



# CSG Business Transformation

Transforming data to actionable information to empower a rapidly scaling CSG Operation

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# The Business Imperatives



## Origin QLD CSG Business Challenges:

- Safety of personnel
- One of the first global instances of a commercial scale production of LNG from CSG
- Topography
- Infrastructure desert
- High growth business with a reliance on tacit knowledge
- Silo centric operational methodology
- Data/Information not regarded as an asset
- Ad-hoc systems & processes to support “stay in business” at the expense of efficiency

## Oil & Gas Challenges\*

- Addressing sustainability issues;
- Complying with regulatory & reporting requirements;
- Improving performance and operational effectiveness;
- Industry transactions & consolidation
- Managing financial risk;
- Managing geopolitical risk;
- Recruiting and retaining a skilled workforce ;and
- Securing the supply.

# What is Integrated Operations?



Integrated Operations (IO) is about making faster, better decisions and it achieves this through:

- Moving to a real-time or near real-time way of working
- Breaking down geographical boundaries of remote operations
- Moving to multi-disciplinary teams

**IO is the integration of people, process & technology to expedite the decision making process in a collaborative environment that is enabled by the use of data & multi-disciplinary process orchestration.**

# Why Integrated Operations?



Some of the benefits of IO are as follows:

Statoil Benefits	Aligned Origin Benefit Category
Improved HSE	Safety performance
More efficient drilling operations	Cost reduction
Better placement of wells	Increased capacity
Production optimisation	Increased capacity
Increased recovery	Increased capacity
Better reservoir and production control	Risk mitigation
Better monitoring of equipment and more efficient maintenance	Cost reduction
Better resource exploitation	Increased capacity
Increased regularity (uptime)	Risk mitigation

# Integrated Operations & Origin QLD CSG



One of the key initiatives identified to provide foundational capability for IO was the Data Consolidation & Reporting (DCR) project. The project sought to introduce a new technology platform to aggregate or consolidate integrity-assured, best available data from disparate sources to:

- Transform data to actionable information to empower a rapidly scaling CSG Operation
- Be a foundational enabler for Integrated Operations
- Support a centralised operating model for APLNG Upstream assets
- Standardise & automate processes for APLNG Upstream asset reporting
- Facilitate a sustainable and agile platform for increasing the value of data as a key business asset
- Enable a collaborative environment that promotes an information driven culture combining analysis with judgement for improved decision making
- Support increased production and a safer workplace for our people

**Technology enabled project intended to bridge the OT divide and present data from digital field based assets into an effective, accessible self-service solution for data visualisation, monitoring, informational, analytical and decision making purposes.**

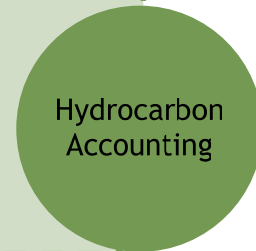
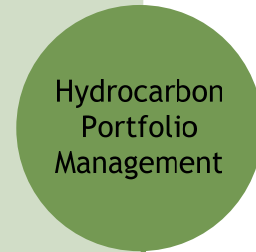
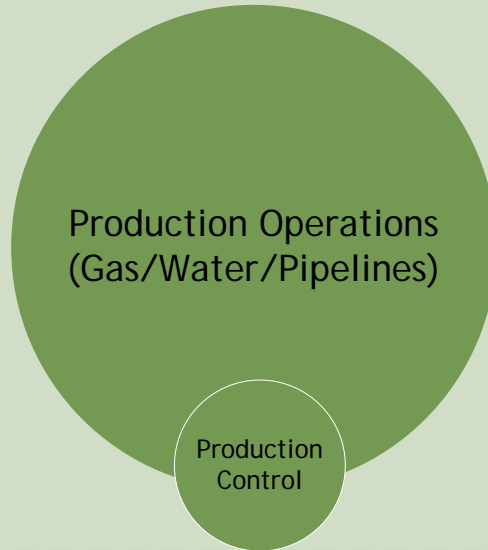
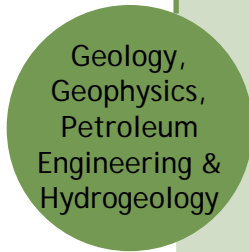
# Sphere of Influence of IO Transformation



