

# GEO BIM

SMART INFRASTRUCTURE

THEME: 'GEO-ENABLING' THE BIM DRIVEN  
FUTURE OF MIDDLE EAST'S INFRASTRUCTURE

16-17 AUGUST 2015 | AL BUSTAN ROTANA HOTEL, DUBAI

# REPORT 2015

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## Introduction

Sustainable development of cities poses a multitude of challenges and opportunities, especially in the Middle East. It can be attributed to the fact that almost 90 percent of the region's population already lives in the cities. This has led to sudden focus on modernizing the infrastructure sector of the region. It is interesting to note that the construction industry landscapes in Middle East have been swept by the BIM wave, and it is not just restricted to buildings but also for infrastructural developments and civil structures. The rail industry will pioneer this change as there is an estimation of over 50 billion dollar rail expansion projects in the pipeline in the Middle East. Whether it is the massive 200 billion USD investment plans for construction projects till 2022 in Qatar, or the 13.2 billion USD investment in energy and communications infrastructure by the Saudi Arabian Government, it is all catapulting the market towards newer opportunities of growth and development.

Pressure on existing infrastructure, push for productivity in construction sector and environmental concerns, are all driving the convergence of technologies like Geospatial and BIM. While many of the forward looking countries in the region such as UAE, Qatar, Oman, Bahrain, Kuwait and Saudi Arabia are trying to adopt BIM for some of their major national level infrastructural initiatives, they

are yet to demonstrate the maturity level required to fully leverage this upwardly technological shift. This is where this proposed integration of Geospatial and BIM along with complementing ICT solutions will ensure a fluent flow of information throughout the entire project life cycle of an infrastructure. Thus, in our quest to facilitate and spread the awareness of Integrating BIM with Geospatial Technology, Geospatial Media & Communications along with Dubai Municipality organized the GeoBIM Middle East 2015 Summit at Hotel Al Bustan Rotana in Dubai, UAE from 16th to 17th of August 2015.

The aim of the forum was to bring together experts from the Geospatial, ICT, AEC and Infrastructure industry face to face with the representatives of various National Governments within the region. It was focused on showcasing the importance of BIM adoption as a centrifugal force behind the creation and maintenance of infrastructure that is also sustainable, with Geospatial Information and Technology acting as 'force-enabler' in extracting optimal ROI out of this initiation. It was also focused on addressing various challenges and opportunities of the Infrastructure sector through judicious adoption of right technological solutions and business practices and processes.



