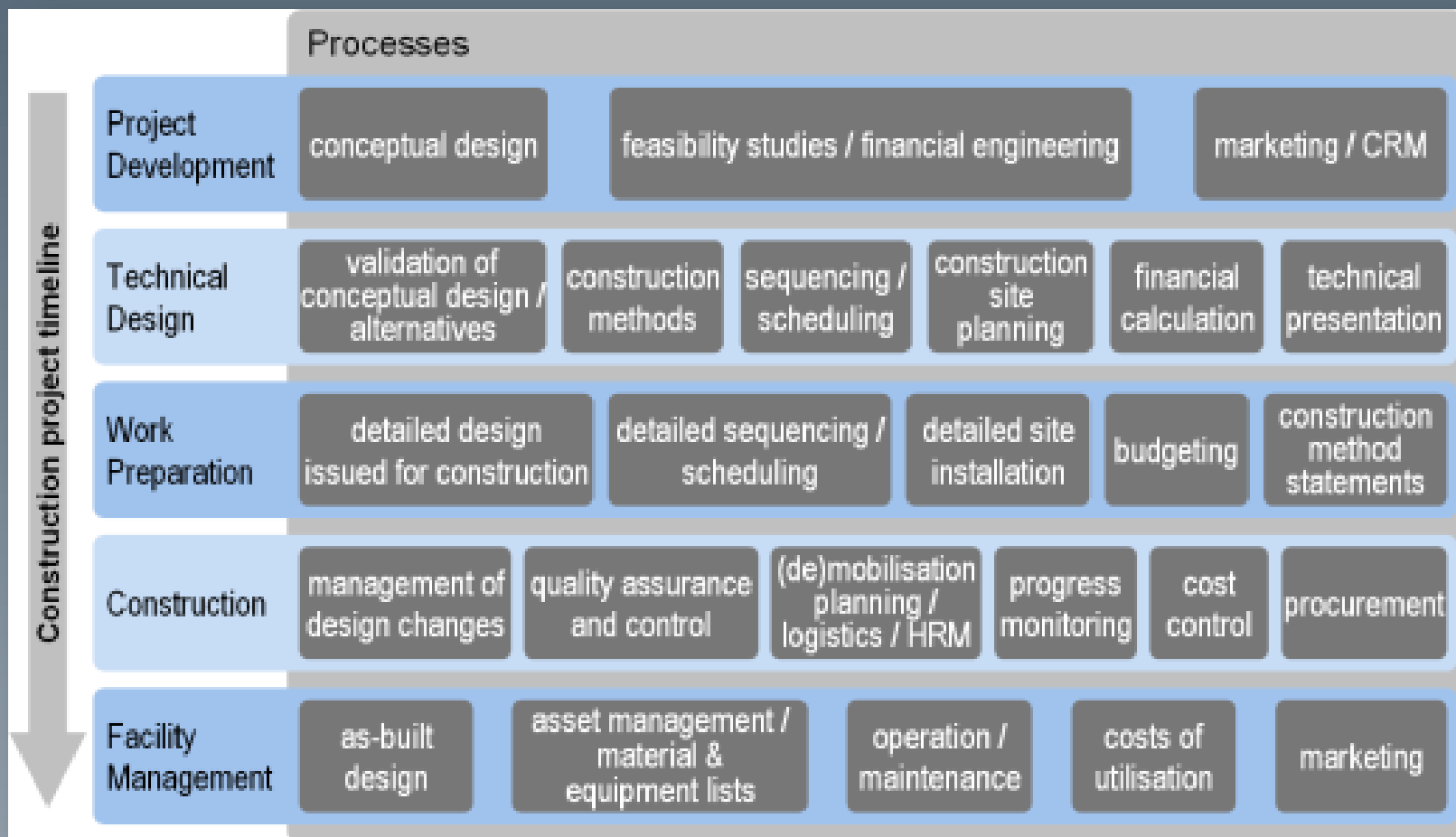
STRABAG

ZÜBLIN

Model-based Estimation – QTO Processes

