



3D Reality Documentation in Today's Economy

Malaysia



AGENDA

- INTRODUCTION
- BACKGROUND
- FARO 3D TECHNOLOGIES
- FARO IN MALAYSIA
- CONCLUSION

INTRODUCTION

- About us



KEY INDUSTRY/ APPLICATION

- BIM/CIM
 - AEC
 - Heritage
 - BIM
 - O&G
 - Education
- Public Safety
- Product Design

BACKGROUND

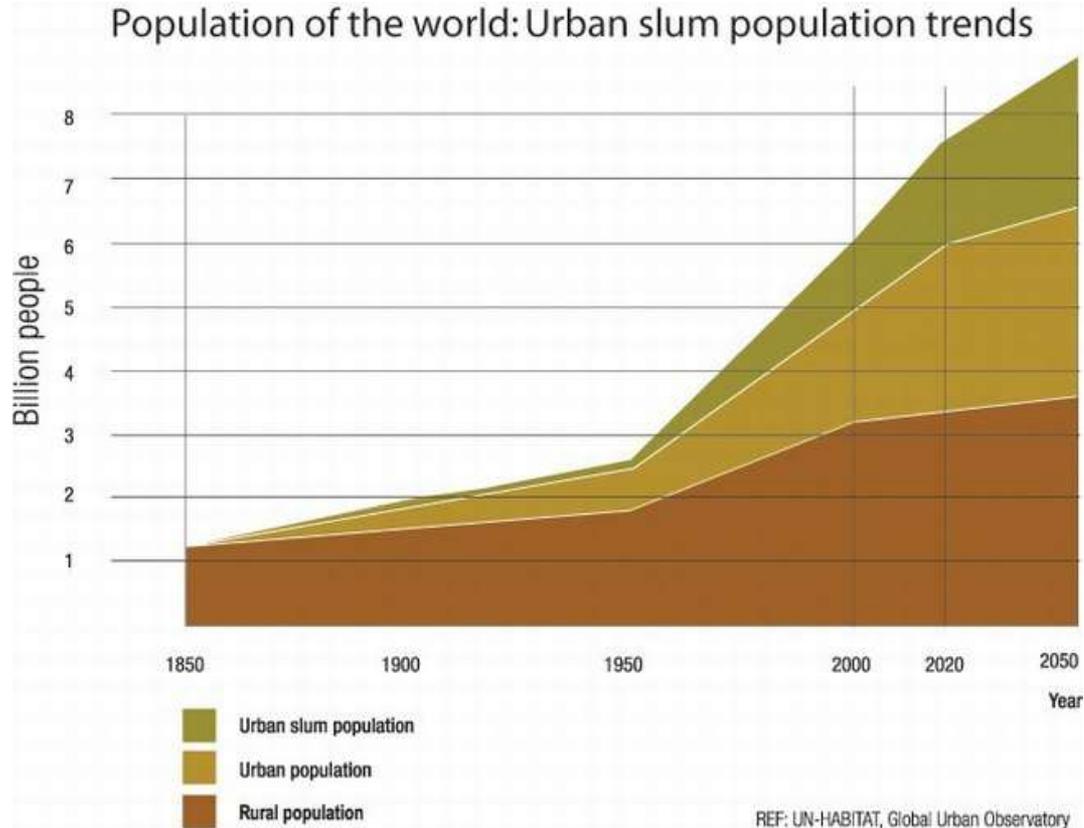
- *Increasing urbanisation, pressure on existing infrastructure, push for productivity in construction sector and environmental concerns are driving the convergence of geospatial and 3D technologies across businesses. - By Geoff Zeiss*



POPULATION DRIVEN DEVELOPMENT

- Over half of the world's 7 billion population lives in cities.
- This proportion is expected to go up as we move toward 9 billion by 2050
- It is a trend that is driving investments in new and refurbished buildings and infrastructure.

POPULATION DRIVEN DEVELOPMENT



POPULATION DRIVEN DEVELOPMENT

- The world's construction industry, including buildings, electric power, water and wastewater, roads, rail, and sea ports and airports, contributes about \$7 trillion annually, or 10%, to the world GDP
- According to McKinsey, about \$3.6 trillion of this is for narrow infrastructure — transportation, utilities, and public and social infrastructure.
- The remaining \$3.4 trillion is real estate, residential, commercial, and industrial.
- It is estimated that an investment of \$57 trillion in infrastructure (roads and highways, rail, ports and seaports, electric power, water and wastewater and communications) will be required between now and 2030 (or \$3.2 trillion per year) just to support the projected growth in the world economy.

ENVIRONMENTAL CONCERN

- Structures can no longer be designed in isolation



ENVIRONMENTAL CONCERN

- Sustainability requires that buildings and other structures be designed in the context of their geolocation,
- This includes prevailing weather patterns, nearby structures and vegetation, zoning regulations and environmental regulations.
- This is key to driving the convergence of geospatial and 3D technologies in AEC.

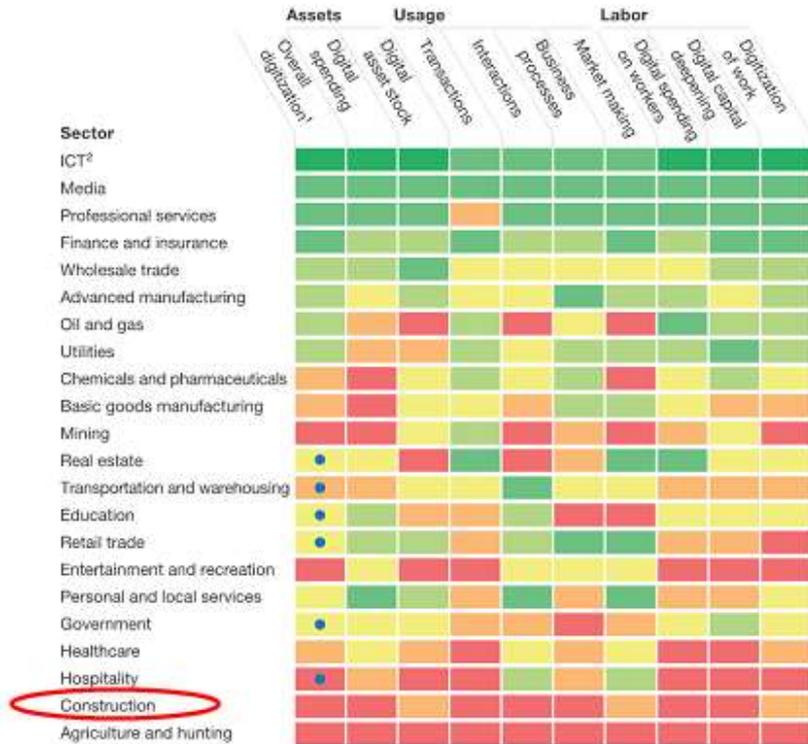
ENVIRONMENTAL CONCERN



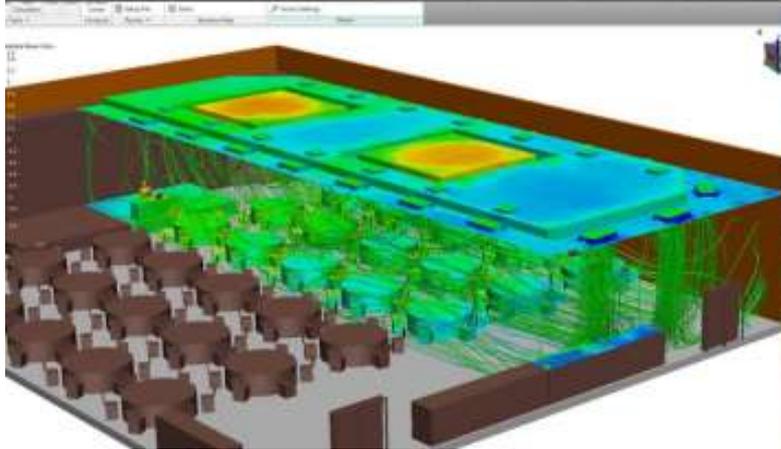
3D in design & construction

McKinsey Global Institute industry digitization index; 2015 or latest available data

