




# Exploiting the Virtual Plant Asset to achieve business benefits across the facility's life-cycle





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## External pressures

-  Globalization and competitive cost pressures
-  Regulations, stringent enforcement and penalties
-  Focus on process safety and asset integrity

## Internal challenges

-  Qualified resources
-  Complexity and compressed project timeframes
-  Aging assets
-  Acquisitions and JVs

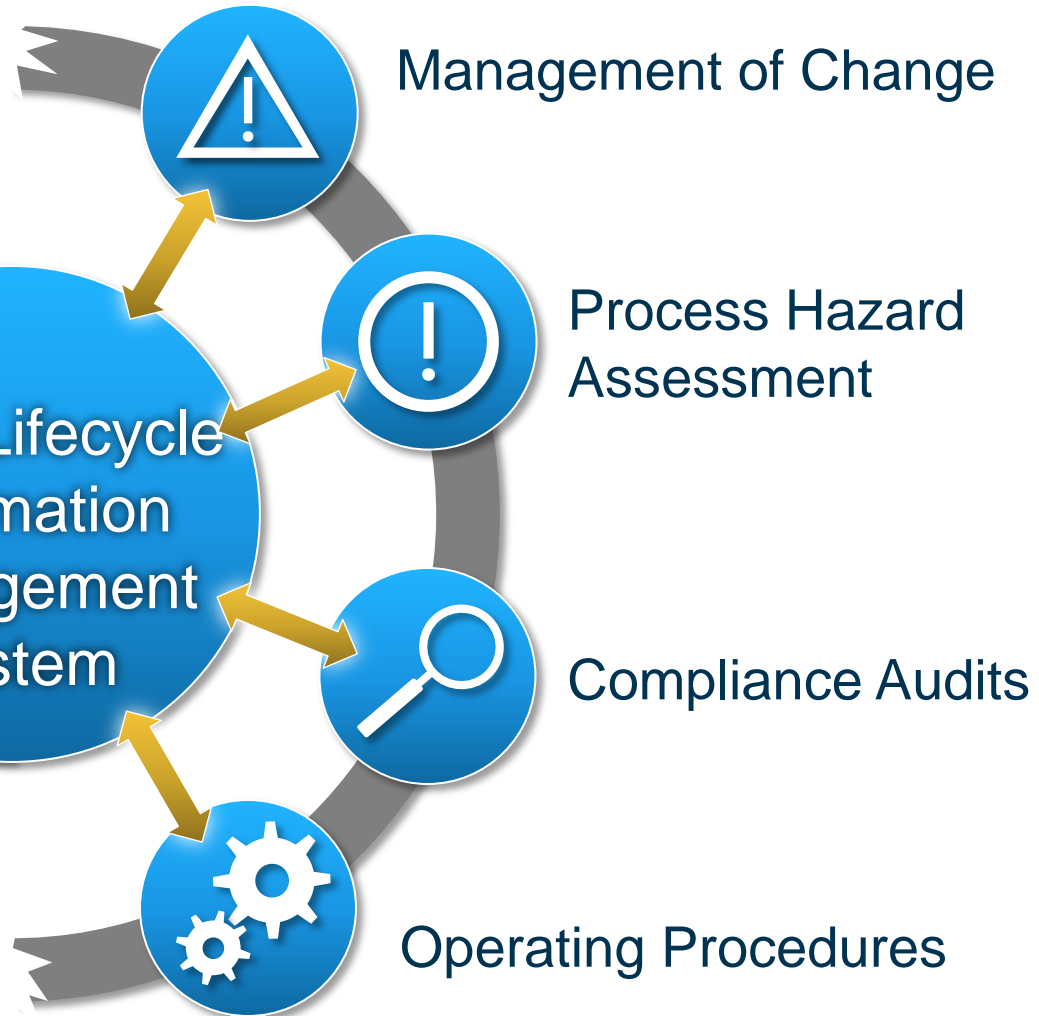
# Business Impacts



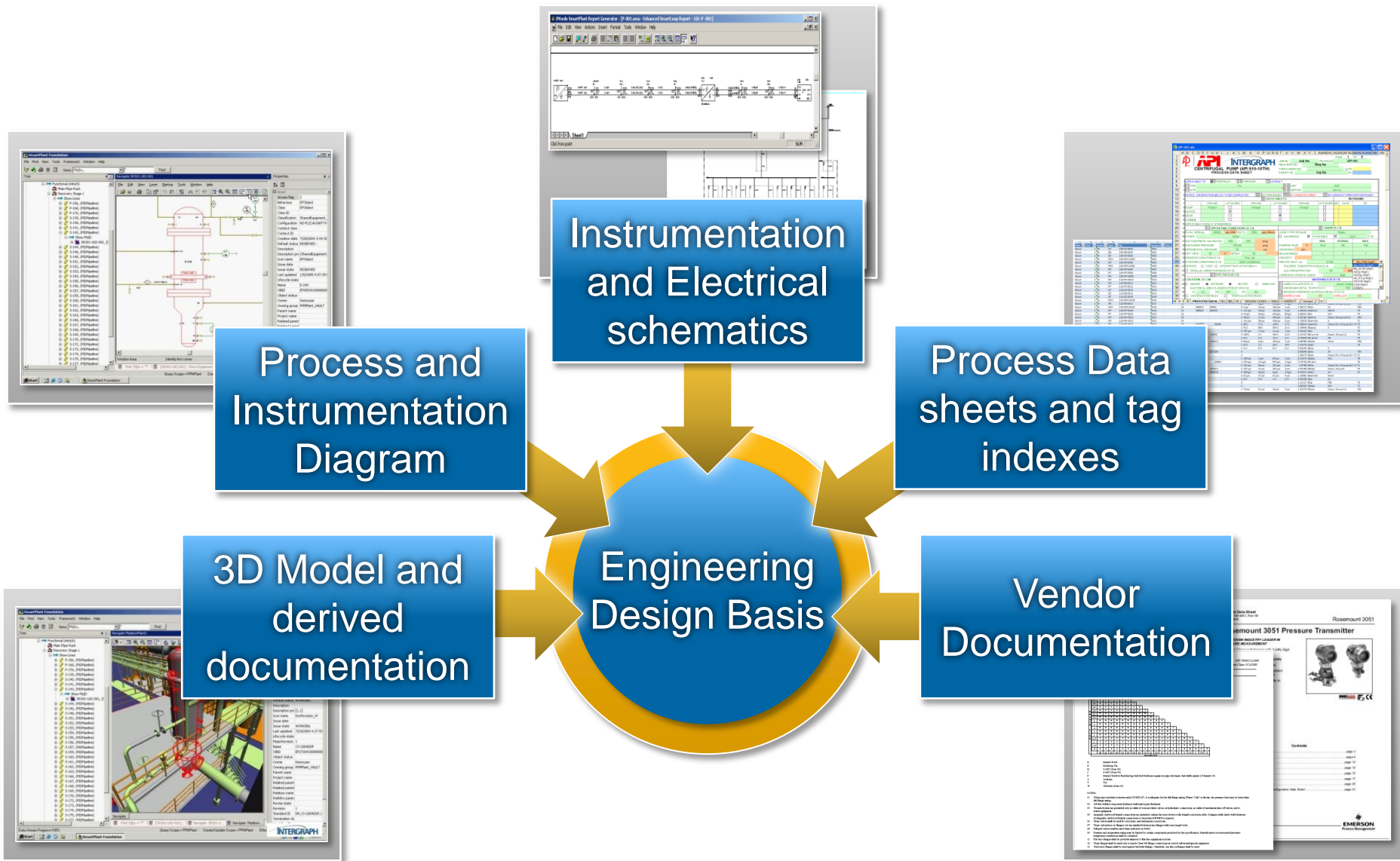
Asset information that is...

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

Asset Lifecycle  
Information  
Management  
System



# The Engineering Design Basis



# A staged approach to Information Management

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Leveraging Structured Information

Managing Structured Information

Visual Training using Laser scans

Incorporation of Photo-realistic Laser scans

Managing Unstructured Information

The vast majority of Plants today have information collected over many years from different sources and it exists in multiple formats

- Large quantities of Paper
- PDF & image formats
- CAD & Office formats
- Created in multiple versions of software
- Often residing in windows file systems...
- Not easily accessible by a large community...
- With data naming and numbering inconsistencies...
- Often not reflecting the as-built state of the plant...



VS.

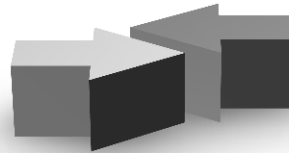


Legacy, uncontrolled & unstructured information is present in our organisations...  
our ability to react to situations will be constrained by how well we deal with it...

# Brownfield Data Capture - Use Cases



- Rebuild/Expansion Projects
- Acquisition of a brownfield asset
- Greenfield Handovers
- Turnarounds
  - \$ Time critical plant information access
  - \$ Minimising travel
  - \$ Information mobility
  - \$ Time spend searching for valid information
  - \$ Data quality & Integrity



# Case Study - The Brownfield site



The **Ngujima-Yin** is moored 50 kilometres off the Western Australian coast. It is 333 metres long and the largest FPSO in Australian waters. The Ngujima-Yin operates at a depth of 350 metres and has a daily production capacity of 120,000 barrels of oil.

