

GE
SMART
ASIA 2018



Locate
#Locate18



WHEN

9 – 11 APRIL 2018

WHERE

ADELAIDE, AUSTRALIA

[CLICK HERE TO KNOW MORE](#)



Industry 4.0

IMPROVING PROJECT DELIVERY WITH TECHNOLOGY

August 23, 2017

Mohd Harris Bin Mohd Ismail



BACKGROUND

Mohd Harris Ismail

CEO, Ascension Technology Sdn Bhd

BIM Checker & Consultant for Parcel F Putrajaya and Mixed Development, Bangsar

Deputy Chairman of MY BuildingSMART Berhad

Corresponding Member of BuildingSMART International

BIM Trainer for RICS : 2017 - 2018

PAM's Professional Practice Speaker for BIM – 2016

Former HOD, Construction IT Dept. CIDB

Member of RICS ASEAN BIM Working Group 2015

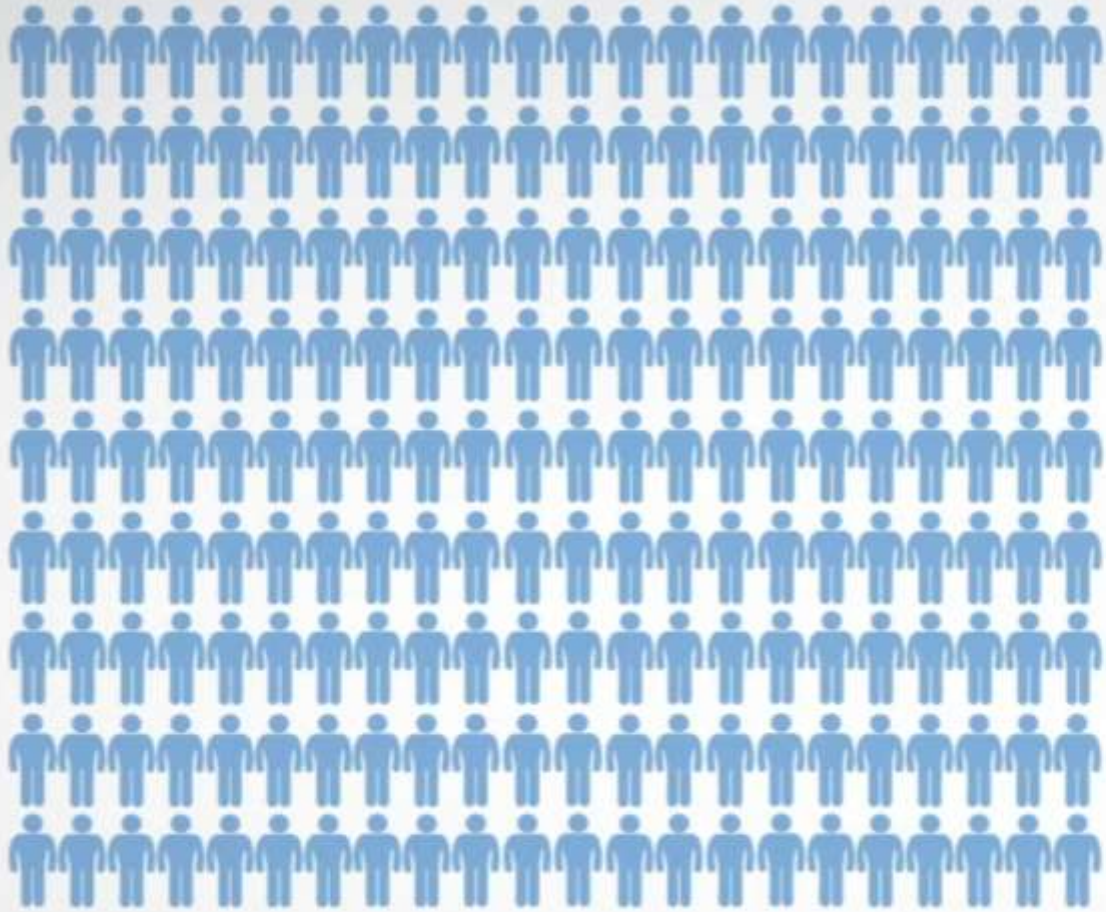
Member of APEC BIM STANDARD DEV COMMITTEE 2012 - 2014

Trainer and Panel for Curriculum Development (BIM) for MOHE, Malaysia

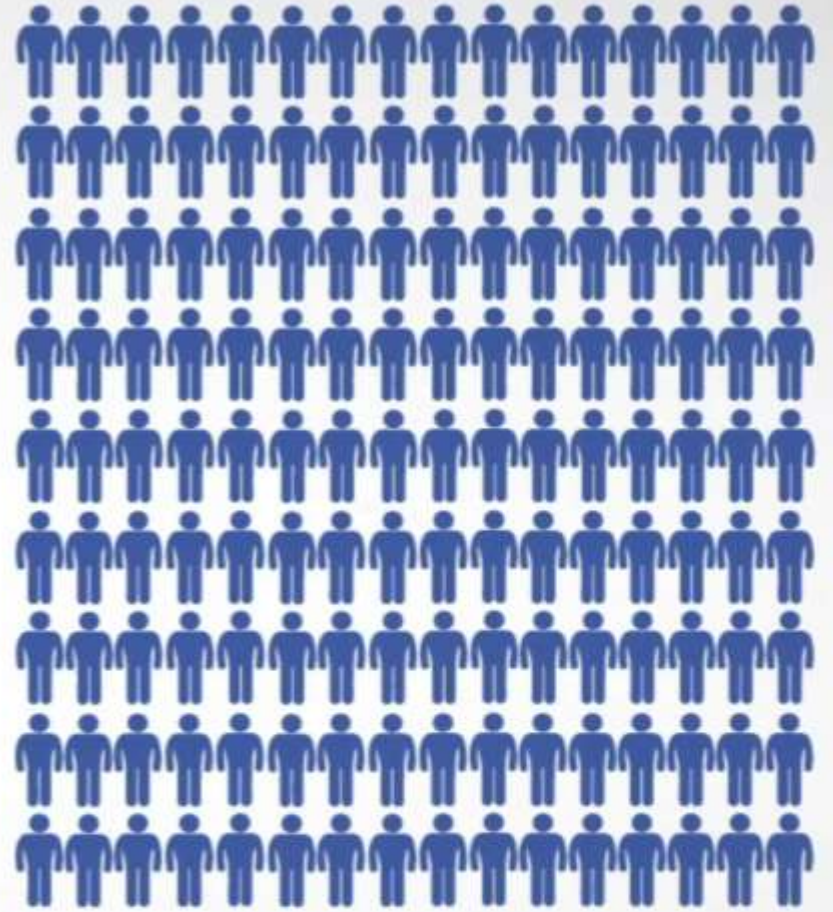
Patron of Draftermal Association Malaysia 2016 - 2018

PhD Researchers in Architecture, UKM (Analyzing User Resistance to Technology in Construction Industry)

TECHNOLOGY

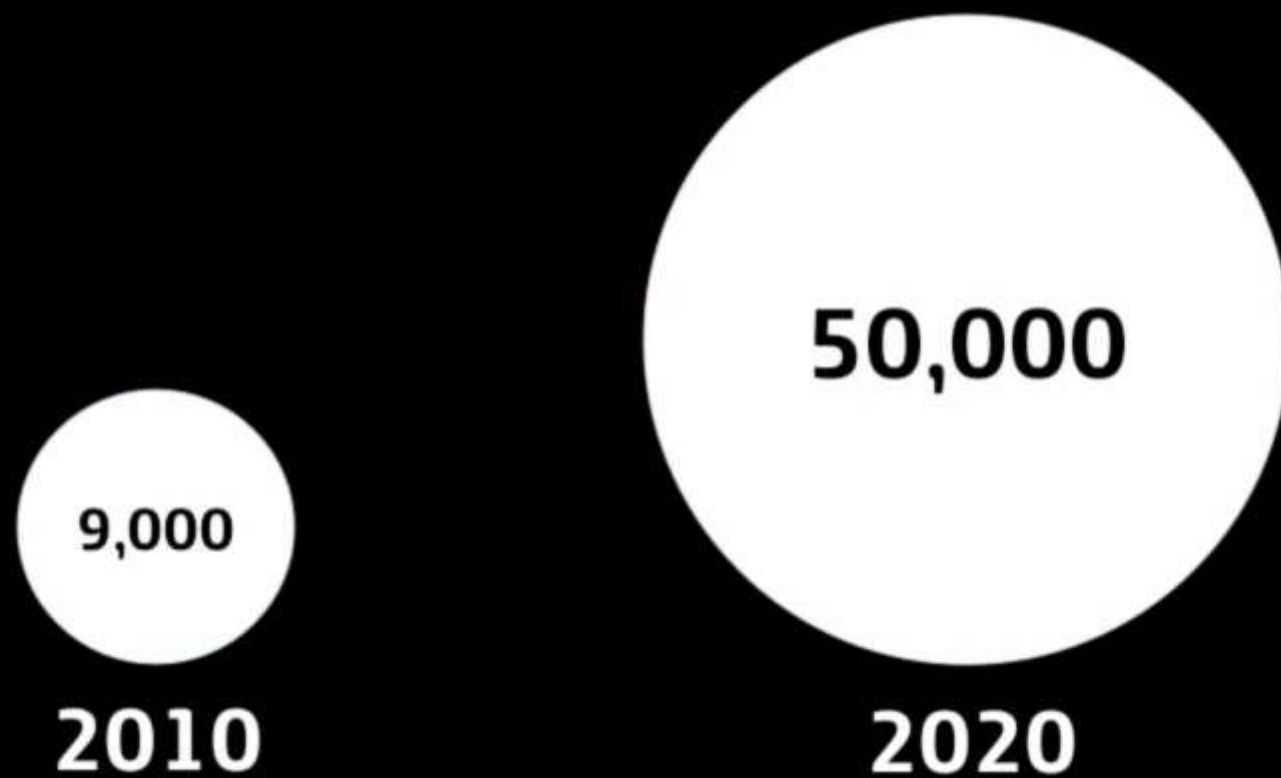


2.2 bn
mobile users in
2013



1.6 bn
more by
2020

In 2020 there will be more than **50,000 millions**
of devices **connected** to the Internet



Internet and mobility **will converge**



“at any time, at any place, for anybody
and in any device”



The **differences** between the physical and the digital world
will continue **blurring**, ...



