Halliburton confident that price volatility will not impact business
Soaring oil revenues fail to mask region’s economic problems
Gulf oil majors address safety issues
Global energy supplies cannot meet forecast demand
Qatar - getting ready to meet the global energy challenge
How to counter corrosion problems
Automated drilling systems attract interest
Machine tools help speed progress
Why wireless technology will open doors for oil and gas companies

Current investments worth US$300 billion in the oil exploration and production sectors of the Gulf countries are expected to boost these countries’ production capacity by 10mn barrels a day by 2015. See the latest exploration and production news starting on page 28.
In the highly competitive and dynamic oil and gas sector, innovative technology solutions can be the difference between profit and loss.

**Real Time Monitoring**

**Information Technology**

Oil Review Middle East recently spoke with Raju Seshadri, Industrial Automation (IA) Marketing Manager at Yokogawa Middle East about the development of wireless technologies in the oil and gas sector.

What is your opinion on the importance of wireless (new) technologies in the oil and gas sector?

Wireless technology will open doors and provide information about processes where it was traditionally difficult to measure due to the cost of cabling and safety reasons. In the oil and gas industry, the expected wireless applications amongst many others are:
- Upstream wellhead monitoring
- Rig monitoring
- Pipeline monitoring
- Oil/gas tanker vessels
- Stack gas monitoring
- Tank farm monitoring.

The potential advantages for users include reduced cost, reduced fieldwork, reduced installation time and improved efficiency and safety.

Does the cost of a wireless technology installation differ from the cost of previous means of communication?

The initial installation cost of wireless devices will be significantly lower, although the total cost of ownership (lifecycle ownership) is under more detailed study due to power/battery life issues.

What is the average cost of an installation? Set-up costs? How long does it take?

The average installation cost and installation time could be reduced by 50 per cent or more.

How are the installations maintained? How long does it last? – is it dependent on weather conditions/interference, for example?

Proper site and installation planning is very important especially when taking into account future expansion capability. The set-up must have the ability to adjust to changes in the electromagnetic environment, such as when new obstacles are introduced between wireless devices or extensive radio interference occurs.

What are the benefits of having a wireless installation? In terms of practicality, and return on investment?

Wireless solutions are expected to reduce both capital expenditure and operational expenditure. It can reduce not only the cost of cabling but also reduce downtime and maintenance due to more digital field information being available. Moreover, it improves safety and product quality while reducing the environmental impact.

What applications does the wireless technology provide? Physical security, data logging, for example?

While there are many potential applications, they can be categorised into three groups.
- The first group is the empowerment of existing wired devices, which are able to collect additional information through wireless communication.
- The second group is new applications that utilise online wireless access to process data we were unable to observe before.
- The last consists of applications where wired instrumentation is replaced with wireless. We expect ‘wired device support’ (i.e. diagnosis) and ‘new applications’ (i.e. asset monitoring, environmental monitoring etc) will start to be adopted widely from next year, because the industrial standard covering these applications will be in place. However, it will take some time before ‘alternate applications’ (i.e. process control) are adopted widely as they require more experience, higher reliability and practical power management.

What makes your company’s services different from others?

The vision of our industrial automation system is called Vigilant Plant. We put the ‘see clearly, know in advance, act with agility’ cycle at the heart of that vision. We can paraphrase this cycle in many ways. For example, ‘visualise, predict, and navigate’, or ‘inform, plan, and optimise’.

Anyway, the essence lies in reducing blind spots, avoiding surprises and pre-empting bottlenecks so that the system enables faster, adaptive business decisions and plant operations.

The wireless solution allows us to fulfil this ethos of excellence even further. We are focusing on customer satisfaction not just for the lifecycle of the product but also in the future. Our solution covers not only wireless but all of our systems including wired I/O.

What, in your opinion are the advantages of having/providing ‘real-time’ monitoring for processing plants and refineries?

Real time monitoring is absolutely mandatory for refineries and process plants. Instant alerts are very important for real time communication.

Wireless standards – Is it important that installations incorporate all wireless standards? And why?

Yokogawa believes that industry standards are very important and the company has been contributing to standardisation. We continue to drive for one global standard in order to realise a real multi-vendor environment. The purposes of standardisation are as follows:
- To realise a true multi-vendor environment. Any wireless field devices from any vendor should be able to communicate with each other because of standardisation. This will mean users can choose the best device regardless of the communication interface.
- To provide a common infrastructure such as networking equipment, management systems and tools. A common infrastructure can reduce the level of training needed as well.
- To maximise frequency utilisation. It is very important that wireless communications share finite common space and frequency resources. This situation is quite different from wired communication. I mean a wired communication system can do anything on its own wire regardless of other systems, but for wireless, the frequency resource is limited. Therefore all wireless systems should be managed in terms of frequency resources. For example, a 2.4GHz industrial wireless system has to coexist with WiFi, which is wireless LAN radio.

Appropriate standards will reduce both the users’ and manufacturers’ costs and increase user confidence, encouraging more users to adopt wireless systems.

Which wireless standards can you work with? How can these standards be developed in the future and unified?

Yokogawa is evaluating every possible standard technology, such as WirelessHART and ISA100, and will select the best. ISA100 is a family of wireless standards being designed to meet plant-wide needs for many applications such as:
- Process automation
- Factory automation focusing on discrete
- Transmission and distribution focusing on liner long distance
- RFID for industrial tagging.

ISA100.11a is the industrial wireless standard targeting process automation. It can communicate with many existing application protocols such as Foundation Fieldbus, Profibus, and also Hart protocol. Therefore users can preserve their existing protocol investments and protect future protocol needs.

Who are your major clients?

Yokogawa is constantly expanding and consolidating its base in the Middle East region. The company’s main industry focus is on oil and gas, refining, petrochemicals and power.

Any closing comments?

Yokogawa firmly believes that the key to the success of wireless is establishing a standard. The interoperability is most important. Yokogawa wishes to develop valuable ‘Field Wireless Solutions’ cooperating with users. ‘Field Wireless Solutions’ must be one of the enablers of the ‘see clearly’ and ‘know in advance’ tenets of the Vigilant Plant ethos. Yokogawa will provide both samples of WirelessHART and of SP100.11a and we will later select one of them according to the feedback from field trials and the situation of standardisation within the market.