





# **DOING MORE WITH OFFSHORE ENGINEERING DATA**

- Getting Your Engineering Data Right,  
So You Can Do More**

**FAIZAL SOHAIMI**

*Sales Account Manager, Intergraph PP&M South East Asia*



Corporate Overview: <http://www.intergraph.com/ppm>

Intergraph® is a leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data and infuse the world with intelligence to make processes and infrastructures better, safer, and smarter.



Corporate Overview: <http://www.intergraph.com/ppm>



*“Intergraph continues its longstanding ranking as the **top provider** of engineering design tools to industrial markets. Intergraph has a track record of increasing its customers’ productivity through a comprehensive product portfolio that provides a compelling value proposition to its markets.”*

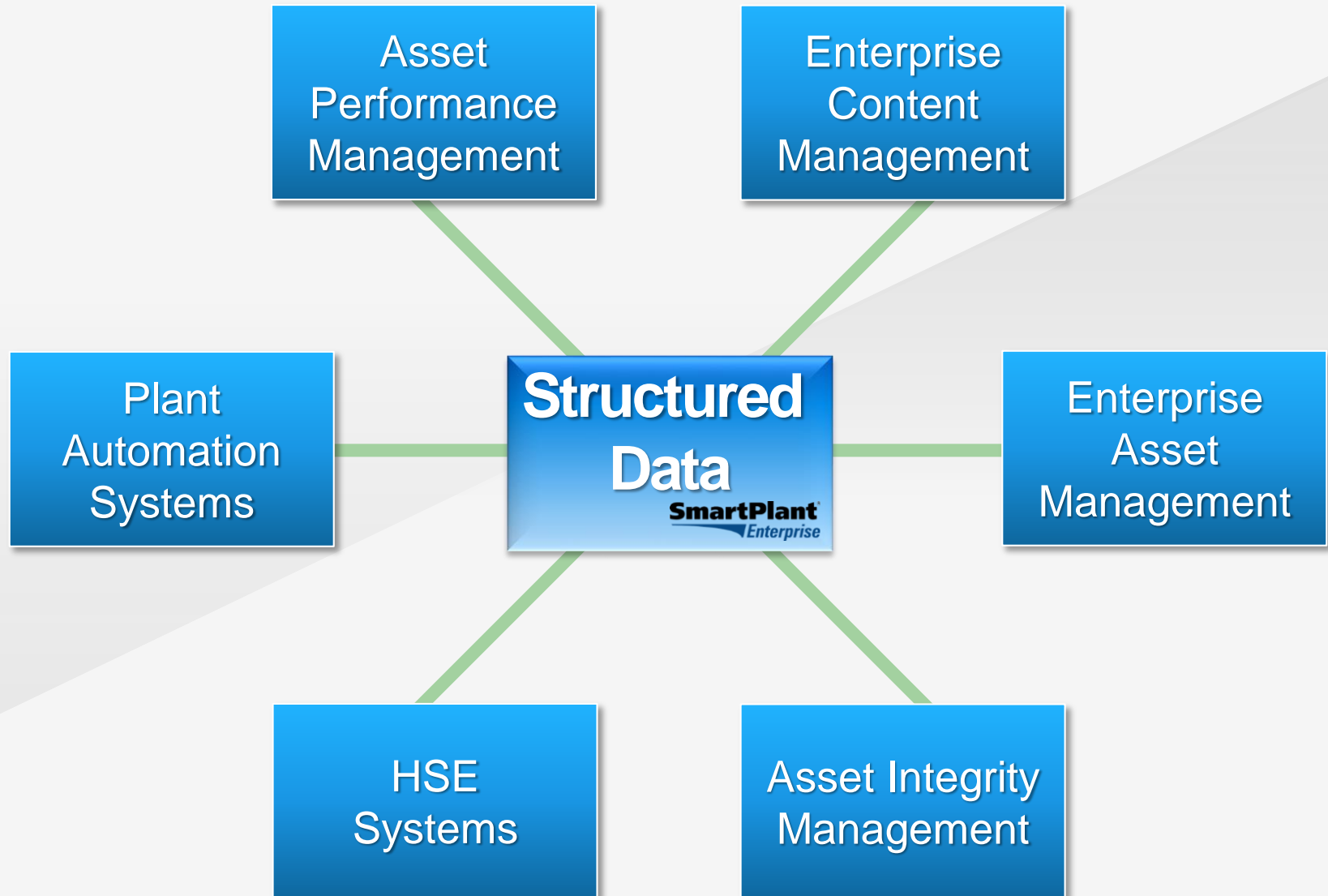
Russ Novak, Research Director and study co-author

*“Intergraph has established itself as the **premier enterprise engineering company** by understanding that **engineering data** is a **valuable corporate asset** and must be properly **managed at the enterprise level**.”*

