PERAN MAHASISWA TERKAIT IMPLEMENTASI BIM (BUILDING INFORMATION MODELLING) PADA PEMBANGUNAN INFRASTRUKTUR

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ONE

About BIM

WHAT IS BIM?

BIM or Building Information Modelling is a process for creating and managing information on a construction project across the project lifecycle. One of the key outputs of this process is the Building Information Model, the digital description of every aspect of the built asset. This model draws on information assembled collaboratively and updated at key stages of a project. Creating a digital Building Information Model enables those who interact with the building to optimize their actions, resulting in a greater whole life value for the asset. (NBS)

Why BIM?

What Can BIM Offer?

The ease of modification to aspects of a building by using just one model

The application of adjustments, such as cost, directly to the model

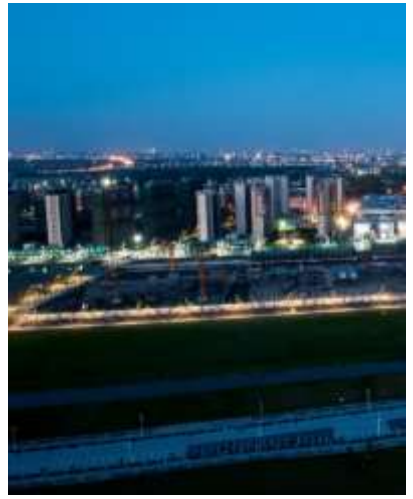
Control of project processes, minimising the time and costs of a project

Argument Against BIM

People are unwilling to adopt new methods.

Experts and organisations have their own cultures, posing significant challenges when standardising practices.

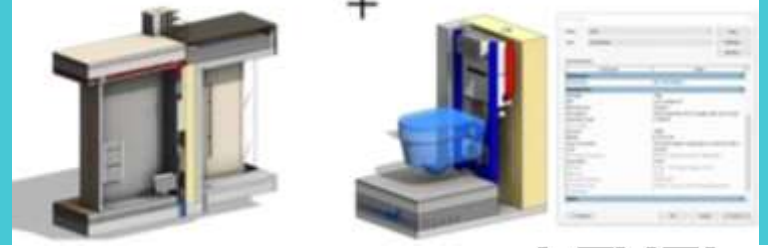
People are wary of mistakes when learning new tools.



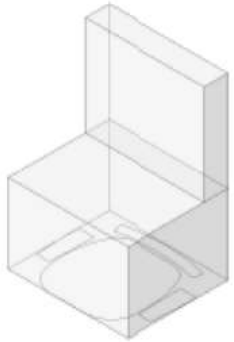

Arguments for BIM

LOD

LoD Level of Detail ..... Level of Developement ..... LOI Level of Information



LEVEL of DEVELOPMENT

LOD 100	LOD 200	LOD 300	LOD 400	LOD 500
				
Concept (Presentation)	Design Development	Documentation	Construction	Facilities Management
DESCRIPTION: **Office Chair** Arms, Wheels WIDTH: DEPTH: HEIGHT: MANUFACTURER: Herman Miller, Inc. MODEL: Mirra LOD: **100**	DESCRIPTION: **Office Chair** Arms, Wheels WIDTH: **700** DEPTH: **450** HEIGHT: **1100** MANUFACTURER: Herman Miller, Inc. MODEL: Mirra LOD: **200**	DESCRIPTION: **Office Chair** **Arms, Wheels** WIDTH: **700** DEPTH: **450** HEIGHT: **1100** MANUFACTURER: Herman Miller, Inc. MODEL: Mirra LOD: **300**	DESCRIPTION: **Office Chair** **Arms, Wheels** WIDTH: **685** DEPTH: **430** HEIGHT: **1085** MANUFACTURER: **Herman Miller, Inc** MODEL: **Mirra** LOD: **400**	DESCRIPTION: **Office Chair** **Arms, Wheels** WIDTH: **685** DEPTH: **430** HEIGHT: **1085** MANUFACTURER: **Herman Miller, Inc** MODEL: **Mirra** PURCHASE DATE: **01/02/2013**

