

VIRTUAL ENGINEERING & DIGITAL TWIN

SRITRUSTA SUKARIDHOTO, PH.D

PROFIL

- **Sritrusta Sukaridhoto, ST. Ph.D**
- Dosen tetap – Politeknik Elektronika Negeri Surabaya
- Pendidikan:
 - S1 – Institut Teknologi Sepuluh Nopember Surabaya, Indonesia
 - S3 – Okayama University, Jepang
- Bidang riset: IoT, Big Data, Multimedia
- Penghargaan:
 - IEEE Young Researcher, 500 Peneliti Indonesia 2020, dll
- Website: <http://dhoto.lecturer.pens.ac.id>

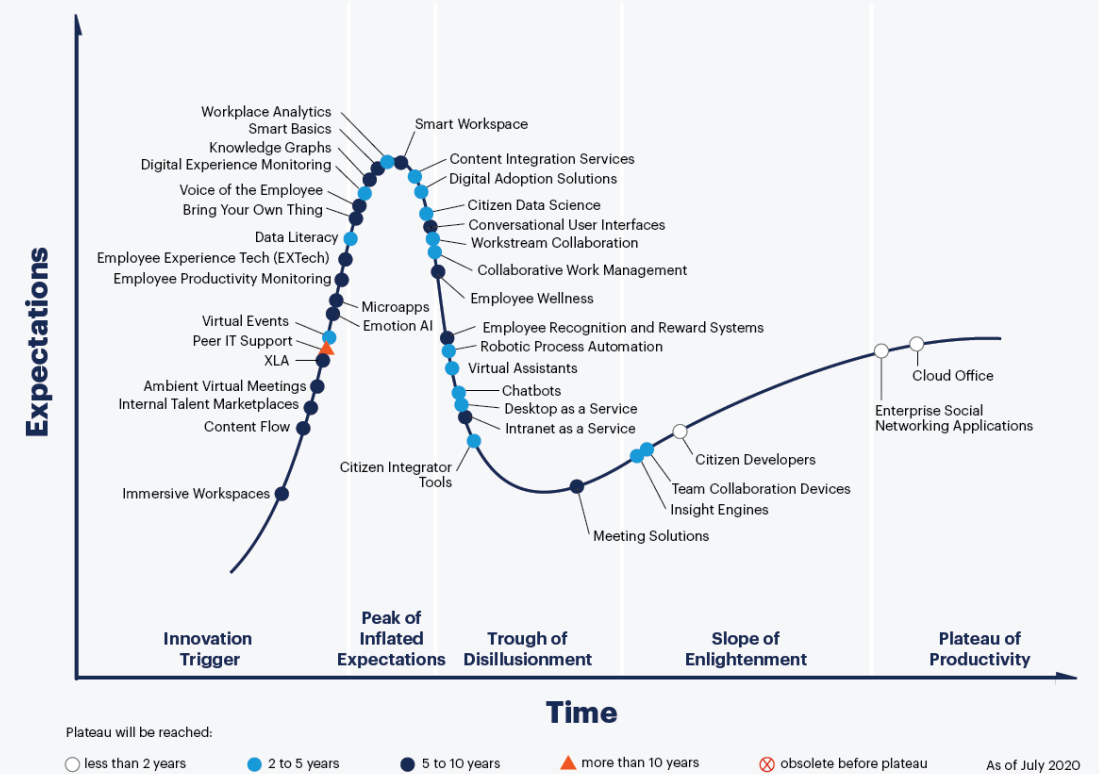


LATAR BELA

