

DIGITAL TWIN SERVICES & SOLUTION

CONTENT

- 01 Introduction
- 02 Application of Digital Twin Technology
- 02 Digital Twin - Cybersecurity Simulator
- 02 Services & Solution
- 03 Reality Capture
- 05 3D As-Built Models For Digital Twin
- 06 Information Engineering For Digital Twin
- 08 About Us

INTRODUCTION



Arc Technologies combines Digital Twin creation capabilities with proven software solution, enabling Engineers, Architects and Facility Owners to implement this technology for Engineering, Design, Operations & Maintenance and Asset Management initiatives.

We specialize in creation and utilization Visual, 3-Dimensional and Information Digital Twin for the Oil & Gas, Petrochemical, Power industries and for Building & Infrastructures.

Digital Twin as defined by digital twin. CONSORTIUM

A Digital Twin is a virtual representation of real- world entities and processes, synchronized at a specified frequency and fidelity.

- Digital Twin systems transform business by accelerating holistic understanding, optimal decision-making, and effective action.
- Digital Twin use real-time and historical data to represent the past and present and simulate predicted futures.
- Digital Twin are motivated by outcomes, tailored to used cases, powered by integration, built on data, guided by domain knowledge, and implemented in IT/OT systems.

Our Area Of Expertise



Energy



Building



Infrastructure



Marine

Application of Digital Twin Technology

Digital Twin technology is now being adopted in the complete lifecycle management of Asset Intensive industries.

Arc Technologies Digital Twin services & solutions covers application of Digital Twin technology from planning phase to ensuring optimum performance of the Asset.

- Planning
- Engineering Design
- Architectural Design
- Construction
- Asset Management
- Operation & Maintenance
- Asset Performance
- Digital Twin - Cybersecurity Simulator
- Facility Management Module
- Digital Twin - Internet of Things (IoT)
- Digital Twin - RTLS (Real Time Location and Assets Tracking)



Digital Twin - Cybersecurity Simulator



To enhance and assess the skills of IT engineers and operators, a Digital Twin of the Cyber Security ecosystem of the actual 'live' plant is replicated. A mock-up of the plant can be incorporated to provide an even more realistic training experience. This can be achieved by way of the OT Scada Cyber Range which contains elements of the actual control and shut-down system together with the actual cyber security architecture.

Service & Solutions

We invest in the latest hardware & software technology for the creation of Digital Twin. Our services can begin with the basic capture of location high-definition photos & videos. This can be delivered Visual Twin software solution.

On projects where accurate 3-Dimensional Twin is required, Arc Technologies is powered by third party laser scanners. Accurate & complete high density point cloud data are captured, pre-registered and quality checked while our personnel are still on site.

Visual & 3-Dimensional Twin data is combined with Engineering specifications, Schematic drawings, Datasheets, Operating manuals, Maintenance data etc. in Industry standard software to allow us to deliver the Information Twin on projects.



Reality Capture

For creation of Visual-Dimensional Digital Twin, Arc Technologies utilizes Reality Capture technology. Reality Capture combines specialized high technology equipment and software to capture data of the physical asset or environment. The data captured is then processed and converted into 3D digital representation of the physical asset in form of high-resolution Point Cloud, Reality Mesh model or 3D CAD model.



3D LASER SCANNING PHOTOGRAMMETRY 360° VIDEOGRAMMETRY

Arc Technologies' Reality Capture methodology is centered around our core service of 3D Laser Scanning and Photogrammetry. Our advance workflow enables us to provide the fastest, the most complete and most accurate Reality Capture service.