(Only data in **red** is useable)

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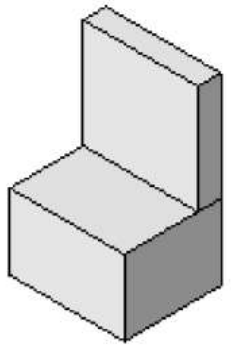
LEVEL of DETAIL

G0	G1	G2	G3
			
Schematic	Concept	Defined	Rendered
DESCRIPTION: Office Chair WIDTH: DEPTH: HEIGHT: MANUFACTURER: MODEL:	DESCRIPTION: Office Chair WIDTH: 700 DEPTH: 450 HEIGHT: 1100 MANUFACTURER: MODEL:	DESCRIPTION: Office Chair Arms, Wheels WIDTH: 700 DEPTH: 450 HEIGHT: 1100 MANUFACTURER: Herman Miller, Inc MODEL: Mirra	DESCRIPTION: Office Chair Arms, Wheels WIDTH: 700 DEPTH: 450 HEIGHT: 1100 MANUFACTURER: Herman Miller, Inc MODEL: Mirra

(based on AEC [UK] BIMprotocol v2.0 - Component Grade)

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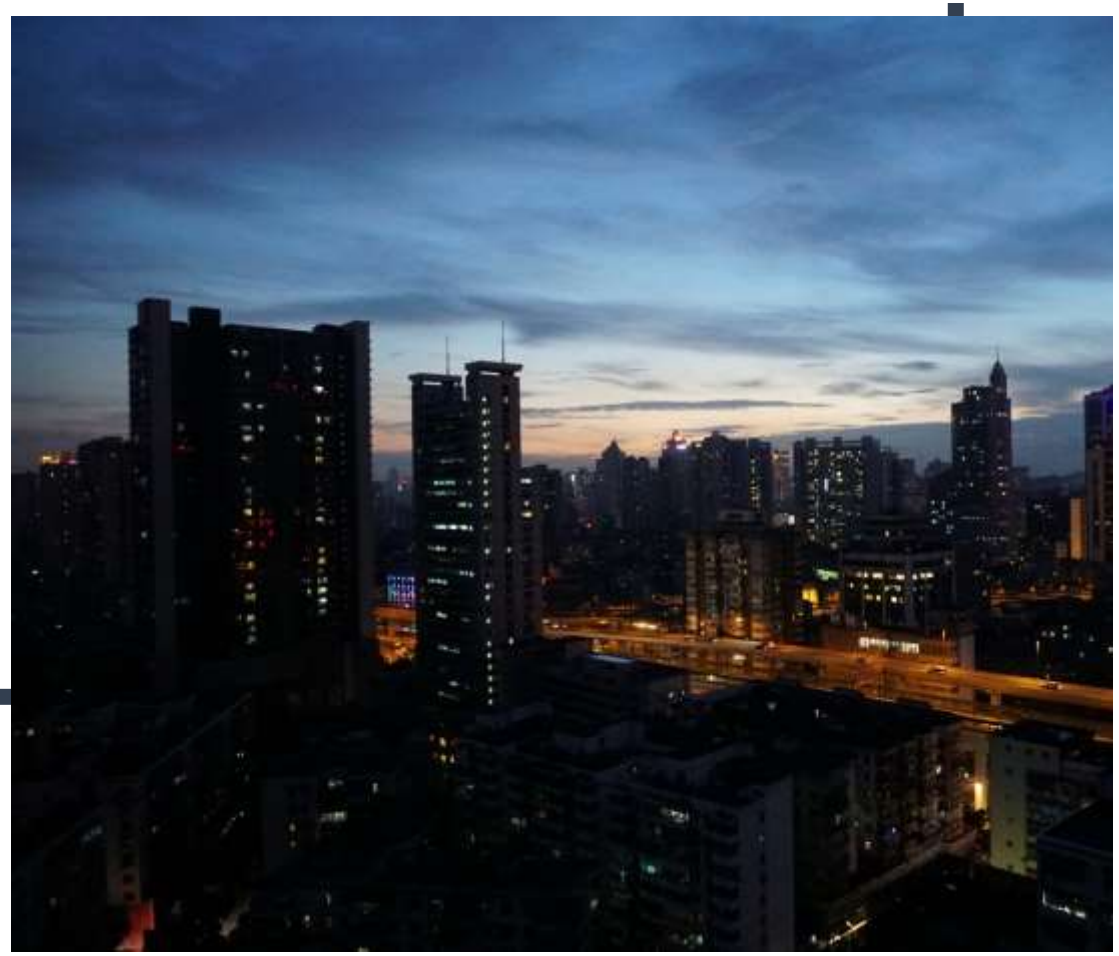
TWO



