

Intergraph Process, Power & Marine 2008 Annual Conference

Review of an active project

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dU3

sasol
reaching new frontiers



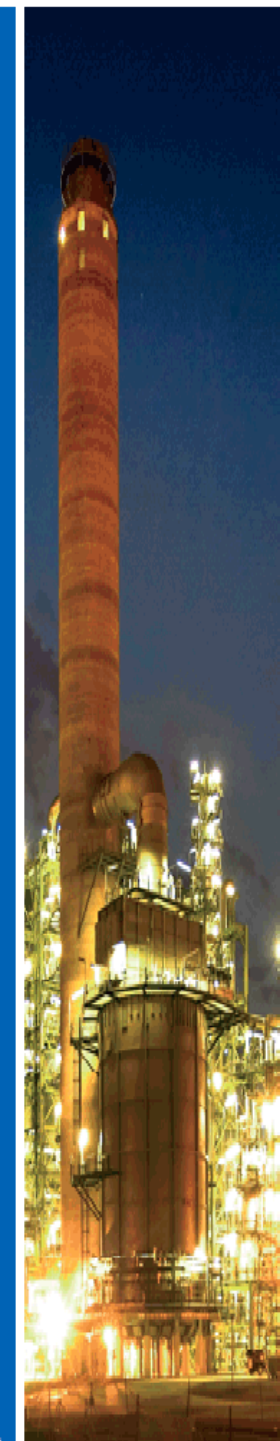
dU3

EXPERIENCING SASOL:

Our treasure chest of products touches the lives of millions of people around the globe each day, whether we are working, sleeping, travelling or communicating.

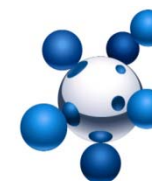
We manufacture many of the ingredients in products that contribute to our quality of life-from unleaded petrol for transport, to polyethylene bags, and from computers and cell phones microchip coatings, to paints, toiletries, medicines and sport equipment.

default User; 27.05.2008



Sasol Facts

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Sasol:

- contributes towards South Africa's GDP
- supplies about 40% of the country's liquid fuel requirements
- is South Africa's largest private industrial investor
- provides direct and indirect employment to about 170,000 people
- has growth project to increase current output by 20%
- is the world leader in producing synthetic liquid fuels and chemicals from coal and gas
- adds value to low-grade coal in South Africa through our unique technology and produce more than 200 products for sale to customers in more than 120 countries
- employs more than 800 full time engineers, scientists, technologists and related professionals

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dU5

SLIDE 4:

Our growth strategy is also linked to our values which is the following:

Safety:

