New Model of Digital Adoption: The SW and Service Story
Complexity of unlocking productivity with current capabilities

Complexity on managing **multiple service suppliers** does not help quest of productivity …

… although the service model at **asset level** has been evolving during the last 10+ years …
To unlock productivity crucial to pair Service with Software

From single asset view with traditional services ... into an integrated Service and Software at plant level

Customer Benefits

+~2.2% Uptime
Condition-based maintenance

+~2.0% Production
SW focus on improved operational efficiency
- Plant throughput projections
- Process simulation and what-if analysis
- Production optimization tools

Traditional transactional service model
- Parts, repairs, field service
- RM&D

Single asset multi-year maintenance agreements
- Parts, repairs, field service
- RM&D

Customer Benefits

- ~2.2% Uptime
  - Condition-based maintenance

- ~2.0% Production
  - SW focus on improved operational efficiency
    - Plant throughput projections
    - Process simulation and what-if analysis
    - Production optimization tools

Unleashing up to 25% productivity gains
Enhancing existing capabilities with GE Digital Products

- **Suppliers monitoring centers:** elastic integration layer with multiple interface
- **Owned monitoring center:** easy custom adapter to enhance capabilities
- **ERPs:** cross-platform data integration layer with the most common CRM and ERP system
- **Plant:** adaptors and drivers for the ~110 standard M2M equipment protocols
## New commercial models integrating SaaS with services

### OEM service

<table>
<thead>
<tr>
<th>Value</th>
<th>No LTSA</th>
<th>BHGE LTSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>On call parts, repairs, and maintenance</td>
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</tbody>
</table>

### Software with service

1. **SaaS — SW alone**
   - Uptime, turnaround guarantee with mandatory stocks, dedicated engineers, remote monitoring, and diagnostics

2. **SW + advisory**
   - Guarantee on select BOP KPI
   - Uptime, turnaround guarantee with mandatory stocks, dedicated engineers, remote monitoring, and diagnostics

3. **Guarantee on select BOP KPI**

### Resulting productivity

- **One contract**
- **Shift to plant level risk sharing**
- **More value / $$ spend**
- **Expanded critical scope, value pricing, optimized turnaround**

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**Pairing the right technologies with the right offering model**
New model of service and software applied to LNG world

What we have been offering
...achieving over 99% reliability on OEM equipment

What we offer today
Other OEMs and total plant coverage

Customer Benefits

<table>
<thead>
<tr>
<th>CSA GE OEM</th>
<th>SW LNG</th>
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<tbody>
<tr>
<td>Parts / Repairs</td>
<td></td>
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<td>Field Service</td>
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<td>M&amp;D</td>
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</table>

Reliability Increase
- Liquefaction
- Power Gen
- Mercury rem
- Nitrogen rem
- Fuel Gas
- AGRU
- DHU
- Flaring
- LNG Adv Insights
- Process Simulation
- Dynamic Production
- LNG Insights
- MR Optimization
- Hot Air Recirculation

Plant Reliability

Corrosion Management

95% +%

Throughput

+%

October 4, 2017
Creating a “Menu” of capabilities to be applied to single needs

<table>
<thead>
<tr>
<th>INSIGHTS</th>
<th>RELIABILITY AND LIFE</th>
<th>COMPLIANCE AND INTEGRITY</th>
<th>MAINTENANCE AND UTILIZATION</th>
<th>RESOURCES</th>
<th>PRODUCTION</th>
<th>PROCESS</th>
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<tbody>
<tr>
<td>APM</td>
<td>APM</td>
<td>APM</td>
<td>APM</td>
<td>Inventory and Cargo Optimization</td>
<td>Mix Refrigerant Optimization</td>
<td>Hot Air Recirculation</td>
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<tr>
<td>Machine and Equip. Health</td>
<td>Reliability Management</td>
<td>Compliance and Integrity Mgmt.</td>
<td>Asset Strategy Optimization</td>
<td>Tool to support inventory and cargo scheduling optimization</td>
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<tr>
<td>LNG Insights</td>
<td>Reliability Increase</td>
<td>Corrosion Management</td>
<td>Integrated Plant Asset Model</td>
<td>Enhanced 3D models Easy accessibility</td>
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<tr>
<td>Operational KPIs</td>
<td>Hybrid models Modular solution</td>
<td>Continuously monitor corrosion-related risk, proactively make disposition decisions, and minimize total cost of operations</td>
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<tr>
<td>Financial KPIs</td>
<td>Equipment health</td>
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<tr>
<td>Plant production losses overview</td>
<td>Risk ranking</td>
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<td>Analysis tools</td>
<td>Lifting recommendations</td>
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</tbody>
</table>

