Innovations in Radio Remote Control Systems for Explosive Oil and Gas Operations

- Intrinsically Safe Radio Remote Control Solutions for Offshore Oil and Gas Operations
- Remote Control Systems Save Money and Lives
- Plunging the Depths
- Developments of RRC Controls
- Creating a Remote Controlled Rig of the Future
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Foreword

As offshore drilling becomes more hazardous and competitive, oil companies are increasingly turning to radio remote control systems. These can improve efficiency, reduce operational downtime and, crucially, enable personnel to operate heavy duty machinery remotely from a place of safety.

However, in order to be effective, this technology has to deliver to the exacting standards of the industry. Each piece of machinery on board a rig – whether it’s a hoist, pump or drill – requires precision handling. Remote controlled systems need to be sensitive enough to allow minute adjustments and deliver accurate data in real time to the eyes of the operator. They have to do all this while being rugged enough to withstand the rigors of an explosive and volatile environment on board rigs.

In the first article in this report we’ll hear from one of the leading names in this industry – Hetronic. They explain how for the technology has progressed in the last few years, delivering remote controlled functionality for just about every moving component on board a rig.

We’ll then look at the background to this technology.

Tom Cropper has produced articles and reports on various aspects of global business over the past 15 years. He has also worked as a copywriter for some of the largest corporations in the world, including ING, KPMG and the World Wildlife Fund.

First we examine the ever-changing economic landscape. In twelve months oil prices have become the playing field of international traders as they seek to capitalize on the considerable volatility within the market. Such uncertainty makes it difficult for offshore oil companies to invest heavily in further exploration.

Yet invest they must, as new oil discoveries are crucial to the long term future. Companies are pushing deeper waters and into more remote environments in their search for more oil. As they do so, the power of the equipment needed to extract oil increases, as do the risks. Radio Remote Control systems are often the only way to ensure personnel can operate machinery from a place of safety.

Finally, we’ll look at the latest developments in this field and where we might be going in the future. These are exciting times, but one thing’s for sure – the further oil companies venture from the coast, the more they’ll need to rely on remote control technologies.

Tom Cropper
Editor

Intrinsically Safe Radio Remote Control Solutions for Offshore Oil and Gas Operations

Contributors:
Mr. Tom Devonshire, Director of Sales, Hetronic, Inc.
Mr. David Ciembronowicz, Director, Business Development, Methode Electronics, Inc.

Integrating well-designed HMI with Radio Remote Control systems for improved productivity, efficiency and safety

Oil and Gas Exploration continues to expand at a rapid pace taking advantage of new and innovative technologies that allow operators to access energy sources farther away from shore than previously. As Mobile Offshore Drilling Units (MODUs), whether Jack-up semi-submersibles or drill, floating storage and offload facilities spread into deeper waters; the need for safe and efficient process control has increased significantly. Advancements in industrial technology, changes in business models and tighter regulatory constraints necessitate closer monitoring and more remote control on-site. These trends have increased demand for innovative radio remote control systems that provide intrinsically safe, cost-effective, highly accurate and reliable solutions for control of on-board equipment and processes.

Hetronic, Inc. is an industry recognized leader in the development and implementation of new innovations for industrial Radio Remote Control systems. Our innovative designs provide every roughneck whether a topkicker, driller, derrickhand or motorman and every other crew member the right remote control for the right job.

Applications in Offshore Oil and Gas Exploration

Offshore oil and gas exploration offers unique challenges to owners, operators and suppliers that demand innovative solutions. Many types of equipment being used on offshore rigs can use radio remote control systems to achieve increased productivity and efficiency. Applications ranging from iron roughnecks to tong controls to crane and hoist operation, cement head pumps, to the precise maneuvering of a rotary table and drill hydraulics and pneumatics. Anything that can be switched on or off, moved and/or rotated, and requires accuracy of movement can be done wirelessly.