## Overview

350<sup>+</sup>

NUMBER OF PARTICIPANTS

150<sup>+</sup>

ORGANIZATION REPRESENTED



## Participation Profile

- Abdulrahim Engineering Consultant
- Abu Dhabi Investment Authority
- ACC Engineering Consultants
- ADCC Infocad Limited
- Advenser Engineering Services Pvt Ltd
- Adwar Engineering Consultant
- AE7
- AECOM Middle East
- Ahmadu Bello University
- Al Futtaim Carillion LLC
- Al Ghurair Group
- Al Hadara Consulting Engineering
- Al Hatmy Design & Eng Consultancy
- Al Hashemi Planners, Architects, Engineers
- Al Jassim Engineering Consultants
- Al Majal Engineering Consultant
- Al Manhal Int'l Group LLC
- Al Mulla Engineering Consultancy
- Al Naboodah Construction Group LLC
- Al Naboodah Construction Group LLC
- Al Shafar General Contracting L.L.C.
- Al Shahba Architecture & Engineering Consultants
- Al Tamimi & Company
- Al Tatweer Contracting
- Al Thuraya Civil Engineering Consultant
- Al Warqa Survey Engineering
- Al Wasl Al Jadeed Consultants
- Alamir Engineering Consultants
- Alec Building Excellence
- Almaali Consultancy
- Alshafar General Contracting Company
- Amity University
- Arabian Modern Engineering Consultant
- Arabtec Construction L.L.C.
- Arif & Bintook
- ASCON
- ATK Engineering Consultants
- Atkins
- Atrium Architectural & Engineering Consultancy
- Aurecon
- Autodesk Middle East
- Bayant for mapping & Surveying
- BBD Enterprises
- Bel-Yoahah Architectural & Engineering Consultants
- Bentley
- BIMES
- BIMTEC
- Bluecamel
- Bolton University RAK
- Brookfield Multiplex Middle East
- Building Information Management - Middle East
- Cadcamcim FZC
- Callison Dubai LLC
- CCC
- CH2M
- Conject Ltd
- Consistent Consultant
- Consults ME
- Dar Al-Handasah
- Datun Engineering Consultants
- DCM International Consultants
- Design Center
- Designer East Engineering Dubai
- Dewan Al Emarah-Consulting Engineers
- DM Partner
- DMCC
- DPS Govt of UAQ
- Dubai Consultants
- Dubai Land Department
- Dubai Municipality
- Dubai Real Estate Institute
- Dutch Foundation & Concrete Processing
- Dutco Tennant LLC
- Engineering Consultant International (Pvt) Limited
- Engineering Contracting Co. LLC
- Esri
- Faro
- First Square
- Fujairah Municipality
- GECO Engineering
- Geodezia
- GeoImage
- Geoscope
- German Engineering Consultant
- Global Engineering Office
- Global Institute of Technology
- Global Scan Technologies
- Godwin Austen Johnson
- Gunal and Mapa Construction
- Habtoor Leighton Group
- Hegazy engineering consultant
- Heriot-Watt University
- Imarati Engineering Consultant
- Incorporated Consultants - CONIN
- Intergraph Middle East
- ITechHolding
- ITL Infracore DMCC
- John R Harris & Partners
- Khatib & Alami
- Kling Consults
- KPMG Lower Gulf Limited
- Laing O'Rourke
- Leica Geosystems Limited
- M. D. Bhatia & Bros. Consulting Architects & Engineers
- M. E. Engineering Consultants
- Mabani Delma General Contracting Co. (LLC)
- Mace
- Mario Associates
- Mimar Group
- Moez, Hegazy, and Associates Engineering Consultants
- Monarch Designs Eng Consultants
- Mott Macdonald
- My Vision Engineering Consultant
- Naga Architect
- Nakheel
- National Engineering Bureau
- Omnix International
- Orbits Engineering Firm
- Ordnance Survey
- Osool Engineering Consultant
- P&T Architects and Engineers Ltd.
- Palace Engineering Consultants
- Parsons Overseas Limited
- PNC Architects
- Port Saeed Engineering
- Proteus
- OHC and Architects & Engineers
- Renaissance Eng Consultants
- Roads & Transport Authority
- Rolta Middle East
- SA Eng Consultants
- Seidco General contracting LLC
- Sharjah City Municipality
- Sigma Enterprises LLC
- SITML
- Six Construct
- Stesalit Systems
- Style Consultant Engineers
- Synergy Software Systems
- Tebodin Middle East Ltd.
- Ted Jacob Engineering Group
- The Bim Hub
- Topcon Positioning Middle East and Africa FZE
- Transemirates Contracting
- Trimble Structures Division
- TROJANS
- U+A
- UAEU College of Engineering
- Unique Group
- Unique System FZE
- WSP - Parsons Brinckerhoff
- Xpert Consulting Engineering



## INAUGURAL SESSION

Addressing the attendees during his welcome address, **Sanjay Kumar**, CEO of Geospatial Media and Communications spoke on Geospatial Industry trends and how GIS and BIM industry is moving up the value chain. He further emphasized on the trends of these industries, their growth drivers and role of stakeholders in adopting these growing technologies in the region. At the end he briefly spoke on challenges of adopting these technologies and what measures should be taken for the smoother transition in the coming new era.



**Paul Wallett**, Area Business Director of Trimble Structure division, gave the presentation on use of BIM in growing construction industry. He emphasized and shared few case studies and mentioned many other projects where BIM was used successfully to save 50 percent of total cost in the Middle East and across Europe. He also briefed on the use of Tekla's BIM Software which can be used in any ongoing project for successful implementation of BIM.



## ▲ PLENARY SESSION 1

# 'BIM-Driven' Infrastructural Development: Is the Middle East Prepared?

The GeoBIM plenary Session began with a presentation by **Laszlo Stekl**, Project Manager – International Business, Geodezia, Hungary. He spoke on the use of 3D point cloud data to support the BIM technology for reliable basis for decision making during the life-cycle of any construction project. He also emphasized how 3D point cloud data gives advantage on uneven terrain, surface and under water sub surface digital mapping. This data is immediately available and can be used for further processing and project planning.



In his presentation, **Eng. Abdullah Mohd Al Khaddeim**, Director – Project Management Department of Fujairah Municipality spoke about some of the initiatives by Fujairah Municipality aimed at achieving excellence in municipality work. He said that the new Geospatial Data Centre, masterplan for Fujairah Emirate and use of Virtual Reference System in the municipality is boosting better planning and decision making for the major stakeholders in the Emirate.