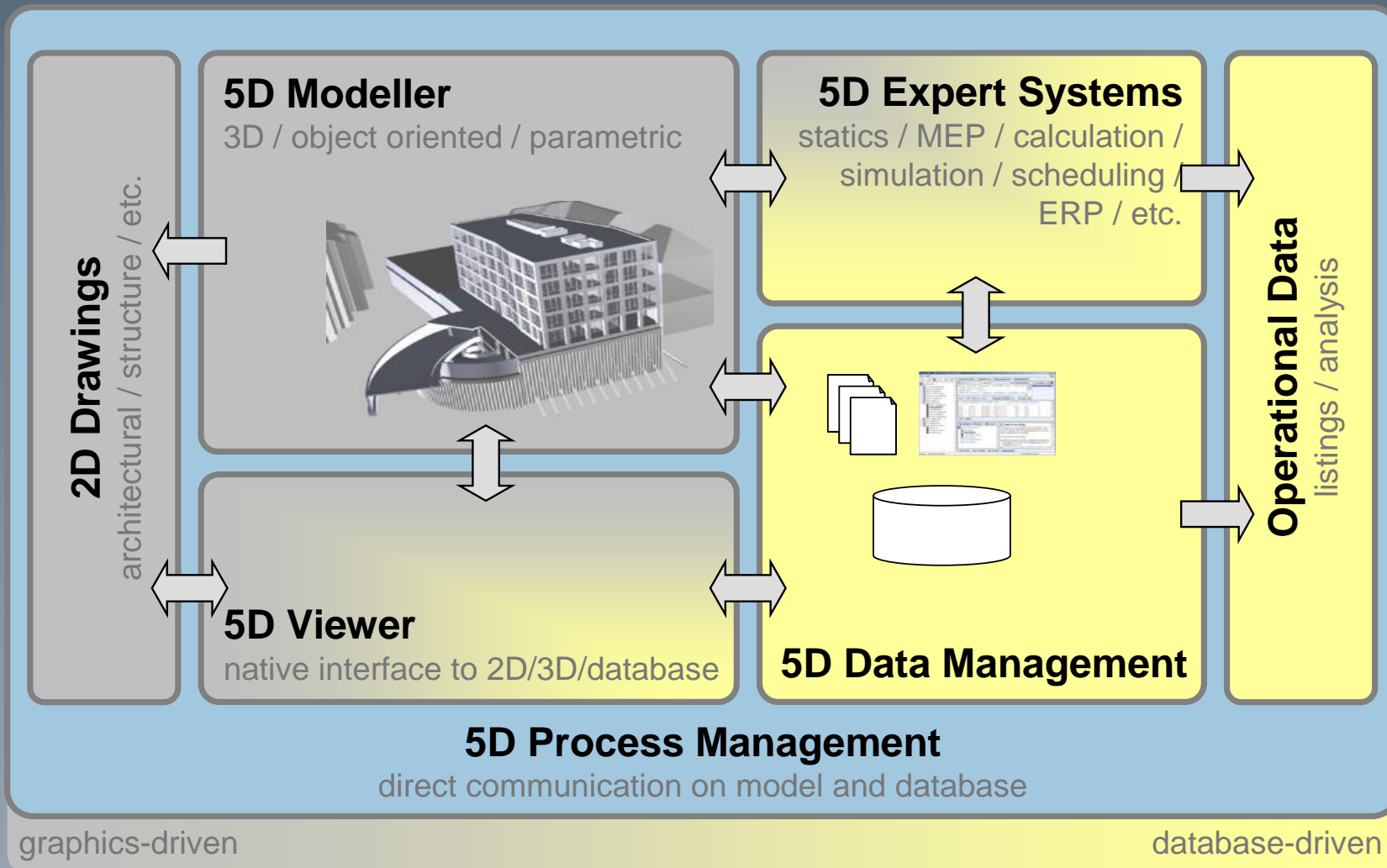


Target 5D*i* Platform Should Answer Construction Processes During Project Lifecycle