Janice Abel, ARC Principal Consultant



# Enterprise IT Landscape – “Doing More”





# **“Greenfield” Projects**





# Lots of Facility Engineering Data “Handed Over”!



If you get it  
**RIGHT:**  
Native Format

If you get it **WRONG:**  
You're already a **BROWNFIELD**

**AND** is it  
Truly **AS-BUILT?**

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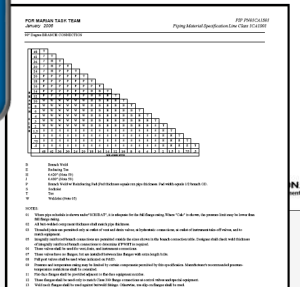
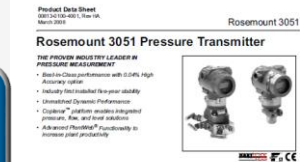
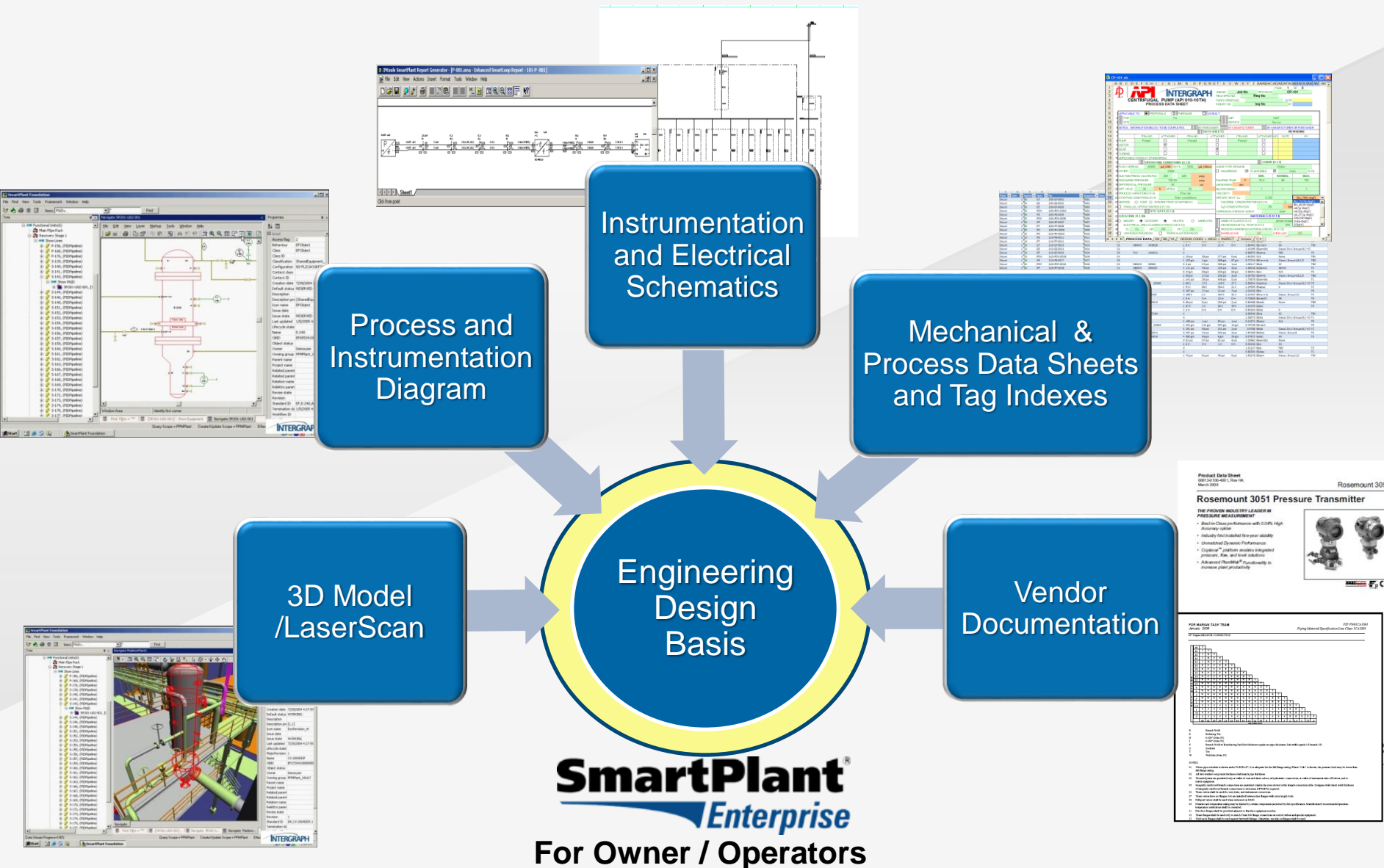