The Four Pillars of BIM

When considering BIM, it can be helpful to consider these four significant factors: Policy, People, Technology, and Process

Policy

MENTERI PEKERJAAN UMUM DAN PERUMAHAN RAKYAT
REPUBLIK INDONESIA

PERATURAN MENTERI PEKERJAAN UMUM DAN PERUMAHAN RAKYAT
REPUBLIK INDONESIA
NOMOR 22/PRT/M/2018
TENTANG
PEMBANGUNAN BANGUNAN GEDUNG NEGARA

13. Penggunaan *Building Information Modelling* (BIM) wajib diterapkan pada Bangunan Gedung Negara tidak sederhana dengan kriteria luas diatas 2000 m² (dua ribu meter persegi) dan diatas 2 (dua) lantai. Keluaran dari perancangan merupakan hasil desain menggunakan BIM untuk:
    a. gambar arsitektur.
    b. gambar struktur.
    c. gambar utilitas (mekanikal dan elektrikal)
    d. gambar lansekap.
    e. rincian volume pelaksanaan pekerjaan.
    f. rencana anggaran biaya

PRESIDEN
REPUBLIK INDONES

- 8 -

e. menetapkan standar remunerasi minimal bagi tenaga kerja konstruksi;
f. menyelenggarakan pengawasan sistem sertifikasi, pelatihan, dan standar remunerasi minimal bagi tenaga kerja konstruksi;
g. menyelenggarakan akreditasi bagi asosiasi profesi dan lisensi bagi lembaga sertifikasi profesi;
h. menyelenggarakan registrasi tenaga kerja konstruksi;
i. menyelenggarakan registrasi pengalaman profesional tenaga kerja konstruksi serta lembaga pendidikan dan pelatihan kerja di bidang konstruksi;
j. menyelenggarakan penyetaraan tenaga kerja konstruksi asing; dan
k. membentuk lembaga sertifikasi profesi untuk melaksanakan tugas Sertifikasi Kompetensi Kerja yang belum dapat dilakukan lembaga sertifikasi profesi yang dibentuk oleh asosiasi profesi atau lembaga pendidikan dan pelatihan.

(5) Untuk mencapai tujuan sebagaimana dimaksud dalam Pasal 4 ayat (1) huruf e, Pemerintah Pusat memiliki kewenangan:
a. mengembangkan standar material dan peralatan konstruksi, serta inovasi teknologi konstruksi;

ISO International Organization for Standardization

ISO/TS 12911:2012
Establishes a framework for providing specifications for the commissioning of building information modelling (BIM).

ISO 19650-1:2018
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) -- Information management using building information modelling -- Part 1: Concepts and principles

ISO 19650-2:2018
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) -- Information management using building information modelling -- Part 2: Delivery phase of the assets

Realistically, awareness is not the only reason for adopting BIM in the AEC. However, awareness can influence policy changes to adopt BIM where necessary. In the UK for instance, awareness of BIM and its benefits has led to the government calling for BIM to be mandatory for public projects. This policy change has influenced the private sector to follow suit.