To bridge this gap we need.....

**STRUCTURED | INTEGRATED | OPERATIONAL INFORMATION | ONE SOURCE**

**Re-purpose (Re-use)**

**QA/QC (Improve)**

**Link and cross-reference**

**Identify Masters**

**Rapid capture**

**MULTIPLE SOURCES | UNSTRUCTURED | NON-INTEGRATED INFORMATION**



**McMULLENNOLAN** GROUP

Surveying Excellence

# A staged approach to Information Management

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Leveraging Structured Information

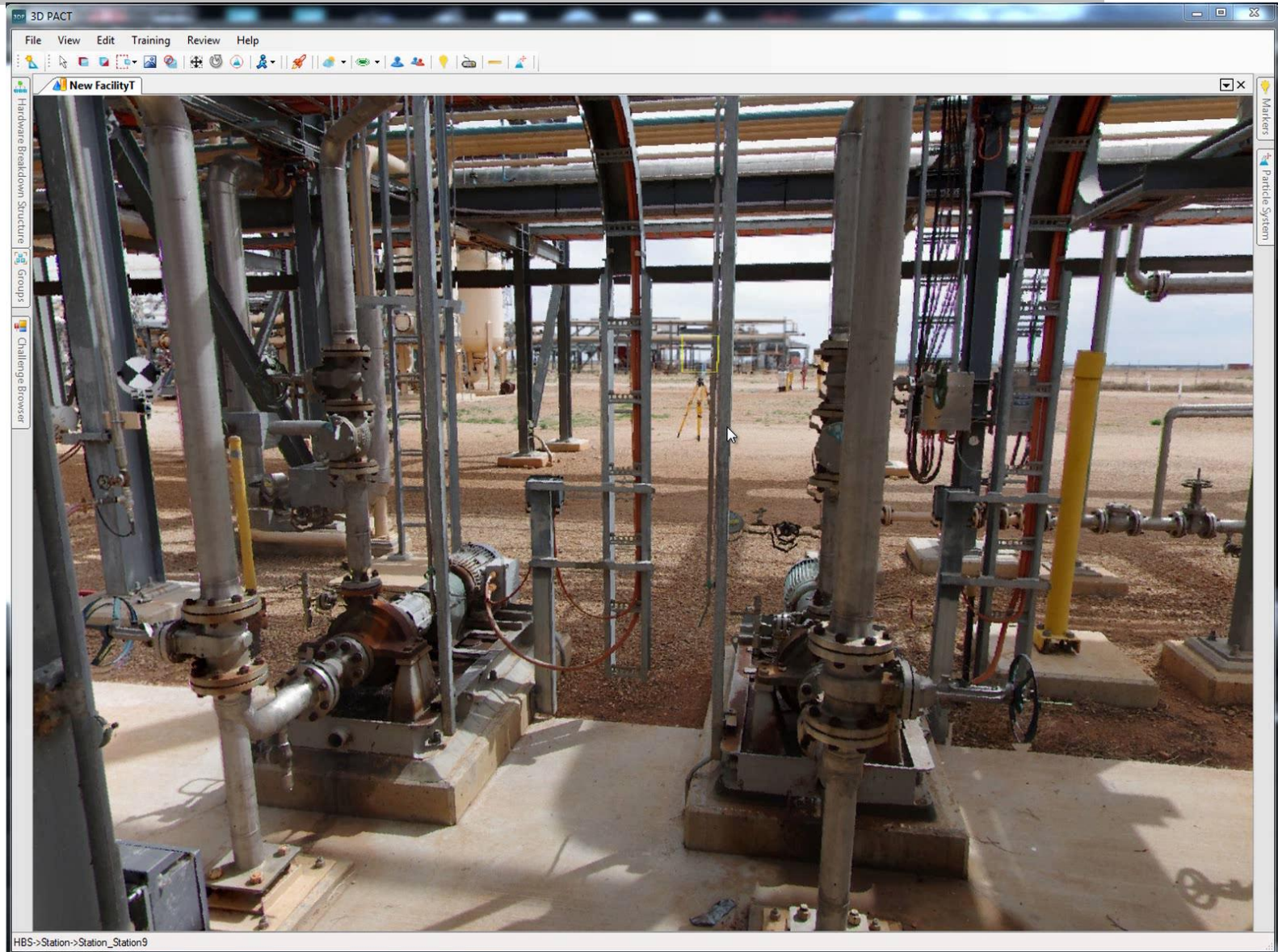
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# Better Training = Better Results



