

THE MAGAZINE FOR THE UK OFFSHORE OIL AND GAS INDUSTRY

WIRELINE

ISSUE 36 - SUMMER 2016

GET AHEAD OF THE CURVE

Technology's role in
maximising economic
recovery *p28 to 37*

ON TRACK *p17*

Collaboration Index reveals
operators are working more
co-operatively with their suppliers

ALDER AND WISER *p20*

Breaking down silos for efficient
delivery of the Alder project

VIEWS FROM HOLYROOD *p25*

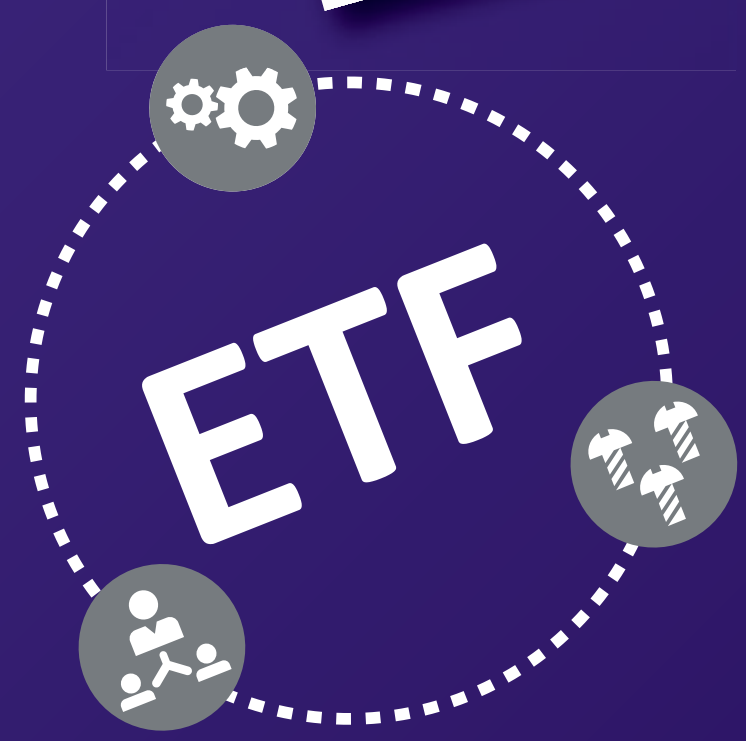
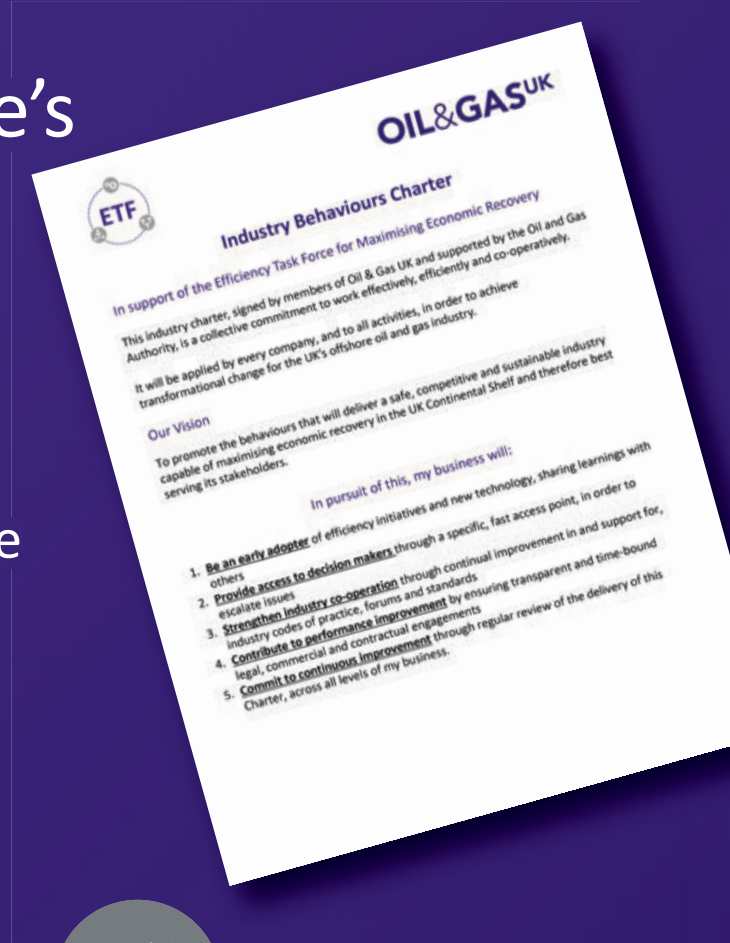
Catching up with the new
Scottish Energy Minister
Paul Wheelhouse MSP

Show your support for the Efficiency Task Force's Industry Behaviours Charter

The industry charter is a collective commitment to work effectively, efficiently and co-operatively

Add your company to the growing list of businesses that are dedicated to making the changes required to improve the competitiveness of the UK Continental Shelf

Sign up today
oilandgasuk.co.uk/charter



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6.7

out of a possible 10

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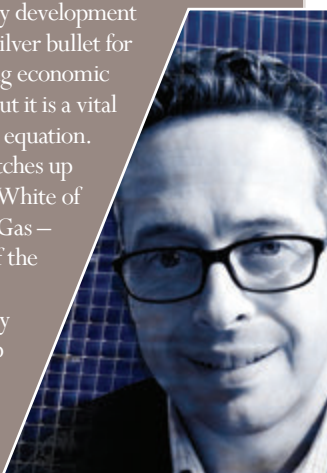
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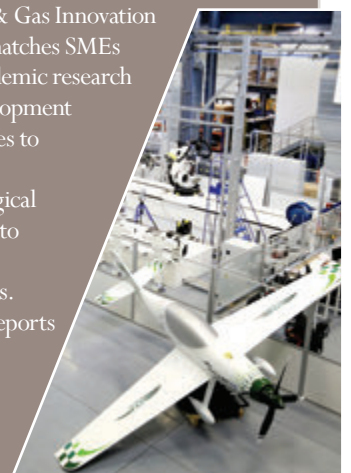
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To not evolve will leave us merely passive bystanders to events as they unfold. As your trade association, we feel strongly that standing still and simply weathering the current storm is not an option.

With this in mind, we continue to work with industry to help shape a more efficient and co-operative approach to doing competitive business.

We also recognise that as an organisation we need to be agile and willing to adapt. Our role is to stand with you as we navigate together through the good and difficult times and take the lead, when necessary, to champion the issues that

are important to your business, and industry as a whole, to governments, regulators and all other stakeholders.

We have reviewed our business model and have restructured and repositioned ourselves so that our teams and associated member work groups, networks and forums are better focused and placed to tackle the industry's priorities and promote members' interests. We listened to our members and have acted accordingly. You can find out more about these changes in this issue (p10).

We also continue to have the backing of a strong Board of industry leaders that represent the breadth of companies across the sector. I'd like to take this opportunity to thank our outgoing chairmen John Pearson and Trevor Garlick and welcome our new co-chairs and vice co-chairs (p12).

They and all those featured in this edition

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TASK FORCE –
COLLABORATION
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of Wireline have a passion for the sector that translates into a proactive pursuit to secure the industry's future safely and effectively.

Wherever we work in the industry, offshore and onshore, we all need to come up with better and smarter ways of working, while supporting those negatively impacted by this downturn. It's not easy but nothing worth having is.

Deirdre Michie,
Chief Executive,
Oil & Gas UK

Wireline is published by Oil & Gas UK, the voice of the UK oil and gas industry.

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Cover image
Additive layer manufacturing (3D printing) in metals. This is one of the capabilities on offer at the High Value Manufacturing (HVM) Catapult, which is collaborating with the Oil & Gas Innovation Centre in Aberdeen. Image courtesy of the HVM Catapult.

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1. NORWEGIAN HELICOPTER ACCIDENT

On Friday 29 April, 13 offshore workers tragically lost their lives in an accident involving an EC225LP helicopter in the Norwegian North Sea. The UK and Norwegian Civil Aviation Authorities responded by prohibiting use of the Airbus EC225LP helicopter for commercial flights. At the time of going to press (7 June), this prohibition had also been extended to the AS332L2 Super Puma helicopter due to the similarities between the two types of helicopters and extended to search and rescue operations. Oil & Gas UK supports this position.

Mick Borwell, Oil & Gas UK's health, safety and environment policy director, says: "Oil & Gas UK is working closely with the helicopter operators, the Civil Aviation Authority and the industry to fully understand the circumstances of this tragedy. We have set up a helicopter resilience group to discuss how logistics are being managed and we will do all we can to help our members safely transfer the workforce on and offshore. We welcome the work of helicopter operators to bring additional airframes into the UK and train pilots on alternative types in order to increase capacity."

Oil & Gas UK and Step Change in Safety have postponed the joint Offshore Safety Awards until 17 August. Mick adds: "Our immediate priority is to continue to monitor developments in Norway and their impact on the UK Continental Shelf, and to make sure our attention is firmly focused on and maintaining safe flight operations here."

FOR MORE INFORMATION



For the latest details in response to this accident, visit www.aibn.no, www.caa.co.uk and www.stepchangeinsafety.net.



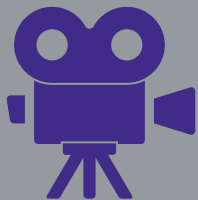
2. ENERGY BILL RECEIVES ROYAL ASSENT

The Energy Bill has received Royal Assent, allowing for powers to formally transfer from the Department of Energy & Climate Change to the Oil and Gas Authority (OGA). The OGA will now formally become an independent regulator, as recommended by the Wood Review. There will be a period of parliamentary scrutiny of the statutory instruments before the regulator is fully bestowed with its new powers, which include access to external meetings, data acquisition and retention, dispute resolution and the ability to levy sanctions.