New innovations in Radio Remote Control (RRC) systems from Hetronic provide accurate transmission and receipt of data at the operator console in real time. Integration of the latest Human-Machine-Interface (HMI) sensor technology into operator controls allows safe operation of equipment and optimal positioning of the operator. Improvements in control sensitivity allow precise process control resulting in improved efficiency and safety. In today’s competitive environment, offshore owners and operators demand increased productivity and efficiency with the highest level of safety from their drilling operations. Oil and gas operators understand that integration of information, interconnection between worker and equipment and streamlined process control become the keys to profitable Return-On-Investment (ROI). Hetronic patented HMI control systems provide a cost effective means for offshore workers to control and manage virtually every piece of drill rig equipment from a safe location and with precision.

Hetronic Human Machine Interface RRCs

Wired and wireless technologies of the past bore the rig worker to be tethered to the equipment or remain so close to it that the potential for an accident was likely, requiring constant conscious diligence. Our RRC systems, with advanced HMI technology have greatly improved safety and operational efficiency. HMI is the seamless interaction between the human operator and the manufacturing or process control and monitoring system. Using electronic and graphics-based visualization through HMI, the operator is safer and can be more accurate and efficient. Hetronic’s innovative HMI RRC...
Anything that can be switched on or off, moved and/or rotated, and requires accuracy of movement can be done wirelessly and requires accuracy.

SPECIAL REPORT: INNOVATIONS IN RADIO REMOTE CONTROL SYSTEMS FOR EXPLOSIVE OIL AND GAS OPERATIONS

...done wirelessly...

Oil and Gas rigs are by nature equipment dense, virtually every square foot of space taken up by a piece of hydraulic, mechanical, pneumatic, electric or electronic gear. Each piece of equipment is integral to drilling and completion of wells whether running production casing, stimulation work or zonal isolation. Safe and accurate operation of valves, solenoids, motors, generators, welders and pumps is integral to safe operations on the rig. The devices that control every aspect of rig operation must be intrinsically safe. Their design and performance must stand up under the harshest weather and incorporate redundancy and full operability under any condition. Putting the worker in the safest position possible is the goal of Hetronic. RRC designs the latest user interface technology. The ability to view the equipment being operated and guide it into proper position with precise accuracy is critical. Ensuring that the operator has immediate emergency stop capability at his fingertips is also paramount to overall safe operation. Hetronic’s customization of control every aspect of rig operation must be designed and produced to meet the stringent requirements of the customer as well as those of the industry.

Return on Investment / Total Cost of Ownership (VALUE)

The risk of catastrophic damage to equipment or injury to personnel on an offshore rig represents a great challenge facing our customers. A work stoppage due to equipment failure or personnel injury further exacerbates the daily risk and potential for financial loss on offshore rigs. Improvements in efficiency ensuring safe operations are vital to the operator's ROI. The value of RRC devices and their ability to accurately manage the platform equipment is an important variable in improving rig operator ROI. As efficiency improves and operations continue without stoppage, the business becomes more profitable and reduces the Total Cost of Ownership related to the overall operation. In any 24/7 operation such as offshore oil and gas rigs, daily challenges are many; however, with reliable, safe and accurate RRC systems, it is possible to minimize the risks and improve the investment value of the overall operation.

Hetronic systems offer customers improved ROI through increased efficiency, productivity, and safety. Our custom configured radio remote control system’s operational performance and long-term value result in a TCO among the best in the industry.

Turnkey Solutions for Flexibility

Today’s RRCs offer rig operators more flexibility with a wider range of controls that meet specific equipment and rig operational requirements. Offering a line of pre-fabricated high impact material base units in multiple sizes allows the user to select a variety of display and control options that will meet their application’s specific requirements. Hetronic’s customization of your unit is not more costly than “off the shelf” standard units, but will deliver performance that clearly meets your needs. By offering a variety of video and informational displays, configurable switches and safety accessories, allows the rig operator to design the right RRC system for their...
Hetronic understands the requirements of oil and gas operations and our name is known for safety, performance and reliability throughout the industry.