How we
work
live
and play
is changing



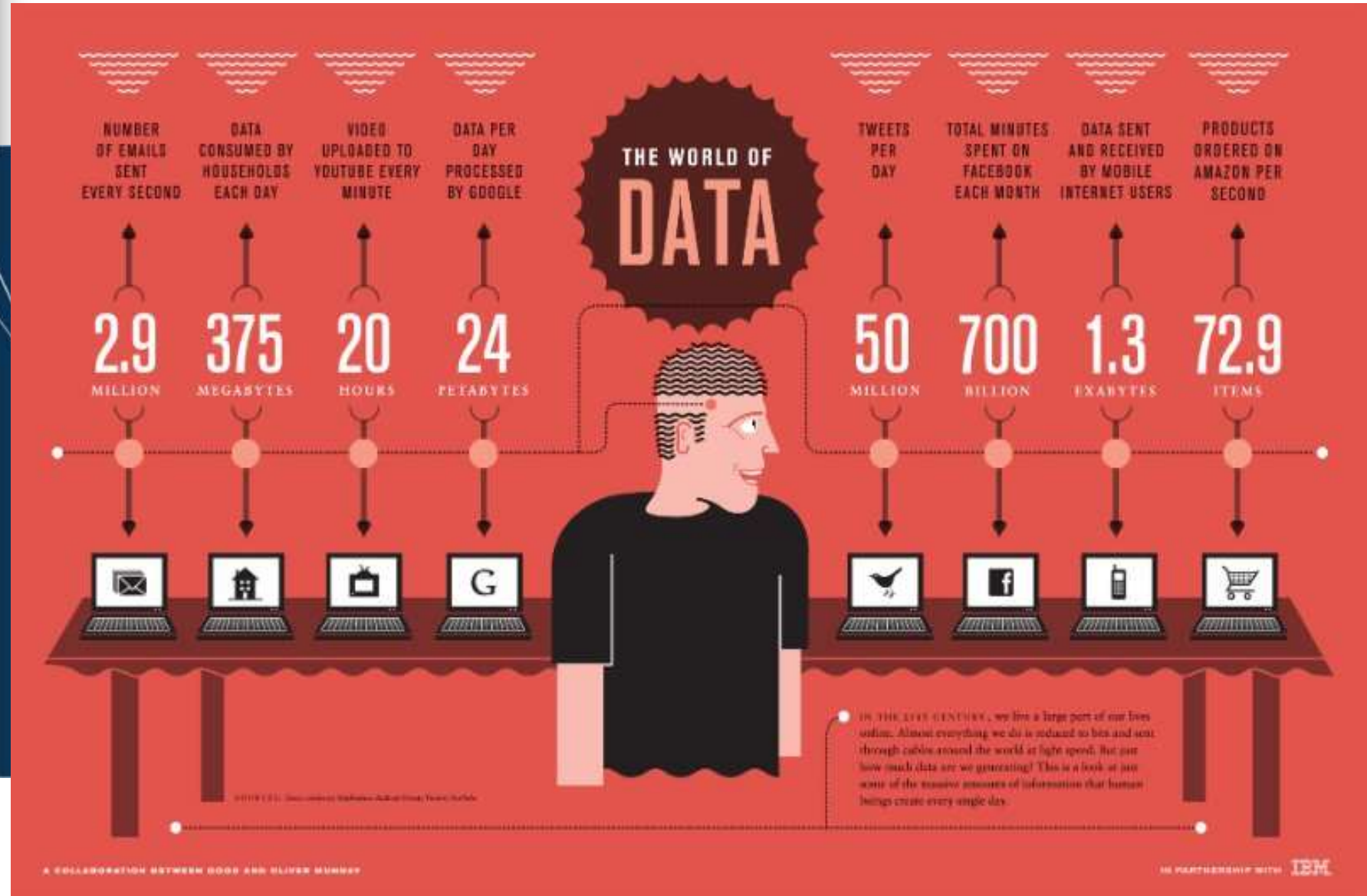
Technology is transforming how we live

technology will
fundamentally improved the way we design and
construct the world around us