Oil & Gas UK will continue to work closely with the OGA on matters of common interest to support the delivery of MER UK (maximising economic recovery from the UK Continental Shelf). The association will also represent the industry collectively on each of the OGA's MER UK Boards on exploration, asset stewardship, regional development and infrastructure, cost and efficiency, technology, decommissioning, and supply chain, exports and skills, and will regularly report back to members on progress.

3.

Over 70 terabytes of seismic data are available, equivalent to over 15,000 full length movies



Over 60 separate data packages are available under an open licence

Over 6,000 downloads of the smaller data packages (less than 20 gigabytes in size) so far



Individuals and companies from 18 countries have requested the seismic data

3. CDA RELEASES GOVERNMENT-FUNDED SEISMIC DATA

Data from the government-funded seismic surveys of the Rockall Trough and Mid North Sea High regions are available through Common Data Access Limited's (CDA) online repository, UKOilandGasData.com. The release of the information, which includes the main geophysical datasets, the relevant well datasets and supporting documentation, will improve the quantity and quality of subsurface data available for these frontier areas.

Daniel Brown, CDA project manager, says: "The Oil and Gas Authority's decision to make modern broadband 2D seismic data available without a licence fee or any restriction on usage is believed to be a first for the industry and has resulted in an extremely high level of interest from individuals and companies worldwide."

Access the data at www.ukoilandgasdata.com.

4. COLLABORATION ON THE INCREASE

Oil & Gas UK and Deloitte have published the results of a joint survey that indicate that offshore operators are becoming more collaborative when dealing with the wider supply chain.

The *Operator Collaboration Index* score moved from 5.9 to 6.7 out of a possible 10 between summer 2015 and March 2016. The score is based on almost 400 pieces of feedback on all the major North Sea operators from their suppliers.

See p17 of this issue for an article on the findings of the Collaboration Index and how well the industry is progressing against the principles of the Efficiency Task Force's Industry Behaviours Charter.

Sign up to the Industry Behaviours Charter at www.oilandgasuk.co.uk/charter.



Over 30 companies have signed up to the *Industry Behaviours Charter* to date

5. NEW ANIMATION CHARTS PROGRESS IN IMPROVING EFFICIENCY

Oil & Gas UK has commissioned an animation to illustrate the industry's journey to improve efficiency. Beginning with a brief insight into the current state of the sector, the film takes the viewer through the three key themes of the Efficiency Task Force – Business Process; Standardisation; and Co-operation, Culture and Behaviours. Oil & Gas UK encourages its members to share the short film on social media so it can reach as wide an audience as possible.

Watch and download the animation at www.oilandgasuk.co.uk/cost-efficiency. For more information, contact efficiency@oilandgasuk.co.uk.



6. TRANSFERRING KNOWLEDGE THROUGH THE RAPID EFFICIENCY EXCHANGE

More than 20 new case studies showcasing how companies are working smarter, innovatively and co-operatively have been posted so far this year on the Rapid Efficiency Exchange – a portal for knowledge sharing across the industry developed by the Efficiency Task Force. The stories include:

- How Maersk Oil adapted an inspection technique for scanning flexible hoses, which is forecast to save costs by more than 80 per cent over the next five years.
- How Performance Improvement People used behavioural diagnostic tools to improve communication and reduce duplication of work within a project team dedicated to extending the life of a major North Sea asset.
- How Wood Group deployed a remotely operated aerial vehicle to inspect a derrick during well plugging and abandonment, avoiding an estimated three-week shutdown and saving over £1.5 million.
- How Perenco applied pipe-in-pipe technology to reinstate mothballed pipelines in six months, less than half the usual time, and at a lower cost (£2.2 million) than conventional methods.
- How the Clair joint venture team completed a turnaround in 58 days instead of 108, adding around one million barrels of oil equivalent to the field's production.

Get involved at <http://portal.oilandgasuk.co.uk>.



7. MASTER DEED MARKS 13 YEARS

Master Deed, a core component of the industry's legal framework to streamline asset transfers, celebrates its 13th birthday this year with a total of 1,250 transfers processed through the system to date. It is just one of a number of pan-industry tools managed by Oil & Gas UK's subsidiary LOGIC (Leading Oil & Gas Industry Competitiveness).

As part of a drive for continuous improvement, from 1 January 2016, Master Deed users must now attend a training course to qualify as the transaction leader. Nearly 40 industry professionals have completed the course so far.

Find out more about Master Deed at www.logic-oil.com/master-deed.



Image © Stock.com/shipechunge



Speakers gave short presentations on maintenance and repair and then took questions from the audience at the Share Fair Spotlight event

8. IDENTIFYING SOLUTIONS IN MAINTENANCE AND REPAIR

Nearly 100 delegates attended Oil & Gas UK's first Share Fair Spotlight event on 27 April in Aberdeen, where companies share problems they have with inefficiency in specific areas and encourage the supply chain to step forward with potential solutions.

This first event focused on maintenance and repair and showed how companies can optimise operational performance cost-effectively and safely and increase the up-time of offshore production facilities. Similar events in the coming months will target decommissioning and logistics.

For more information about the Share Fair Spotlights, visit www.oilandgasuk.co.uk/events.

9. INNOVATIVE INVESTMENT DRIVES PRODUCTIVITY

Innovative investment in infrastructure that can drive improved productivity was the subject of Oil & Gas UK's Breakfast Briefings on 3 and 11 May in Aberdeen and London, respectively. Over 300 guests heard from Andy Hessell, managing director of CATS Management Limited; Tom Gilchrist, Wood Group PSN's operations and maintenance director, UK & Africa; and Andy Heppel, CEO of North Sea Midstream Partners.

Mike Tholen, Oil & Gas UK's upstream policy director, comments: "Over the past five years, the conventional model of offshore operators owning their own dedicated infrastructure has been shattered. Enterprising new entrants to the UK North Sea who specialise in hydrocarbon transportation and processing are bringing a fresh focus to operating excellence. These new investors have spent nearly \$2 billion over the last two years acquiring offshore infrastructure, opening new avenues for employment and boosting the potential for developing the billions of barrels yet to be recovered from the UK Continental Shelf."

View the webcasts at <http://bit.ly/EventsArchive>.

Also see the Spring 2016 edition of Wireline for an article on CATS at <http://cld.bz/gdRccht#35>.



Over 300 delegates attended breakfast briefings in Aberdeen and London exploring how innovative investment in infrastructure can drive improved productivity

10.



Image © iStock.com/Mikeuk

10. WELL INTEGRITY GUIDELINES UPDATED TO INCORPORATE REGULATORY CHANGE

Oil & Gas UK has updated its Well Life Cycle Integrity Guidelines to reflect recent changes in the regulatory environment. As part of the European Offshore Safety Directive introduced in July 2015, well operators and drilling contractors must now integrate the management of both safety and the environment.

Mike Tholen, upstream policy director at Oil & Gas UK, says: “The guidelines have been produced by Oil & Gas UK’s Wells Forum and collate current industry expertise. They provide further clarification on how best to design a well and plan operations to assure well integrity. The aim is to help well operators and drilling contractors better understand how to select, install, verify, test, maintain and repair suitable barriers that will reduce the risk of uncontrolled releases of fluids throughout the life cycle of a well.”

Download the guideline at <http://bit.ly/WLCIG>.

11. SPOTLIGHT ON ASSET INTEGRITY

Lockheed Martin has completed a study to highlight the potential for a range of technologies to deliver safe and effective improvements in efficiency in asset integrity. The report, commissioned by Oil & Gas UK on behalf of the MER UK Technology Leadership Board (TLB), focuses specifically on two areas – the inspection of pressured systems including process vessels and managing corrosion under insulation of onshore and offshore structures.

Angela Seeney, the Oil and Gas Authority’s director for technology, supply chain and decommissioning and co-chair of the TLB, says: “This study illustrates in a very tangible way the breadth of opportunity for the UK oil and gas industry to benefit from innovative technologies and achieve the sustainable cost efficiencies needed for today’s operations.”

Download a copy of the report at <http://bit.ly/AITLstudy>. And turn to page 28 for an update on the TLB’s activities and more details on this study.

11.



12.



Targeting a
50 per cent reduction
in drilling costs

12. TARGETING A 50 PER CENT REDUCTION IN DRILLING COSTS

More than 100 people from 40 companies took part in a workshop earlier this year to brainstorm ideas on how to find more competitive ways to drill wells on the UK Continental Shelf. The event hosted by Oil & Gas UK allowed participants to define the industry’s viewpoint on the well cost challenge and the actions required to halve the cost of well construction in the UK.

The workshop also looked for ways to reduce the cost of drilling four candidate wells scheduled for 2016, identifying opportunities to save up to 20 per cent on two of the wells. Seven additional companies have volunteered wells for similar scrutiny sessions over the summer.

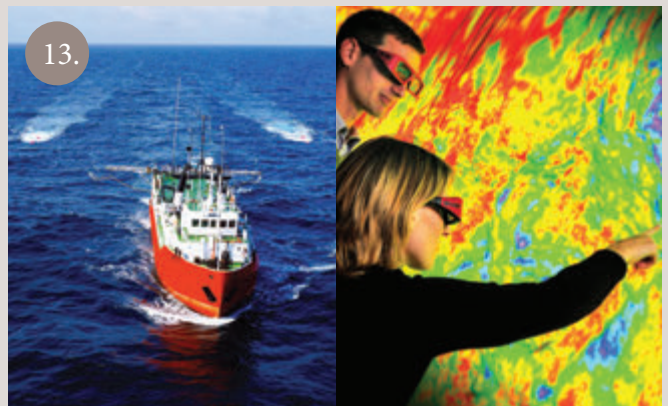
Mike Tholen, Oil & Gas UK’s upstream policy director, comments: “The well cost reduction group’s immediate focus is on quick wins, facilitating alignment between operators and identifying opportunities to work co-operatively in areas including operational efficiency and technology initiatives. It is also making great progress in developing a standard well construction design for the central North Sea.”

