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data standards

Drilling in high
pressure

Bad g+g software
value propositions

August-September 2011

Issue 32



IT services and industry domain expertise by the month
When control systems cause non productive time

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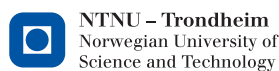
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Standardization is the enabler for our ability to integrate knowledge across the organization. Open standards from Energistics are the key to Integrated Operations being 'the way to operate' in Statoil.

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Upcoming finding Petroleum Forums

Focus on unconventional, London, Sept 20
Exploring in the Arctic, London Oct 11
People and the digital oilfield, Stavanger, Oct 20
The optimum supply chain, Aberdeen Oct 25
Onshore 3D seismic, London Nov 9
Collaboration and the digital oilfield, London Dec 1

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October: our first events in Aberdeen and Stavanger



David Bamford
Consultant Editor, Digital Energy Journal

Finding Petroleum has, since it was founded in 2006, delivered around 20 events, all of them in London. As we have progressed and become more confident about our product, we have decided on what seem like the obvious step-outs from London, namely Aberdeen and Stavanger, and we will host one event in each of these cities this autumn. If these are successful, then in 2012 we will host two or three in each of these two locations.

The **Stavanger** Conference covers developments with IT and digital oilfield tools that can help improve safety, productivity and recovery, reflecting very much the question – what have we learned from Macondo, from the Deepwater Horizon tragedy? How might technology, especially information and communication technologies, help us reduce the risk of such a disaster happening again? This is perhaps familiar territory for anybody who has attended one of our recent London Forums or who reads Digital Energy Journal.

In **Aberdeen**, we are striking out in a slightly different direction, and asking how do we build the optimal supply chain in the mature province, especially bearing in mind relatively recent ill-fated recent initiatives – such as “Fit for Forty” – that put great pressure on small-medium sized suppliers

Thus our first Finding Petroleum Forum in Aberdeen, on October 25th, explores the business case for investment into improving supply chains for mature fields, making them both more efficient and more effective

The event is intended for people at oil companies and contractors who are involved in supply chain management, inventory management, maintenance, IT management, materials handling, and people providing related services.

Most supply chains work, some reasonably well - contracts are placed, jobs get done. Thus the first question is - is it worth making the investment and effort required to change a supply chain from one which functions adequately to one which is extremely efficient? For example, one that ensures that required maintenance items are where you need them to be, and identifies the best way to achieve this.

Also, many oil companies have made a lot of effort to streamline their supply chains but ended up with a system which people find ineffective, too bureaucratic to meet their needs - how can a system be developed which meets the needs of the people who use it, as well as improving the company's profitability at large? Do you really need centralized control - or do you just need more control?

A truly effective supply chain would deliver services and technologies that transformed the performance of a company's business – for example, reduced cycle times or costs/boe.

In a mature province such as the North Sea, a viable long term future depends to a great extent on achieving quantum steps in efficiency and effectiveness, and it these that we seek to identify in our Forum.

As a reminder, our Forums are half day events and admission, including lunch, is free, and there is plenty of time to network as well as to listen to the presentations. Register at <http://www.findingpetroleum.com> to come and join us!

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energy
journal

David Bamford is non-executive director of Tullow Oil, and a past head of exploration, West Africa and geophysics with BP

The rest of this year sees 6 more events in London, Aberdeen and Stavanger!

Business opportunities with unconventional

London, Tuesday, September 20, 2011

The Geological Society

Free

Exploring in the Arctic

London, Tuesday, October 11, 2011

The Geological Society

Free

People and the digital oilfield

Stavanger, Thursday, October 20, 2011

Norwegian Petroleum Museum

Free - if you book before Sept 1st

Optimal supply chains

Aberdeen, Tuesday, October 25, 2011

Aberdeen Marriott Hotel

Free

"Total" 3D seismic onshore - a disruptive transition!

London, Wednesday, November 09, 2011

The Geological Society

Free

Developments with the digital oilfield

London, Thursday, December 01, 2011

Hallam Conference Centre

Free if you book before Oct 1

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Oil and gas data standards

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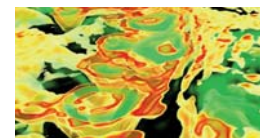
The oil and gas industry has data standards for drilling (WITSML), production (PRODML), subsurface data (RESQML), data models (PPDM), federated identity (Covisint), standard architectures (Oracle), geodetic data (OGP), e-commerce (PIDX) and national data repositories (NDR), seismic recording (SEG). Recent developments in all of them were presented at Energistics' London meeting



Exploration

Getting the best well path

To find the best well path, you need to know about the geological setting – not just about porosity, permeability and thickness, says Bruno de Ribet, technology director Americas, Paradigm



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Drilling in high pressure

How does high pressure occur in the subsurface, what are the hazards to drilling through it, and how can you be best prepared, and does it help to do a pressure study of the entire region? Richard Swarbrick, Stephen O'Connor and Richard Lahann of Ikon Geopressure explain

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Adrok - third set of survey equipment

Adrok of Edinburgh, a company developing a new atomic dielectric resonance (ADR) scanner subsurface survey technique, reports that it has developed its third set of survey equipment, and is also providing its services in North America

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Wipro and SAIC : IT services + expertise

IT consulting and services giant Wipro Technologies has acquired the oil and gas technology services business of SAIC for £150m. We analyse the offering of providing IT services by the month combined with domain expertise.



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Avoiding poor value propositions

If your aim is to sell technology or services to your customers, then you need to prepare coherent and relevant value propositions. Here are some examples of how not to do it, says Paul Gibb of CouttsGibb

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Production

Smart Energy in Aberdeen

The "Smart Energy" conference in Aberdeen on June 7th covered ways the UK government is promoting technology, how to use mathematical algorithms to reduce the information people need to process with their heads, how to standardise your smart fields (or not), and looking for gaps in the sensor data vendors provide you with

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PIDX London event - improving materials management

The PIDX London meeting in May 19 covered how Shell and BP are improving the way they manage materials



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Drilling non productive time: 34% caused by poor software / hardware integration

A survey of drilling companies and oil operators conducted by Athens Group of Houston found that on average, 34% of non productive time on high-specification offshore drilling assets is caused by control systems software and hardware integration related issues

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Making digital oilfield work

What do you need to do, and who needs to do what, to make a digital oilfield implementation work? Dutch Holland explains



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Better software for oil and gas contractors

Swedish software giant IFS has a mission to help oil and gas contractors use better software

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Asset Guardian - manage control system software

UK company Asset Guardian has developed a software tool which help help you manage your control software

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Managing "lookaheads" – online tool

Wellsite Data Solutions has developed an online tool which can be used to manage "lookaheads" – co-ordinating drilling plans & logistics between operators, drilling companies, service companies

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Bibby Offshore says software helped improve safety

Aberdeen offshore support company Bibby Offshore says that it has managed to improve health and safety, environmental and quality certification, as a result of using the "Agility" software from Business Port

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Oil and gas data standards

The oil and gas industry has data standards for drilling (WITSML), production (PRODML), subsurface data (RESQML), data models (PPDM), federated identity (Covisint), standard architectures (Oracle), geodetic data (OGP), e-commerce (PIDX) and national data repositories (NDR), seismic recording (SEG). Recent developments in all of them were presented at Energistics' London meeting

There are an enormous number of data standards in use and under development in the oil and gas industry, covering storage and exchange of different types of data, and nearly all of them were presented at the Energistics London meeting on May 31st.

"Oil and gas IT giant Oracle has built a "proof of concept", showing how many of them could fit together, creating a standard means for data to be stored, processed and exchanged.

In Oracle's "proof of concept" the core data integration and storage uses the PPDM data model.



We want to untangle the data resources, the business applications, and business processes," - Hossam Farid, Vice President, Oil & Gas Industry Unit, Oracle

Running on that is a core data processing module, including visualisation technology and a complex event processor, to act as an artificial intelligence trying to work out what is happening.

On top of that are a range of different tools people can work with (eg for

modelling, reservoir engineering, multidimensional analysis, etc.)

"We want to untangle the data resources, the business applications, and business processes," said Hossam Farid, Vice President, Oil & Gas Industry Unit, Oracle Corporation. "We aim to move from sharing information to sharing decisions."

Connecting together different information sources can be hard to do, he said. "It's not uncommon for the scale of complexity to become hindrance to oil companies rolling out a new business models. The success of the platform "depends heavily on the adoption of data standards."

People often complain about a lack of adoption of technology in the oil and gas industry, but at the same time, "the last thing organisations want is a disruptive technology," he said. "They always push back on it."

The biggest challenges for the oil industry, Mr Farid said, will revolve around

the increased amount of remote operations; the big crew change (as older people retire and new people come into the industry); the lack of cheap oil options; and a heightened emphasis on safety. "These are the challenges that will dictate how integrated operations concepts will evolve and how the technology is capable of supporting it," he said."

National Data Repositories

Energistics has a National Data Repositories (NDR) work group which promotes collaboration between regulatory agencies and industry on data management standards, particularly data management for government (known as a "national data repository").

Governments want to keep records of seismic surveys, well logs and production data for their old fields, so they can make sure production is maximised and attract other oil and gas operators.

National Data Repositories meetings have been held approximately every 18 months since 1996.

The 10th meeting was in Rio de Janeiro on March 2011, with 24 different regulatory bodies attending. The 9th meeting was in New Delhi in Sept 2009 and the 11th is in Kuala Lumpur in October 2012.

People from around 40 regulatory bodies have participated in the meetings altogether over the years, including from Russia and Kazakhstan.a

"There is a real desire to collaborate," said Stewart Robinson, Energy Resources Consultant with the UK government's Department of Energy and Climate Change (DECC), who in a previous role as head of oil and gas IT did a lot of the work to get National Data Repositories started.

Many regulators around the world would like to see standards for exchange of data for reporting (which would make reporting data much easier); a standard naming convention for wells; and an easier way to switch between data repository service providers.

Persuading the oil and gas industry to collaborate is hard, he said. "It's people getting together and agreeing to change what they are doing. Everyone says they want to do it and they don't really."

Mr Robinson thinks that one of the rea-

sons oil and gas IT standards haven't been adopted so far to a wide extent is because the oil industry is a rich industry which can afford to manage without them. "I don't think people are as into standards as they think they are," he said.

However regulators are much more likely to use standards if it helps them to do their jobs easier, he believes.

When it comes to standardised production reporting, "In the past we didn't have a way of doing it. We do now," he said.

There are big differences in quality of data which governments have. "Some countries are pleased to have any data at all," he said. "It depends what your definition of data quality is.

Mr Robinson said that in the UK, government has the power to force companies to supply information in any standard, but there still has to be agreement among civil servants (government workers) what standard of information they want.

Seismic on tape

The Society of Exploration Geophysicists (SEG) first set up a standards committee in 1975 to set standards for how seismic data should be stored on tape, said Jill Lewis, managing director of Troika International and a past chair of SEG's Technical Standards Committee.

Before 1975 companies all used different standards for storing data on tape, which was very confusing – and also often meant that you had to give your data processing contracts to the same company which recorded the data, because they were the only people who understood the format they had used.

The data standard developed in 1975, SEG-Y, can still be worked with, she said, even though seismic survey technology has changed a great deal since then.

Companies are still very reluctant to spend money on data management, she said. "Companies spend \$15m on surveys – they could set aside 1-2 per cent to ensure proactive data management for the next 10 years."

The new SEG SEG3.0 format uses a header structure that is being used by the OGP for their update of the positioning formats. The SEG is also currently working

with Energistics on a new standard for exchange of data about seismic wave velocity which will use the same header structure. The header data, which describes what the data actually contains, is rarely checked, she said. If it has mistakes, it means that when people look through the headers a few years later to try to work out what they have, they will get it wrong, she said.

Geomatics standards

The International Association of Oil and Gas Producers (OGP), has a “geomatics” committee which is developing standards for spatial data, including good industry practise for surveying, positioning and spatial data management. The committee is chaired by Richard Wylde of ExxonMobil.

To illustrate the importance of getting your geo data right, Mr Wylde told a story about an operator who drilled 6 deviated wells which turned out to be dry holes – then discovered they were using the wrong reference azimuth, sending the drill bit through the earth in the wrong direction, and not hitting the part of the subsurface they were planning to.

Two of the biggest supporters of OGP’s geodetic parameter dataset are US and UK military, who are keen to reduce the number of ‘friendly fire’ incidents caused by incorrect data (so people don’t know exactly who is where).

The geomatics committee wants to encourage more emphasis on headers and metadata, something which many vendors don’t focus on. “If we’re moving data around we need to ensure the metadata is being maintained,” he said.

The committee produces technical guidance which explains why co-ordinate integrity is important and what can go wrong if co-ordinates are not matched properly.

Because of the shape of the earth (not a perfect sphere), and the changes of height around the earth (mountains and ocean bottoms), and different systems developed over the years to manage it, pinpointing a specific point in the subsurface is not so easy, particularly when you are putting together data from different sources.

However if everything could be solved, very exciting ideas become possible. For example, imagine a ‘Google Earth style’ image of the earth’s subsurface, putting together all of the available public data from different sources – ideal for spotting possible untapped oil and gas reservoirs, or the best places to store CO₂, or manage the world’s water.

But before that happens, companies need to do simple-sounding tasks like make sure all of their maps use the same colour

scheme, for example for oil and gas on a map.

Many subsurface applications can re-project 3D seismic “bins”, to allow merger with other subsurface data, but they don’t all “bin” the subsurface in the same way, which makes it hard move these “bins” to different software applications. The committee has recently formed a “3D bin grid task force” to look at this issue and prepare industry guidance and produce a “bin grid” data exchange standard.

The committee develops some best practise guidance documents. A recent one was about using Global Navigation Satellite Systems (GNSS) in the oil and gas industry. “With Glonass and Galileo, we’re looking at precise positioning, down to cm,” he said.

