Increasing Safety and Performance through Digital Intelligence

Discover Performance through Digital Intelligence

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Upstream Challenges

- Different Stakeholders interact
- Only as good as the weakest point
- Safety is a must; any slip on safety can have consequences for YEARS!
Oil & Gas Producers are able to achieve near real time responsive workflows within and between operations and related functions.

Oil & Gas producers achieve a daily business cycle of production surveillance, optimisation & field / facility management.

While improving reliability, safety & security of operations.

Consistently, sustainably and across geographies.

Resulting in maximum productive use of assets.
Honeywell Process Solutions – focused activity

» Digital Suites for Oil and Gas is software solution for:
  » Better using data, break silos, be more proactive and effective
  » On Improving Safety & Performance
» Consulting to define programs
» Project execution and maintenance programs for total customer care

Aimed to support
Production phase of upstream assets’ life
Digital Suites for Oil and Gas

Example Integrated Operations Use Case Components

- Process Safety Team
- Maintenance Team
- Equipment Team
- Well & Res. Surveillance Teams
- Production Operations Team
- Production Optimisation Team
- RAM Optimisation Team
- Expert Collaboration

Data, Process, People and Technology
6 specific domains of activity

Digital Suites for Oil & Gas

Operational Data
Analyze a secure archive of your upstream data to make your next decision a better decision.

Process Safety
Ensure safe operations and process reliability of your upstream assets.

Production Surveillance
Know the health and performance of your producing assets and take smarter actions.

Equipment Effectiveness
Act in real-time to minimize cost and maximize the uptime of your upstream assets.

Production Excellence
Enable your people to plan, perform, and optimize upstream production.

Operational Performance
Discover risks, opportunities and collaborate across you integrated operations.
Digital Suites for Oil & Gas

Products developed taking into account inputs from E&P leaders worldwide

6 functional areas - content

Operational Data
Data Integration
Data History
Data Visualization

Process Safety
Alarm Management
Shut-Down Analysis
Safety Valve Analysis
Barrier / Containment Testing

Production Surveillance
Production Monitoring
Well Surveillance
Well Test Validation

Equipment Effectiveness
Equipment Integrity
Transmitter Monitoring
Control Performance
Corrosion Monitoring

Production Excellence
Integrated Planning
Production Management
Operation Management
Operator Competency
Process Control & Optimization

Operational Performance
Enterprise Collaboration
Performance Management

Digital Suites for Oil and Gas
What is Process Safety?

Process Safety Suite

- Produce safely
- Be efficient ensuring process safety
- Comply with regulations

Verify, Validate shutdown systems work as advertised – drastically reduce manual efforts
Effectively manage alarms
Effectively validate and track safety valves
Validate valve pressure containment
Track inhibits/suppresses preventing safe shutdowns
Process Safety

Achieve provable process safety

Link to Work Flows
Link to Boundary Management
Link to Asset Surveillance & Diagnostics

Shut Down Analysis & Safety Valve monitoring

Cause & Effect Matrix

Digital Suites for Oil and Gas
Alarm Manager main functions

Alarm Performance Monitoring For Alarm Metrics
Real-Time Monitoring

Alarm Management
Real time capture, Analysis Categorization, Notification

12:30 FIC101 PVLO EMERGENCY Coolant Inlet Flow

DCS / Control
Safety
PLC
Metering Systems
SCADA
Support Systems

All about time / frequency analysis of single line events
What is Production Surveillance?

Production Surveillance Suite

- Efficiently detect and analyze well issues
- Quality well test records
- Free up time for barrel chasing

Quick detection of well issues
Continuously ensure wells are close to targets
Efficiently perform well test validation
Well test records quality for reporting and model calibration
Production Surveillance - Summary

Well Performance Monitor & Well Testing

Data cleansing, Virtual Metering, Performance Calculations, WiPD & ESP modules, Well Test Capture & Events Notification

Production Management

Well Modeling Tool (Petex)