13. TAKE PART IN CDA’S DATA CHALLENGE

Common Data Access Limited (CDA) is calling on data and information analytics tool vendors to showcase the value of their tools and technologies by applying them to the well and seismic data held within UKOilandGasData.com. The data are amassed from over 11,000 wells, 2,000 seismic surveys and over 50 years of UK oil and gas exploration. Through the challenge, CDA hopes to demonstrate the value that modern data and analytics can bring to the oil and gas industry, supporting efforts to improve efficiency and maximise economic recovery.

For more information, contact Daniel Brown on dbrown@cda.com.

13.



14. FIRST UK EITI REPORT PUBLISHED

The UK Government has published its first report as part of the global Extractive Industries Transparency Initiative (EITI). The document reconciles data provided by companies on the upstream tax they have paid to the government with information from the government on the tax payments it has received.

Business Minister Baroness Neville-Rolfe says: “The support of the companies that took part in the first report is central to the UK gaining full compliance and I want to thank them for their involvement. But there is still work to be done and the next challenge will be to ensure that all oil and gas companies operating in the UK are supporting transparency through EITI.” The UK now has until April 2017 to become a fully compliant EITI country.

The report is available to read at <http://bit.ly/EITireport>. Please send your feedback to business.transparency@bis.gsi.gov.uk.



EITI champion, Baroness Neville-Rolfe



L-R: Professor Rita Marcella, Dean of RGU's Aberdeen Business School; Malcolm Fleming, Chief Executive of CDA; and Professor Simon Burnett of RGU's Aberdeen Business School

15. PIONEERING PETROLEUM DATA MANAGEMENT COURSE LAUNCHED

Common Data Access Limited (CDA) has partnered with Robert Gordon University to pioneer an online undergraduate level course in petroleum data management that will be live from September. The course has been developed for those looking to begin a career in petroleum data management or to formalise knowledge already gained on the job.

Malcolm Fleming, CDA's chief executive, says: “Petroleum data management contributes significantly to finding and producing oil and gas. This course provides a sound foundation and allows students and professionals at all stages in their career to gain an accredited qualification in this highly valued discipline. It will also help to ensure the industry has access to a steady stream of data management experts who are fully equipped with the skills to unlock the remaining resource potential.”

For more information, contact Terry Alexander on talexander@cdal.com.

16. WOOD GROUP SCOOPS SUPPLY CHAIN YOUNG PROFESSIONAL AWARD

Andrew Sorrie of Wood Group PSN won this year's Oil & Gas UK Young Oil & Gas Supply Chain Professional of the Year Award for leading a team that continually looks for new ways of working to reduce costs and lead times.

Andrew leads a procurement/supply chain team that carries out sub-contract management, buying and plant/equipment management for nine of Shell's central and northern North Sea assets. The team has developed new ways of procuring materials to different standards for pipe fittings, flanges, valves and structural steel. It has also created a new plant and equipment tracking process and dashboard. The result has been £8 million of direct savings for Shell and up to an 80 per cent improvement in lead times for specific product lines.

The award, which is in its second year, was presented on 17 May at Oil & Gas UK's Supply Chain Seminar that focused on cultural change and collaboration.

Andrew has also been awarded a place on the Scottish Enterprise Oil & Gas Future Industry Leaders Programme.

View the presentations from the seminar at <http://bit.ly/SCseminar>.



Andrew Sorrie of Wood Group PSN wins the 2016 Young Oil and Gas Supply Chain Professional of the Year Award

MEMBERSHIP MATTERS

NEW MEMBERS JOIN OIL & GAS UK

We are pleased to welcome the following companies that have joined Oil & Gas UK since the last issue of *Wireline*:

Alpha Biolaboratories Corporate Limited, Attollo Offshore, Berendensen UK Ltd, Blade Energy Partners Ltd, CDC Limited, DA Manpower UK Ltd, Dassault Systems UK Ltd, Fraser Well Management Limited, Holman Fenwick Willan, IRIS Group, Kishorn Port Ltd, Makar Technologies Ltd, Shetland FM, Sword IT Solutions Ltd and Well Decom Limited.

Our membership relations advisers – Johanna Mercer and Mark Mullins – are committed to ensuring that Oil & Gas UK membership is carefully tailored to your needs so please contact them with any queries on membership@oilandgasuk.co.uk.

**OIL & GAS UK REFOCUSSES TO BETTER SERVE MEMBERS' NEEDS**

Following a thorough review, Oil & Gas UK has restructured to ensure it is in the best shape possible to continue promoting and serving its members' interests as a clear and consistent voice of the UK's oil and gas industry.

The new structure, which has been endorsed by the Audit Committee and Board, allows Oil & Gas UK to deliver a sharper membership focus with a clearer value proposition. It will also enable the organisation to work even more effectively with members to develop policy in support of the sector's specific needs.

Oil & Gas UK is now organised into five rather than seven teams (see opposite), each accountable for delivering on the agreed strategies. The groups used to engage with members have been streamlined and the overall number reduced by 40 per cent. Each of these member groups, whether a forum, network, specialist/technical group or task-finish (work) group, will be tightly focused to align closely with the needs of industry.

Our objectives**Our Mission**

"To promote and serve our members' interests and be the voice of the UK's oil and gas industry."

Our Vision

"To ensure the UK Continental Shelf becomes the most attractive mature oil and gas province in the world with which to do business."

To support our mission and to realise our vision, we have identified the following objectives:

- Encourage a competitive business environment that enables the maximisation of economic recovery across the UK Continental Shelf
- Deliver an enduring future for the UK's oil and gas industry, which lasts beyond production from the UK Continental Shelf
- Support the industry in ensuring its licence to operate is implemented safely and responsibly
- Raise, promote and protect the positive profile and reputation of the industry

Each objective is underpinned by strategies that will frame the business plan going forward.

Our new visual identity

Our new corporate identity is the visible manifestation of the changing organisation we are establishing and was produced in-house.

INTRODUCING THE TEAMS

Upstream Policy

The Upstream Policy team, led by Mike Tholen, aims to provide members with strategic guidance to encourage a competitive business environment and support the sector in its ambition to maximise economic recovery from the UK Continental Shelf (MER UK). Representing the whole industry's interests, the team works to promote an attractive regulatory and fiscal regime to address the challenges facing the industry, supported by appropriate policies and insight across the full exploration and production life cycle. The team also builds on in-house expertise in energy policy and gas market regulation to engage on Phase IV of the EU Emissions Trading System and more broadly on policy development as part of the industry's sustained commitment to meet UK and EU greenhouse gas emission targets.



Business Excellence

The Business Excellence team, led by Stephen Marcos Jones, is instrumental in creating a thriving business environment, reflected in strong local and international demand for the industry's goods and services. The team drives collective action across the industry to improve the sector's cost base and efficiency. It also showcases supply chain capabilities regionally, nationally and internationally. It focuses its efforts on engaging the workforce in support of the industry's vision and helps to ensure the sector has the right skills it needs to thrive. It is also the membership hub for the association.



Health, Safety and Environment (HSE)

The HSE team, led by Mick Borwell, supports members in maintaining their licence to operate (LTO) in a safe and responsible manner and engages with the relevant regulators and stakeholders on LTO issues. The team develops solutions to health, safety and environment issues, prepares guidelines, and facilitates discussions to share good practice in HSE. Where necessary, to protect the industry's LTO, the team also acts as an advocate for its members with the regulator, governments and the European Union.



External Affairs and Communications

The External Affairs and Communications team, led by Trisha O'Reilly, aims to raise, promote, and protect the positive profile and reputation of the industry. Working on behalf of Oil & Gas UK's members, the team helps to drive conversations with key stakeholders around a clear and consistent vision for an enduring industry. Audiences include the media, regional, national and European political institutions, as well as bodies with an economic, social or regulatory interest in the industry. As well as positioning Oil & Gas UK as the authoritative source for industry insight, the team leads on promoting oil and gas as vital components of the energy mix and demonstrating the sector's value to the UK economy.



Finance and Corporate Services

The Finance and Corporate Services team, led by Graham Elgie, provides a comprehensive range of services to support the efficient operations and membership of Oil & Gas UK, including finance, HR, IT, legal, corporate governance and business services incorporating facilities management. The team works to improve processes and delivery of organisational support services and the longer-term business and funding model for membership. It also aims to enhance the quality of member data management and performance management processes in line with Oil & Gas UK's learning and development strategies.



MEMBERSHIP MATTERS

NEW BOARD APPOINTMENTS

Oil & Gas UK has announced eight new appointments to its Board including co-chairs and vice co-chairs (see below). Other appointments to the Board include Mark Thomas, regional president of BP North Sea; Walter Thain, managing director, West, Petrofac Engineering & Production Services; Morten Kelstrup, VP, managing director of Maersk Oil UK; and Peter Wilson, vice president operations, Rowan Drilling UK Ltd. *Wireline* caught up with the new co-chairs and vice co-chairs.



Neil McCulloch
President North Sea
EnQuest PLC

Neil has more than 25 years' experience in the oil and gas industry, having begun his career as a graduate trainee with British Gas E&P. From 1996-2001, he worked in a variety of technical consultancy and

investment banking roles before spending 11 years with BG Group in a range of senior UK and international roles, latterly as vice president and asset general manager, UK upstream. Neil joined EnQuest in March 2014 from international oil and gas company OMV AG, where he held the global role of senior vice president production and engineering.

Q: What keeps your interest alive in the oil and gas sector?

A: Ours is an increasingly global industry where the technological challenge continues to evolve, particularly as we move into a more mature phase. Historically, and to the present day, our industry plays an important part in our country's energy supply. It also employs a rich and varied tapestry of people; so far, I have lived in four and worked in more than 25 countries.

Q: What are your priorities as co-chair of Oil & Gas UK's Board?

A: To ensure that Oil & Gas UK supports and enables our industry to deliver the Wood Review and that we transform the strategic intent of Sir Ian's words into reality...supporting the right assets being in the right hands. Our industry must be safe, competent and continue to attract investment so that we exploit the up to 20 billion barrels of hydrocarbons remaining on the UK Continental Shelf. This is our opportunity to demonstrate that, not only can our country deliver MER UK, but that our people and products can lead the way to deliver a MER world.