The committee is developing standards for deliverables from remote sensing satellites, which can take images of the earth. There are efforts to standardise map symbols around the world.

Even the use of x and y axis is not consistent around the world – in most of the world x is horizontal, in Russia y is horizontal. If you are developing software tools which might be used anywhere in the world, Mr Wylde suggests use of Northing and Easting for your software applications so there is no ambiguity.

The Geomatics committee has just developed a tasting process to measure the Geospatial Integrity of Geoscience Software (GIGS), which defined “bronze, silver, gold” for software applications, in terms of how well they comply with the standards. “We say most software should be silver,” he said. “We don’t expect everybody to pass every single test.” This guidance documentation, test dataset and test procedure will be released later this year.

PPDM

The Professional Petroleum Data Management Association (PPDM), based in Calgary, has worked with industry over 20 years to develop a comprehensive data model that is commonly used for Master Data Management within an oil company. The data model documentation is available to anyone for no cost. It has been under development for 20 years.

As well as developing the data model, PPDM sees its remit to help companies improve their data management in general.

“Less than 5 per cent of operating companies have effective, integrated data management strategies in place, that’s my guess,” said Trudy Curtis, CIO and CEO of PPDM.

“While the majors have been able to make great strides forward, small companies

struggle, and don’t often have the resources or know-how to make progress. For every major, there are many small and growing operating companies who are just beginning to understand that they need to do something about their data. This is why data management needs to be organized as a discipline in our industry,” she said.

As an example, it’s critical to know what the reference elevation is for every bit of data that has a measured depth associated with it. Simply keeping track of the elevation of the Kelly Bushing of the (first) land based rig on site can lead to confusion as many rigs may operate at a site over the life of a well; each rig may have a different Kelly Bushing elevation or even a completely different reference elevation point. This may make it impossible to reconcile a logged depth in the well with cored depths..

Another example is the varying definitions within in the industry about what a “well” is. For example, if one well head leads to two wellbores, some people would consider it to be one “well” with two wellbores, others would consider this to be two different wells. “This has a huge business impact, as every community must accommodate these variations in some way. It increases the difficulty and complexity of developing business intelligence, makes learning curves longer” she said.

“If you only identify a well by the surface, or by the well head, and have a well log, how do you know which wellbore to attach it to?”

“Everyone needs data policies, practises and procedures, and we need to agree on some fundamental business rules about data and information,” she said.

Geoscientists are often much more excited by new software than they are with long term data management, she said. “Geoscientists love to go to a trade show and find new cool software. As data managers, we need to remember that many kinds of data are long term assets for the company, and should be treated as such. Enabling the adoption of new technology while stewarding can be difficult, but it’s essential.

The PPDM Association is taking steps to help educate people in data management. “Nobody went to school to learn how to be a better data manager,” she said. “Our members asked us to launch a programme to determine how to provide effective data management education and certification.”

PPDM also wants a better definition of the data managers’ role. “We want to establish duties with specific jobs, and understand what a career path in data management could be,” she said.

PPDM is working with Data Manage-

Oil and gas data standards

ment International (DAMA), an association, and Common Data Access, (CDA) UK body managing UK oil and gas data. CDA UK has been developing a competency map.

Many companies don't start thinking about data management until they become medium sized (eg 200-500 people) "and then the problem is already gigantic," she said. It is much easier if you can get staff grounded in data management from the beginning of the company.

Federated identify

US company Covisint is working together with a number of oil companies including Shell to help manage people's identification, so people only need to log on to their computer once to access all the different systems they need to do their job.

Their identity management is "federated" - or in other words, shared between different software tools.

Imagine a system on your PC where you have a secure process to logon when you start, but once you have logged on you can access everything from your bank account to your corporate intranet. This is what federated identity means.

From the systems administration point of view, a federated identity system can be simpler to administrate, because it is only one step to provide someone with access to a range of different software (and also one step to disable their access).

If you don't want a certain person to have access to a certain software tool any more, you can disconnect them, without disabling their login to other software programs.

You can de-provision individuals, or de-provision entire companies, for example if they are no longer your supplier. People can be de-provisioned from all of the data systems they have access to, in one move.

Like buildings who maintain security by just having one door which everybody must pass through to go in, the IT systems have a single choke point - a single doorway everyone must get through.

With a federated identity system, it is easier to track what people are doing across different software systems.

Some companies have put in alerts, which are flagged up if someone goes to a certain data store and then goes to another data store, which they should normally never do as part of their work, and might indicate they are doing something they shouldn't.

You can configure the system to only allow access to a user which has the latest patches on their operating system.

The company's initial business model was to serve all the software applications itself, but this proved less popular than expected - so now it is just managing the identities. "No-one likes managing identity," said David Miller, chief security officer of Covisint.

There is no easy way to manage authentication. "Passwords are bad. And 40 per cent of all personal computers are infected [with viruses] one way or another."

"We talk about 2 factor authentication, but it's difficult to manage and to do. Instead of 10 passwords you have 10 passwords and 10 smart cards. The technology is becoming more and more difficult." Providing large numbers of people with smartcards "has an unbelievable cost," he said.

Making a security system which is easy to use is more expensive still. "If the people you're exposing data to are suppliers, you may not care about the user experience. But they may be customers and partners," he said.

Shell has about 750,000 people who need access to some of its information, including government staff and contractors. It had 40 different ways to add and remove (provision and de-provision) people from their systems. "They wanted to have one," Mr Miller said.

A common security risk is when people don't keep track of who has access to their systems. It is one thing to create a login for someone who needs it, another thing to check that all the people who currently have logins need them.

Shell does regular audits to make sure the people running its systems know exactly who has access to them.

Covisint is also doing a system for another oil major (which wanted its identity kept secret); so it will theoretically be possible for someone who is registered onto Shell's system to also be provided with access to the other oil majors' system using the same login.

"You may have to go through different set-up procedures but you can have one identity at the end," he said. "You might need 2 certificates, but I can deal with that."

PIDX - on its own now

PIDX (Petroleum Industry Data Exchange), the body which develops e-commerce standards for the oil and gas industry, is now an independent organisation, rather than being part of the American Petroleum Institute, as it was previously.

PIDX develops standards for both industry purchasing transactions (for example, purchasing parts to do maintenance jobs or

major offshore complex services), and industry selling (for example, managing the transactions which occur at gasoline terminals as gasoline is discharged into tankers). It all comes under the banner of 'e-commerce'.

For the past few years, the American Petroleum Institute has engaged in a refocusing process under the leadership of Jack N Gerard, and as part of this process, it decided in 2009 that it no longer wanted to focus on e-commerce standards.

By setting up as an independent body, PIDX expects to be a more globally focused organisation than it was when it was part of API, said Dave Wallis, chair of the PIDX marketing committee.

API released to PIDX its membership fund balance, along with all PIDX's intellectual property developed around the standards.

PIDX has board members from Chevron, BP, Schlumberger, GE Oil and Gas, and executive committee members from Baker Hughes, Halliburton, Schlumberger, OFS Portal, Magellan Midstream Partners, Weatherford, BP, Oxy and Chevron. The current chairman of the PIDX board is William Le Sage, CEO of OFS Portal.

PIDX's first annual meeting will be held in Houston on September 15-16 2011.

Membership fees are between \$2500 and \$20,000, depending on the size of the company.

There are strict rules for standards setting committees in e-business, to follow fully transparent processes and make sure that companies are not using the resultant standards as a means to control the market. PIDX follows strict rules regarding their standards be open and transparent, with information about the development and state of each standard being published on the website.

You do not need to be a PIDX member to get involved in PIDX's standards development, or to use their standards, and they welcome contributions to future standards development from everyone

WITSML

"The Energetics' WITSML standard, for the exchange of drilling and well site data, is seeing fast uptake within the oil and gas industry", said Julian Pickering, the Deputy Chairman of the WITSML Executive Team.

"However, very few people make use of all the functionality available. Of the 30 or more different data objects defined in WITSML, most usage is confined to only 5 or 6", he said. "There's plenty of richness and wealth in WITSML."

The latest version of WITSML, 1.4.1,

was in the public review period during summer 2011 and will be released in September 2011. It will be marketed under the name "WITSML 2". The industry should expect to see WITSML 2 products available from early 2012 onwards.

WITSML 2 is simpler, more efficient and less ambiguous. The WellLog and RealTime objects have been removed and their key functionality incorporated into an updated Log object. Data compression has been introduced to reduce communications traffic and data queries will be much quicker through updates to Log headers and the introduction of Change Logs. Independent certification will be available for WITSML 2 and much more comprehensive documentation will be produced.

WITSML 2 is much more prescriptive than earlier versions but this is to ensure greater interoperability and true "plug and play," where devices may be connected together with the expectation that they will work simply and reliably.

The WITSML Executive Team hopes



WITSML 2 is "simpler, more efficient and less ambiguous" - Julian Pickering, deputy chairman, WITSML Executive Team.

to see greater use of WITSML 2 by government authorities as a means of receiving data about drilling operations.

"WITSML 2 will deliver the data that most people will require for real-time drilling operations," he said.

"In 2014, the standard will be developed further. There will be increased emphasis on interoperability and support for drilling automation," he said. "It will be a major release and not backwards compatible. This will prepare WITSML for future developments and remove restrictions imposed by the current API definitions."

By 2017, it is expected that the focus on drilling automation will grow and there will be greater integration between the data standards used across the industry.

PRODML

Energistics has a standard called PRODML for exchanging data about production.

In more detail, it supports data about the flow system (the way everything is connected together); production volumes, well tests, distributed temperature data, historian

data (time series), fluid sample data, and wireline formation tester data.

There will shortly be an addition of a wireline formation testing model which has been donated by Weatherford.

"There's a lot of data wireline formation testers throw out," said Laurence Ormerod, an independent consultant who has recently been engaged by Energistics to provide project management to PRODML (and previously VP Solutions Architecture for Weatherford).

"It can be 10 mins to 4 days at 1 station. It can be 200 channels of data every half second. You can repeat it 30 places in the wellbore. We think it's quite a rich model."

Efforts to develop PRODML started in 2005, with \$1.25m funding from a number of oil majors agreed in 2006.

In 2007, seven pilot projects were held, with a further \$0.7m funding, including distributed temperature sensing coupled with point pressure-temperature sensors. In 2008 there were 2 pilots. Since then, "it's been bumping along with just incremental releases. So we need to re-energise it," he said.

Mr Ormerod believes that PRODML could be doing more. "It is not yet at its full potential," he said.

In 2011 PRODML will be developed to include more real time production data transfer, as requested by Saudi Aramco. There will be a completion object, developed jointly with the WITSML group.

Jim Green, general manager and chief information officer of technical computing for Chevron Energy Technology Company, and a board director of Energistics, acts as board sponsor for PRODML.



PRODML "is not yet at its full potential" - Laurence Ormerod, consultant to Energistics

There is a "use case" team, which aims to work out the ways that PRODML could provide more value, according to end user requirements, and how it should be developed. This group needs more people in it, he said.

One tricky area is enabling smooth data transitions between different departments. When the well is completed, the data is

handed from the drilling department to the production department; and if the well has a workover, the data goes back to the drilling department.

If there are gaps in this data exchange (for example something is changed down-hole during production phase and the drilling department isn't informed about it), there is the potential for disaster. You could consider this a "high value use case", Mr Ormerod says.

The completion object, currently under development, will support such scenarios.

Mr Ormerod believes that if there were more compelling business cases about how well PRODML can raise efficiencies, it could help get momentum behind it. It needs to have more "achievable aims", he said.

One common comment about PRODML is that the OPC standard, (OLE for Process Control), can already handle a lot of the data sharing required to share production data.

However PRODML has data objects which are a lot richer, Mr Ormerod said.

RESQML

RESQML is a standard to share subsurface data models. Companies involved include Total, Paradigm, Schlumberger, IFP, CMG (Computer Modelling Group). Version 1 of the standard was tested from January 15 to April 15 of this year, said Jean Francois Rainaud of IFP Energies Nouvelles.

The data covered includes geodesy, horizons, faults, meta data (such as creator information, contributors information), structural modelling, gridding, static property modelling.

Version 1.1 was published in June this year.

Version 2 will concentrate on earth model relationships, velocity modelling, reservoir characterisation. It will be possible to transfer model sections, and information about model updates.

In future, the information about faults, horizons and rock features will be stored as data objects.

TOTAL has already announced plans to use it for communicating data between in house software providers.



Download presentations from the Energistics meeting

<http://www.energistics.org/western-europe-region-meeting-1>

Good well paths need geology

To find the best well path, you need to know about the geological setting – not just about porosity, permeability and thickness, writes Bruno de Ribet, technology director Americas, Paradigm

Horizontal drilling is a critical component of successful asset development in unconventional oil and gas plays and complex stratigraphic-controlled reservoirs.

A common misgiving in the preparation of horizontal well plans is that workflows that have given results in the past are appropriate and sufficient.

Another common mistake is to pick the trajectory offering the best pay per foot drilled and therefore optimal return on investment.

Recent developments in reservoir characterization technologies and visualization capabilities, coupled to new high-efficiency data integration, offer opportunities to better understand the target formation and make more informed decisions in less time.

Predicting the production of planned wells based on information from prior drilling is an excellent process to follow, providing however that all relevant data is brought into the process in an integrated manner, and not just using an interpolation of a few reservoir characteristics such as porosity, permeability and thickness. Such an overly simplistic approach can lead to unexpected outcomes, and in some cases borehole failure, because it does not take into account localized anomalies, reservoir heterogeneities, the effects of surrounding formations or intra-formation fractures.

Petrophysical analysis, the geological setting, geophysical information, rocks mechanics, among others, should be considered when defining an extended integrated workflow.

US shale

As an example, if we look at common practices in the unconventional shale plays in the Continental United States, the focus is on sustaining or increasing production flows through intense horizontal drilling and hydraulic fracturing activity.

