

What you see is what you get

Equipped with pen and paper, camera and sweaters against the chill of the air-conditioning, Venture arrived at the Singapore Grand Hyatt for the 2010 XHQ user conference. XHQ is an operations intelligence software still considered a niche product by many, but to the initiated it has formidable benefits and potential.

According to Partha Ray, host of the conference and local manager of Siemens Oil & Gas Consulting, to date XHQ has been sold to some 40 customers worldwide, mostly companies in the hydrocarbon business. Forty customers may not sound like big game, but they are big global names. Partha continues: “XHQ is currently monitoring operations at about 300+ sites, with some 50,000 people looking at its dashboards every day.” Put into global perspective, that means an estimated 20 percent of worldwide refining capacity is currently monitored with the help of XHQ, and about 25 percent of the US domestic refining capacity.

Sharing, caring community

The three-day conference was packed with real-world cases documenting what XHQ is currently doing. The depth and breadth of scope varies tremendously, depending on the organization using XHQ, and their business priorities. A handful of key findings pop up in almost all cases: energy savings, time savings, reduced operating costs, added visibility, process optimization, improvement of communication. Often, the findings are substantiated with real operations data discussed with all frankness. “It’s like an oil-men’s club, with everybody sharing information, discussing ideas and learning from each other,” says Partha. “Nobody is hiding data: they all want to share their achievement.” Let’s have a closer look at some select cases.

CALTEX AUSTRALIA — “More eyes looking at a problem”

Venture picked the brain of Dr. Mark Hodgkinson, Operational Excellence & Risk Manager with Caltex Australia, who use XHQ for business analytics and process safety. So far, Caltex Australia uses XHQ at two refineries. XHQ is used extensively in both. It has become a way of life. The Caltex business





case was always “more eyes looking at the problem”, on the assumption that an incident would be better managed, or even prevented, if information were shared among more people in a timely manner.

Optimization, then. It is commonplace throughout Caltex refineries to start the day with XHQ and the morning production meeting is run with the real-time XHQ view projected on the meeting room screen. This encourages observation and dialog which integrate the business better and help achieve targets.

In many refineries including Caltex', among the most extensive users are console operators, who get lab reports through XHQ. The moment operators get their data, they can make comments (e-logs within XHQ) on any deltas within XHQ. These may then go into the shift log, which may further go into the daily log. Thus XHQ simplifies reporting and eliminates errors by automating most of the data entry. For these operators XHQ has become the main interface. Caltex Australia did not want to restrict data to engineers or managers. On any one day, the Lytton refinery has some 200 to 250 hits. “Business blogging” is bigtime, and everyone is deeply involved in the business.

No questions asked, none needed

An analysis from an independent consultant showed major cost cuts and profit improvements for Caltex Australia, directly attributable to the implementation of XHQ. Mark: “You could achieve the same cost cuts and profit improvements by spending hours retrieving and analyzing the raw data — but with XHQ you can do it in the tenth of the time! No manager has ever asked for a justification of the investment,” he adds. “So, XHQ probably saved us a lot of money!”

IDEMITSU KOSAN — Looking through the eyes of an expert

With a staff of 8,000, Idemitsu Kosan operates four refineries and two petrochemical plants, achieving a revenue of 38 billion USD (2008). Idemitsu first implemented XHQ in 2006 at their Hokkaido refinery: now XHQ is implemented at six production sites and the headquarters.

Yoshio Ohashi, General Manager of the Group IT Center, summarizing Idemitsu's experience with XHQ: “There are

two major effects of this ‘real-time’ visibility. First, the systematic capture of the expertise of our workforce, many of whom will retire soon. Second, the complete but silent change of the work process and business process.”

Let's expand a bit on that. Idemitsu looks upon each view (XHQ screen) as the mind-map of an expert. Hence, when a new employee looks at a specific view, he or she is looking through the eyes of that expert. The ‘mental images’ are live in front of their eyes, driven by live data.

Saving time, saving money

Prior to XHQ, turning data into meaningful information through manual reports could take weeks, and confidence in that data was always in question. With XHQ, the time dedicated to meetings and reporting substantially decreased. Now everyone shares information all the time. Time savings are estimated to be, amazingly, 8,800 hours per year. Yoshio Ohashi: “We estimate that per site, on average, XHQ is responsible for a profit differential of USD 10.5 Million. Over six manufacturing sites that adds up to USD 63 million.”

Kaizen: constant improvement

These time savings have given people more time to concentrate on their core activities, or to consider process improvements. This is in line with an important facet of Japanese corporate culture — Kaizen, or constant improvement. Processes at Idemitsu started self-optimizing, with no formal business transformation or process re-engineering project needed as a catalyst.

Kazutoshi Shimmura, Executive Officer & General Manager with Idemitsu Kosan's Aichi Refinery, explains: “XHQ meant first and foremost a change in the quality of work. People have more time to think, to decide and to act by themselves. Motivation for Kaizen has improved also, because XHQ makes it easy to compare operations data between Idemitsu refineries. Before XHQ there was simply nothing to compare”.