Q: How will you work on these priorities to secure an enduring future for the UK industry?

A: Following the establishment of the Oil and Gas Authority and MER UK Boards, it is encouraging to see an already strong tripartite working relationship between industry, government and our regulators. Oil & Gas UK will continue to be a strong representative and voice of our industry. We will be ever-watchful of industry's productivity; supportive of technology as we work with organisations such as Opportunity North East and the Oil & Gas Technology Centre; and remain determined that drilling stays at the top of our collective agenda as we need it not only to survive but to thrive!



Terry Savage
Corporate Relationship Director
Global Energy Group

Terry has some 40 years' experience in the oil, gas, drilling and civil industry. He has an engineering background with involvement in operational, strategic planning, commercial and business

development. This has given him a broad understanding of the industry and a pragmatic approach to challenges.

Q: What keeps your interest alive in the oil and gas sector?

A: I am very passionate about the industry and its continuing potential. It still supports some hundreds of thousands of people working in the UK. Although we are faced with real challenges to be more efficient and cost conscious, if we make real transformational changes we will have long-term prospects for our industry. I do believe it has a great future and will be a fantastic place for people to work for years to come.

Q: What are your priorities as co-chair of Oil & Gas UK's Board?

A: The need for industry to transform the way it works together has never been more urgent. Often the supply chain is met with top-down adversarial relationships. This has to change and is one of the single largest opportunities we have to reshape our industry. I will look to promote a more collaborative and co-operative environment, where everyone recognises they are all part of a supply chain and are all clients and providers at some stage.

Q: How will you work on these priorities to secure an enduring future for the UK industry?

A: I will endeavour to use my experience and knowledge to help simplify the way we look at the industry. We need to simplify the working environment and be much more approachable and open to new ideas, especially new technologies. The industry had become overheated and we need to get back to basics and not overcomplicate the way we interact with one another. We must learn to listen to the individuals who often have the answer, those actually doing the work. We must also learn from other industries that faced similar challenges, how they affected change and how they see technology in a positive light that enhances the way they work and not as a threat. Nothing ever stays the same forever, learning to change and adapt to the moving industry landscape will not only ensure survival, but create the right and fit-for-purpose environment for the future. This will also mean that we will be recognised as world leaders in addressing these challenges – the ability to export these practices and knowledge is a huge opportunity for the industry to explore.



Neil Sims
Vice President
Europe CIS Region
Expro North Sea

Neil joined Expro in 1986 as a field technician and developed his experience across a range of UK and international based positions,

including VP of subsea North America, UK area manager and currently vice president of Europe CIS.

Q: What keeps your interest alive in the oil and gas sector?

A: As one of the most diverse and attractive global industries, the oil and gas sector demands a strong skills set, including creativity and leadership. From ground-breaking technology development through to inspiring the next generation of talent, our industry offers an exciting challenge for those who are willing to grasp it. Having spent 20 years within and 10 years out with the industry, I am hugely encouraged at the difference a creative and open approach brings to our business. While the industry may traditionally be known for its engineering and technical expertise, we need much more than that if we are to reach the full potential of our industry. And that is something that continues to spark my enthusiasm.

Q: What are your priorities as vice co-chair of Oil & Gas UK's Board?

A: In challenging times like these it's important that we deliver transformational change. One of my priorities is to promote alternative thinking, which starts with understanding and articulating our industry better. The oil and gas sector comprises a diverse range of organisations, including operators, service companies, industry bodies and broader stakeholders. They all have their own business priorities and it's important we understand these better. However, it's also vital we establish a common goal to work towards. As an industry we are very focused on the challenges, but we must turn our approach to focus on the opportunities and be able to better connect with those around us.

Q: How will you work on these priorities to secure an enduring future for the UK industry?

A: The word collaboration is used too commonly for my liking, however, simply put, we need to work together to achieve this. It includes key stakeholders such as Oil & Gas UK, the Oil and Gas Authority, the Oil & Gas Technology Centre, Scottish Enterprise and the Department for Business Innovation & Skills who can provide the right framework, technology and skills needed for an enduring future. The Wood Review directed a number of findings for the industry, which have and are being reflected in these organisations, however, it's important we now deliver on these. This includes the right level of research and development investment, new technology and alternative business models – supported by a talented skills base. It isn't ground breaking but the combination and timing is crucial.



Ray Riddoch
Managing Director
and Senior Vice
President Europe
Nexen Petroleum
U.K. Limited

Ray has over 30 years of experience in the global oil

and gas industry, mostly in production operations, and held leadership positions with oil and gas operators in the UK and Angola.

Q: What keeps your interest alive in the oil and gas sector?

A: The oil and gas sector has always been a formidable industry – every day is a new day with lots of different challenges needing to be solved. Sometimes these can be very complex and I never cease to be amazed by the scale, ambition and passion within the sector and how the skills and technical ability of the North Sea workforce has shaped the global industry.

Today, we face severe challenges where major change is absolutely vital. Changing the way we do business has not been an easy task, however, what's central is that operators, suppliers and government don't become disillusioned and retain the willingness to change entrenched working methods and fully embrace co-operating and working innovatively together – where the right values and behaviours are exhibited day in, day out, so that we can transform this industry for the better.

Q: What are your priorities as vice co-chair of Oil & Gas UK's Board?

A: My top priorities serving on Oil & Gas UK's Board are always to ensure the North Sea runs safe operations, protecting our workforce and environment, making informed decisions to maintain a fit-for-purpose and responsible industry, and continue driving efficiency and continuous improvement.

As we face tough times due to the oil price collapse and managing costs, it's important the Board's efforts focus on providing stability by working collectively to ensure the industry can safely, reliably and efficiently deliver our business and remain competitive. I am encouraged by the excellent work in cost management accomplishments to date, but it's fundamental to keep driving this momentum – there still is much more to do.

Q: How will you work on these priorities to secure an enduring future for the UK industry?

A: I will continue to work effectively with the Board to identify the sector's specific needs and issues in the short and long term. At this critical time, the requirement is to support operators and the supply chain in becoming more competitive in maximising economic recovery of the UK's hydrocarbons – our vision and ambition is to ensure that the UK Continental Shelf becomes the most attractive mature oil and gas province with which to do business.



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Schlumberger

On track

Stephen Marcos Jones, business excellence director at Oil & Gas UK, discusses the joint *Collaboration Index* with Deloitte, which reveals that the UK offshore oil and gas industry is coming together to secure its future.



Our members are telling us that it's vital the offshore industry pulls together to tackle its current challenges. That's why Oil & Gas UK, through its Efficiency Task Force (ETF), is driving a number of focused cross-sector projects along the themes of standardisation; business process; and co-operation, culture and behaviours.

It is perhaps the last of the trio that needs to be tackled first to unlock transformational progress in the other two areas. We need to fundamentally change the way we do business in the UK sector of the North Sea to secure a sustainable future as a global competitor in the lower oil price world.

We are calling on companies to rally behind the *Industry Behaviours Charter*, which the ETF launched at the end of last year to help define and drive the cultural change we believe is needed. Over 30 companies have so far signed up to it and in doing so have

“ We are calling on companies to rally behind the *Industry Behaviours Charter*, which the *Efficiency Task Force* launched at the end of last year to help define and drive the cultural change we believe is needed. ”

demonstrated their commitment to work effectively, efficiently and co-operatively. The Charter's principles are to:

- Be an early adopter of efficiency initiatives and new technology, sharing learnings with others

- Provide access to decision makers through a specific, fast-access point in order to escalate issues
- Strengthen industry co-operation through continual improvement in, and support for, industry codes of practice, forums and standards
- Contribute to performance improvement by ensuring transparent and time-bound legal, commercial and contractual engagements
- Commit to continuous improvement through regular review of the delivery of this Charter across all levels of the business.

To measure how well the industry is progressing against these principles in practice, Oil & Gas UK partnered with Deloitte to survey the sector and review where concerted effort is still needed (see box-out below for more details on how the index was compiled). >

TRACKING TRENDS

The first joint Oil & Gas UK – Deloitte *Operator Collaboration Index* is based on an electronic survey of suppliers to 13 operators carried out from March to April 2016. These oilfield services companies represent a wide range of supplier categories and include small businesses to larger international organisations. Participants work in a variety of functional areas and range from managers to board members and executives.

Geoff Gibbons, a partner at Deloitte who led the research, adds: “The first phase has yielded a robust initial dataset and early insight into the quality of supply chain collaboration on the UK Continental Shelf. The aggregated anonymised results from the survey are presented here, while the confidential company-specific benchmark analysis helps businesses understand how they are performing compared with their peers, what they do well and what they can do better.”

“Future phases of the project will not only show how trends emerge and develop over time, they will also highlight the impact of individual company efforts to improve collaboration and help organisations identify areas for further improvement.”



Geoff Gibbons, a partner at Deloitte who led the research

The survey has shown the industry is heading in the right direction.

Co-operation is spreading

Direct feedback from companies in the supply chain about their dealings with all major operators across the North Sea reveals that, on a scale of 1 to 10, the *Operator Collaboration Index* score moved from 5.9 to 6.7 between the summer of 2015, when Deloitte first independently surveyed the sector, and March 2016. This strongly suggests operators are working more co-operatively with their suppliers.

The analysis reveals that operators are becoming more open, are engaging the supply chain earlier in projects and are now more likely to seek out new ideas and solutions. This is welcome news.


In total, almost 400 individual pieces of feedback were received, more than 20 on each of the major operators on the UK Continental Shelf.

Smaller companies, those employing less than 2,500 people, appear to be more positive about co-operating with operators than those from larger companies, those employing more than 10,000 people.

Financial or contractual measures to incentivise a co-operative approach, meanwhile, scored lowest on the index.