CAPTURE



PREPARE



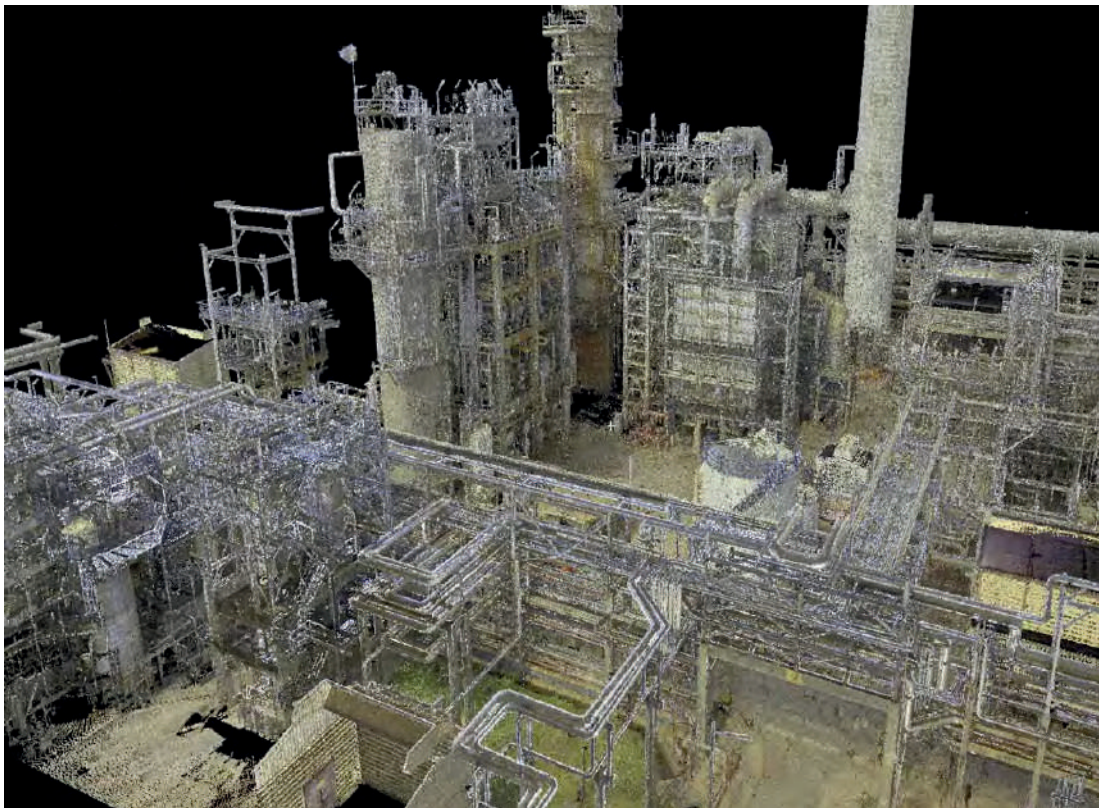
MANAGE/COLLABORATE



CONSUME/DELIVER

Together with our technology partners, Arc Technologies is pioneering the use of 3D Point Cloud and 3D Mesh model as the Visual-Dimensional Digital Twin.

3D Point Cloud captured with Laser Scanning



3D As-Built Models for Digital Twin

Arc Technologies' Digital Twin specializes in conversion of Industrial Plant, Building, Infrastructure and Marine reality capture dataset into As-Built 3D CAD Model. The 3D CAD model is converted and delivered in industry standard software solutions as a 3D Primitive model, 3D Semi-Intelligent Tagged model or a 3D Intelligent model where model objects are created based on Specifications & Catalogs. The 3D Intelligent model forms the Engineering Digital Twin becomes the base information for development of other Digital Twin application.



Arc Technologies Digital Twin has implemented and delivered As-built 3D model for implementation of Digital Twin technology in Brownfield Engineering & Design Plant Revamp projects and Asset Information Management (AIMS) projects. To convert 3D laser scan point clouds into 3D CAD model, we utilize the latest software solution in the market.

3D As-Built Models for Industrial Plant Digital Twin



3D As-Built BIM model for Building Digital Twin

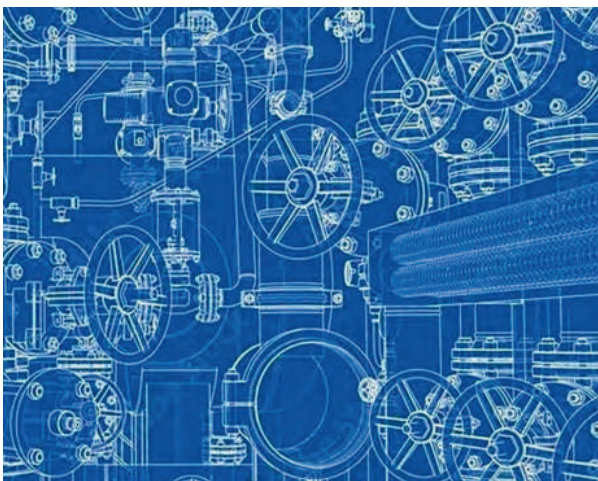


Information Engineering for Digital Twin

Through Reality Capture and 3D modelling, the visual and physical representation of an asset can be captured and presented digitally in a software to represent part of its Digital Twin DNA. To complete the Digital Twin, static and live data of the object need to be captured, structured and contextualized as information related to the object.

To create a Digital Twin of an industrial plant, the following steps are required. Arc provides the following consultancy & services to:-

1. Define the scope and objectives of your Digital Twin project.
2. Choose the modelling and simulation tools that suit your needs and capabilities.
3. Develop and validate the Digital Twin model.
4. Integrate the Digital Twin with your industrial control system.
5. Monitor and maintain the Digital Twin.




With the ever-growing implementation of Digital Twin technology utilizing advanced software applications, it is vital that organizations implementing such solutions have the support for correct setup and administration of these intelligent tools and creating & maintaining the data. This is a pre-requisite for the successful implementation of any Digital Twin initiative for the end user to obtain on going return on the investment.

With our pool of personnel, Arc can provide support for system implementation, administration and outsourcing.

- Application configuration & Set-Up
- Data Loading
- Administrator and User Training
- Development of User Guides and Procedures
- Specializing in intelligent engineering & design applications (2D & 3D)

In the life cycle of a facility, a multitude of engineering information is created, utilized, changed and stored in multiple applications. These information in hardcopy or in digital format is the engineering representation of the actual facility. Changes to the engineering information and the physical plant occurs periodically in the lifecycle of a facilities. The above scenarios compounds the difficulties in the (continuous) successful implementation of an intelligent engineering and data management initiative. Arc specializes in capturing, consolidating and standardizing 1D and 2D engineering information into digital software solution as part of the Engineering Digital Twin.