“UNIVERSITY CURRICULUM ?”

People

A major issue experienced within non-BIM design processes is the matter of conflicting design issues. The ethos of having a core central BIM model is to facilitate a smoother transition through these issues by identifying conflicts earlier on in the project stages, thus reducing the negative effects on schedule and costs.

There is a research, and it surveyed practitioners and consultants working on projects that incorporate BIM in the UK.

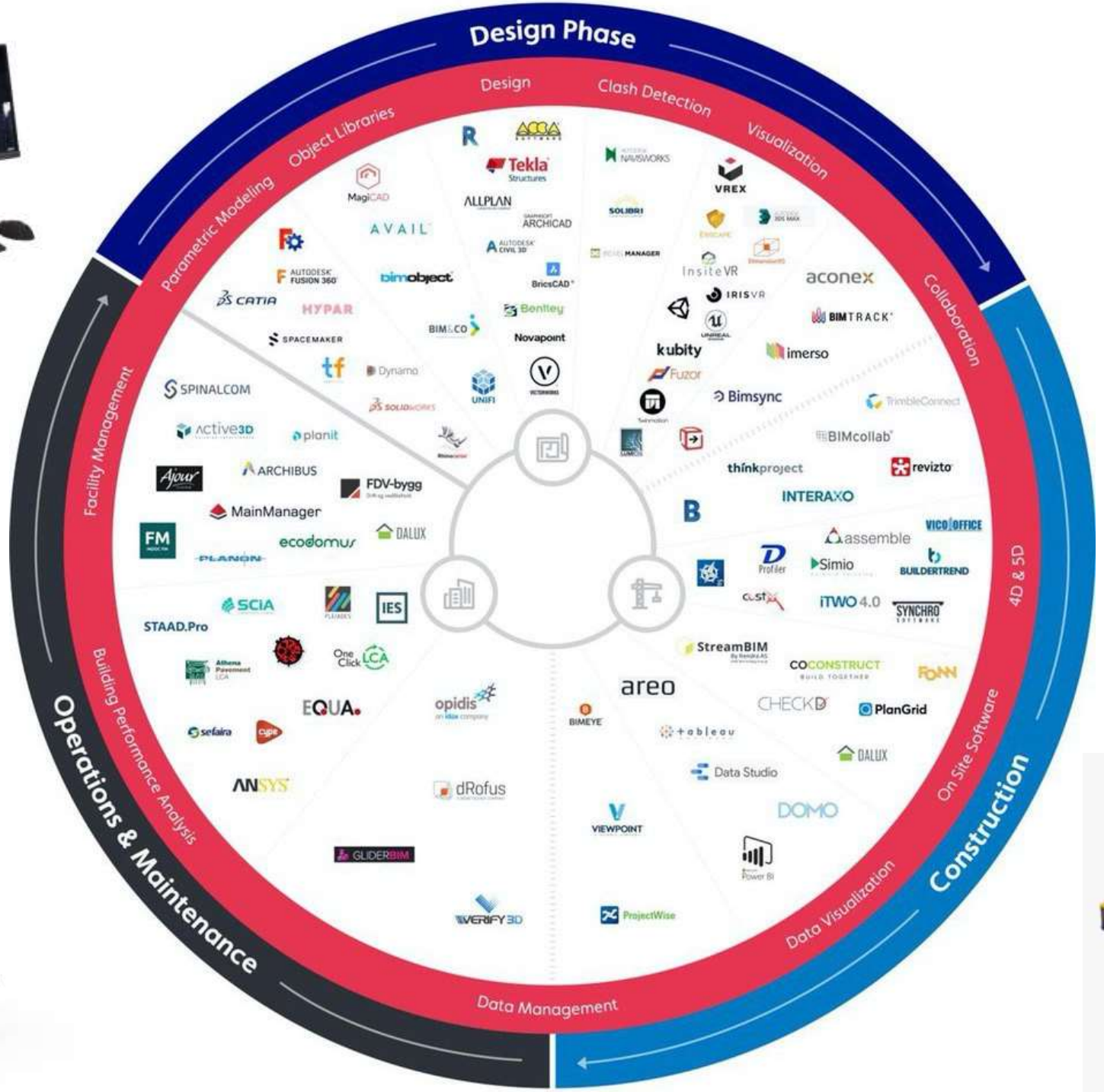
It will be findings demonstrate that there are several solutions that can be used depending on factors such as company size and resource availability.