In many cases the workflows to plan these wells are geared towards a fast turnaround time with the use of conventional software tools to get the results.

Typically it involves 4 steps:

- 1) Use of seismic information to locate quickly the seismic horizons associated to the reservoir,
- 2) Integration of the seismic into the geological interpretation
- 3) Integration of the microseismic to define the preferential stress directions

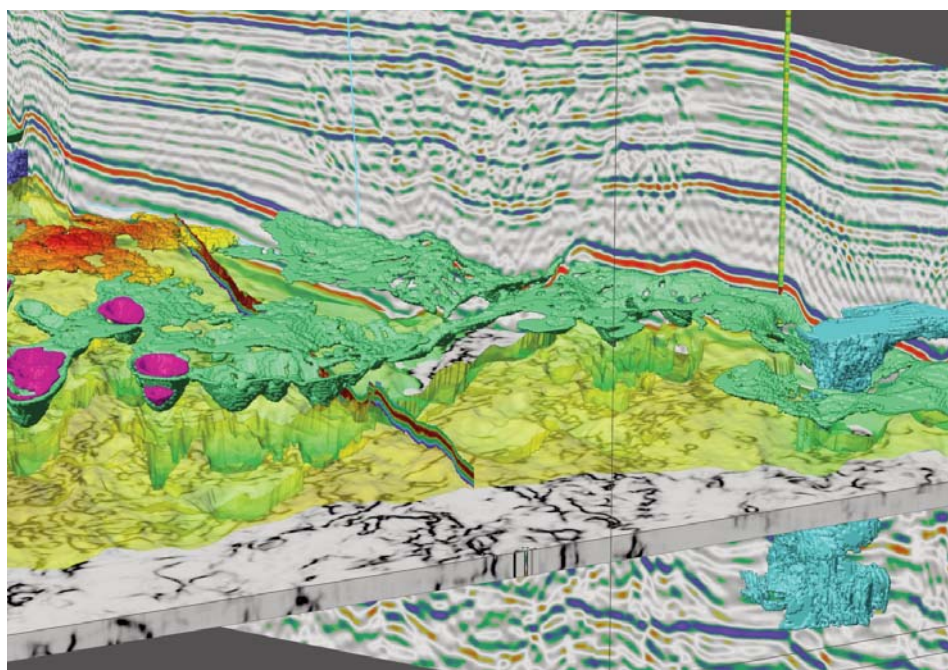


Figure 1: Integrated visualization of interpretation (structural, karst chimneys, sweet-spot) from the Barnett Shale

4) Integrated real-time monitoring of the horizontal drilling with interactive correction of the deviation.

In the specific case of unconventional shale reservoirs, water saturation, hydrocarbon content, rock properties, in-situ stress fields, geohazards such as karsts or existing fractures, combined with the microseismic data linked to the hydraulic fracturing, need to be evaluated and calibrated each against the others.

Then an integrated visualization into a single window (Figure I) will lead to an “across disciplines” decision process, in order to efficiently evaluate productive vs. non-productive zones.

Different sources of data

No matter what their merits are, wireline log data, image logs, new rich-azimuth 3-D data seismic acquisition or microseismic each only bring a partial answer and need to be calibrated.

In the gas shale reservoirs, determination of the mineralogy and fluids content is a mandatory step in a full petrophysical process, considering that intervals with higher quartz contents are generally more adapted for fracture stimulation than zones with a higher limestone and clay content.

The development of such reservoirs is directly associated to the induced creation of

permeability using hydraulic fracture, which depends in turn upon the brittle or ductile characteristics of the reservoir rocks.

Even though we consider shale as a ductile rock by its very nature, the differences in mineralogical components will have an impact on the efficiency of hydraulic fracture.

Consequently, there is a need to understand the spatial distribution of both types of minerals away from the boreholes.

The question is which technology can support such an approach and help us complete the 3D geological mapping of the reservoir?

This particular challenge can be solved using the proven seismic facies supervised classification process, through which the true relation between seismic attributes and well information will help calibrate the seismic response, and discriminate it as a function of mineral types.

This result can be integrated into the 3D geological model to constrain the lithofacies interpolation, and it can also be used as an external trend in a geostatistical approach.

Fractures

Another characteristic of such reservoirs is the presence of natural fractures, or collapse chimneys from underlying formation (karsts)

and associated fractures. Both represent the highest level of risk for well planning.

They can have a major impact on the completion and productivity, as they can connect two formations with distinct fluid content and could thus impact drilling plans or ruin on-going well drilling.

A well-known example is the Barnett Shale (USA) Formation that lies on the top of the Ellenberger water-bearing carbonate formation.

In such a reservoir, the combination of fractures and impressive intrusive karst chimneys from the underlying layer is a risk when drilling a new well. Such a complex geological environment cannot be predicted from well to well by interpolation.

The existence of natural fractures may represent an advantage at the initial stage and would allow a lower hydraulic effort for fracturing the source rocks.

A calibrated definition of the stress field, coupled with advanced techniques for interpreting 3D structures such as collapse chimneys, will definitely add valuable information to the final geological model.

Whatever characterizes the initial structural condition, this type of reservoir needs to be stimulated through the hydraulic fracture process in order to achieve viable production.

We are aware that the nature of the existing fractures (open or healed) has a non-negligible impact on the propagation of the induced fractures.

Understanding in-situ stress regimes and reservoir pressure conditions near the projected well is mandatory for the success of any hydraulic fracturing program.

The resulting microseismic information will then be another source of information to be calibrated with the seismic information in an adapted 3D visualization environment.

3D seismic data

3D seismic data is the main source of information to delineate “sweet-spots”, and the opposite, zones of non interest or “dead zones”.

The most obvious seismic attributes to be used are coherence or curvature, well suited for detecting fault and fractures trends in a first pass.

Some proprietary attributes such as the Eigen-based coherency, which is more sensitive to small variations, or the Fault-Enhanced or Vector Azimuth can give more detailed insights regarding the fracture direction in an integrated approach.

The result can be compared and calibrated with well information such as image logs that will confirm the main stress direc-

tions at the reservoir level.

Recently the industry has initiated the use of wide and rich azimuth seismic data in order to improve the illumination of reservoirs beneath highly complex structures or for providing high quality subsurface images that more clearly qualify reservoir compartmentalization.

Although this method seems to be more adapted to offshore challenges; innovative technology such as Paradigm EarthStudy 360 has helped, in the Barnett Shale notably, to extract high resolution data and information related to subsurface angle-related reflectivity.

This method emphasizes the continuity or discontinuity of subsurface features like faults and small scale fractures directly from the seismic data.

Admittedly, the application of such a technology requires from the operating companies a substantial level of commitment in hardware, computing infrastructure and qualified geoscientists.

The payoff however would far exceed such investments, making every well more deterministically-planned and targeted at areas where hydraulic fracturing will deliver the best production flows.

Interpreting seismic attributes is more challenging in such geological environments. To make it feasible within the tight time constraints of resource play operations, it is essential to work in an enhanced 3D visualization window, applying “unconventional” interpretation workflows and technologies.

This makes it possible to integrate all the available information in a single 3D environment, to map the maximum stress direction, to extrapolate the microseismic into a 3D volume referencing the magnitude and direction of propagation, and to interpret the karsts as 3D wrap surfaces.

Significant time savings can be gained in the visualization phase of the workflow by leveraging the latest generation of graphic cards: they have enough on-board memory to accommodate gigabytes of seismic and to process them on the fly.

Figure 2 shows how the quality of the image has been improved when visualizing karst chimneys.

The clearer rendering guides the geoscientist directly to a more precise characterization of the reservoir and the related spatial delineation of the “sweet-spot”.

Controlling drilling risk is a high priority and 3D visualization helps to identify and mitigate potential threats that drilling engineers may encounter, by aggregating all the information in a single 3D canvas.

The challenge of producing hydrocarbons economically from increasingly complex unconventional reservoirs drives the need for well path and engineering design optimization at every stage of the planning and drilling process.

Designing wells within a 3D structural model, which integrates all relevant features, can shorten well planning cycle times, improve well placement and reduce drilling risk.

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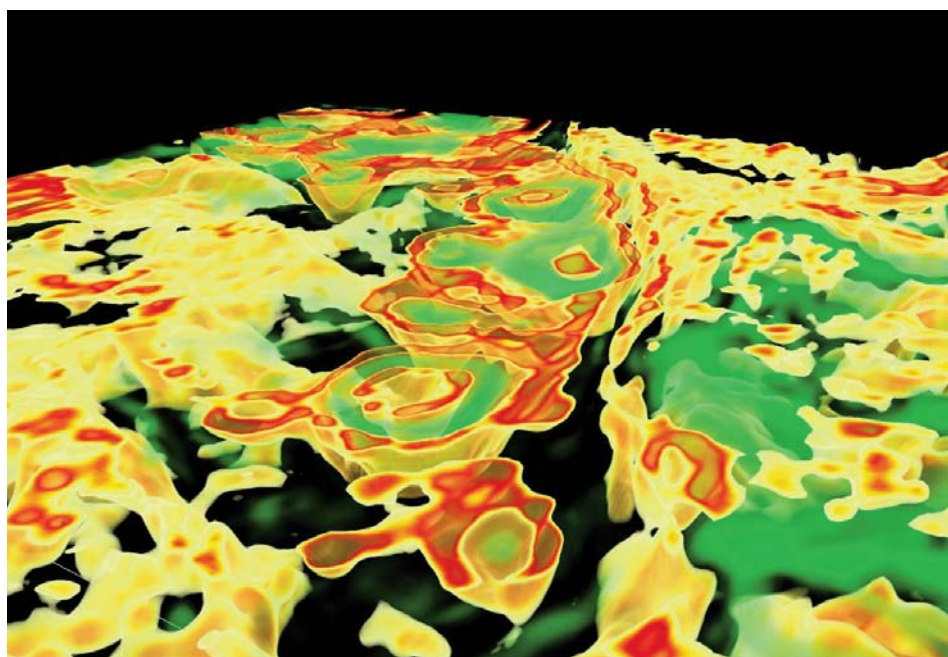


Figure 2: High quality image from the karst chimneys (Barnett Shale) obtained on new graphic card-based rendering technology

Drilling in high pressure

How does high pressure occur in the subsurface, what are the hazards to drilling through it, and how can you be best prepared, and does it help to do a pressure study of the entire region? Richard Swarbrick, Stephen O'Connor and Richard Lahann of Ikon Geopressure explain

The BP Macondo oil spill in the Gulf of Mexico highlighted the technical challenge of drilling for oil in deep water.

The high pressures there added complexity to the control incident and the high volumes of fluids which blew out to the seabed.

The rate of pressure increases in the subsurface can be very high. In Brunei, for example, an increase in overpressure of 220 bar (3200psi) has been reported across a shale only 17m (55 feet) thick. There have been reports of a greater than 230bar (3300psi) increase in overpressure over 60m vertical section at the base of the sand-rich facies in the Gulf of Mexico.

The increase in overpressure can lead to a very narrow drilling window.

All these issues need to be assessed pre-drill and captured in the well planning process, considering most likely and high case pressure predictions and optimal positioning of casing to maintain wellbore stability, drilling safety and minimize potential rig downtime.

How high pressure happens

High pressure in rocks can occur for many different reasons – including because the rocks still contained water when they were buried (and the water then expands); gas generation; clay mineral reactions in shales; collapse of the rock's load supporting framework.

The biggest factor of these is rocks containing water when they were buried - in other words, the sediment was buried quickly.

For a high rate of sediment burial, river systems depositing large volumes of suspended sediment at their deltas are the most likely locations, the most visible of which are the Niger and Congo Rivers exiting into the South Atlantic.

Tertiary deltas such as these typically exhibit a high sand content on the shelf and delta top, leading to near normal pressure conditions down to depths of 3000m+ (10,000 feet), below which sharp increase in overpressure leads to several drilling challenges.

The start of overpressure at relatively shallow depths of burial (typically 1000m (3000feet) below sea bed) leads to a long and

continuous narrow drilling window, requiring frequent casing strings to maintain borehole integrity.

Some wells along the continental margin of West Africa have had to set total depth prior to reaching all their expected targets due to these extensive pressure transition zones.

Further seawards, and especially down the continental slope, the sediments become more mud-rich and any sand reservoirs are confined to channel and fan systems, most likely enclosed in low permeability shales. The pressure profile in more continuous shale sections is one of constant increase in overpressure, often with a gradient running parallel to the overburden. From a drilling perspective the rate of increase along the pressure transition zone is gradual with less probability of a drilling surprise.

Regional studies

Where sufficient density of wells is available, compilation of the data basin-wide offers immense advantages.

Ikon GeoPressure has demonstrated in Europe, USA and most recently in West Africa, how understanding the bigger picture from their regional studies helps to extract both improved prediction capability from local data (thereby reducing risk) and enhanced exploration opportunities.

Successful pressure prediction does not rely only on local rock property data (such as porosity from velocity, density or resistivity) coupled with direct pressure data from offset wells, but also must correspond to a realistic "model" for the development and distribution of basin fluids in the subsurface over geological time.

Commercial fully coupled basin flow modelling software offers a way to gain insights into fluid flow behaviour during progressive sedimentation, burial and the influences of temperature.

Basin models are particularly well suited where seismic definition is poor (for example under salt).

Building a model for an area of 100km² is likely to take 3-4 weeks with the same amount of time to test and migrate from 1D through 2D to 3D.

The outcome will be a set of maps and

plots which describe the distribution of overpressure in all the main reservoirs and their relationship with each other.

Each of the wells has been examined not only for direct pressure data, but also for their relationship with shale pressures from a standard pressure prediction interpretation (after testing for which mechanisms are active geographically and varying with depth and temperature).

