

Strategic partnerships across the oil & gas industry



Case study: Strategic engagement

for leading oil field services company

Applications in scope

Plant Engineering : Aveva
-PDMS, S3D, PDS, E3D,
Isogen , Caesar -II , AVEVA
-ELEC, ISM, NET, Dialux,
MAT 3D, Tekla, AutoCAD,
STAAD Pro., PV ELITE,
SMART PID, e-TANK,
custom applications, PDM :
Teamcenter, 3DX, SAP



Engagement highlights



Strong relationship of 12+ years starting from 2009



Instrumental in moving work from multiple locations in US/Europe to BCC, helping in savings of \$2.5Mn/year



HCLTech engaged as an extended engineering team / R&D partner across all services



Over 250+ FTEs supporting all global locations



Transitioned multiple projects from traditional T&M model to Fixed Bid/Work Package Model



Developed multiple Productivity Enhancement tools for automating engineering activities

Key engineering areas

Product Engineering

- Product design and Development
- Requisition Engineering
- Cost Engineering and VAVE
- Drill bit Design automation
- Hardware Engineering
- Embedded Application development and Testing

Plant Engineering

- Process and System Engineering
- Piping Engineering
- Structural, Civil and Building Design
- Electrical and Instrumentation
- Package Design and Equipment – Rotary and Dynamic Equipment selection (sizing)



Application maintenance

- Dedicated IT infrastructure support
- L1 app support for Oil & Gas Well Applications
- Tekla, PDMS-E3D, AutoCAD and other applications
- Customer License configuration
- Ticket based support
- Project standard configuration and Library file setup
- Data management
- Global team Dashboard support
- Server monitoring and alerts

Application enhancement & development

- Strain and Corrosion application development; Field data collection (Radiography Devise)
- Pressure sensors calibration application Development
- Customized Drill bit design software built in Creo to automate 3D model creation
- Automated General Arrangement Drawing creation tool in AutoCAD for Control Valves
- Quality checking tool using OCR technique to check drawing dimension with input specification

Case study:
Use cases
implemented
for an Oil & Gas major in US

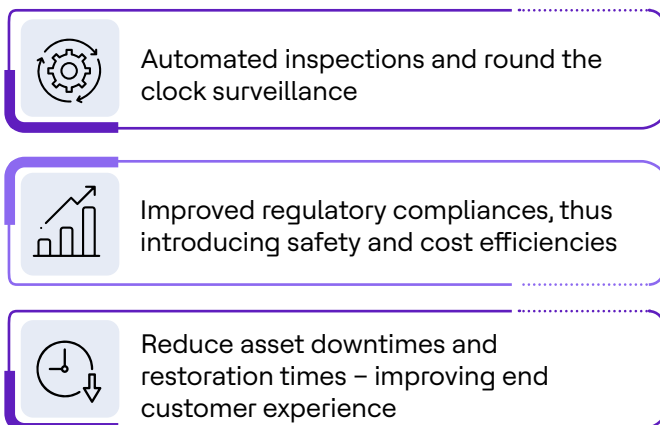
Data

Determine data to be generated

- **Where is it?** Insights & alerts raised by the service desks & IoT platforms capturing information from the connected devices & sensors
- **What is it?** Incident insights with constant visibility of the connected ecosystem
- **How is it?** Enabling proactive monitoring & management of the connected ecosystem