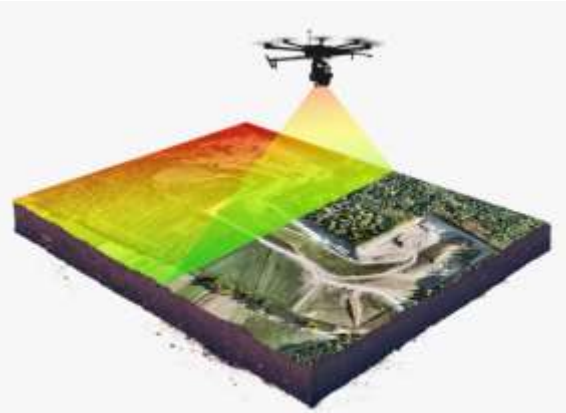
TECHNOLOGY

BIM technology has, over the years, helped in carrying out all the pre-construction design analysis and interrogation, resulting in reduction of conflicts and changes made during the construction phase that usually have a detrimental effect on a project in terms of wastage, quality, time and costs.

At the same time, the stringent energy analysis that can take place in the early stages of a BIM project aims to improve the performance of a project in regards to low-impact design.

The Four Pillars of BIM





Process

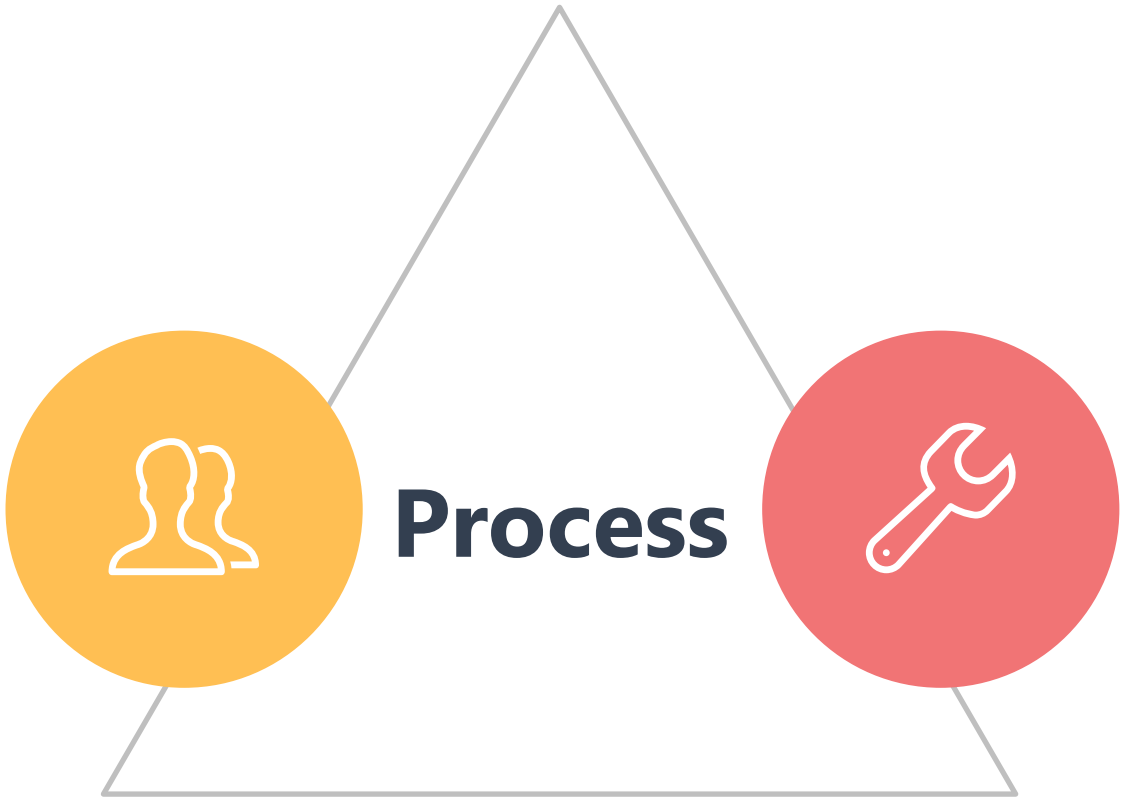
Having the design process completed within a BIM environment using a core 3D BIM model at the centre of the project can lead to multiple benefits later in the process.