**Before you can do “MORE”...**



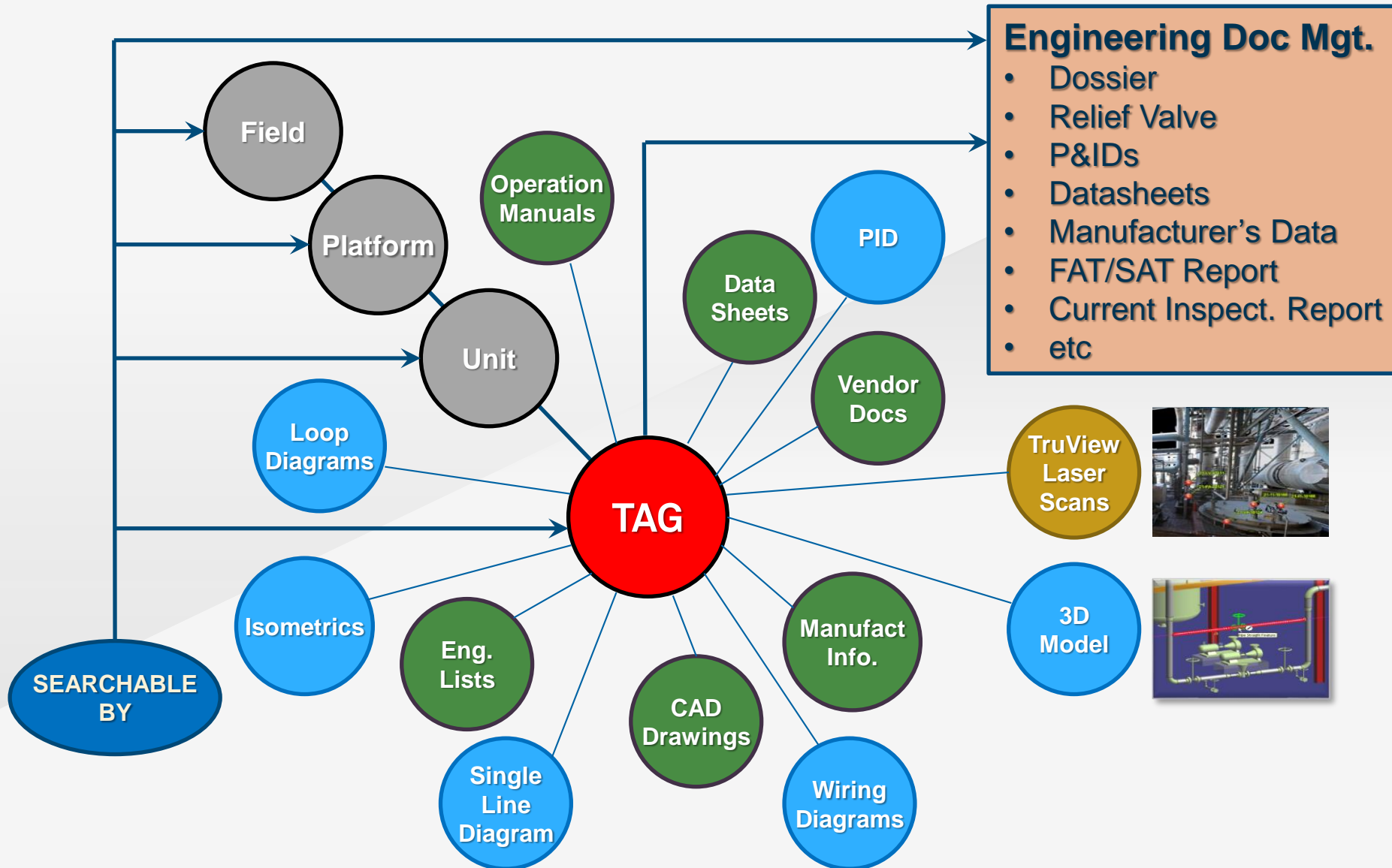


# Facility / Asset Information – The Engineering Design Basis





# Verified, Structured & Validated Asset – TAG – Document - Data Relationships





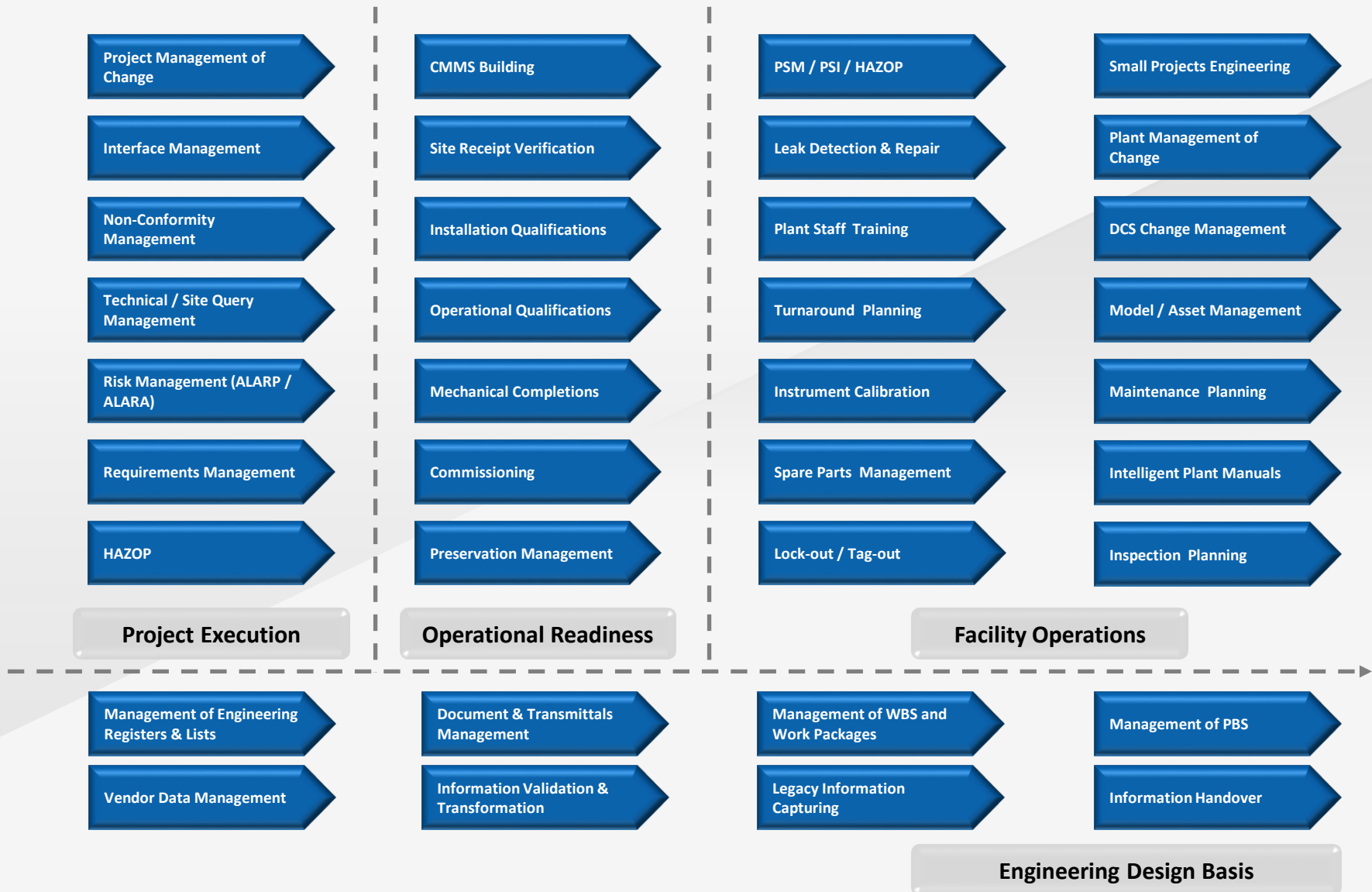
**What is doing “MORE”?**





# SmartPlant Enterprise for Owner / Operators

## – OO Business Processes –

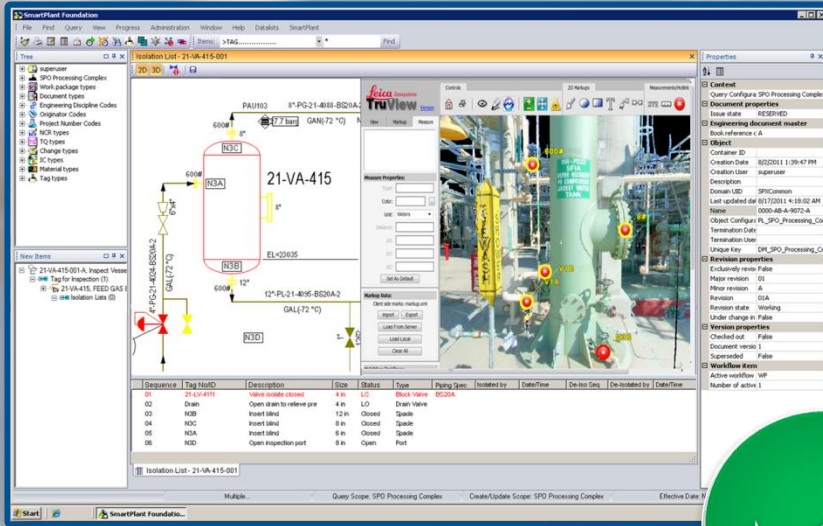




# **The Challenge, Offshore Brownfield facilities, the realities...**



# Brownfield Plant Reality





# Brownfield Plant

## - Owner's Challenges on Existing Facilities

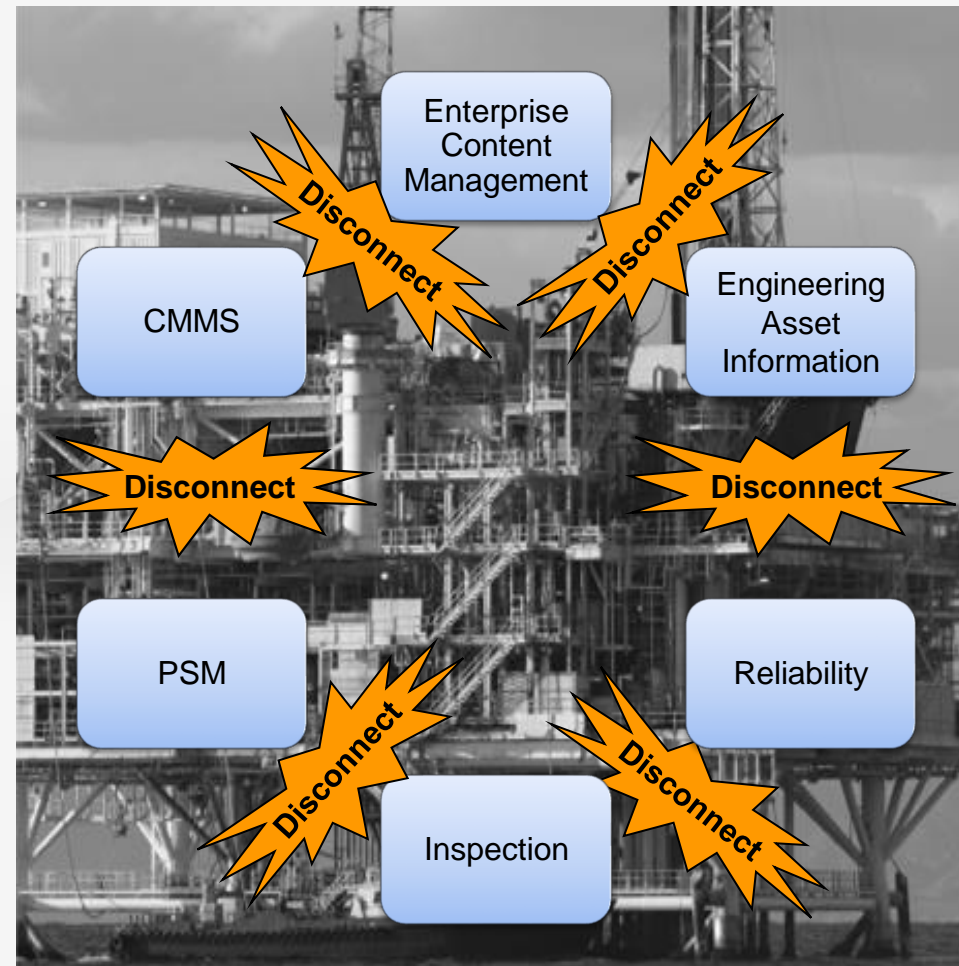




# Operations & Maintenance

## – The Interoperability Challenge

- Information held in **multiple, isolated systems / locations** and hard to locate
- Available Engineering Information is **poor quality**
- **Inconsistencies** between information sources
- No automated work process for managing change between systems
- Increasing focus on PSM
  - **PSI ‘Cornerstone of PSM’**





# “What are your greatest challenges around managing Engineering Information?”



“There are still many users who keep data in separate locations and not in our document management system.”

Engineering Systems Manager  
Large Chemicals Company

“Organizing and collecting data from scattered places has been difficult, especially with too much data and too many types of data...”

Information Manager  
Global 500 Energy & Utilities Co.

“We found our main issues were around diversity of formats [e.g. software] and diversity of users with different needs.”

