

**ACCELERATE PRODUCTION &
INCREASE OPERATIONAL EFFICIENCY
OFFSHORE AND FPSO OPERATIONS**

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HONEYWELL OFFSHORE PROJECTS EXPERIENCE

HIGHLY EXPERIENCED, GLOBALLY RENOWNED, EXTREMELY RELIABLE



OFFSHORE SOLUTIONS

FROM FIRST OIL/GAS TO LIFE OF FIELD

GLOBAL REPUTATION

Proven MAC Capabilities
 Offshore Fields: 350+ Platforms
 Floaters: 45+ Floating Offshore Projects (FPSO / FPU)
 Vessels: 180+ Offshore / Marine vessels (LNGC / FSRU)
 33 Liquefaction Trains, 24 Regas Terminals
 500+ O&G Processing Plants
 18000+ Onshore Fields, wells

Digital Transformation / ROC

Digital Twin, Cloud-based solutions, ROC / ROS Solutions
 Immersive Competency: AR/VR based 3D Modeling for Process and Asset, Unisim-based models covering Sub-sea
 Overall benefits:

- Reduced downtime events
- Increased collaboration
- Real-time access to experts
- Faster decision making
- Reduced travel time
- Retain and train new staff

Cyber & NW Security, Communication Infrastructure

Leading-edge technology and tools to protect assets and workforce

- Application Whitelisting, patch management, Carbon footprint, Secure remote access
- SMX Solution compliance with the latest ABS, BV, DNV, and LR Class Rules
- WAN Architecture: Bandwidth analysis, multi-level network, redundancies

Topsides Worker & Safety

- Mobile field operator rounds
- Electronic logbooks

Instrumentation & Control And Beyond...

ICSS: DCS, Safety Systems for ESD/PSD/FGS, PLC Solutions
 Security Solutions: CCTV, Access Control, RVS, POB
 Field Instrumentation, F&G Detectors, Tank Gauging
 One Wireless Equipment Health Monitoring, Gas Metering
 UOP gas treatment Solutions, Calidus Flare Control, Electrical / E-House / EIT project delivery
 Tight Integration: Sub-Sea, PMS, VMS, Ballast Control, Mooring System, Electrical Integration

Project Execution

LEAP Concept: Lean Execution Automation Project

- Virtualization Solution
- Universal IO Technology, HIVE Technology
- Cloud Engineering

Transforms Project Workflow, Application & H/W Direct to the site, Minimal Checkout, Eliminates big bang testing with virtual FAT, Optimized Project Schedule

Digital Intelligence

Interoperable platform to support enabling applications.