The models can be analysed, allowing for a multitude of model interrogations to take place, including energy analysis, structural analysis, accurate schedules, and quantity take-offs.

It is argued that using BIM processes for building projects will improve energy efficiency, improve scheduling, facilitate a reduction of waste, and facilitate a reduction in costs.

Practice

Practice Makes Perfect



Pilot Project

Portofolio

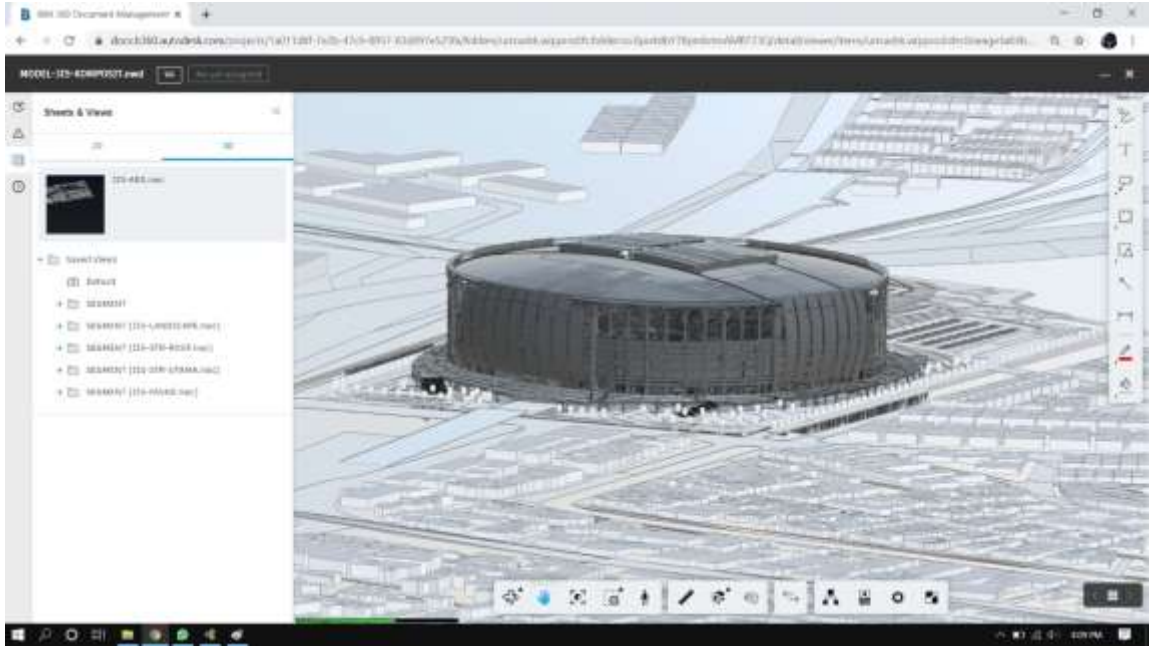
BIM Adoption

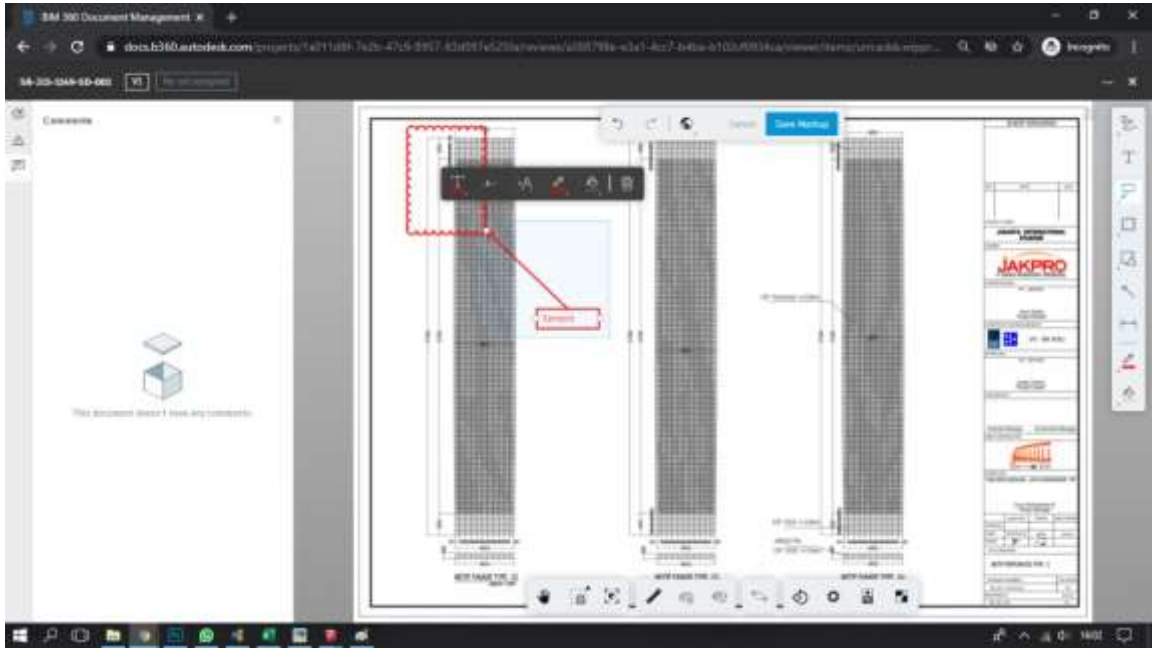
Detailed Engineering Design
Jalan Tol Ciranjang - Padalarang

Manajemen Konstruksi
Jakarta International Stadium

Perencanan
Persemaian Modern IKN

RTA Design and Build
Jalan Tol Ruas Binjai - Langsa
Seksi Binjai - Pangkalan Brandan