Customer focus

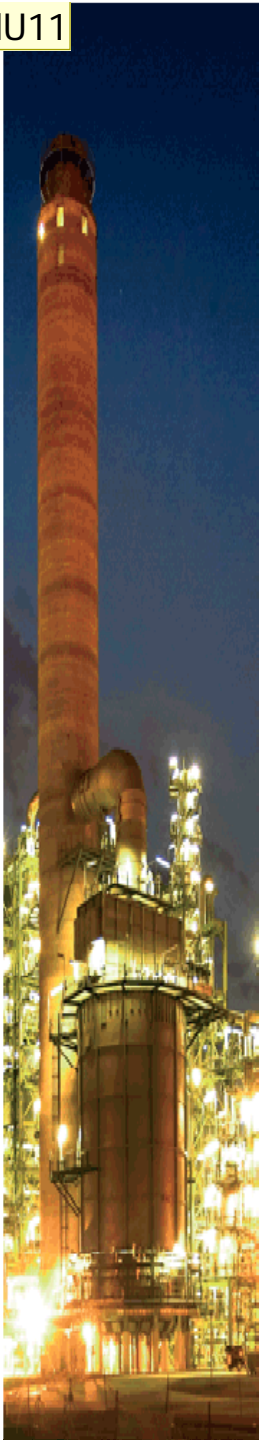
winning with people

excellence in all we do

continuous improvement

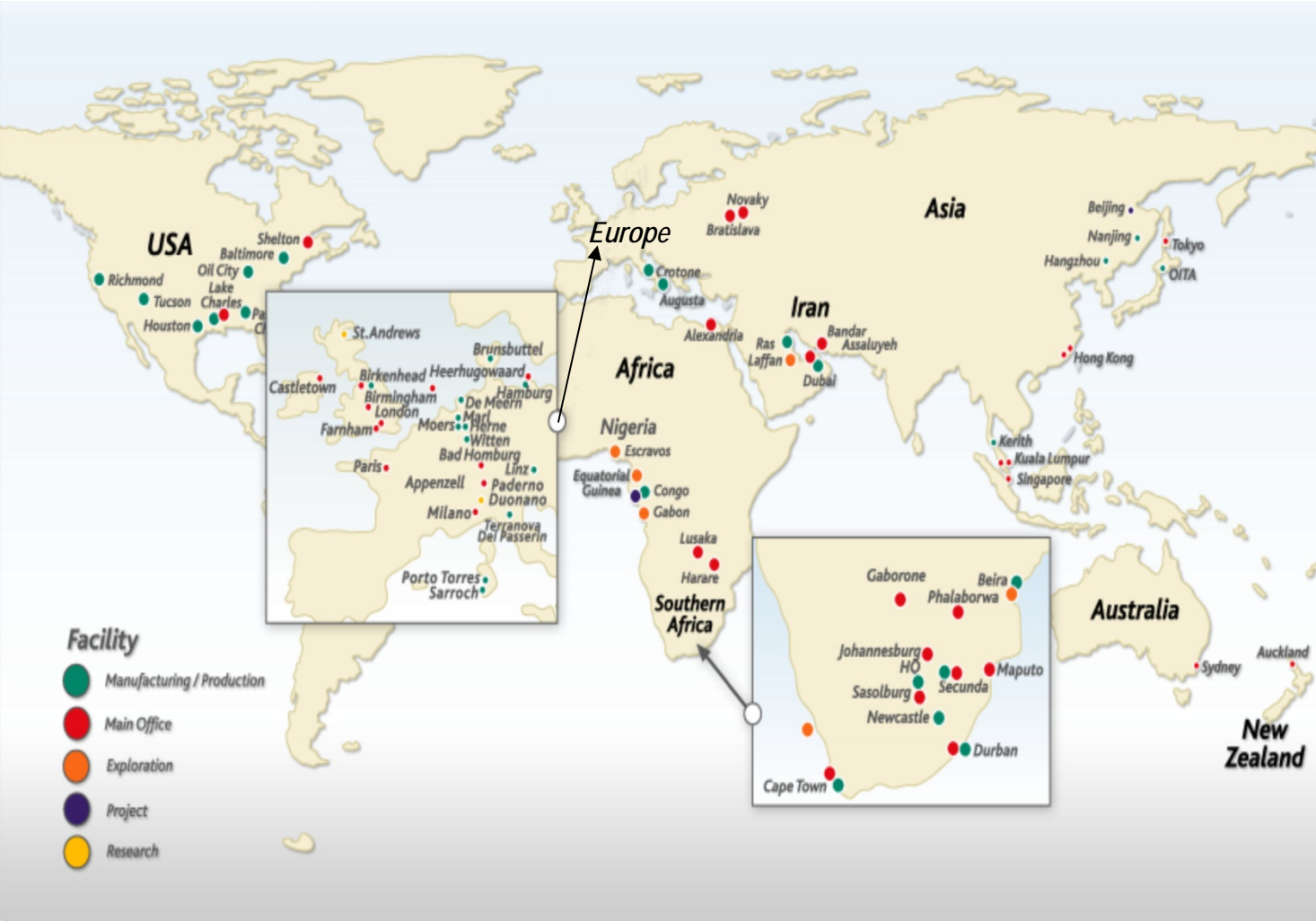
integrity

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Global map

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Slide 4

dU11

SLIDE 2:

Sasol explore globally in the :

USA

Europe

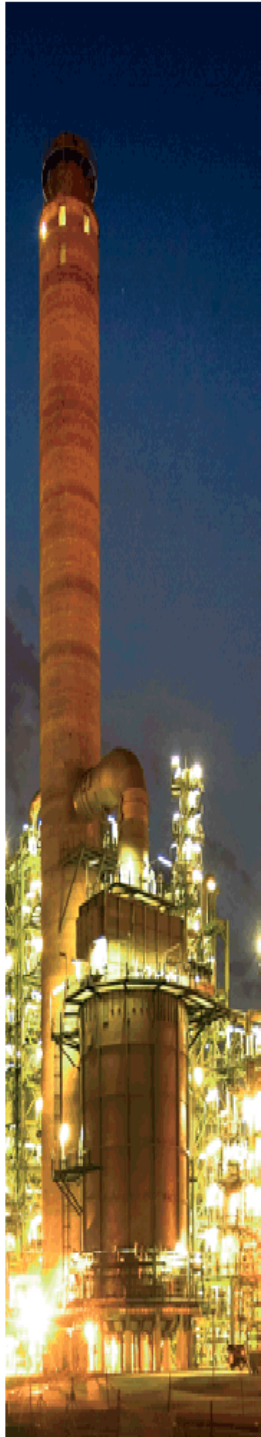
South Africa

Africa and Middle east

Far East

Australia

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Sasol Synfuels document management challenges

- from document to data centric working

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● previous situation

- master document management control system for legacy drawings is SAP DMS
- for instrumentation, SmartPlant Instrumentation (SPI) rolled out Sasol wide and operational for 7 years
- for electrical, SmartPlant Electrical (SPEI) implemented 2 years ago dU6
- previously all 3D drawings are in MicroStation format

● Engineering Document Governance (EDG) project

- roll out phase of the EDG project, completion by Dec-08
- align, implement and enable schematic (2D) tools; ie SPI, SPEI and SmartPlant P&ID (SPP&ID)
- roll out and implement modelling (3D) tool; ie SmartPlant 3D (SP3D)
- SmartPlant Owner-Operator (SPO) implementation in progress
- roll out SPO currently in progress in Sasol Synfuels Secunda

dU6 Engineering document governance(EDG)

At present, the requirements for owner documentation as per Sasol Synfuels specifications leave us with non intelligent drawings and currently a large number of drawing are outdated. Through the EDG project we will introduce a management of engineering information rather than documents. This create an environment in which all drawings are up to date, all related parties use the same technology and accurate cross referencing is provided.

