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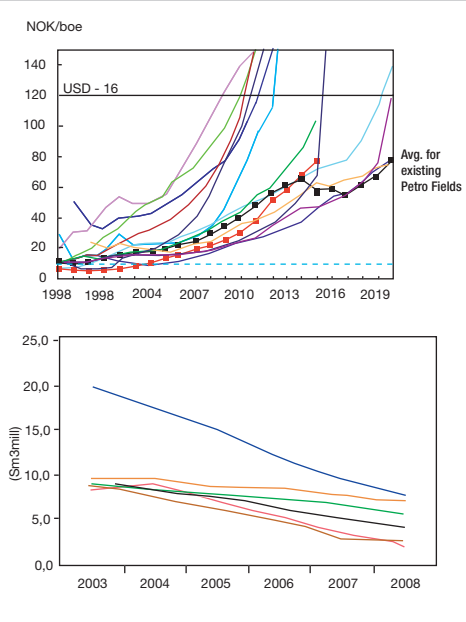
petoro | Success Story

Petoro AS

Smart Operations Readiness Assessment

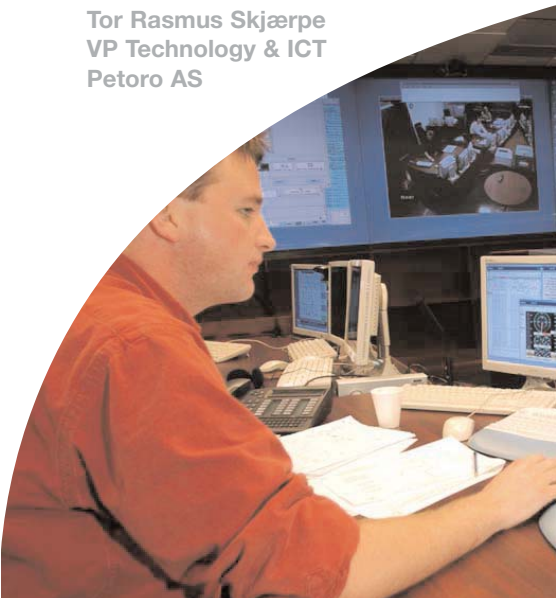
Figure 1: Operating costs (top) and production (bottom)



Source: Petoro Annual Report 2004.

"The assessment of the maturity of Smart Operations on the Norwegian Continental Shelf has been both a difficult and voluminous task ... The positive feedback from all participants of the end product is very much appreciated and a measure of success."

Tor Rasmus Skjærpe
VP Technology & ICT
Petoro AS



Customer Profile

Petoro serves as the licensee for the state's direct financial interest (SDFI) in Norwegian petroleum operations. It manages the commercial aspects related to these interests on the Norwegian Continental Shelf (NCS), and has the same rights and obligations as its partners in production licences. The SDFI portfolio is the largest on the NCS, embracing 90 production licences and 18 partnerships/companies. These holdings represent more than 33% of Norway's petroleum reserves and over 25% of total Norwegian oil and gas production. Petoro is not intended to act as an operator.

Business Problem

The NCS is a mature oil and gas province facing declining production, increasing operating costs and reduced investment. The NCS also has one of the highest labor costs of any global oil and gas province. Figure 1 highlights the typical increasing unit operating costs and decreasing production experienced in the NCS.

To counteract this trend the Norwegian oil and gas industry needed to reduce the rate of production decline and increase exploration and appraisal levels. It had to find new ways to make development of remaining reserves more economically attractive.

Petoro adds value by identifying opportunities to enhance value creation in individual licenses as well as through the coordination of these licences and projects. In 2003 Petoro identified Smart Operations as an area of substantial value creation and subsequently worked to speed up efficient implementation in its portfolio.

"Smart Operating" oil and gas fields use information technology and operational best practice, to improve efficiency in off- and onshore work processes. Considering the status of Smart Operations implementation and maturity in mid 2004, Petoro found it timely to test the readiness of the various operators in the NCS with respect to the deployment of "smart" operating practices in Drilling & Well Operations, Reservoir Management & Production Optimization, and Operations and Maintenance.

Solution

Capgemini responded to the challenges by drawing on its knowledge and experience from previous benchmarking studies and the Upstream Center of Excellence. The project had two phases:

- Seek interest from operating companies in Norway and design a survey tool.
- Collect, analyze and present the data.

Two detailed interview guides were prepared, designed to extract information relating to Smart Operations strategies, organizational and program governance, technologies and determine leading smart practices. These provided a framework for interviews with over 50 industry experts from both operating and oil and gas supply/service companies.

The survey was designed as a self assessment tool to gauge the maturity, operator uptake and implementation of Smart Operations. A select group of representatives from both the operators and suppliers was invited to a workshop to validate the questionnaire.

Deliverable

The scope of the survey was comprehensive, comprising Strategy, People, Process and Information & Communication Technology (ICT) parameters of NCS Smart Operations. The study only covered offshore production facilities (including their onshore organizations).