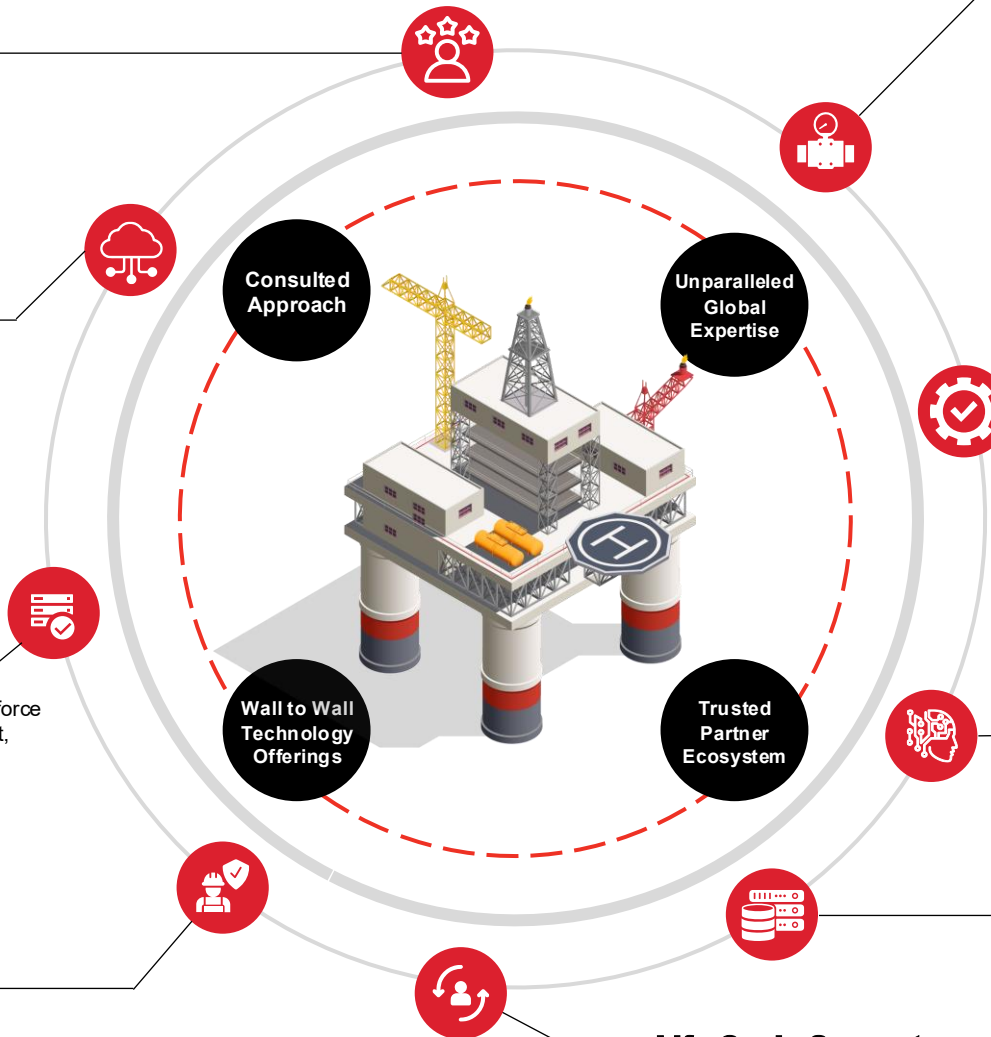
- Operations Workbench (role-based portal)
- Collaboration Station (situation management)
- Historian
- Capacity Planning
- Advanced Process Control
- Asset Performance Management
- Operator Competency
- Alarm and Operations Management

System Infrastructure (ICSS and PLC)

Distributed System Architecture (DSA): Multiple Experion SCADA servers operate as one secure, efficient, and integrated system: integrated alarm summaries and reporting.

Life Cycle Support

KPI Based Dashboards, A360, Spare Parts Management program, etc.
 3D Model to Ever-living OTS (Topsides and Subsea)



GREENFIELD PROJECT EXECUTION

VALUE TO OFFSHORE OPERATORS

Value Area	Typical Improvement	Remarks
Reduced Engineering / Startup / Commissioning Time <i>Startup your Facility Sooner</i>	20% to 30% reduction in engineering costs & project schedule	IMAC approach and LEAP engineering concepts. Integrated design and Templating, System built on standards. Faster reworking of late changes from installation. Modular LER's & skids – CAPEX reduction
Full Capacity Sooner <i>Reach your Topsides & Well production Sooner</i>	Approach target capacity 6 months earlier	Improved HMI ergonomics and compliance. Early system delivery with early and complete seamless integration of Operational Applications, Safety Systems, Security, Surveillance, Simulation and KPI's. Early implementation of APC possible with simulation.
Operations Excellence <i>Stay at Peak Performance</i>	2-4% increase in production	Enable Remote Operations. Ensure operations are best practice & meet regulatory requirements with Operational Applications, Dynamic Alarm management, Operational Reporting, Advanced Process Control and Training Simulators.
Improved Operator Effectiveness <i>Staff maximum productivity</i>	2% increase in asset availability	Ensure process stays within recommended parameters, Dynamic Alarm Handling, Reduces spurious alarms- allows operator to respond faster and better to incidents, Alarm philosophy & rationalization using Remote Alarm & Events, Operator Log Book, Monitor Key Performance Indicators, suppression of alarms during an abnormal situation, Management reporting to bring focus to trouble areas. Asset Sentinel
Cost Advantage	5% reduction in lifecycle costs	DSA and other Remote Ops enabling technology. Lifecycle performance service, Reduce spares and vendors, reduce cabinet and system footprint with UIO and virtualization, Integration and purpose built products/software for faster implementations and lowest lifecycle cost – OPEX reduction

