

Integrated process from machine to invoice

Internet of Things and cloud solutions
at HOERBIGER



Headquartered in Zug, Switzerland, HOERBIGER group is active throughout the world as a leading player in the fields of compression technology, automation technology and drive technology. To guarantee business success in tomorrow's digital economy, the company has launched STREAM, a group-wide standardization program that aims at redesigning processes, systems and organizations. Modern technologies such as the Internet of Things and cloud computing can be used to implement innovative business models and reduce service costs. For this purpose HOERBIGER relies on SAP as a strategic pillar within its IT landscape.

Innovative business model for Wellhead Compression

When nearly depleted, gas and oil wells are often abandoned, even though considerable quantities could still be extracted. This is because the remaining oil and gas can no longer be recovered fully using conventional methods. Compressors can be used to exploit these remaining quantities easily and efficiently. Wellhead Compression (WHC) products and services offered by HOERBIGER allow mature fields to extend production output.

In Latin America, an innovative WHC operator model was developed using this technology. HOERBIGER now rents mobile compressors and operates them for customers based on long-term contracts, instead of selling them as previously. While the customer pays for the service actually provided, HOERBIGER maintains responsibility for compressor uptime and availability. Success of this WHC operator model hinges on continuous monitoring of compressors and on high field service efficiency.

HOERBIGER operates more than 400 mobile wellhead compressors at about 70 locations. Spread far apart, the gas and oil fields are often several hours' drive from the service companies. Previously, field service staff had to run daily checks on the machinery to read off operating data and carry out maintenance and repairs. Compressor defects and failures could only be detected on site, and it was not always possible to solve incidents immediately.

A major weakness of the previous process was that operating data was registered and processed manually. Data recording as well as subsequent processes such as reporting and performance-based billing were extremely time-consuming and prone to faults.

With the STREAM group-wide standardization program, HOERBIGER has redesigned the service business of wellhead compressors and has automated vital processes within the «WHC Digitalization» project.

Goals

With the «WHC Digitalization» project, HOERBIGER pursues the following customer goals:

- **Increased availability of compressors**
- **Enhanced efficiency of field service**
- **Reduction of service costs**
- **Speedy and transparent invoicing**
- **Fully integrated process from machine to invoice**
- **Full business model alignment of processes**

Integrated process from machine to invoice

Innovative IoT and cloud solution

The «WHC Digitalization» project comprises the entire process and IT integration from recording operating data to invoicing. The complex business logic was mapped using modern IT technologies such as the Internet of Things and cloud computing and integrated with SAP ERP (ECC) and SAP Cloud for Customer (C4C). This has enabled extensive automation of manual processes. In addition, standardized template-based processes allow an easy global roll-out of the solution.

The individual applications support the following sub processes: monitoring, contract management, reporting and the automated generation of billing data.

The IoT solution was realized by proxia in cooperation with HOERBIGER in barely 9 months.

Automatic recording of compressor operating data

The compressors have been equipped with a telemetry device that transmits machinery status and performance data to SAP Cloud Platform IoT services. On this platform, data is stored in the central storage device (core) and processed by various uniquely developed process solutions.

Machine monitoring

The various operating data from compressors is displayed via a user-friendly interface to provide an overview of current machinery status. Service staff can view real-time information about compressor status and performance at any time on their desktop and mobile devices.

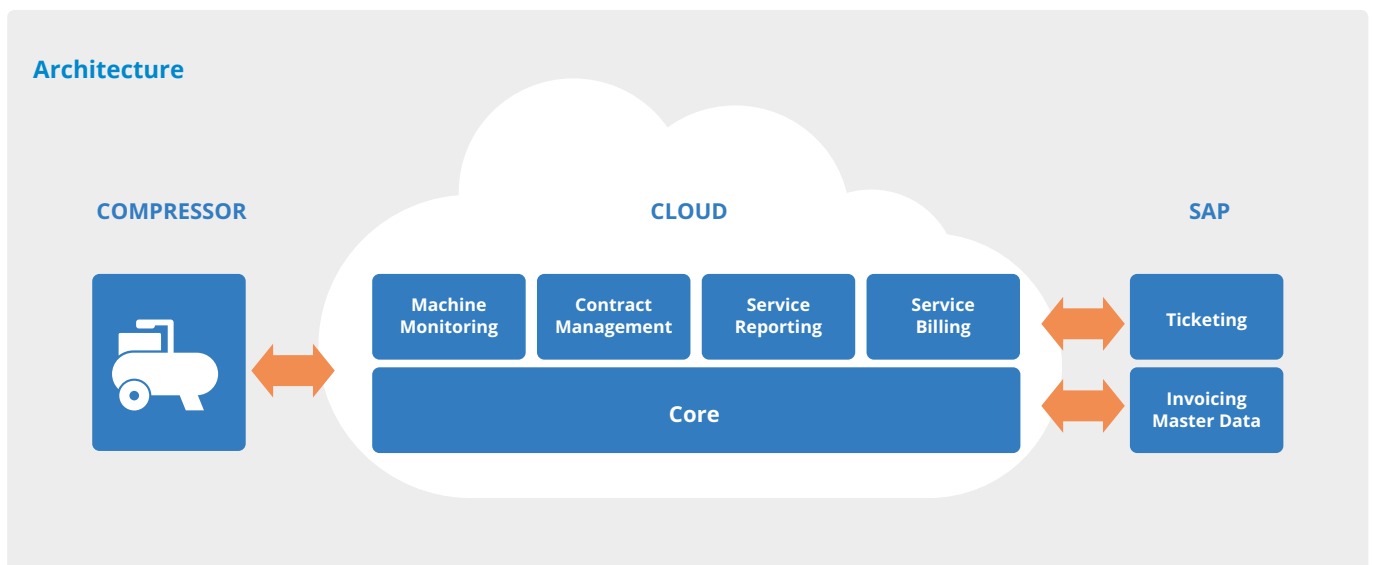
A service ticket is issued automatically in SAP C4C in the event of certain errors or if a compressor fails to provide data for longer than 30 minutes.

