

FIDIC Middle East Contract Users' Conference

**Dubai,
24-27 February 2020**

BIM Compliance and Blockchain
Under the FIDIC Suite of Contracts
with a focus on FIDIC Contract
Management in the Middle East

Amr Abdel Jalil
Contracts Manger
Amro1976@hotmail.com
LinkedIn, Amr Abdeljalil
0096556632289
00962799142427



International Federation of Consulting Engineers
The Global Voice of Consulting Engineers



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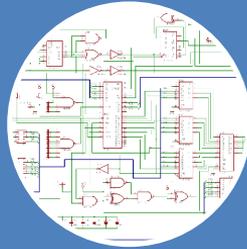
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Design Scope

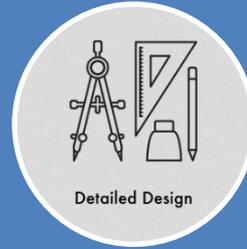


Concept Design

- Scope to be very clear with number of concepts



Schematic Design



Detailed Design

- Level of detailing not to exceed the scope



Construction Design

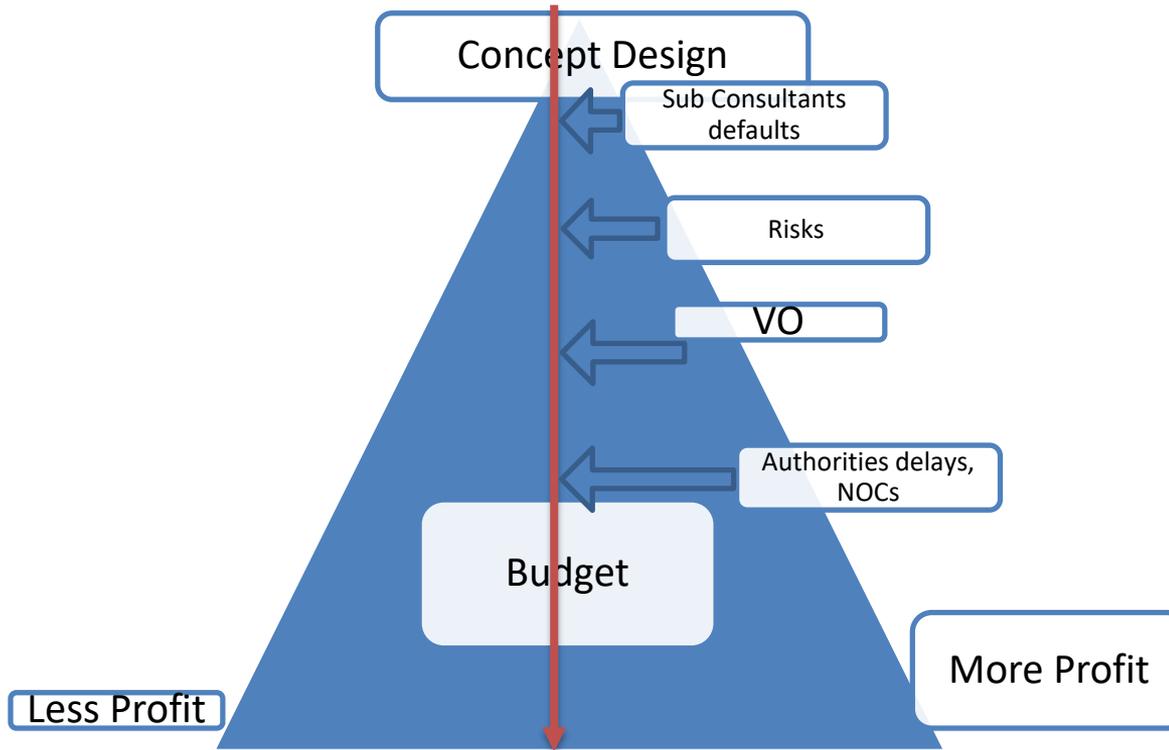
- Sop drawing to be defined in the agreement