# A staged approach to Information Management

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Leveraging Structured Information

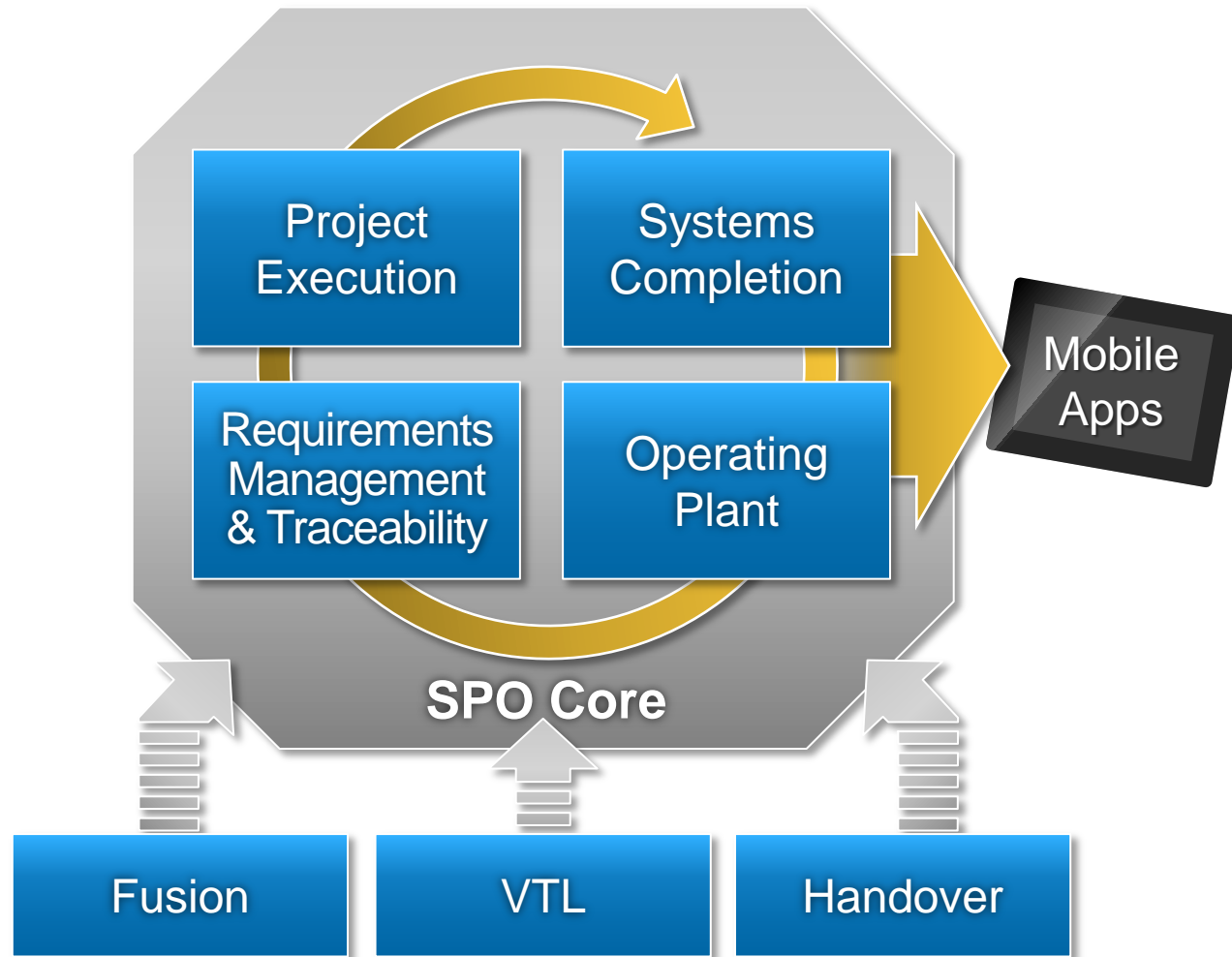
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# Managing Facility Life-cycle Information and leveraging it to provide added value



LEVERAGING STRUCTURED  
INFORMATION EXAMPLE:

