Agile Database Approach to Non-Operated Assets

Paulo Gomes
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1. Safety Topic
2. Company introduction & overview
3. Galp positioning as Joint Venture partner
4. Galp workflow – Drilling & Completion case study
5. Creating Distinctive Value
6. Conclusions & Road ahead
Safety Topic
Continuous Safety Performance Improvement - Positive trend is not enough

31 Fatalities in 2018

767 Lost Time Incidents in 2018

Have in place a safety culture and Attitude that prevents HSE incidents

Data source: IOGP reports 2018s & 2018p
Galp
We create and share value

We energise people
- 6,360 employees
- 3,277 suppliers
- 570,000 jobs generated throughout the value chain (in 2016)
- 116,000 hours in employee training

We energise the economy
- €524 m dividend paid
- €490 m in payments to the countries
- €317 m paid to our employees
- 17.1 mton refined products sales
- 107 thousand oil and natural gas barrels per day

We energise the communities
- €19.4 m invested
- €24 m in the protection of people, the environment and assets
- +4 million refined products clients in the Iberian market and Africa
- +600,000 electricity and natural gas clients in the Iberian market

Educational projects
- each €1 invested transforms into €3.14 of investment towards society
- 6,000 hours of corporate volunteering

Information from Galp Institutional Presentation 2018
Galp positioning as Joint Venture partner

### Last 20 years of Galp D&C activities

<table>
<thead>
<tr>
<th></th>
<th>Offshore Wells</th>
<th>Onshore Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total well count</strong></td>
<td><strong>444</strong></td>
<td><strong>80</strong></td>
</tr>
<tr>
<td>Angola</td>
<td>255</td>
<td>0</td>
</tr>
<tr>
<td>Brazil</td>
<td>168</td>
<td>79</td>
</tr>
<tr>
<td>Mozambique</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Namibia</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Timor</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Portugal</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Morocco</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

- Galp is present in top projects worldwide, spanning from the Exploration to Production phases.
Galp positioning as Joint Venture partner

- Non-operated ventures are fundamental in E&P
  - ~47%* average production of top10 IOCs come from non-operated assets, as of 2018.

- Joint-Ventures information is relatively limited and in some cases in a non-friendly user format to perform in-depth analysis.

- Galp aims to create distinctive value in partnerships by providing Agile and Focused contributions.

*Sources: Rystad Energy Cube;
Galp workflow – Drilling & Completion case study

- Data workflow is detailed in steps below.

1. Operator send Daily Reports (DDR) in pdf format.
2. Data processing: using in-house tools.
3. Information is imported to EDM database.
Galp workflow – Drilling & Completion case study

- **Step 1 & 2:**
  - Data is received and processed with in-house developed procedures.

- **Step 3:**
  - QA/QC the information of importance and import it to OpenWells/EDM Database.
Galp workflow – Drilling & Completion case study

- Example how our in-house tool is converts and maps data into EDM database
Galp workflow – Drilling & Completion case study

• Step 4:
  • All information stored in a proper, safer and useable format (Openwells EDM database).
    − Perform in-depth analysis on drilling operations (e.g. DataAnalyzer & Profile);
    − Produce detailed reports;
    − Identify and quantify issues in wells operations;
    − Enhance our Database enabling future well estimations;
    − Be able to discuss with operator head-to-head, using the same source of information.
Galp workflow – Drilling & Completion case study

Well Example (Well 1)

Well Info
- Country: Portugal
- Type: Development
- Block: Block Example
- Function: Water Injector
- Area: Area Example

Well Coordinates
- Surface: x1, y1
- Target: x2, y2

Lithology
- Formation Plan
  - Formations: 1-3
  - TVD: 500-2500

Well Performance
- Rig 1: 100% Daily, 7% NPT, 43% NPT
- Completion: 93%

Well Operations Summary | 1Q-2016
- Last 24h: Demob. TRT/ROR tool. 6 Moonspool. Recovered 8 transponders w/ROV. Sailed to dock.
- Current activities: Sailing to shipyard.
- Forecast: Stay in dock.

Well Profile

Well History

Consortium
- Company A: X%
- Galp: X%
Creating Distinctive Value

- Agile assessment of different Joint Ventures D&C main areas of concern:
  - Generate Rig Performance Analysis;
Creating Distinctive Value

- Agile assessment of different Joint Ventures D&C main areas of concern:
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  - General operational sensitivities by region;
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- Agile assessment of different Joint Ventures D&C main areas of concern:
  - Generate Rig Performance Analysis;
  - General operational sensitivities by region;
  - Drilling Bits performance;
  - Offset Well Analysis;
  - Operations and equipment.
Conclusions & Road ahead

- In-house workflow generates agile Assessment and distinctive value contribution;
- JV’s mindset needs to move to an open/sharing environment to eliminate redundancy;
- Artificial Intelligence on routine tasks and analysis enables enhanced contributions.

**Today’s Reality**
- JVs Database not usually shared
- Companies w/ Autonomous workflows

**Way Forward**
- Use AI algorithms to perform analysis
- Automate routine processes
- Share JV databases

**Our Goal**
- Eliminate Redundancy
- Focus on delivering distinctive value
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