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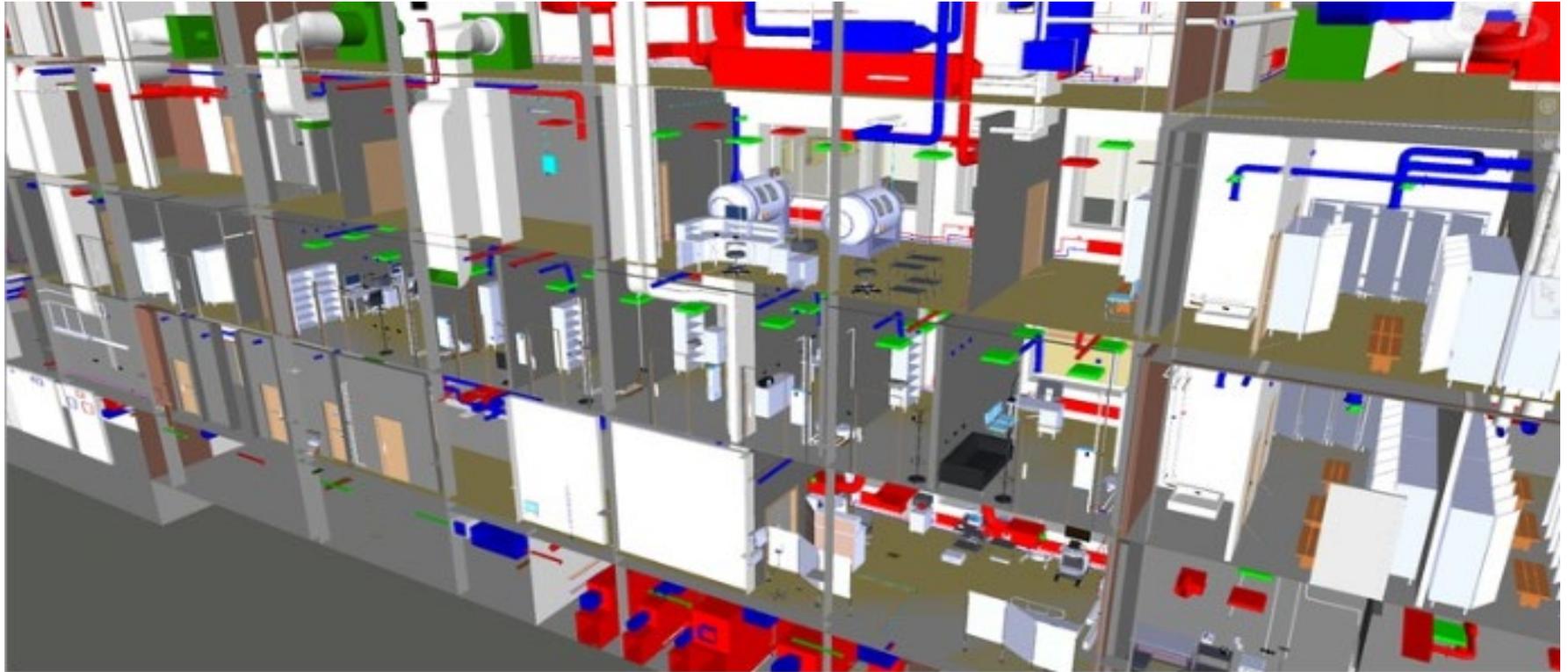
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Slido Question

Was BIM included in 2017 suites?

Yes

No



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Answer

Yes, around 25 times in the
Guidance for the Preparation
of Particular Conditions



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What is BIM?

Building Information Modelling (BIM),



is a process which is changing many elements of

The design profession

The construction industry and, possibly

The operation

Maintenance of a facility.



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What is BIM?