Relatively low digitization  Relatively high digitization
● Digital leaders within relatively undigitized sectors



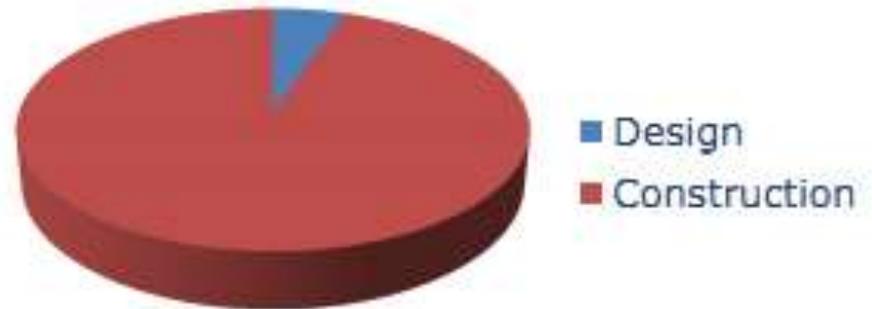
3D in design & construction



3D in design & construction

- *People involved in design vs. construction*
 - *Design (pre-construction): 10 million*
 - *Construction: 180 million*
- *As much as 30% of construction is rework*
 - *10% of materials are wasted*
- *Labor is used at 40-60% efficiency*

People involved in Design vs. Construction



3D in design & construction

- ***WHAT IS IMPORTANT FOR AEC PROFESSIONALS?***

- Accuracy
- Confidence that everything is ok when leaving the job-site.
- Data are complete and correct.