INNOVATION



DIGITAL DATA





3D Printers



Smart Sensors



Laser Scan



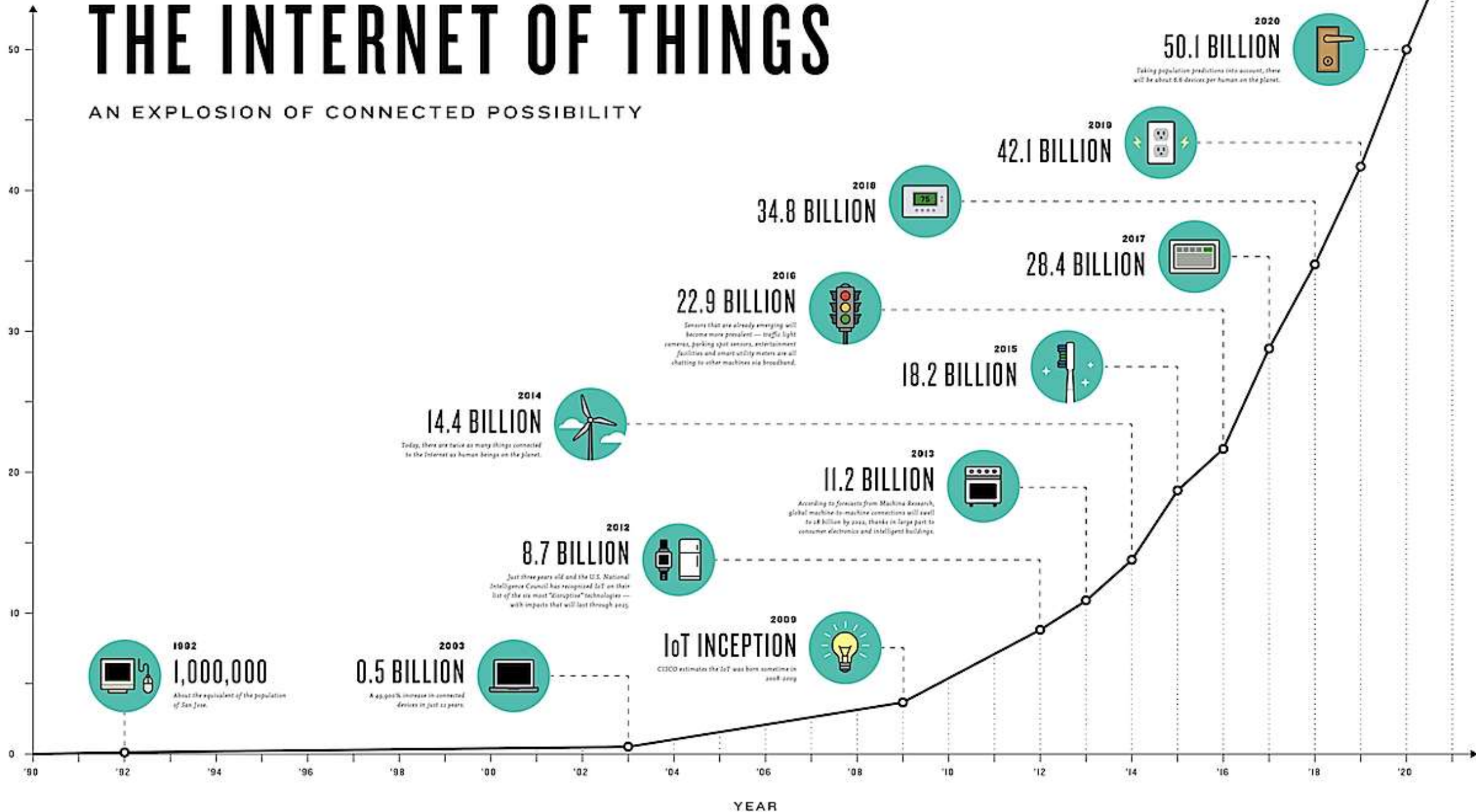


Internet of Things

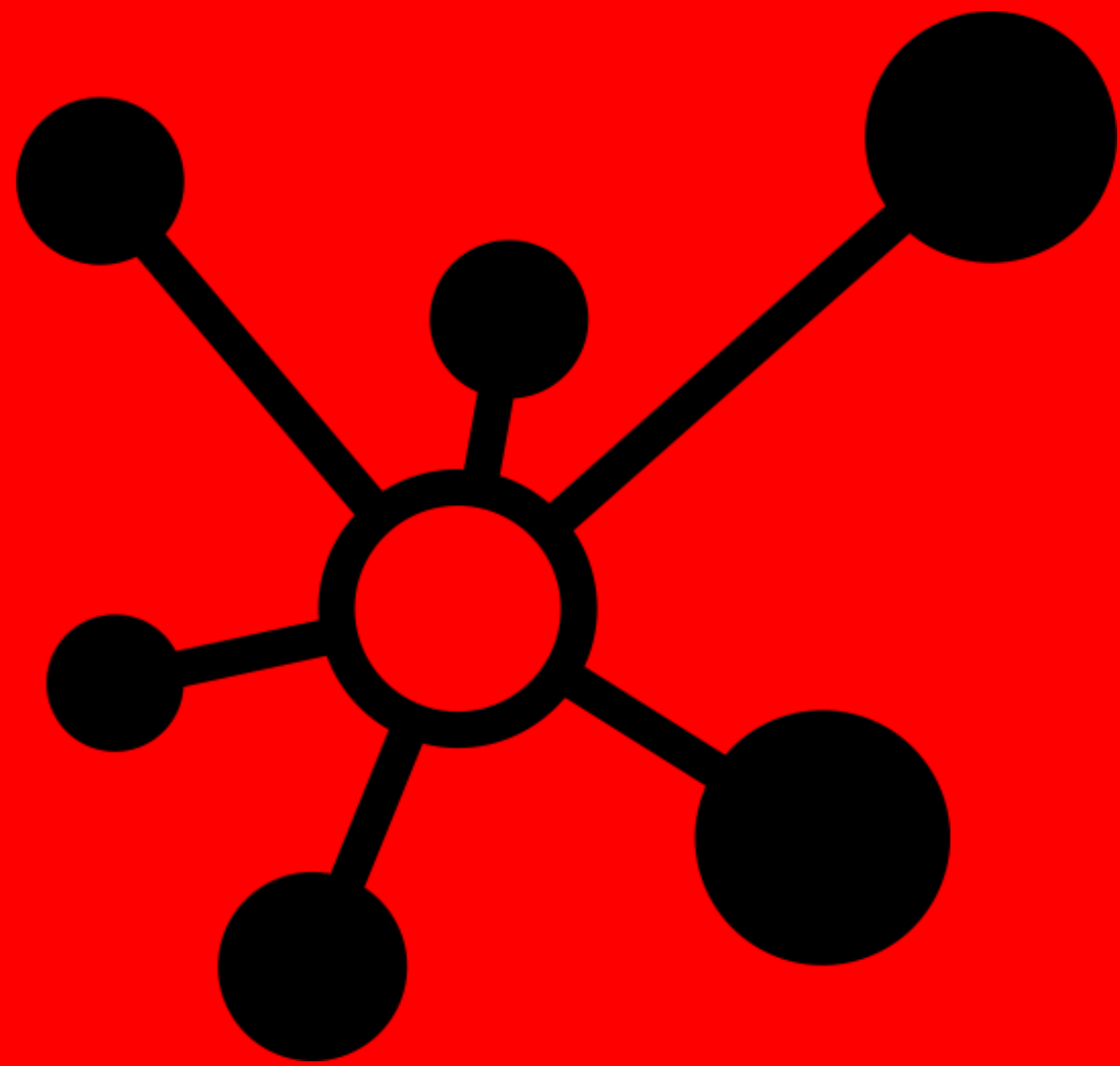
THE INTERNET OF THINGS

AN EXPLOSION OF CONNECTED POSSIBILITY

BILLIONS OF DEVICES



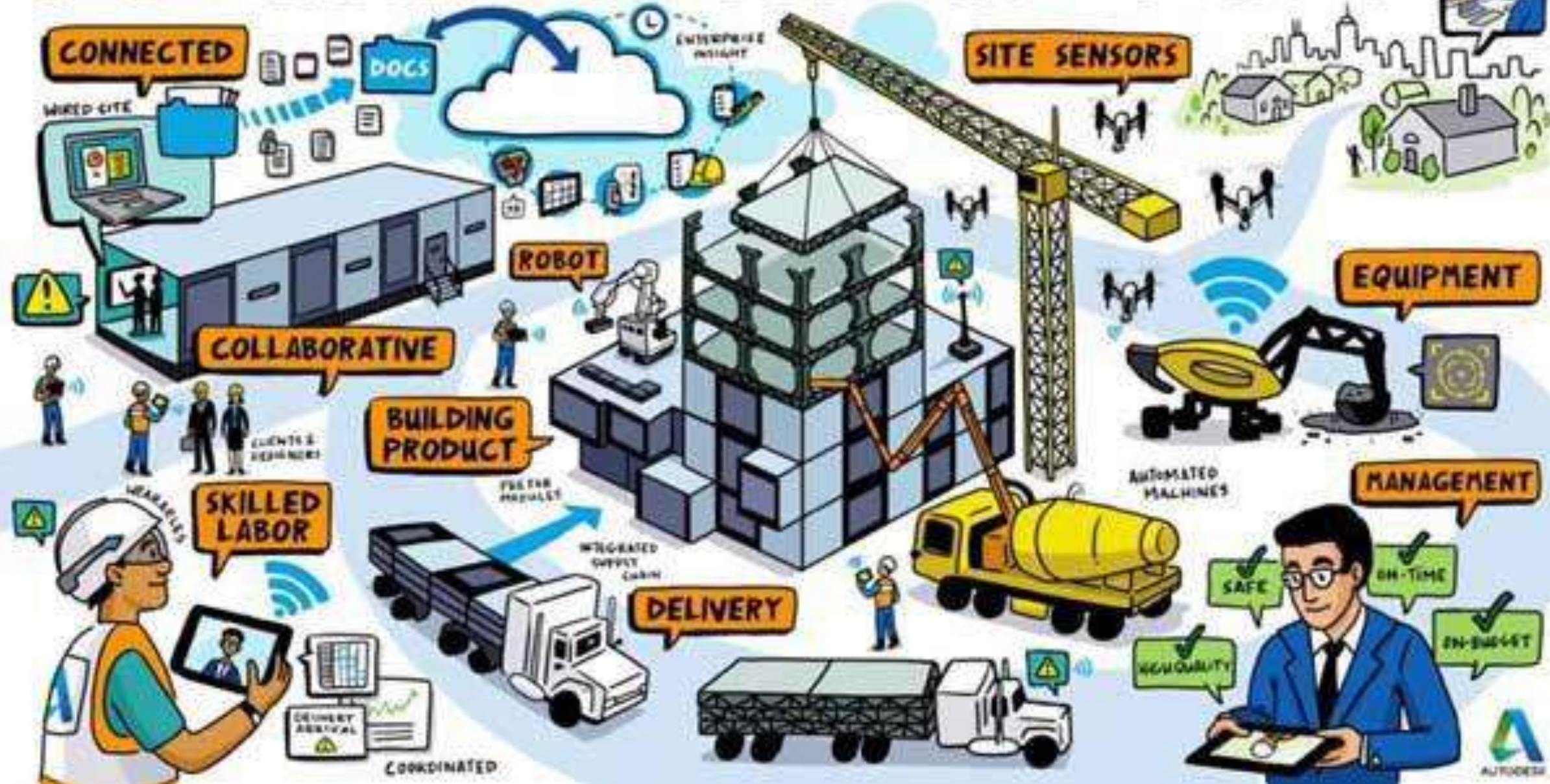
Everyone



Everywhere

Everything

THE FUTURE OF BUILDING THINGS



Integrated Monitoring & Control



Environment

Resources / Energy

- Solar panels
- Wireless energy management
- District cooling
- Green buildings
- Compostech machines

Mobility

- Eco-friendly ride sharing
- Electric vehicles

Connectivity

- Cyberjaya Wifi

Infrastructure



Traffic

- Smart traffic management system
- Smart street lighting
- Smart parking



Economy

Business

- Hyperlocal advertising
- Digital retail lifestyle
- Connected community

Jobs

- Cyberjaya e-Job portal

Security

- Integrated security management system
- Video surveillance

Social



Living

- Open data
- Digital signage
- City info kiosk
- Interactive map



Integrated Operating Platform

ICT Network Infrastructure

AROUND THE WORLD



AND IN MALAYSIA



An aerial photograph of Lower Manhattan, New York City, showing a dense urban landscape with numerous skyscrapers. A large, irregularly shaped area in the foreground is highlighted in a vibrant green color, representing a park or green space. This green area is surrounded by yellow lines that trace the edges of the park and connect to various points in the city, possibly indicating infrastructure or flood zones. The Hudson River is visible on the right side of the image, with several boats and a bridge in the distance. The overall scene is a mix of urban development and natural greenery.

The impacts of climate change will
require more resilient buildings and cities

An aerial night view of a city, likely Dubai, showing a dense cluster of skyscrapers and buildings illuminated with warm yellow and orange lights. The city is set against a dark sky, with some lights reflecting on the ground. The overall atmosphere is vibrant and modern.

***The Role of professionals
across the world is changing***



***Built environment professions
must respond to this change***

Building Information Modelling (BIM)

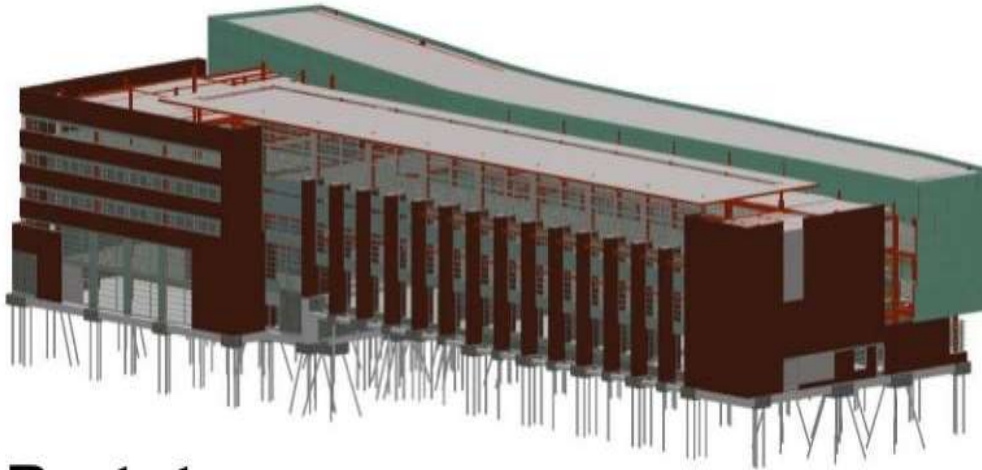
digitising the construction industry



BIM



4 P's of Innovation



Prototype

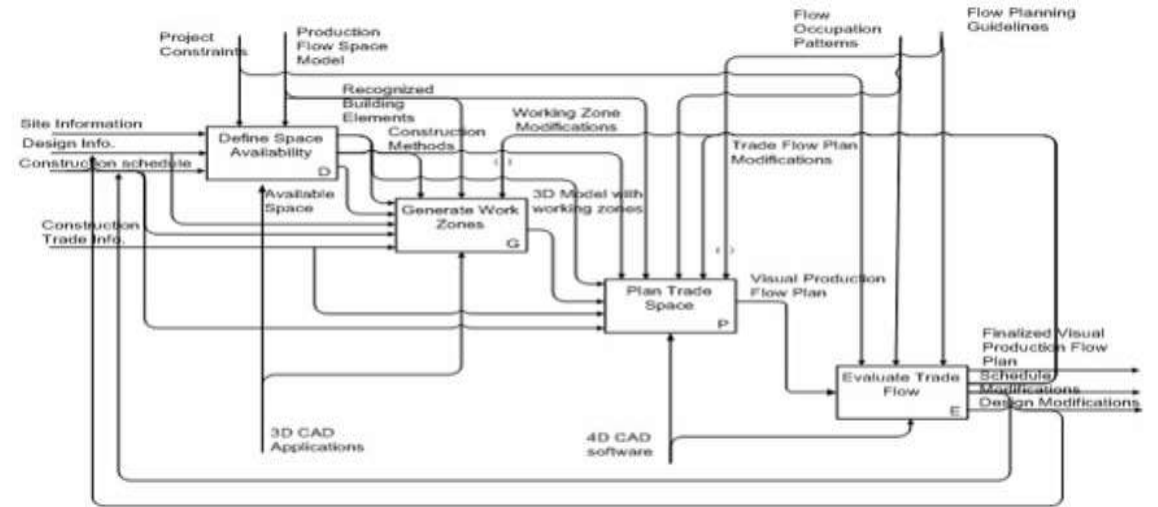


Figure 5.6. Visual Production Flow Planning (Level 1)

Process



Place



People

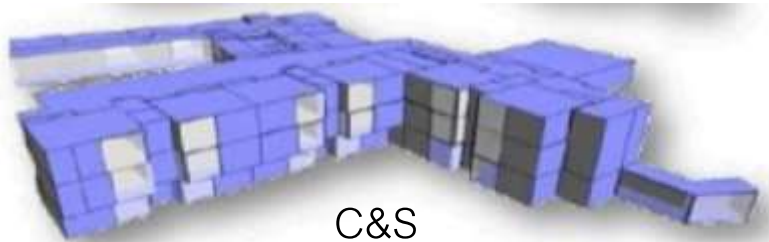
PRODUCER

(information)