For Ikon Science's work studying pressure in the Niger Delta, the entire data package provides a unique description of the subsurface plumbing of the Niger Delta. In addition the data is rich enough for basin-wide compaction, overburden and fracture gradient algorithms to be generated and then tested.

The Deep-Water Niger Delta project was completed in Q2 2011, after which other areas of the Niger Delta will be the prime focus.

In addition to reduced risk (better definition of the drilling window based on both pore pressure and fracture pressure prediction) the description of the subsurface pressure relationship benefits exploration in areas such as seal breach risk (top seal failure prediction) as well as potential trap definition associated with fault sealing.

Other areas of the West African margin which could benefit from regional or semi-regional pressure studies of this nature, include offshore Mauritania, Ghana, Angola, Gabon and Cameroon.

Mapping of overpressure and recognition of pressure compartments related to faults help to establish which faults preferentially leak and which seal, adding confidence to the search for downthrown fault traps.

In the same way top seal failure can be assessed by examining the relationship between the pore pressure expected in the reservoir and seal, and the fracture strength of the top seal.

Another direct exploration benefit relating to understanding regional pressures occurs where reservoirs are connected over a large area and communicate to the surface, thereby drawing down the deeper reservoir overpressures relative to their intra-formational shales.

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Exploration

Adrok - third set of survey equipment

Adrok of Edinburgh, a company developing a new atomic dielectric resonance (ADR) scanner subsurface survey technique, reports that it has developed its third set of survey equipment, and is also providing its services in North America

Adrok of Edinburgh, a company developing a new atomic dielectric resonance (ADR) scanner subsurface survey technique, reports that it has developed its third set of survey equipment, and is also providing its services in North America.

The system sends electromagnetic waves into the earth, and from the reflections, can make estimations about what is in the subsurface. This is a survey means completely independent of all other methods (eg seismic, gravity) and so provides an additional source of information, which can be used to put interpretations made from other methods through a further test.

From the data, it is possible to quantify if the subsurface contains oil or gas reserves, the mixture of sand and water, and map geological structures, Adrok says. You can also use it to scan large areas.

The technology is currently being used primarily during onshore exploration although some offshore activity has been un-

dertaken.

The third Adrok Scanner will help Adrok service its growing demand for onshore non-invasive geophysical surveys, in particular from oil and gas and mining companies in North America, the company says.

Adrok's customers are gradually extending their use of the technology, from using providing a second idea about where to drill, to doing frontier scanning, delineation and appraisal, says Gordon Stove, Adrok's Chief Executive Officer.

They are also using it to image high resistive geological layers such as salt and basalt.

The growth in North America follows the scanner being successfully used in 2010 by an Oklahoma syndicate of oil investors, Mr Stove says. "The equipment dramatically reduced the need for expensive and time consuming exploratory drilling."

Altogether 6 companies have used the technology so far. Test areas for ADR in-

clude Scotland's deepest onshore and volcanic sites, Omani deserts, the Canadian Arctic circle, and offshore locations.

The company was founded in 2000 with a £3m investment from management, supported by UK government funding. It first launched its atomic dielectric resonance scanner in 2008.

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Adrok's atomic dielectric resonance scanner

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Wipro and SAIC : IT services + expertise

IT consulting and services giant Wipro Technologies has acquired the oil and gas technology services business of SAIC for £150m. Now it plans to offer IT services, sold by the month, with oil and gas expertise included



Wipro's senior vice president, energy natural resources and utilities Anand Padmanabhan

IT consulting and services giant Wipro Technologies has acquired the oil and gas technology services business of SAIC for £150m.

SAIC provides consulting, data management and application support for upstream oil and gas industry, including for petrotechnical (subsurface) domains, drilling and completions.

It also provides hydrocarbon accounting / production data management services, real time data management, and built collaborative decision environments.

SAIC's oil and gas technology services division has 1450 employees, including 400 in the UK.

Part of the appeal of the acquisition was that the two companies had strengths in different areas, says Anand Padmanabhan, senior vice president, energy natural resources and utilities, with Wipro Technologies.

SAIC has strengths in oil and gas industry consulting; WIPRO has strengths in providing IT services. By putting these two capabilities together, the combined company can provide an IT system as a service put together with a comprehensive understanding of the needs of people in different oil and gas roles, something very few companies can do.

The two companies complement each other in other ways. SAIC was particularly strong in the US, whilst Wipro was strong in Europe; in the oil and gas industry, SAIC

was strong upstream and Wipro was stronger in the downstream.

The idea is that by putting the two parts together, the combined company can be strong in both the US and Europe, and both upstream and downstream.

The acquisition was done partly at the suggest of some of SAIC's and Wipro's mutual customers, who believed that there would be benefits to providing SAIC's domain expertise, with Wipro's IT services, together – to do tricky but highly value adding tasks such as manage a company's subsurface data.

With Wipro and SAIC together, "we are the people who make it work," he says. "With new SAIC – Wipro capability, we straddle across the domain space."

For example, Wipro / SAIC could offer an outsource service to manage a company's entire subsurface data and applications, so geophysicists can be sure they can have whatever they need when they need it, without getting involved in what happens behind their computer terminal.

"There are very few organisations which understand exploration and convert that to an IT solution.

That's a unique space to build a solution across," he says.

It can be hard for an oil major to put together the geophysics and IT domains. "People always say, I understand my domain better than you," he said. "Sometimes it's easier to get a view from outside."

Wipro / SAIC can provide a similar service for drilling / well completions data, production data, asset management data, capital projects data, and HSE data, and the relevant software applications.

It can look after the more labour intensive tasks related to data, including data cleansing, data quality management, data integration, data management, visualisation, predictive analytics, making use of its vast staff in India, where wages are lower.

Wipro formed a practice dedicated to energy and utilities in 2000, and has 75 customers and \$500m annual revenues from this division, with 5,000 employees.

Its customers include oil and gas operators, oil field service companies, national oil companies, energy retailers and public utilities.

IT service

Wipro provides IT services. This is perhaps a new segment of the IT industry to many in the oil and gas industry, who are used to dealing with only software companies, hardware suppliers and consultants, as categories of IT vendors.

The "service" is normally provided on an ongoing basis, where the company agrees to do something like manage and maintain an oil and gas company's production data and associated IT systems.

It is effectively another layer on top of the conventional IT layer (of software and servers).

"There's a lot of potential for IT services. We can take it over and offer it as a service for oil companies across the globe," says Mr Padmanabhan.

Most companies currently do their own data analysis, but as it gets more and more complicated, the attractiveness of outsourcing the task will increase, he says.

"The view of the world in the next five years will be completely different. There will be more data, new types of fields, new geographies."

Companies might prefer to keep their core competence in geology and geophysics, and leave data management to others. "The biggest challenge is the ability to manage all of this data," he says.

Software management

Wipro / SAIC can also help manage your software portfolio. "The customer buys a software license, we build the architecture and the solution. IT services and consulting," says Mr Padmanabhan.

Wipro does not build any software tools of its own, but puts together templates about how different software tools can be put together to do the required tasks.

Wipro builds up expertise in the various software packages on the market, including software from Halliburton, Oracle, EMC and Microsoft.

"We understand the technology", he says.

Having such a broad understanding of different software packages is an important differentiator for Wipro he says. Many IT consultancies might have in-depth knowledge of one, but not all of them.

Avoiding poor value propositions

If your aim is to sell technology or services to your customers, then you need to prepare coherent and relevant value propositions. Here are some examples of how not to do it, says Paul Gibb of CouttsGibb

In a presentation to a client, the software vendor stated that, “A geoscientist working with 2D and 3D data might work 8% faster in their new product as a result of the integrated nature of the new product.”

“Therefore,” continued the vendor, “if the company has 50 geoscientists, each with a fully burdened cost of \$250,000/year and each spending 50% of their time working with 2D and 3D data, it means that the manpower costs are \$6.25m a year. The result,” concluded the software vendor, “of an 8% efficiency saving through using the new product is a cost saving of \$500,000 a year.”

This value proposition was presented to 30 geoscientists who felt there was no proof provided that there was an 8% improvement in efficiency. Additionally, if the sums are accurate (\$500,000 cost saving = the cost of two geoscientists) it would be unlikely that the audience would recommend a product which might lead management to make two of their colleagues redundant.

The value proposition had no relevance to its audience; it was generic, difficult to prove and the alleged cost saving could only be achieved through a reduction in headcount.

The value proposition does not consider its audience’s needs. Geoscientists are not principally looking for efficiency gains (perhaps their managers are). Geoscientists require, for example, new tools, new ways of analysing data and alternative methods for proving an existing concept to help reduce the risks involved in hydrocarbon exploration.

Nonetheless, the use of mathematical calculations to try to quantify value is commonplace, and the software vendor in the same presentation continued with the following example.

“If a company has a 10% staff turnover rate, and an employee project change rate of 10% per year, that means 20% of employees look at new projects each year. If half have previous experience on the new project, the total exposed to new projects is 10%. Therefore, if there were 500 interpreters, 10% of that number, 50, would be looking at a project for the first time. The time per project saved by not having to re-interpret the previous interpreters work is about a month. If the fully burdened cost of an interpreter is \$250k, that means the annual cost of staff turnover is $50 * 1/12 * 250,000 = \$1$ Mil-

lion.”

Once again, to an audience of only 30 geoscientists, the value proposition was not relevant; the proposed scale of savings cannot be achieved.

Shortly after the presentation, the client contacted the vendor and cancelled their maintenance and support contract; in the space of about 30 seconds, the client saved a million dollars. This was an efficiency saving the software vendor had not anticipated.

In the following example, the thought processes, as highlighted in a discussion forum, have a familiar feel.

An account manager asked the following “A client has 25 licenses of our software and their management like what they hear about our new product. So that the client can request budgetary approval for the \$700,000 (that they would need to spend as part of the upgrade), they want to determine the benefits they will gain in return for their investment. In the sales training we spent a lot of time measuring mouse miles so that we could quantify how much time was saved doing a job in new product as opposed to the old.”

A colleague responded enthusiastically, “Yes, being able to demonstrate a reduction in time of just one day (through greater mouse mileage efficiency) could result in a \$1million be saved by reducing the subsequent requirement for a rig by one day.”

Mouse mileage efficiency does not constitute a value proposition, and if a well takes 70 days to drill (to achieve its objective), it is still going to take 70 days even if the identification of the target took 20 days instead of 21 days.

Value propositions need to be customer specific.

The client in question above wanted to increase the production of crude oil and natural gas by a further 4 million barrels of oil equivalent by end 2010.

Therefore, it would have been important to specify how the vendors’ software will help their client accurately delineate their existing prospects and help them better identify lower risk drilling targets, which would enable the client to drill better targeted wells that should produce increased volumes of hydrocarbons.

Additionally, as the client had indicated in their annual report, they intended to increase their production by buying assets, so it is important to demonstrate how the client

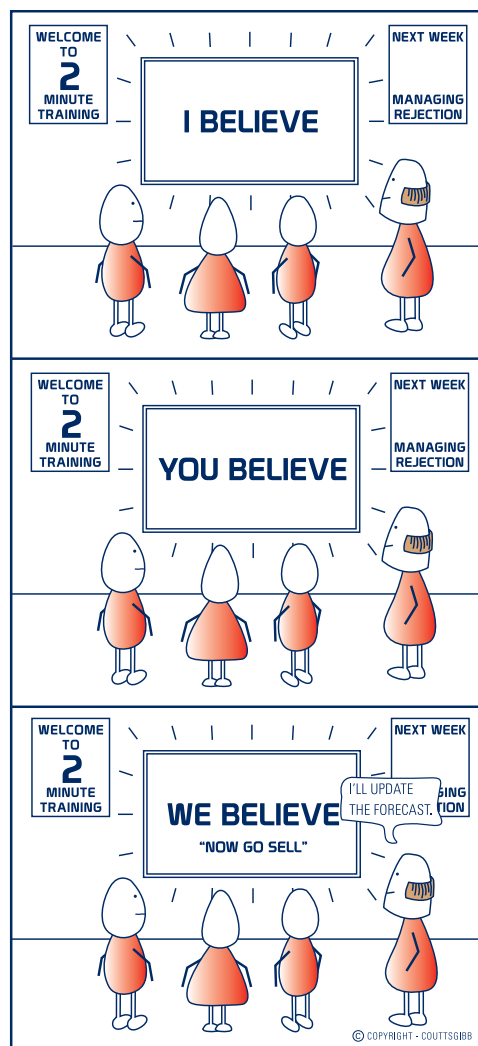
can develop a stronger technical understanding and effectively evaluate assets at the farm-in or acquisition stage when using the vendor’s suite of software.

Finally, because the client had just bought a smaller operator there was a lot of data to be integrated as a result of the acquisition. There were a number of benefits that the vendor’s software could provide, such as the expanded data model and data management tools, which were technical benefits worth highlighting.

Mouse miles was not going to secure budgetary approval for \$700,000.

In sales, you don’t often get a second chance, so make your value propositions count first time.

digital energy journal



Smart Energy in Aberdeen

The "Smart Energy" conference in Aberdeen on June 7th covered ways the UK government is promoting technology, how to use mathematical algorithms to reduce the information people need to process with their heads, how to standardise your smart fields (or not), and looking for gaps in the sensor data vendors provide you with

The UK government is trying to push oil and gas companies on the UK continental shelf to make sure they are making as much money as possible, said Bill Cattanach, head of technology development with the UK Department of Energy and Climate Change (DECC) directorate of oil and gas industry, speaking at the June 7th Aberdeen SPE conference "Smart Energy".

"We've got a team at DECC looking at every producing field, challenging the operators to make sure they're getting the most out of it," he said. "Looking at existing asset and making sure they're being driven as hard as we can."

DECC is aiming to make it easier for smaller companies, or even individuals, to buy license blocks and drill. "You could end up being a multimillionaire if you spot something in the seismic," he said.

The government has introduced a small field tax allowance, to reduce the tax burden on smaller fields.