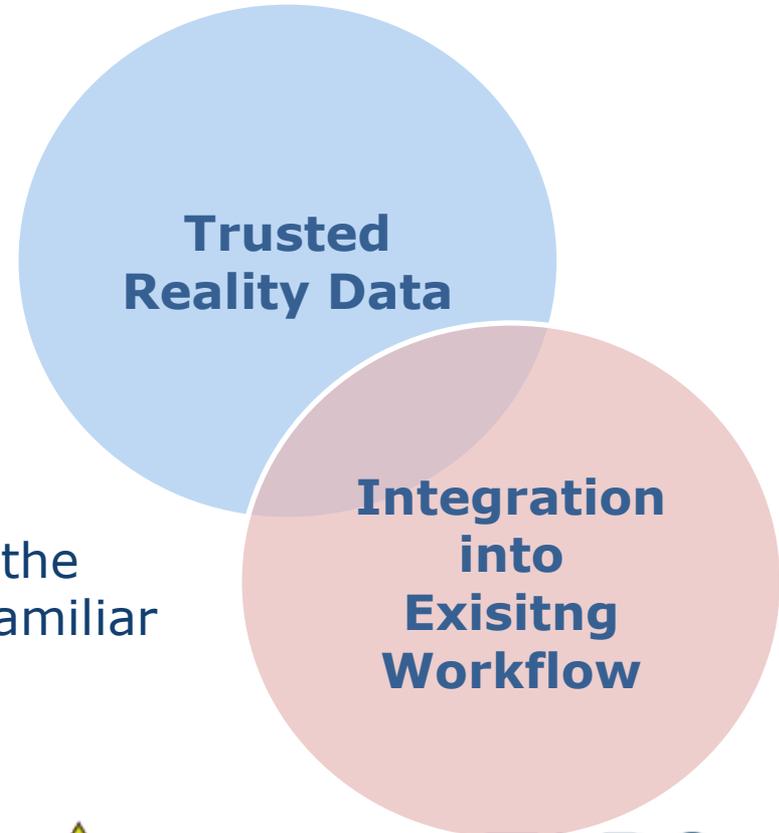


**Trusted
Reality Data**

3D in design & construction

- ***WHAT IS IMPORTANT FOR AEC PROFESSIONALS?***

- Bring ready to use data into the software that the customer is familiar with



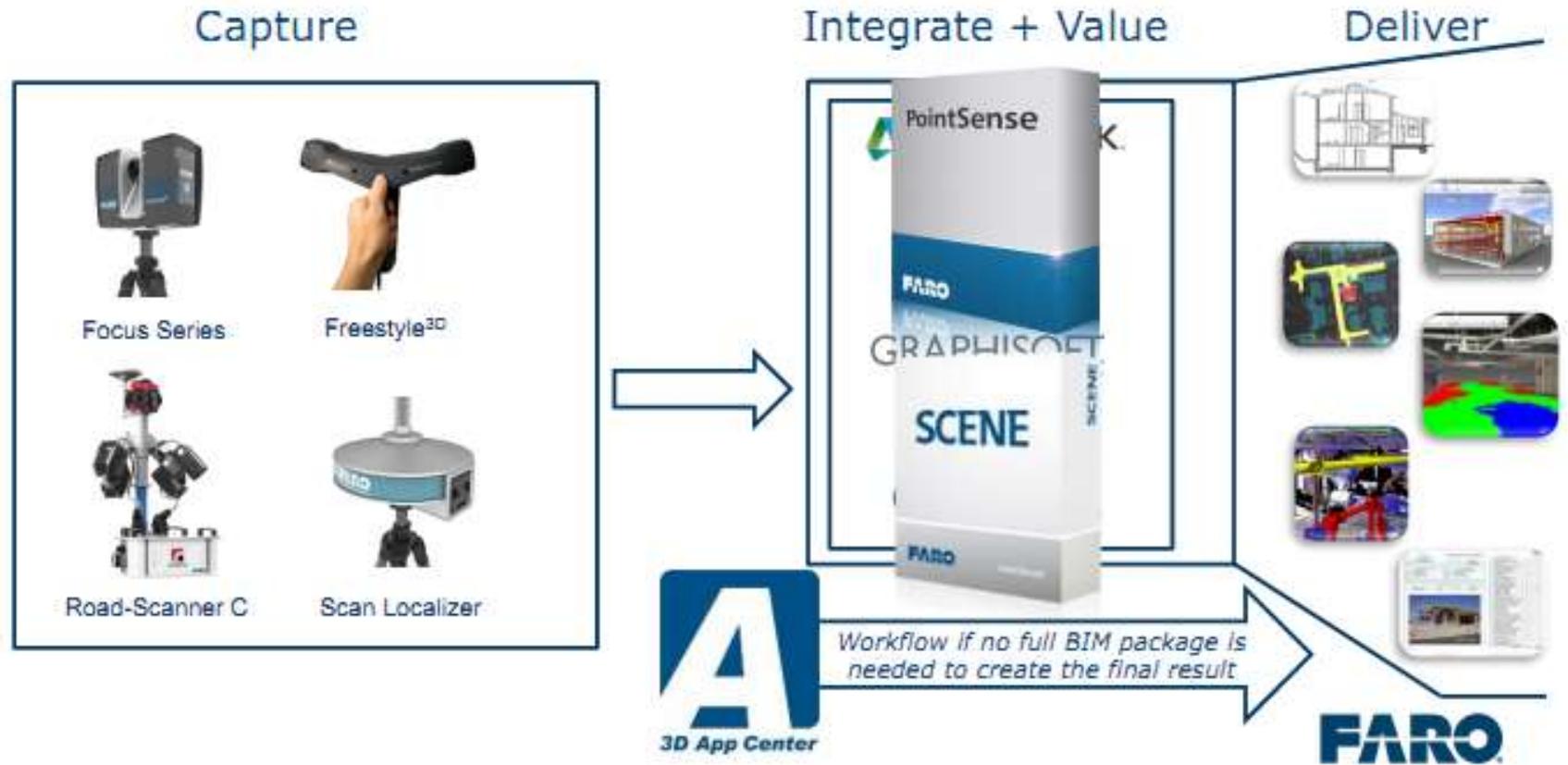
3D in design & construction

- ***WHAT IS IMPORTANT FOR AEC PROFESSIONALS?***

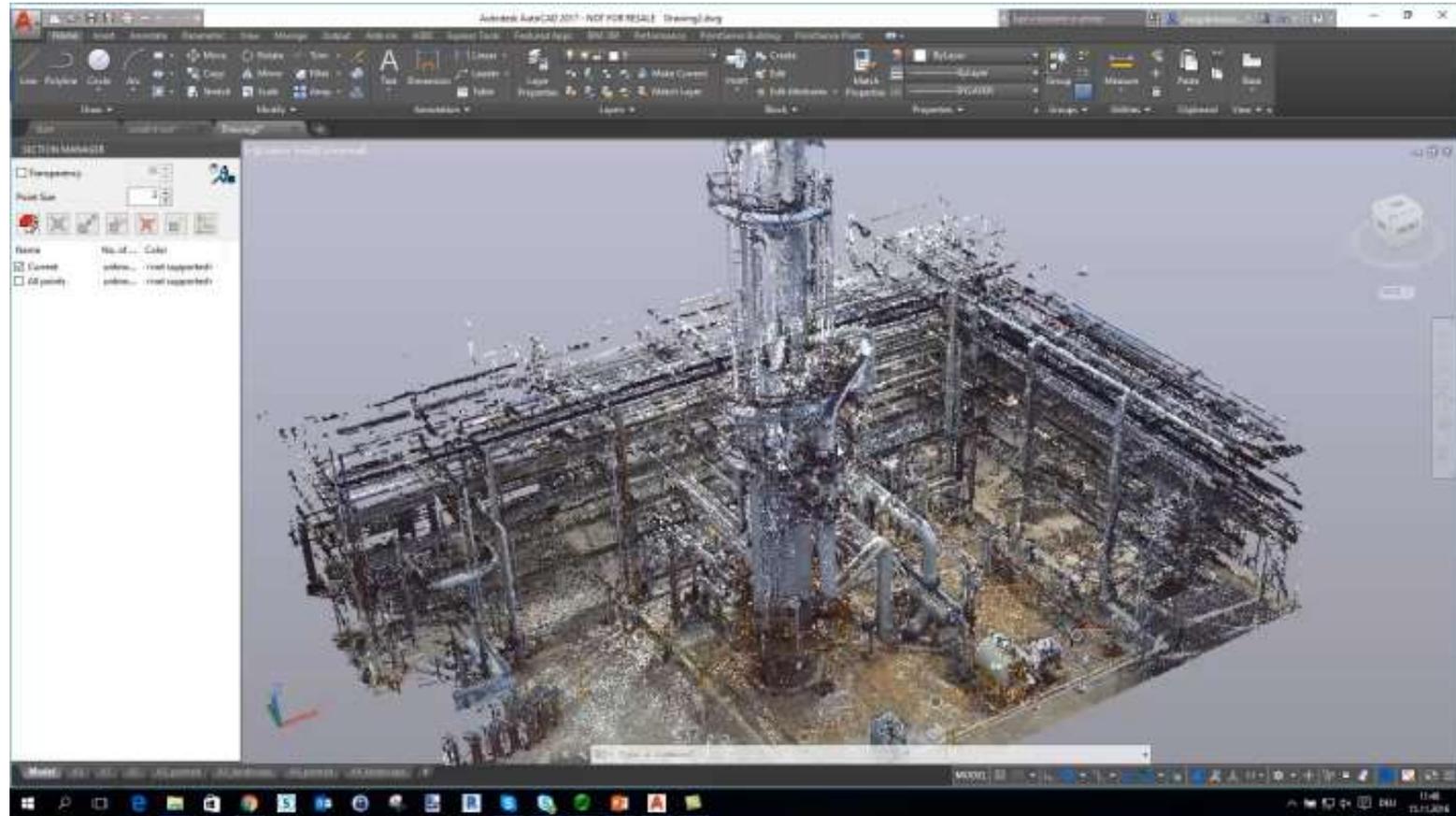
- Ease of Use
- Automation



FARO 3D Technologies



FARO 3D Technologies



FARO 3D Technologies



FARO 3D Technologies