SPO SYSTEMS COMPLETION AND MOBILE  
APPLICATIONS

# How SPO drives results



Maintains  
quality  
lifecycle Info

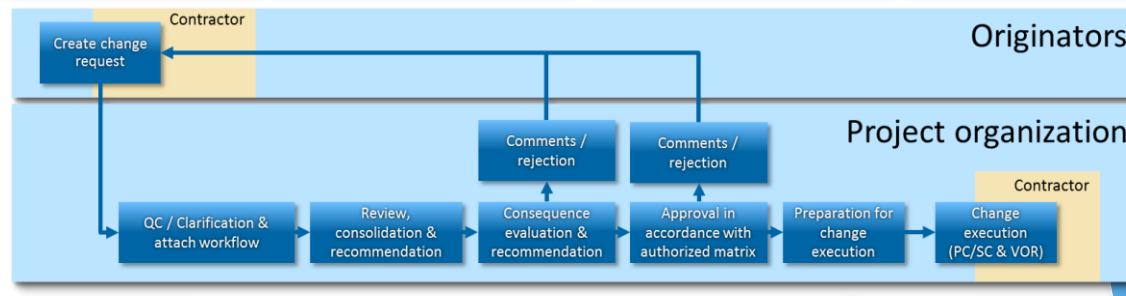
Supports  
collaboration

Enforces  
work  
processes

Provides  
management  
visibility

Ensures  
auditable  
traceability

Integrates  
with existing  
solutions



Enterprise  
Systems



Engineering Design  
Basis

SmartPlant  
Enterprise

Operational  
Systems

# Brownfield Case Study – GASSCO (Norway)



## Challenges

Improving plant asset integrity in an environment of different and complex legacy systems, with information of varying quality, and in multiple data formats

## Solution

SPO Core  
Document/  
Transmittal  
management  
Tag management

SPO Operating  
Plant  
SAP PM integration  
Management  
of Change

Integrated  
design tools  
SPI  
SPID

## Benefits

Improved Management of Change to demonstrate compliance  
Improved collaboration with maintenance & modification contractors  
Consistency of information between SPO and SAP  
Reduced customisation