Engineering Manager  
Global 500 Metals & Mining Company

“Because of over 30 years of history a big part of the plant documentation is still on paper.”

Engineering Systems Manager  
Medium Enterprise Energy & Utilities Co.

“We had the most trouble with having so many new people who do not know how to find information.”

Discipline Engineering  
Global 500 Energy and Utilities Company

“Our main problems were with the volume of information which is not in electronic format or in a searchable format.”

Optimization Engineer  
Global 500 Energy & Utilities Co.

“A lot of critical information is not centrally stored. When you need info, you have to ask around to find the right person.”

Project Engineering Manager  
S&P 500 Chemicals Company

“We saw issues with avoiding duplicates and unmanaged versions of information. Also with providing global access to all information.”

Information Technology  
Large Enterprise Energy & Utilities Company

SOURCE: TechValidate survey of 218 professionals in process industries (March 2014)

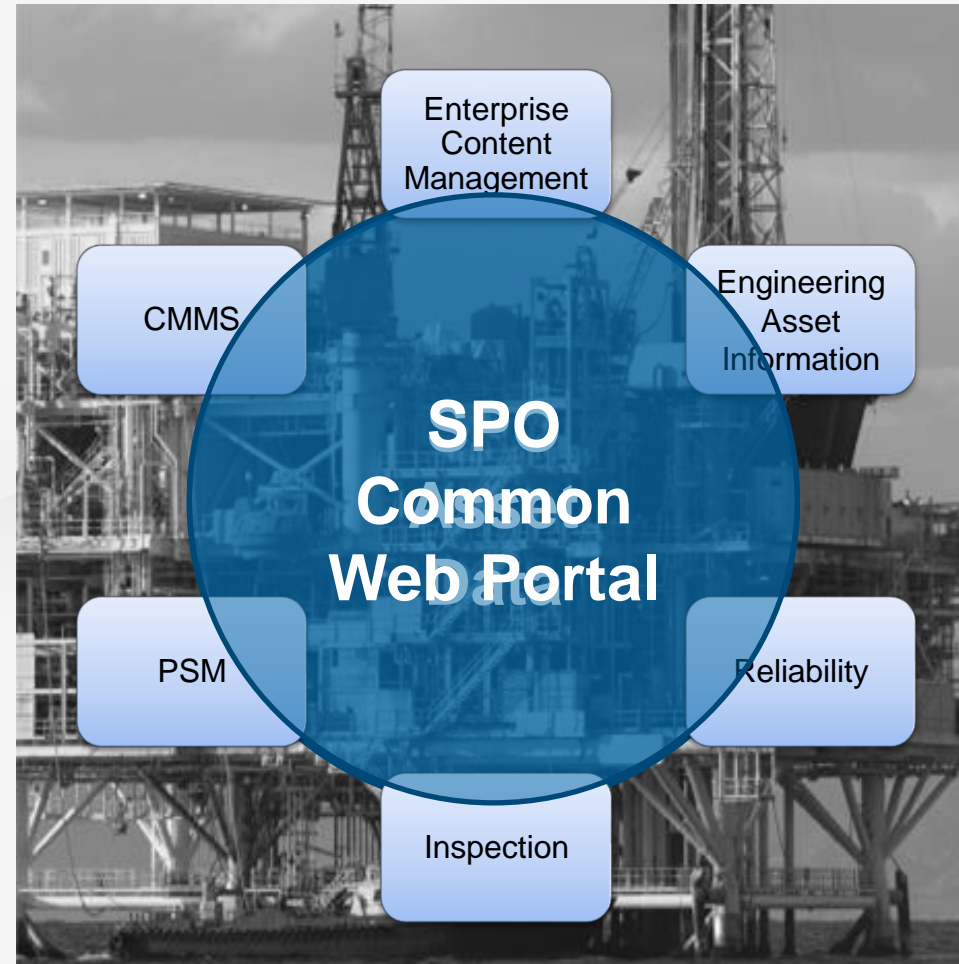
Research by  TechValidate



# Operations & Maintenance

## – The SPO Approach –

- Provide an **integrated, high quality** set of Engineering Design Basis information
- Provide **verification of information quality** from contractors, suppliers and legacy data systems
- Provide **PSI management**
- Provide interoperability between operations systems
- Provide a web portal that can navigate the engineering asset





**Capturing “Brownfield” Facility  
Engineering Information  
- so that we can do “MORE”**

**SmartPlant<sup>®</sup>**  
*Fusion*

 **INTERGRAPH<sup>®</sup>**



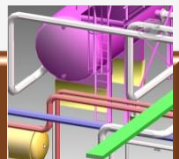


## Before the capture:

- History, Assessment & Findings
- Prioritization & Recommendations
  - Quantitative
  - Qualitative
- Acquisition & Analysis Workflow



# Capturing the Facility Engineering Information



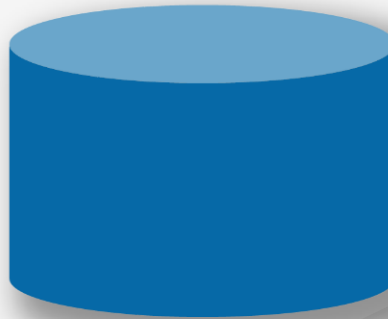
**Brown / “Green” field UNSTRUCTURED information –  
in a variety of formats and from multiple sources**



# Capturing the Facility Engineering Information



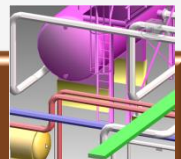
**Organised /  
Structured  
Information**