Process

Change processes to take action on insights



Industry value stream transformation – upstream, midstream and downstream



Asset & Product Engineering integration



Value stream focus to deliver optimization of Operations



Asset Repository accessible and maintained at all sites



Automated processes and Deployments



Asset hierarchy and lineage established through Tools

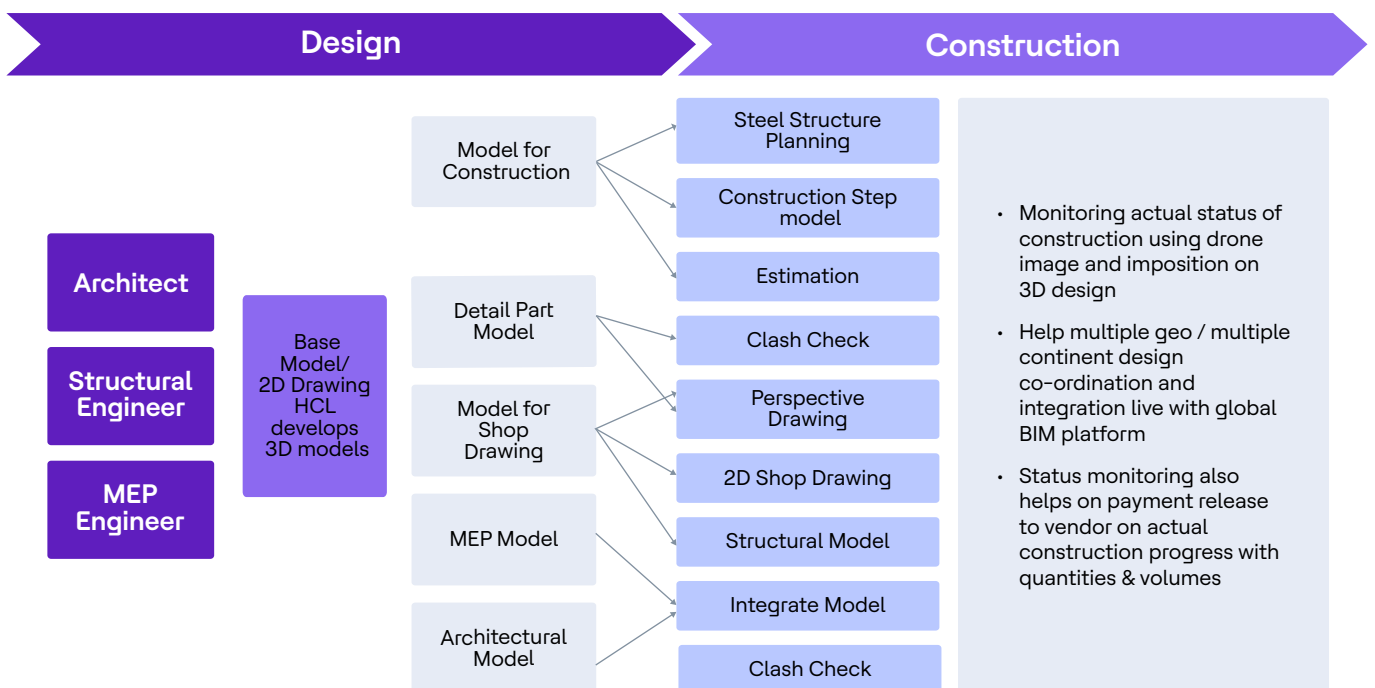


Enable quick resolution through real-time monitoring

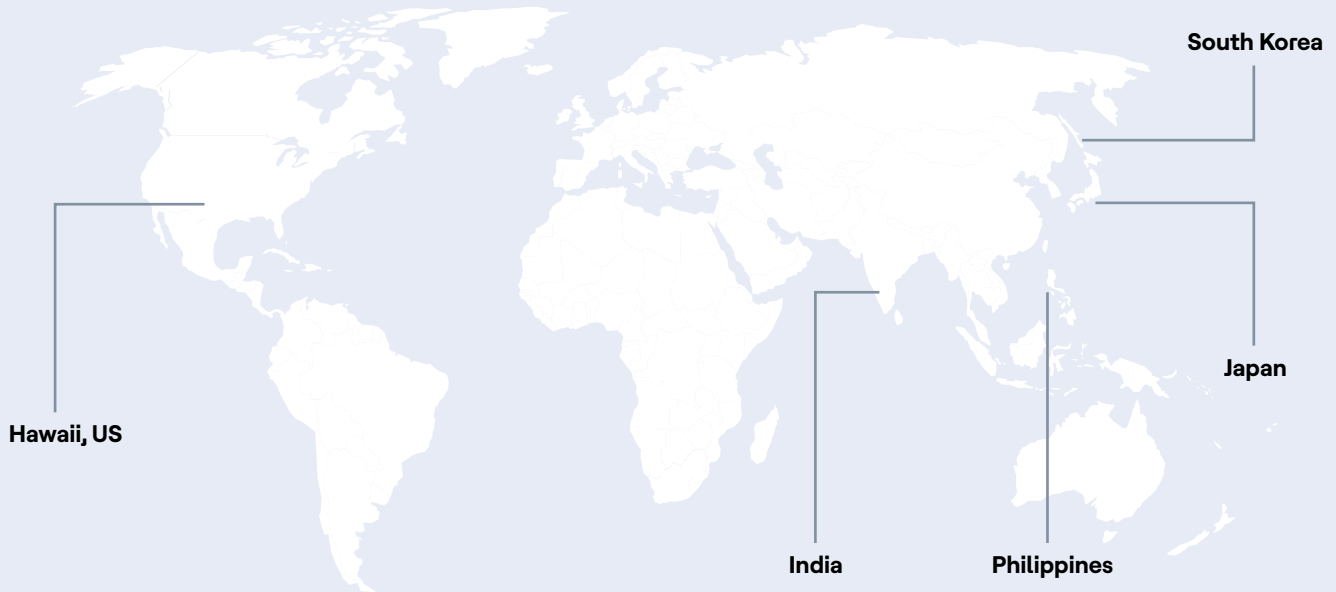


Case study: Multi-continent, multi-geo BIM integration

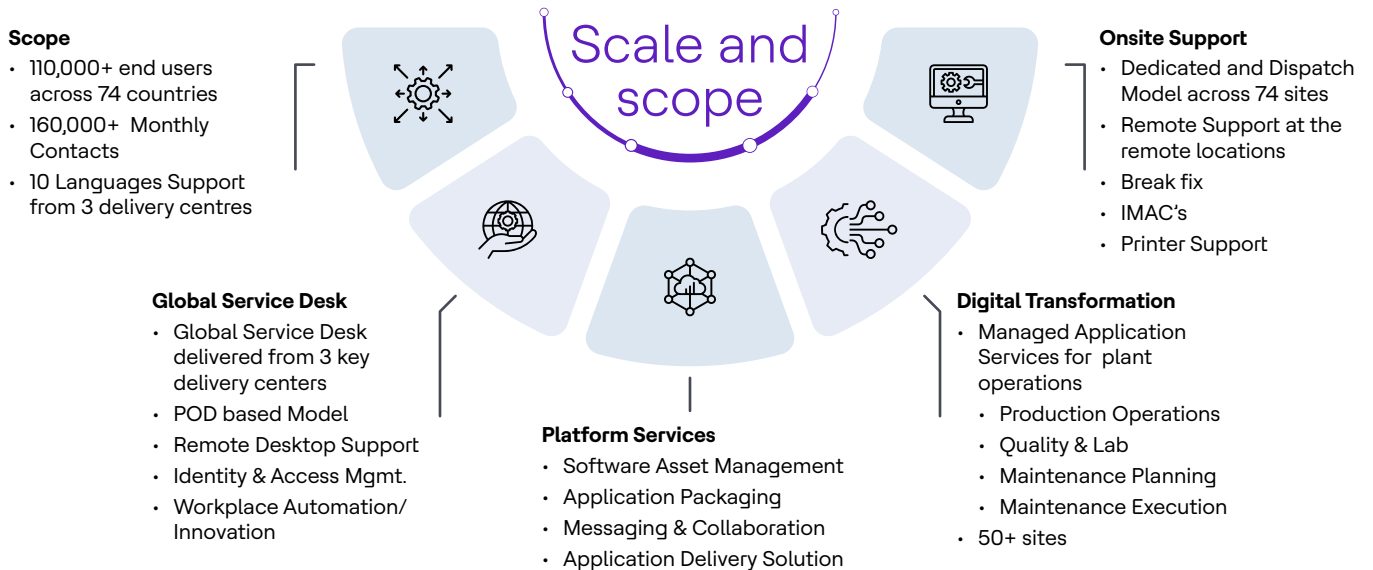
for a Leading Japanese Construction Company



