IntelliStream™
A new frontier in upstream productivity
IntelliStream: Produce More Oil, For Lower Cost/BBL, Safely

Enterprise software, purpose built on Predix, that delivers a step change in **upstream productivity** across reservoir, wells, network, facilities and people

- Increase Production
- Decrease Operating Cost
- Manage Resources
- Increase Profitability & Capital Efficiency
IntelliStream™ Enablers & Differentiators

- Single Pane of Glass
- Leveraging Existing Data Streams

- Cyber Secure,
  Edge-Cloud approach,
  Scalable, On-demand

- OEM Agnostic
  Software & Equipment

- Predictive Analytics
  & Recommendations

- Based on Digital Twin
  AI Self-Learning
  Models. Delivering Field
  Level Optimization

- Closed Loop
  Remote Operations

- Safe Execution of
  Recommendations

Integrated Platform
Real-Time Info.
Access

Predictive Analytics
& Recommendations
IntelliStream™ defragments point solutions

Fragmented, discrete solutions lead to data storage & workflow silos

IntelliStream™: Single Enterprise Pane of Glass

Guided Workflows With Contextual Data
BHGE Digital Product Portfolio Architecture

IntelliStream™

Predictive Corrosion Management (PCM)

BHGE Digital Other Products* (LNG, Refinery, etc)

APM Shared Components
Case Mgmt, Knowledge Mgmt, Alarm, Asset Mgmt, Condition Monitoring, SmartSignal, Visualization, and More

Digital Twin Framework

Production

Operating Cost

Response Time

Reliability

*Other Products include: Intelligent Field Devices, Intelligent Wells, Intelligent Pipelines, and more.
Rapid Data Ingestion & Semantic Modeling

- **Process**
  - Raw Data
  - Machine Learning / AI
  - Hybrid - Physics Analytics

- **Observations**
  - Billions - Trillions

- **Rich Data**
  - Hundreds - Thousands

- **Business Decisions**
  - Tens - Hundreds

- **Integrated Solutions**
  - Asset
    - e.g. Artificial Lift
  - System of Assets
    - e.g. Well
  - System of Systems
    - e.g. Oilfield

- **Key Points**
  - 35 Million+ assets under management
  - ~1TB added daily
  - Large Scale Data Ingestion
  - Rapid Modeling During Ingestion
Cloud-Based Solution is a Necessity...
90% of generated data is currently not leveraged for analytics

- Data aggregation storage & curation
- Elastically scale compute & services
- Large scale simulation & modeling
- Learning & knowledge capture across systems
- Analytics aggregation & orchestration
- Distributed & parallel computing
- Continuously update digital twins
- Upgradability & Maintainability

BAKER HUGHES | a GE company
Digital Twins... Asset Specific, Tied to Business Outcomes

- A live up-to-date digital representation of an asset, system or process
- Used to predict performance

Hybrid Models

- Physics Based
- Probabilistic
- Machine Learning + AI

✓ Continuously Tuned
✓ Scalable
✓ Adaptable
Results for a Middle East Operator

well optimization gains

130
WELLS
ONLINE

+756,000 barrels oil production
Year 1
INCREASE

+220,300 barrels
Year 2
INCREASE

TOTAL INCREASE
+976,000 barrels oil production

- Increased production rate
- Reduced equipment downtime through predictive analytics

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Customer Value Drives Our BHGE Digital Product Structure

<table>
<thead>
<tr>
<th>Customer Value</th>
<th>Onshore</th>
<th>Offshore</th>
<th>Pipeline &amp; Distribution</th>
<th>FPSO</th>
<th>LNG / FLNG</th>
<th>Refinery</th>
<th>Petrochem</th>
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<tbody>
<tr>
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<td>• Reduce response time</td>
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<td>• Increase process efficiency</td>
<td>• Optimize capital investments</td>
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Insights | Reliability & Life | Compliance & Integrity | Maintenance & Utilization | Resources | Production | Process | Design & Planning
The Big Loop

Seismic Processing | Seismic Imaging | Geological Modeling | Reservoir Simulation | Well Construction | Production Optimization | Process Optimization

3rd Party Offering

JewelSuite

IntelliStream

Digital Drilling

Why it Matters
• Seamless, connected workflow...interoperability across offerings
• IntelliStream production data used to update JewelSuite models
• Reduced order models from JewelSuite used for real time production optimization
• JewelSuite + IntelliStream data = Better well construction

Time Compression – From Weeks to less than a day

JewelSuite Includes: Formation Testing; Geomechanics, Drilling Engineering, Reservoir Navigation, Reservoir Stimulation
IntelliStream™: A New Frontier in Upstream Productivity

How IntelliStream™ Delivers

- Game-changing cloud technology
- Complete data integration and visibility
- Industry trusted analytics
- Self-learning model
- Innovative user experience

Increase Capital Efficiency & Profitability
Decrease Operating Cost
Manage Resources