Hype Cycle for Emerging Technologies, 2020

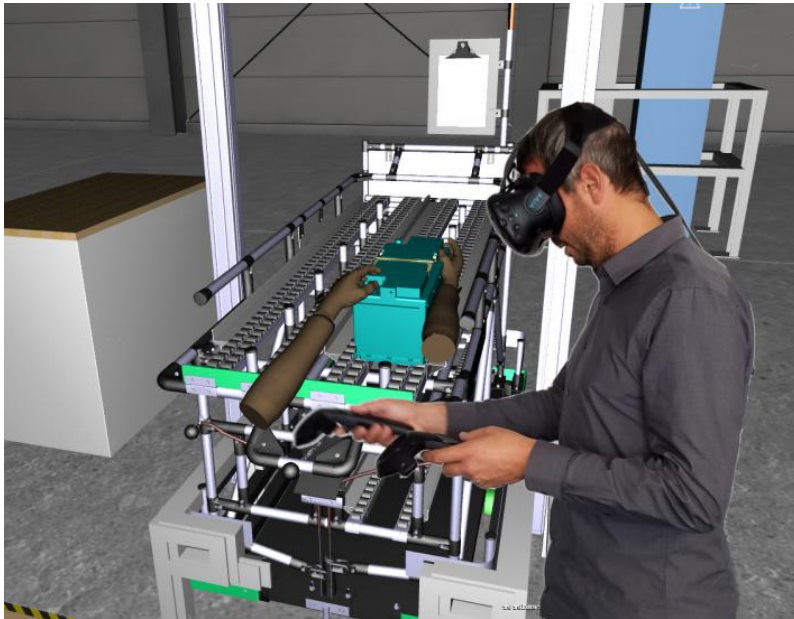


Hype Cycle for the Digital Workplace, 2020

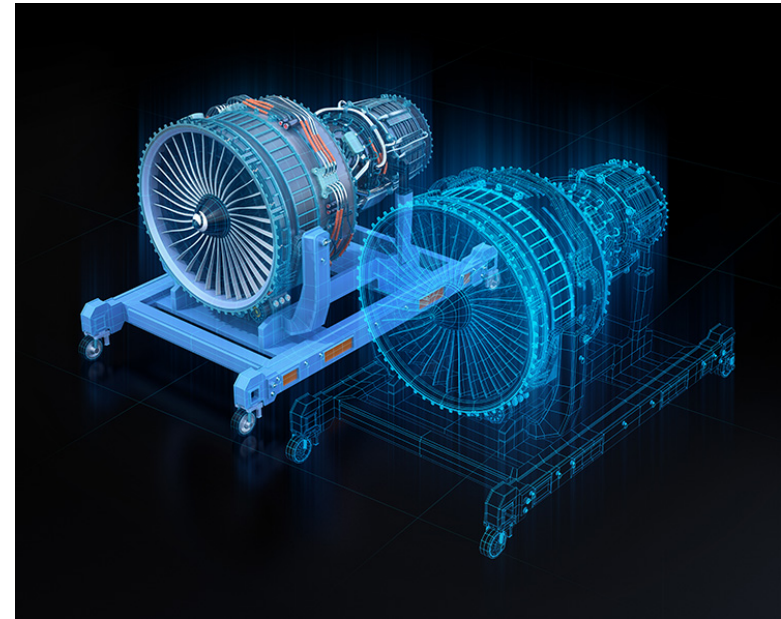


TEKNOLOGI

Virtual Engineering



Digital Twin

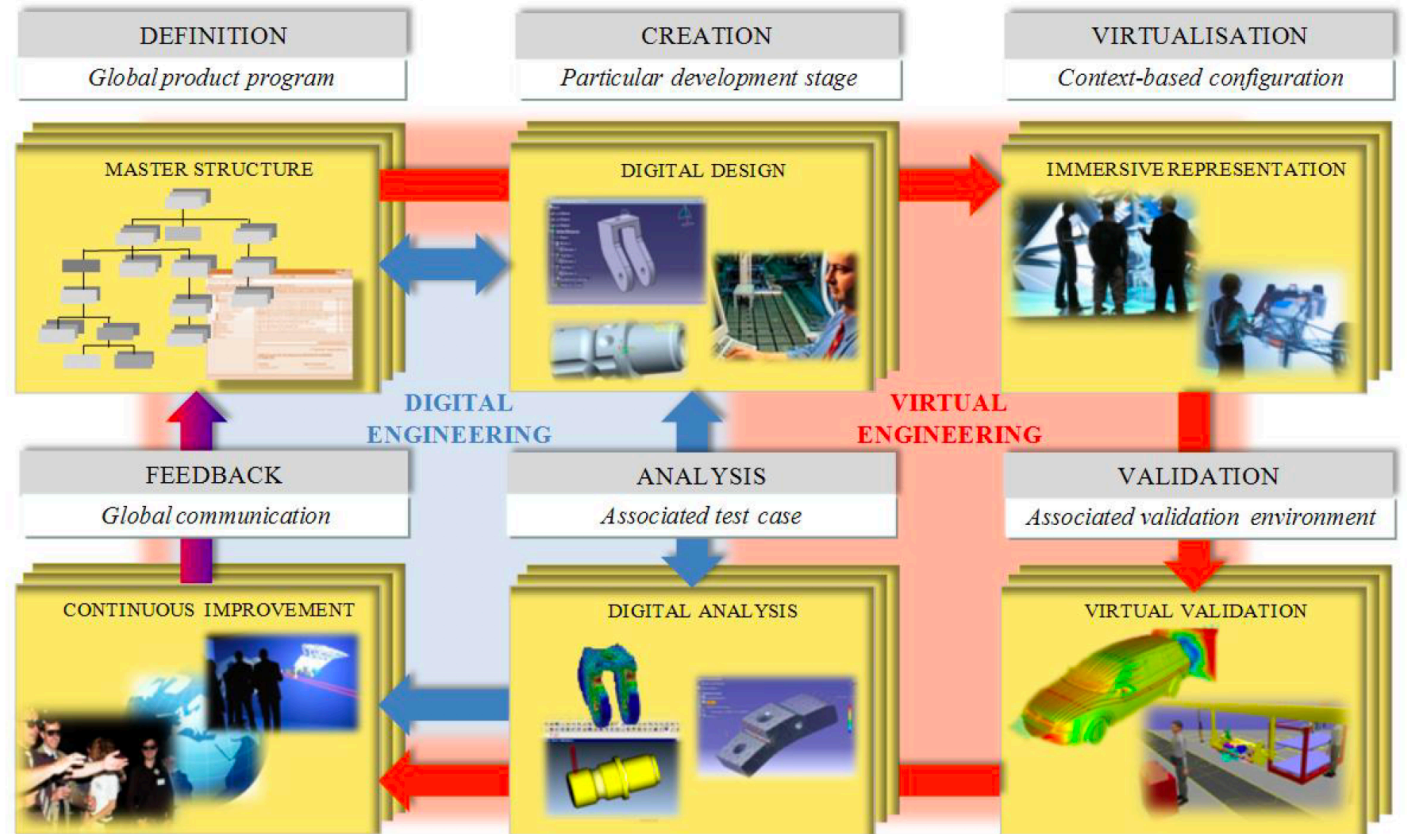


VIRTUAL ENGINEERING (VE)

- **Virtual engineering (VE)** is defined as integrating geometric models and related engineering tools such as analysis, simulation, optimization, and decision making tools, etc., within a computer-generated environment that facilitates multidisciplinary collaborative product development. Virtual engineering shares many characteristics with software engineering, such as the ability to obtain many different results through different implementations.

KONSEP

- Digital Engineering vs Virtual Engineering



TEKNOLOGI KUNCI



Virtual reality



Computer-aided
manufacturing (CAM)

computational fluid dynamics (CFD)
finite elements analysis (FEA)
optimization of complex systems



Computer-aided engineering (CAE)