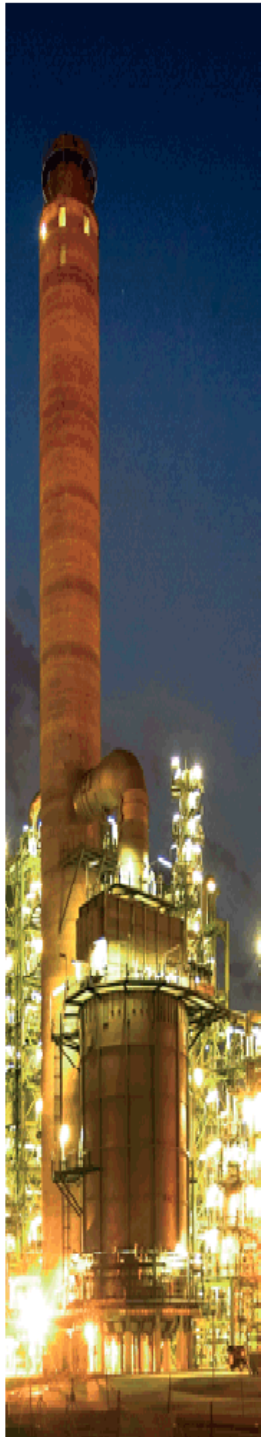
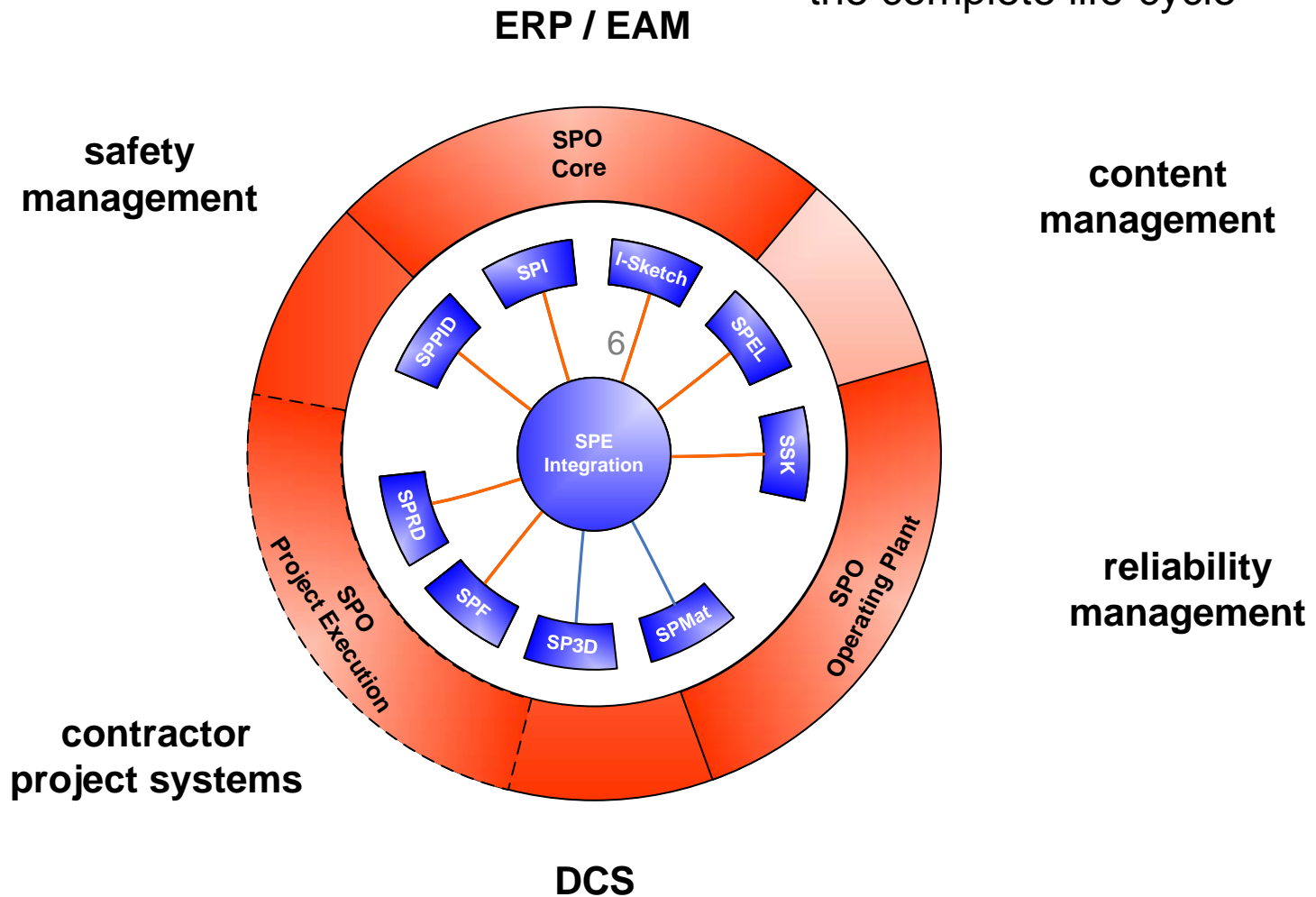
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SmartPlant Enterprise for Owner Operators (SPO)

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3 discrete solutions covering the complete life-cycle



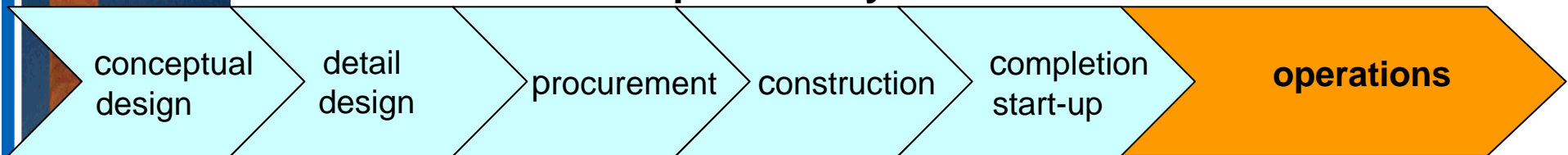
SPO work processes

- through the plant life-cycle

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complete life cycle



Solution: Capital Project Execution

- management of change (projects)
- interface management
- risk management
- non-conformities & waivers
- fabrication records management
- technical queries
- completion & start-up

Solution: Operating Plant

- brownfield data capture and transformation
- greenfield data transformation
- plant information browser
- management of change (operations)
- engineering assistant for maintenance
- engineering assistant for reliability
- engineering assistant for safety
- DCS change management
- intelligent manuals
- plant optimisation assistant