A possible area for growth is heavy oil. "Heavy oil is quite exciting on the UK continental shelf," he said. "We know where's significant accumulation of heavy oil. We are hopeful about Statoil on the Mariner/Bressay field."

Another interesting area is West of Shetland. "The big challenge is lack of infrastructure," he said.

"All these areas seek new technologies."

Mr Cattanach is secretary of PILOT, a scheme to get industry and government talking to each other.

The PILOT project started 10 years ago, with a 10 year vision, with a target to get 3m barrels of oil per day by 2010. "We failed on that. We did we fail on that? Did we not use enough technology? What did we do wrong?" he asked.

Mr Cattanach said he would like to see companies looking for ways to get more out of the existing reserves. An example is the Forties field, which BP sold to Apache in 2003 estimating that there would be 4.2 bn barrels of oil in place; Apache gave the field an intensive re-evaluation and increased the estimate by 800m barrels.

Mr Cattanach says he thinks it is time to look at upgrading some of the older infrastructure, rather than considering how to make the most out of it in its anticipated lifetime of the existing equipment.

"People talk about infrastructure 'window of opportunity.' I think it's time to look beyond window of opportunity," he said. "If old infrastructure is removed, there will be big voids in the basin.

If nothing happens by 2025, decommissioning will be quite challenging."

The UK also needs to look at improving recovery rates. "The UKCS has around 40 per cent recovery, but other basins in Norway are achieving over 50 per cent, that's a huge prize," he said. "Norwegians are not happy with 50 per cent, they're looking at 60 per cent. We need to be looking at that."

"We've had some success with Enhanced Oil Recovery (technology)", he said. "We're trying to find ways to combine CCS with EOR. It's been achieved successfully

on land, but no-one has yet done it on shore."

There are discussions about using the Goldeneye gas field, off Aberdeen, for carbon dioxide storage, he said.

Using polymer flooding to improve recovery is "encouraging," he said.

Using low salinity water for water flooding, which has been shown to be more effective than high salinity water (seawater), is "probably the easiest [method of improving recovery]," he said. "It is not that challenging to desalinate water."

DECC estimates that the value of reserves which can be unlocked using better recovery methods over the next 5 years could be as high as £70bn. "We do need to see what we can do."

"Technology development and deployment in the UK is always very challenging. People are slightly concerned for their jobs. You may get fired if you try something and it doesn't work. That doesn't happen in Norway – Statoil has never fired someone for something that hasn't worked."

"We don't have a technology strategy for the UK oil and gas sector. Norway has been more organised than us," he said.

However, investment in UK sector of the North Sea is still strong, he said. DECC is expecting capital expenditure in 2011 of £13bn, up from £7bn in 2010.

"UK continental shelf is a place where things are happening, there are lots of opportunities here," he said. "There's an upturn in investment. We have a very optimistic view of the basin. If you're a young person joining the industry there's a career until you retire."

The 26th licensing round (announced in October 2010), covered 268 blocks, compared to 303 blocks in the 25th round of the previous year. "We could offer more blocks when we get environmental assessments sorted out," he said.

In 2011 DECC is expecting to make 30 appraisals for new developments. "This is probably the year we approve most developments in the history of the UK continental shelf," he said.

On the subject of the UK's recent increase in taxation of North Sea production, he said "with \$120 oil we see big profits being posted, so it's probably not unreasonable



Bringing more "smartness" to North Sea oil and gas - the SPE "Smart Energy" conference on June 7

Production

for the chancellor to think that he should have a bit of that for the nation, but it's not for me to comment."

Mr Cattanach quoted data from Norwegian oil consultancy INTSOK, stating that the UK has the 4th largest offshore market (in terms of predicted spending on offshore exploration and production in 2011 to 2014). The 1st, second and third places go to Norway, US Gulf of Mexico and Brazil.

"One challenge for the UK continental shelf is Norway. 10 years ago they were No 34, now they're no 1," he said. "That will make a competition in resources and drive costs up."

When asked if he thinks the UK will require more data to be sent to shore from drilling rigs for safety purposes, Mr Cattanach said that he thinks "procedures in the UKCS are second to none."

"At the moment we don't think there's a need to go to the next stage because there are procedures in place."

"But you should never be arrogant and complacent. If we got a Macondo type incident it would set UKCS back so we'd never recover."

ITF - going global

ITF (Industry Technology Facilitator), is an organisation which brings together oil and gas companies to develop innovative technology, reports that it is becoming increasingly international, with members including DONG Energy, Saudi Aramco, PETRONAS, ENI, Wintershall, Marathon Oil Corporation, Woodside Energy, KOC and EnQuest.

The organisation is owned by 28 operating and service companies, and was initially set up in 1999 to try to encourage development of technology for the UK North Sea.

ITF identifies the global technology needs of its members, and through a unique and proven process, invites developers to address these problems by submitting their technology solutions. Those successful ideas are then established as 'joint industry projects' (JIPs), which are funded by ITF members and developed through to commercialisation within the wider industry.

Occasionally the technology is then spun out into a company, which is initially owned by the companies which funded the development, or with additional venture capital investment.

ITF has launched 150 such projects since 1999, and has about 40 projects running with a value of around £20 million investment direct from its members.

"Technology continues to be critical to a future viability of our [UK North Sea]

province," said David Liddle, director of strategic technology with ITF, speaking at the June 7th Aberdeen "Smart Energy" conference.

"In the UK continental shelf it is so important to find ever smaller reserves and take a step forward and look beyond what we consider enhanced oil recovery (EOR)," he said.

Also, "the UK is recognised globally for its expertise in mature provinces. We need to maintain that position," he said.

Examples

Here are some examples of successful technologies initially developed by ITF.

Gravity gradiometry survey technology, now owned by ARK Geophysics Ltd (now part of ARKeX, a specialist in gravity gradiometry measurement);

A project with **OHM** to integrate seismic with non-seismic subsurface data

Caledus Ltd, a new well construction technique for hanging liners for sidetracks (£526k, ENI)

READ Well Services, making casing patches which can be installed from a tubular system (£730k, ConocoPhillips, Statoil, Shell);

Brinker Technology, which is developing a substance which could be added to oil and gas wells to locate and seal leaks, similar in the way that blood can automatically seal cuts and wounds to the body.

Mud Watcher, a tool to measure weight and viscosity of all drilling muds.

A project under development with **Lockheed Martin** to develop a borehole gravity tool, which could monitor tiny changes in gravity downhole - it could be used to monitor precisely how a reservoir is being drained, or how carbon dioxide is being added when it is being stored underground.

Shell's smart field roll-out

The Smart Field installations at Shell have a number of levels, said Carl Gerrard, Upstream Europe Production Real Time Operations Lead, Shell Upstream, talking at the Aberdeen June 7 "Smart Energy" SPE forum.

All of Shell's Northern North Sea assets have as a minimum broadband communications capability (fibre or microwave); a data firewall system; (DACA); a data historian system; and the EC (energy components) hydrocarbon allocation system to record production data.

But some assets have a more sophisticated system, which Shell calls its "Smart Fields Foundation Mark I Suite", which in-

cludes real time optimisation of the field, continuous 3 phase flow measurements, and the recording of temperature and pressure data. The data is used to update integrated models of the subsurface and the production.

A variety of factors come into consideration when deciding which level of Smart Fields infrastructure to install.

Newer assets are more likely to have been constructed with more advanced control, instrumentation and metering system. "It is always easier to do things on a new asset," he said.

The offshore component of any "smart" program will often require beds on the platform. Mature assets will typically have a higher level of maintenance activity, and an associated demand for beds. If beds are short, safety critical activities clearly take priority, he said. We evolved a number of methods to reduce the programs dependence on beds including remote "virtual" coaching of staff.

The basics of a Smart Field infrastructure, including broadband communications, firewall, data historian and "energy components" managing well test and production data) have a fairly low cost and a comparatively high benefit, these are common on most of our assets, Mr Gerrard says.

There are a range of individual tools which can be installed on facilities to meet specific needs, with high benefits and comparatively low costs, he said.

There are a number of tools within Shell's global portfolio with relatively high costs and, on some facilities relatively low benefits, but Shell installs them because of the greater benefit of having something standardised across the company.

Shell aims to keep things as standardised as possible, so for example an employee could move quickly between assets, even halfway around the world to a different Shell operation and quickly start their job.

The full Mark I suite has relatively high costs and high benefits, he said. We deploy this selectively where we have a business case.

On FPSOs (floating, production, storage and offloading) vessels, often operated for us by third parties, the data connectivity to the shore is by satellite, not fibre optic cable or microwave, and this means moving data can be harder.

The communications cost is higher, there is a latency [time delay] (as data goes to the satellite and back down again) which causes difficulties for some software applications "in some cases the keeping a "lock" on the satellite is quite weather dependent. We know if an FPSO has had a bad night due to stormy seas because we can lose PI (pro-

duction historian) data."

Security

Shell's Process Control Security and Architecture (known as DACA) is a system which puts a firewall between the control systems in the field and the office domain (windows PCs), carefully controlling what data can make it onto the control systems from the office domain.

Managing the firewall between the control systems and the office system is important. You have to make sure that people can get through to do their job, and others can't! It's not feasible to just block everything, although the firewall can be closed completely if there is a need. "Everyone understands the clear boundary what's on an office system and what's a control system," he said.

Monitoring data

There are approximately 230,000 data points in Shell's European operations, which feed data into its data historians.

Shell has screens around its onshore office, showing this data. These screens also show "exception based" alerts if something unusual happens, so people can have a closer look.

It gathers together key people from both operations and sub-surface for "hub" meetings every morning to share what is going on.

For one offshore platform, Shell has a "collaborative working environment", with a video link going offshore. "It's very nice but rather expensive. We're assessing the value of this," he said.

Well Testing

The commercially available "energy components" system stores production data over the longer term, including daily and weekly production data, and well test data.

A system in the control domain (Fieldware Well Test) has an interface for capturing and verifying well test data on the platform; the data is available straightaway in the office where it can be validated. The data is also sent to the hydrocarbon accounting package.

As part of the project Shell has made efforts to make sure everybody understands why well tests are important. "People would sometimes think that well tests were something demanded by "the beach" to annoy them, he said. "If you go out and explain to people why, and what the data is used for it helps to get them done a lot quicker."

The well test and production data can now quickly be compared with both surface and sub-surface models. Models are good, but even better if you compare them to real world data," he said.

Production universe

The system has a PU "Production Universe" system which uses export flowrates, and well temperatures pressures and other data together with data based models to predict well flow rates in real time and compare with measured export totals."

Shell makes sure that its production system models are being used in operations - among other things this helps make sure that the models don't get neglected.

"If people don't use them, they don't update them, they drift out of calibration and become less useful, so they are not used and the cycle, or spiraling decline, continues," he said.

"With this - if your production allocation is not working because you have neglected the models, leaders in the organisation want to know why."

Maths to simplify decision making

ThinkTank Maths of Edinburgh, UK, has

an interesting business model for the oil and gas industry - helping people make better decisions using mathematics, explained director Hannu Rajaniemi at the Smart Energy conference.

In the Macondo disaster, lives were lost because people did not understand the information they were being provided quickly enough. If there was a computer tool which would sift through all the information and prioritise the most information to serve to the crew, it is possible that lives could have been saved.

To look at it another way, there is an example of a company which uses advanced maths to help work out which information is most helpful. Most of us use it every day, even though we probably have never thought of it in this way - Google.

There are many aspects of the oil and gas industry where people have to make decisions based on complex data. For example, operating drilling equipment, automating old oilfields, integrated operations, operating subsea vehicles (ROVs), adjusting production strategy, condition based equipment monitoring. Even the decisions about which technologies to use.

ThinkTank Maths specialises in solving all kinds of problems using advanced and creative mathematics, or where the existing mathematics can be improved upon.

It aims to employ only people from the top 2 per cent of university mathematics classes. As well as the oil and gas industry, it has worked in defence, banking and space.

"The idea is that the machine takes some of the burden of thinking about the right option," said Mr Rajaniemi.

New approaches are needed to enable efficient human-machine collaboration.

One problem with many automation systems is that there is too little visibility into what decisions are actually being made by the computer - they are a "black box".

An example, he said, was an unmanned aerial vehicle (UAV), or "drone", which suddenly lost height flying above the sea, creating a lot of concern for the operators.

It was only after the log files were analysed, that operators realised that it was reducing altitude to take a photograph of an object floating on the sea, (a lobster buoy in this case), as it had been programmed to do.

The ThinkTank Maths approach is to find a way to involve the user in the decision making system - the system explains to the user what action it proposes to take and why.

Another common problem with automation systems is when there are multiple alerts going off at once if something goes wrong. Think Tank Maths can build algorithms which aim to understand what is hap-



Complicated: the workflow for Shell's Smart Fields Foundation Mark 1

pening and just present the user with clear advice – for example, evacuation the platform now.

Monitoring ESP pumps

Apache Corporation has installed remote monitoring systems for its chemical injection systems and electrical submersible pumps for North Sea wells.

On the Forties Echo platform, there is a chemical injection system, adding scale and corrosion inhibitor to the wells. The monitoring system can check how much of each chemical is used.

“Chemical injection is often neglected. We have to ask guys what was your injection rate today,” says Clewyn Hughes, Senior Production Technologist, Apache North Sea.

In Aberdeen, Apache has a control room, where people can see the data streams from the offshore equipment, with exactly the same screens as the people offshore.

Apache works with the OSISOFT “PI system,” which gathers and packages data together so it can be farmed out to companies like Schlumberger for further analysis.

For its electrical submersible pumps, the data sent to a Schlumberger continuously operating artificial lift surveillance centre in an undisclosed location.

Schlumberger staff monitor parameters such as voltage of electricity to the pumps and downhole pressure.