SCENE – Onsite Registration

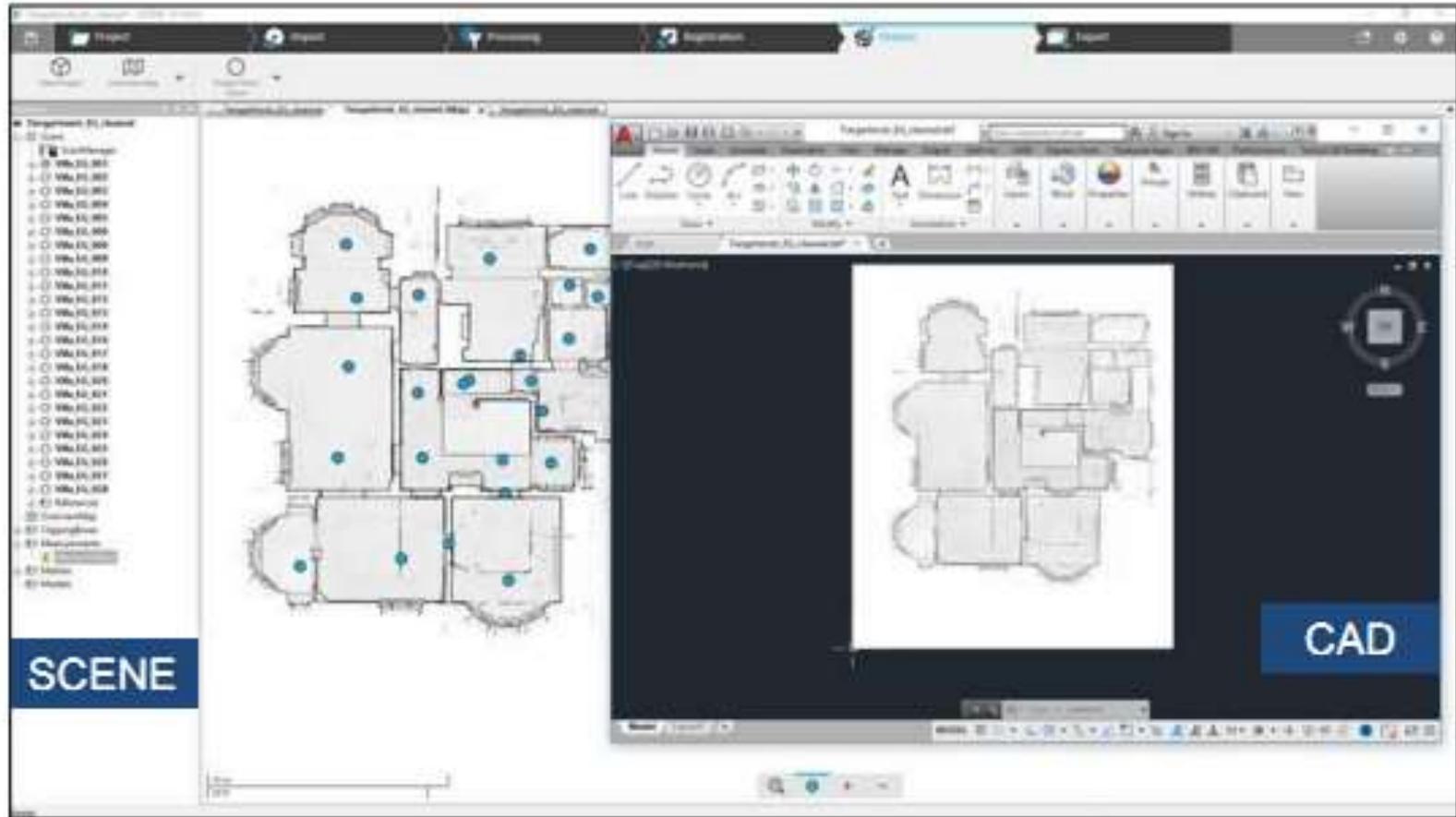


FARO 3D Technologies

SCENE - Overview Map



FARO 3D Technologies



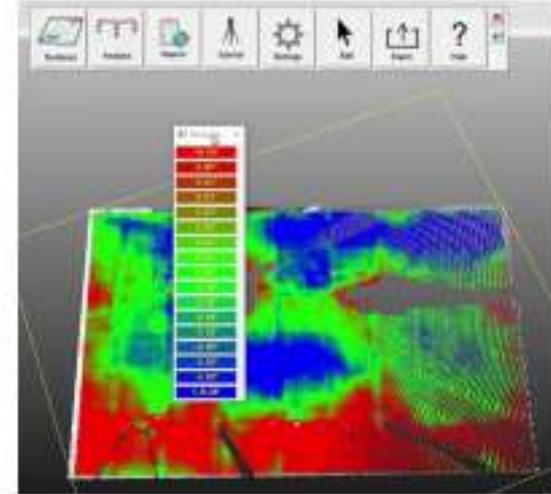
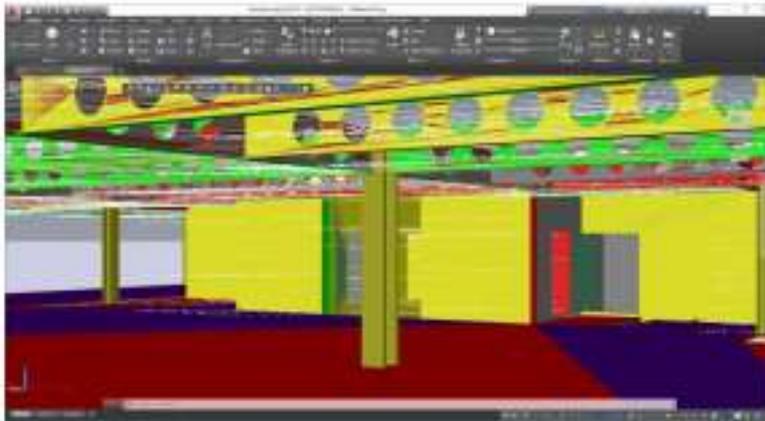
FARO 3D Technologies

VR Viewer Plug-In



FARO 3D Technologies

- Tools and processes performed throughout building construction which provide a routine feedback loop to parties involved regarding construction progress and adherence to design specifications
- Also known as Construction QA/QC