XHQ enables employees to see clearly which refinery is the top-performing one. Kazutoshi Shimmura continues: “And that may encourage people to think about their own refinery and how to improve operations. There is no pressure from



Nighttime Singapore impressions after heavy daytime conferencing



“XHQ helps our employees to think, decide and act by themselves. It’s a perfect fit to our company’s philosophy.”

Kazutoshi Shimmura, General Manager Aichi Refinery, Idemitsu Kosan



“Incidents can be better managed, or even prevented, if information is shared among more people.”

Dr. Mark Hodgkinson, Operational Excellence & Risk Manager, Caltex Australia

the top down. Essentially XHQ enables a strong bottom-up activity. And this is a very important point for Idemitsu.” And indeed, the usage of XHQ is very high: virtually every refinery employee from all levels and functions uses XHQ for their day to day work.

Mr. Daiju Murakami, Chief associate of Idemitsu’s Process-System-Centre and the main architect of the solution explained how the Idemitsu Headquarters and the central functions use the consolidated business overview to make the corporation much leaner (e.g. optimize inventory) and more agile (e.g. switch product mix based on market price, inventory status and process limits).

Respect for human beings

Ever since its foundation through Sazou Idemitsu in 1911, the company has worked hard under the fundamental principle of social contribution through business, always maintaining respect for human beings in carrying out business operations. “In a sense, XHQ is a perfect fit to our company’s philosophy, to our work values. It is a means of enforcing our corporate culture, as it promotes people to become autonomous”, says Kazutoshi Shimmura. He then goes on to say: “Accountability is greatly improved with XHQ. Without a system correlating, aggregating and presenting data, it is hard to explain our operating status to society, to our shareholders.” This is perhaps the ultimate accolade of the XHQ system.

SAUDI ARAMCO — Enterprise-monitoring solution of a different scale

Saudi Aramco is a company of superlatives in many respects. Delivering about 10 percent of the global oil consumption, it is the world’s biggest national oil company. Its portfolio encompasses a quarter of the world’s oil reserves and a tenth of its gas reserves, distributed over a total of 88 fields, including Khurais, with 2 million BPD, the world’s largest production facility. Add to that 61 gas/oil separation plants, five domestic refineries, seven upstream and downstream gas plants, 20 bulk plants, 13 air fueling plants and a complex network 24,000 kilometers of pipelines. From upstream through midstream to downstream, Saudi Aramco’s operations are monitored using XHQ.

Before investing in XHQ, Saudi Aramco conducted three pilot projects as proof of concept. In parallel, the company visited Chevron to gain first-hand experience of XHQ in operation. Then, from 2004 to 2006, XHQ was deployed at 32 facilities throughout Saudi Aramco’s operations, the project being completed six months ahead of schedule. Since then XHQ has been implemented at some 70 further facilities, including shipping terminals in Saudi Arabia and in US Gulf, gas plants, bulk plants as well as the “Intelligent Field” concept for oil and gas fields.

Says Saleh Nabzah, Group Leader with Saudi Aramco: “XHQ has become an essential application at Saudi Aramco, partic-

“XHQ makes our plants safer. It alerts people before a potential hazard develops.”

Saleh Nabzah, Group Leader, Saudi Aramco



“XHQ opens up areas of lost-profit opportunity, as information is now openly available to all through the XHQ platform.”

P N Selva Guru, Principal Control Engineer, Singapore Refining Company

ularly for the management. They get all the key performance indicators directly and can easily make informed decisions and analysis.”

Benefiting from typical XHQ effects such as reduced energy consumption and maintenance downtime, the company is now expanding their Enterprise Monitoring Solution, as the XHQ implementation is called at Saudi Aramco, still further. They recently implemented the ground breaking concept of Generic i-Fields, reducing field implementation time from months to a few hours, and Executive management dashboards with roll-up information coming for seven different gas plants.

The partnership of Saudi Aramco and Siemens continuously evolves with XHQ becoming an integral part of Saudi Aramco's plant operations. Says Ahsan Yousufzai, Manager Oil & Gas Consulting Services: “The ease of maintenance and management of the XHQ tool allow Saudi Aramco to independently support and expand the existing implementation and also carry out new implementations with their own resources.” Saudi Aramco is truly a pioneer in adopting XHQ in all business verticals of the hydrocarbon industry.

The road ahead

XHQ differentiates itself from its peers by its proven performance in heterogeneous IT environment. It is also evolving very fast to extend its capability and reach, including the in-

tegration of sub-surface data, which is being used extensively in Saudi Aramco's Generic i-Field project.

Recently, XHQ teamed up with OpenSpirit to support the Microsoft® Oil & Gas Reference Architecture, enabling XHQ users to access data from all geoscience applications and data stores compatible with OpenSpirit and thereby integrate the entire intelligent oil field in one presentation layer. “By using the OpenSpirit interoperability layer to bring in the complex view of the subsurface from multiple applications, customers will see a more robust picture than ever before,” said Jesse DeMesa, Director of XHQ Operations Intelligence at Siemens.

Partha Ray's final word on the 2010 XHQ User Conference: “All this is very rewarding: the commitment of the attendees, the quality of the presentations, the open discussion of best practices. XHQ may play a minor role in the vast Siemens portfolio, but think of it as the cherry on the cake. The cake is undeniably enhanced by the cherry, is it not?”

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