Rugged Reliability

For the roughnecks, rugged and reliable wireless control systems are a necessity. Hetronic’s RRCs are designed and produced to the highest level of reliability. Our customers expect their equipment and control devices to operate reliably first time, every time. In the harsh environments of offshore drilling rigs, rugged reliability is critical.

In environments where extremes are common, from very low to high temperatures, corrosive salt water, salt fog, ice and lubricants create an environment which present significant challenges to man and equipment. Hetronic RRC solutions are designed to operate in these environments. From the polar extremes to the salt water of the North Atlantic or the heat off the coast of Africa, Hetronic products are designed with components that stand up to these extremes. Designed to operate in the harshest environments our radio remote control solutions meet IP standards and are fully tested to ensure they will last. Harsh Environment testing is done to meet customer requirements and each product is designed to perform as specified.

Design of RRCs with harsh environment ruggedized packaging is expected by rig workers and operators. The latest designs feature slip resistant materials, redundant electronic systems, long life batteries, quick reaction emergency stop and constant monitoring that enhances user confidence. Hetronic works closely with our clients to ensure that their needs are completely met during the design of their radio remote control systems. We take into account every aspect of their operation and ensure, with our name stamped on the product, that it will meet their operational safety and environmental requirements completely.

Hetronic’s expertise is in creating working solutions for crude and materials handling, mobile equipment operation, industrial automation control, rail and locomotive operation, mining and virtually any industry requiring remote operation and control management. Custom configured, flexible and instantly safe control software and hardware designs provide the most complete and reliable remote controls for every application.

Hetronic, a Methode Electronics company, has produced over 300,000 Radio Remote Control systems over the past 30 years that continue in operation today for a wide variety of applications. Using patented HMI technology and improved radio frequency and wireless technology, Hetronic developed solutions are designed to meet virtually any industrial application. The Oil and Gas Exploration industry emphasizes safety on its MODU’s and expects that RRC devices provide redundant control that allows for shutdown of equipment, as well as systems that protect against inadvertent activation. Improvements in proportionality control to improve smooth operation and tighter accuracy of movement for cranes, cement heads and other equipment on the rig have resulted in increased efficiency and productivity as well as improved safety.

Hetronic understands the requirements of oil and gas operations and our name is known for safety, performance and reliability throughout the industry. Acting on customer requirements through careful design and production of the best, most rugged and fully certified control systems to meet offshore oil and gas exploration needs is our commitment to our customers and their teams.

Visit us at www.hetronic.com to learn more about our Industrial RRC Solutions for your specific control application. Hetronic will develop a customized, cost effective wireless radio remote control system for your specific industry application. To talk with one of our expert application engineers call us at (405)946-3574.

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Remote Control Systems
Save Money and Lives

Tom Cropper, Editor

Lean economic times and a need for greater safety are helping to spur radio remote control technology.

The past few years have seen an increase in the use of remote control technology for oil and gas rigs. The trend has been accelerated by the arrival of more sophisticated technology, the push into deeper waters, greater regulatory oversight, higher safety requirements and a tough financial outlook. As oil becomes more difficult to find, it’s becoming more expensive and dangerous to extract. Remote control systems have the potential to reduce the number of people on site, but more importantly, to allow them to operate complex machinery, in explosive environments, from a safe and secure location. In this article we’ll delve into the practical and commercial imperatives pushing offshore operators to invest in more remote control systems.