FARO IN MALAYSIA



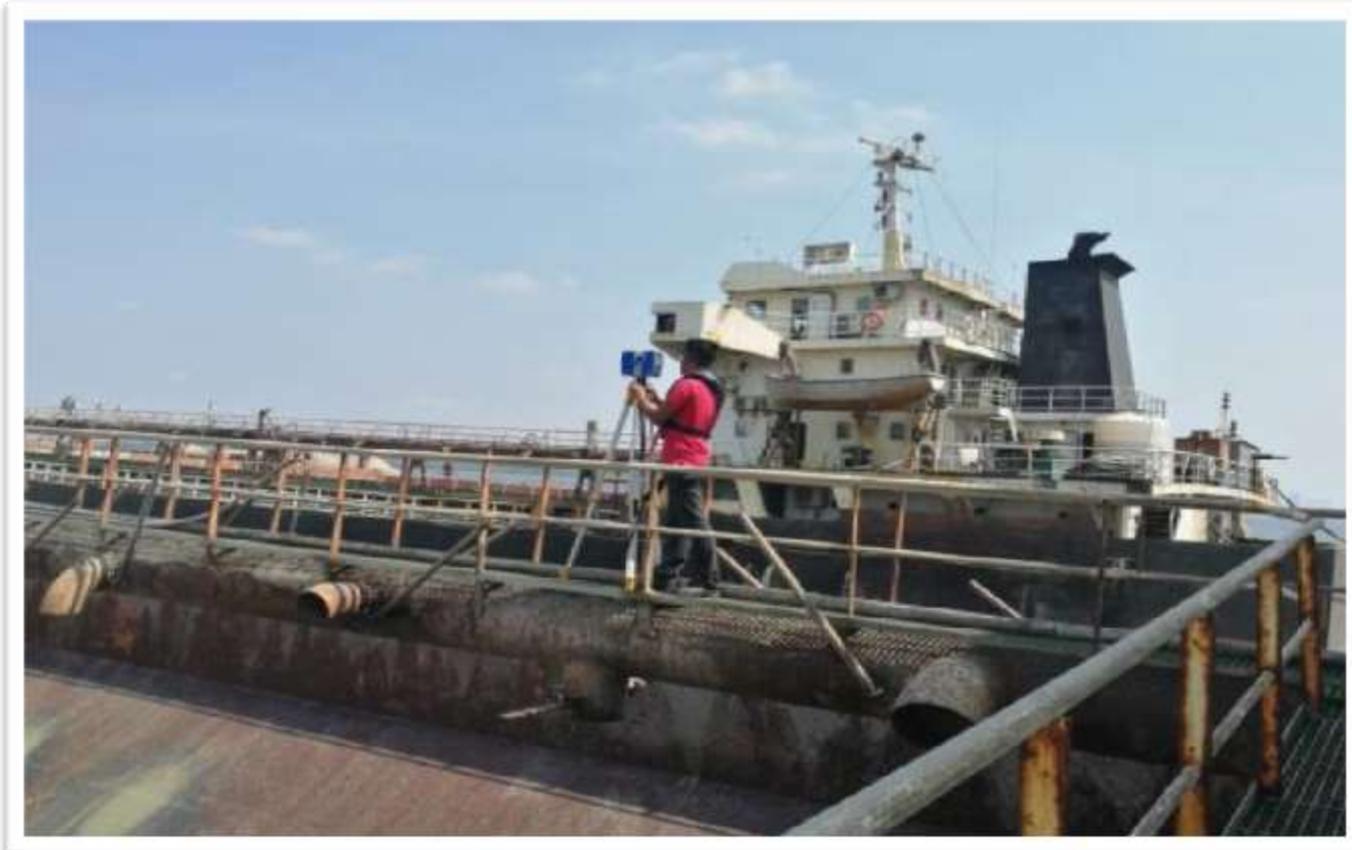
FARO IN MALAYSIA



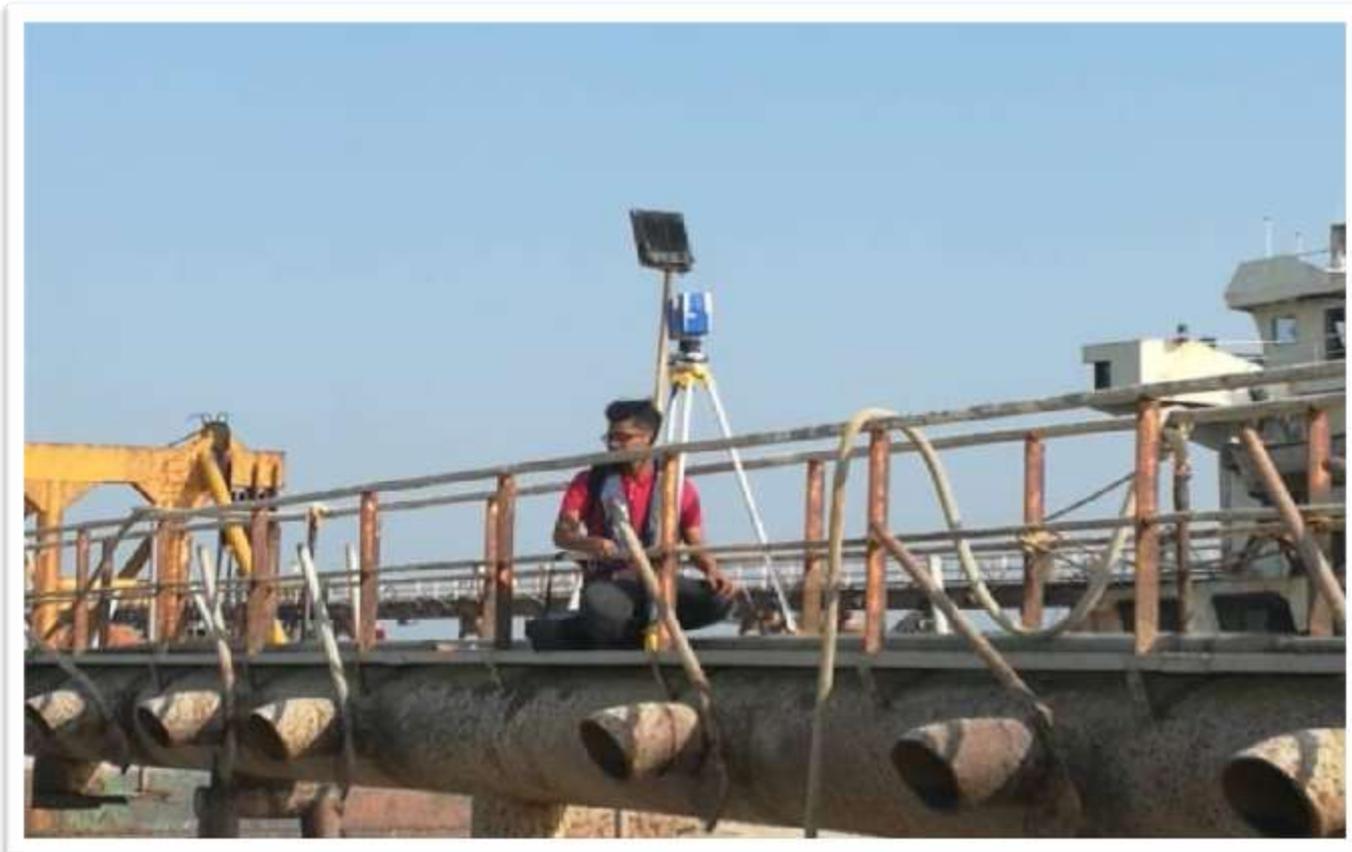
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OWN DEVELOPMENT/ SOLUTIONS