*Origin Enterprise Service Boundaries*



**Digital Gas Field - Phase 1**



*Specific Origin Upstream Service Boundaries*

# Operational Challenges



- Cohesion & collaboration
- Change management
- Data as an asset
- New concepts
- New technology
- Intellectual property loss
- Project & operational agility
- Rapid growth
- Steep Learning Curve
- Sustainability
- System positioning

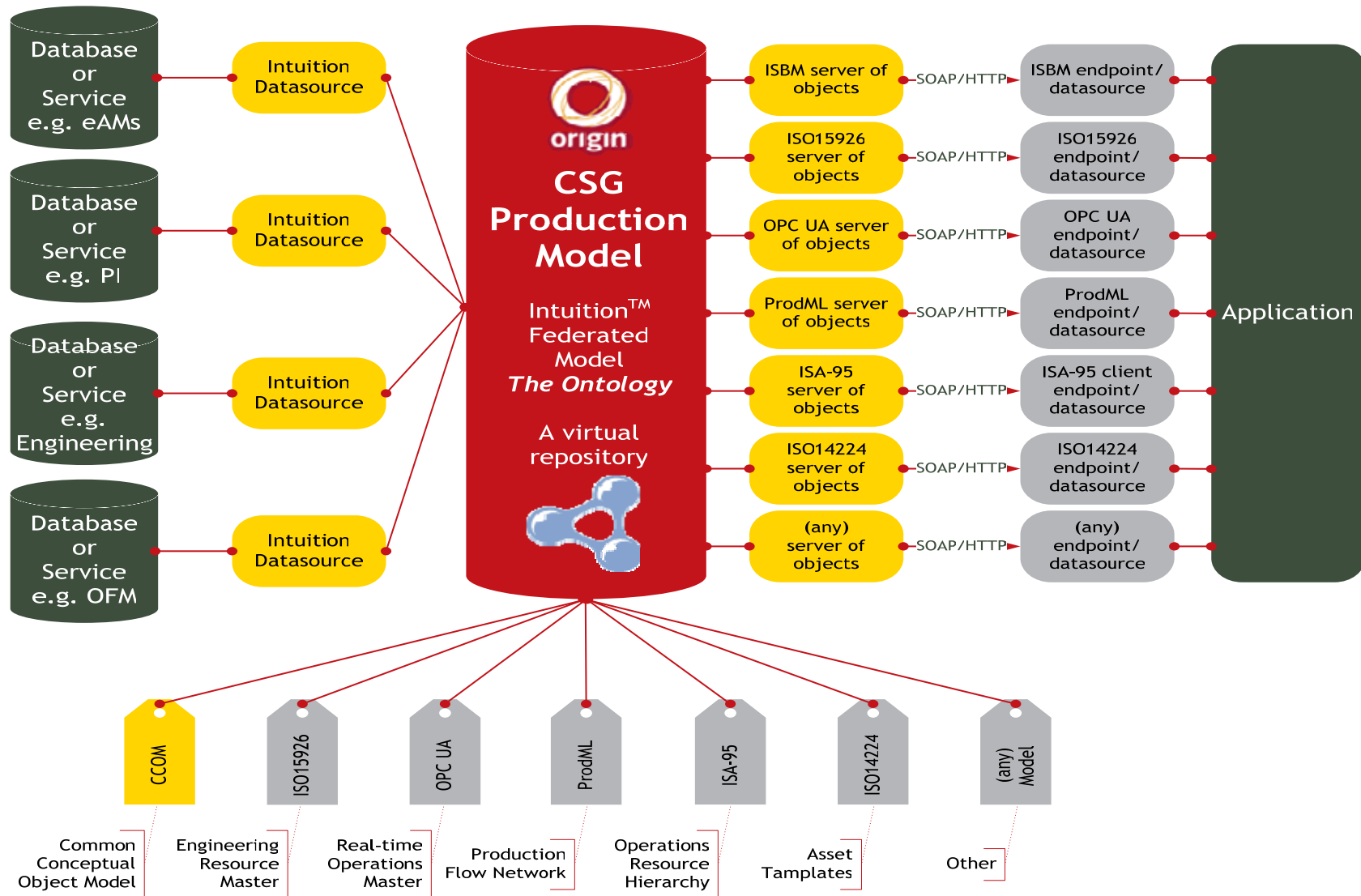
# The Technology Imperatives



- Establishing foundation frameworks for Origin CSG IO
- Forward facing position
- Delivering a single version of the truth
- Promotion templates & standards i.e. re-use don't reinvent
- Scalability
- Commercial Off The Shelf (COTS)
- ROI based on TCO & operational cost savings