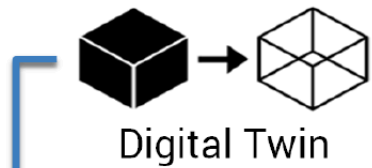


Engineering decision support tools

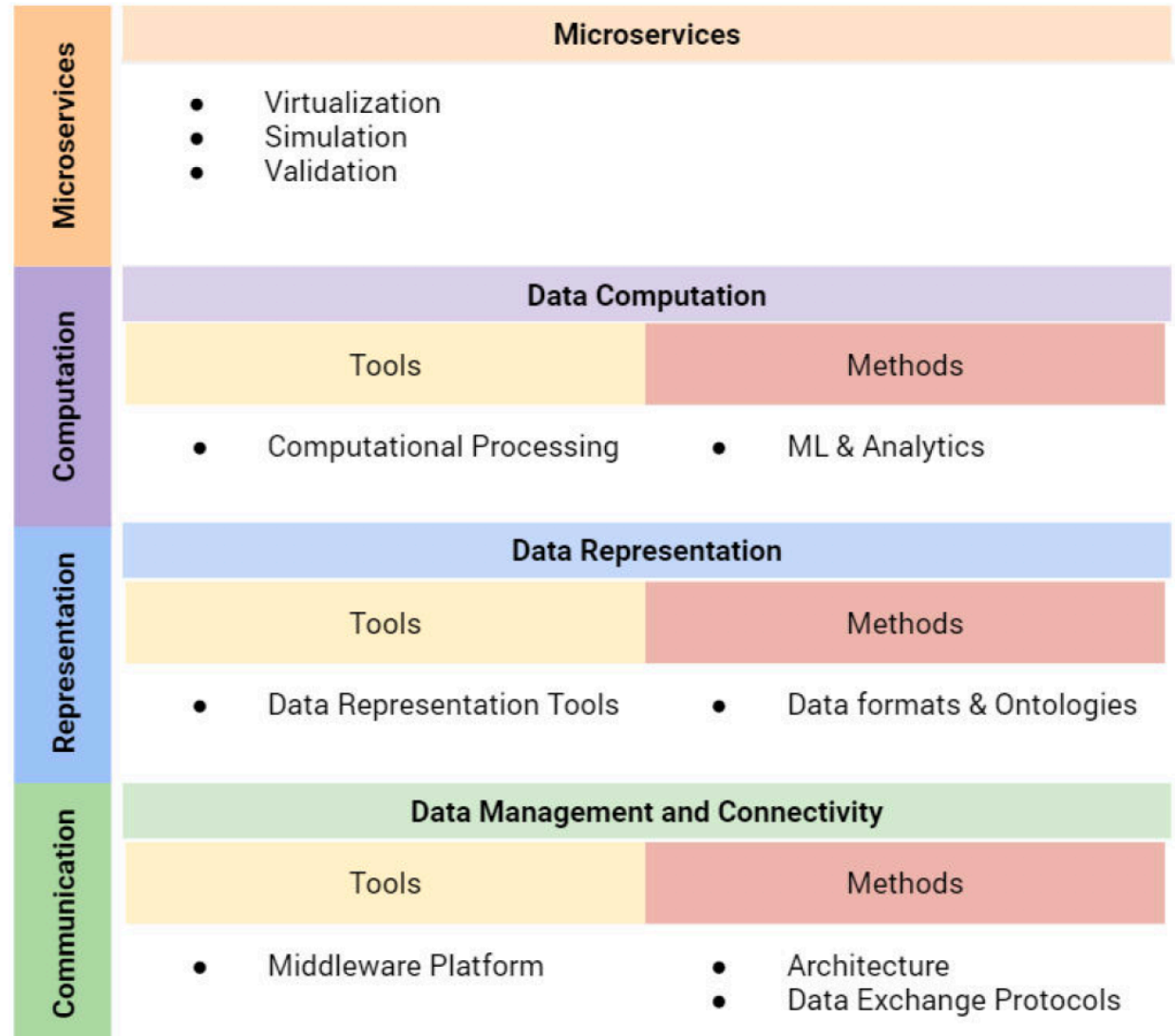
CONTOH



DIGITAL TWIN (DT)

