



## ■ Business impact

- In the North Sea, the average extraction cost for a barrel of oil rose 42 percent from 2000 to 2005.\*

## ■ Challenges

- **Inability to strike the right balance.** Too much maintenance means higher costs, while too little can mean problems that could have been prevented.
- **Regulatory requirements.** Maintenance on some equipment is regulated, and companies must comply with regulations or risk loss of license.
- **Lack of collaboration.** The inability to share information among groups often means erroneous work orders, duplication of effort and/or delays in getting necessary work done.
- **Imprecise maintenance schedules.** Recommended maintenance schedules are insufficient, as environmental factors and the equipment's age can affect performance and maintenance needs.
- **Difficulty accessing information.** Lack of standardization among incompatible systems in multiple locations makes it hard to get the information needed to optimize maintenance on all equipment.
- **Undocumented processes.** Reliance on human knowledge for maintenance needs is unwise, as the workforce is aging and will take that knowledge with them when they retire.

\* Source: *The McKinsey Quarterly*, 2005, No. 2.



THE  
POWER  
TO KNOW®

## How can we optimize the planning and scheduling of maintenance across our entire operation?

### YOUR GOAL: Lower maintenance costs

Global energy consumption has tripled over the past 50 years, and some of the world's largest existing oil fields are rapidly maturing. That is spurring E&P operators to search for new resources in often inhospitable conditions such as ultra deep water, extreme cold and hostile weather. But whether attempting to maximize production from existing, aging assets or navigating the complexities of finding and tapping into new reserves in more difficult environments, E&P operators experience daily production challenges.

Maintenance issues abound as companies strive to increase production while guaranteeing safety, flow assurance and equipment reliability. Too often, issues aren't identified—and no action taken—until an actual failure occurs. But unscheduled maintenance can be logistically difficult and extremely costly. Routine maintenance is necessary, but how often? On what equipment? If you don't know, you risk performing unnecessary maintenance, which means higher costs. But it's a catch-22: Equipment that isn't properly maintained is prone to malfunction and breakdown—a huge safety risk and shutdown threat. And noncompliance with regulatory reporting requirements for equipment maintenance puts you at risk of losing your operating license.

### OUR APPROACH

Optimized, sustainable maintenance strategies—and improved performance and availability of production equipment—depends on the detection and diagnosis of the root causes of poor performance and unplanned downtime. We approach the problem by delivering software and services that help you:

- **Create a single, consistent information source.** Access, standardize and consolidate all relevant information—e.g., work orders, maintenance schedules, regulatory requirements, resource availability, etc.—regardless of location or format.
- **Reduce maintenance costs and man hours.** Optimize maintenance plans and schedules—taking into account priorities, skill sets, time and resource constraints, etc.—and track work orders and resource usage through a single, integrated system.
- **Gain a big-picture view of performance.** Develop, monitor and measure KPIs via a Web portal that shows how well maintenance plans are working at any point in time.
- **Proactively manage activity and control costs.** Use predictive analytics to identify causal linkages between KPIs so you can locate and fix problems at their source.
- **Ensure ongoing performance improvements.** Easily share knowledge—benchmark standards, best practices, maintenance history, regulatory guidelines, etc.—among those who need it, in a form that works best for them.

SAS enables predictive, preventive maintenance of your assets with minimal disruption to production. As a result, you can maximize the use of maintenance resources to meet operational goals for profitability, safety and environmental compliance.

## THE SAS® DIFFERENCE: Foresight to stabilize production, overcome challenges

Only SAS delivers the entire scope of capabilities required—from data integration to analytics to optimization to reporting—to create a picture of what *has* happened and transform it with analytic and predictive capabilities to project what *will* happen. SAS solutions are:

- **Comprehensive.** Only SAS can give you a complete picture of your offshore operations—from individual platforms to entire production zones.
- **Robust.** SAS assembles huge volumes of data from many platforms and systems, so you can continually monitor equipment and processes using real-time production data.
- **Modular.** SAS works with your existing systems, and you can implement our solutions modularly, starting where your needs are greatest and building on over time.

For more than 30 years, O&G companies have counted on SAS to extract raw data from any source, enrich it, make sense of it and make it available to key decision makers across disciplines, hierarchies and geographies—fast. In addition, we offer professional services, training and implementation methodologies to give you the maximum return on your investment.

### CASE STUDY: A large offshore oil & gas company

#### ■ Situation

Operating in a mature field under harsh conditions, the company faced mounting pressure to achieve high recovery rates, use personnel effectively, improve production regularity and create an efficient cost structure. That would mean improving business processes, formalizing its corporate knowledge and supporting integrated long-term asset planning and short-term operational planning. But how could the company introduce workflow changes and new technology standards in parallel, as well as maximize production without disruptions?

#### ■ Solution

SAS delivered a maintenance optimization solution that lets the company:

- Plan activities and target resources more effectively with a big-picture view that integrates monitoring, control and optimization of physical production processes.
- Monitor events (triggers) and their daily follow-up within established procedures.
- Analyze planned maintenance data as a whole, not just specific issues or functions.

#### ■ Results

- A 540 percent return on investment in the solution's first year of operation.
- Critical maintenance issues are resolved quickly and efficiently, meaning a substantial reduction in irrelevant maintenance notifications, required man hours and the number of days that production performance falls under the lower limit.
- Fewer unscheduled production disruptions and increased production regularity.



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#### ■ The vision

##### A single information source

What if you could access all the information you needed – work orders, maintenance schedules, regulatory requirements, resource availability – from a single, trustworthy source?

##### Optimized maintenance plans

What if you could reduce maintenance costs and man hours by developing an integrated maintenance schedule that takes into account priorities, skill sets, regulatory requirements, and time and resource constraints?

##### Meaningful KPIs

What if you could know at any point in time how well maintenance plans were working, so you could intervene proactively when performance fell below targets?

##### Advanced, predictive analytics

What if you could not only know in advance when equipment failures were likely to occur, but also have the information you need to locate and fix problems at their source, before they disrupted production?

##### Easy knowledge sharing

What if everyone – from middle managers to executives – could access planned maintenance information in their chosen format and share knowledge and best practices for improving maintenance-related cost containment?

### SAS FACTS

- For the fourth consecutive year, SAS was recognized as one of the Intelligent Enterprise “Dozen,” a list of the top 12 most influential IT solution providers.
- SAS has more than 140 customers in the oil and gas industry.
- SAS reinvests 24 percent of revenues into R&D every year.

Learn more about SAS® software and services for oil & gas at:  
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