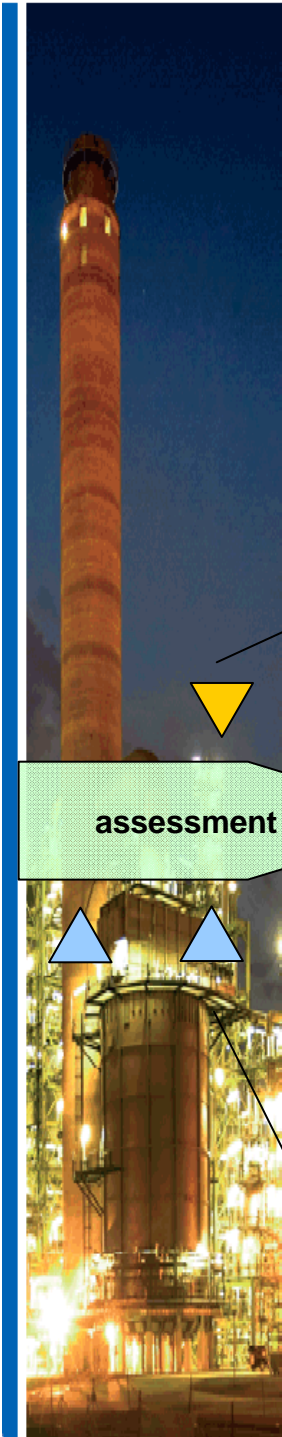
Solution: Core

- PBS and tag management
- document management
- plant data loading & QC

- on plant engineering & design
- vendor data capture
- inspections & audits assistant
- conceptual engineering

SPO implementation process

- stages



assessment

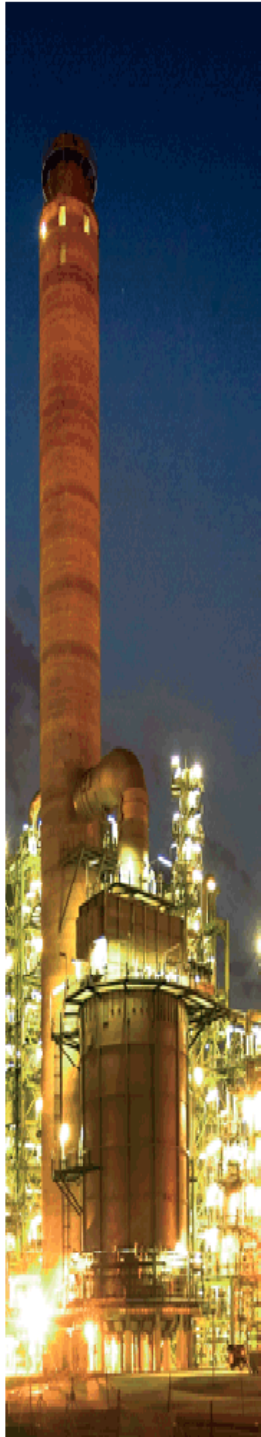
gap analysis & deployment planning

SPO deployment

key documents eg
business case
project charter & plan
risk management
commercials

workshops eg
data management
design tools
integration
MoC
operations
IT

- methodology
- templates
- workshops

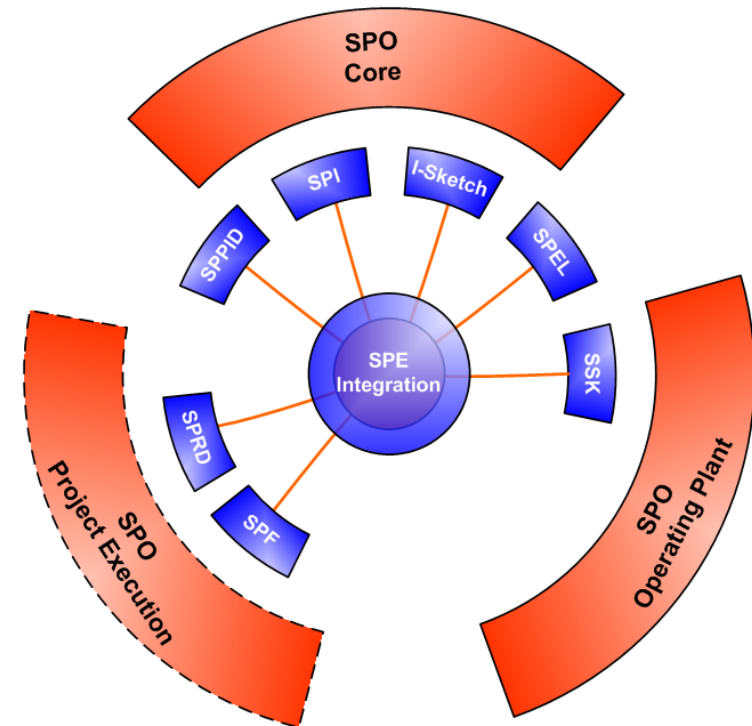


Timeline for SPO - implementation

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- During 2008 several workshops were held to:
 - define needs
 - document gap between the preconfigured SPO processes and Sasol's
 - design the system
- **SPO Core**
 - roll out phase: Jul-08
- **SPO Operating Plant**
 - procurement phase: Dec-08
- **SPO Project Execution**
 - budget phase: Apr-09

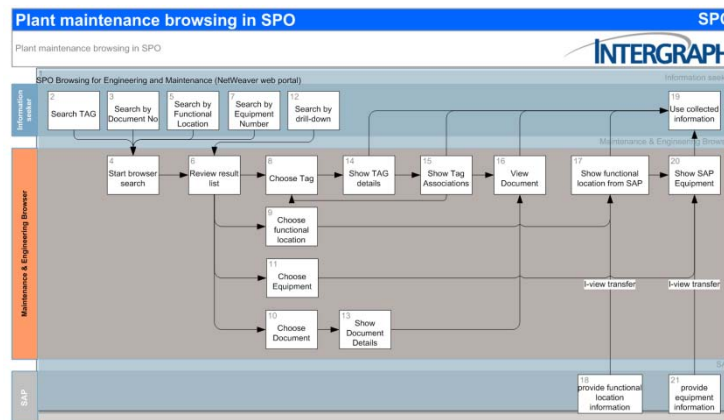
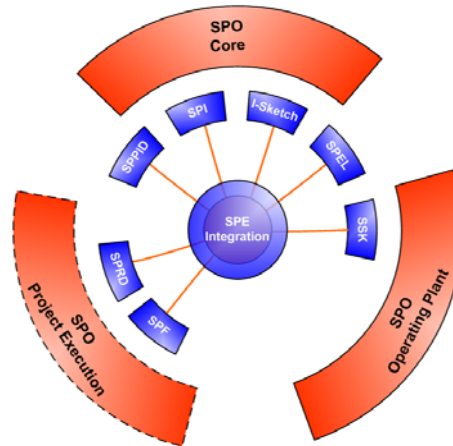