Target 5D*i* Platform – 5D*i* Solution Components



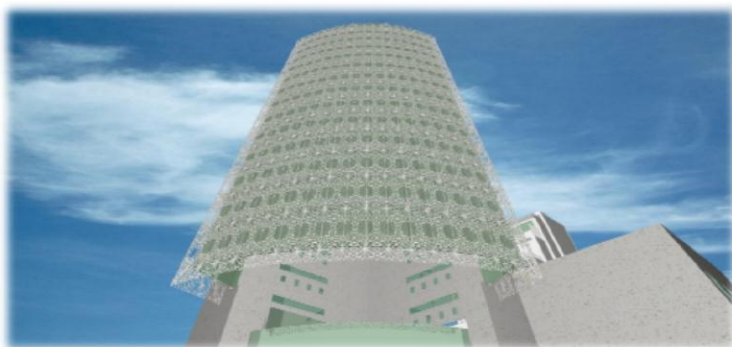


CCC – 5Di Use-Case



Initiative of the European construction industry for the development of new IT tools for design, realization and operation of buildings and infrastructure

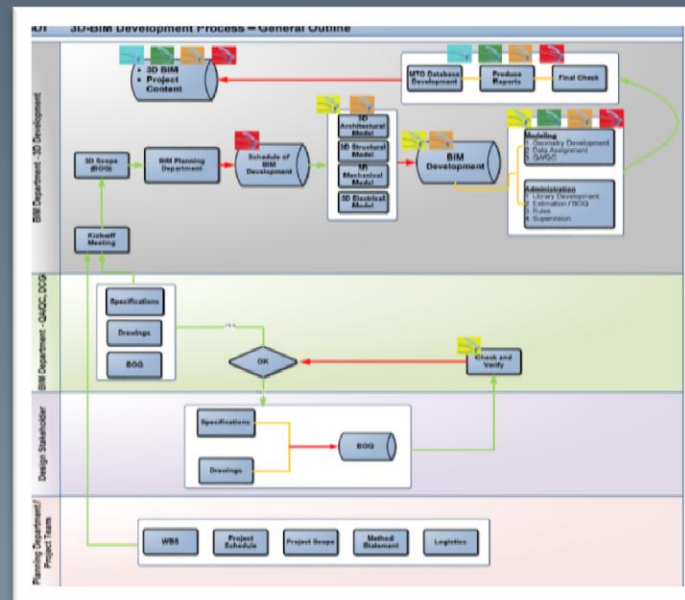
Progress collection, Monitoring and Control



Version 2.0

Dated: 14.February.2011

Author: Issam Elabsi
CCC



1.1 REQUIREMENTS FROM THE SOFTWARE INDUSTRY TO ANSWER USE-CASE

Requirement	Currently available (yes/no; incl. description)	Will be developed (yes/no; incl. description)	Development plan (design/development/testing; activities, schedule, required input, etc.)
Comprehensive construction BIM Authoring Tools (All disciplines can be modeled efficiently)			
All Disciplines integrated in one BIM platform for further elaboration and processing			
Integrating BIM with WBS and OBS			
Unique Object coding and ensuring integrity and maintainability			



CCC – Progress Collection, Monitoring and Control



Three Weeks Look Ahead Planning & What If Scenarios

The screenshot displays the CCC software interface with three main windows open over a 3D model of a construction site.

Enter Parameter Values Window: This window is used to select parameters for a specific period. The 'period_no' column shows values 105, 106, 107, and 108. The 'OK' button is highlighted.

Update Containers Window: This window shows a table of containers for a 'N Week Look Ahead' period. The table has columns for 'period_no' and 'Scenario_N_Scen'. The 'Period 108 (Active)' row is highlighted.