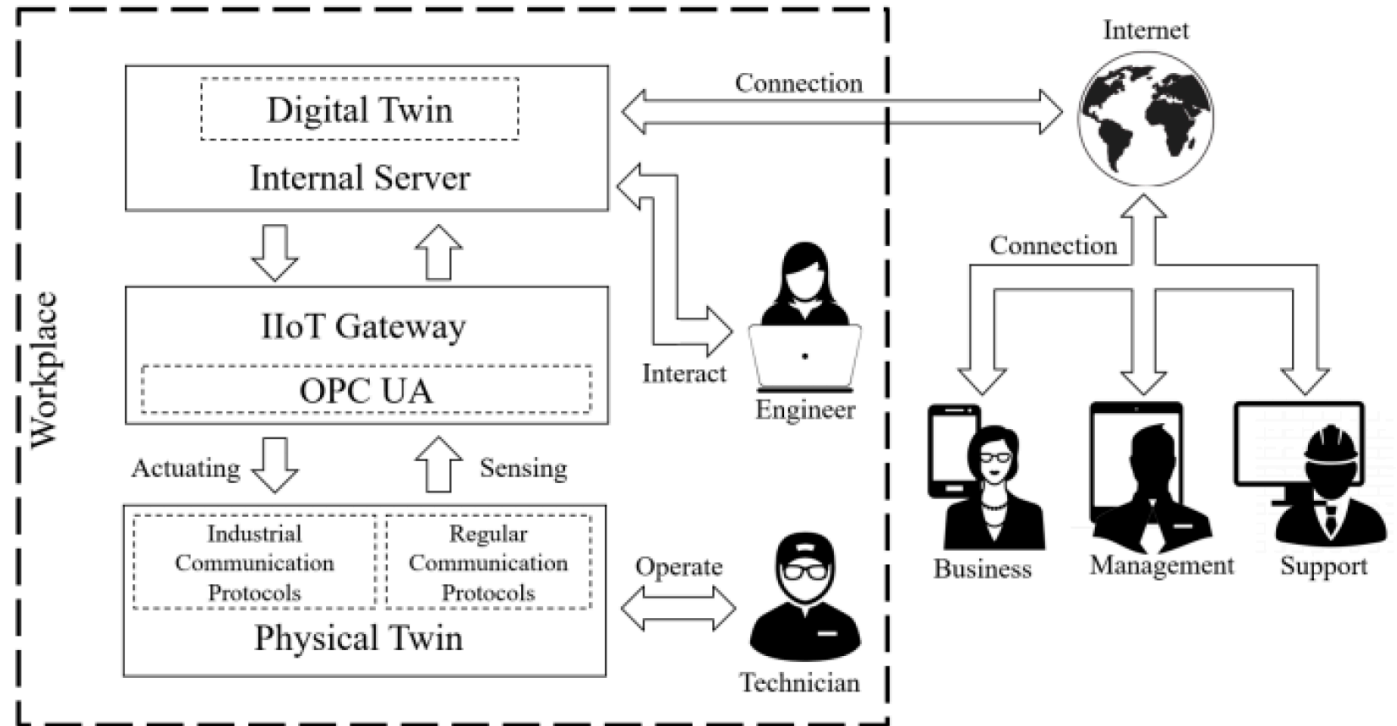


- Real-time 2-way communication
 - Simulation of various scenarios
 - Decision-support functionalities
- Digital
- Exact replica of physical asset
 - Available in CAD models
 - High fidelity
- Twin



ARSITEKTUR DIGITAL TWIN

- Digital Twin
- IIoT Gateway
 - Open Platform Communications Unified Architecture (OPC UA)
- Physical Twin