SPO recognises that Owner Operator (OO) work processes are different to EPCs and the essential difference between OO needs during CapEx project execution and operations

Reasons implementing SPO

- SPO Core expectations

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integrated tools ensuring consistency across the engineering design basis

- gives us an option to have pre-configured work processes and a workflow manager that will ensure better control and traceability of work processes
- manages integration of the tools environment to ensure consistency across the engineering design basis and collaboration between the different tools
- provides key work processes such as central tag and document management, data loading, isometric maintenance, conceptual engineering and managing the plant breakdown structure
- provides multiple, alternative data discovery routes
- offers a simple site wide licence

Reasons implementing SPO

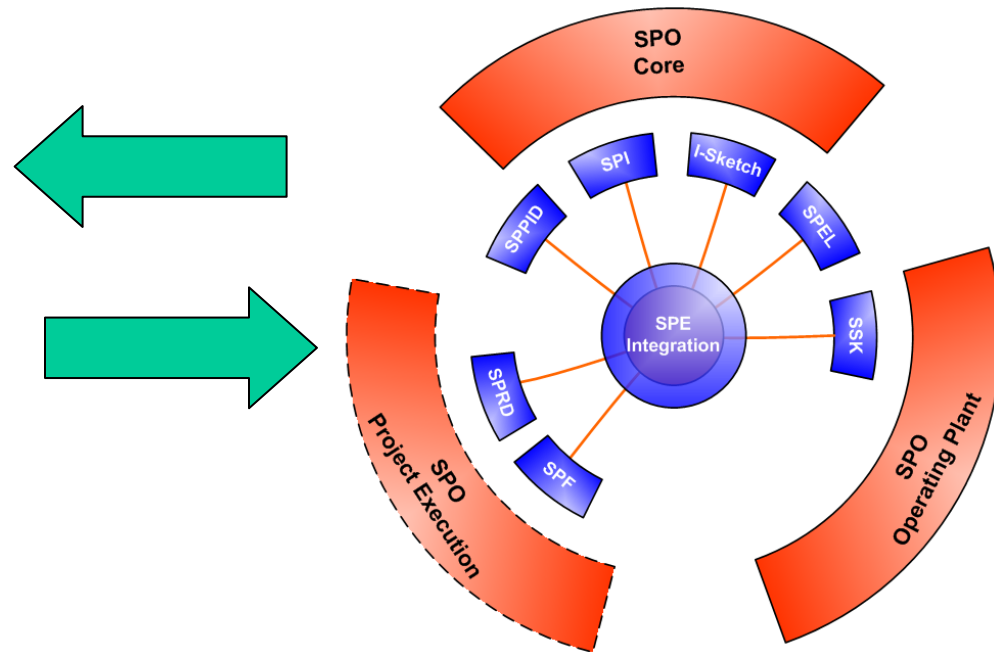
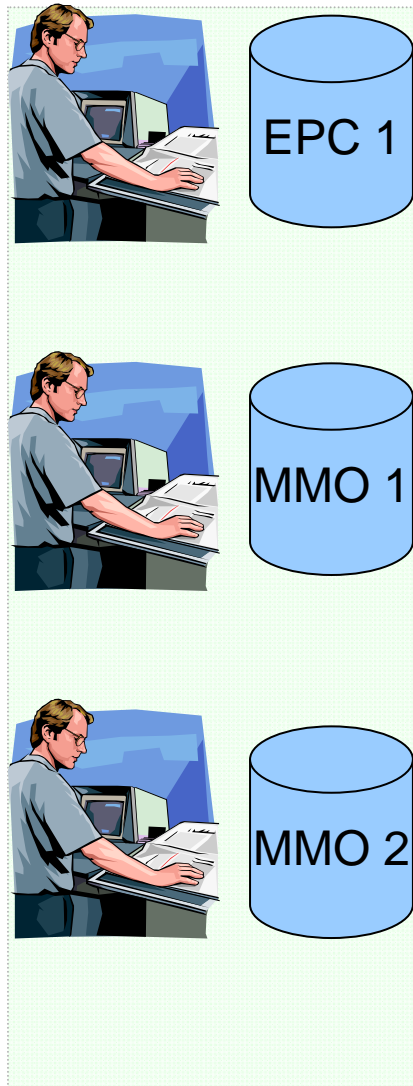
- facilitating data exchange with EPCs

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for maintenance, providing mechanisms to export and merge data back into the engineering design basis



for minor modifications, ensuring easier and more rapid handover to operations

dU8

SLIDE 9:

SmartPlant for owner operators(SPO) provides an integration platform between the different SmartPlant engineering tools. Data inport and export will be done through SPO.