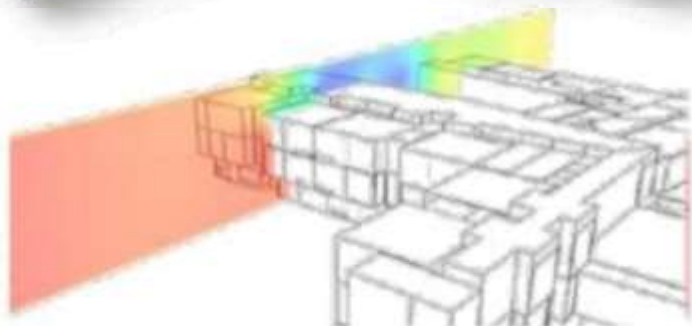
Discipline Based Data Production



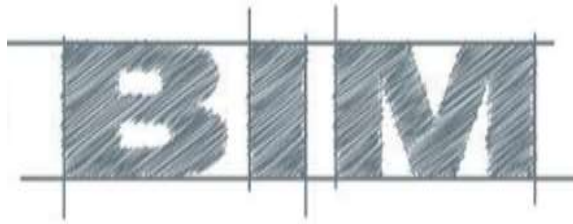
Architecture



C&S

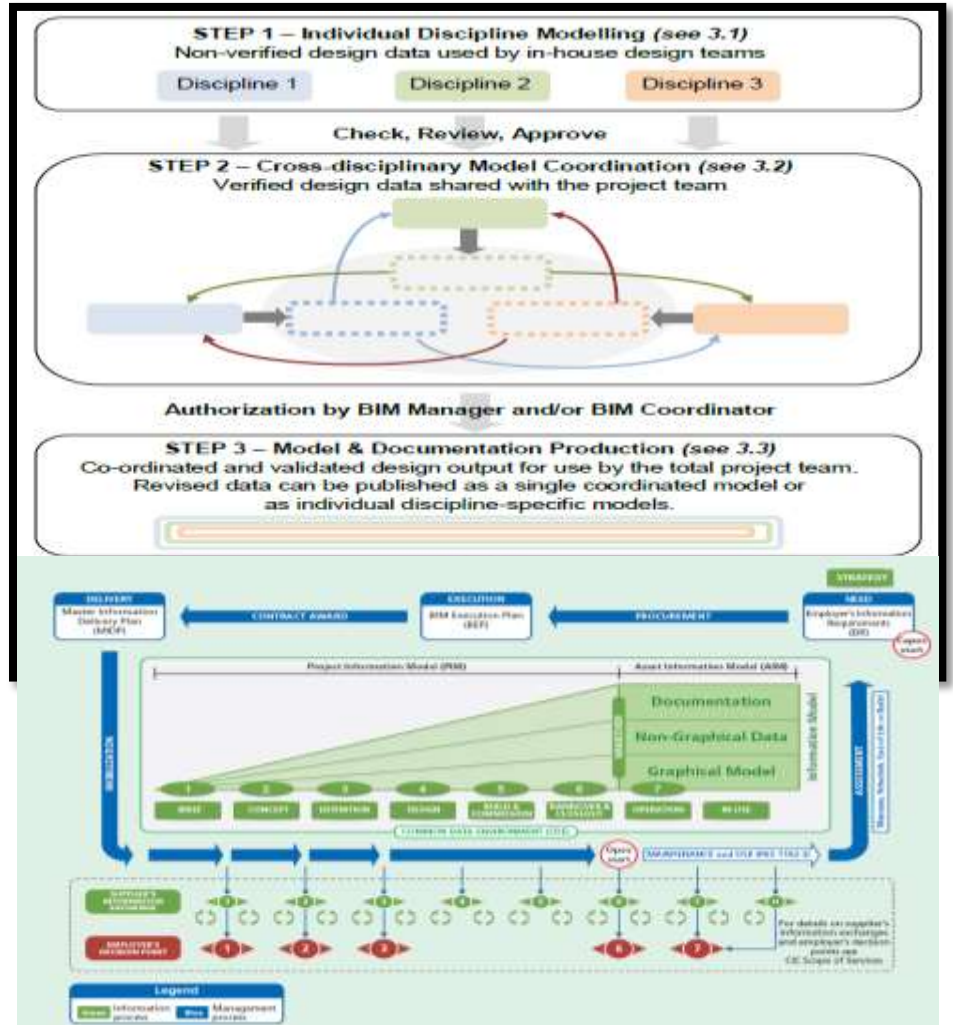


MEP



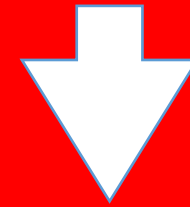
USER

PROCESS
(collaboration)



Integrated Approach

**Human Activities +
Digital technology**



**Digital Representation of
Physical and Functional
Characteristics of a Building**



CONSTRUCTION LIFECYCLE

INFORMATION

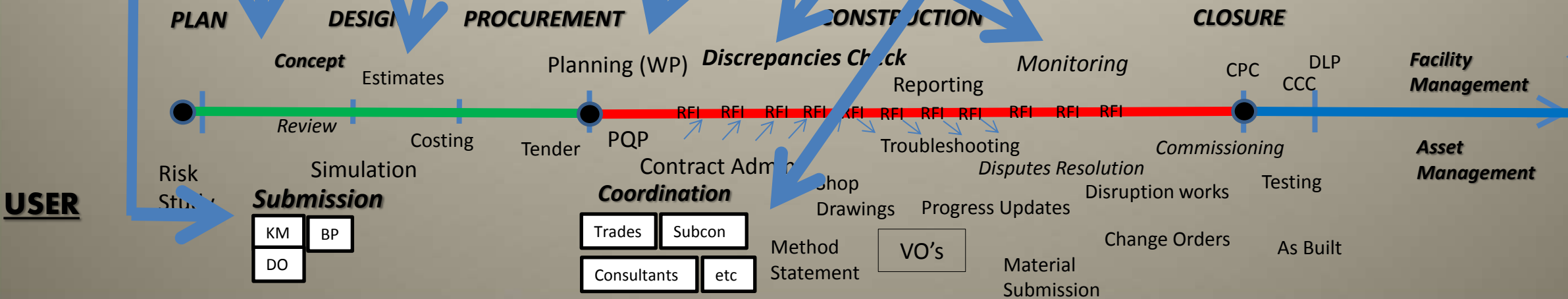
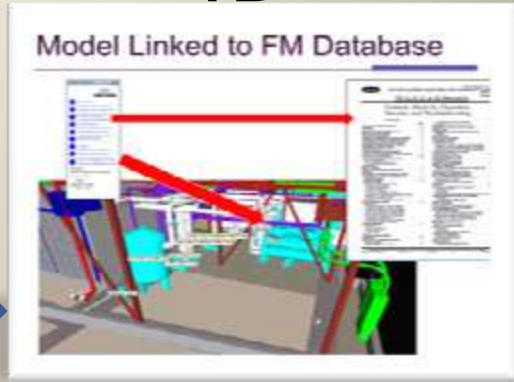
7D

PRODUCER

Qty	Description	Unit	Page	Qty
1	100-00-010	Headings		
1	100-00-011	Headings		
1	100-00-012	Headings		
1	100-00-013	Headings		
1	100-00-014	Headings		
1	100-00-015	Headings		
1	100-00-016	Headings		
1	100-00-017	Headings		
1	100-00-018	Headings		
1	100-00-019	Headings		
1	100-00-020	Headings		
1	100-00-021	Headings		
1	100-00-022	Headings		
1	100-00-023	Headings		
1	100-00-024	Headings		
1	100-00-025	Headings		
1	100-00-026	Headings		
1	100-00-027	Headings		
1	100-00-028	Headings		
1	100-00-029	Headings		
1	100-00-030	Headings		
1	100-00-031	Headings		
1	100-00-032	Headings		
1	100-00-033	Headings		
1	100-00-034	Headings		
1	100-00-035	Headings		
1	100-00-036	Headings		
1	100-00-037	Headings		
1	100-00-038	Headings		
1	100-00-039	Headings		
1	100-00-040	Headings		
1	100-00-041	Headings		
1	100-00-042	Headings		
1	100-00-043	Headings		
1	100-00-044	Headings		
1	100-00-045	Headings		
1	100-00-046	Headings		
1	100-00-047	Headings		
1	100-00-048	Headings		
1	100-00-049	Headings		
1	100-00-050	Headings		

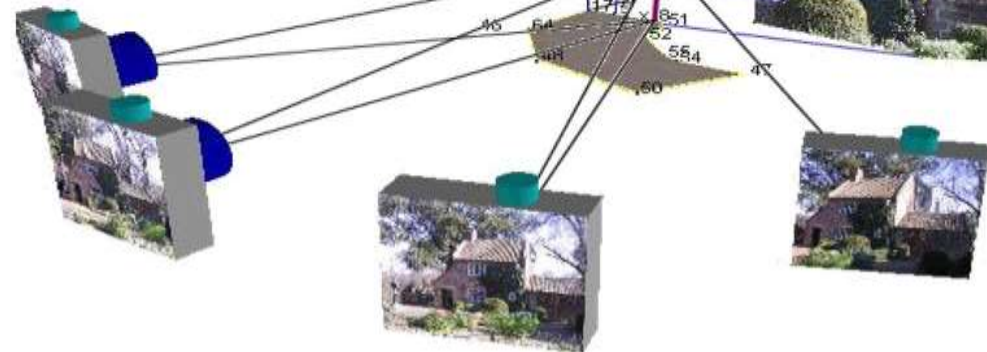
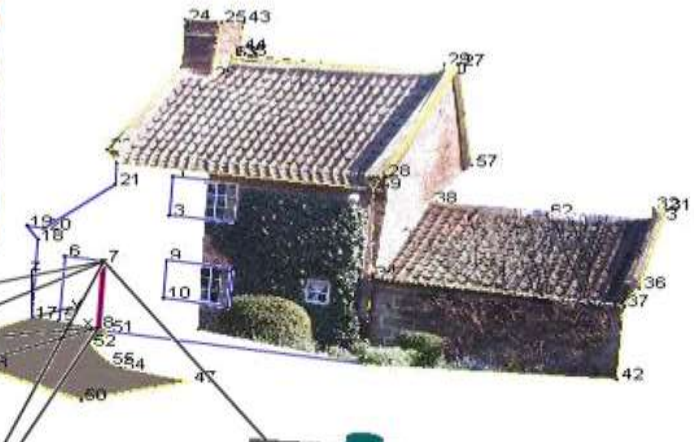
4D