Tough Times

2014 will be remembered as the oil industry’s “annus horribilis”. From highs of more than $100 per barrel, the overall price of crude oil plummeted to just over $40 per barrel. The failure was prompted by an increase in shale oil production in the USA and the decision of the OPEC countries not to support prices by cutting back on production. Since then, there has been a rally in the market, brought about in part by unrest in countries such as Syria and Yemen. At the end of April, Brent Crude had hit a 2015 high of $65.13. Prompted by fighting in the Middle East and concerns over supply, the market has been supported by the OPEC countries, and Brent Crude briefly reached $70. However, investor confidence remains brittle at best. In April, funds such as the United States Oil Fund which trade on the oil price, saw a massive outflow of capital as traders predicted this small rally was about to run out of steam. The assumption is that the rally is short term factors. In the long term, prices are more likely to remain tight. Most analysts predict prices to return close to the $50 mark.

While low prices are good for drivers – and represent an interesting investment opportunity for traders – the implications for offshore oil drilling are severe. Such is the volatility in the market at the moment that offshore oil exploration becomes an increasingly risky proposition. Shell and BP are among the oil giants to have slashed their offshore budgets for the coming year as they seek to take shelter from the storm.

Ensuring Safety

Even so, offshore drilling remains extremely important. According to a report into the future of the industry, the global offshore market is expected to grow from $66.7 billion in 2014 to just over $100 billion in 2019. That’s a CAGR of 9.27%. New giant rigs, built during the boom times, are taking to the water. Although the market might not be as favorable as when they were commissioned, their owners are still determined to get the best use out of them.

The supply glut that has brought prices down will not last forever, and while demand for oil is not climbing as rapidly as predicted, it is still growing. New oil will have to be discovered and this means companies will have to find ways of exploring further from the shore and into deeper waters. Doing so will bring rigs and personnel into contact with increasingly dangerous situations. Tornadoes represent a common danger requiring equipment on the rig to be shut down and crew to be evacuated.
Since the Deepwater Horizon oil spill of 2010, safety has become a major issue for the industry.

In April, a fire on an oil platform owned by PEMEX led to the deaths of at least four people and 16 injuries. In 2007 another platform caught fire when intense waves hit the tower and caused the valve assembly to explode.

With rigs operating further from shore than ever before, the risks of injury and accident are increasing, but so too is the difficulty of getting help to the platform. As such, companies are having to find ways to keep operators as safe as possible.

Going Remote
Remote control systems represent a good way of ensuring both worker safety and a reduction in the cost of drilling in the deep. Whether operating a crane, drill or submersible, workers can now do so wirelessly from a safe environment. Technology delivering real-time, accurate data to their handsets allows them to keep safe in explosive environments, while maintaining accurate operation of equipment. The ability for personnel to operate machinery remotely also reduces the amount of man-hours required for common on-site tasks. As well as reducing the risk to personnel, it reduces, also, the number of workers involved, which leads to operational cost savings for the company.

To achieve these goals, though, the technology has to be fit for purpose. Although remote control is seen by the industry as a useful tool in the fight to improve safety, it brings with it a host of other risks. What happens, for example, if transmission is interrupted? Can operations always be conducted as effectively using remote controls as manual operation? These are questions that will determine the efficacy of any remote control system, and they’re challenges the industry must rise to address.

Developments in Radio Remote Control Technology are crucial in helping the push to deep water

In 2010, presented the industry with a conundrum. The accident demonstrated just how dangerous deep water exploration can be. Not only was there the risk to personnel on board the rig, but also there was the difficulty in cleaning up afterwards. Despite the fears, though, deep water remains an important part of the oil industry’s future which is why new projects are being planned in areas previously thought way beyond our reach. In doing this, Radio Remote Control (RRC) systems are becoming increasingly important for just about every operation on the rig.

Going Deep
It might have seemed like bad timing, but as the oil industry experienced one of the biggest collapses in its history, Chevron decided to launch one of their largest oil platforms yet. The $8million Jack/S St Malo platform in the Gulf of Mexico is a 160,000 ton giant, floating in 7,000 feet of water 280 miles off the coast of New Orleans. It is expected to produce 94,000 barrels of oil per day and 21 million cubic feet of gas.