# Production Data Model Ontology Based on Industry Standards



# Technology Architecture



**Present**  
*Present and collaborate across functions and COE*  
 SharePoint Portal, Presentation Webparts, KPI Dashboards

**Common Navigation**      **Configurable User Views and Dashboards**

The interface includes an 'Asset Hierarchy' sidebar with categories like APLNG, DownStream, Pipelines, Upstream, Denison, Peat, Pilots, Pipelines, Spring Gully, Talinga, Field, and Wells. The main area shows a map with various data points and dashboards for different locations like STRATHLANE, SPRING GULLY, BELLINGHAM, TALONGA, TALAINGA, and TALAINGA. A detailed dashboard for 'APLNG - Upstream - Talinga - WTF' shows 'Course Filtration' and 'Micro Filtration' units with status indicators and a line graph.

Common Navigation to multiple sources of production and operational data

**Business, E&P & Real-time Process Data**

A process flow diagram with various nodes and connections. Below it are images of industrial equipment, including a control room, a large storage tank, and a wellhead.

**Contextualize**      **Analyze**      **Orchestrate**

*Contextualize via data models*      *Analysis, Reporting & Process Data Mining*      *Workflow & Integration Services*

Semantic Model      Federator      Calculations      Alarm and Events      Validation      Workflow      Data Services      Notification Service

**Measure**  
*Measure your business by capturing events, data, documents through federated approach*

Historian      Alarm Manager      Downtime Reporting      Asset Maintenance      Document Repository      Well Attributes      HSE Systems      Production Systems      Other

# Digital Gas Field - Phase 1



Strategic ↑

Corporate Domain

Environmental

Risk

Maintenance

Finance

Production Forecasting

Technical Documents

Integration



Site Actions Browse Page

Blair, James

## CSG OPERATIONS OVERVIEW

- Asset Hierarchy
- Site Content
- APLING
  - DownStream
  - Pipelines
  - Upstream
    - Denison
    - Peat
    - Pilots
    - Pipelines
    - Spring Gully
      - Field
        - Spring Gully Gas Plant
          - Bulk Oil Storage
          - Chemical Injection
          - Compression
            - Compressor Skid 01
              - Alarms
              - Compressor
              - Engine
                - Gas Compressor 1 Gas Detector
                  - sPV:AUQLD\_AT400\_101\_sPV
                  - sPV:SBSSAT300101\_sPV
                  - sPV:TASSAT500101\_sPV
                  - sPV\_MOS\_TMR:SBSSAT30010
                  - sPV\_MOS\_TMR:TASSAT50010:
                  - Gas Compressor 1 Gas Detector
                  - Gas Compressor 1 Gas Detector
                  - Gas Compressor 1 Gas Detector
                  - Gas Compressor 1 IR Fire Detect



| ALL OPERATIONS VIEW |                                 |
|---------------------|---------------------------------|
|                     | GAS PLANT<br>135<br>150<br>+0   |
|                     | WELL<br>135<br>150<br>+0        |
|                     | WATER PLANT<br>135<br>150<br>+0 |
|                     | EXPORT<br>135<br>150<br>+0      |

Tactical ↓

Production Wells

Drilling & Completions

# Future Perspective : Digital Gas Field - Phase 2 & Phase 3



## Phase 2 - Targeted at New APLNG Infrastructure

### Strategy

- Debottlenecking
- Commissioning Support
- Establishing Operating Recipes
- Jogging Flow
- Finding True Battery Limits
- Well Consolidation Based on Actual Flows

### Objectives

- Manage Dewatering
- Maintain Flow & Enable Dynamic Field Turn Up/Down
- Exploit Spot Market
- Reduced Well Drilling Profile