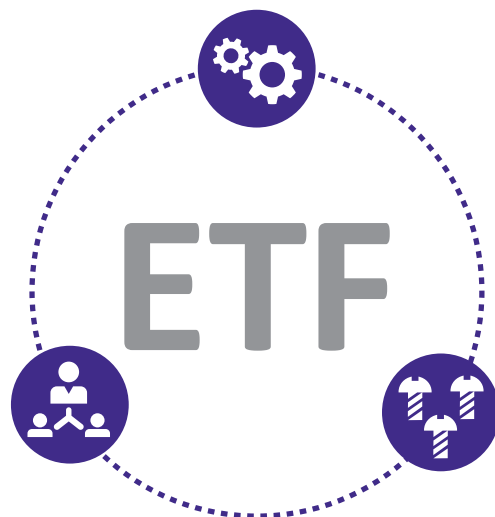
More work to be done

We will join forces with Deloitte again later in the year to repeat the survey to ascertain whether we are seeing a longer term trend.

It's pleasing to see these green shoots appear but it is essential that we continue to nurture greater co-operation so we will be asking those operators who scored particularly highly to share examples of good practice. 



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COLLABORATION INDEX KEY RESULTS

Operator collaboration index score moves from 5.9 to



out of a possible 10

Almost 400



pieces of feedback on all major North Sea operators

Operators are becoming more open



Operators are engaging the supply chain earlier in projects



Operators are now more likely to proactively seek out new ideas and solutions from suppliers



Smaller companies appear to be more positive about collaboration with operators than larger companies



Incentivising collaboration by financial means and through contractual terms remain the lowest scoring areas





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A photograph of an offshore oil rig deck. In the foreground, a worker in a red jumpsuit and white hard hat stands on a wooden deck, looking towards a yellow crane. The crane is lifting a large, cylindrical metal component. In the background, another red rig structure is visible against a cloudy sky.

Alder and wiser

First production from Chevron's Alder field is planned for later this year amidst a more challenging economic climate. An innovative partnership has taken shape between the operator and one of its key contractors – Schlumberger – to support efficient delivery of the project. Is this a model for the future? *Wireline* investigates

“ On the Alder project we found we had too many teams working in silos focused only on their specific roles and this posed the risk of missed delivery deadlines and increased costs. We needed to drive change. ”



L-R: Ainslie Thomson, contracts advisor at Chevron; Graham Hetherington, senior executive account manager at Schlumberger; Mark Urquhart, senior completions engineer at Chevron; Marcin Kos, contracts advisor at Chevron

For Chevron's Drilling and Completions (D&C) and Supply Chain Management (SCM) teams, it became clear last year that improvements were needed in how the Alder project team interfaced with these teams, as well as with key service provider Schlumberger.

"There's no secret that the North Sea had become a high cost environment over the years but today's low oil price makes this an even bigger challenge. For Chevron to maintain a sustainable business we have to look at our total cost of ownership – looking beyond simple rate reductions and driving efficient partnerships with our suppliers," says Marcin Kos, contracts advisor at Chevron.

"On the Alder project – a key capital development for Chevron in the UK – we found we had too many teams working in silos focused only on their specific roles and this posed the risk of missed delivery deadlines and increased costs. We needed to drive change."

“We all realised that we needed to be a single team and get away from the old-style service provider-client relationship.”

Chevron and Schlumberger looked to develop a fresh way of working together so that the development was executed safely while delivering real value-for-money improvements.

Breaking down barriers

The Alder field has a design capacity of 14,000 barrels of condensate and 110 million cubic feet of natural gas per day. It is a complex, technology-led, 28 kilometre, high-pressure high-temperature (HPHT) subsea

tie-back to the Britannia platform in the central North Sea.

Some 75 per cent of the development work has been executed in the UK, including Aberdeen, Invergordon, Leeds and Newcastle. When it comes on-stream later this year, Alder will introduce new natural gas production to Chevron's North Sea portfolio and help extend Britannia's operational life, which has been producing since 1998.

One of the challenges has been delivering critical products and services that were not off-the-shelf but highly specialised and customised, often requiring additional engineering. The five product service lines concerned were the subsea test tree, the downhole safety valve, wireline logging, the perforating system and the surface well test.

Mark Urquhart, senior completions engineer at Chevron, explains: "There were technical and commercial >



Mark Urquhart, senior completions engineer at Chevron. In collaboration with Schlumberger, Chevron sought to break down the silos between the product service lines on the Alder project

challenges that had the potential to impact the schedule of each of the five product service lines. Traditionally, these have been overseen by separate teams with different reporting lines, but we sought to address this in partnership with subject matter experts from across the key business functions, management representatives and Schlumberger to drive a rapid and sustainable ‘one-team’ approach to performance improvement.”

Specifically, integration of the product service lines was underpinned by an overarching project ‘control panel’ tool that gave up-to-date information on individual product challenges, actions and agreed solutions tracked to completion. Dedicated weekly meetings were held to generate open dialogue, with conversations kept focused, constructive and results-driven ensuring the right people were in the right place at the right time. Moreover, Schlumberger senior

“ **Having a dedicated focal point for the supplier helped to manage the integration of the product service lines and make sure fit-for-purpose equipment was delivered on time to meet the work construction schedule.** ”

executive account manager, Graham Hetherington, committed to being onsite at the Chevron offices one day per week.

Graham explains: “We were producing five critical product lines, and because of the significance of the project we

all realised that we needed to be a single team and get away from the old-style service provider-client relationship by building a very open and collaborative relationship. There was a common understanding between the two organisations and everyone on the project became aligned to a single end goal.”

Derek Fraser, D&C category manager for Chevron’s SCM team, adds: “The improved interface between key Chevron functions and their Schlumberger counterparts at all levels, from field technicians to vice presidents, allowed the cross-functional team to improve business performance. We were able to engage more regularly to resolve issues quickly and mitigate impacts.

“The removal of departmental silos that existed due to the separation of product service lines proved a game changer in that it promoted shared accountability and responsibility. Not all conversations were easy but

“

Two very large and complex companies have shown that simple changes in how they collaborate can make the difference between success and failure.

”

there was a new sense of teamwork and trust.”

Wired up

The approach has paid significant dividends – not least in the form of anticipated overall project savings of around \$5.7 million.

A textbook example lies in the securing of a semi-slick e-line cable for wireline operations. This high-tech tool commands a prohibitive price due to strong market demand. The team sought to co-ordinate joint use of an existing Schlumberger cable instead of designing and deploying a new one at Alder.

The exercise involved discussions across three time zones – in Australia, where the cable was also to be deployed by Chevron; in the USA, where it was the subject of technical work at a Schlumberger product centre; and in the UK. These efforts delivered a business saving of about £600,000.

Best practice

For Graham at Schlumberger “this way of working has been a very positive experience and I will certainly try to reuse the methodology in the future. We have seen eye-to-eye across both organisations in terms of what we

STEPPING UP

Chevron’s Marcin Kos was recognised for his work on the Alder project when he was shortlisted for Oil & Gas UK’s 2016 Young Oil & Gas Supply Chain Professional of the Year Award.

Marcin was pivotal in highlighting the issues that threatened to undermine delivery and helped to create – and then co-ordinate – the new-look framework of engagement with Schlumberger to bring the project back on track. In his central role as facilitator, manager of communication lines and leader of commercial negotiations, Marcin made sure all involved were aware of the ‘big picture’ for appropriate attention and quick action as needed. This has brought tangible benefits, both monetary and in avoiding delays.

By taking ownership of this performance improvement initiative, Marcin has also raised the profile of his supply chain management team internally as a valuable focal point for leading commercial and contractual negotiations, but also as an ally in operational discussions.

“For me, this initiative was a great demonstration of what can be achieved by focused, relentless effort and a friendly partnership between client and service provider,” he says. “The whole industry faces a challenging environment – operators and suppliers – but a dog-eat-dog approach to the supply chain just won’t work. We succeed together or we fail together.”



Marcin Kos, contracts advisor at Chevron


wanted to achieve. It was refreshing to work with a client who saw the bigger picture and was looking to do more than just save money. Chevron wanted to work more efficiently and look to save costs by working smarter”.

The model is also being shared across Chevron more widely. The company believes any offshore project can benefit from the approach, particularly if it includes several product service lines with distinct reporting lines, requires high-end and bespoke technical solutions, has a tight time schedule, and involves the global supply chain with concurrent manufacturing and testing activities.

“Through more efficient and effective communication, two very large and complex companies have shown that simple changes in how they collaborate can make the difference between success and failure,” says Stuart Leighton, supply chain manager at Chevron.

“Having a dedicated focal point for the supplier helped to manage the integration of the product service lines and make sure fit-for-purpose equipment was delivered on time to meet the work construction schedule.”

And there was certainly a critical project at stake. Discovered by Chevron in 1975, Alder’s development was long considered impossible because of the HPHT nature of the reservoir that lies 14,500 feet beneath the seabed.

“Alder is an example of how successful collaboration and technological innovation can make a project viable,” concludes Robert Visser, Chevron’s Alder project manager. 



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Politician's Corner

Paul Wheelhouse MSP

The new Scottish energy minister – Paul Wheelhouse MSP – shares his thoughts on the role of oil and gas in Scotland's energy mix and how the Scottish Government aims to support the industry through the current downturn.



I am delighted to take on the role of Business, Innovation and Energy Minister for the Scottish Government at this important time.

Like my predecessor, Fergus Ewing, I recognise the importance of the oil and gas industry to the Scottish economy. My aim is to continue the close engagement he developed and to work with the industry, Oil & Gas UK, the Oil and Gas Authority, the Department of Energy & Climate Change and the unions to overcome the current challenges facing the industry and secure a long-term future for the sector.

The Scottish Government has a well-established approach to energy – ensuring good stewardship of Scotland's oil and gas resources, while prioritising the long-term development of clean energy sources as part of a varied energy mix, driven by strong Scottish Government support and some of the most stretching legislative targets for emissions reduction in the world.

Within this context, oil and gas will continue to be an important part of Scotland's energy mix for the foreseeable future as we transition to decarbonising our energy sector. In addition, the skills successfully developed within the industry over the last 40 years will be required to help our transition to a low carbon economy.