3D



USER

Existing Conditions Modeling



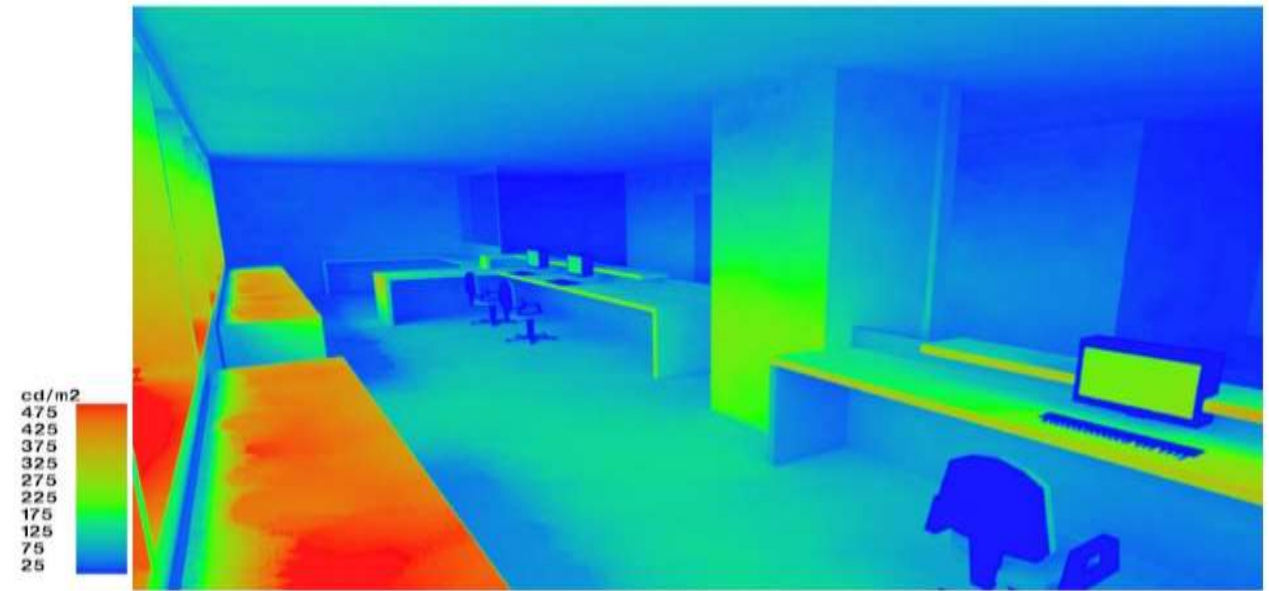
Plan

Design

Lighting analysis



<http://www.lowenergystudio.com/services/daylighting-report/>



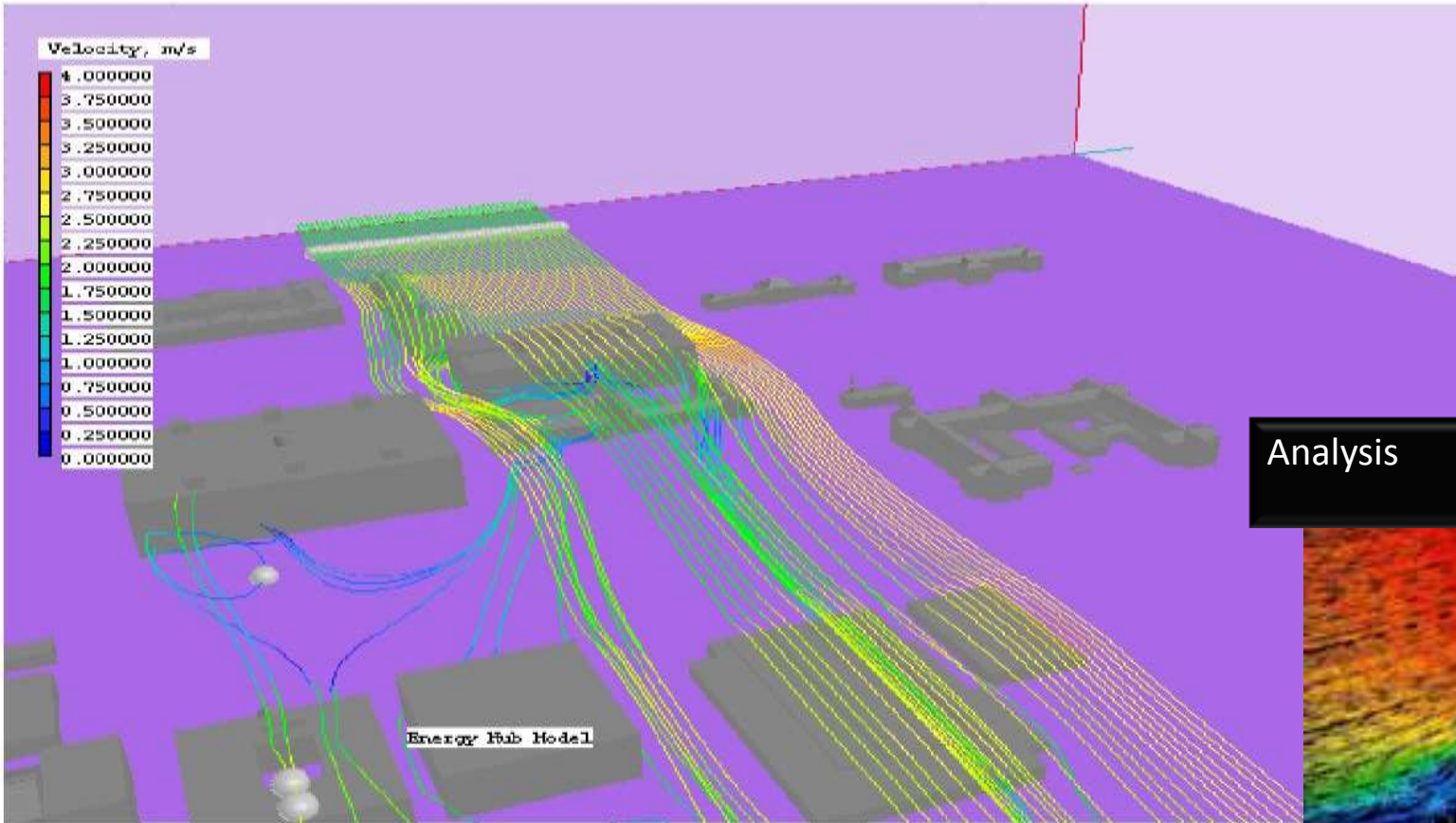
www.3denery.ca

Tools: Ecotect, Daysim, Radiance, plugins for Revit, 3Ds Max

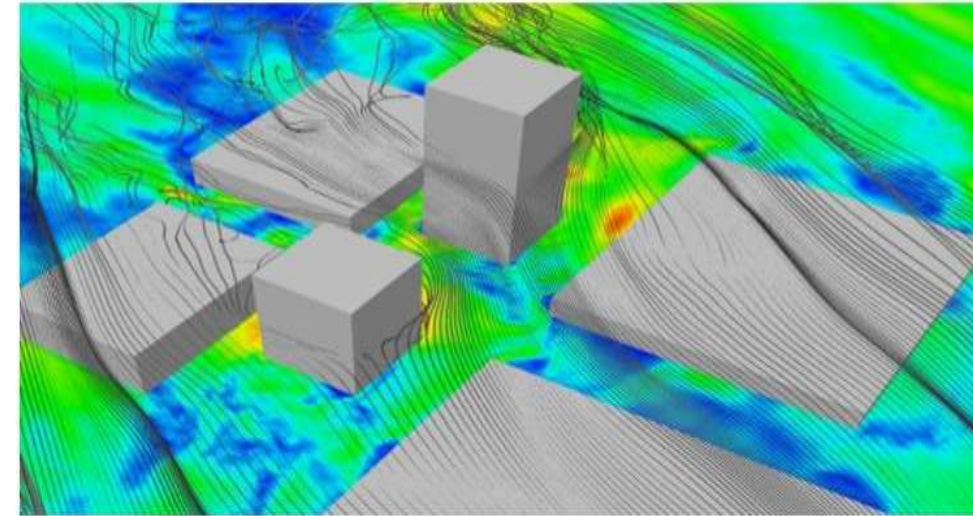