Reporting of service levels reached

The Service Reporting component automatically generates daily and monthly reports including KPIs relevant for compressor operation. With detailed visualizations of operating hours, workload, availability, reliability, mean time to repair and mean time between failures, the summaries provide the performance data for billing and indicate improvement potential for service activities and product development.

Contract management

Within Contract Management, the business rules and parameters used for creating reports and bills are defined. In line with service level agreements, these rules and parameters specify operating hours and availability, contractually guaranteed performance, allowed tolerance levels, and how KPIs for specific services are translated into cash values.





Billing of services

Performance-based billing means that the invoice amount depends on the actual fulfillment of contractual commitments. Through interaction with the other cloud solutions, the implemented billing solution automatically generates the values needed for billing: the service provided and the resulting costs.

The user can manually adapt and approve the data used for invoicing in SAP ERP via a user-friendly interface.

Ticket management (SAP C4C)

Service tickets triggered by the monitoring process and the corresponding error codes are transferred automatically to ticket management. The service back office assigns tickets to a technician. Tickets are then directly transmitted to the technician's mobile device, along with compressor operating data and the error code.

While deployed on site, the technician enters time and material directly on a tablet PC. The application is also available off-line – an important feature because some compressors are located in areas without internet access.

Invoicing (SAP ERP)

The invoice values determined and approved using the billing software are passed on to the SAP ERP, which takes care of actual invoicing.

Business benefits

Support of innovative business models

- Performance-based billing
- Basis for developing predictive services

Enhanced field service efficiency through

- Real-time information on compressor status and performance
- Improved monitoring and more precise planning of service tours and intervals
- Staff deployed less frequently on site
- Repair times and material recorded on site using mobile devices
- Fewer errors when recording repair costs

Enhanced service management efficiency through

- Reduced costs for generating reports and invoices
- Simplification and automation of the reporting process
- Simplification and automation of the invoicing process

Technologies used

- SAP Leonardo Internet of Things
- SAP Cloud Platform
- SAP HANA DB
- SAP HANA XS
- SAP Cloud Platform Integration
- SAP Cloud Connector
- SAP Cloud Identity
- SAP Cloud for Customer
- SAP ECC





Thomas Kriechbaum about the project

Thomas Kriechbaum
Chief Process Officer,
Executive Vice President
Processmanagement and IT



You have redesigned the wellhead compressor business. Why?

Being successful in tomorrow's digital economy requires globally functioning processes and new business models. We use the STREAM program to promote group-wide standardization. The IoT solution for the operator model with wellhead compressors is one element in this transformation. With performance-related billing based on actual compressor availability and the automation of reporting and billing, we are pursuing our goals to improve customer loyalty and satisfaction and significantly reduce service costs.

A new business model – new processes. What impact are the changes having?

Service and maintenance have become more efficient. We can identify trouble earlier and better plan the deployment of technicians. Machine downtime has been reduced and thus the invoiced services increased.

Automated monitoring, reporting and billing have now led to much more transparency. Sources of error were eliminated, and, despite the complex billing model, invoices are issued without delay, paid more rapidly and our liquidity is thus improved.

Why have you opted for SAP technology for your IoT solution?

SAP is a strategic pillar within our IT landscape. We are using SAP ERP and SAP Cloud for Customer, SAP S/4 HANA is being rolled out internationally. SAP Leonardo IoT and SAP Cloud Platform are modern technologies that provide excellent support to our innovative business solutions and integrate easily with our existing IT architecture.

Can you give us an outlook of what to expect in future?

We are planning to introduce the new WHC operator model in new regions and countries. This will be facilitated by the template-based approach. In Mexico, the cloud solution developed specifically for Argentina and Chile has already been successfully implemented.

We are analyzing whether we can develop the service process to allow us to provide services on a predictive basis. Modern algorithms and machine learning could help us predict optimal machinery maintenance intervals and further increase compressor availability.

Why have you selected proaxia as a partner for this project?

For many years, HOERBIGER and proaxia have been connected by a business relationship based on trust. In the past, proaxia supported HOERBIGER with several SAP roll-outs. proaxia has always proved itself through expertise and excellent cooperation.

Especially important aspects in this project were proaxia's experience with IT integration and cloud computing as well as the methodical approach in mapping business processes to IT processes.

What was your experience while working with proaxia?

Our project was implemented very successfully, 'on time and within budget'. In my view, the following qualities displayed by proaxia were essential factors: sound and complete planning, excellent near shoring capacities, a very experienced team of developers and proaxia's corporate culture. I experienced how responsive a team can be. proaxia's consultants always went the extra mile for HOERBIGER.

About proaxia consulting group ag

proaxia consulting group ag is an international management consultancy firm headquartered in Switzerland and with branches in Europe, MENA and Asia. As an SAP partner, proaxia specializes in distribution and service processes and spare parts logistics processes.

More information ▼

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