With up to 20 billion barrels potentially remaining in the North Sea, the industry can have a bright future in Scotland. There are also a range of global opportunities for Scotland's world-class supply chain. The recent oil and gas survey from Aberdeen & Grampian Chamber of Commerce indicated that a net 61 per cent of companies surveyed expect to increase investment in developing new markets. This supports the findings of the last Scottish Enterprise supply chain survey, which found that international sales from the oil and gas supply chain now represent over half of all sales.

While this is clearly a difficult time for the industry and workforce, important steps are under way to adapt to the current low oil price environment. Efficiency initiatives are clearly starting to produce results, with unit operating costs falling by around a third over the last year. The concerted effort from industry to improve production efficiency has also led to an increase in annual production for the first time in 15 years.

While opportunities exist, the most recent Oil & Gas UK *Activity Survey* provides a reminder of the significant challenges facing the industry at this time. With lower levels of capital investment and a lack of exploration activity, this has placed particular pressure on related sections of the

supply chain. This is underlined by the fact that only one exploration and appraisal well was drilled in the first quarter of this year, with 26 exploration and appraisal wells last year.

These are challenges understood by the Scottish Government, and we have taken action through our devolved powers to help the industry where we can. For example, the Energy Jobs Taskforce was established by the First Minister last January. The Taskforce has achieved a great deal, including three large PACE events and a range of actions to address structural challenges in the industry.

However, the job losses continue to remain a significant cause for concern and, therefore, the focus of the Taskforce has been to reach and support those at risk of redundancy. Much of this support, including direct redundancy support for over 2,500 people, has been delivered through the PACE programme, with particular effort focused in the north east. The Taskforce is making a concerted effort to ensure that everything possible is being done to retain the talent and skills within the industry. We also launched an enhanced Adopt an Apprentice scheme, which enables firms to >

“ With up to 20 billion barrels potentially remaining in the North Sea, the industry can have a bright future in Scotland. ”

”

re-employ any Modern Apprentice in the industry who faces redundancy.

As well as the Energy Jobs Taskforce, the First Minister announced in January a further support package of £24.5 million. This includes £12 million for a new Transition Training Fund, which aims to help maintain the highly skilled energy workforce by offering grants to individuals to support their redeployment through retraining or further education. A further £12.5 million has been allocated by Scottish Enterprise for increased innovation and business support measures.

We also recognise the critical importance of Aberdeen and the north east – areas that will be central to driving future growth and prosperity in Scotland. That is why we are investing £125 million through a City Deal agreement with the UK Government and Aberdeen City and Aberdeenshire Councils, and are providing a further £254 million of additional investment from the Scottish Government to help cement Aberdeen as one of the world's leading cities for investment and business.

This significant investment illustrates the Scottish Government's belief in the future of the oil and gas industry, but in order to secure a viable and sustainable future, even more needs to be done.

With falling revenues and constrained budgets, access to finance is a key constraint for the oil and gas sector at present, a concern echoed by the industry.

We are aware that some firms are finding it difficult to access the finance required to fund research and development (R&D) projects and, at a difficult time such as this, the financial and operational risks in doing so can prove extremely challenging. This is why the Scottish Government's increased support for innovation, R&D, and the provision of specialist expertise to firms as they seek to take forward new projects will be of real benefit.

However, the UK Government retains the key economic levers affecting the sector.

At the Budget, the UK Government committed to consider proposals for using the UK Guarantees Scheme for oil and gas infrastructure where it could help secure new investment in assets of strategic importance. Sustaining critical infrastructure in the North Sea is a key priority and the UK Government should act quickly to deliver this commitment.

I strongly believe that the North Sea oil and gas sector can have a bright future for years to come. However, this will require a concerted effort by all stakeholders and I am determined to play a strong part in that. ^W

“ The Scottish Energy Jobs Taskforce is making a concerted effort to ensure that everything possible is being done to retain the talent and skills within the industry. ”



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Seizing the opportunity

Technology development alone is not the silver bullet for maximising economic recovery, but it is a vital part of the equation. If deployed effectively and innovatively, technology can help deliver greater efficiencies and operational gains. *Wireline* catches up with Paul White of GE Oil & Gas – co-chair of the MER UK Technology Leadership Board.

Paul White believes that the offshore oil and gas industry is a hugely exciting place to work for anyone with a passion for engineering and technology. It's what attracted him to the sector nearly three decades ago and what keeps him enthused even in these difficult times.

The subsea technology director at GE Oil & Gas grew up with an interest in engineering and explains that what he really likes about this industry and its technology needs "is that they are always changing. As does the commercial landscape. Change drives demand – there are always new technologies being created for developing and evolving applications".

And more change is certainly afoot. "Now that we are into this era of

maximising economic recovery from the UK Continental Shelf (MER UK), technological development is coming to the fore once again with opportunities to use technology to reduce costs, improve efficiency and maximise competitiveness."

To this end, as co-chair of the Technology Leadership Board (TLB), which now feeds into the Oil and Gas Authority's MER UK Forum, Paul is seeking to apply his almost 30 years' experience to help advance technological development.

Pushing boundaries

Born and brought up in the north east of England, Paul moved to Aberdeen in the mid 1980s and studied mechanical and offshore engineering at Robert Gordon University. He embarked on

his subsea career in the mid-1990s with VetcoGray, which was acquired by GE in 2007.

His experience spans analysis and design of subsea production systems, management of the company's research and development lab in Aberdeen, delivery of large subsea equipment projects, before undertaking commercial work in the organisation's subsea businesses in the UK and Norway. His current day job back in Aberdeen involves steering GE Oil & Gas' subsea technology strategy, technology development and also product management.

"I describe myself as something of a technologist, balancing both technical and commercial experience," he says. And so he is well suited to lead the



Paul White of GE Oil & Gas, co-chair of the MER UK Technology Leadership Board

collective industry effort to identify – and introduce – new technology-based cost-effective solutions.

He is very clear that the task requires being open minded, pushing boundaries and looking to the future. “We need to clearly understand the challenges and needs of the sector today. Some of the technologies that we used in the past to recover oil and gas were fantastic achievements for the UK and we should be really proud of them, but they are not all necessarily technologies we need for MER, late-life production or smaller developments in a mature basin.”

Adding value

Sir Ian Wood outlined technology’s central role to achieve MER UK following his independent review of >

“ We need to clearly understand the challenges and needs of the sector today. Some of the technologies that we used in the past to recover oil and gas were fantastic achievements... but they are not all necessarily technologies we need for maximising economic recovery, late-life production or smaller developments in a mature basin. ”

the UK Continental Shelf (UKCS). The TLB, made up of senior leaders from industry, academia and governmental agencies (see organogram below), was set up in late 2014 to ensure technology development is collaborative, focused on priority areas and suitable for multi-field application.

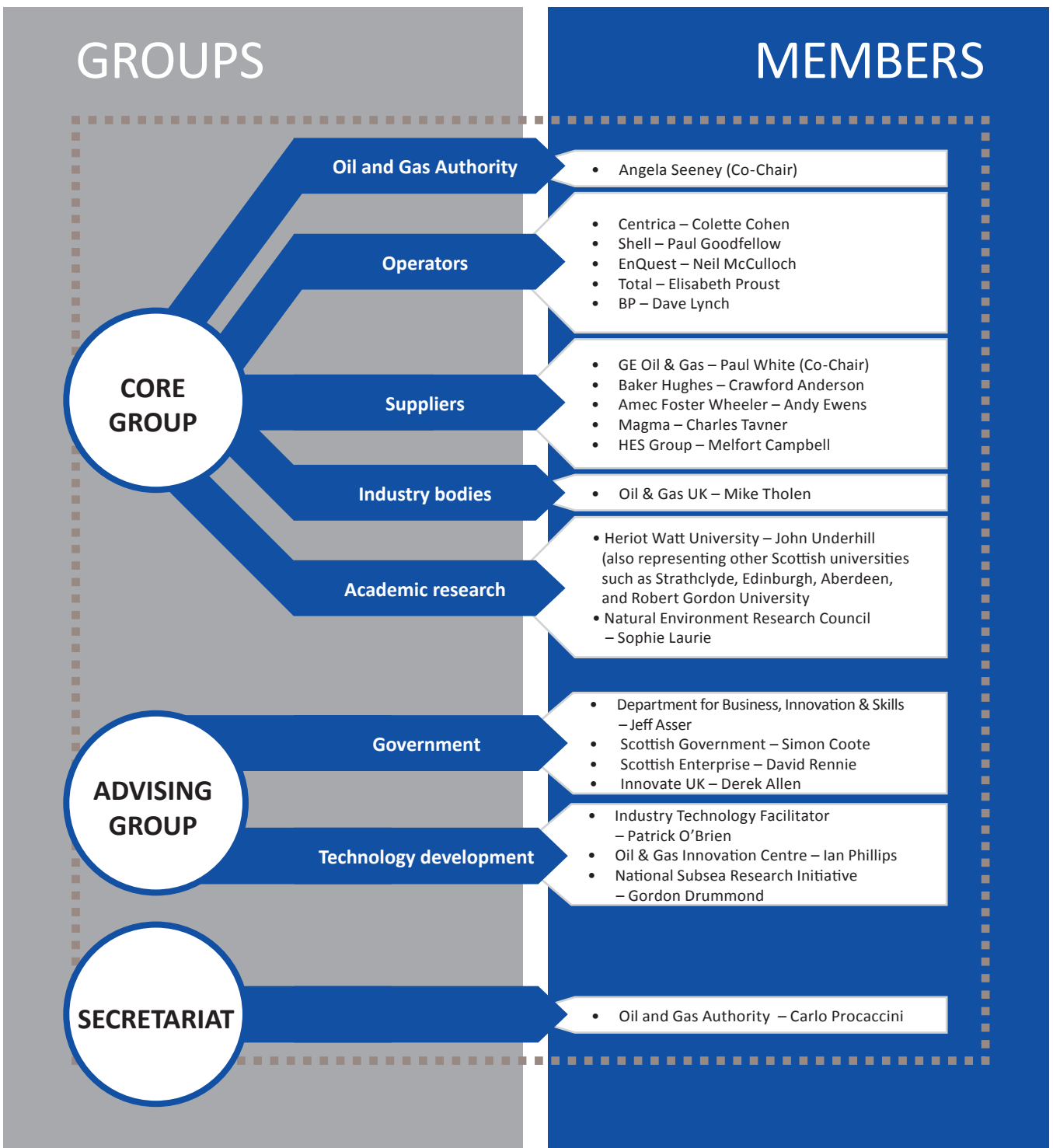
Its aim is to identify and progress strategic technology themes so that public funds are best directed for research and to facilitate and accelerate technology development and deployment.

