From Bytes to Barrels

Oil & Gas
Industry Practice

Trends Shaping the Oil and Gas Industry

TRENDS AND DRIVERS	ILLUSTRATIONS	BUSINESS KPIS
Asset Utilization	• Enhanced asset integrity • Higher asset availability	• Asset Utilization Rate • Asset Turnover Rate • Maintenance Response Time • Mean Time Between Failure (MTBF) • Higher asset availability
Workforce Productivity	• Employee productivity is a function of age • Faster time to KT	• Barrels of oil equivalent per day (BOE/d) • Days away from work • Non-Productive Time (NPT)
M&A	• Land and technology acquisitions • Better asset utilization	• Lease Operating Expense
Digital Refinery	• Reduce unplanned downtime and increase production • IT-OT Convergence	• Asset Utilization Rate • Demand forecast accuracy
Safety	• Enhance worker safety • Increasing lawsuits and stringent labour laws	• Safety and environmental fines ($) • Recordable injury frequency (%) • Workforce fatalities
Performance Improvement	• Bridge performance gap through advanced analytics	• Independent and competent person (ICP) • Attrition rate
Security & Compliance	• Continuous protection evolving to a risk based approach	• Hydrocarbon releases • % Logistics delay due to compliance
Automation	• Futuristic RPA for front, middle and back office	
Digital Enterprise	• Foundation platforms for digitalization	• Schedule variance • % Variance (Actual cost/ Planned value)

HCL's Oil & Gas Practice Overview

16+ years experience

15+ current engagements

40+ transformation programs executed

2200+ people aligned to O&G

Serving clients across business value chain

Distributions & Retail

Refining & Chemicals

Mining

Upstream

Midstream

We serve 3 out of 6 Super majors in the world

We also serve 2 out of top 3 Oil Field Services companies in the world

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HCL solutions and services for Oil and Gas Industry

Upstream Solutions and Services

- Asset Integrity Management
- Worker Safety Solution
- Cloud Adoption and Enablement in Upstream
- Maintenance, Repair, and Overhaul Solution
- Engineering Services

Midstream Solutions and Services

- Asset Integrity Management
- Image Analytics for Pipeline Management
- Logistics Fleet Analytics

Downstream Solutions and Services

- Maintenance, Repair, and Overhaul Solution
- IoT-based Remote Asset Management
- Engineering and R&D Services
- Cybersecurity Solutions

Enterprise Digital Services

- Digital IT Operations
- Digital Applications Services
- Digital Consulting
- Digital Workplace
- Business Analytics Services
- Cognitive Automation Solutions

Analyst Recognition

HCL Tech positioned as Leader and Star Performer in the Cloud Enablement Services by Everest Group PEAK Matrix™ Assessment 2019
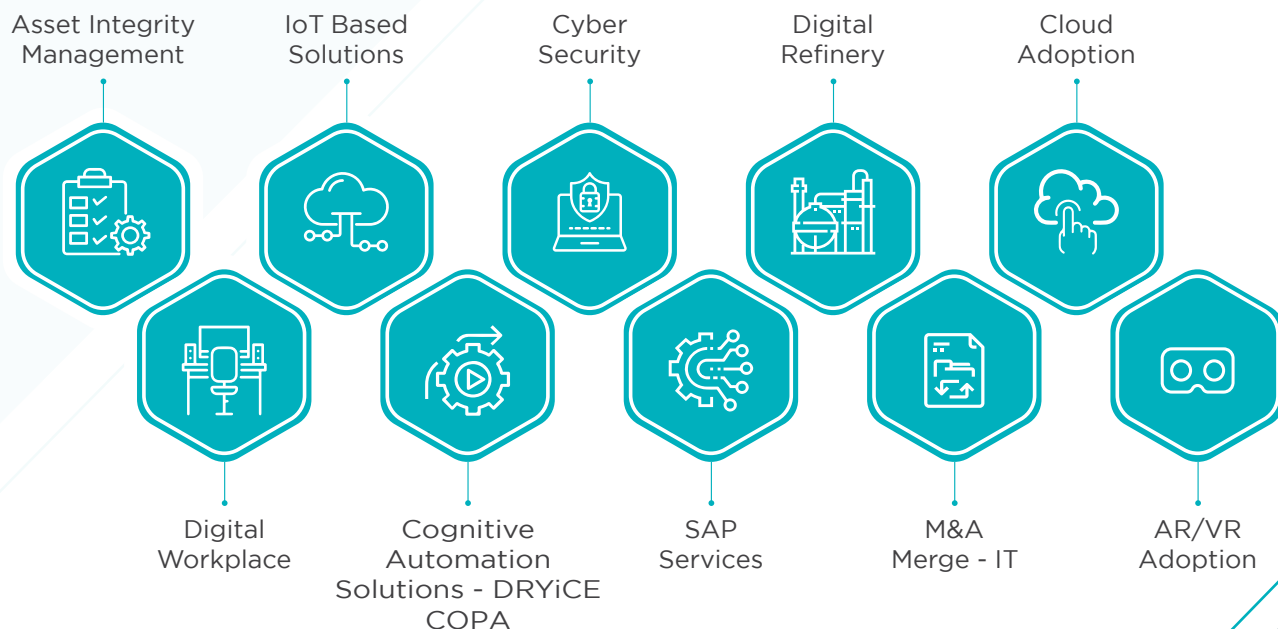
HCL Tech recognised as Leader for Global IoT services for connected business operation at Forrester Wave™ 2019