Phase 2 started with completion of the survey by BP, ConocoPhillips, Esso Norge, Hydro, Shell and Statoil, covering 11 assets in total. Due diligence in the form of targeted interviews was performed on the returned documents as part of the data validation process. Based on the survey returns, operator and supplier interviews, and due diligence, "Leading Practices" across the targeted value chain were identified.

Figure 2 shows key elements of leading practice identified for each operator. These elements did not necessarily cover all aspects of a particular leading practice. The survey established a repository of proven Smart Operations practices in the NCS. Operator "roadmaps" were developed where existing Smart Operations strategies and ICT practices could potentially be advanced by gaining insights into other operators' experiences and established leading practices.

Figure 2: Smart Operations Leading Practices identified in the NCS

		Company					
		1	2	3	4	5	6
Strategy	VISION & STRATEGY	x	x		x		
	PERFORMANCE MEASURES	x	x			x	x
	CHANGE MANAGEMENT	x	x	x			x
	REALIZED & RECORDED BENEFITS	x	x				
	BEST PRACTICE MANAGEMENT			x	x	x	
	MULTI-DISCIPLINARY ASSET TEAMS			x			x
ICT	ICT ARCHITECTURE BLUEPRINT	x			x		
	INSTRUMENTATION	x			x		
	COMMUNICATION & COLLABORATION	x	x	x			x
	ICT ROLES & RESPONSIBILITIES		x				
	SUPPLIER ACCESS/ INTEGRATION		x				
	DATA MANAGEMENT		x		x	x	
	TECHNOLOGY STANDARDIZATION					x	
	RTD RESERVOIR MODELLING					x	
	DATA TRANSMISSION - THIN DATA STREAMS			x	x		
Value Chain	DRILLING & WELL OPERATIONS	x	x			x	
	RESERVOIR MANAGEMENT & PRODUCTION OPTIMIZATION	x			x	x	
	OPERATIONS & MAINTENANCE		x	x		x	
Collaborative Center	DRILLING	x	x				
	OPERATIONS	x	x				

Multiple types of analysis were performed, enabling a series of maturity plots to be constructed to assess the positions of each of the operators in regard to overall Smart Operations readiness, Company Strategy, ICT and Collaboration Centers (both drilling and operations).

There are significant variations in adoption strategy among the NCS operators. While different plans reflect differing asset profiles, they also indicate strategic, organizational and cultural differences among the players. The survey found the biggest difference between operators was their ability to execute a strategy within the context of asset and organizational constraints. The focus of NCS efforts to date centered on Production and Drilling optimization, with a great deal of effort made in establishing onshore Drilling and Operating Centers.

In terms of technology, Smart Operations have not been limited by ICT to date. However, more advanced players indicate that as solutions evolve, measures need to be put in place to leverage benefits including robust IT infrastructures, common standards, security and solutions to manage exponential data volumes. The latter will probably be the most important in the future.

Onshore centers are central to Norwegian Smart Operations. Drilling Centers were shown to be providing positive financial benefit predominantly from drilling operation optimization, correct well placement and avoidance of sidetracks through improved visualization and collaborative decision making during drilling. The use of Onshore Operations Centers (OOCs) is less mature, but their development and use is advancing rapidly, driven by an increase in the cost of offshore operations. OOCs help to close the loop between offshore personnel, onshore expertise, and asset knowledge with real-time integration of field, engineering and geological data.

Conclusion

This is the first time a survey of this type has been conducted anywhere in the world. Capgemini, in collaboration with Petoro, major oil and gas operators, and supplier/service companies in Norway, has developed a first-generation diagnostic tool that can be used to assess the maturity of Smart Operations activities within an organization. Another major output is the creation of a repository of leading Smart Operations practices from both Norway and the rest of the world.

The survey confirmed that as of December 2004, Smart Operations in the NCS is about volumetric improvement and cost reduction created through work process efficiency via better on-offshore communication, multi-disciplinary collaboration, decision making and demanning. This is being achieved through the integration of real-time data, technology, and operational work processes. Most significantly, Smart Operations in the NCS is not just surveillance; it is about using real-time data to make real-time decisions!

"...the challenge for operators is to search for the best industry practices, which lead to superior performance. We are looking forward to the next assessment to see how far we are down the road towards superior performance..."

Mike Herbert, Onshore Drilling Center Advisor, ConocoPhillips, Tananger, Norway

About Capgemini and the Collaborative Business Experience

Capgemini, one of the world's foremost providers of Consulting, Technology and Outsourcing services, has a unique way of working with its clients called the Collaborative Business Experience.

Backed by over three decades of industry and service experience, the Collaborative Business Experience is designed to help our clients achieve better, faster, more sustainable results through seamless access to our network of world-leading technology partners andcollaboration-focused methods and tools. Through commitment to mutual success and the achievement of tangible value, we help businesses implement growth strategies, leverage technology, and thrive through the power of collaboration.

Capgemini employs approximately 60,000 people worldwide and reported 2004 global revenues of 6,291 million euros.

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