Embedded knowledge provides value throughout the asset lifecycle

CCC AND UPSTREAM TURBOMACHINERY CONTROL

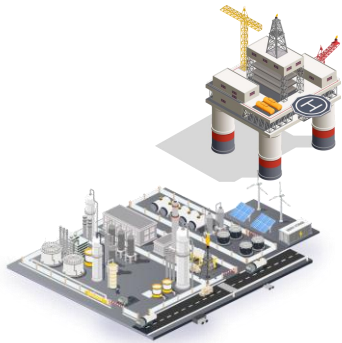
- **50 years of history - 10,000+ installations**
- **Specialized expertise in complex upstream control applications involving multiple trains, variable process conditions, and OEMs**
 - **2,000+ installation in Upstream**
 - **60+ FPSOs with CCC control systems**
 - **Specific features developed for Upstream installations**
- **Energy Optimization and CO2 footprint reduction methodologies**



- Deploy **upstream turbomachinery control expertise during FEED**
 - **Reduce risk and change management costs** on projects
 - Advance engineering evaluation of long lead items
 - Increase project design control and compliance to end user global specs
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- **Regional project teams** working closely with OEMs, EPCs and Operators
 - **Global SME** reviewing project design based on huge experience in upstream
 - Engineering Design Practices continuously improved based on lessons learned
 - **Fully certified hardware for upstream and offshore installations**
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- Global pool of full-time employed **experienced turbomachinery field engineers**
 - Perform **surge tests and tuning**
 - Huge experience on **Booster, Export, Flash gas, Main, CO2, Off Gas and Injection compressors**
 - **Regional offices** for widespread support
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- **Clear lifecycle policy** for all products and Security Update Management
 - Training support for operation and maintenance
 - **Cybersecurity products certification (ISA Secure Level 2)**
 - **Customizable Service Contracts**
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- **CCC Analytics capabilities** based on historical operational data
 - Improve intelligence on current operation
 - **Identify improvements with tangible benefits to the operations and corporate KPIs**
 - Tune your system to **minimize energy consumption and CO2 footprint**

FUTURE OF UPSTREAM PRODUCTION OPERATION

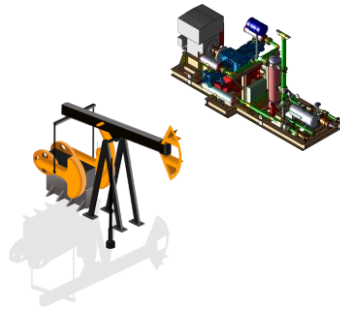
CONTROL & OPTIMIZE



Bridge AI and controls to safely maximize & sustain output and profitability

Automated processes with sustained operation at peak performance

INTELLIGENT ASSETS



AI and controls combine to eliminate unplanned downtime

Predictive asset performance and reliability

EXPERT PEOPLE



Zero harm operations with maximized human potential

Every worker enabled to perform at an elite level

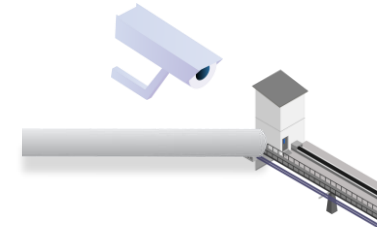
INTEGRATED CENTRAL OPERATION



Digital-first way of working to augment workers and processes with practical AI

Monitor, Control, and Service Remotely

SUSTAINABILITY



Autonomous control of avoidable carbon emissions

Monitor, Reduce, Report Carbon Emissions

SHIFT FROM EXPERTISE-BASED DECISIONS TO CLOSED-LOOP AUTONOMOUS OPERATIONS COMBINING AI, DIGITAL TWINS, AND AUTOMATION

EXPERION COGNITION

Breakthrough performance barriers and increase autonomy by seamlessly enhancing your Experion control system with AI capabilities