It shows that, although money may be tight right now, in the oil and gas industry, deep-water drilling still forms a crucial part of the oil industry’s future. Exploration is continuing around the world. As well as the Gulf of Mexico, companies are looking to areas such as Brazil and off the coast of Africa. Despite widespread opposition from environmentalists, there is also considerable eagerness to grab a foothold in the Arctic as oil companies look for ways to exploit the vast potential of our last great wilderness.

All these deep water plays bring a host of new challenges. They will be drilling at depths of several miles and more, encountering extreme conditions such as massive waves, temperature fluctuations and severe weather conditions. Their remote locations will present significant supply obstacles, together with enhanced risks if anything goes wrong. Rescuing workers from remote areas and cleaning up any oil spills are major undertakings. In relation to the Arctic, for example, campaign groups have warned that any potential spill would be impossible to clean up.

Remote Technologies
These challenges, therefore, increase the need for remote control of various operations on board a rig. In March 2010, Shell announced what was then the world’s deepest oil rig*. The Perdido Platform in the Gulf of Mexico would use the latest technology to drill at depth including two drilling decks, which enable it to work simultaneously on two separate wells. An operator uses remote controls to guide the drill bits two miles below the surface.

At these depths, checking the integrity of equipment and pipelines becomes a major challenge. Ultra deep water brings a host of problems which are difficult to recreate in the laboratory. The danger of sudden and premature failure of equipment is very real. Checking the condition of equipment can be done by remotely operated ROVs. These can be controlled at the surface, delivering video evidence for real-time visual checking for deformities.

On the surface, the top sides of oil rigs are becoming increasingly dangerous places to be. The need for the latest drilling and lifting equipment means every spare meter is taken up – and as rigs go deeper, that equipment is becoming bigger and more dangerous. In addition, the adverse conditions found on board many deep water rigs create a new range of hazards. With old fashioned remote control technology, operators would have been forced to stay close to individual machines in order to operate them. However, the development of more effective wireless communication technology means they can now do this from a safe place. For example, an operator can now control a heavy duty crane from within a control room.

Small Margin for Error
To deliver the quality of product the industry needs, the technology has to do remarkable things. Communication between the handset and the operating equipment needs to be fast enough to...
Advances in human-machine interfaces enable a seamless integration between the operator and the machine or tool they are operating and seamless. Operators need to be able to see what is happening. This means delivering real-time data in front of his eyes. Advances in human-machine interfaces enable a seamless integration between the operator and the machine or tool they are operating. The aim of this technology is to minimize the effect of the distance between controller and the machine. The demands of deep water exploration, therefore, are extreme. However, where there is demand, there will be technology to meet these requirements. The industry is investing millions in remote control technology for almost every aspect of the drill rig. In creating these solutions, the developer needs an open line of communication to the end user. They need to identify the requirements of the industry in order to come up with solutions which meet and exceed expectations. It is a highly competitive market and, as such, development is accelerating.

Most of all, an operator needs to see what is happening. This means delivering real-time data in front of his eyes. Advances in human-machine interfaces enable a seamless integration between the operator and the machine or tool they are operating. The aim of this technology is to minimize the effect of the distance between controller and the machine. The demands of deep water exploration, therefore, are extreme. However, where there is demand, there will be technology to meet these requirements. The industry is investing millions in remote control technology for almost every aspect of the drill rig. In creating these solutions, the developer needs an open line of communication to the end user. They need to identify the requirements of the industry in order to come up with solutions which meet and exceed expectations. It is a highly competitive market and, as such, development is accelerating.

Developments of RRC Controls
Jo Roth, Staff Writer

How radio remote control systems are improving safety and efficiency for workers on board deep water oil rigs

As TECHNOLOGY develops to deliver the functionality customers demand, the marketplace for Radio Remote Control (RRC) technology is becoming extremely competitive. Developers are updating their technology and competing to become the go-to provider for this industry. Doing this is no easy task — it requires the development of highly effective and flexible operations which can cope with the specific requirements of a notoriously demanding industry.