Plan

Design

Airflow analysis

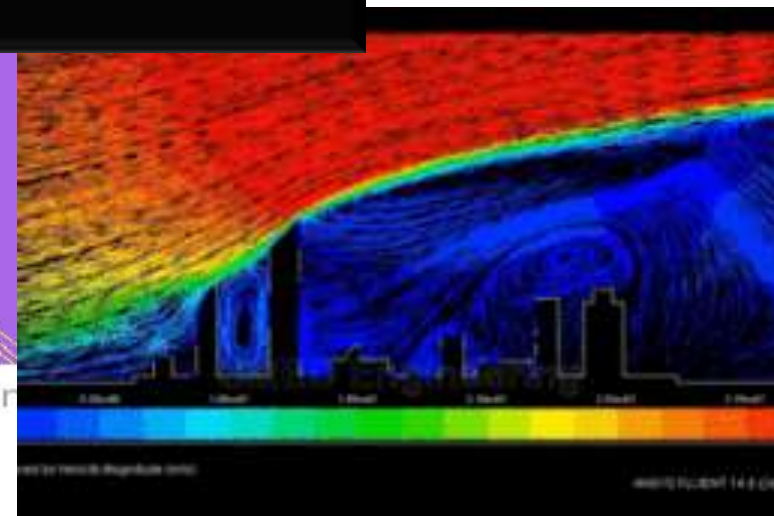


Source: The Pennsylvania State U

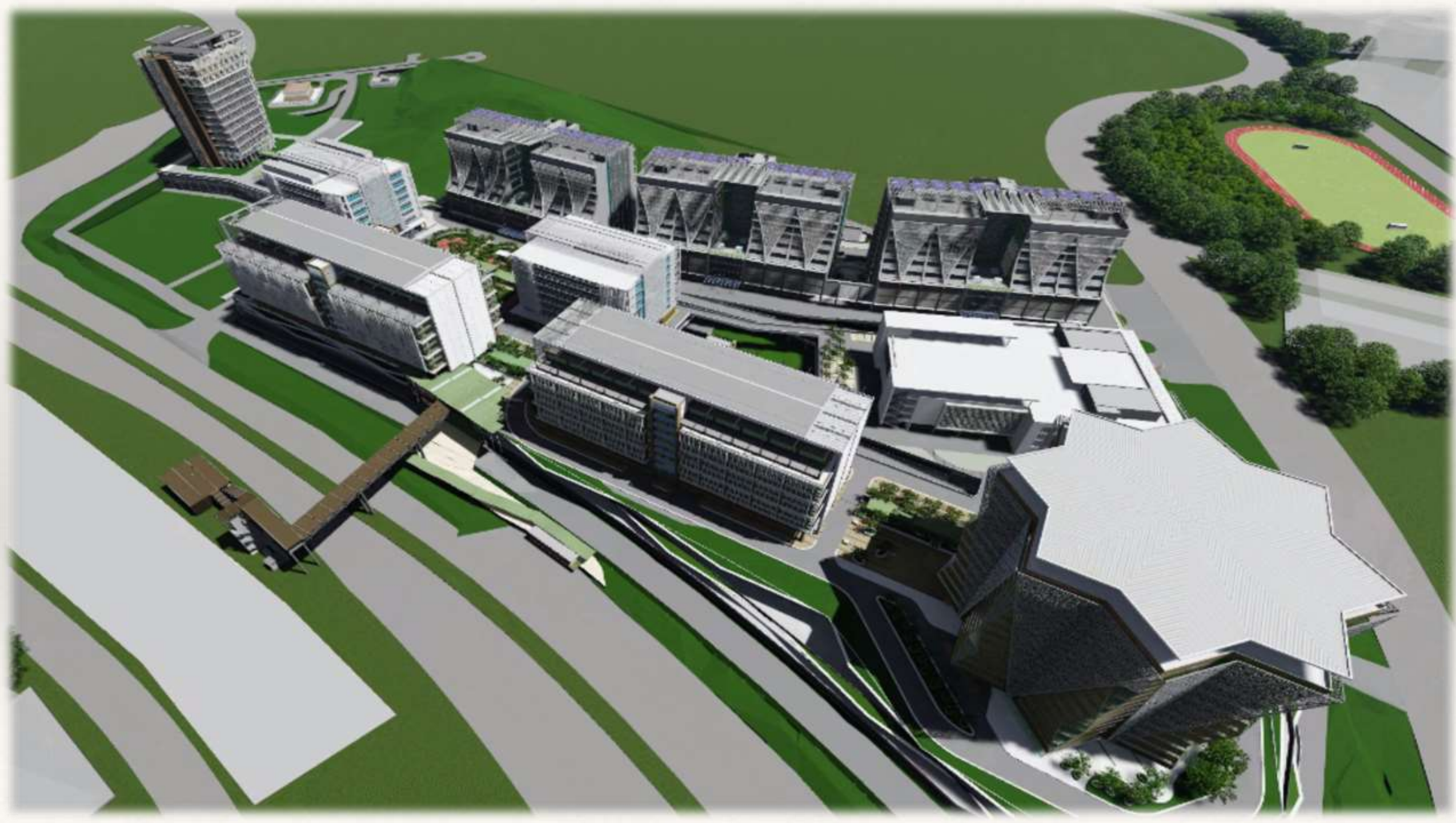


Source: www.project-simba.eu

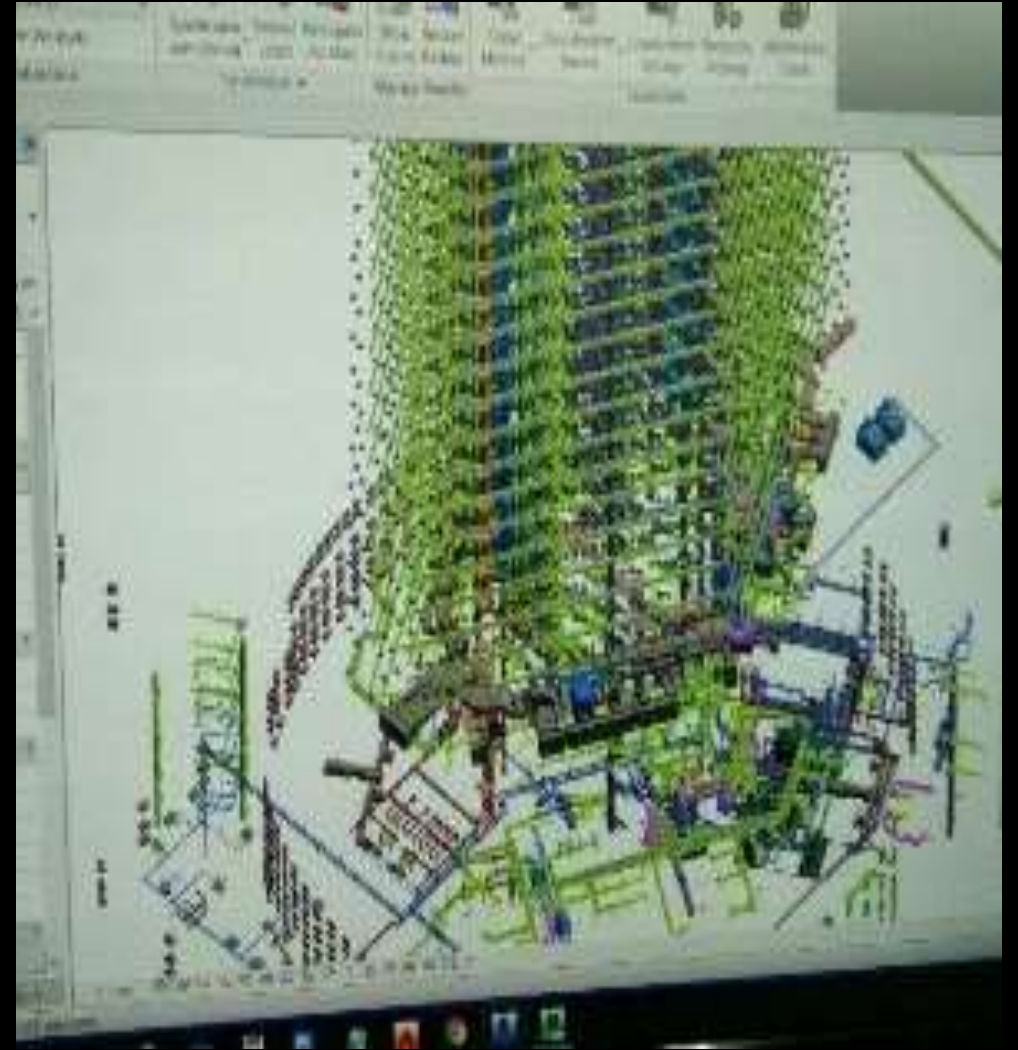
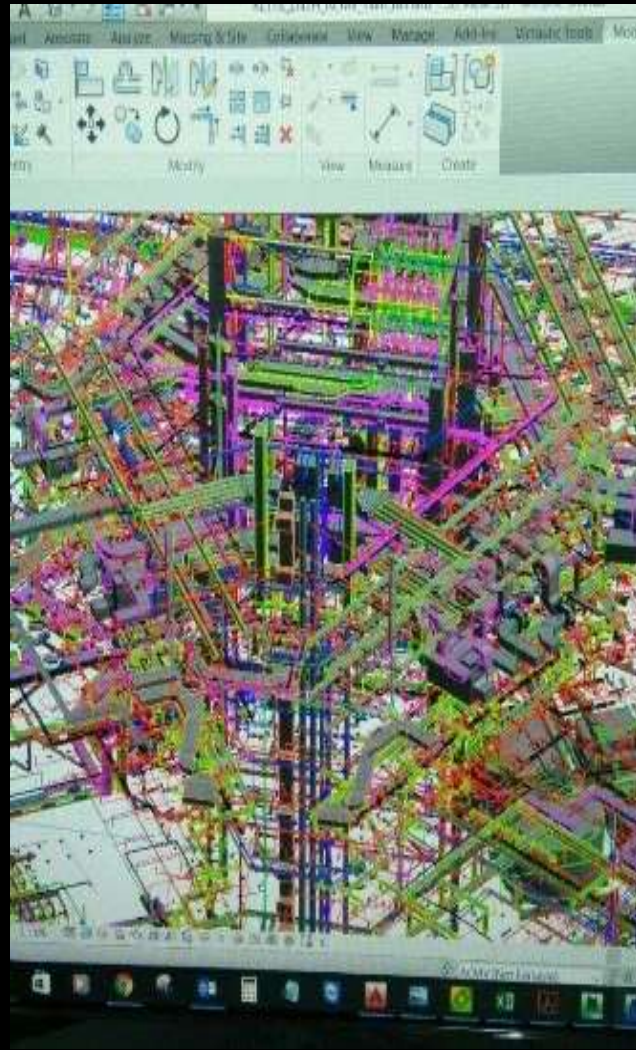
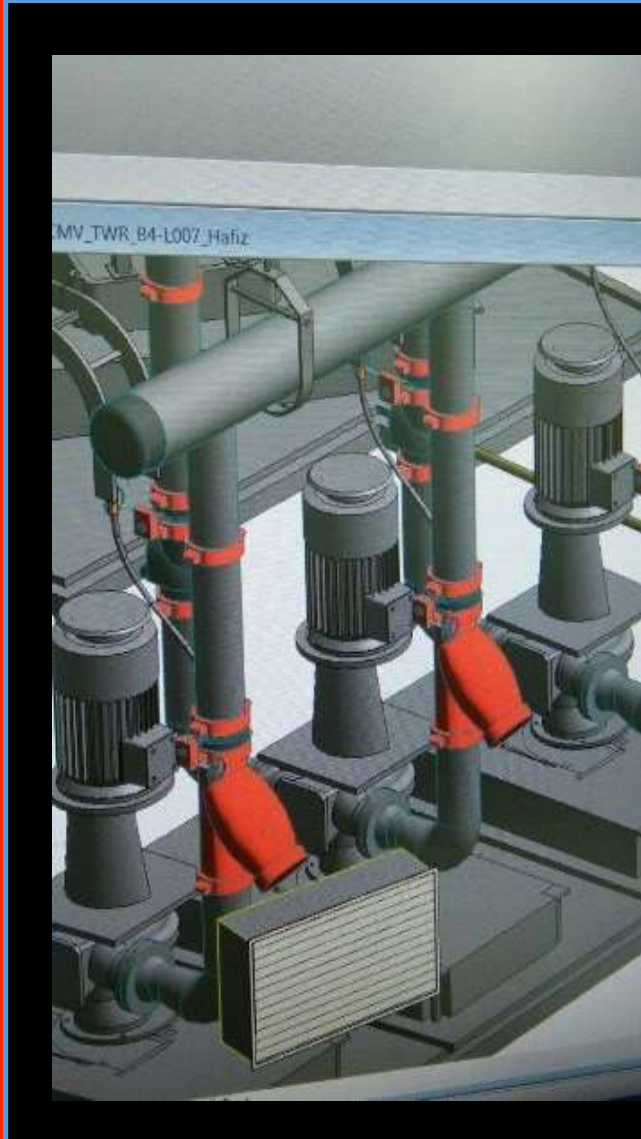
Analysis