Activity Window: This window shows a table of activities for a specific period. The table has columns for 'Activity', 'Activity_Desc', and 'period_no'. The 'E99000503' activity is highlighted, which corresponds to 'East FRC core walls 9th to 10th floor'.

period_no	Scenario_N_Scen
105	
106	
107	
108	

Activity	Activity_Desc	period_no
E99000501	(East) FRC suspended slab at 9th floor	108
E99000501	(East) FRC suspended slab at 9th floor	109
E99000502	(East) FRC core walls 9th to 10th floor	110
E99000503	(East) FRC core walls 9th to 10th floor	111
E99000503	(East) FRC core walls 9th to 10th floor	112
E99000504	(East) FRC stairs 9th to 10th floor	110
E99000505	(East) FRC stairs 9th to 10th floor	111
E99000506	(East) FRC stairs 9th to 10th floor	112



CCC – Progress Collection, Monitoring and Control



Progress Visual Reporting



Saudi Embassy Project Consolidated Contractors Company Progress Colorization Report

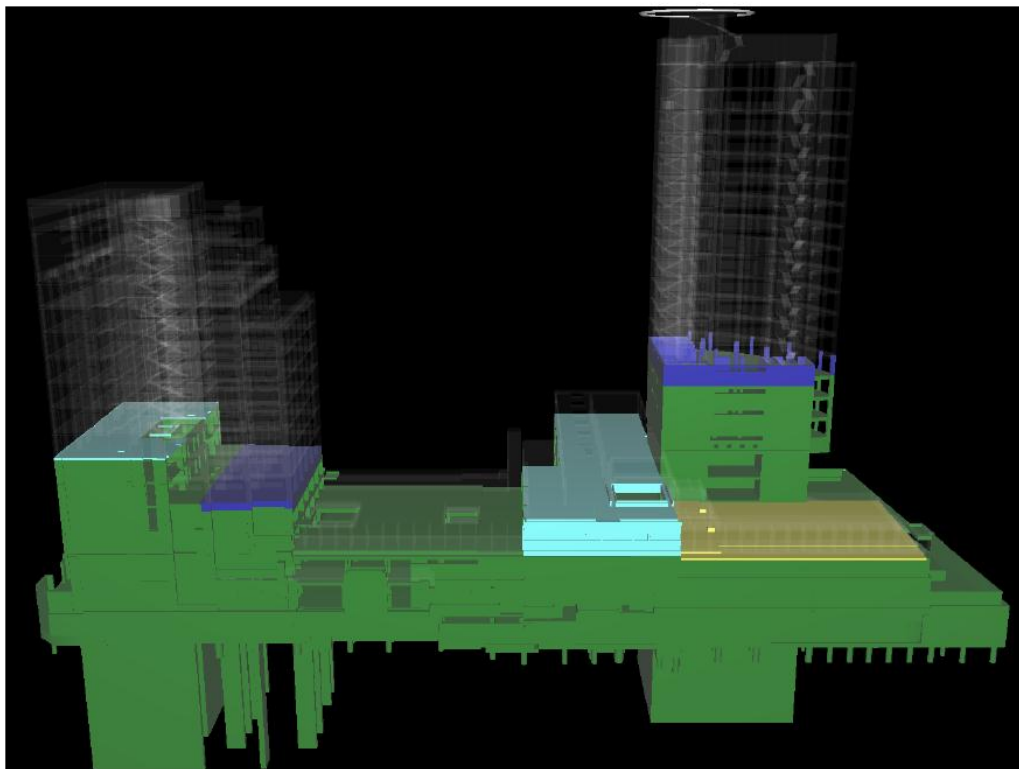


Current Week:

105

Week Ending Date:

23 February 2008



Percentage	Color
0-25	
25-50	Yellow
50-75	Cyan
75-99	Blue
100	Green



5Di Partners with Major SW Vendors



PRESS RELEASE

The 5D Initiative enters into a process of more intensive cooperation with Autodesk, Bentley, CCT, RIB and Tekla in order to develop new BIM software solutions that fit needs of European contractors.

Based on the strategic discussions over the past 2 years, the 5D Initiative moves forward by taking pragmatic steps together with Autodesk Inc (Autodesk), Bentley Systems Incorporated (Bentley), Computers and Communication Technology International (CCT), RIB Software AG (RIB) and Tekla Corporation (Tekla), in order to reflect the practical needs of higher process integration in the whole life-cycle in construction.