Building Information Modelling (BIM),

3D : X, Y,
Z

4D:
Sequence

5D: Cost

7D:
Operation



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BIM Technology Usage

Project Planning

Design

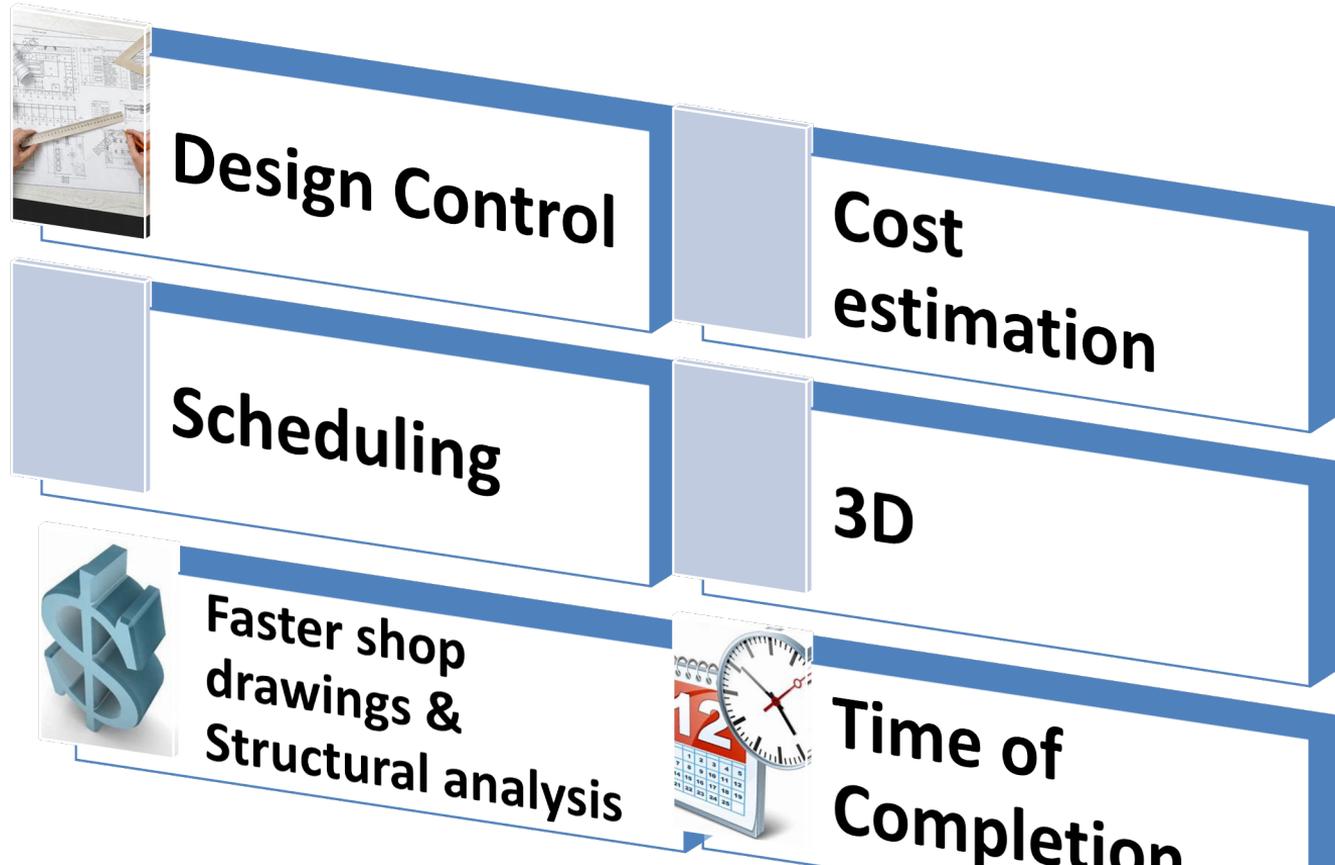
Construction

Operation



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Why? BIM

Best Practice Management Tool



Better performance for projects



Efficient tool of coordinated Design



Improve Quality accuracy & Delivery Times of Projects



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Why? BIM



In 2017 survey by UK company National Building Specification (NBS), of 1,000 architects and contractors using BIM, over 70% said that the technology had given them a competitive advantage