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Reasons implementing SPO

- SPO Operating Plant

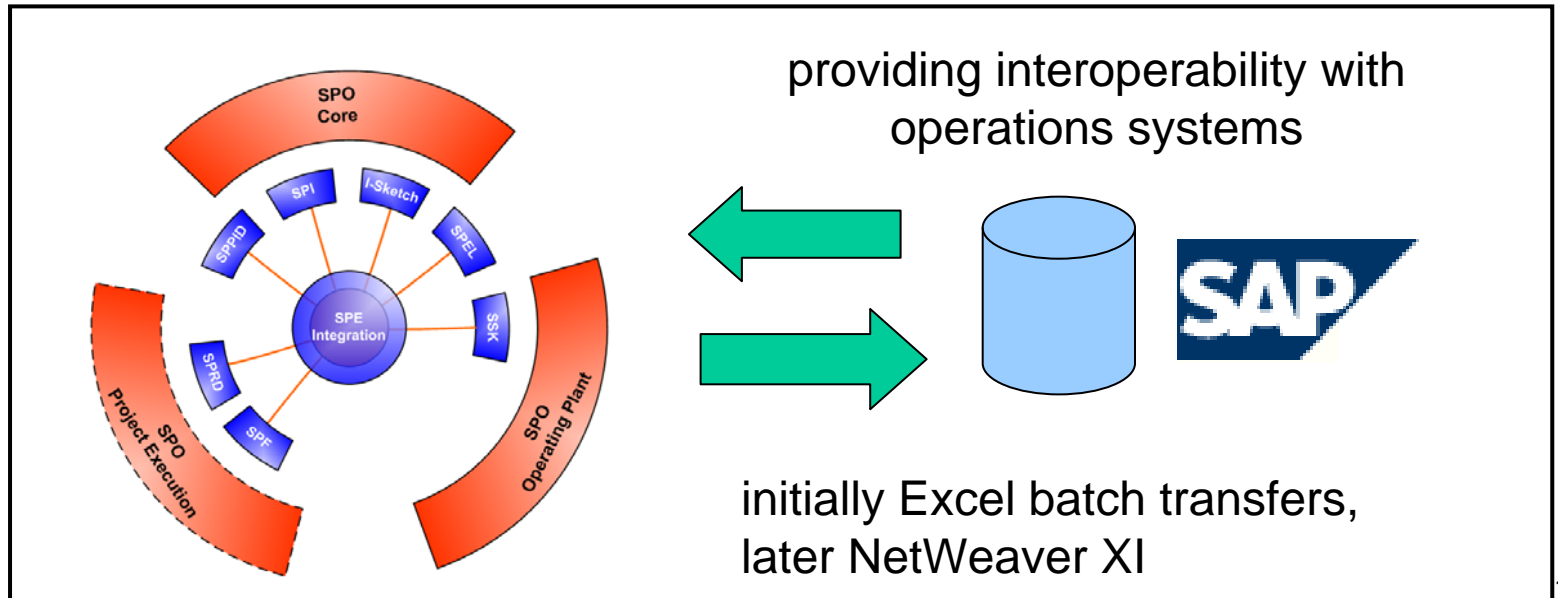
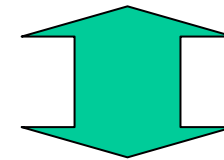
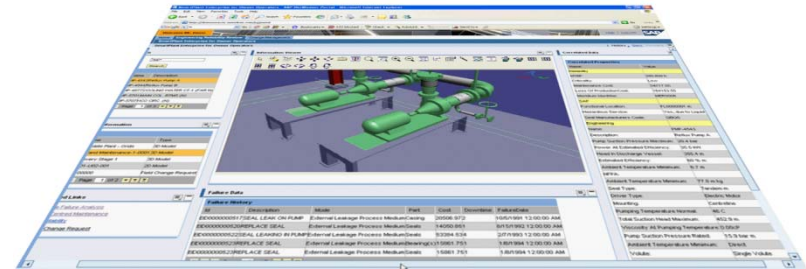
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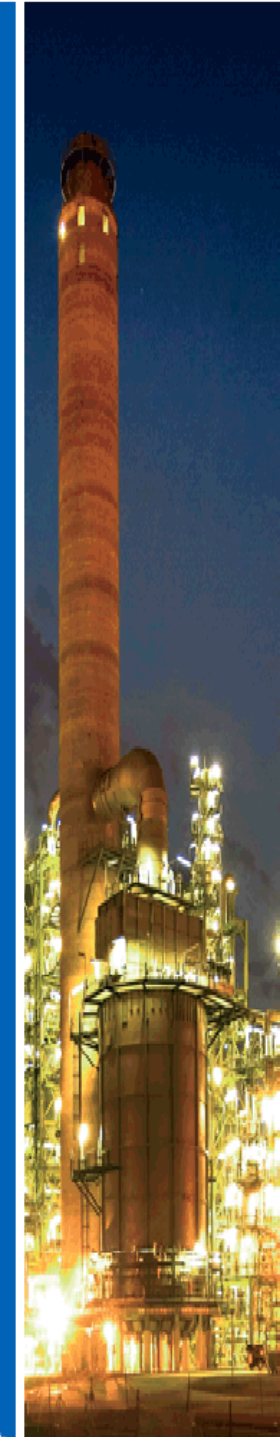


expectations:

- easy access to data in SPO and SAP work processes and workflows
- improved consistency of data between engineering design basis and SAP
- later integration with reliability system

common NetWeaver web portal





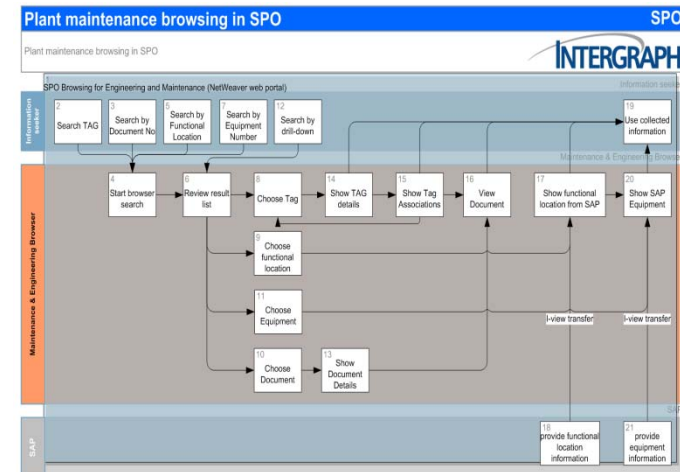
Reasons implementing SPO

- preconfigured work processes

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- selectable solutions for customers application, documented, generic work processes that can be rapidly configured to meet Sasol specific needs
- SPO Core:
 - central tag and document allocation **dU9** of Sasol plant
 - plant breakdown structure management
 - data loading
 - isometric maintenance
 - conceptual engineering
- SPO Operating Plant:
 - portal browsing
 - management of change



dU9

SLIDE 11:

Plant breakdown structure is currently structured as follows:

Site

Plant

Unit

and then the type of equipment and number.