**Documents/Drawings/  
Tags/Laser**

Tag<->Drawing | Tag<->Document |  
Drawing<->Laser | Document<-> Laser

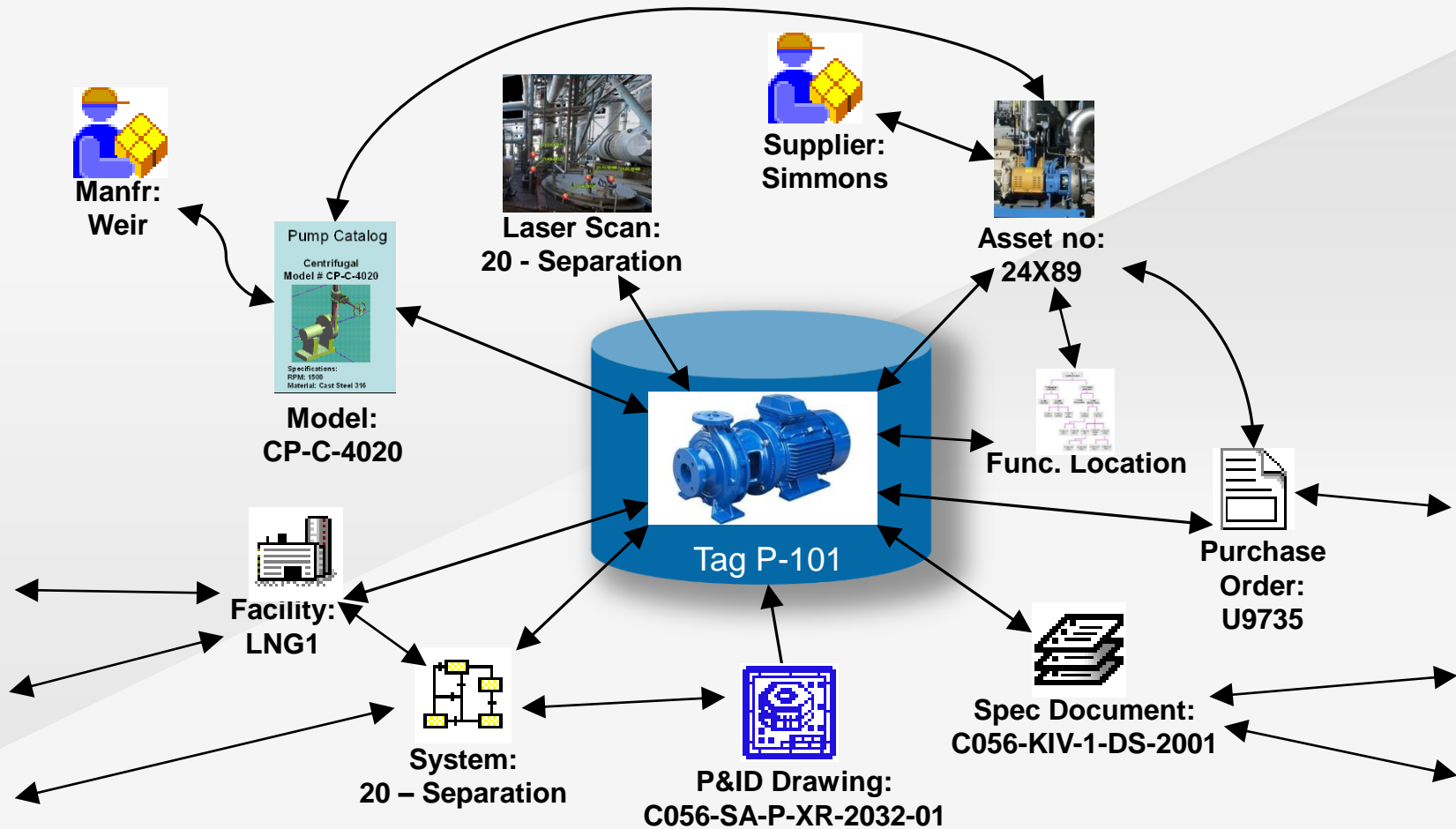
**Rapid Capture, Organisation and Content Extraction**