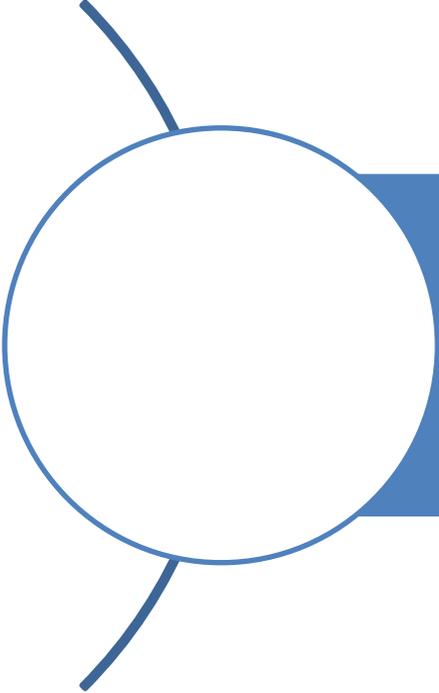




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Example of a Mega Project in MEA

A large blue callout bubble with a white circular center and a blue outline, containing text. The bubble has two short lines extending from its top and bottom edges.

Abu Dhabi Airports Company revealed that it has been using BIM on the \$3bn Midfield Terminal Building, which is likely to be the largest single shared model in the world.



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FIDIC 2017 & BIM



Advisory Notes to Users of FIDIC Contracts in the Guidance for the Preparation of Particular Conditions

Where the Project is to Include Building Information Modelling Systems





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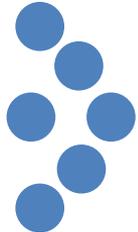
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BIM PROS