In the life cycle of a facility, a multitude of engineering information is created, utilized, changed and stored in multiple applications. This information in hardcopy or in digital format is the engineering representation of the actual facility. Changes to the engineering information and the physical plant occur periodically in the lifecycle of a facility. The above scenarios compound the difficulties in the (continuous) successful implementation of an intelligent engineering and data management initiative. Arc specializes in capturing, consolidating and standardizing 1D and 2D engineering information into digital software solutions as part of the Engineering Digital Twin.

P&ID

- Line List
 - Instrument List
 - Equipment List
 - Valve List/MTO
 - SP Item List
 - P&ID legend sheet
 - P&ID Drawing
 - PFD
-

Instrumentation

- Instrument Index
 - IO list
 - Alarm Trip Setting List
 - Datasheet/Process datasheet
 - Calculation Sheet
 - Cable and Panel Schedule
 - MTO
 - Wiring Termination Drawing
 - Loop Drawing
 - Hook up/Installation Drawing
-

Electrical

- Equipment List
- Load List
- Cable Schedule
- Small Power/Lighting/UPS
- Panel Schedules
- Single Line Diagram
- Switchgear Schematics
- Motor Schematics
- Connection Diagram

About Us



Arc Technologies is a Sarawak-based company specializing in a comprehensive range of digital solutions. From the ground up, we design and implement robust digital infrastructure to empower businesses. Our expertise encompasses cybersecurity solutions to safeguard your valuable data, and extends to innovative Energy & Sustainable Technologies that pave the way for a greener future. We don't just sell innovative tech solutions. Our focus is on futureproofing your business operations as you embark on your digital transformation

This means ensuring a robust cybersecurity and intelligent building framework for your digital operations from day 1, designed to scale with your business growth.

Arc Technologies is on a mission to create progressive, secure, and sustainable intelligent cities in Malaysia using state-of-the-art technological solutions.

Cybershield

We understand the critical importance of protecting your valuable data and systems. Our cybersecurity services encompass:

1. Cybersecurity Encryption
2. Cybersecurity System
3. Cybersecurity Operation Centre as a Service
4. Managed Security Service

Smart Building

We help you create intelligent and sustainable buildings with:

1. Net Zero Carbon
2. HVAC Optimization
3. Smart Facility Management

Systems

We integrate cutting-edge technologies to streamline your operations. Here are some examples:

1. Hospital Information System
2. Digital Twin Solution
3. Intelligent Water Management System

Defence

We contribute to a safer environment through:

1. RF Spectrum Monitoring
2. Counter Unmanned Aerial Vehicle System
3. Public Alert System

BOARD OF DIRECTORS



**LING LEE CHUON @
JAMES LING CHUNG**
Director



TAI HEE
Director



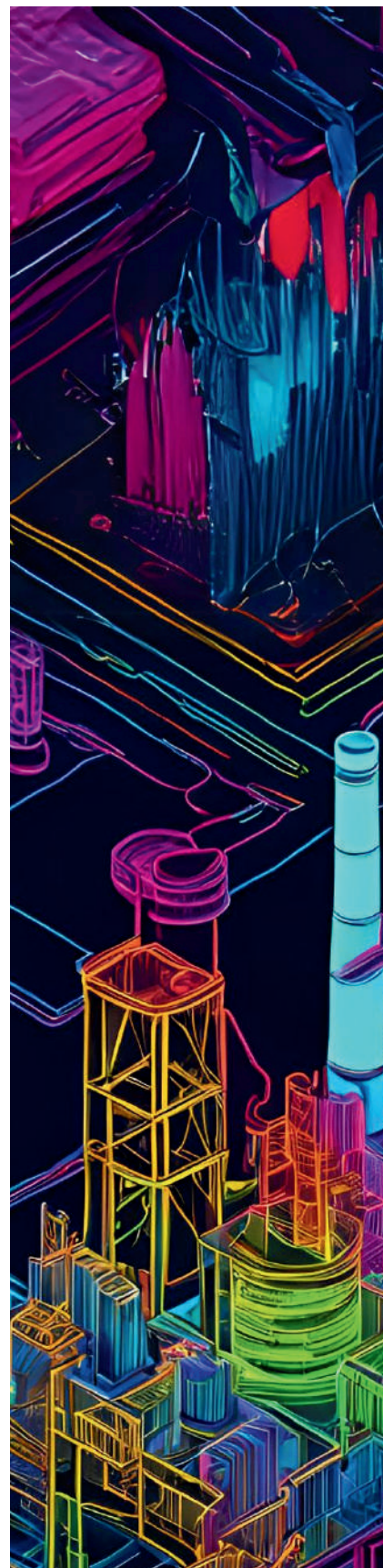
DAVID TAI WEI
Director



HII DING SING
Director



PHONG MAI
Director





Lot 304, 3rd Floor, The
Spring Shopping Mall,
Persiaran Spring, 93300
Kuching, Sarawak
+6010-961 1515
info@arctechnologies.io
arctechnologies.io