# Greenfield Case Study – INPEX



## Challenges

Improve collaboration across the project

Ensure information consistency and accuracy across all engineering contractors

Provide operations team with early access to design and operational data

## Solution

SPO Core

SPO Project  
Execution

SPO Operating  
Plant

SPO VTL and  
Handover

Design tools: S3D,  
SPI, SPID, SPEL

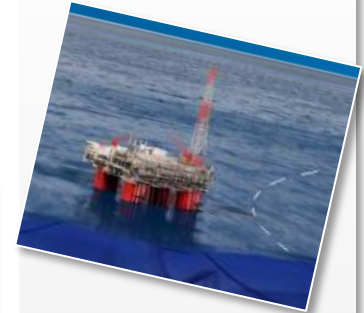
## Benefits

Integrated information management system  
with a single point of access

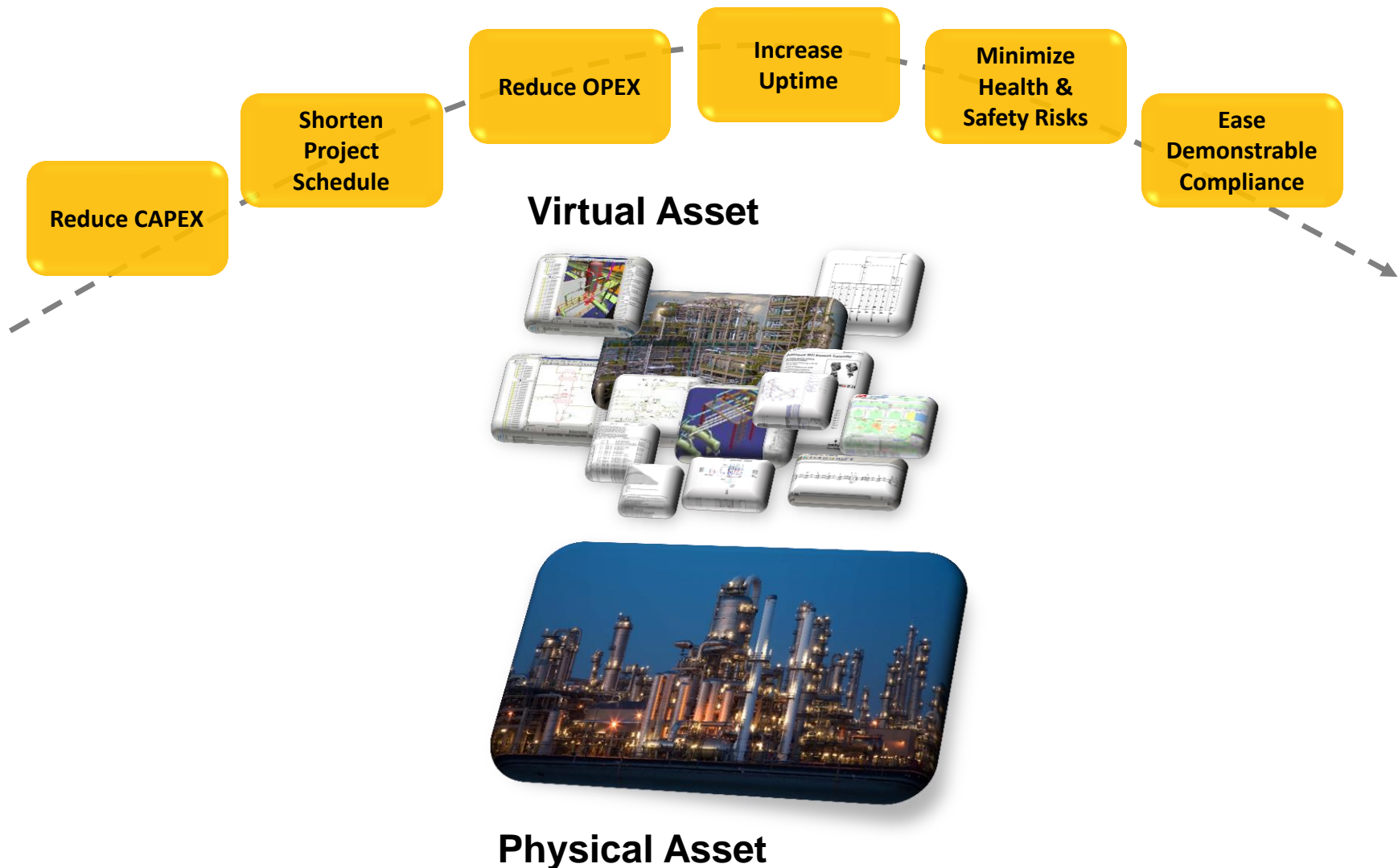
Rapid commissioning and start-up

Reduced data handover costs

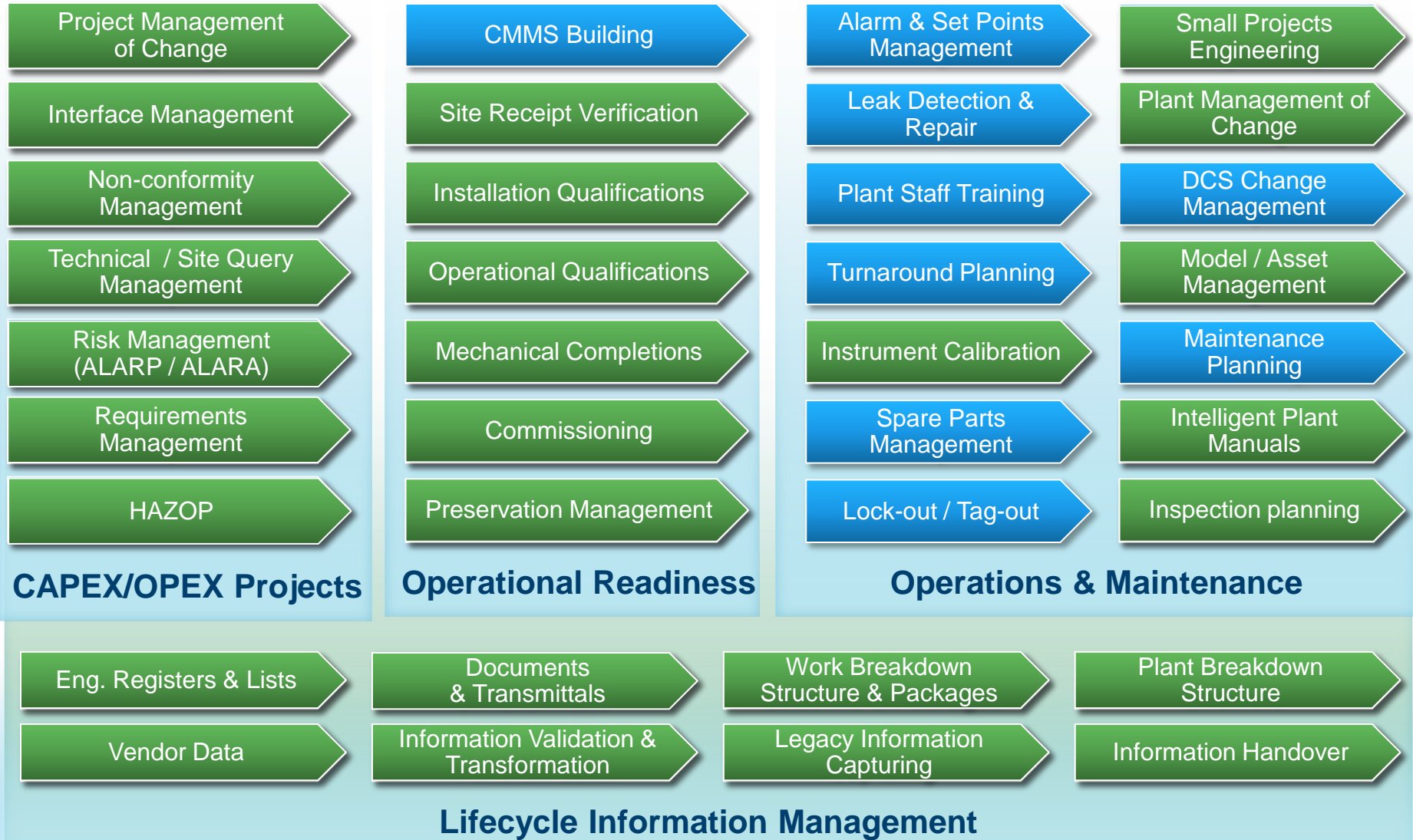