esk Simulation 360,
DNTAM, Solidworks

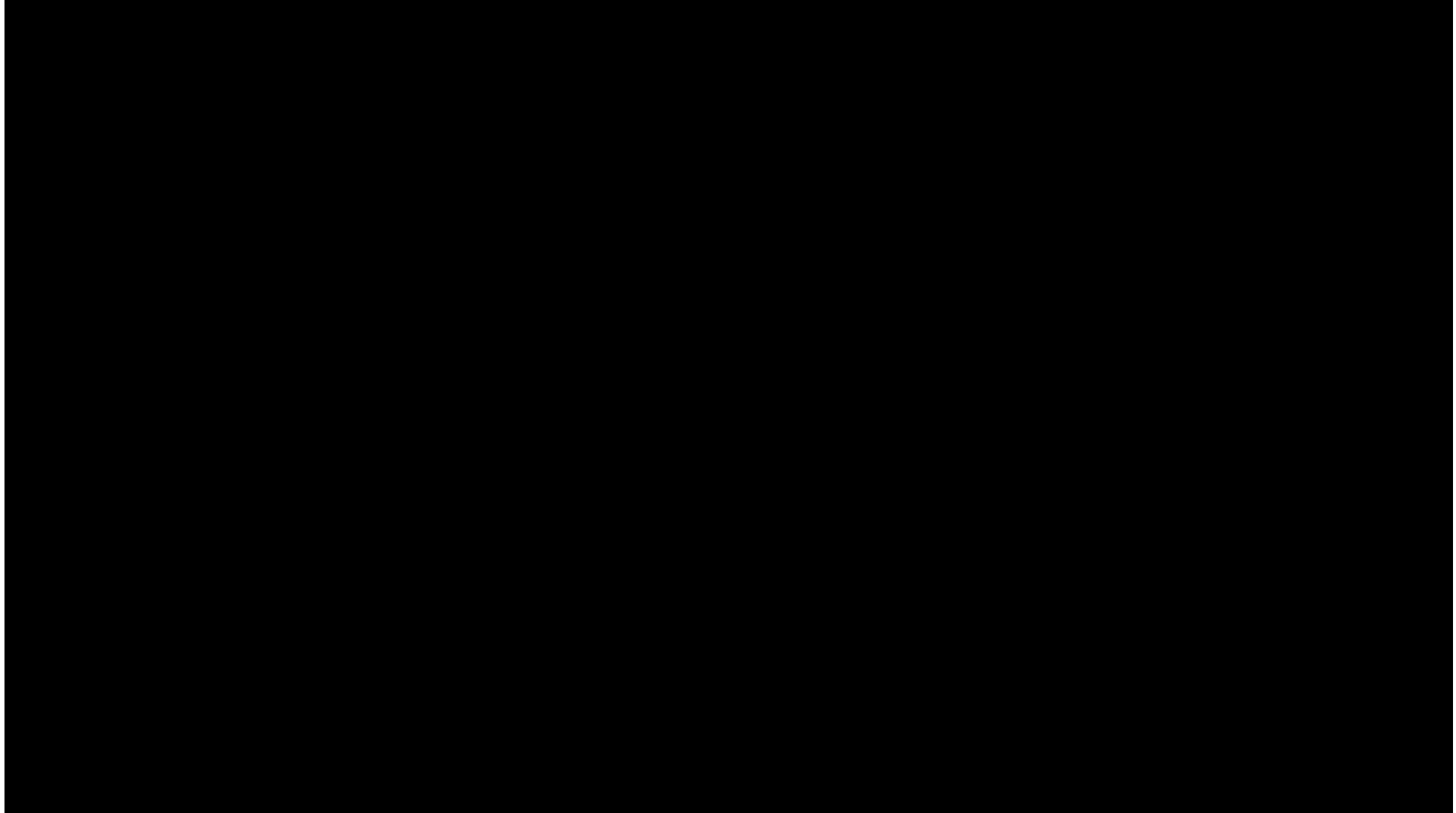


MENARA WARISAN





AR APPLICATIONS IN CONSTRUCTION



Plan

Design

Construct

Digital fabrication



Source: inhabitat.com



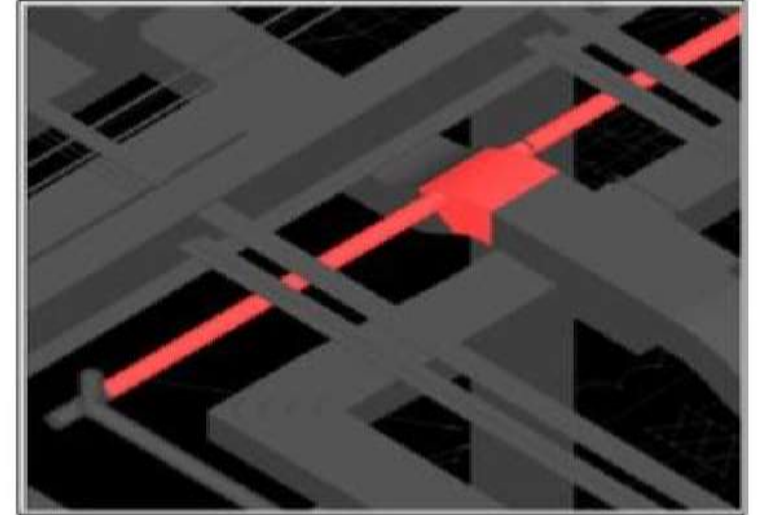
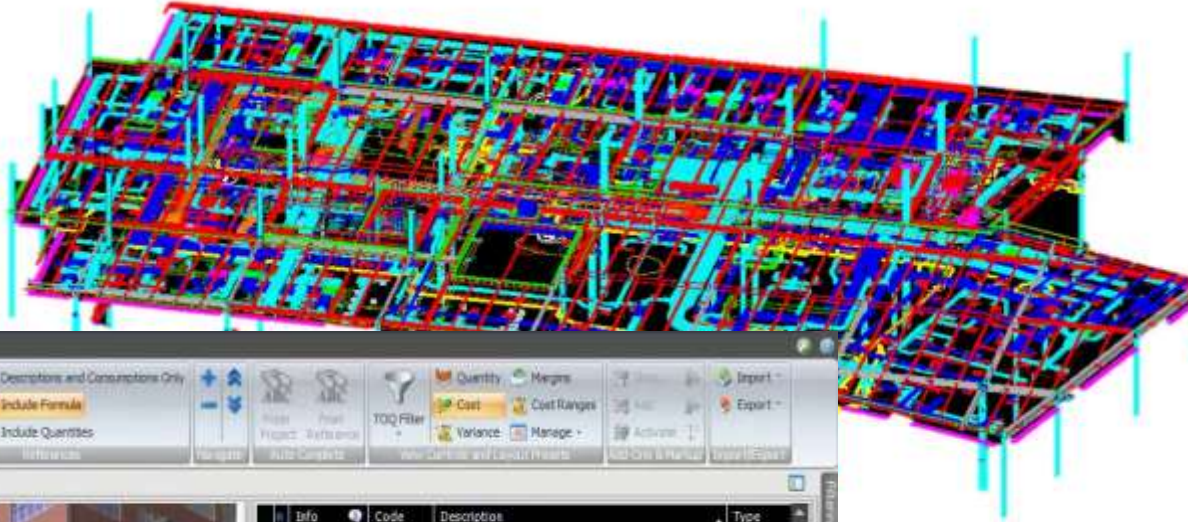
Source: dailymail.co.uk

Plan

Design

Construct

3D coordination



Yes TOC 3D View Cost Planner

View Dashboard Define Settings Select Module Import From Excel Compare & Update Define Targets

Content Edit Tags

Model Management Model Register

Takeoff Takeoff Model Manage Takeoff

Cost Planning Plan Cost Explore Cost

Reports Create Reports

Info Code Description Type

Quantity	Code	Description	Unit	Value
	A1012_001_Pile Cap-ID			(49)
	A1021_001_CP RC Pile ID			(196)
	A1031_001_Slab on Grade-ID			(1)
	B1012_005_CP RC Slab-ID			(9)
	B1012_025_CP RC Wall-ID			(6)
	B1012_025_CP RC Column-ID			(168)
	B2011_005_Ext Metal Wall Panel-80021_020-ID			(368)
	B2011_020_Ext Metal Wall Panel-031-ID			(2)
	B2011_020_Ext Metal Wall Panel-ID			(40)
	B2022_020_Ext Glazing System_clear-ID			(4)

2 Quantities calculated automatically

1 Elements provide geometry

Code	Description	Source Qty	Consumption	Waste	Qty	UOM	Unit Cost	CostPar.	Net Total	%Parent
000	UNION OFFICE ASSURANCE	15,000.0	1,000	1,000	15,000.0	SF	215.30	N/A	3,250,740.00	N/A
A	SUBSTRUCTURE	15,000.0	1,000	1,000	15,000.0	SF	18.30	18.30	275,740.00	8.53 %
[0]	Pile	196.0	1,000	1,000	196.0	EA	1,000.00	13.07	196,000.00	71.08 %
[1]	Pile Caps	68.1	1,000	1,000	68.1	CY	400.00	2.04	30,625.01	11.11 %
[2]	Slab on Grade	9,823.2	1,000	1,000	9,823.2	SF	5.00	3.27	49,115.84	17.61 %
E	SHELL	15,000.0	1,000	1,000	15,000.0	SF	65.00	65.00	975,000.00	30.18 %
C	INTERIORS	15,000.0	1,000	1,000	15,000.0	SF	32.00	32.00	480,000.00	14.99 %
D	SERVICES	15,000.0	1,000	1,000	15,000.0	SF	300.00	100.00	1,500,000.00	46.41 %
Z	ALLO	15,000.0	1,000	1,000	15,000.0	SF	0.00	0.00	0.00	0.00 %

3 Model based quantities drive cost plan

Tools: NavisWorks (Clash Detective), Solibri Model Checker

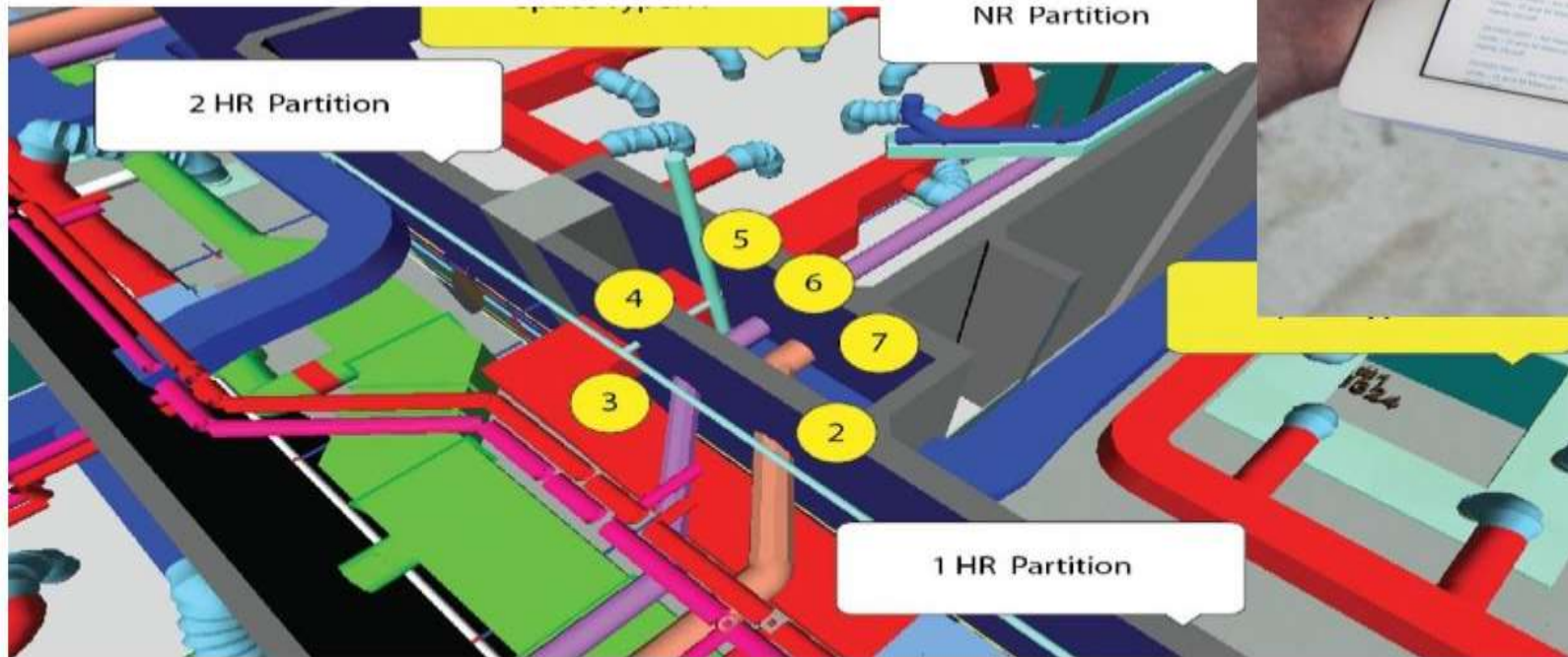
Plan

Design

Construct

Operate/Maintain

Assets



http://case-inc.com/system/files/imagecache/g80_x_550/CASE-HOAR-CHILDRENHOSP-WEB_01_o.jpg