Quality



accuracy



Delivery Times of
Projects

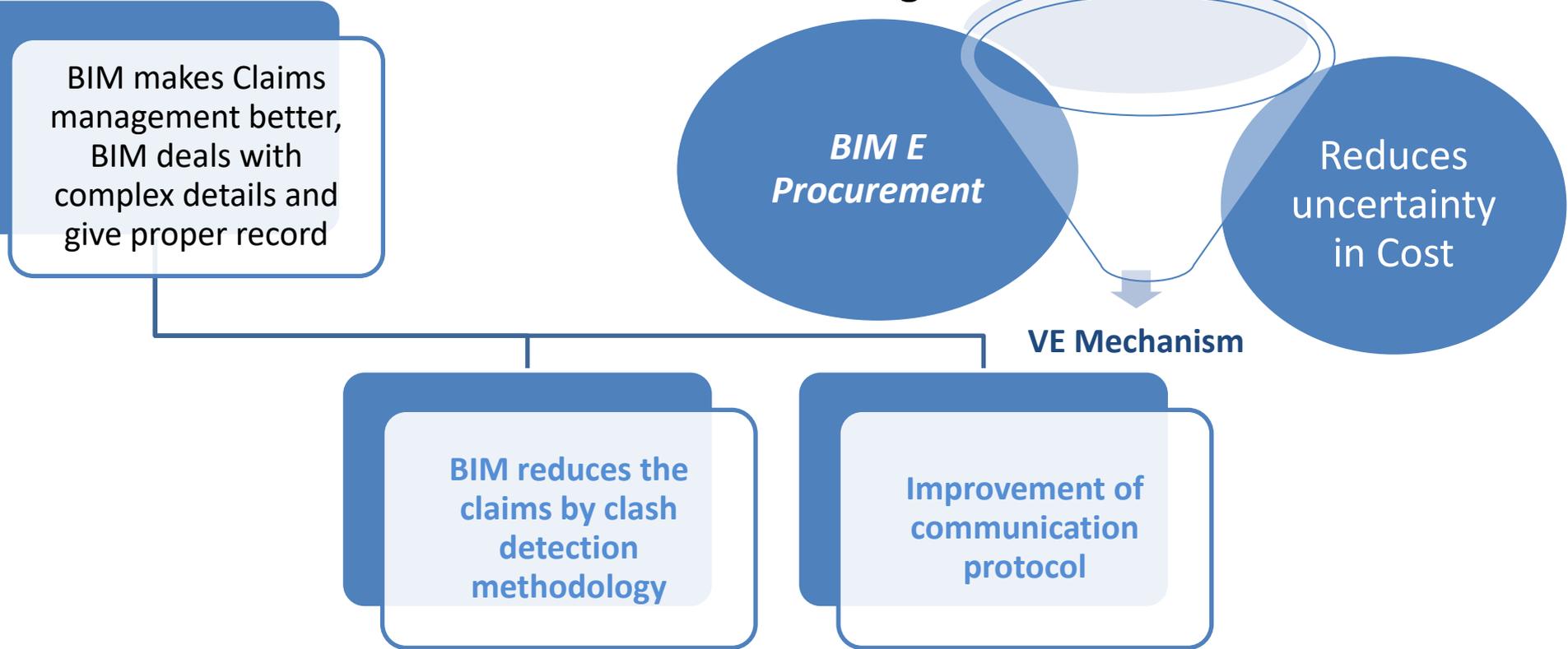




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BIM as a tool to manage Claims





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Design Leveling



BIM has many LODs(Level of Detailing) which shall be identified in the Design documents

- The Dispute Dilemma of insufficiency of Design by Employer in the RED Book will be drastically reduced !





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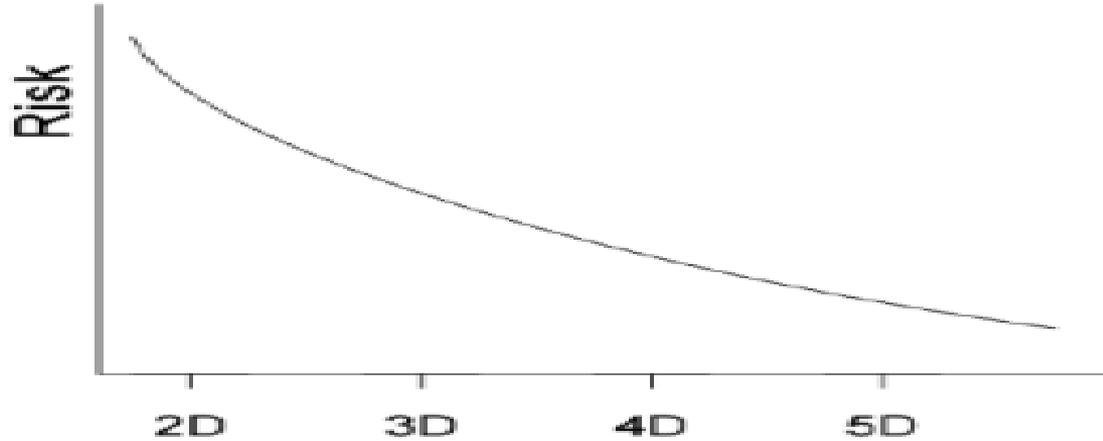
In 4D & 5D, Claims Cost & Time
quantification





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Relationship between risk and BIM level



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Drawings from Consultant



DWG or PDF



INPUT

As built Drawings

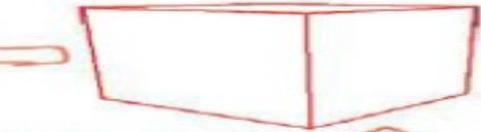


DWG or PDF

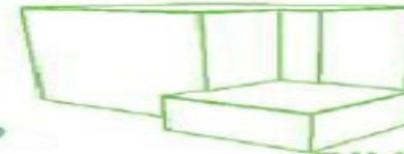


MODELING

B.O.Q



BIM MODEL

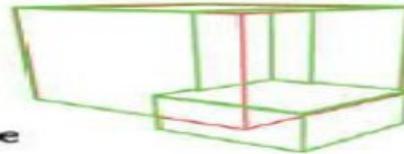


BIM MODEL

B.O.Q



Combined BIM Model



OUTPUT

Technology allows us to highlight the changes using:

- Virtual Tracing
- Color Coded Views



Combined Drawings



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Producing reports in Cost & Time





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As planned Vs As Built Analysis



Project Management



Progress
Report system



Manhours, as
planned as
built...etc



Communication
management

Project Management



Accurate information to give the decision maker
more certainty to take correct decision





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As Built obligation will be more accurate
and a piece of cake!





