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Your Innovation Partner

Revolutionising the Down Hole Safety Valve

Restoring Shut-in Wells

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Project Manager – Wells Solution Centre

Wells Vision

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Well Construction Cost Reduction

Streamlined Design

Flawless Delivery

Automated Well Delivery

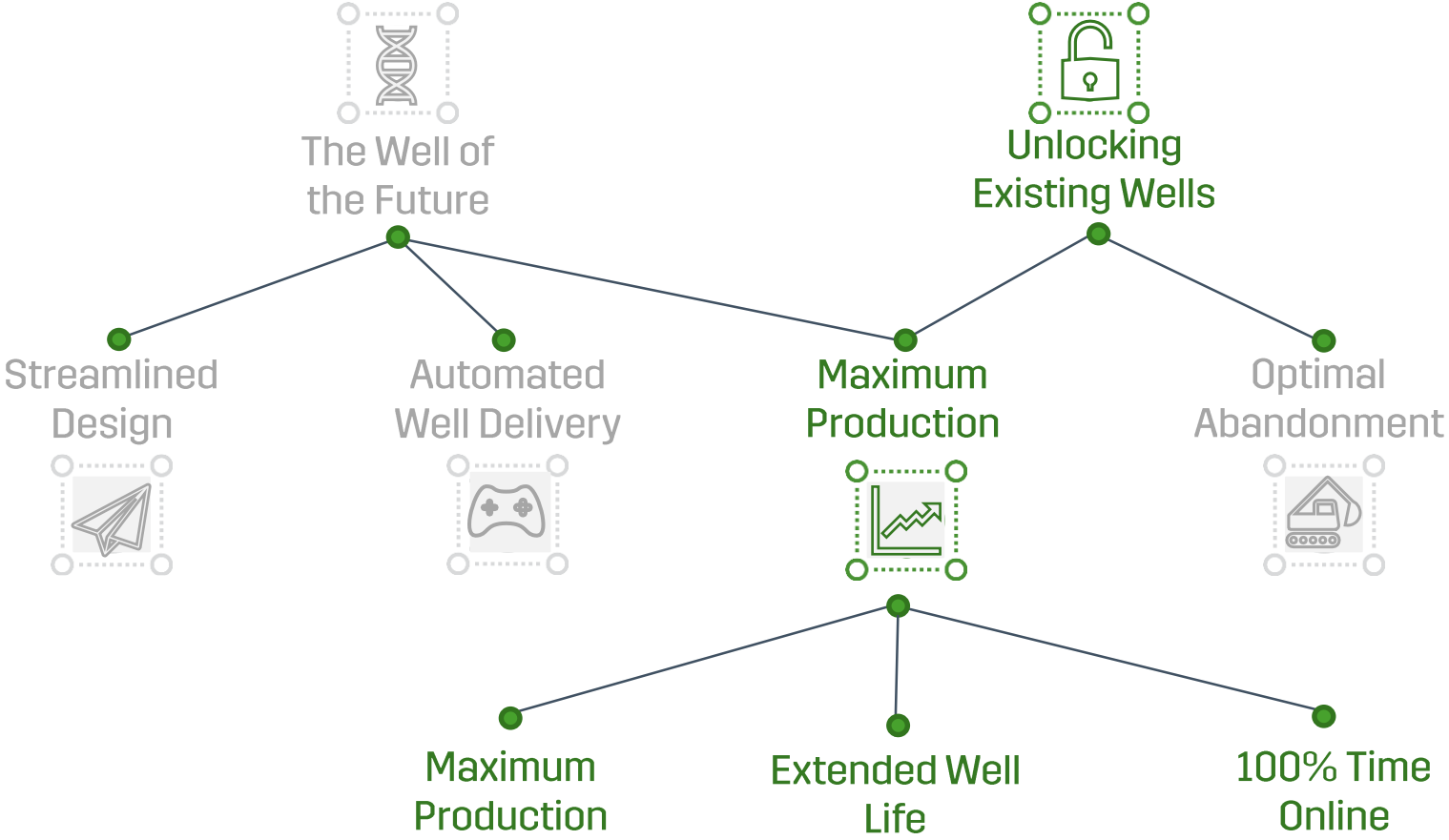
Well Reliability for Design Life

Maximise Recovery

Abandonment Cost Reduction

Optimal Abandonment

Reducing costs and improving efficiency


The Well of the Future
Unlocking Existing Wells
Streamlined Design
Automated Well Delivery
Maximum Production
Optimal Abandonment
Maximum Production
Extended Well Life
100% Time Online

Value Prize

- Around 1 in 10 wells shut-in during 2017 in the UKCS.
- If lost production from shut in wells is 10%, by restoring 10% of these wells, we can raise UKCS production by around 16,000boe/d – at $70bbl, this is worth $1.1MM per day.