The four priority themes are:

- **Small pool developments** – to develop more than one billion barrels of oil equivalent (boe) combined from discoveries smaller than 15 million boe by reducing well costs, using smaller more efficient structures or vessels, introducing low-cost controls and communications, and new flow assurance technology.
- **Asset integrity** – to generate more than £1 billion of extra revenue by reducing the time

and investment applied to vessel inspection and corrosion under insulation using advances in sensors, predictive maintenance, data and analytics, insulation design, chemical treatments, access systems and materials.

- **Low cost well construction** – to cut costs by 50 per cent to allow an extra 50 wells to be drilled per year through data and smart drilling, low cost fluid systems and innovative drilling tools.



• **Decommissioning** – to reduce costs by half and develop transferable knowledge in late-life field management through advances in cutting systems, lifting and moving equipment, diverless intervention, plugging and abandonment vessels, and cementing technologies.

Paul is very happy with the pace and extent of progress across these four work streams over the past year.

Most recently, for example, Lockheed Martin was commissioned and has completed an extensive asset integrity

landscaping study to look at advances in process vessel inspection and managing corrosion under insulation (see box-outs below and overleaf of recent outputs from the small pools and asset integrity themes).

Paul asserts: “The industry is due huge credit for the commitment it has made to the whole process. In everything we have done to date – workshops, hackathons and other initiatives – we have had great support and some fantastic ideas have emerged. We are now in the process of pulling all of that together and defining our next steps.

“What we have got to do now is maintain the dialogue – to keep energising the technology discussion and highlighting why it’s important.

“At the same time we need to sustain the links between industry, government, the Oil and Gas Authority and other regulators to continue to develop sources of funding and make sure we find routes to market for the technology we develop. That will help us to work through our existing priority areas but also to identify new ones that we need to take on board to keep moving forward.” >

SMALL POOL DEVELOPMENTS

The National Subsea Research Initiative (NSRI), tasked by the Technology Leadership Board, released an initial study earlier this year to map the challenges and potential technology solutions to exploit small pool developments. These are defined as discovered oil and gas fields that individually contain less than 15 million barrels of oil equivalent (boe), but combined could release about 1.5 billion boe if developed.

Championed by industry leads Centrica and EnQuest, the report was produced following a series of hackathons last year attended by over 200 people to generate and evaluate ideas for unlocking these small pools. Participants included experts from academia, government and industry.

The study identifies a number of technologies with short and long-term potential, such as stand-alone production buoys and compact floating, production, storage and offloading vessels, but emphasises that technical solutions must be coupled with ongoing efforts to tackle commercial issues such as access to existing infrastructure and co-operative working among operators. Furthermore, small pool exploitation is dependent upon a complementary TLB theme to pursue 50 per cent reduction in drilling costs (see p8).

Dr Gordon Drummond, project director at NSRI, says: “Market forces mean that the best return on investment is used to determine which resources to develop rather than maximisation of economic recovery. The small pools problem is solved not in isolated silos of single pool development but through tackling the challenge on an industry-wide level. If we address the issue collectively, the return is compelling.”

Colette Cohen, senior vice-president for the UK & the Netherlands at Centrica, echoes this view: “Unlocking these small pools will stimulate development activity, increase reserve recovery, extend field life and encourage exploration across the UKCS. Given the fragmented ownership of these small pools, an industry-wide approach is key to their successful development.”

**More than 200
small pool discoveries
could unlock a combined
1.5 billion barrels of
oil equivalent
if developed**



Moving forward, the Oil and Gas Authority is now mapping the location and fluid complexity of small pools against existing offshore infrastructure and the TLB will then seek to work with operators and suppliers to match technology with specific small pool challenges. From this exercise, it will become apparent where future efforts should be focused, such as tie-backs to existing topsides, subsea hot taps, clustering arrangements and/or stand-alone facilities.


Neil McCulloch, president North Sea, EnQuest PLC, adds: “Small pools are integral to the future of the UKCS with more than 200 pools awaiting exploitation, the majority of which are in the central North Sea where significant infrastructure exists. EnQuest has already seen the considerable benefits of standardisation, efficiency and technology in our Scolty/Crathes project of small pool discoveries sanctioned in October 2015.”

The study on Maximising Economic Recovery from Small Pool Developments is available to download at www.nsri.co.uk/assets/NSRI-Hackathon-Output-Report.pdf.

Seeking solutions

In this vein, the TLB is among the bodies supporting the new Oil & Gas Technology Centre (OGTC), announced earlier this year and underpinned by funding from the UK and Scottish governments through the Aberdeen City Region Deal.

Led by private sector economic leadership body Opportunity North East, the OGTC's priority is to establish Solution Centres that bring together knowledge and expertise from across industry and deliver practical solutions for immediate challenges in asset integrity, drilling and well construction, and developing smaller and more marginal offshore fields.

Paul is enthused about the opportunities ahead. "Technology doesn't hold all the answers but it is a very important part of the solution." 



In everything we have done to date – workshops, hackathons and other initiatives – we have had great support and some fantastic ideas have emerged. We are now in the process of pulling all of that together and defining our next steps.



IMPROVING ASSET INTEGRITY

In the critical area of offshore asset integrity, a new study published by Oil & Gas UK on behalf of the Technology Leadership Board aims to raise awareness of the array of technologies that could deliver safe and effective improvements in efficiency.

The Asset Integrity Theme Landscaping Study by Lockheed Martin assesses the breadth of technologies available or under development in pressured system inspection and managing corrosion under insulation of onshore and offshore structures, with respect to maturity, cost, risk, benefit and applicability. The deployment of these tools, including for example unmanned aerial vehicles and ultrasonic surveys, could help offshore teams gather more detailed information on asset integrity, more rapidly pinpoint priority areas for attention, reduce production downtime during a shutdown and minimise exposure to hazards.

Alec Harley, energy sector director at IS&GS Lockheed Martin UK, comments: "We gathered some fascinating information from a large cross-section of specialists, including those in other high performing sectors such as the medical, space exploration and nuclear industries, where technological advances are driving significant improvements."

The publication includes contributions from industry champions Total E&P UK and Amec Foster Wheeler, the Oil & Gas Innovation Centre and the Industry Technology Facilitator. More than 90 technology-focused industry representatives also furthered the study by participating in two workshops based on Lockheed Martin's initial research.

Jeremy Cutler, head of technology innovation at Total E&P UK, says: "It's vital that our industry gets ahead of the crisis. By using the best technology and innovation available we play to our strengths and give ourselves the best chance to ensure a bright future for the British offshore industry."

Andy Ewens, director of operations at Amec Foster Wheeler, adds: "Now with momentum behind some of the strategic initiatives necessary to underpin application of these new technologies, we are moving to a stage where we will start to see what impacts they will have."

The Asset Integrity Theme Landscaping Study is available to download at <http://bit.ly/AITLstudy>.



Advances in technology could deliver safe and effective improvements in offshore asset integrity inspection



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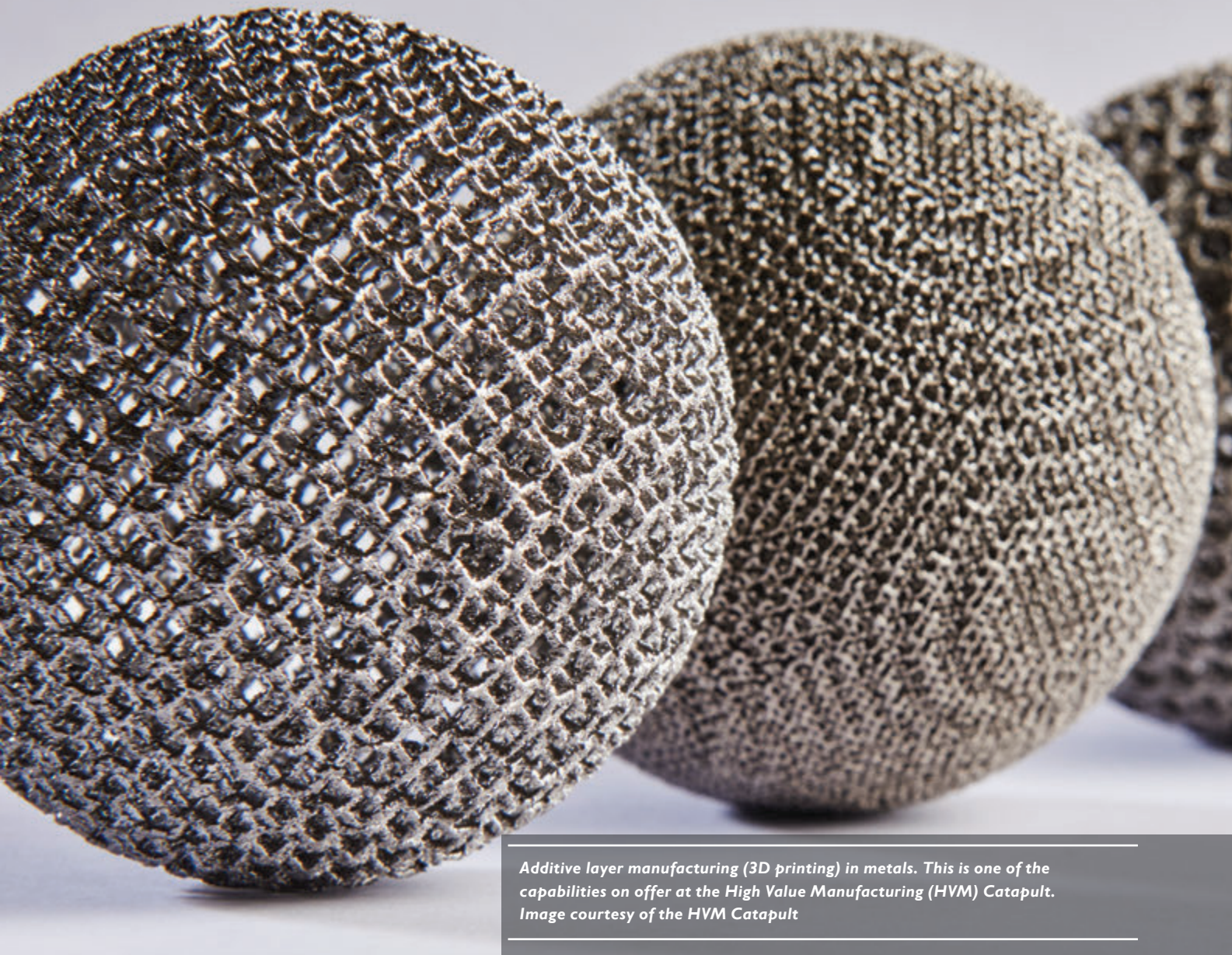
OPITO's Competency Management System (CMS) Approval is designed to ensure high quality performance and safe working practice across the offshore workforce. With personnel guaranteed to be working to best practice criteria, UK oil and gas firms with an approved OPITO CMS in place are recognised as being amongst the best businesses in the world.