HCL Tech recognized as Leader and Star Performer in the space of Digital Workplace Services by Everest Group PEAK Matrix™ Assessment 2019

HCL Tech recognised as Leader and Rising Start for Digital Enterprise Operations and Customization by 2019 ISG Provider Lens™

HCL Tech recognised as Leader and Rising Start for SAP Cloud Platform by 2019 ISG Provider Lens™

HCL's Solutions and Services Overview

Asset Integrity Management

IoT Based Solutions

Cyber Security

Digital Refinery

Cloud Adoption

Digital Workplace

Cognitive Automation Solutions - DRYiCE COPA

SAP Services

M&A Merge - IT

AR/VR Adoption

Asset Integrity Management

- Asset Performance - Leveraging IoT to provide real time/ near real time status of assets
- Asset Tracking - Tracking asset performance in a single repository from birth to decommissioning
- Asset Integrity - Leverage iMRO for regulatory compliance and enhanced process integration

IoT Enabled Solutions

Remote Guided Operations

- Digitize operations know-how
- Remote Expert Guidance
- Remote Training of Workforce

Remote Augmented Operations

- AR assist solutions- RealWear, Microsoft HoloLens

Remote Workforce Monitoring

- Automated Mustering/Evacuation
- Automated Time Sheet Monitoring
- Optimized use of People, Equipment & Inventory
- Process Optimization – e.g., Procurement

Remote Employee Safety

- Smart Helmet
- Smart Jacket & Wearable

Cyber Security

- Unified and Integrated Cybersecurity Operations
- Business Aligned & Business Aware Cyber Security & Risk Strategy
- Compliance Driven Solutions
- AI & Analytics Driven threat Prevention and Detection
- Industrial Control Systems
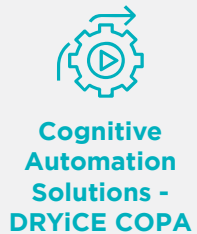- Improved User Ex Through IAM

Digital Refinery

- From plant floor to top floor
- IT-OT Convergence
- Real-Time Data Analytics

Cloud Adoption

- Cloud Platform Set-Up
- Infrastructure Automation
- Near-Zero Touch Operations
- Service Management
- Service Orchestration

Digital Workplace

- Smart-It
- Smart Machine
- Smart User
- Smart Spaces

Cognitive Automation Solutions - DRYiCE COPA

- AI enabled cognitive conversation broker powered with NLP
- Intelligent Decision and Knowledge Management Solution using Machine Learning
- Smart Process Automation solution

SAP Services

Enterprise Core Services

- SAP HANA Assessment
- SAP HANA Enablement,
- SAP HANA Transformation
- SAP HANA Analytic services

Hybris Services

- Digitalization
- iCare2.0
- Retail B2C Accelerator
- Industrial B2B Accelerator

Cloud Services

- SAP Cloud Platform (PaaS)
- SAP Ariba
- SAP Cloud Infrastructure as a service (IaaS)
- SAP UX Services – User Experience

Merge IT Framework

- Pre-Merger IT Assessment - IT Integration Strategy
- Post-Merger - Detailed integration planning
- Post-Merger Integration Execution – Streamlined Program and Change Management

AR/VR Adoption

Analytics

- Multi-discipline approach to Machine Learning & Analytics

Mobility Tools, Services, Platform support

- Mobility Services supported - Device Related Solutions/Development, Enterprise Mobility, Platform Based Development, Managed Services
- Platforms supported are- Android, iOS, Windows, PhoneGap, Cardova

AR device Support

- Support AR app development for both Binocular & Monocular devices like HoloLens, Google Glass, RealWear, Samsung Gear, Oculus Rift.
- Support App development platforms like Vuforia, Unity, Android, AR Kit, Google VR

Content Development

- STRIDE is a creative studio with design capabilities across design disciplines like UX, AR/VR and Communication Design under one roof to offers holistic design solutions to customers across businesses

Imaging Solution

- Image Processing solution development
- Spatial and Frequency domain processing, Color image processing
- Closed loop Camera control
- Large image processing application development

Business Impact Delivered

The customer is the world's leading provider of technology for reservoir characterization, drilling, production, and processing to the oil and gas industry.