Industry Feedback

Causes of well shut-ins based on amount of production lost:

1. Reservoir Pressure/ Artificial Lift
2. Well Integrity - Annulus
3. Water Production - Liquid Loading/WaterCut
4. Well Integrity - Tree Valves
5. Well Integrity - DHSV
6. High H2S
7. Hydrates
8. Subsea Control Failure
9. Tubing Integrity
10. Pipeline Integrity

Industry Feedback

Causes of well shut-ins based on number of wells

1. Well Integrity – Annulus
2. Well Integrity - DHSV
3. Water Production – Liquid Loading/WaterCut
4. Artificial Lift/Reservoir Pressure
5. Scale
6. Well Integrity – Tree Valves
7. Sand
8. Well Integrity - Wellhead
9. Formation Damage
10. Well Depositions

Workshop Methodology

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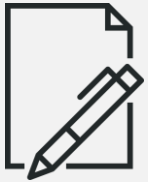
Root Cause Analysis of DHSV Failure

Research of Technologies to Repair/Replace

Discussion and Prioritisation



Plan for Technology Development

Open Innovation/ Directed Projects

Workshop Breakdown

- Root cause analysis – using the expertise in the room
- Identify new technologies that could apply
- Vote on key technologies

Example RCA Output

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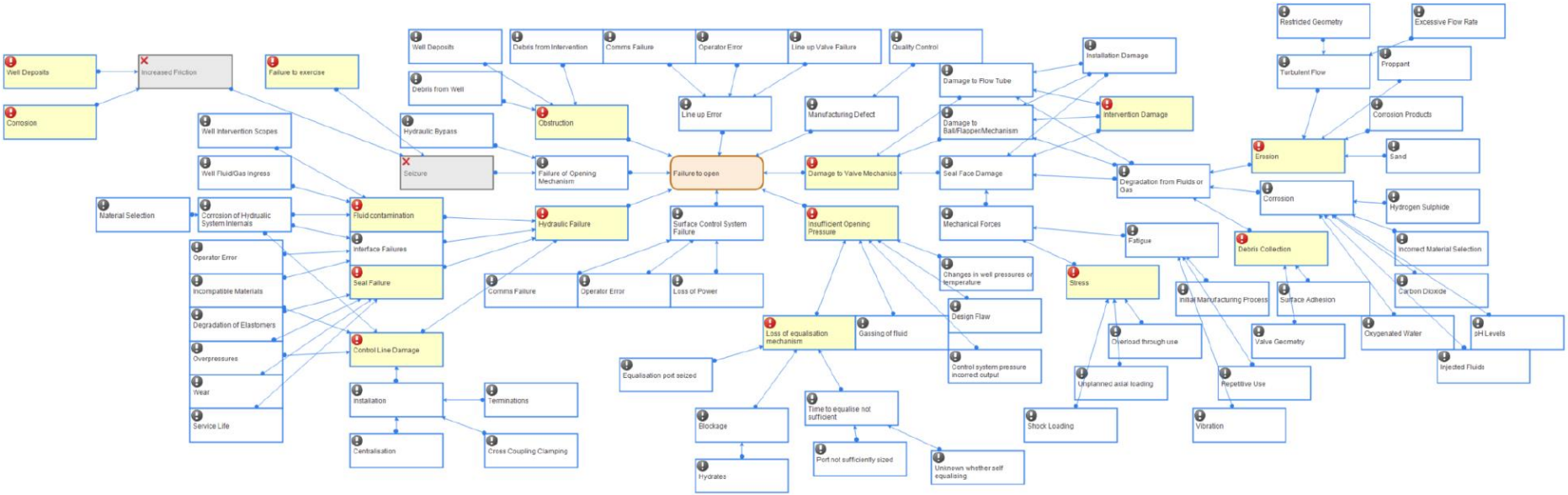

Key Fault Findings

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Common Faults

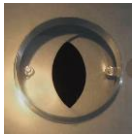
- Communicating with the tool
- Operating the valve mechanism
- Damage/deposits in flapper/seal
- Fixing failed hydraulic system challenging

Technology Areas

- Hydraulic Communication Alternative

- Electric Valve (Comms and Operation)

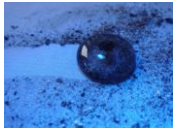
- Alternative to Flapper Valve (e.g. Iris)



- Position Sensing

- Nano Cleaners

- Self Cleaning



- Control Line Keyhole Surgery

Current Status

Direct Output from Workshop Attendees:

- 1 Directed Project Approved
- 3 Opportunities Submitted

3rd Call for Ideas – Q3 2018

Open Innovation Strategy in Progress.