Stuttgart, Germany. April 21, 2011 — The 5D Initiative, founded and working as an independent think tank and task force within the ENCORD Virtual Construction Platform, was established by Ballast Nedam, Royal BAM Group, Consolidated Contractors Group S.A.L. – Offshore (CCC), Max Bögl and Strabag. Today, 5D Initiative announced that collaboration with Autodesk, Bentley, CCT, RIB and Tekla is moving forward to incorporate pragmatic requirements for a 5Di solution, which is the amplification of BIM solutions for contractors to ensure higher process integration from very early design, engineering

ICE BIM 2011

Becoming BIM Proficient

Wednesday 19 October 2011
Institution of Civil Engineers,
One Great George Street, London



SUPPORTER

BIS | Department for Business
Innovation & Skills

Topics Include:

- Government BIM Requirements
- BIM at Gatwick Airport
- From Rhetoric to Reality
- BIM in the USA
- Asset Management and BIM

PARTNERS	Autodesk				GOLD			SILVER			SPONSOR		
													



Featuring expert speakers from:

Department for Business Innovation and Skills (BIS)
Cabinet Office
BAA
Gatwick Airport
Parsons Brinkerhoff
Mace Group
BDP
Halcrow
Fiatech
London Underground Limited
Consolidated Contractors Company

 @ICE_BIM

 ICE BIM


Registered charity number 210252.
Charity registered in Scotland number SC038629.


ice-bim.com

4:40 Meeting European Construction's BIM Requirements - the 5Di Response


- About 5Di/ENCORD - Mission, target and strategy
- Challenges and difficulties
- Sharing status and achievements
- Future steps; moving forward with 5Di in the construction market


Questions and Answers
Issam El Absi, Manager IS-Automation & Engineering,
Consolidated Contractors Company (CCC)



SD Initiative


SD Initiative

Meeting European Construction's BIM Requirements - the 5Di Response








Institution of Civil Engineers

ICE BIM 2011
Becoming BIM Proficient
London 19.October.2011

On Behalf of the 5Di Group

Issam El Absi, Manager IS-Automation & Engineering (BIM, Civil & GIS)
Consolidated Contractors Company (CCC)





CCC Sponsoring & Organizing First Middle East **BIM** Conference



Under the Patronage and Presence of
H.E. Sheikh Nahayan Mubarak Al Nahayan
Minister of Higher Education and Scientific Research
Chancellor, Higher Colleges of Technology



Consolidated
Contractors
Company (CCC)

CIFE
Center for Integrated
Facility Engineering

Center for Integrated
Facility Engineering,
Stanford University



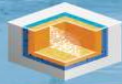
Projacs
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of Technology

are pleased to join hands and organize

First Annual Conference in the Middle East



BIM **BUILDING** **INFORMATION** **MODELING**

(Vision, Strategy and Implementation)

14 - 15, December 2011
CERT Technology Park, Abu Dhabi



CCC was granted a **CETI** Award in *April, 2012* for its Outstanding Efforts & Leading Role in the EPC Industry



CCC

CCC is not only a highly active Fiatech member, it also is a leader in the capital projects industry and in the international arena. This past year, CCC hosted the inaugural European Advisory Committee meeting in Athens, Greece, and sponsored Fiatech at the first BIM Conference in the Middle East in Abu Dhabi, United Arab Emirates. Highly recognized for its vision and innovation, CCC is leading the industry in achieving full and open interoperability and advancing new and emerging technologies in its engineering and construction operations. The company's contributions to Fiatech, to the industry, and to the international community are recognized with the STAR Award.

Nicole Testa Boston, Fiatech Deputy Director, added, "Our STAR Award recognizes superior technical achievements," she said, "and without these volunteers, Fiatech could not have broadened its reach across the industry and around the world like it has. We're grateful for their leadership and sacrifice of personal time."



Thank you