Global BIM integration support 2 continents – 5 countries



Case study: Multi-dimensional engagement with an O&G Super Major



Solution highlights

- 300+ Application Packages being supported every month
- IAM for For 110K+ users spread across 56 countries
- SAM – Servicing 7000+ requests month
- Messaging & Collaboration – Supporting 130K+ user mailboxes & 100K+ SharePoint My Sites
- Application Delivery Solutions – Including 3000+ VDI instances & 1800+ Citrix Servers
- Workplace Automation/Innovation – EVA, IT Assist, IT Chat & IT Password



The following Service Enhancements have been delivered in existing Service Desk operations

- Buyer Data Extranet
- Customized Greeting
- eSupport & eTraining
- “Key User” Notification
- Instructional Video Clips
- Customer Satisfaction Survey
- Call Back & transfer Process
- Complex applications landscape being supported with techno-functional skilled team
- Production Management, Historians, Production Accounting & Reconciliation
- Lab Information Management
- Maintenance Planning & Scheduling
- Maintenance Execution

Value adds

- Implemented OHS & Live Station on HA with BMC Remedy for Auto Ticket creation with VIP Smart routing
- Identified and Segregate the Users based on Profiles
- Gain understanding of application usage pattern, identification of most critical users in the organization
- Identification of users facing the most problems with respect to IT
- Conducted User Experience Assessment & Analysis with HCLTech’s WorkBlaze real time end user analytics & proactive monitoring of end devices
- Developed and implemented Enterprise Virtual Assistant on IBM Bluemix Cloud platform
- Standardization of solutions across Multiple Global Delivery Centers
- Reduced Human Error at IT SD due to KEDB Automation
- Increased LO Self Service resolvable, Reduced MTTR
- Next Gen User Experience & Productivity by 9000+ Hrs. and Reduced Business Downtime
- Average effectiveness of Win Desktop OS automations around 98%
- Conversion of voice/email based incidents to non-voice chat
- Increase in Chat Adoption rate from 18% to 50% in last 12 months
- Applications & Interfaces Monitoring for proactive incident management
- Problem management through RCA & Defect reduction
- Supporting migration & upgrades

Case studies



Remote monitoring, control & maintenance solution for a Wind Turbine Company

Business need

Remote diagnostics & maintenance for global wind farm installation

HCLTech approach

IT-OT integration of wind farm equipment to maintenance and ERP systems with remote software updates

- Consolidated As Built BOM for 400+ global wind farm installations
- Connected Services (Devices / Product in Field)
- Developed analytics engine to track runtime performance and control when out of bound
- Prevented damage in adverse condition by controlling turbine operations

Business benefits

- Reduced cost of maintenance by ~5% & minimized need for physical presence onsite
- Improved efficiency of power generation by ~7%



Condition Monitoring of Centrifugal Pumps

Business challenge

Detect centrifugal Pump defects like Impeller Fault, Ball Bearing defects and Seal defects

HCLTech approach

Vibration data from Healthy Pump and with pump with faulty components are captured. Fault simulated were Cavitation, Inner ring race fault, Outer ring race fault, Seal Fault and impeller Fault. Random Forest algorithm was used to create the model

Value delivered (impact on efficiency)

- Achieved 95% accuracy in classifying faults
- Were able to extract unique pattern signature for each defect type
- Can be used for condition monitoring of most of rotating equipment



AR based Maintenance Solution for a leading Hi-Tech company

Business challenge

Client vision is to develop a platform to optimize maintenance planning of plant line/equipment to reduce down time. (Improve OEE)

HCLTech approach

HCLTech signed up for a product engineering partnership with client for platform development.

- Platform utilizes advanced analytics by processing multitude of data from manufacturing IT/OT system to provide intelligence in asset maintenance life cycle.
- Worker can interact with the system using AR/VR for superior experience

Business benefits

- 20% decrease in MTBF / MTTR
- Improved 15% maintenance technician productivity

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HCLTech is a global technology company, home to more than 223,400 people across 60 countries, delivering industry-leading capabilities centered around digital, engineering, cloud and AI, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, Technology and Services, Telecom and Media, Retail and CPG, and Public Services. Consolidated revenues as of 12 months ending June 2023 totaled \$12.8 billion. To learn how we can supercharge progress for you, visit hcltech.com.

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