Customer Business

- Lack of an enterprise system that encompasses MRO business functions result in limited business agility and scalability
- Reduced performance and human errors caused by old unsupported legacy systems
- Labor intensive MRO compliance management

Engagement Background

- HCL's iMRO solution provides a smart and highly differentiated maintenance management software that
    - Delineates as many varying integrated business scenarios as possible to ensure overall solution covers every aspect of MRO operation
    - Limit SAP customization by leveraging standard iMRO workbenches and functional enhancements

Key Outcomes

HCL's iMRO solution implementation provided the following benefits to SLB in the below areas:

- **Maintenance Engineering:** Modification and service bulletin induction workbench to manage modifications, embodiment rules, and effectivity of manufacturer engineering orders and regulatory body directives
- **Asset Induction and Inspection:** Workbench to manage receipt, induction/paperwork, inspection, strip, work-scoping, and integration to SAP for repair execution, outside service processing and as-maintained v/s as-allowed technical structure management
- **Maintenance Work Execution:** The solution uses a front end tool to carry out maintenance work in the shop, including access to maintenance manuals and documentation, as well as user-friendly capture of labor, inspection results, and work order changes
- **Maintenance Demand Planning:** The maintenance software contains graphical tools to manage maintenance demand over short and long-term horizon, taking into account available resources and capacity levelling
- **Expediting, Sourcing, and Exchange:** Reporting of material expediting and shortage based on predictive analysis along with tracking of work in process. Front-end to perform assembly and component swaps and exchanges between assets and repairs including billing and revenue integration
- Single SAP ECC 6 instance with iMRO product suite V6.0 covering the entire MRO operations

The customer is the world's leading provider of technology for reservoir characterization, drilling, production, and processing to the oil and gas industry.

Customer Business

- Oil field companies are asset-intensive industries and lack a single platform to provide the most reliable asset management for operations at the lowest cost, on time, every time
- Grown through acquisitions and disparate systems without a unified platform to provide visibility and a single view of equipment's
- Consistency in development of apps UX/UI

Engagement Background

- HCL built a web application that enables to view demands, search for equipment & source it, and plan equipment & work orders for best asset utilization
- Schedule resources to work demands based on work center capacity
- Unified detailed view information on the equipment and such as status, location, structure, configuration, history, etc.

Key Outcomes

- Single and consistent way to view of all asset information from various disparate system
- A single application that integrates with various enterprise and bespoke systems
- Changes are done in one place versus multiple applications/systems
- Scalable application that can be deployed on-premise or on-cloud and connect to multiple backend systems
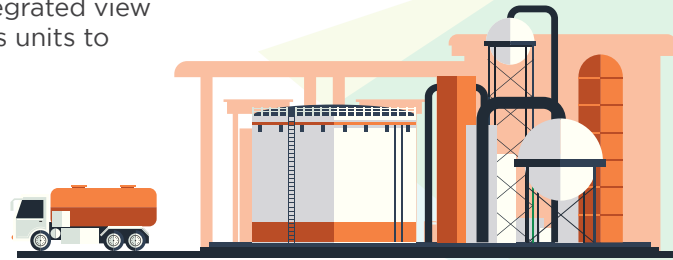
The customer is a largescale, geographically diversified, and highly integrated refining, marketing and midstream company.

Customer Business

Develop a common platform that provides an integrated view of assets and inventory across client's six business units to address the challenges of:

- Process diversity and compliance
- Complex interface and manual processes
- Data inconsistency/quality
- Diverse reporting frameworks
- Turnaround integration

Engagement Background

- Built a common Plant Maintenance system with LAM (Linear Asset Management), integrating with all back-office functionality, leveraging Core ECC6 ehp5 and Syclo as mobile component in combination with Sybase Unwired Platform (SUP)

Key Outcomes

The client now has a unified system across all six business units covering key processes like:

- Plant Maintenance
- Asset Management, Inventory Management, and Warehouse Management
- Planning & Scheduling and Project Systems
- HR & Finance, and Controlling

The customer is an industrial aviation service provider and helicopter service provider to the offshore energy industry with global operations.

Customer Business

- Oil & Gas Experience – Alignment between business drivers and cyber threat profiles breeds effective network defence and asset protection
- Advanced Threat Intelligence – Informed event analysis speeds threat identification and alert escalation compliance management
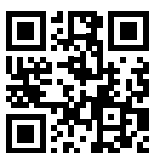
Engagement Background

Integrated security devices with existing SEIM solution for centralized security event monitoring, identification, triaging, and reporting

- Analysis of threats based on historical events
- Advisory service for external

Key Outcomes

- Improved security postures
- 24*7 eyeball monitoring & real-time correlation of alerts
- End-to-end cybersecurity incident monitoring and response

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