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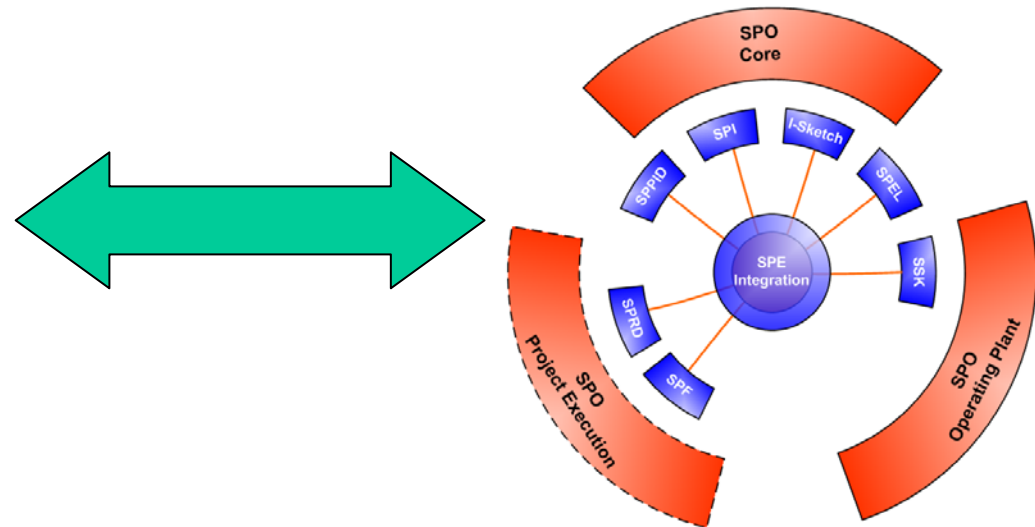
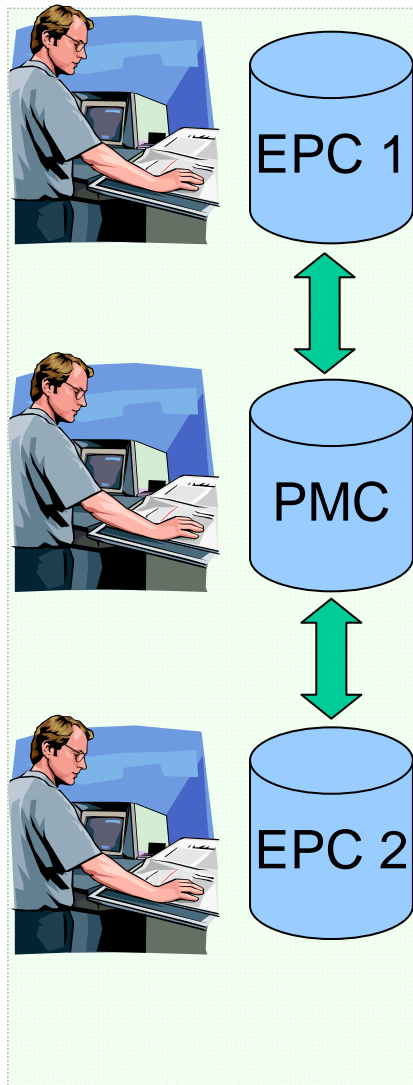
Reasons implementing SPO

- SPO Project Execution expectations

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- management of project change
- non-conformance management
- contract interface control
- technical query management



- improved visibility of critical project processes and identification of bottlenecks
- seamless handoff of processes with contractors
- full auditable traceability
- ensure consistent implementation of procedures and authority matrices

Sasol Synfuels & 3D

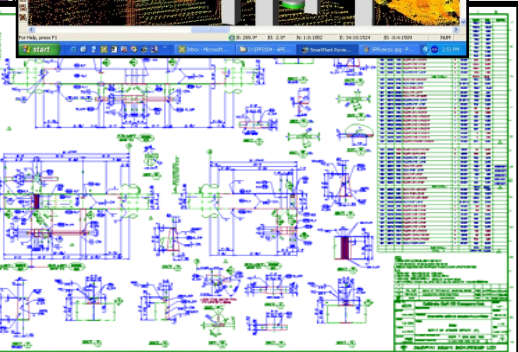
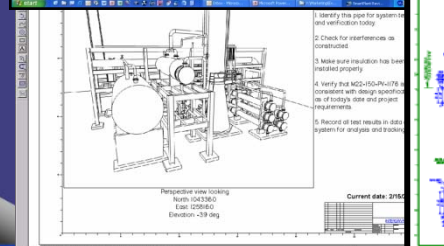
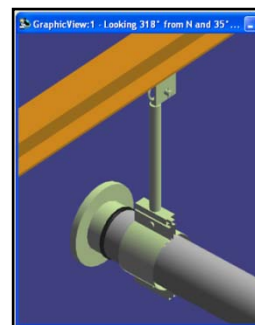
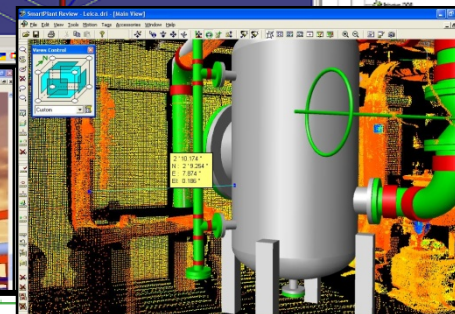
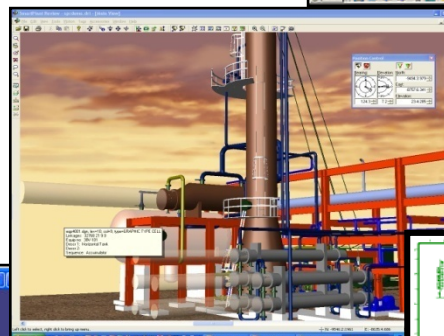
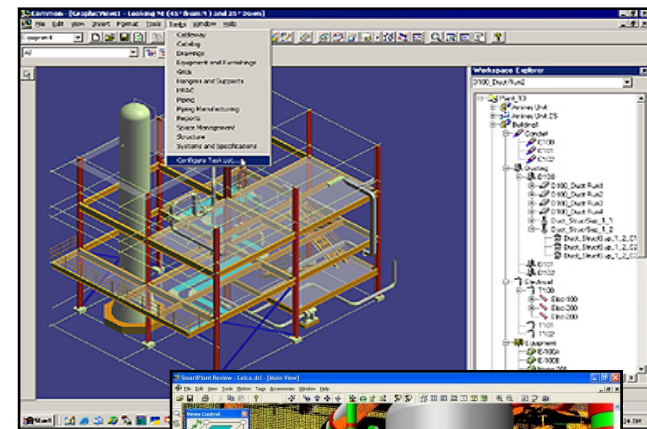
- intelligent model