**Brown / “Green” field UNSTRUCTURED information –  
in a variety of formats and from multiple sources**



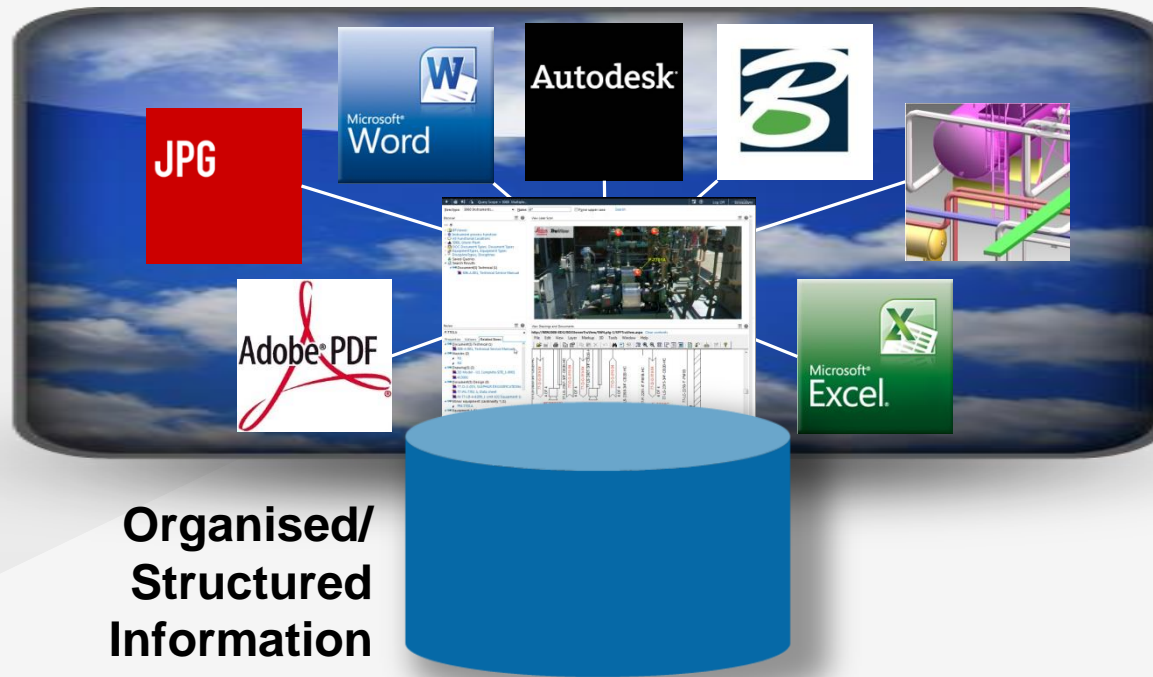
# Organised / Structured Information





# Facility Wide Information Navigation

**Simple Web  
Browsing &  
Navigation  
of organised  
content**



**Organised/  
Structured  
Information**



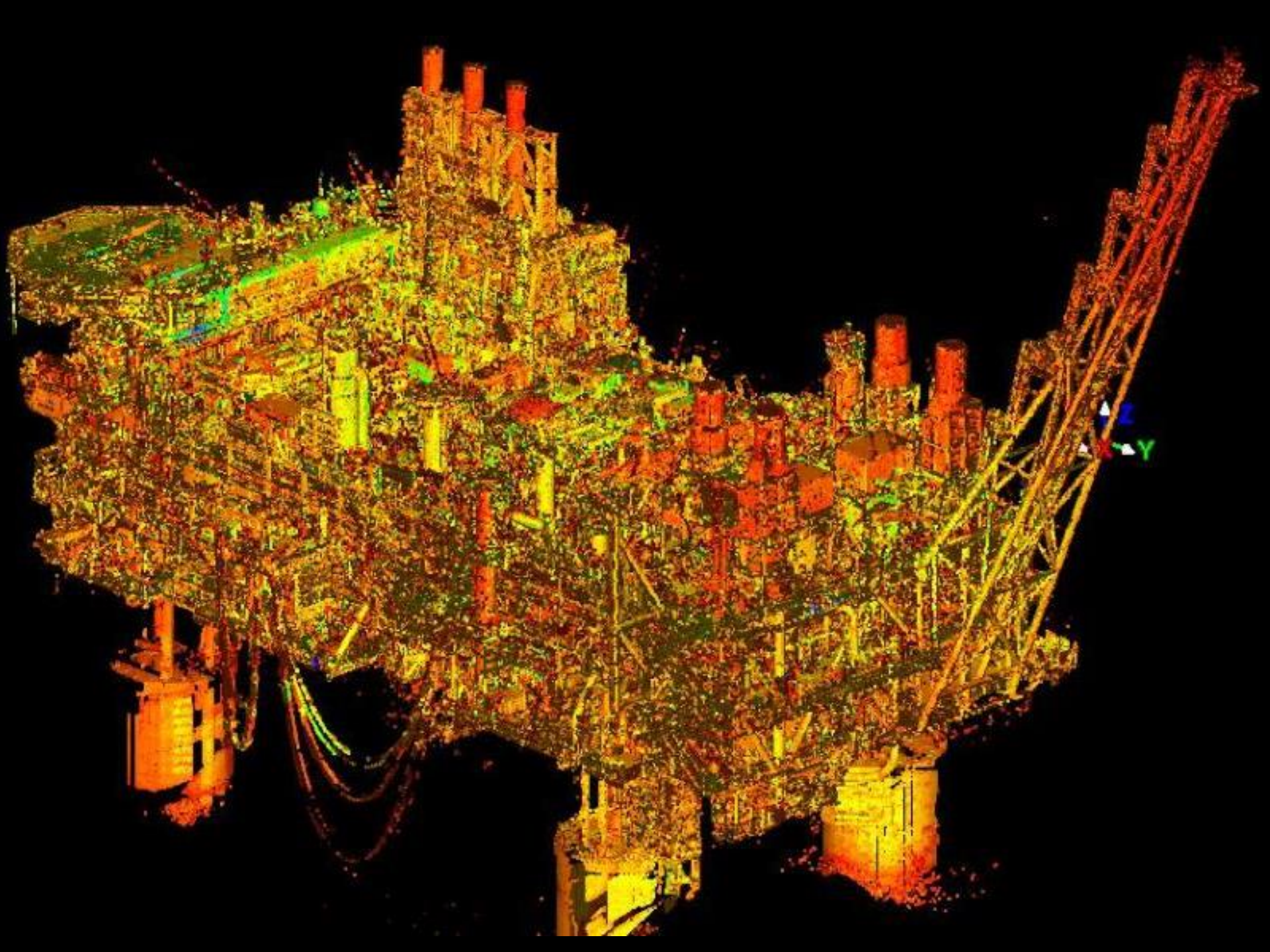
# **Capturing “Brownfield” Facility - Laser Scanning**





*Leica*  
Geosystems











Item type: IQ Published Documents Name: ST\*4\* ☐ Force upper case Search

## Discover



## TruView



Station4



## Review



P-HV-1052

Properties Actions



## Context

Query Configuration Vincent

## Object

Creation Date 10/3/2012 3:27:04 PM

Creation User superuser

Domain UUID DWShared

Last updated date 10/3/2012 3:27:04 PM

Name P-HV-1052

Object Configuration PL\_Vincent

Drawing(s)





# **Capturing “Brownfield” Facility - What we did earlier**





File Find Query View Progress Administration Window Help SmartPlant Datalists

Items: Engineering Documents...