Schlumberger staff note if parameters go outside certain limits, and work out what is the probable cause and make recommendations. The pump operator back in Aberdeen receives this information and tries to work out what is actually going wrong.

The operators hear alarms if parameters go outside a certain operating band, with alarms are categorised into “concern”, “urgent” and “critical”. If parameters reach further levels, the pump is set to automatically switch off (‘trip’).

Apache and Schlumberger work together to agree on what the specific boundaries are.

The cost of the pump monitoring service is included as part of the overall package not billed separately. “It is part of the contract we have with Schlumberger – it’s incentivised contract so our goals are completely aligned,” says Mr Hughes.

BP - improving sensor data

BP has a number of initiatives to try to improve the quality of sensor data from its North Sea rigs, said Steve Sawaryn, drilling systems lead with BP, who looks after the drilling collaborative environment in Dyce, Aberdeen.

BP has established quality measures for data to it can assess how good its suppliers are at providing data. The measures include presence (whether the right data is being provided and there is no superfluous data); the frequency of the data, accuracy, if it always comes with the same units (for example if there have problems with data units changing from metres to feet), and the metadata (for example, information about recalibrations). “A lot of this stuff has not been historically well recorded,” he said.

BP has appointed three staff members in its Aberdeen collaborative environment, who have looking at data an important part of their job description.

Sometimes drilling company people do not seem to be aware about how much the data is used by the oil and gas operator, he said.

BP would like rig sensors which are more robust. “Most sensors are replaced due to damage, not obsolescence,” he said.

The mud sensors also use data from the rig sensors, so if the rig sensors are incorrect then the mud sensor data is as well, he said.

There are often errors in hook load data (the total force pulling down on the hook on the drilling rig - including the weight of the drillstring, any equipment on the drill string, reduced by any buoyancy effects of drilling fluids, or friction against the well-bore wall).

BP is keen to ensure that any data aggregation systems are vendor-neutral - ie so they are not limited to only storing data from a specific vendor. “We pre-qualify service providers’ systems,” he said.

The development of WITSML, as a standard system for moving rig data independent of vendor, is helpful. “It is not a [universally adopted] standard but it’s getting close,” he said.

A current objective is trying to reduce the number of gaps in data supplied by vendors.

BP asked one of its engineers to develop a tool called ‘gap agent’, to analyse data streams and try to spot where vendors have filled in gaps.

“We see this as a powerful tool for driving drilling data quality improvement,” he said. “Our gaps have reduced to 50 per cent of what they were. It might be because vendors know that we’re looking and they try harder.”

If you are using software tools to analyse data streams that are very “gappy”, you can have difficulties, he said.

BP is now specifying in contracts the quality of data required and the key performance indicators. “We need automation of measurements and calculations,” he said.

“We regard this approach as best practice.”

“We propose that the identification of gaps be incorporated in WITSML standard,” he said.

There are core streams of information which need to be continually available, and other streams of information which are needed within a few minutes (for example if the drill string starts to get stuck and you need to know what is going wrong), or data which is needed on longer time scales for planning purposes.

Mr Sawaryn’s talk was based on a paper originally published in March 2010.

Classifying intelligent wells

Adrian Slayter, Principal Production Technologist, Senergy, thinks that if the industry developed a standard classification system for intelligent wells, and in particular developed a standard for a “lite” intelligent well, it could encourage more intelligence to be installed downhole.

There might be people who are dissuaded from building a ‘full’ intelligent well because of the cost, but be keener if they could install an intelligent well ‘lite’ which is less complicated, he said.

According to the conventional definition of intelligent wells, there are only 600 intelligent wells completed in the past 10 years, and 80,000 wells drilled every year.

But the standard definition of an intelligent well is one with sophisticated downhole monitoring and sensing. By having a reduced definition of what constitutes an intelligent well, “there’s many more intelligent wells being run than people realise.” Mr Slayter suggests a 5 stage categorisation.

Category 1 is where the well has a downhole valve but no control line to the surface – the valve activates when specific conditions are met, such as pressure or temperature reaching a certain point.

Category 2 intelligent well could be one with control and monitoring valves in the well – for example to control gas lift downhole, or control flow from different production and injection zones.

Category 3 could be where there are valves across the reservoir, with control and monitoring systems.

Category 4 could be a well with more sophisticated switching, down hole systems and a number of different zones.

Category 5 would be where there is specialised monitoring downhole, for example with flowmeters or fluid analysis sensors.

“Every application requires understanding of production management objectives and intelligent well functionality required to achieve them,” he said.

PIDX event: improving your purchasing

The PIDX conference in London on May 19 discussed ways that oil and gas companies can improve and get a better understanding of their purchasing. BP talked about how they are improving master data management

Over the past 4 years, BP has had a project running to standardise supplier data globally, said Andy Walker, master data architect with BP, speaking at the May 2011 PIDX meeting in London.

Roll-out started with the BP Rotterdam refinery in April 2007, followed by BP's Indonesia exploration and production business in later 2007, and its Gulf of Mexico exploration and production business in October 2009.



Master data management is the way to go, says Andy Walker, master data architect with BP

"I believe operational MDM is the way to go," he said.

The system has 47,000 vendors, 61,000 customers, 336,000 materials.

Every supplier needs to have a Dunn and Bradstreet number, otherwise they are not allowed in the system.

"Every new supplier has to go through this process," he said. "We have a simple form for capturing supplier data."

Because the company wants the same data about all of its suppliers worldwide, it is tricky if someone wants to introduce a new attribute to each suppliers' record or take one away.

There are still people asking what the business case is for data management, something Mr Walker says he finds odd. If a major supplier goes bust and you don't understand immediately what it means for the company because your data is poor, that can be very expensive, he said.

In future the system will be developed to include approved vendor lists, and risk ratings.

"You need a long term pragmatic approach – and recognise that it is a long term process," he said.

If the project is unsuccessful in its early stages, it might lose management support and be unable to be completed. "If you fail at the first hurdle you get relegated," he said.

"You're forever walking upstream with master data management – recognise that it is a long term commitment."

"You've got to be trusted. If people don't believe the data is up to date you may as well not bother."

Paul Mayer, a consultant to BP specialising in master data management, worked with the business to validate the data culminating in the consolidation of data over Christmas 2010 where the 3 legacy vendor

databases were combined into a de-duplicated set of vendors records.

There were 9,500 vendor records, all with different attributes.

Mr Mayer combined them all using Excel, ending up with a spreadsheet with 220 columns, with attributes such as VAT number, legal company name, account group, DUNS number. 9500 records became 6200.

Mr Mayer combined them all using Excel, ending up with a spreadsheet with 220 columns, with attributes such as VAT number, legal company name, account group, DUNS number.

The "decay" rate of data was found to be surprisingly rapid. Companies change their details, like; email address, phone numbers and address, frequently. Over a period of 18 months it was found that 35% of the D&B vendor data had changed in some way giving the data a half-life of about 2 years.

The company employs a 'sustain team' in Hungary to keep data up to date.

Standards must apply to describe spare parts too. "We want stainless steel described the same way across BP," he said. "We say to people, what does your data look like now and where does it have to get to."

SparesFinder – 50 per cent growth
sparesFinder, the materials data and spare parts optimisation company, reported revenue increases of 50 per cent during 2010 and is expecting similar growth in 2011, with software and services in use in over 90 countries.

The company's applications, with plugins to SAP, JDE and other ERP systems, are of particular use to oil and gas companies as they are used to clean material data for large, asset intensive companies.

sparesFinder's data management software, "Masterpiece," cleans old data and controls the entry of new catalogue items. For example, if someone enters a new item request in free text into the software, it will search to see if it exists and if it doesn't it will create a new item using corporate rules; in addition Masterpiece starts an automated approvals workflow.

All their applications will also autocorrect frequently made errors and abbreviations, such as "vlave" or "VLV".



The PIDX meeting in London on May 19 covering developments in e-commerce in oil and gas - particularly for improved management of materials going offshore and associated data

Our events calendar 2011- 2012

Developments with unconventional
September 20 2011, London

Exploring in the Arctic
October 11 2011, London

People and the digital oilfield
October 20 2011, Stavanger

Optimal supply chains
October 25, 2011, Aberdeen

Total 3D seismic onshore
November 9, 2011, London

Developments with the digital oilfield
December 1, 2011, London

Can CCS work financially
January 18, 2012, London

New technology for mature fields
Jan 2012, Aberdeen

Improved supply chain management
Feb 2012, Stavanger

South East Asia exploration
February 21, 2012, London

Future of subsurface data
Mar 2012, London

Enhanced oil recovery
Mar 2012, Aberdeen

Developments with seismic
March 21, 2012. London

Do more with production data
Apr 2012, Aberdeen

Central and East Africa opportunities
April 17, 2012, London

improving drilling control systems,
May 2012. Aberdeen

Improving offshore safety
May 22, 2012. London

Business opportunities in Iraq
June 5, 2012, London

Developments with oil and gas
computer based training
Jun 2012. Aberdeen

Emerging deepwater areas
Sep 2012. London

Developments with unconventional
Sep 2012. London

Exploring in the Arctic
Oct 2012. London

People and the digital oilfield
Oct 2012. Stavanger

Developments with purchasing and
optimising supply chains
Oct 2012. Aberdeen

Technology for complex reservoirs
Nov 2012. London

Developments with the digital oilfield
Dec 2012. London

Some of our speakers

Atle Rettedal, Vice President Field Evaluation, **Statoil**

David Latin - Technical Director, **BP**

Andrew Grosse - Exploration and Technical Director, **Sterling Energy**

Steve Horton - CEO **NewDevCo** and ex worldwide Director of Drilling, **BP**

Jim Green - CIO and GM, Technical Computing, **Chevron Energy Technology Company**

Gordon Headley, HR manager, **Tullow Oil**

Sergey Drachev, **ExxonMobil**

Angus McCoss - Exploration Director, **Tullow Oil**

Andrew Lodge - Exploration Director, **Premier Oil**

Wim Walk - manager geophysics measurement technologies, **Shell**

Tony Atherton - General Manager, **Talisman Energy**

Magnus Svensson - IT consultant, **Dong Energy**

Meyer Bengio - VP petroleum engineering, **Schlumberger Information Solutions (SIS)**

Rob Pinchbeck, group director of strategy, **Petrofac**

Jim Farnsworth, COO and president, **Cobalt International** (ex Vice President of World-Wide Exploration and Technology with **BP**)

Bryan Lovell - Senior Researcher, Earth Sciences, **Cambridge University** (ex Chief Sedimentologist and Exploration Manager with **BP**)

Hossam Farid - Global Oil & Gas Industry Lead, **Oracle Corporation**

Roger Taylor - Technical Director, **CGGVeritas**



Our core subjects are seismic technology, digital oilfield, regional exploration opportunities, mature fields technology, carbon capture and storage, unconventional, optimising the supply chain, safety / competence management, subsurface data.

If you are interested in getting involved in any of our planned events or have any other ideas, please get in touch. See our website www.findingpetroleum.com for the most up to date information.



At the PIDX London conference: John Boardman, PIDX Executive Committee Member at Large; Chris Welsh, chairman of PIDX Europe; and Simon Osborne of Implico (UK) Ltd

By creating just one version of the truth, sparesFinder's Masterpiece automatically populates any other software the company is using which needs a catalogue of items which might be purchased.

The company, with its back-offices in India and Indonesia, employs 150 people, with 20 in their UK headquarters. In addition to providing software the company runs management consultancy projects for oil companies, helping them optimise their spare parts.

"For some years we felt we were master data management evangelists and projects used to be one-offs," says head of sales Tom Cave, "but in the last two years we have seen the market mature. Today companies come to us knowing they have a problem, that data cleaning is part of the solution, but the real returns are in long-term data governance, for which our software is optimised."

ProcurEdge – spend visibility

ProcurEdge, a company based in the UK and India, has developed a tool which can help oil companies get a better understanding of their purchasing, even if it has all been made



Rahul Nayar - eBusiness Manager from Cameron, Chris Welsh - outgoing PIDX Europe Chair - Elaine Rothman - consultant

through different purchasing systems around the world, in different languages and different part numbers, explained ProcurEdge's Dhirendra Jawaharani at the London PIDX conference.

The tool can work through a list of items and services purchased, exported from the various different purchasing systems, and create a spend visibility which can be used by the manage-

ment.

ProcurEdge has recently helped an oil major with annual spend of over \$70bn and more than one hundred thousand suppliers across almost every country of the world, with over a 100 different purchasing systems and different languages, and over 10m annual lines of purchases to get a detailed visibility into their spend and drive savings of millions of dollars.

Some people purchase laptops by purchase order sent to a supplier, other companies do it with an online ordering system, others fill out a paper form. They will use their own languages to talk to local suppliers.

The ProcurEdge tool can crunch through spend data from different systems and put it together, and tell you that 300 laptops were purchased in China and 500 in India, even if all of the purchases were made through different systems, using different part numbers.

If the ProcurEdge software comes across an item it doesn't understand, it will search the internet to try to work out what it is. For example, part number V230MT is a

Dell Desktop PC.

"It can see the part is on the Dell website in the desktop section, and using that information it can make out that it is actually a desktop," says ProcurEdge's Dhirendra Jawaharani.

The software can categorise purchases according to any global standard such as UNSPSC ; eClass or a custom taxonomy.

The company can find out how much it spent on specific products and services during the year, how many suppliers it is working with for the same category.

You might be able to identify opportunities to consolidate spend and get more negotiating strength with suppliers. You can track how much of the past purchasing has been within company guidelines, and how much has been made outside broad supplier contracts.

"The tool keeps on learning and the



Helping you get a better understanding of what your company is buying even if it uses lots of different purchasing systems - Dhirendra Jawaharani of ProcureEdge

knowledge keeps on getting better and better," he says.

"It can read information in any language, English, German, French, Chinese, Korean, it doesn't matter."