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- roll out and implement modelling (3D) tool; ie SmartPlant 3D (SP3D)
 - Sasol requirement to have a SP3D model

- EDG project SP3D status:
 - population of library complete
 - roll out to EPCs by Q1-09



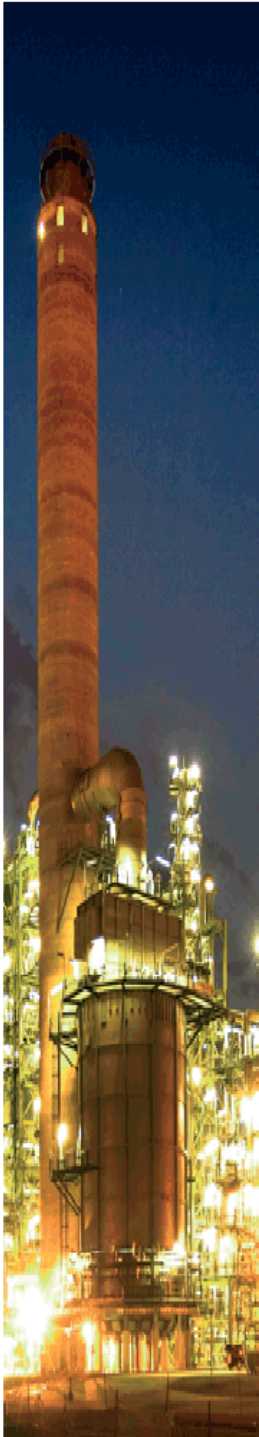
SPO summary

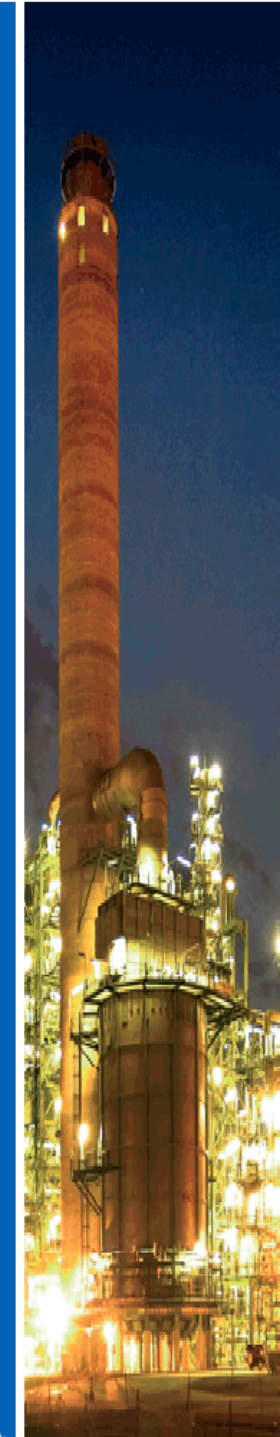
- value propositions

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- reduced time to locate critical information in SPO and SAP via common NetWeaver portal
- improved engineering design basis consistency through design tool integration reducing need for walk-downs
- improved consistency between the engineering design basis and SAP
- reduced effort and lag-time and improved quality in handing over project data and documentation to operations
- improved project execution, reducing CapEx and project schedules
- improved management of change (MoC) during operations with auditable traceability
- increased visibility of non-conformities during operations to help prevent incidents



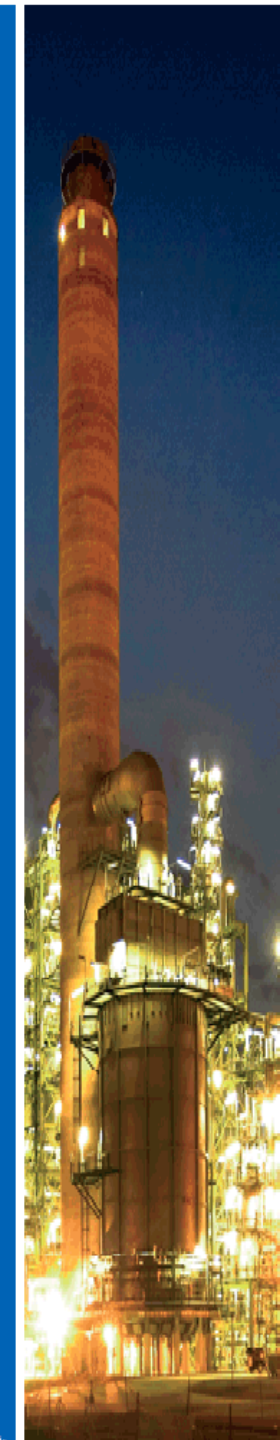


SPO challenges

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- internal resource development
- EPC resource development
- introducing governance principles
- organisational change management
- alignment of software version and seed files with EPCs
- IT infrastructure and bandwidth
- launching DMZ project
- manage integration of work processes and engineering information



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THANK YOU