For those wishing to procure such systems, the upfront cost of a solution is set against the savings and safety improvements they bring. Nevertheless, choosing the wrong solution can be a costly mistake. Any solution that makes the grade will need to cater to the unique requirements of the industry.

Tough and Durable
Remote control units need to operate in the most hazardous environments in the world. That means they need to be able to withstand salt water and other corrosive elements, sudden shock and impact, as well as fire and explosions. They need to withstand all these without failure or interruption to power.

Units now come in tough, rigid explosive-proof shells although, for additional flexibility, they can sometimes be supplied without the casing if this is not deemed necessary. As oil rigs become bigger and tougher, and operate in more extreme environments, these casings will have to withstand increasingly severe impacts. When purchasing a controller, oil producers will need reassurance that it is rated to withstand any environment it is confronted with.

Any interruption in supply can have serious consequences. Wireless signals need to be able to continue functioning in all conditions, but redundancy procedures need to be in place in case something goes wrong. Machinery must have a shut-off capacity, while a backup cable connector is crucial in case remote power fails. In essence, the main concern for remote control power is what happens when things go wrong.

Controller Sensitivity
The latest handsets are being tailored to offer a control interface which allows for the most delicate operations. Controllers need to operate multiple machines performing many different roles. They also have to be sensitive enough to allow highly accurate maneuvering of components. Operators often have tiny margins for error — even operating the largest piece of machinery. They need to be able to adjust minutely the movements of machinery when necessary.

In addition to this, the controller needs to be as flexible as possible. With multiple operations taking place on board a rig, it needs to be able to operate with as many different types of machine as possible. Equally, batteries need to be easily charged allowing for smooth and continuous operation — with minimal downtime between changes. Time is money in the world of oil exploration and every second of downtime contributes to additional expenses.

Information Display
The aim of this technology is to increase the distance between the operator and the machine he or she is working on. This allows them to work remotely from a place of safety, such as a control room, where they can operate the machinery.

For this to happen, much depends on the information display available to the operator. The latest equipment can deliver a huge amount of real-time information to the display or the handset, alerting them to any problems or faults they need to be aware of. The development of a more effective human-machine interface delivers electronic and graphic information, which allows for the harmonious interaction between human and machine. The aim is to do everything possible to reduce the barriers between the two sides.
Modern radio remote controlled units, therefore, operate in a high stakes environment.

Making faster and more efficient operation. It provides greater accuracy, visibility and real-time feedback to allow for a much smoother operation of the machine.

**Meeting Customer Standards**

The exacting requirements of the industry mean developers need to be flexible in their approach. They need to work closely with clients, understanding their basic requirements and coming up with solutions which meet or exceed their expectation. To do this, manufacturers are producing a single off-the-shelf base design which can be customized to the requirements of the customer. Interfaces can be swapped in and out, casings can be added or removed and controls adjusted depending on requirements.

Hetronic’s Radio Remote Control System, for example, features a strong modular basic design which can be customized depending on the requirements of the individual customer. On top of the basic unit they offer a variety of visual graphical displays and control options to deliver information in whatever way the customer needs. The unit is encased within a strong explosion-proof casing designed to meet standard industry requirements as well as individual customer requirements. For those instances where things do go wrong, a shut-off switch is included to prevent catastrophic damage caused by malfunctioning equipment. These customized turnkey solutions come at the same price as the off-the-shelf units, which means they can cater to the requirements of just about any situation.

**Wireless Technology**

Improvements in wireless technology have allowed operators to work unhindered from machinery on board a rig. Many operations on board an oil rig require the lifting of heavy or dangerous loads. Using wireless remote control devices, operators can now move their location to a designated safe area. They are literally set free of ties to the machine and can adjust their positioning to make operation simpler. They can move more quickly in emergency situations identifying and addressing any problem before it becomes critical.