- **Feed and Fuel Gas Cost Optimization**
  - Machinery efficiency advisory tool to save gas costs

- **Dynamic Production**
  - ONE advisory solution

- **Process Optimization**
  - High fidelity models, machine learning, plant data and what-if scenarios
Leveraging the broader ecosystem across multiple industries
TechnipFMC

A global leader in O&G projects, technologies, systems, and services

- $18 billion in revenue in 2015
- $16 billion in backlog at end of September 2016
- 21 vessels worldwide, of which 4 are under construction
- 126 nationalities represented
- 40,000+ employees
- 215 locations in 48 countries around the world
# TechnipFMC – BHGE DLNG collaboration in brief

<table>
<thead>
<tr>
<th>Exploration &amp; co-creation</th>
<th>Asset Performance Management</th>
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<tr>
<td>lng plant design</td>
<td>Industrial Internet experience and products</td>
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<tr>
<td>Process and technologies</td>
<td>Machine and equipment design</td>
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<tr>
<td>Plant engineering, construction, commissioning and start-up</td>
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<th>Turning ideas into products development</th>
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<td>Ideas refining, proof of concept</td>
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<td>Preliminary product outlining</td>
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<td>Business case definition, selection</td>
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<td>Development plan definition</td>
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<tr>
<td>Engineering, construction supervision &amp; commissioning</td>
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<td>Dynamic simulation</td>
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<td>Plant &amp; equipment condition monitoring</td>
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<td>Plant up time increase</td>
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<tr>
<td>Operations support software and services</td>
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</table>

Pairing the expertise of two industrial leaders to offer innovative software & services bringing value to LNG
Decision to proceed with two joint developments

On the way to operational LNG digital twin
✓ Software solution to support LNG plant dynamic simulation from engineering studies down to operator training and plant operational simulation
✓ Will allow **massively distributed dynamic simulation**
✓ Will pave the way to building LNG digital twin
✓ The joint offer may allow to **unlock significant benefits** linked to broadening the use of dynamic simulation

Time To Trip (TTT) App
✓ Predict LNG plant trips weeks and months in advance
✓ Insightful **visibility** to anticipate trips that affect the production
✓ **First of its kind system**
✓ Will consist in a set of software Apps lying on GE APM RM module
✓ Will provide dashboard functionality as well as individual equipment behavior prediction
✓ The joint offer will include professional, hosted and managed services
Emerging digitally — enabled service examples

**LNG**

**Case points**
- Mature LNG auxiliaries driving ↑ trips
- Maintenance solutions not working

**GE solutions**
- ✓ 20% trip reduction guarantee
- ✓ 261 assets covered beyond existing LTSA
- ✓ APM + physics analytics + managed service

**BROWNFIELD**

**Case points**
- Trains 6 and 7 process leaks
- Train 5 dehydration low reliability

**GE solutions**
- ✓ Trains 6 and 7 process analytics
- ✓ Discovery and early detection of bad actors
- ✓ APM+ new analytics + managed service

**GREENFIELD**

**Case points**
- Startup troubleshooting
- Accelerate EPC project handover

**GE solutions**
- ✓ APM suite as SaaS
- ✓ Knowledge management
- ✓ LTSA on GE fleet