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For example, the [Los Angeles Unified School District said BIM](#) saved the district \$12 million in construction costs and is helping coordinate workflows and facility management for its \$9.5 billion capital program





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Responsibilities of parties shall be clearly defined

PII to clearly identify the design scope

Proper risk distribution



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BIM Project

Following SC shall be carefully drafted in the particular Conditions

- Indemnities by parties
- Insurances especially PII
- Limitation of Liability
- Contractor's Obligation
- Programme



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BIM Project

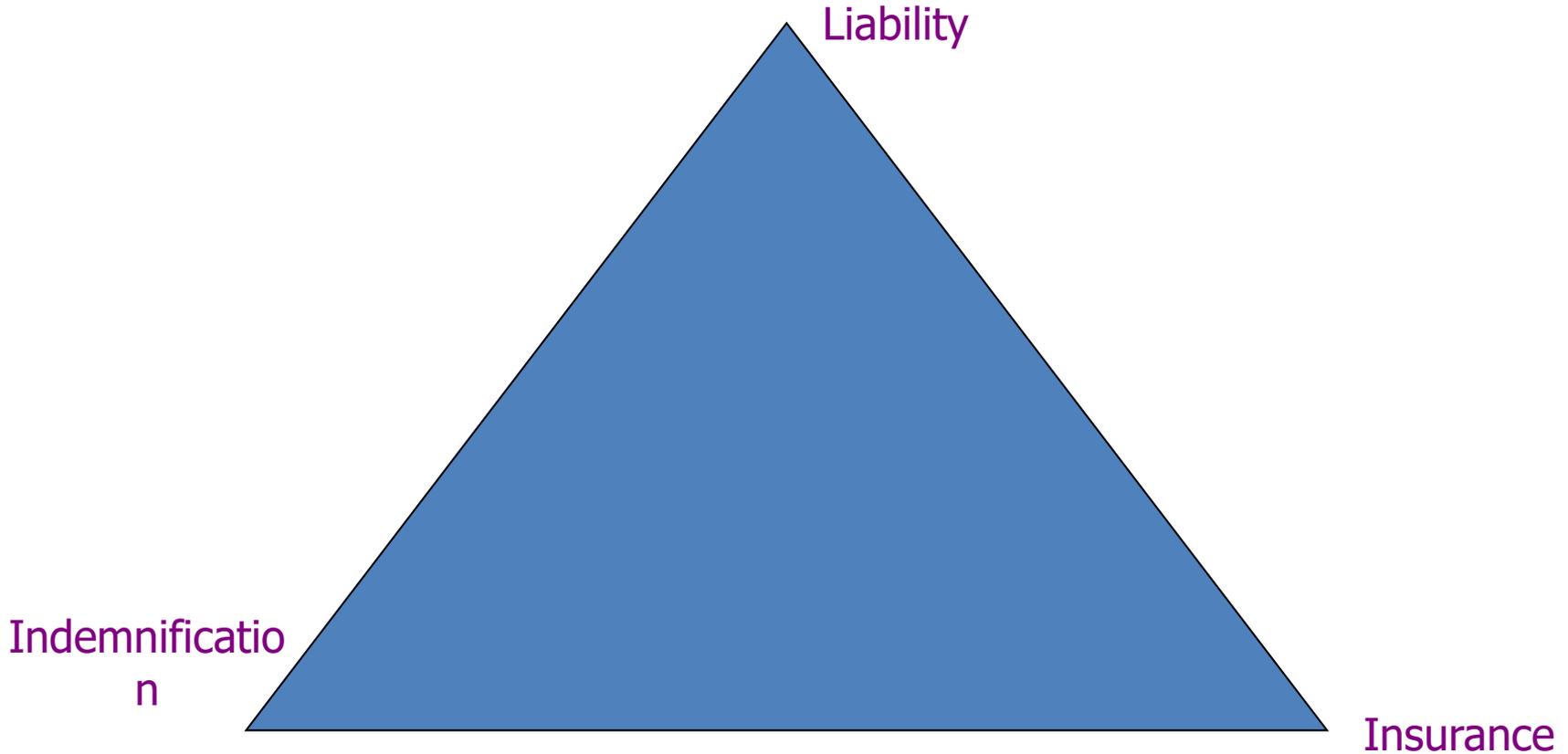
Examples for Employer Liability

- Employer liability, error in the information Model



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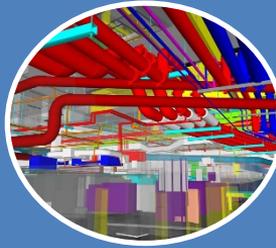
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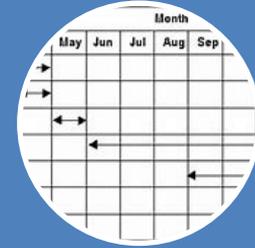
BIM as a Dispute Avoidance Tool



Construction sequencing



Design Coordination



Finish on Time, no clashes





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BIM as a Dispute Avoidance Tool



Scope better
understanding



Contractor will be
more accurate in
tendering stage



Coordinated
drawings! No
surprises.





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BIM as a Dispute Avoidance Tool