KEY OUTCOMES



MAKE EVERY OPERATOR AN EXPERT

Bridge the knowledge gap by providing best practice operator guidance captured from process experts and operational history



CONSISTENTLY HIGHER PERFORMANCE

Operate closer to limits for longer and reduce performance variability between shifts



INCREASE PRODUCTION UPTIME

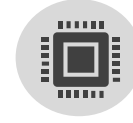
Autonomously detect and avoid abnormal situations, and significantly reduce upsets caused by human error



UNPRECEDENTED OPERATOR EFFICIENCY

Increase operator efficiency and scope of responsibility by delegating routine tasks to autonomous agents

HOW



A NEW GENERATION OF AUTOMATION

Move from digitizing equipment operation to digitizing human decision making – the last frontier of control loops



INTELLIGENT USER EXPERIENCE

A revolutionary new operator experience with a generative HMI designed to maximize Human Autonomy Teaming



AGENTIC ARCHITECTURE

Analytics and AI technology provide the foundation of Cognition, with agents that perform traditional operator tasks



KNOWLEDGE CAPTURE

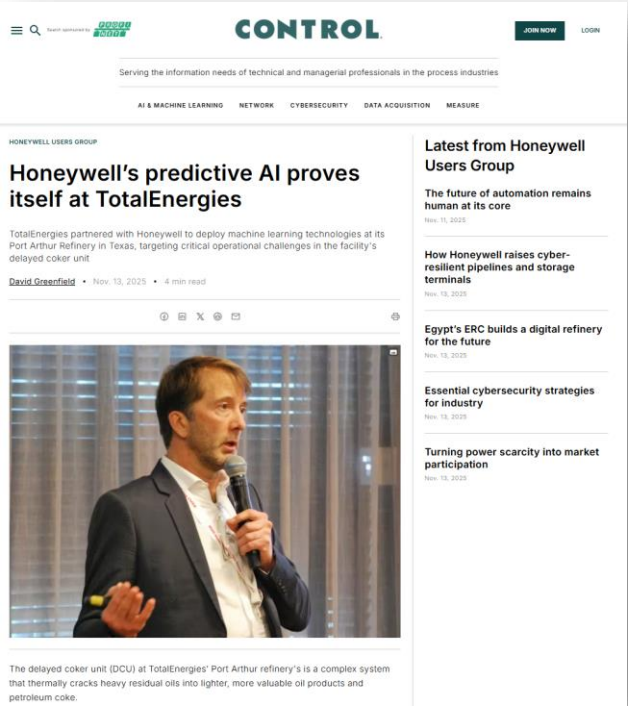
Minimize engineering effort with AI assisted generation of operator guidance, abnormal situation handlers and automated procedures.

MAKE EVERY DAY BEST DAY OF PRODUCTION WITH UNPRECEDENTED OPERATOR EFFICIENCY

SUCCESS STORIES



ADNOC Borouge



TotalEnergies



Chevron

**UAVs PERFORM
INSPECTIONS**



**5G ENABLED
LOGISTICS**



**CONNECTED
OPERATIONS**

**REMOTE
SURVEILLANCE**



**IMAGINING THE FUTURE
OF OFFSHORE OPERATIONS**

KEY INSIGHTS

FOR NAMIBIA OFFSHORE OPERATIONS

- Opportunity to design offshore operations off the future taking advantage of the latest digital and AI technologies
- Unified control environment reduces integration complexity across FPSOs, subsea systems, and onshore terminals
- Strategies and solutions required to mitigate cybersecurity risk due to increased connectivity and digital technologies