CONTOH



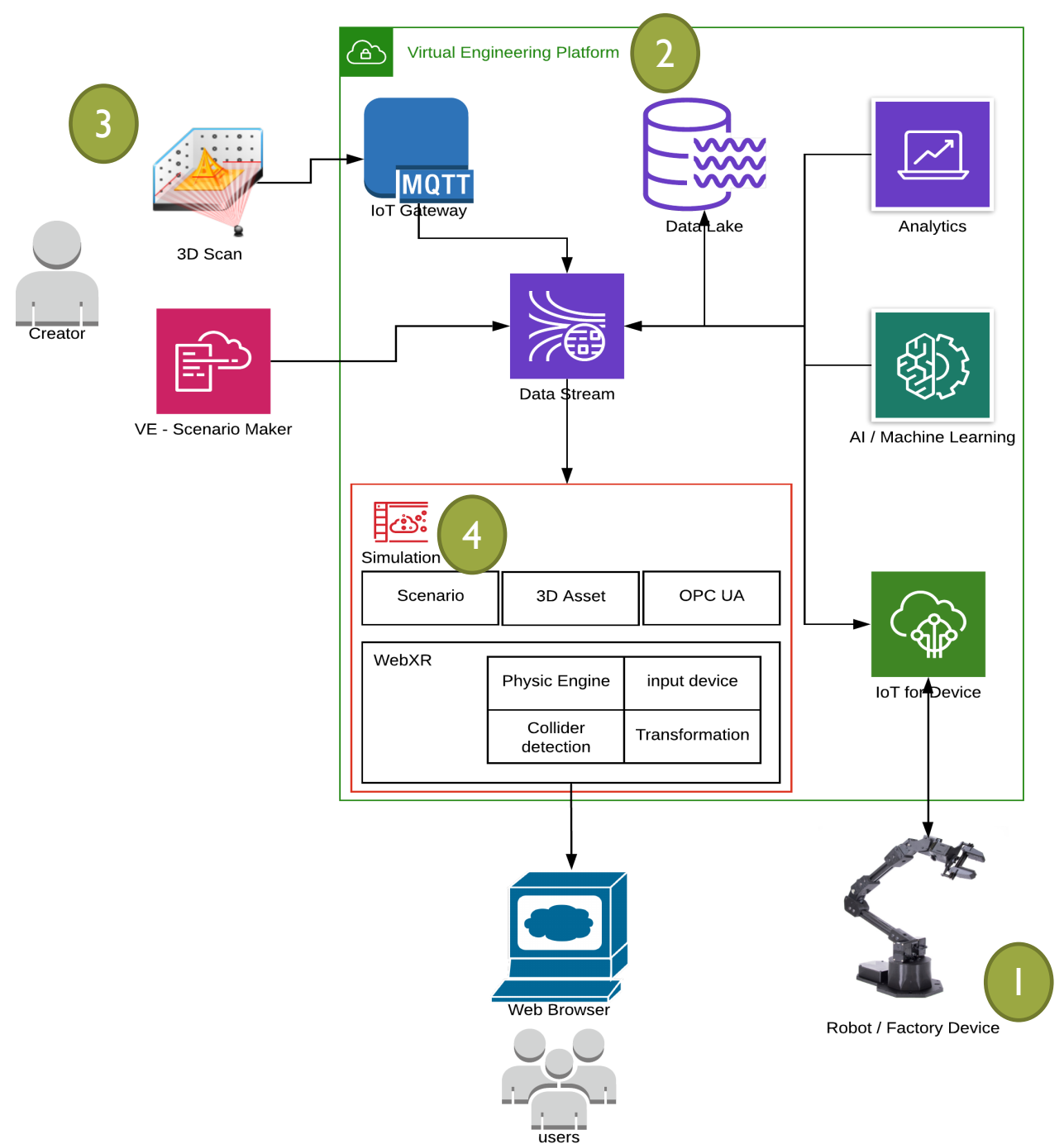


IMPLEMENTATION

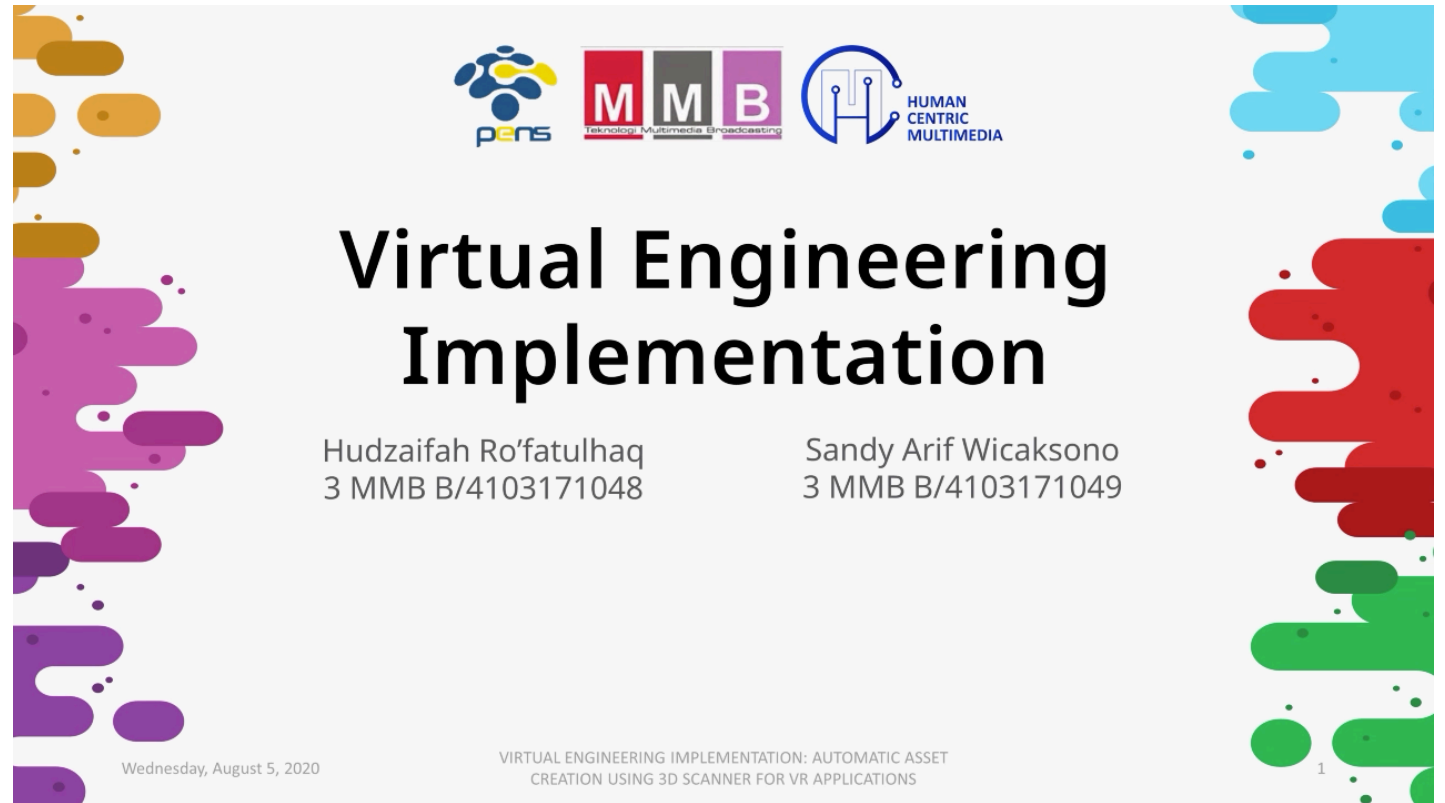
HCM-LAB






VIRTUAL ENGINEERING WITH DIGITAL TWIN



3D ASSET MANAGEMENT



   HUMAN
CENTRIC
MULTIMEDIA

Virtual Engineering Implementation

Hudzaifah Ro'fatulhaq
3 MMB B/4103171048

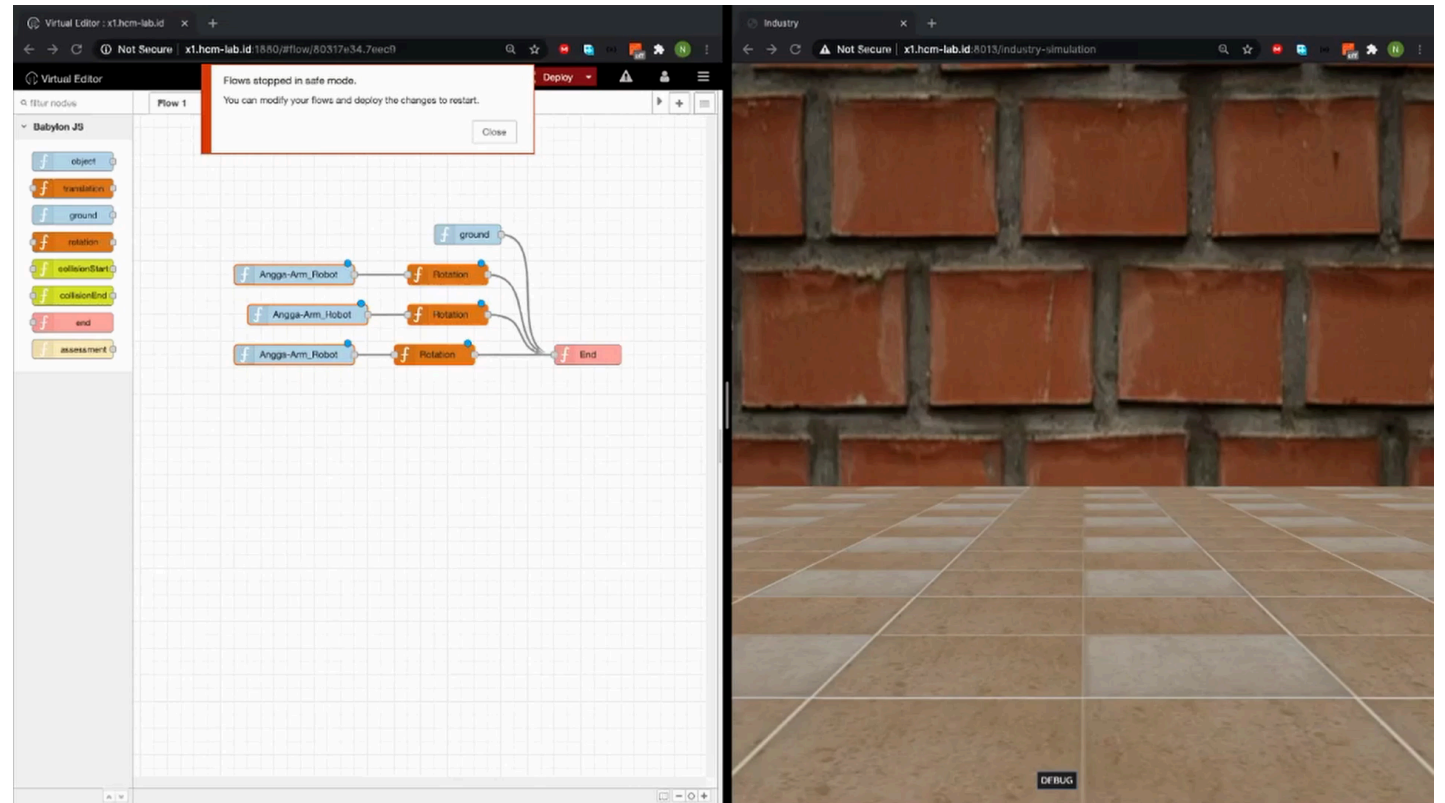
Sandy Arif Wicaksono
3 MMB B/4103171049

Wednesday, August 5, 2020

VIRTUAL ENGINEERING IMPLEMENTATION: AUTOMATIC ASSET
CREATION USING 3D SCANNER FOR VR APPLICATIONS

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SKENARIO



VIRTUAL ENGINEERING

HCM-LAB – VIRTUAL ENGINEERING TEAM

Dosen

- PENS
 - Sritrusta Sukaridhoto, Ph.D
 - Dr. Hestiasari Rante
 - Dwi Kurnia Basuki, MT
- Jacob Univ Germany
 - Prof Hendro Wicaksono

Mahasiswa

- PascaSarjana
 - Falah
 - Ilham
 - Naufal
- D4/D3
 - Erlangga
 - Sandy
 - Huda



Falah



Ilham



Naufal



Erlangga



Sandy



Huda



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