**Tahir Sharif**, Software Solutions & BIM Strategy Director at Hexagon Geosystems spoke on the topic of Embracing BIM out of the office. He explained how the use of BIM has increased the ROI in many countries around the world. He also spoke how cloud based computing is the future of Geospatial Technology and BIM. He explained how, BIM can be used as a tool to be INFORM (Pre-Construction), ENRICH (Construction Layout) and VALIDATE (As-Built during construction).



**Richard Budden**, Business Development Manager, Transportation and Infrastructure from Esri, spoke on the topic of Geodesign: Design for complex world. He emphasized on the use of 3D data visualization for planning and decision making for sustainable development of the rapidly growing cities around the world. How Geodesign, 3D data can be used along with Geospatial and BIM technology to solve the issues of rapid urbanization.



In his presentation, **Bill Thomson**, Project Delivery Director from AECOM Middle East spoke about leading the fusion of GIS and BIM technology. He explained how these technologies can be used effectively to manage the information for better decision making. He further explained how standard approach to the (B) IM Information Management, Intelligent life cycle and work flow can lead us to innovative, transparent and collaborative efforts to leverage strength of each of these technologies for informed decision making.



**Hitham EL-Hussaieny**, Regional Sales Manager, Topcon Positioning Middle East and Africa spoke on how Topcon along with Autodesk has made an alliance to create software (Autodesk) & Hardware (Topcon) product for accurate data acquisition and data analysis system.



# DUBAI MUNICIPALITY WORKSHOP

The Dubai Municipality workshop included presentations by representatives from different ACP, MEP, engineering and consultant firms from Dubai, apart from presentations by Dubai Municipality staff. The presentation by **Alejandro Silva**, BIM Manager at NAGA Architects emphasized on the Iterative BIM Modelling which can be used for designing entire project and also explained how the same model can be used to design a smaller unit in BIM like, doors, windows etc with 5D information.



**Ammer Berrou**, BIM Manager from Ae-7 spoke on the multidisciplinary approach of BIM. He spoke on how BIM is now required at every stage in the project life cycle and every staff member on the ground needs BIM support. He also spoke on the challenges faced by the BIM team which is a learning curve and how to handle the fast track projects.



**Eng. Fida ALHammadi**, Green Buildings Engineer at Dubai Municipality spoke on the topic of Green Concrete for Sustainable Development. She spoke on the vision of Dubai Municipality on sustainable development for the future and explained The Green Building Regulations and Specifications. She also emphasized on what is Green Concrete material and how it reduces Carbon emission footprint for a future green planet.



**Eng. Sara Kamel**, Architectural Engineer at Dubai Municipality spoke on BIM and Sustainability. She explained how buildings can be made sustainable when BIM technology is used in Design Phase, Construction Phase, Operation Phase and Maintenance Phase.



**Eng. Lama Omran**, of Building Department from Dubai Municipality spoke on Smart City and Smart Building. They explained how a smart building helps in energy conservation and reducing the carbon emission and how Smart Building Initiative can be achieved by using BIM technology.



## ▲ PLENARY SESSION 2

# Integrating G-IT, BIM and ICT for Sustainable Infrastructure

The second day of the GeoBIM summit began with a presentation from **Prof Mustafa Alshawi**, Director of IEC, UAE. He spoke on the topic of Best practices in BIM to cut the capital and operational expenditure in order to maximize the business value. He further explained how BIM can be used effectively to fully understand the client requirement, how BIM can be used to design the complete project in 5D including time and cost factor. He said that this model in turn gives high return of investment for stakeholders and investor with better decision making at all levels of project life cycle.



**Dr. Aseem Al-Hajj**, Professor at Herriott Watt University spoke on the topic of Is BIM on the Region's Higher Education Road Map? He emphasized how BIM technology has great potential to solve the complex issues in rapid urbanization and lack of trained professionals can hinder the sustainable growth of the cities. Thus he suggested that there is a need to have more BIM experts for the region to overcome these challenges.



**Mohammad Hassan Amiri**, spoke on how BIM can be used for Building Information flow, to plan deliverable service plan, data capture, planning concept design and stake holder engagement. He also explained how BIM is beneficial in saving time, investment and gives high ROI when used in the entire planning and implementation process.