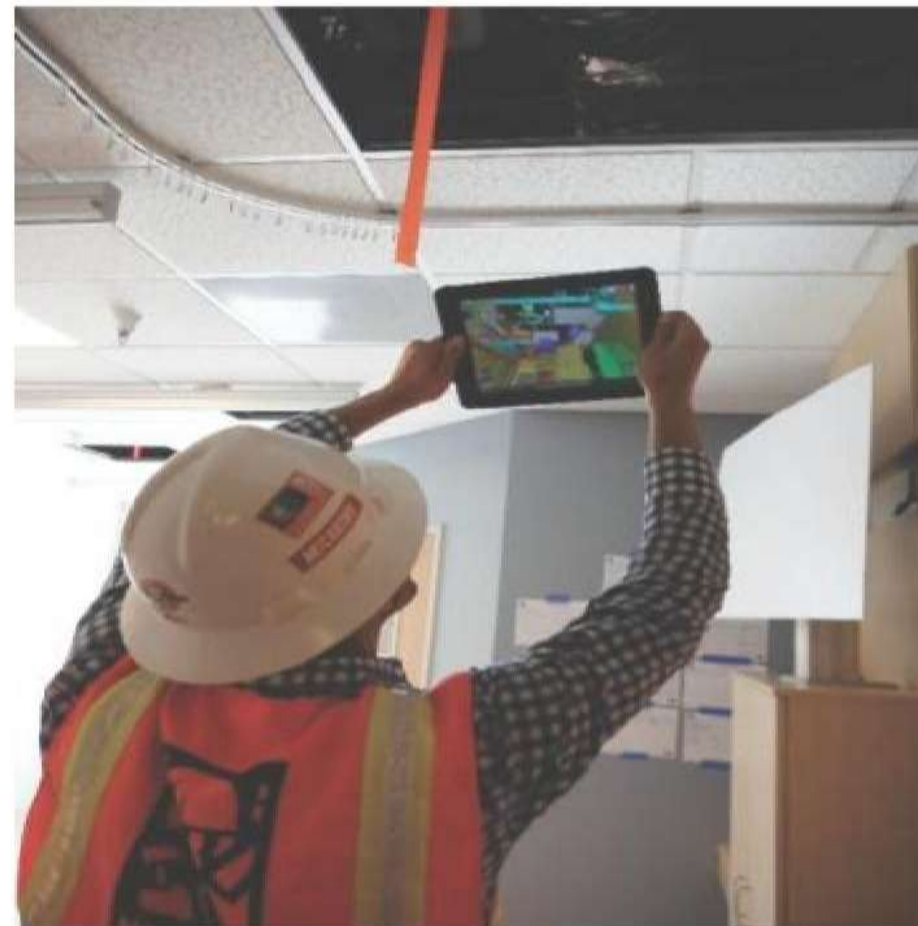
Plan

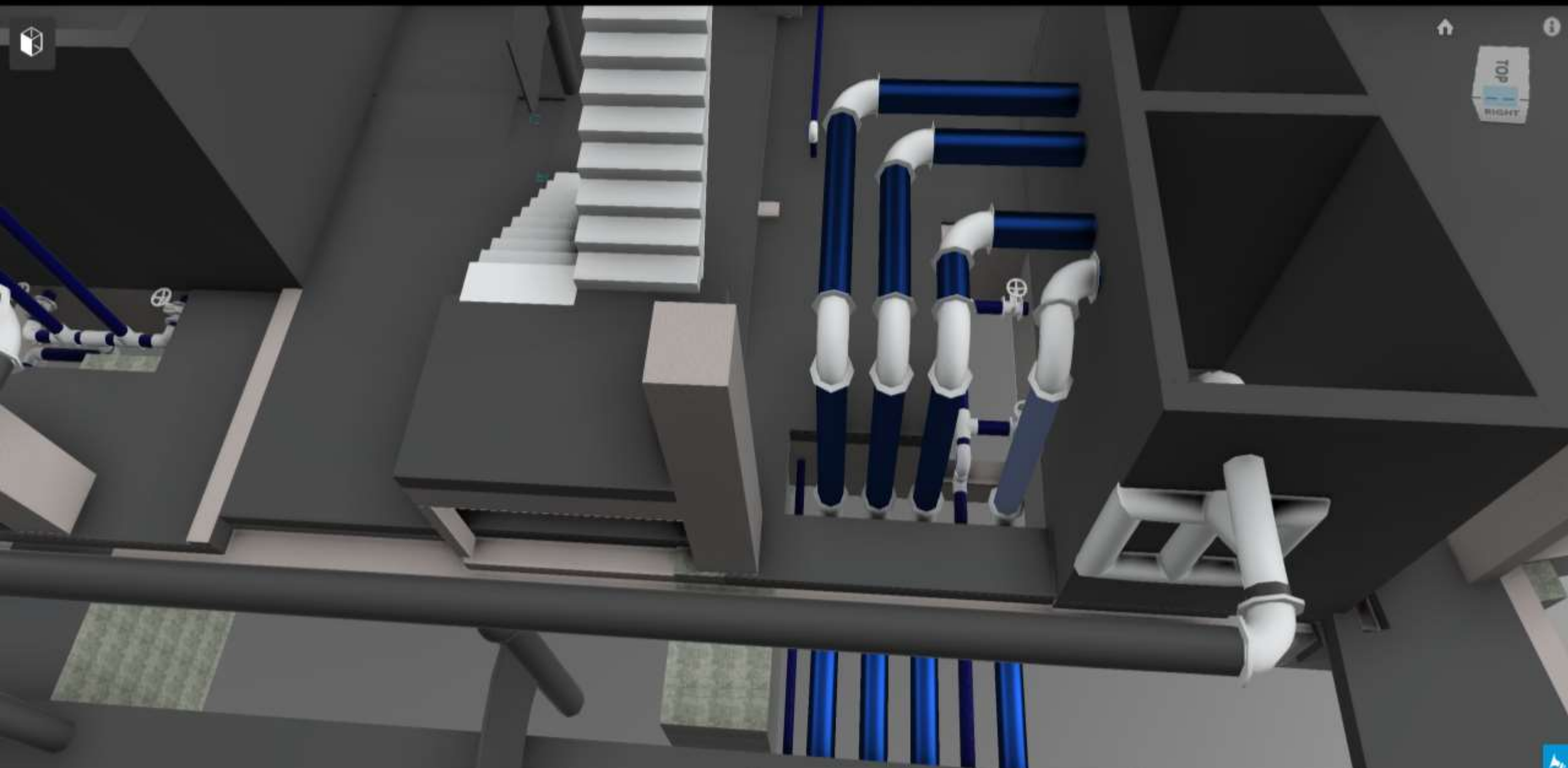
Design

Construct

Operate/Maintain

Assets





PIPE TYPES

Item

Name	Pipe Types
Type	Pipes: Pipe Types: Syphonic
GUID	61f343b6-ced6-4359-badd-59540f25f013
Icon	Geometry
Hidden	No
Required	No
Material	HDPE
Source File	PRF_P4_F09_P01_MEC-SYF.rvt
Layer	F8,F9&F10_03_Podium_Level P1

Material

Name	HDPE
Ambient.Red	0.498
Ambient.Green	0.498
Ambient.Blue	0.498
Diffuse.Red	0.498
Diffuse.Green	0.498
Diffuse.Blue	0.498



Model Linked to FM Database

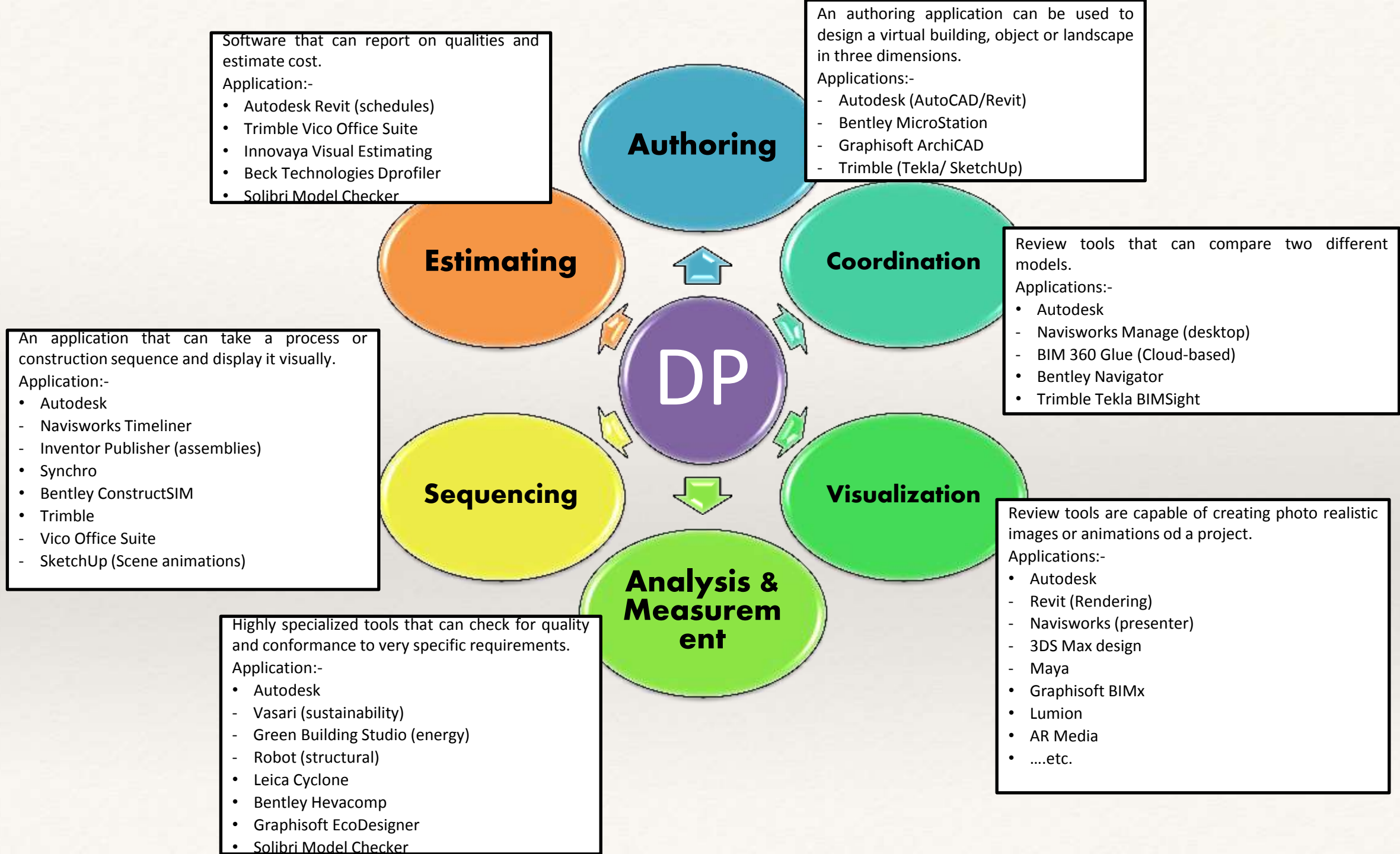
The screenshot displays a software interface for FM management. On the left, a sidebar menu under 'Lead Lease' includes options like 'Data View', 'Diagrams and Product Data', and 'BIM Real Time Data'. The main area shows a 3D model of a chiller system with various components labeled: 'Expansion Tank', 'Hot water Storage Tank', 'Chiller Water Pump', 'Chiller', and 'Open Loop Condenser Water Pump'. A red arrow points from the 3D model to a document titled '30HXA HXC076-271 Controls, Start-Up, Operation, Service, and Troubleshooting'.



FM MANAGEMENT DASHBOARD BY USING QR CODE

AR IN PROPERTY SECTOR





*RESULTS IN
IMPLEMENTING
BIM TECHNOLOGY*

Results – Rework

Scope	Baseline	Actual
Mechanical	10%	<0.5%
Plumbing	10%	<1%
Electrical	10%	5%
Framing	5%	0.5%

50

-



From expected in
acute care in CA

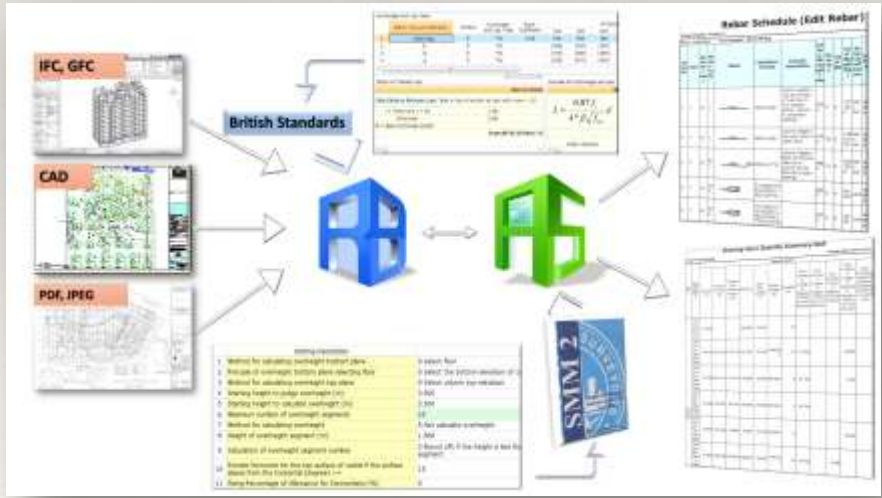
95%

Results – Labor Productivity

Scope	Baseline	Planned	Final
Mechanical	100%	105%	120%
Plumbing	100%	100%	106%
Electrical	100%	114%	104%
Framing	100%	122%	128%

6 – 28%  In productivity

CASE STUDY	3 BLOCKS CONDOMINIUM IN JOHOR BAHRU	
No. of Floors	31	
GFA	1,700,000 sqft	
	WITHOUT BIM	WITH BIM TECHNOLOGY
Response to LA comments	6 - 8 weeks	7 days
Time Taken for Measurement	6 Weeks	2 Weeks
No. of QS involved	4	3



IMPROVEMENT

OUTCOME METRICS	CASE STUDY 1 (without BIM)	CASE STUDY 2 (with BIM)
RFI's due to Conflicts during CONSTRUCTION	677	2
Change Orders due to Conflicts during CONSTRUCTION	311	0
% Rework Hours compared to Total Hours	20%	Less than 1%
Minutes per day spent resolving issues between MEP trades	180	20-30



BIMore



Subscribe

The Channel for Building Information Modeling (BIM) in Malaysia. Sharing all types of activities happening in Malaysia. From all BIM play...
Show more

Uploads Public



MALAYSIA'S BIM DAY 2016 (PART 1): BIM PROCESS 'LIVE I...
88 views • 1 week ago



BIM in DO IT RTM TV1 on 09/11/2015 - Featuring Mohd...
23 views • 1 week ago



Patrick MacLeamy, the Chairman of buildingSMART Acknowledg...
35 views • 2 months ago



BIM Certification Program with Jabatan Pendidikan Kolej...
117 views • 2 months ago

THANK YOU



Contact information

For any enquiries and clarification kindly contact:

MOHD HARRIS ISMAIL

Hp: 012-304 3899

Email:

mhim2u@gmail.com