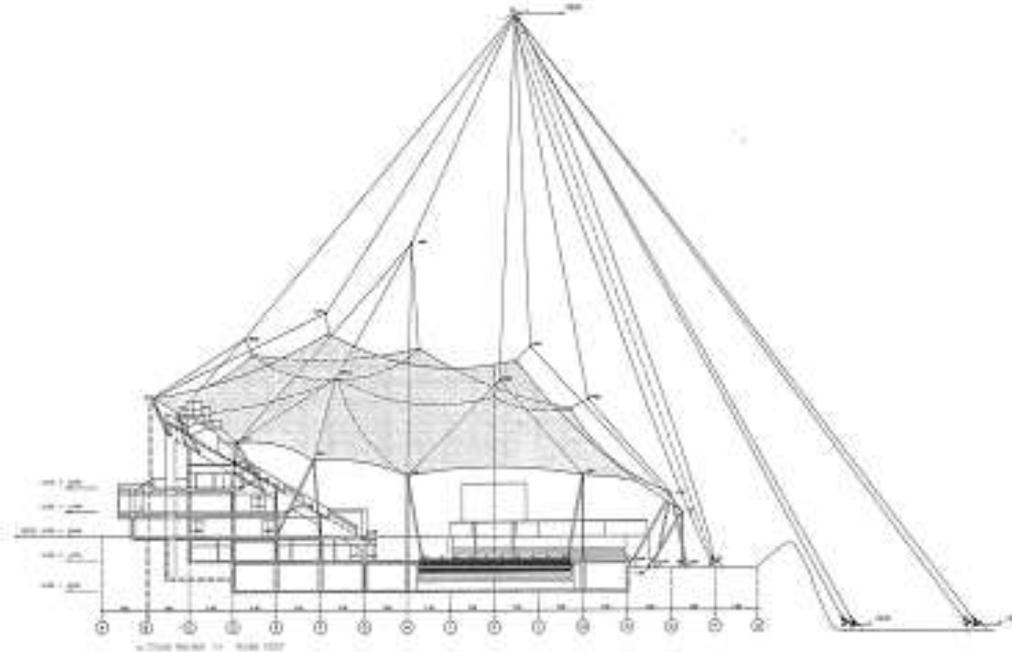
OWN DEVELOPMENT/ SOLUTIONS



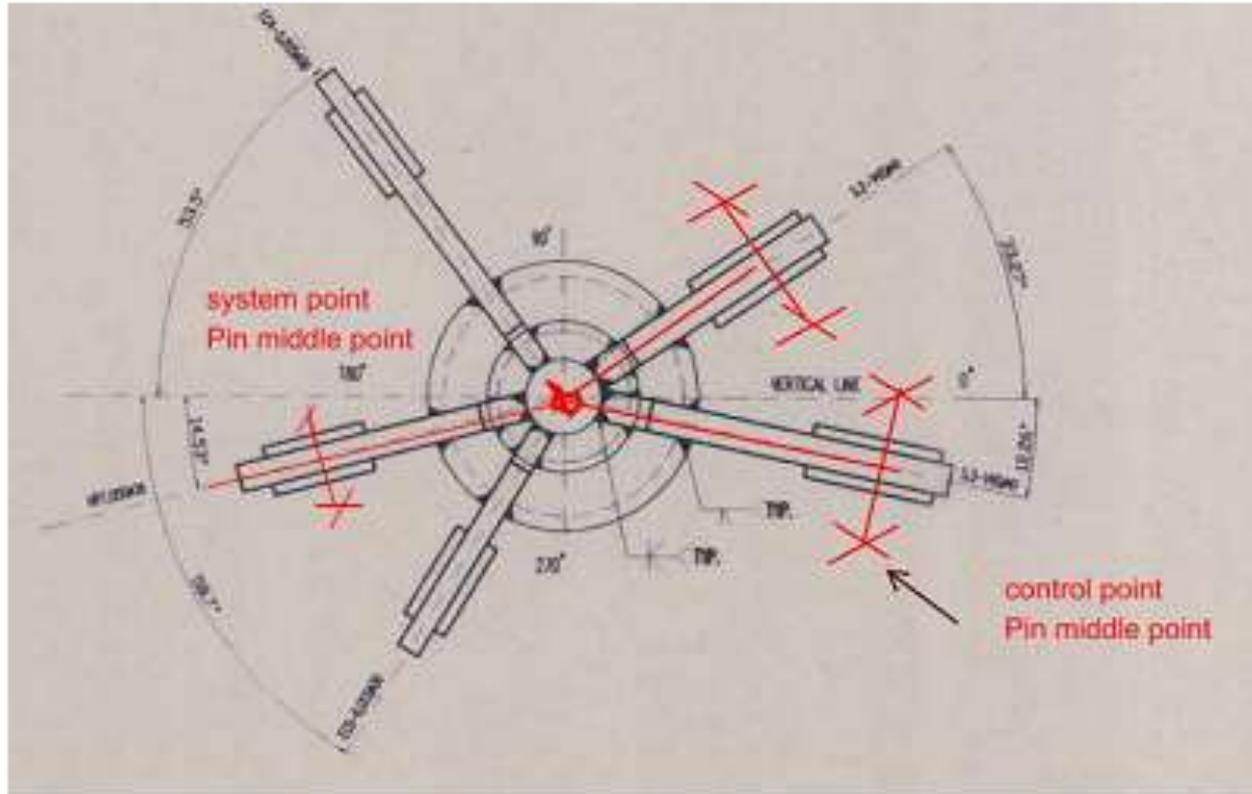
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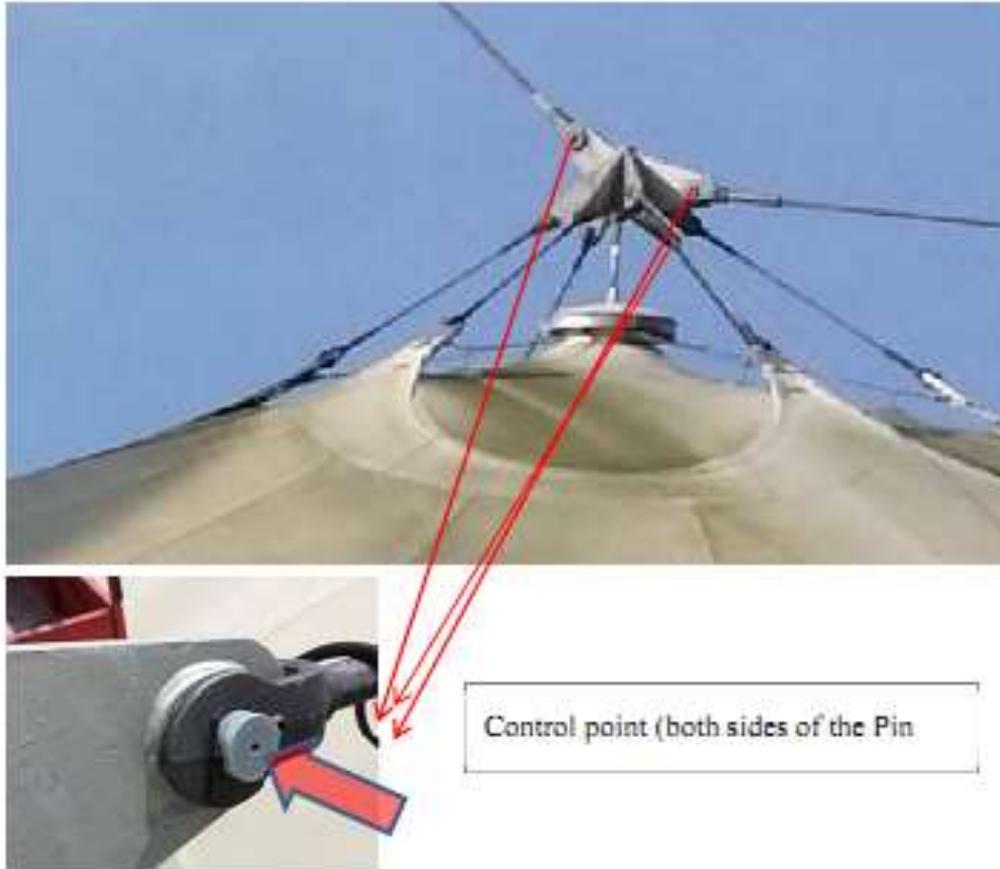
OWN DEVELOPMENT/ SOLUTIONS