"We have developed a tool which can take all of this data and categorise it automatically in a few hours. All this data from different countries comes into this system. This is the most complex spend analysis system in the world today."

"Our software is looking at more than 10 million lines and shrinking it."

"Once you have detailed spend visibility you can use it, for your planning, forecasting, category management, creating effective sourcing strategies and driving purchasing compliance."

Companies can typically download all their procurement data into a system and process it about once a month.

<http://www.procureedge.com/>

Drilling non productive time: 34% due to poor software / hardware integration

A survey of drilling companies and oil operators conducted by Athens Group of Houston found that on average, 34% of non productive time on high-specification offshore drilling assets is caused by control systems software and hardware integration related issues

A survey of personnel from drilling and oil operating companies conducted by Athens Group of Houston found that on average 34 per cent of non productive time is caused by control systems software and hardware integration related issues.

This includes delays in drilling because control systems software is not properly addressed or tested prior to asset acceptance; delays when the control systems software does something different to what is expected; and delays which are not initially seen as software-related problems so take longer to fix.

Some ways to fix these problems include using **standardised interfaces** (to facilitate integration testing); **planning for software testing earlier** on during construction, so problems can be ironed out earlier, and before the rig is in operation; and training staff to **recognise when they are actually facing a software problem**.

Of these, equipment interface standard-



Helping companies work out when their non productive time is caused by software problems - Bill O'Grady, VP Engineering, Athens Group

isation is perhaps most important, as drilling companies are continually increasing the amount of automation systems; drilling sys-

tems can have software systems from over 10 different vendors on one rig. "Equipment interfaces are the weakest link in terms of reliability and safety," said Athens Group.

In the survey, Athens Group asked how much progress is being made on these issues.

40 per cent of drilling contractors and 56 per cent of operators thought that, during 2010, the industry **had not made any progress in the area of collaboration on standardising equipment interfaces**.

Although when asked if they thought if the industry had made some progress on collaborating in the area of **earlier implementation of software in the newbuild cycle**, 82 per cent of operators and 50 per cent of drilling contractors said the industry had made progress.

41 per cent of respondents said that, over the last year, the industry made no progress in collaborating in the area of training staff how to recognise when **software problems are the root cause of an equipment failure**.

Software, as a root cause of failure, is probably under-reported, said Mr. Bill O'Grady, VP of engineering at Athens Group.

Athens Group suggests that companies could employ experts dedicated to software reliability, who would figure out if reported problems are actually due to software, and how they can be fixed.

Here are three potential scenarios in which starting software risk mitigation early in the asset lifecycle can enable early issue resolution, resulting in a higher-quality asset at a lower total cost:

- A well head probe is only connected to one of two pods;
- Control pods on a blow out protector are not given hyperbaric testing after the factory acceptance testing (FAT);
- The pit screen indicates that one of the mud pumps is running when it isn't.

Opportunities to reduce NPT

Respondents were asked to select the top four opportunities for the industry to collaborate on control systems software related schedule delay and non productive time reduction, choosing from a list of potential op-

portunities.

The top response was "**standardisation of equipment interfaces**" - 60 per cent of Drilling Contractors and 88 per cent of Operators indicated that this was one of the top four opportunities for industry collaboration.

The second highest was "**industry wide adoption of software quality processes**" - 73 per cent of Drilling Contractors and 56 per cent of Operators indicated that this was one of the top four opportunities for industry collaboration.

"**Implementing an industry wide NPT calculation method**" was the third highest response with 66 per cent of Drilling Contractors and 56 per cent of Operators indicating that this was one of the top four opportunities for industry collaboration.

"**Earlier implementation of software in the newbuild cycle**" was the fourth highest response - 53 per cent of Drilling Contractors and 61 per cent of Operators indicated that this was one of the top four opportunities for industry collaboration.

When asked if there was good progress being made in the area of **industry collaboration on the adoption and oversight of software quality processes**, only 13 per cent of drilling contractors and 5 per cent of operators said there had been.

Most of the hardware on a rig is controlled by software. If the hardware does something right it is because software told it to; if it does something wrong it is because software told it to, says Mr. O'Grady.

In future, "more and more of the rig will be under the control of the software - not less," he says.

Improving drilling efficiency and accessing tougher reservoirs will mean even more automation and equipment integration.

Earlier in the newbuild cycle

One way to reduce software problems is to start looking at software earlier on in the process of building a drilling rig.

Typically, when constructing a drilling asset, the software development and hardware development (construction of the rig) take place separately. The work only comes

together right at the end, Mr O'Grady says.

Athens Group is promoting a methodology it calls "Concept of Operations" or "ConOps," to help rig owners work together with drill rig construction companies, to get software issues taken into consideration earlier on in the process.

In the ConOps process, the end user defines early on in the construction process exactly what they want the software to do, what the user interface will look like, what equipment the software will control, the scenarios where it will be controlled, how it will work, and how thoroughly it will be tested.

The end user can determine (for example) that the "acceptance test" for the software will be done by one of the company's own drilling personnel on the live equipment – or say that the test can be done on a simulator with exactly the same functions and responses as the live simulator.

The end user can specify that an "Operational Failure Modes, Effects and Criticality Analysis (FMECA)" be conducted following the design.

During the FMECA process, the software designers try to work out in which circumstances the software might fail.

During an "Operational FMECA," real drill rig crew (who will ultimately work

on the rig) consider potential failure modes together with the designers.

ConOps "allows the software designer to do his work being very confident that the end result will be what the end user really wants," Mr O'Grady says.

As a consultant, Athens Group can help drill rig owners put together a ConOps document together with the construction company, and make sure it is followed.

Drilling software expertise

One reason the industry has a lot of problems with drilling software is that there are still very few drilling software experts working for drilling contractors and operators, Mr O'Grady says.

The oil and gas industry still has far more experts in hardware than it does in software.

"In the areas of acquiring and putting into operations and maintaining a rig, there is a problem with the number of people and the expertise of people dealing with software," he says.

"But when we look at the vendor community, we see very good people writing software. We are seeing a significantly large increased attention to software over the past year coming from the vendors. They are ex-

posing the importance of the process and showing how seriously they are taking it," he says.

NPT standard

Athens Group suggests that the oil and gas industry should agree on standard ways to calculate non productive time.

This should make it easier to compare one operation with another, and understand what exactly is causing the non productive time and how much it is costing.

Every respondent to Athens Group's 2008 survey reported using the day rate when calculating the cost of non productive time; this question was not repeated in the 2010 survey.

81 per cent of respondents to the 2010 survey count the **time taken to replace failed equipment** as part of the total costs of non productive time. But only 59 per cent of respondents include the **actual costs of the equipment** in the calculation.

69 per cent of respondents to Athens Group's 2008 survey included **sail date delays** in their calculation of NPT.

Athens Group is interested in setting up an industry task force to standardise definitions of NPT.

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Making digital oilfield work

With digital oilfield, you can either just install some software and hope people use it, or you can take advantage of the growing body of industry knowledge to make it work. Dutch Holland explains



Dutch Holland

The key factor in gaining maximum business value from digital oilfield (DOF) technology is not the software's power but the way the entire organization is configured and led.

Today's organizations have a choice. Continuing a pattern of trial and error until DOF initiatives finally lead to business value, or taking what is known about implementing technologies and putting that knowledge to work now.

Companies already initiating DOF projects are quickly learning there is much more work to do than the technical implementation of DOF Apps.

People are identifying the need to focus on what can be called the Business Value Architecture (BVA) for DOF – or in other words, making sure it actually works.

Strategic architecture

The strategic business architecture includes the company's DOF vision and strategic goals, measures and incentives, which should explicitly reflect the company's intention of adopting Digital Technology for improved business results.

You need executive commitment to DOF, shown by investment in DOF architecture and by willingness to use pro forma results.

Work process architecture

The work process architecture includes the matrix of technical and business work processes needed to achieve DOF strategic goals.

A comprehensive map of core process needs to be in place, showing the “value-added,” “management,” and “enabling” work processes. Integrated goals with metrics must be used across work processes.

Aligned structure, roles, KPIs and incentives must be in place and in use around integrated goals and work processes.

A proven method for targeting and developing business improvement opportunities (BIOs) and requirements must be in place.

A Robust Business Readiness imple-

mentation method (for processes, technology and people) including comprehensive risk management must be in place.

Technical process architecture

The technical process architecture includes the processes inside the IT or R&D organization to manage the digital resources required to enable work processes and enterprise optimization.

You need a **Business Needs Discernment** that accurately comprehends the range of operational transactions and decisions that could be made by the business;

A **Technology Architecture Design** that optimizes the company's technical capability to support all types of work processes needed by the business to meet its goals

A **Technology Acquisition** that both drives vendor innovation and secures needed technologies to support architecture design

A **Systems Readiness** process in place that can produce apps and systems that meet Business Improvement Opportunity requirements

A **Proven and secure implementation Process** that does not put operations at risk during technology implementation and test.

Executive management

Executive management must take a stronger role in implementing DOF technology than they take in implementing other technical innovations.

Since DOF sounds like and looks like IT, top management must be aware of extra obstacles associated with IT, namely the assumptions that IT projects will automatically implement themselves or that the organization's technical side will handle implementation for operations.

Executive management must not leave the impression that applying DOF technology is optional. Executive management must assess the value of DOF to their business and then make DOF implementation a priority.

Executive management must support DOF exploitation with real investment in time and resources as well as by providing direct incentives to employees who gain business.

Operations management

Operations managers cannot wait for DOF to come to them. They must take the initia-

tive to use emerging DOF technology for business value, just as they currently take advantage of drilling and production technology and innovations.

Operations managers must become masters of their own workflows and process architectures, and know where business value leverage points are.

Operations managers must take charge of any and all performance improvements to be made in their organization's work processes, not hand off a business improvement opportunity to the technical organization or a technical vendor.

Operations managers must be able to pinpoint performance requirements for their processes, not just respond to a requirements survey from the technical departments nor attempt to specify the exact technology needed to meet needs.

Technical managers

Technical management must see themselves in the business of enabling operational work processes to achieve business value, which is different from being in the “IT” business.

Technical management will need to be able to field a team of qualified players who can pass the credibility test that will always be given by the operational people.

Technical management must position their best and brightest people in the interface between technical and operational management.

Technical management must know operational processes like the backs of their hands.

Technical management must be able to select DOF vendors who have the right stuff to play in the three-way DOF game that will be comprised of operations, technical management and lead vendor.

DOF vendors

DOF vendors must be able to interface both with the technical part of their client's organization as well as with the client's operational organization.

Vendors must be able to field a team of “qualified players” who can pass the credibility test that will always be given by the client's operational people.

Vendors must have first-hand knowledge of a client's operational processes to be able to validate requirements being served up by the client's technical organization.

DOF vendors must support their clients all the way to the bank. Providing technical and advisory services until their clients realize business value from DOF technology.

Vendors must know client work process architectures and not count on just responding to requirements statements from the client's technical organization.

Vendors must be able to help their clients in both preparing technical systems for the client organizations as well as in "preparing the client organization for use of the technical system.

DOF technical professionals

Technical Professionals must see the potential business value of the digital oilfield and

work for it, not against it.

Technical Professionals, whether members of upstream organizations or of technical vendor organizations, must understand and be competent in BVA as well as their own technical specialty.

DOF Pros must be mindful that science with business in mind is not science, while Engineering without business in mind is not engineering.

If DOF technical professionals cannot make money for their company through their technical disciplines, they are not masters of their disciplines.

Today's upstream pros can no longer focus on only their technical specialties and functions, but must be able to understand and

act in business processes that translate technology into business value.

DOF professionals who are only technical will be seen as one-trick ponies who will be on the bench and not in the game.

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This is the last article in a six-part series defining and exploring the ways an upstream organization would need to be re-configured to fully adopt the use of digital technology to maximize business value.

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Better software for oil & gas contractors

Swedish software giant IFS has a mission to help oil and gas contractors use better software

Many oil and gas contractors are still struggling with engineering, fabrication, materials management and procurement packages which don't integrate, says Carl-Magnus Adamsson, director of IFS' new oil and gas centre of excellence in Stavanger.

This creates many problems – for example, every time there are changes to the engineering data, the procurement systems are not automatically updated. Changes are made manually, which means that records are not kept of exactly what was changed.

Many oil and gas contractors are also trying to work with ERP (enterprise resource planning) which was originally designed for other industries, such as the automotive industry, he says.

The oil and gas software have very special demands of its software, which software designed for the automotive industry might not be so good at, such as being able to keep track of all the changes which are made to projects along the way, and who made them, he says.

Also, the oil and gas software needs to be able to manage documents for small modules on a rig, or the entire rig. It needs to be able to support contract management and subcontract management.

Many oil and gas contractors are still using tools they built themselves 15 years ago. "Now those packages are getting old, they are not user friendly, and there's a lack of integration between user applications," he

says.

"We can replace their own developed applications with more standard industry applications."

There is increasing trend of oil and gas companies making demands on their contractors for how the information will be transferred to them at the end of the project, as it goes from the construction phase to the operation phase, and they need more sophisticated software tools to provide that, he says.

By using better software, such as the tools developed by IFS, you can keep the projects under much better control, Mr Adamsson believes.

About IFS

IFS is targeting oil and gas engineering, procurement, construction (EPC) contractors of an over \$100m size.

Its existing oil and gas customers include Technip, one of the largest oil and gas contractors in the world; Heerema Fabrication Group, a Dutch company which does rig newbuilds/modifications; and Seadrill, a big drilling operator, uses it for maintenance of drilling rigs.

Customers include Hertel, Grenland Group, Babcock Engineering Services, Heerema Fabrication Group, Yantai Raffles, Archer, Apply Sørco, Reinertsen Engineering, APL, Bergen Group Rosenberg, BWO Offshore, STX Europe, and Hamworthy Gas

Systems. IFS has been working in the Norwegian oil and gas industry for 15 years.