Avoidance of errors & omissions in design due to Consultant default



No more delayed IFC or incomplete design

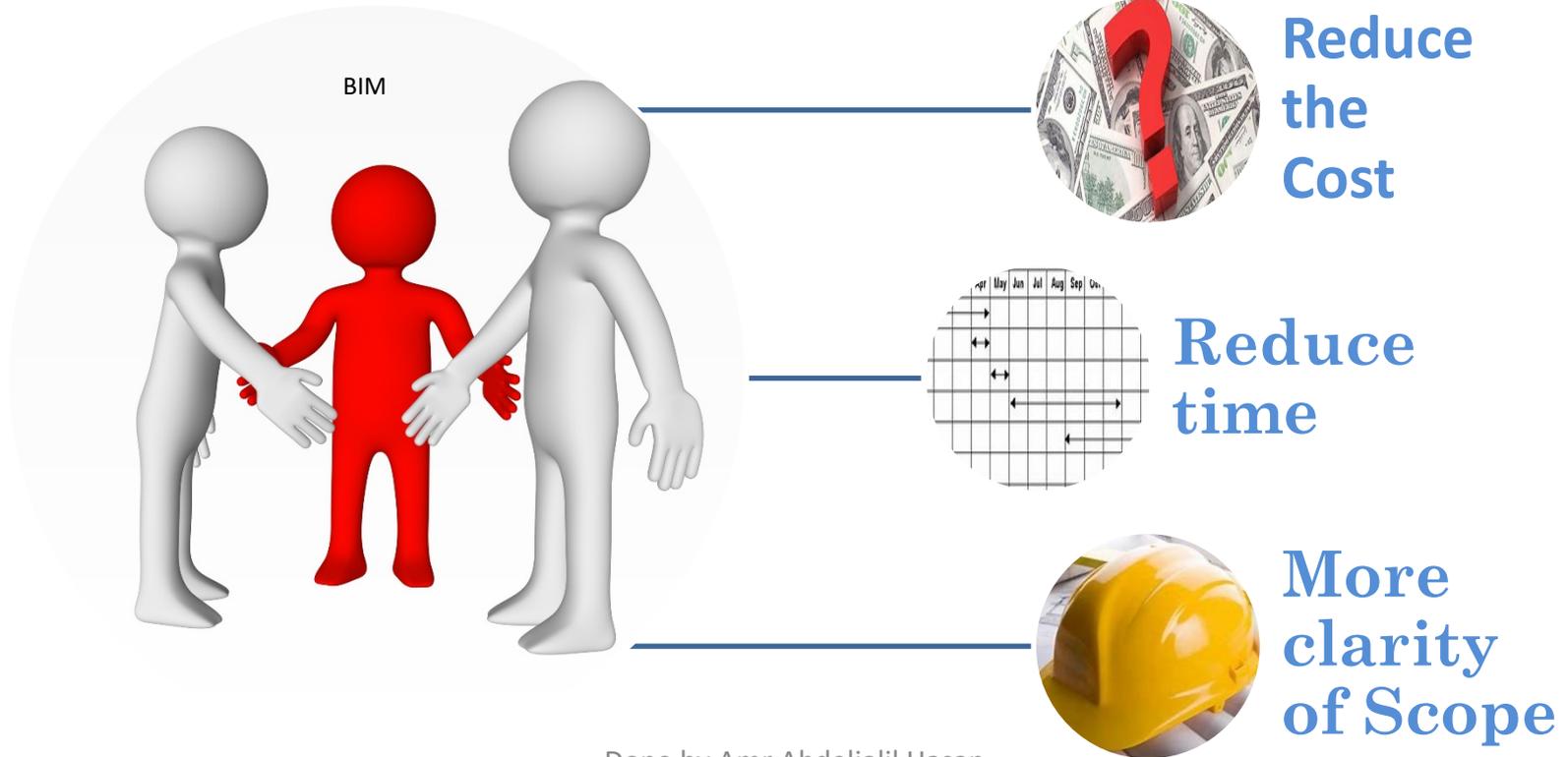




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BIM as a Dispute Avoidance Tool





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BIM as a Dispute Avoidance Tool



Reduce Claims,
complimentary &
supplementary Dilemma



Reduce EoT, Finish on
Time(lesser RFIs and even
faster response, crystal
clear Design, better KPI)



Eliminate some risks not
covered by PII





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**Dispute
Avoidance Tool**



**Strategy for
future**



WIN-WIN





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Block Chain



**Digital Data
Base**



**Reduce
operation cost**



Efficient



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Block Chain As a digital fondation of MIB



**Smart
Contracts**



**Equipment
rents**



Payment





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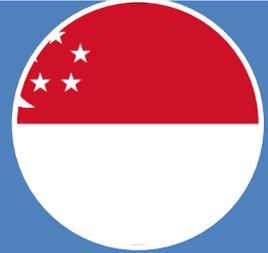
Common Law



BIM implemented since 1970s
programme of 3D & 4D have
been prepared in 2003
Adoption is gradually
increasing



Mandatory in public
sector since April
2016(BIM level 2)



Singapore
mandatory in 2015 for all
the projects greater than
5000 Sq. Mts



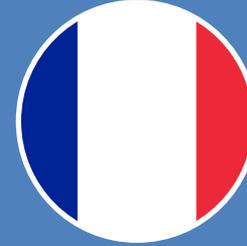
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Civil Law



Mandatory for mega Projects (over than 40 stories & 300,000 Ft) & Government mega projects



Mandatory since 2017





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FIDIC Next Step

FIDIC has indicated that it is currently preparing two documents

a “Technology Guideline”

a “Definition of Scope Guideline Specific to BIM” intended to provide further detailed support for the use of BIM on projects that use the FIDIC form



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JCT Contracts

JCT 2016, BIM
Protocol prevail all
Contract Document



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NEC Contracts

NEC3 has always allowed for the technical requirements of BIM to be included in the contract documentation and NEC4 has introduced a new secondary option on Information Modelling





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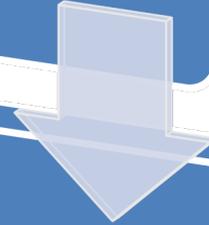
BIM - Challenges

Creating 3D model to get an effective claim management tool will cost much, while clients do not pay for such cost unless the Claim amount is big!



BIM - Challenges

Lack of experience



Manipulation! Like the links
in primavera



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THANK YOU

Amr Abdel Jalil

Contracts & Commercial Director

Amro1976@Hotmail.com

LinkedIn, Amr Abdeljalil

0096556632289

00962799142427