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OWN DEVELOPMENT/ SOLUTIONS



OWN DEVELOPMENT/ SOLUTIONS

- Site Survey



OWN DEVELOPMENT/ SOLUTIONS

- Site Survey



OWN DEVELOPMENT/ SOLUTIONS

- Site Survey



OWN DEVELOPMENT/ SOLUTIONS

- Scanning with mobile crane



OWN DEVELOPMENT/ SOLUTIONS



OWN DEVELOPMENT/ SOLUTIONS



OWN DEVELOPMENT/ SOLUTIONS



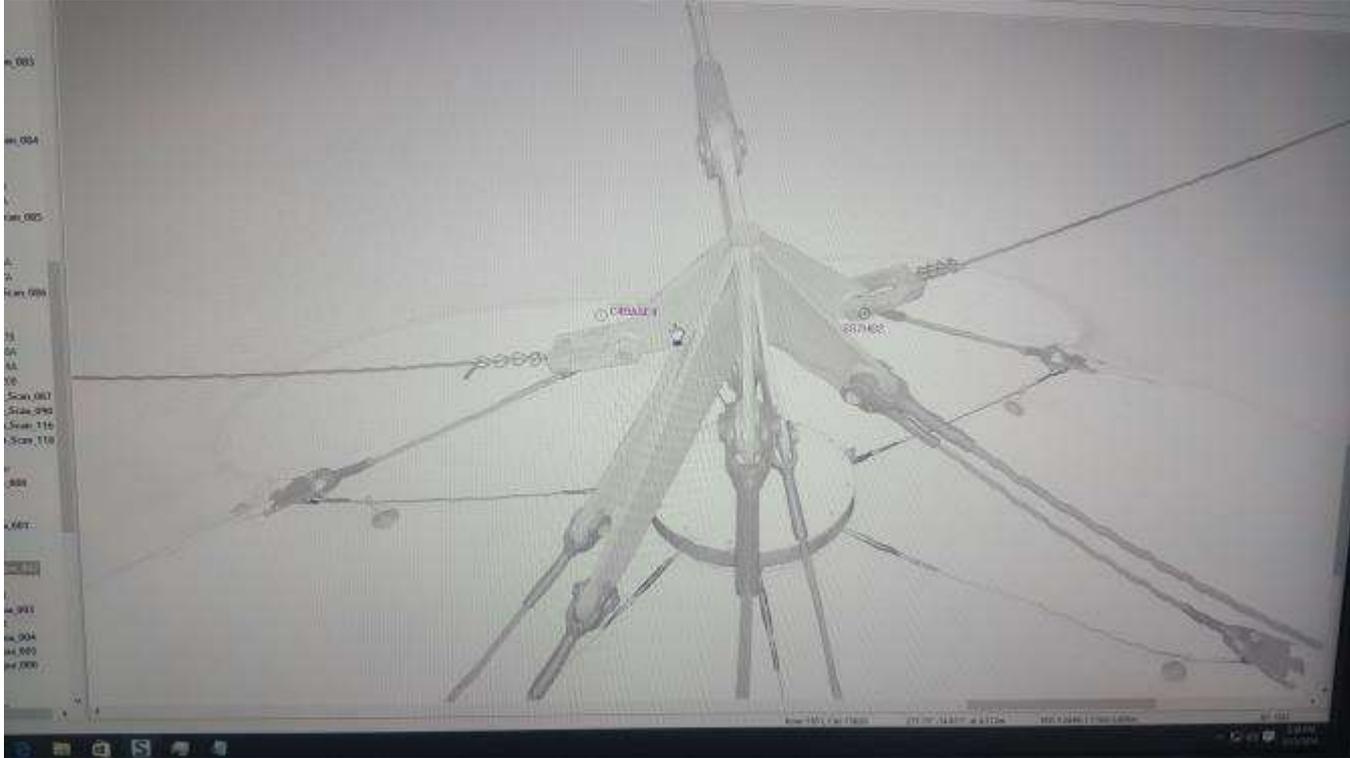
OWN DEVELOPMENT/ SOLUTIONS

- Survey Report



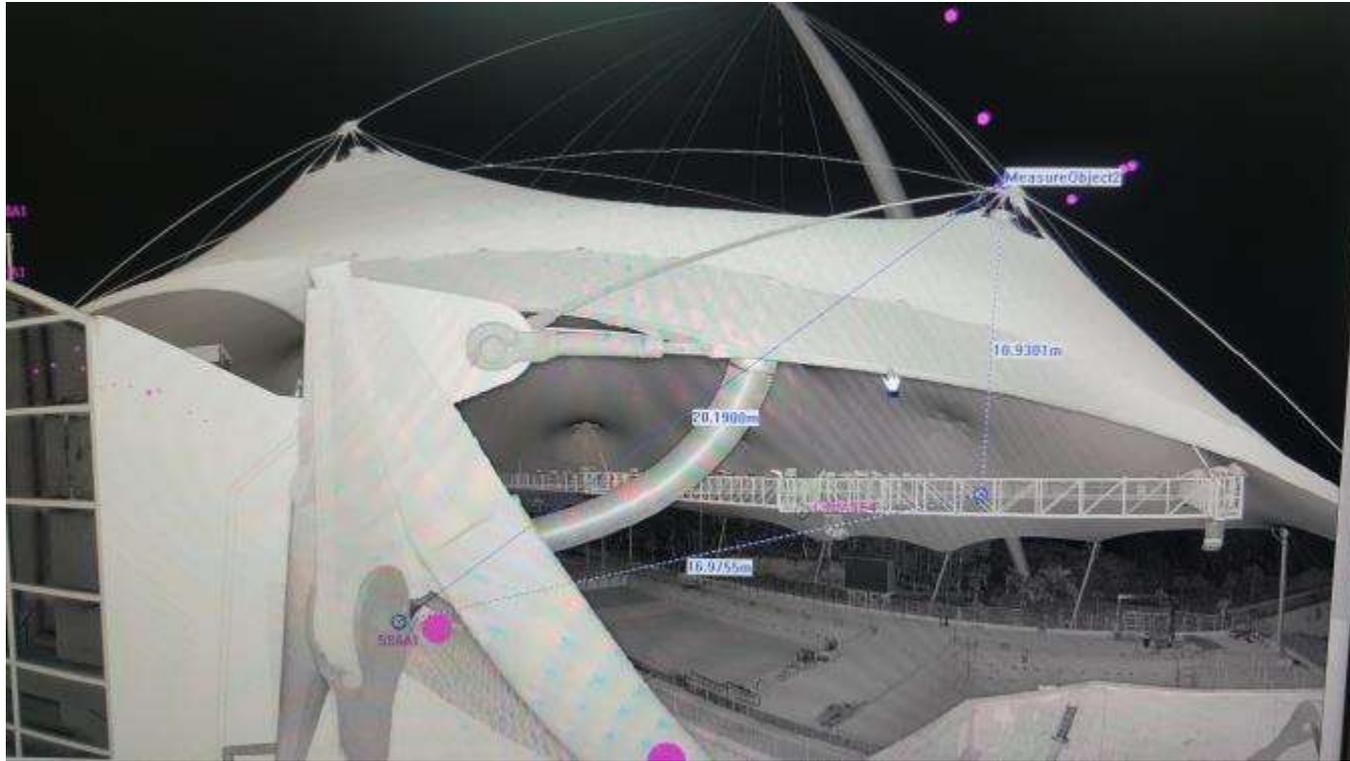
OWN DEVELOPMENT/ SOLUTIONS

- Survey Report



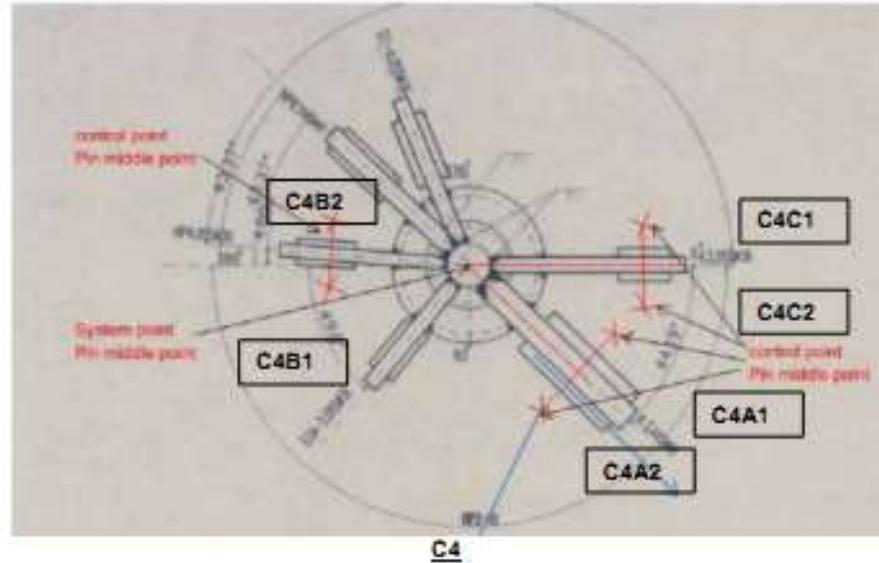
OWN DEVELOPMENT/ SOLUTIONS

- Survey Report



OWN DEVELOPMENT/ SOLUTIONS

- Survey Report