Find

Tree

View and Markup 21 Unit Model-SITE\_1-0001

**P-EDMS**  
**PETRONAS**

View and Markup 21 Unit Model-SITE\_1-0001 [21-LV-4111] - Composed of

Properties

Actuator diameter	
Actuator height	
Container ID	
Creation Date	6/13/2011 4:12:55 PM
Creation User	Imanis
Cylinder height	315 in
Description	LEVEL CONTROL FOR 21-VA-41
Domain UID	BDS
Dry installed weight	
Face 1 to centerline	5.906 in
Face to face dimension	11.811 in
Handwheel diameter	
Handwheel offset	
Handwheel rotation	
Instrument dimension	5001
Instrument function	V
Instrument loop id	
Instrument process	Control Valve
Instrument tag prefix	Z1
Instrument tag suffix	4111
Instrument tag suffix	
Last updated date	11/11/2012 10:48 PM
Measured variable	I
Name	Z1-LV-4111
Object Configuration	PL_SPC_Processing_Complex
Operation diameter	
Operation height	
Piping materials cl	
Positioner height	
Positioner length	
Positioner offset	
Positioner offset 1	
Positioner offset 2	
Positioner rotation	
Query Configuration	P-EDMS
Termination Date	
Termination User	
Valve outer-to-center	5.118 in
Valve outer-to-han	
Wet operating weight	

View and Markup E060-AD-21-P0413.D01

File Edit View Layer Markup 3D Tools Window Help

Identify the first point to start piping

Mutuals...

Query Scope: P-EDMS

Create/Update Scope: P-EDMS

Effective Date: Now

User: LEE KIM JOONG (Ned)



**NOW, we can do “MORE”**





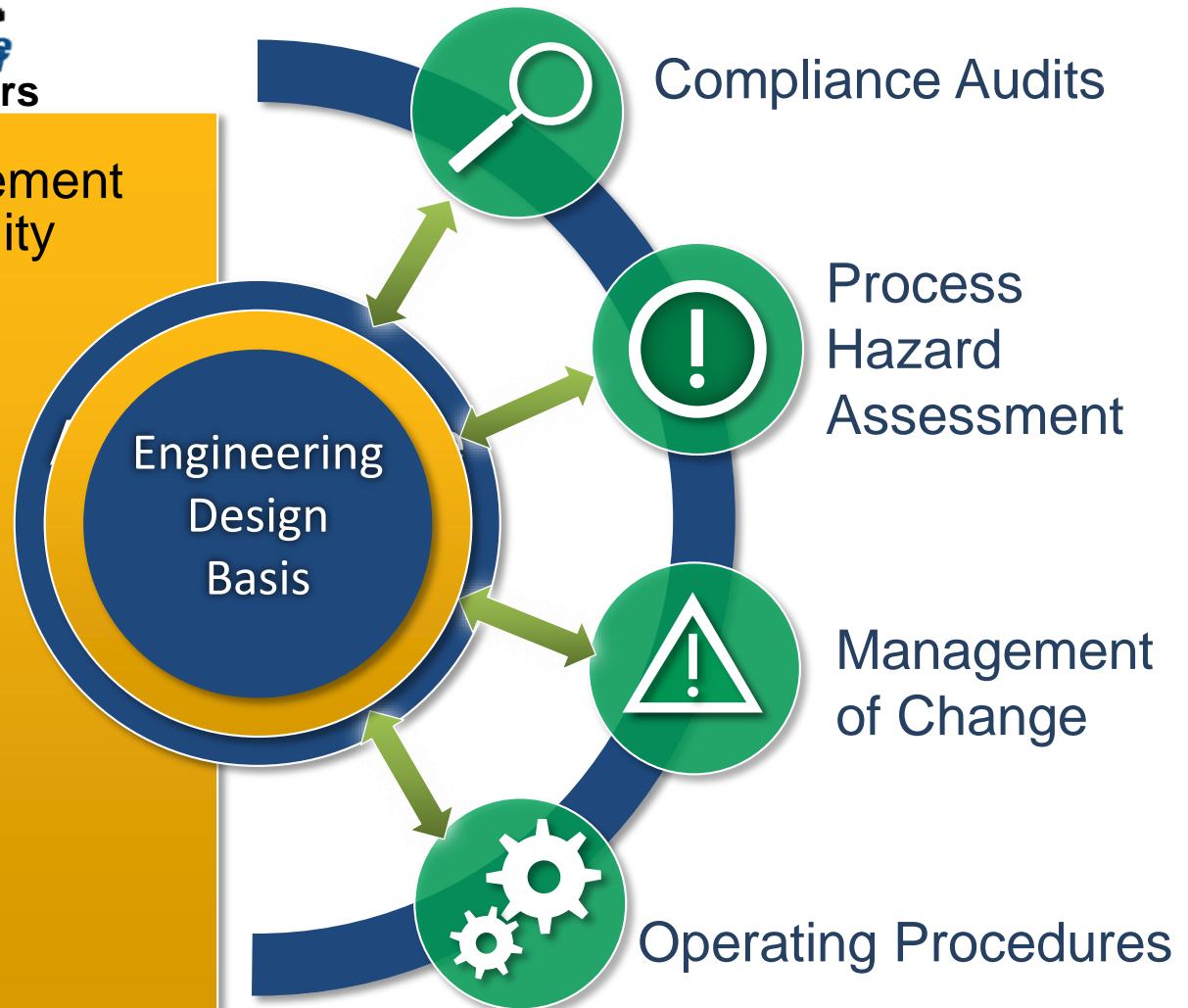
# Getting your Engineering Data Right: NOW, we can do “MORE”



For Owner / Operators

The collection, management and distribution of Facility Information that is...

- **Accurate & Validated**
- **Consistent & Complete**
- **Accessible & Secure**
- **Timely & Actionable**





**Thank You**