Its systems are used for engineering, assets, rigs and power plants, from contract phase to operations.

IFS has nearly 3,000 employees. The company has 2,000 customers and is present in more than 50 countries. Net revenue in 2010 was SKr 2.6 billion (\$406m).

IFS specialises in enterprise resource planning (ERP) systems for project management, specially engineering, procurement, construction and installation (EPCI) contractors.

The software can be used to manage "traditional" ERP services, such as financials and logistics, and also support for projects and contracts.

It can do engineering project updates and information handovers.

It has tools for contract and project management, risk management, budgeting and forecasting, engineering, material management, fabrication, document management, service and asset management, all integrated with financials and human resources.

IFS has set up a "centre of excellence" at its existing offices in Stavanger, to gather and provide expertise on the best way to serve the oil and gas industry globally, headed by Carl-Magnus Adamsson, previously sales manager maritime industries at

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Asset Guardian helps manage software

UK company Asset Guardian has developed a software tool which help help you manage your control software - so you don't need to worry about losing the CDs

Asset Guardian Solutions Limited has developed a software based service to help the oil and gas industry manage the software which runs automated process control systems, such as programmable logic controllers (PLCs), distributed control systems (DCS) and HMI (human machine interface)/SCADA software.

Control and automation software is usually held on CDs, providing a backup in



"Many companies barely think about the software for their process automation systems until something goes wrong" - Peter Beales, business development manager of Asset Guardian

the event that the software needs to be reinstalled. With Asset Guardian, the data from these discs can be uploaded to a central place, making it easier to locate the right software immediately rather than sorting through CDs which may be poorly labelled, damaged or lost.

Asset Guardian manages, stores and tracks changes to a systems software configuration files, as well as recording which software has been installed and where, allowing for compliance with important software related regulations, such as IEC 61508, 61511.

"Many companies barely think about the software for their process automation systems until something goes wrong and they need to find the right version and reinstall the software from the CDs, often kept in unlocked drawers or workshop filing cabinets," says Peter Beales, business development manager at Asset Guardian Solutions.

"These CDs can be corrupted, misplaced or lost and that is a company's entire process software for that system completely gone, with the potential to cause a huge amount of problems which aren't always easy to rectify.

"People see all the physical elements of a plant but they can't see the software on it. They know what software does but because they can't physically touch it, it's then overlooked.

"A company's process software is their hidden asset and not always recognised for

its importance and vulnerability. This is where Asset Guardian steps in."

By managing software and business critical information through a central platform, customers can help to minimise any system downtime incurred by software failure.

"Despite most companies making big advances in the management and rigour applied to their IT systems, the same hasn't been the case with managing their process control system's software, which is typically in the domain of control and automation experts rather than IT experts," he says.

Current customers include BP Angola for their floating production storage and off-loading units (FPSOs), BP Caspian operations (onshore and offshore), Technip (16 subsea pipe laying vessels), Scottish Power (all 12 UK generation plants), AMEC NNC (nuclear services business), British Energy (Torness Nuclear Power Station) and Scottish and Southern Energy (Peterhead Power Station).

One of the reasons a system like this is so important is because most companies use automation supplied by a range of different companies.

"If you think of the tens of thousands of plants worldwide which have evolved over the last 40-50 years, and the infinite range of control systems installed on these by an immense number of manufacturers, some of which have disappeared, this provides some indication of the scale of the task facing plant owners and operators," Mr Beales says.

What it does

In more detail, Asset Guardian stores all of process critical software files, associated documentation and license information. It effectively maintains an up-to-date list of all the software you have and which equipment each piece of software is for, along with your hardware configuration.

A list of all the software upgrades carried out is also recorded. When a software change occurs, all of the people who need to authorise changes will be emailed for their approval, keeping everybody in-the-know. Clients are able to produce reports and manage logs of software faults so they can compare one piece of software to another, allowing for informed decision making.

The system can run on a standalone server; for example, on a vessel or hosted on a corporate intranet. Alternatively, this can be a mixture - a standalone server on a vessel which is connected to a corporate intranet and synchronises overnight. Asset Guardian is currently developing a cloud system which they would host.

Technip

Technip uses Asset Guardian's service to manage control and automation software on its 16 subsea division vessels which are used for underwater pipelay, subsea construction and diving services.

The vessels have a number of PLCs and also software to manage a range of engineering processes and equipment. It has been used both as a support tool when implementing a project and during ongoing operations.

"A central configuration management and database system is key to maintaining accuracy of information in our offshore work environment", says a Technip spokesperson.

"Asset Guardian meets our needs by enabling information to be updated simultaneously, both offshore and onshore, giving us real-time visibility of the data. It also complies with IEC standards 61508 and 61511.

"Controls engineering is not a discipline that you can simply manage. It's something you need knowledge of. You need to own it, but you also need to really understand it."

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"What do you mean, you can't find the software that runs the entire plant?"

Managing “lookaheads” – online tool

Wellsite Data Solutions has developed an online tool which can be used to manage “look-aheads” – co-ordinating drilling plans between operators, drilling companies, service companies and regulators

Wellsite Data Solutions has released an online tool which facilitates co-ordination of wellsite operations and logistics among different engineers and companies who are involved, such as operators, drilling contractors, service companies, consultants and regulators.

Currently, plans for drilling or workover activities are e-mailed on a daily or weekly basis using Excel spreadsheets (often converted to pdf) to all the relevant parties.

Company founder Matt Longthorpe, a wellsite engineer, started the company because he believes that online tools can help co-ordinate well operations much better than e-mailing spreadsheets.

If everyone is working with the latest data online, then there is no chance of problems due to someone using an out of date spreadsheet.

The tool also has specialist functionality to make planning easier, so it can do much more than an online spreadsheet (such as the Google Docs spreadsheet) can do.

“Having worked closely with company men and drilling managers over my 10-year

career, I have seen firsthand the sort of problems and issues that are encountered with respect to handling excel formulas, sending / receiving numerous email updates, as well as arranging personnel, equipment, boats and helicopters,” says Mr Longthorpe.

“Take logistics for example, deck space and bed space is very limited for offshore operations, so it is essential to ensure everything is planned correctly.”

“As we all know, wellsite activities never go according to plan. By simply keeping the lookahead up-to-date via the web, operators can easily plan, disseminate and update wellsite activities through the internet, and everyone who is involved will always be able to stay informed with the most recent schedule,” he says.

Functionality

Using this online tool, the planned operations can be viewed in various ways.

You can read through a list of tasks which are about to be done on a specific rig, and how long each task is expected to take.

You can also check the list of planned operations along with logistics schedule

shown in an interactive calendar which offers a better overview on a daily / 5 days / 2 weeks / monthly basis.

Managers or engineers involved in numerous wellsite or rig operations can have a quick overview on all the activities currently going on.

The operator can give limited access to other companies. For example, users from a service company can read only the current and future operational plan, which means they have no rights to edit any data and no access to any historical data.

The software can automatically suggest well names or operations descriptions to the user

It allows users to drag and drop a row (i.e. activity) to anywhere in the data grid.

You can manage user accounts, well information, as well as user permissions.

The system can be priced by the month (with unlimited users), with a price varying with number of rigs under consideration. It can also be made available for outright purchase.

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WELLSITE DATA SOLUTIONS Tool Suite		Lookahead - Ensco 87					Last Modified: 08-Aug-2011 at 09:14 (wellsite time)
Current Operations Calendar	Start Time (wellsite time)	Well Name	Operations Description	Predicted Hours	Unplanned	Comments	
	09-Aug-2011 03:00	SD02	Rig up circulate and cement casing	4.0			
Ensco 87	09-Aug-2011 07:00	SD02	Nipple up BOP	3.0			
Rig 02	09-Aug-2011 10:00	SD02	Full BOP Test & set wear bushing	7.0			
	09-Aug-2011 17:00	SD02	Nipple up Bell Nipple & flow line.	2.0			
	09-Aug-2011 19:00	SD02	M/U 12-1/4" BHA, RIH to TOC, Displace to SBM-Perform choke drill	3.0			
	09-Aug-2011 22:00	SD02	Drill out shoe track & 10ft of formation	2.0			
	10-Aug-2011 00:00	SD02	Perform LOT	1.0			
	10-Aug-2011 01:00	SD02	Drill 12 1/4" hole to section TD, 3000' MD 2702' TVD	22.0			
	10-Aug-2011 23:00	SD02	Pump out of hole to 1128', POOH & lay down BHA	6.0			
	11-Aug-2011 05:00	SD02	Rig up and carry out PEX, AIT, CAL log	7.0		WLD: 3150'	
	11-Aug-2011 12:00	SD02	12 1/4" Wiper trip to TD @ 3325'	8.0			
	11-Aug-2011 20:00	SD02	Pull wear bushing and rig up to run casing	2.0			
	11-Aug-2011 22:00	SD02	Run and land 9 5/8" casing	8.0			
	12-Aug-2011 06:00	SD02	Circulate and cement 9 5/8" casing	5.0			
	12-Aug-2011 11:00	SD02	Make up 8 1/2" BHA, RIH to TOC	6.0			
	12-Aug-2011 17:00	SD02	Hold choke drill and service TDS and rig	1.0			
	12-Aug-2011 18:00	SD02	Wait on cement	7.0			
	13-Aug-2011 01:00	SD02	Drill out cement & 10' of formation	2.0			
	13-Aug-2011 03:00	SD02	Perform LOT	1.0			
	13-Aug-2011 04:00	SD02	Drill to section TD 8258' MD 6896' TVD	50.0			
	15-Aug-2011 06:00	SD02	Circulate & condition mud	4.0			
	15-Aug-2011 10:00	SD02	POOH	7.0			
	15-Aug-2011 17:00	SD02	Rig up Schlumberger Wire line and logging	30.0			
	16-Aug-2011 23:00	SD02	Perform wiper trip Circulate & condition mud	12.0			

Wellsite Data Solutions online tool - co-ordinate all the drilling activities between everybody involved

Bibby says software helped safety

Aberdeen offshore support company Bibby Offshore says that it has managed to improve health and safety, environmental and quality certification, as a result of using the "Agility" software from Business Port

Aberdeen offshore support company Bibby Offshore says that it has managed to improve health and safety, environmental and quality certification, as a result of using the "Agility" software from Aberdeen software company Business Port.

As a result of implementing the software, Bibby Offshore expected "improved process management across the business as well as having an auditable management system that would allow us to achieve the objective of integrated occupational health and safety, environmental and quality certification," says Lauren Paterson, senior assurance / environmental co-ordinator with Bibby Offshore.

"We're happy to say that this has been achieved."

"It is important that Bibby Offshore can clearly demonstrate to existing and potential clients, as well as the third party certification company, that we have the processes in place to manage and control our operations effectively," she says.

"Additionally, in having a documented management system in place, Bibby Offshore can more easily identify areas for improvement."

Bibby originally adopted the software as a framework for developing its management system documentation, for its ISO 9001, ISO 14001 and OHSAS 18001 certification, she says.

Bibby Offshore provides services related to subsea construction, IRM (inspection, repair and maintenance), offshore operations support and maintenance support. It is now using the software in all of its divisions, including Bibby Diving Services and Bibby Project personnel.

The software can be used to manage

health and safety processes, environmental performance and quality.

It can be used to put together manuals, management documents and news, which can be available to all employees, and track company performance with key performance indicators.

Employees in the office can access the system via Microsoft SharePoint; employees onboard ship receive the latest documentation regularly by CD-ROM.

Business Port

Companies are becoming more proactive in their use of safety management systems, says Peter Shields, managing director of Business Port.

"Typically companies used to take notice [of their management systems] only when an incident occurred for example, non-compliance, poor audit reports, project losses or sloppy service," he says.

"However, we have recently seen a change in attitude. Many companies are now focused on providing a best in class management system to ensure that they are one step ahead of the competition by having all their processes in place."

When designing the software, Business Port aimed to create a tool which would help people make the right decisions according to company processes, he says.

The software does not aim to make people's decisions for them, because the majority of oil and gas decisions are highly complex and can only be made by people, he says. But the software can help them by making it easy to access information about relevant company procedures.

"Our main aim is to reflect responsibilities in a way that is easy to understand,

within a system that is easy to navigate and one that connects staff to all the supporting information that they need in order to perform their work in a safe and efficient manner," he says.

"When looking at the interactions, collaborations and participants within a process we are able to pinpoint and ensure that the right people get the right information at the right time.

Business Port spends a lot of time with its customers determining the best way to implement a system before it starts actually implementing it, he says.

"Our business analysts can quickly identify the core and supporting processes and this is key to determining the size and scope of a project. This can help to provide an accurate assessment of the amount of work needed to be done and importantly, gives an overview of project costs."

"Many companies have one system or even a number of systems for document management and process management. What makes Agility different is that we provide a single integrated approach to business process, risk and compliance."

The company's software is used in the defence, utilities and finance sectors, as well as oil and gas.

The software can be used by people in all levels of the company, and so acts as a means to bring everyone together.

"We have used a recognisable Windows Explorer style interface so that users can access menus with ease and efficiency.

"We have created a 'my profile' section so that users have access to everything they need from one place and we interface with portal technologies such as Share-Point."

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Finding Petroleum runs a range of events, many free to attend, in London, Aberdeen and Stavanger, covering seismic technology, digital oilfield, optimising the supply chain, unconventional, mature fields technology, exploration around the world, carbon capture, offshore safety and subsurface data. For further information and to register see

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Founded in 2000, **OFS Portal** is an organization which consists of diverse supplier members who are committed to promoting eCommerce and reducing cost. We have a non-profit objective to ensure we promote the best approaches for the industry. In addition to advocating strong protection for the security and confidentiality of electronic data, **OFS Portal** has gained the trust and confidence of the entire upstream oil and gas industry. We do this through our proactive advocacy approach toward best practices to reduce costs and complexity while increasing the speed of adoption.

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