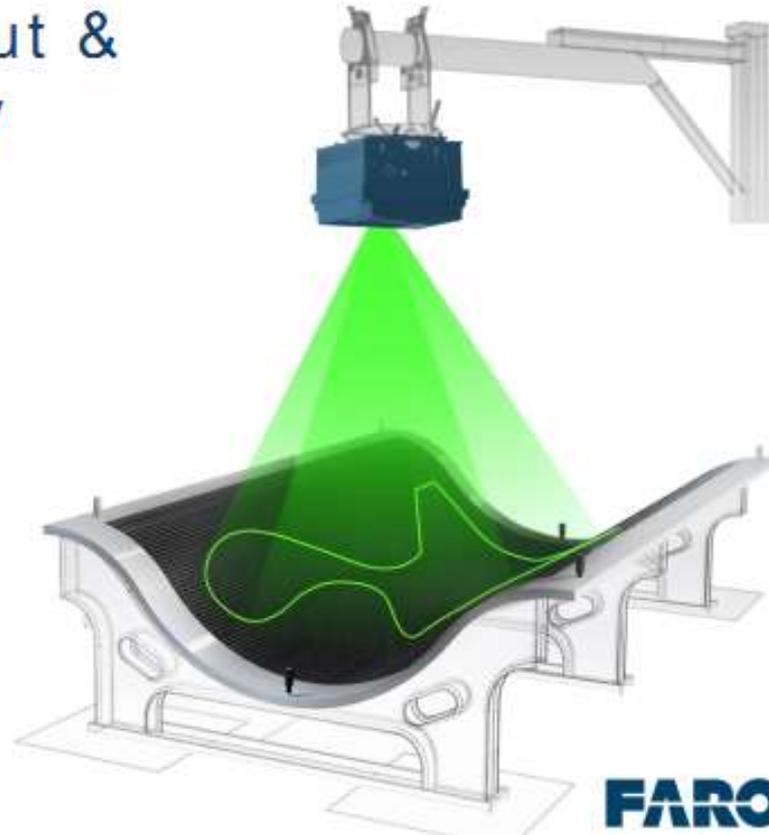
Point C4	Position X	Position Y	Position Z
C4A1	54.3553	-14.7349	9.3258
C4A2	54.2061	-14.8974	9.3197
C4B1	53.7010	-14.6376	10.0632
C4B2	53.7111	-14.4852	10.0674
C4C1	54.4148	-14.4964	9.5155
C4C2	54.4083	-14.6753	9.5049

COMING SOON!

Construction Layout & Augmented Reality



Tracer Laser Projector



COMING SOON!

- Construction Layout



COMING SOON!

- Augmented Reality with Visual Inspect



COMING SOON!

- Augmented Reality with Visual Inspect



COMING SOON!

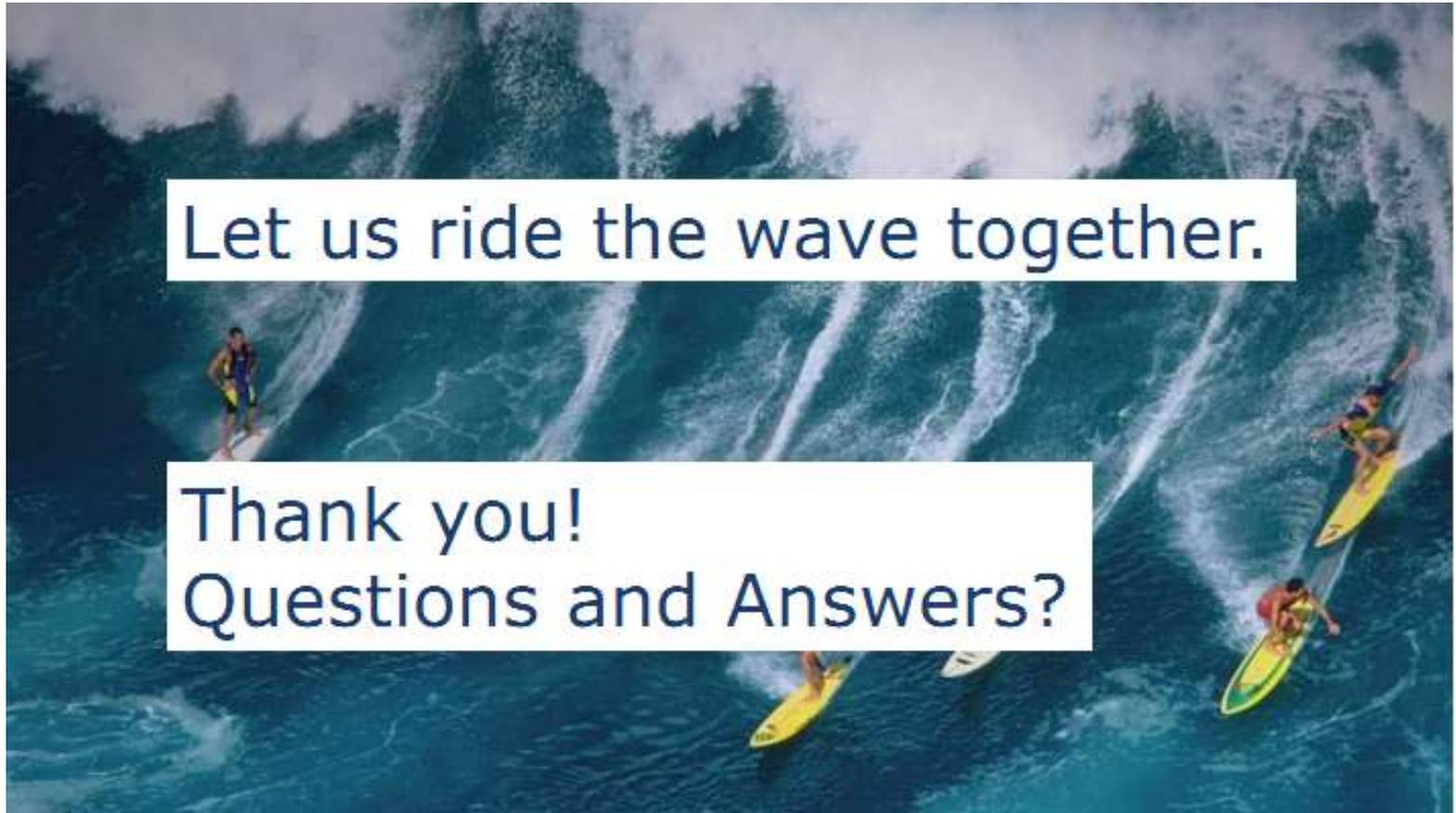
- Augmented Reality with Visual Inspect



WHAT DO YOU SEE?



THANK YOU!



Let us ride the wave together.

Thank you!
Questions and Answers?