The devices can be equipped with fail-safe capabilities enabling operators to perform an emergency shut-off and preventing any equipment getting out of hand if things go wrong. Devices can include automatic shut offs, which stop machinery if communication with the handset is lost. As such, RRC systems are now more dynamic and flexible than they ever have been before.

Alongside radio technology, Human Machine Interface (HMI) technology is coming on leaps and bounds. High tech screens can render complex graphics displaying multiple layers of information for the operator. They contribute to a more accurate control of machinery and operations and a seamless link between man and computer. Operators receive more information which allows for more accurate operation and a more timely identification of problems as and when they arise.

As interconnected technology becomes more freely available, though, they are dramatically expanding their role. Previously they served as nothing more than a local window into the workings of the machine. This relied on the operator having the knowledge required to deal with any issues that arose. For example, if an error message appeared that might not include enough information for the operator to take immediate remedial action.

Improved networked HMs, though, can include much more information about the fault, including possible solutions. This can be shared with other key personnel based either on the rig or remotely. Depending on access to an internet network, this could potentially bring in expertise from around the world. This means the error message can go to a particular member of staff who has the expertise to produce the most timely diagnosis and remedy.

The benefits of such capabilities are that it allows for more timely identification of problems as and when they arise. Some operators have sought to link rigs through fibre-optic cable. This enables them to deliver high speed internet communication to the oil rigs which assists with everything from remote operation to communications between teams. However, cables have the potential to be disrupted which means communication can never be entirely free of the risk of interruption.

OIL COMPANIES are increasingly putting distance between the individual and the machinery they operate. From being physically connected to a piece of machinery, operators are now being set free to work from a place of safety. They are aided by improvements in wireless technology, sophistication of the controls and the durability of handsets which allow for a much more flexible way of working. However, it’s going further than that, as a greater number of staff are being shifted off the oil rig and onto land as companies seek to run more and more of an oil rig’s operations remotely.

**Creating a Remote Controlled Rig of the Future**

**John Hancock, Editor**

The future is becoming more mobile and interconnected as an increasing range of operations become remote controlled.
Improvements in wireless technology have allowed operators to work untethered from machinery on board a rig.

A popular option is to fix transceivers near the coastlines which can broadcast out to the rigs in the ocean. This can enable them to supply WLAN internet to the rigs, share data, communicate with teams and run an increasing number of operations from the coast.

Interlinked Networks
As wireless communication becomes more effective, operators are managing to transfer an increasing number of operations from the rig to the shore. Reducing the number of people on board a rig brings down costs and reduces safety concerns. Leading the way in this is BP who have already moved control of their Valhall oil field in the North Sea to their headquarters in Stavanger. The company is looking at moving control of almost all operations from the rig bound control room, to the shore. Total, meanwhile, are doing much the same thing as it aims to control from the land its Martin Linge field, which is due to start operations in 2016.7

Such developments point to a future of unmanned oil rigs controlled remotely by crew stationed on shore. Opponents point to obvious safety concerns. What happens if communication between the rig and the shore is lost? What if there is a problem which needs a team on-site to deal with it? However, the reduced pressure on budgets and personnel are enticing goals which will see more and more operations shifted onto the land.

Even those which are not transferred to the land can benefit from the increased interlinked network capabilities. By increasing the amount of information at operators’ fingertips and giving them links to teams based in other locations around the world, they are able to aid collaboration between teams and widen the pool of expertise from which problems can be addressed. In the future, remote control panels may start to resemble complex control centers in their own right with the capacity for handling huge amounts of data in real-time. Operators hope that this will translate into further output gains at the front line.

Much of this technology is in the developmental stage, but it’s already clear where it is heading. As always, this new technology inevitably brings some risks – cast iron fail-safes will need to be in place. However, by taking advantage of these capabilities and incorporating them more effectively into their ongoing operations, oil production companies can make crucial gains in cost efficiency and production, which all translate to greater profitability.

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