**INPEX**



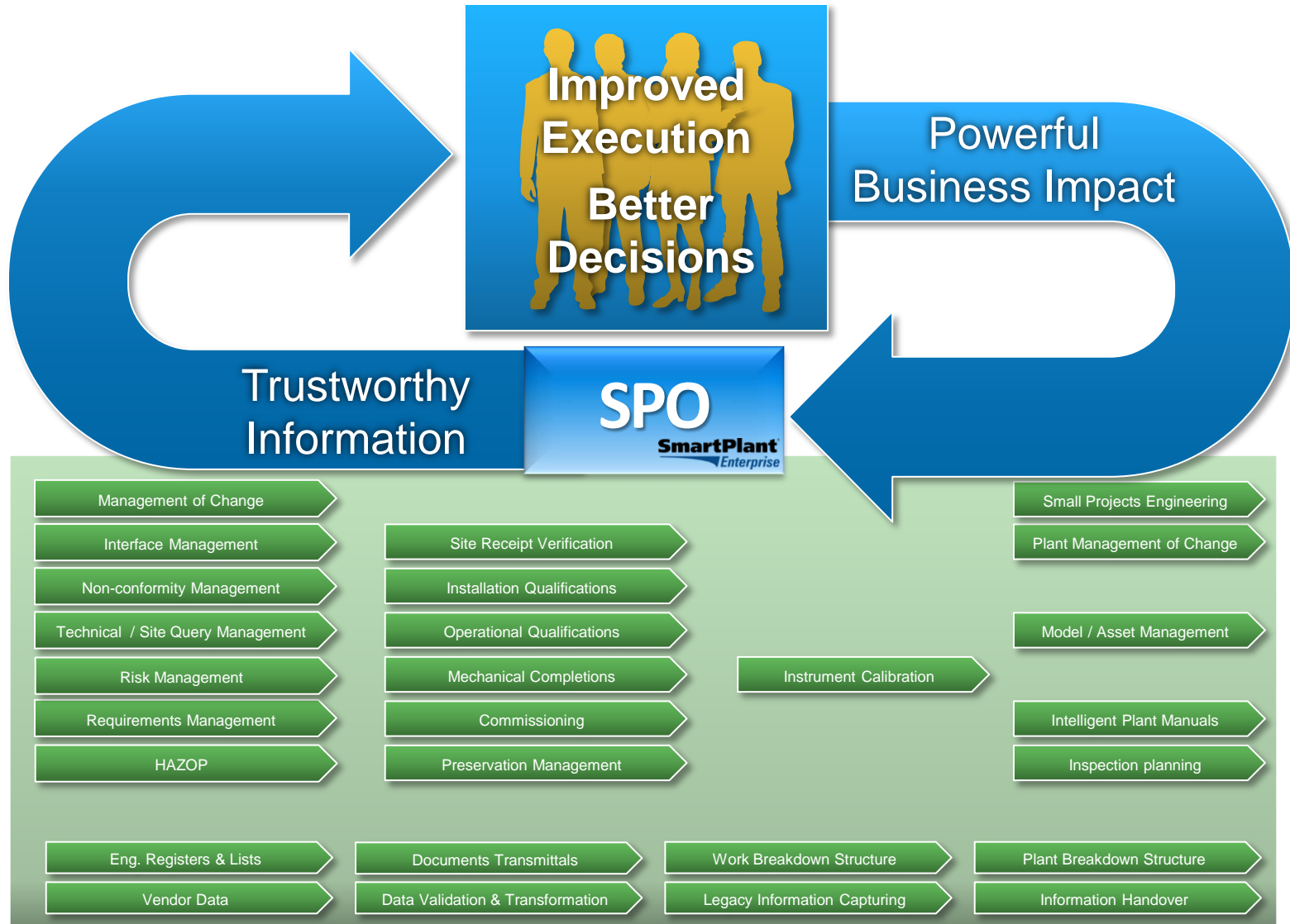
# Impacting Real Business Processes



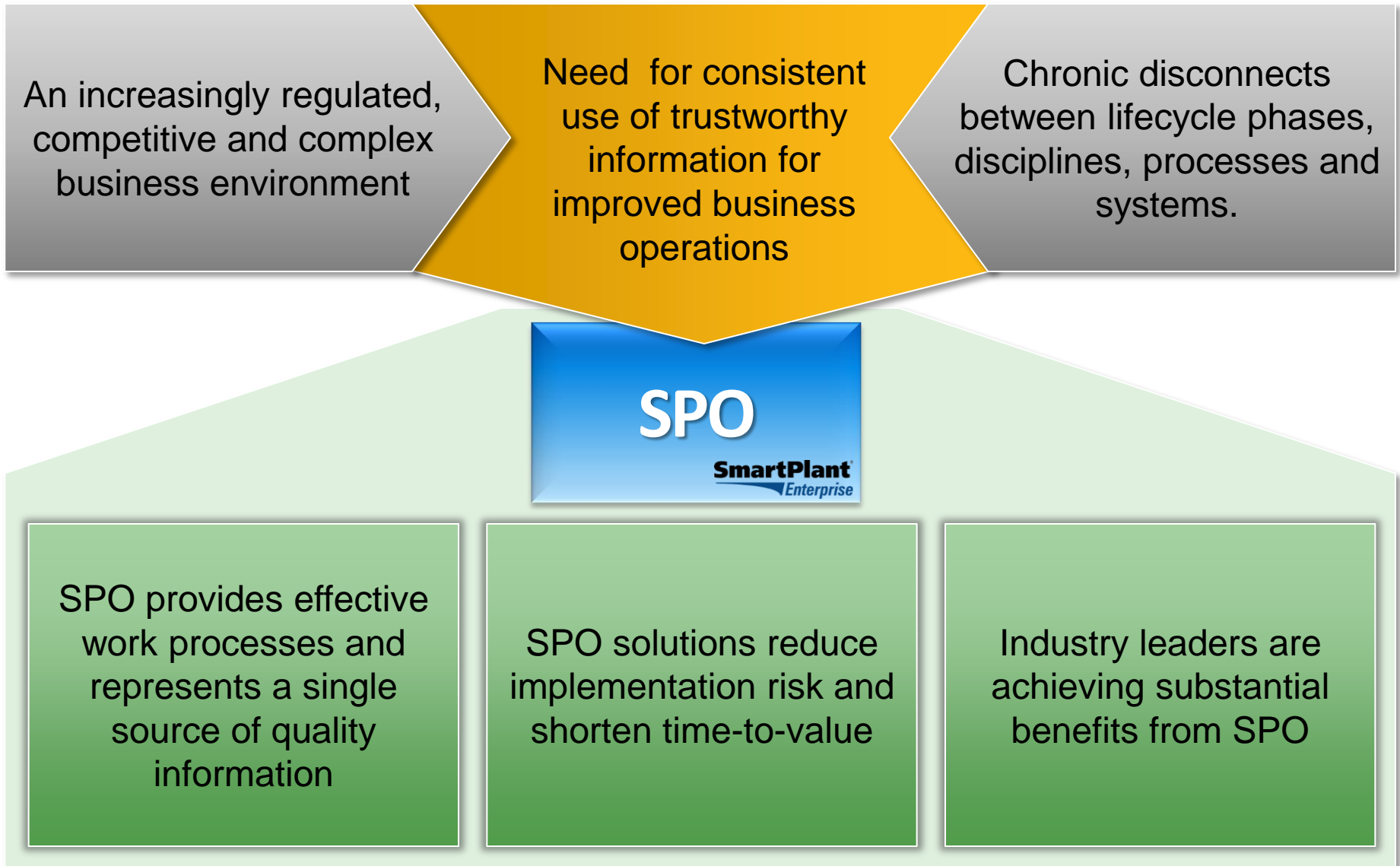
# Impacting Real Business Processes



# Impacting Real Business Processes



# Summary





**SAFETY**

**QUALITY**

**PRODUCTIVITY**

**THE FUTURE OF ENGINEERING – TODAY**