Production, Subsurface & Reservoir Engineering

External notifications

Operator

DCS & Historian

Well Models

Lifting Equip. Data

Well / Fluid Parameters

Production Data Base

Other Applications

Production, Subsurface & Reservoir Engineering

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Well Models

Lifting Equip. Data

Well / Fluid Parameters

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Other Applications
Enhanced Well/Field Surveillance

Visualize

Analytics & Dashboards
- 100% Web Browser
- Engineers/Managers at their Desks
- KPIs in Treemaps, Datagrids, Schematics

Orchestrates Workflows

Well Model Validation

Analyze

Well Performance Analyses
- KPIs: Effectiveness – Efficiency - Quality
- Best Estimate Selection
- Well Rate Estimates
- Flow / No-Flow
- Well Model Validation
- Well Uptime
- WIPD / ESP
- Well Test Validation
- Clean Data
- Data Cleansing

Contextualize

Well & Field Object Model

Measure

Real time Historian
Prod/Ops Databases
Maintenance Systems
Other Databases

Digital Suites for Oil and Gas
What is Asset Effectiveness / Asset Surveillance?

- Process & Equipment Health, Performance, Integrity
- Transmitter Monitoring
- Control Performance
- Corrosion Monitoring
- Downtime Monitoring
- Mobile workflow
Asset Surveillance – Summary

Management Reporting & KPI’s

CMMS/ERP Integration

Template-driven Process & Performance Calculations, Rule Processing, Symptoms, Fault Models & Health Assessment

Maintenance, Reliability, & Engineering

DCS & Historian
Asset Data Sheets
Visual Inspections
Smart Instruments
Corrosion Monitoring
Condition Monitoring
Other Applications

Operator

UniSim or Excel
URL’s

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Production Excellence – Solution Overview

- Operations & Boundary Management
- Production Management
- Integrated Planning
- Advanced Control & Production Optimisation
- Facility Modeling
- Operator Competency & Training simulators
Production Excellence: Production & Process Modeling; Operator Training

UniSim models for design or real time

To/from Asset Surveillance

Link UniSim to Petex

Operator Training & Competency
Production Management

Graphical Model Configuration

Collaborative planning of product logistics, volumes, shipments

Interactive Production Metrics.
New Dashboards for Digital Suites

Launch pad for all Apps
At a glance information dashboard
Easy user arrangement
IPAD/Tablet ready
Success Stories - Statoil Valemon

**Increased safety**
- Increased safety by simplified verification of automated safety actions
- Reduced down time due to less checking of shutdown system and safety valves
- Allows a plant operator to stay fully informed

**Increased production regularity**
- Early fault detection and alerts
- More efficient maintenance

**Cooperation onshore – offshore**
- Simplify the work in an integrated team
- Providing real time information to everyone
- Standardize working routines and simplification of the working processes
- On-line monitoring of many equipment categories automated

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Success Stories – Chevron Frade

Optimization of Well Performance

Topside Equipment Efficiency Increase

Overall Improved Asset Reliability

Net Production Increase 4-6%
Success Stories - Shell

Shell “BRIDGE” for Exception Based Surveillance

- Connecting people in the moment...when the data is available and needs to be analyzed
- Connecting people to the assets...where actions need to be taken
- Connecting people to each other...in a more intimate problem resolution mode

Real-time Operations
Control & Monitor

Production System
Surveillance & Diagnostics

- 23 million data elements processed per day
- 6000 real-time complex analytics
- 2000 pieces of equipment

Asset Performance
Analysis & Optimization

Connecting people in the moment...when the data is available and needs to be analyzed

Connecting people to the assets...where actions need to be taken

Connecting people to each other...in a more intimate problem resolution mode

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Success Stories – Dolphin Energy

Production Excellence
Equipment Effectiveness

Overall Improved
Asset Reliability

Asset Surveillance
Performance & Health Condition monitoring

Digital Suites for Oil and Gas
Ongoing Projects

• Lundin Edvard Grieg
  - Operational Data
  - Process Safety
  - Equipment Effectiveness

• Statoil Troll B
  - Upgrade of applications
  - Operational Data
  - Process Safety
  - Equipment Effectiveness
DISCOVER

Performance Through Digital Intelligence

Honeywell in Oil & Gas

Thank you