In his presentation, **Oliver Bürkler**, Senior Product Manager 3D Documentation at FARO spoke on the topic of 3D Documentation in the BIM workflow. He explained the concept of 3D documents and why it is important to have them and manage them effectively. He also spoke on the advantages of 3D documents over traditional 2D documents and how they can play an important role in Project life cycle for decision making.



**Scott Lambert**, Regional Head of Construction and Infrastructure from Al Tamimi & Company, spoke on managing the legal risk delivering sustainable BIM Projects. He further spoke on the key issues of construction, sustainability, contract issues, intellectual property rights and many such relevant legal aspects concerning the construction projects.



**Jitendra Deshpande**, Associate VP of ADCC Infocad IT Services spoke on intelligent infrastructure which can be completed using GIS & BIM technologies. These technologies will give a common approach to respond to each city's sustainable attractiveness imperatively. The collaborative use of these two technologies will give us better results and high ROI.



## ▲ PLENARY SESSION 3

# Geospatial the 'Force-Enabler' in Modern Infrastructure Construction

The third plenary session started with a presentation from **Paul Griffiths**, Head of Land and Property at Ordnance Survey, UK. He spoke on the benefits of BIM technology and how it has transformed the construction sector by saving costs during different stages of a project's life cycle. He further spoke on the value of Geospatial and BIM integration and BIM Commercial Strategy and Development. He emphasized how the use of BIM Technology has played a Significant role in costs, value and carbon performance



In her presentation, **Donya Mehran**, BIM Engineer from Arabtec Construction LLC, first spoke on the advantages of BIM for Client, Design team, Contractor and Stake Holders. She also briefed on the few innovative solutions which their research team has come up to tackle some of the challenges faced in inter-departmental, on field and design team communications. Further, she spoke on the challenges faced by the BIM experts in UAE such as Unclear BIM requirements and Privation of collaborative work. And solution for these challenges is Government support, BIM Performance Matrix, BIM contracts, BIM Standards, BIM Protocols and Industrial Collaboration.



**Gerry McFadden**, BIM Manager from WSP | Parsons Brinckerhoff spoke on the topic of BIM: Begin with end in mind. He spoke on the Level of Development for any BIM Project and how focusing on critical areas from early stages benefits further in the project life cycle and considering the different type of model to find the best suitable design which will fulfil all the desired output from the given project.



**Arsen Safaryan**, Process Manager – BIM, VDC from DMCC, UAE spoke on the Value of BIM for Infrastructure. He explained how BIM offers 3D visualization abilities than the traditional 2D complicated drawings. He further explained how GIS and BIM technology integration will give better asset (data) management, smart city development and better informed decision making.



**Ramzi Abu Qamar**, Managing Director from BIMTEC, Qatar spoke on the advantages of 3D Laser scanning and point cloud data to monitor the progress of project life cycle. He further explained how this technique will reduce the field work by 30% and increase the quantitative analysis accuracy by 80% and the field work can be done during day and even in night. In the end he spoke on the advantages of BIM in Facility Management, modifying existing infrastructure etc.



## ▲ PANEL DISCUSSION

The last and final session of GeoBIM ME Summit 2015 concluded with a Panel Discussion, led by Tahir Sharif along with panellist Stekl Laszlo, Hussein Mohammed Abdul Muttalib, Paul Griffiths, Tim Badley and Ramzi Abu Qamar. The topic of discussion was “Integrated Geospatial with BIM and ICT for Optimal ROI on Infrastructure Projects”.

### Key Outcomes:

- It is important for those involved in BIM process to understand how Geospatial data migrates from field to BIM and BIM to field.
- It is important to understand the role of Geospatial Technology while implanting BIM technology in project life cycle and to note the changing role of certain parties on construction site due to BIM.
- There should be a model-driven BIM approach to design and construction, which bodes well for accelerating usage and broad acceptance of BIM in this sector.
- It is important for government to encourage BIM adoption in the construction industry and facilitate it by providing policy and framework for standard operations in this field.
- The adoption of BIM requires change of mind set.
- The biggest challenge is people and culture, shedding off some of our baggage and moving forward. We have to try not to think about BIM as disruptive technology, and see it as there to help us build better.
- The GIS data acquisition and surveying technique has changed to today's 3D laser scanning and point cloud data. Thus it is important to understand the advantages as well as limitations of these techniques and hence there is a need to have an International standards organization and to make a collaborative effort at global level to support and strengthen BIM adoption in growing construction sector around the world.



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