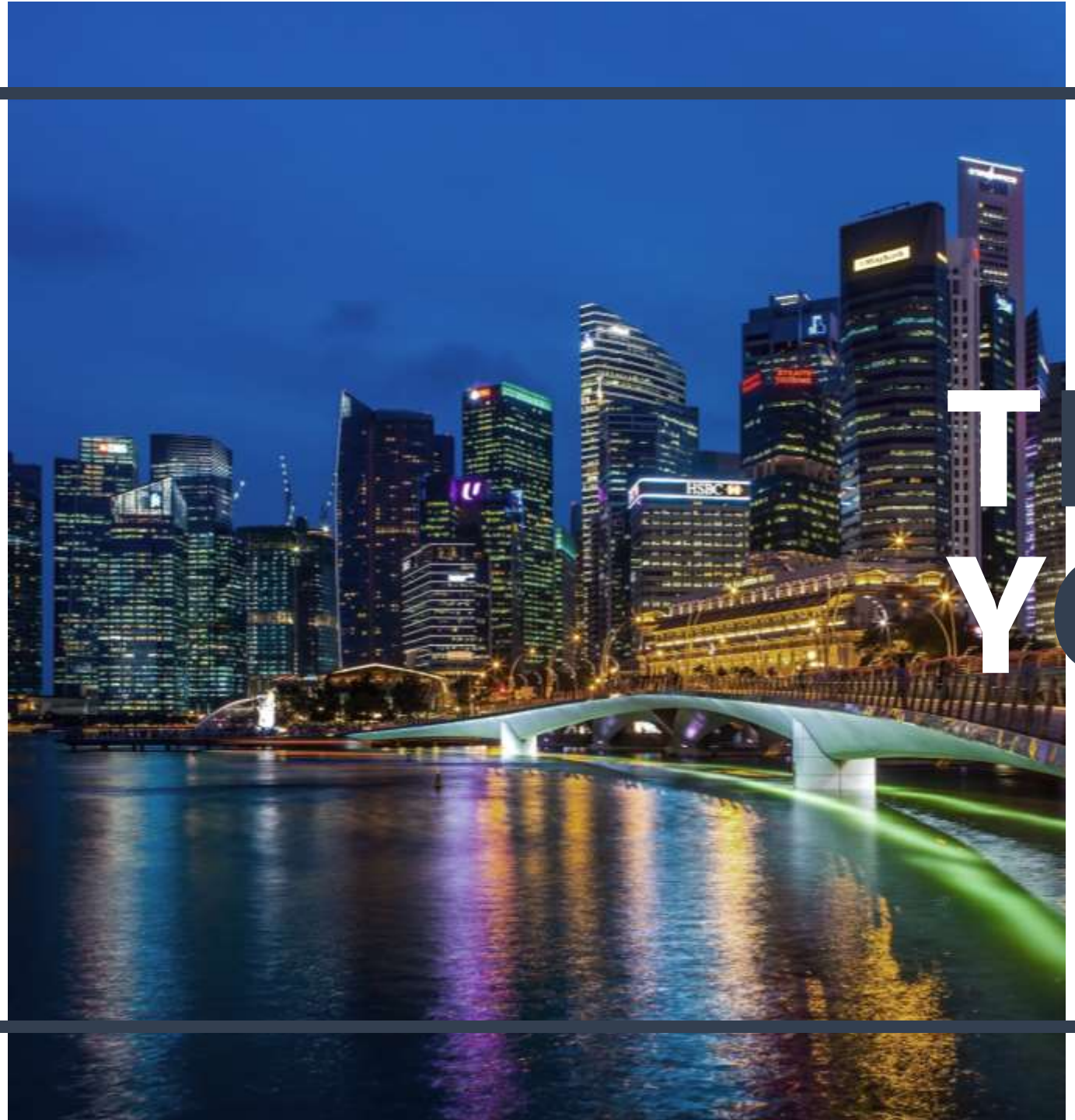




CDE IMPLEMENTATION ON CONSTRUCTION MANAGEMENT JAKARTA
INTERNATIONAL STADIUM PROJECT

PENYUSUNAN DETAIL ENGINEERING DESIGN (DED) PERSEMAIAN MODERN IKN, PROVINSI KALIMANTAN TIMUR


BIM VK
BUMN UNTUK INDONESIA
VK
PENYUSUNAN DETAIL ENGINEERING DESIGN (DED) JALAN TOL CIRANJANG - PADALARANG
VIRAMAKARYA
VIRAMAKARYAOFC
VIRAMA KARYA
WWW.VIRAMAKARYA.CO.ID



THANK YOU