## Phase 3 - Targeted at Steady State & Optimisation

### Strategy

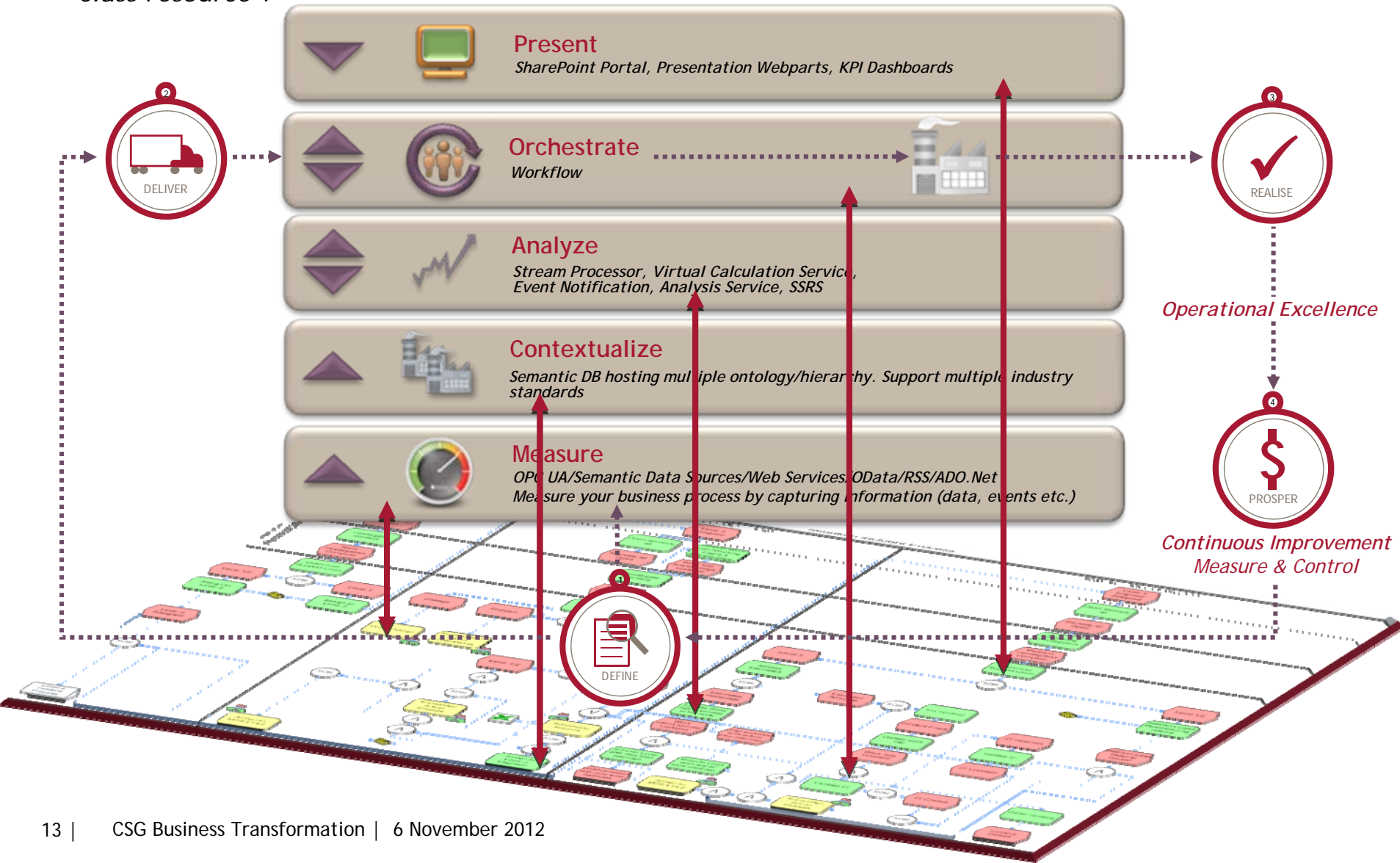
- Establish Steady State Recipes
- Manage Process Interfaces
- Manage Planned & Unplanned Outages
- Manage Value Chain Integration

### Objectives

- Maintain Pipeline Pressures
- Maintain LNG Plant Pressures
- Manage Flow Through Major Shuts
- Reduced Well Drilling Profile

# Summary

As a safer, more reliable, more efficient and decisive operator, Origin QLD CSG is well into the journey of achieving its vision of becoming 'A world leading CSG business from a world class resource'.





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**Thank you**  
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