The independently approved system not only ensures there is measured development of employees' skills sets, it helps to set and maintain a framework for continuous improvement and performance management, driving efficiencies and delivering cost benefits across a business.

Best practice competency system

Five operators are amongst the 25 companies in the UK with an OPITO approved system in place. Nexen, one of the largest oil producers in the North Sea, implemented the OPITO scheme by developing and enhancing its own in-house process. This led to additional roles and responsibilities being identified and created within the organisation, ensuring that a best in class sustainable system is delivered.





Additive layer manufacturing (3D printing) in metals. This is one of the capabilities on offer at the High Value Manufacturing (HVM) Catapult. Image courtesy of the HVM Catapult

Matchmakers

As a key partner in the MER UK Technology Leadership Board, the Oil & Gas Innovation Centre in Aberdeen strives to match SMEs with academic expertise to fast track solutions to the challenges facing businesses on the UK Continental Shelf. *Wireline* reports

Finding the right partner in all walks of life can be tricky, and growing together is about more than just getting older.

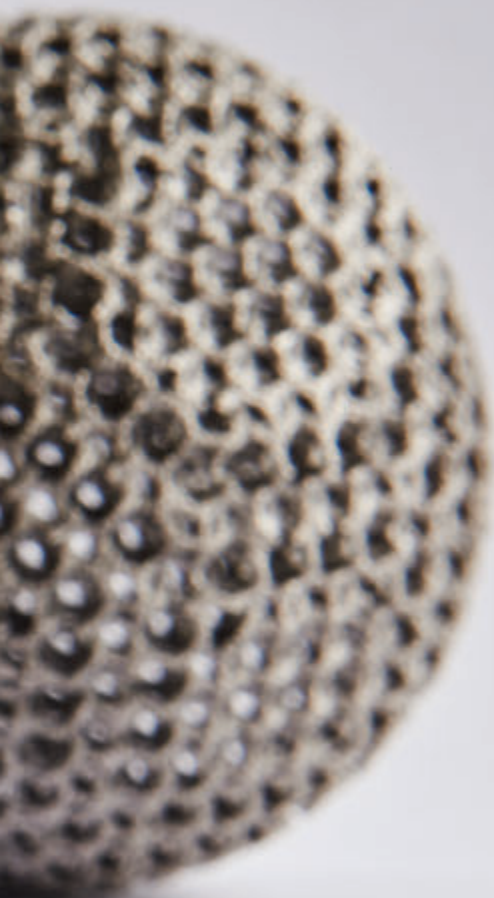
The Oil & Gas Innovation Centre (OGIC) in Aberdeen was formed two years back with this in mind. Funded by the Scottish Funding Council and supported by Scottish Enterprise and the

Highlands & Islands Enterprise, its remit is to match SMEs with the right academic partner from Scotland's 14 universities and part-fund the academic element of the project. These collaborative ventures then seek to nurture, test and bring to market new technology ideas.

“Our role is to accelerate the development and deployment of

technology that will improve outcomes on the UK Continental Shelf,” asserts OGIC chief executive Ian Phillips.

“We do this by matching industry innovators with university research and development (R&D) capabilities, by part-funding the academic support on these projects and providing project management guidance.”



Ian Phillips, chief executive of the Oil & Gas Innovation Centre

together to identify and address immediate challenges. Our priority areas are directly aligned with the TLB's themes so that industry can make progress faster, focusing on, amongst others, asset integrity and life extension, well construction, decommissioning, enhanced recovery, improved exploration, and production optimisation.”

The OGIC team prioritises projects that have a prospective positive impact on efficiency and cost reduction. And all funding is subject to peer review by expert industry panels.

To date, the centre has funded 16 projects, six of which are completed, and there are a further 55 at various stages in the pipeline for approval.

Well ahead

The first completed venture linked up specialist supply chain company Hydrasun with the University of Strathclyde to test the company's new well intervention hose. The aim is to reduce the cost of conventional light well intervention to keep subsea wells clean and free from restrictions or blockages and maximise production rates.

Experts at Strathclyde carried out an extensive qualification programme of the fluid transfer technology, including destructive and fatigue testing across a range of simulated operational

conditions. This data on performance capabilities allowed Hydrasun to start early engagement with prospective customers.

Uplifting

More recently, Xodus has teamed up with researchers at the University of Dundee to explore better ways of decommissioning subsea structures with a view to creating analysis methods and design guidance for this fledgling area of activity. The University's School of Science and Engineering will carry out a series of small-scale model tests of uplift operations to investigate a range of variables.

“OGIC has been helpful in developing and launching this project,” says Andy Small, principal geotechnical engineer at Xodus. “Its system for accessing a large network of institutions helped in finding an academic partner to undertake the work. Also its matched funding helped us develop a broader and more robust research proposal at a time when R&D budgets are under significant pressure.”

Andy believes that understanding the geotechnical aspects of decommissioning and how to manage the risks will likely yield significant cost savings and operational efficiencies during project execution.

He says: “The potential for cost increases due to unknowns is high, especially with >

“

Our role is to accelerate the development and deployment of technology that will improve outcomes on the UK Continental Shelf.

”

OGIC's objectives chime with those of the MER UK Technology Leadership Board (TLB), underlining the commitment to joined-up thinking – and working – in the technology development arena (see p28 for more on the TLB).

Ian explains: “The TLB has brought operators and service companies

“ **The potential for cost increases due to unknowns is high, especially with regard to seabed uncertainty. We expect this work to make a novel and incremental contribution to the relatively sparse body of research in decommissioning geotechnics.** ”

regard to seabed uncertainty. We expect this work to make a novel and incremental contribution to the relatively sparse body of research in decommissioning geotechnics. We also hope this will encourage further research in what is becoming an increasingly important field.”

Manufacturing and materials

To create more opportunities for concept development and cross-industry

collaboration, OGIC is now working with the High Value Manufacturing Catapult (HVM Catapult) – a network of seven technology and innovation centres established by the UK Government.

The centres located throughout the UK offer open access to industrial-scale cutting-edge equipment and specialist engineers, scientists and technicians with in-depth knowledge of materials behaviour and manufacturing. OGIC hosts an HVM Catapult representative in its offices, a role funded by three of the centres within the Catapult (see box-out right for more details on the HVM Catapult).

Dick Elsy, chief executive of the Catapult, says: “The Catapult offers capabilities across all stages of manufacturing. I am convinced we will add real value to the oil and gas industry in the months and years ahead.”

Paul Cantwell, knowledge exchange fellow for oil and gas at the Advanced Forming Research Centre, part of the HVM Catapult, adds: “The challenge for industry is keeping an eye on developing technologies and still maintaining day-to-day operations. The HVM Catapult centres facilitate this and bridge the gap between innovations and commercially manufactured reality.

“Scaling up towards commercial exploitation is risky. It often requires significant investment without any guarantee of success. By working with our centres, companies can reduce that risk. We enable companies to develop, prove and scale-up the next generation of products, processes and technologies.”

Moreover, Paul believes that “innovation doesn’t always take the form of a new process or product – often it is simply a case of looking at what already exists and making adjustments to improve the results”.

He notes that the current drivers in technology innovation – making things lighter, stronger, quicker and better – are transferrable from one sector to another.

“It’s our experience that solutions that are tried and tested in one sector can often be adapted to boost performance in others by analysing the use of materials and identifying alternative routes to manufacture.”

Additive manufacturing – or 3D printing as it’s commonly known – could be one example. This involves building up products in layers from a digital model and using a printer, rather than cutting out products from blocks of material.



Initially developed for use in the aerospace industry, the technique is now being applied to medical devices and being explored by the oil and gas sector. Paul explains: “This technology enables products to be made in ways conventional manufacturing could never do, replacing solid material with complex internal structures that cut out weight, add strength and allow air flow, among other benefits.”

Open to new ideas

OGIC for its part is firmly focused on its role in supporting SMEs. Ian says: “I find it hugely satisfying that OGIC has developed projects with companies that have not previously engaged with university capabilities – in some cases leading to long-term R&D relationships.”

“And I find it inspiring that – even in a downturn – so many companies are willing to turn their great ideas into deployable technology products.”

He hopes that the downturn in the UK oil and gas industry brings some positivity “in terms of more openness towards innovation in what has historically been a very risk-averse sector”.

He adds: “The industry recession has focused minds on costs and efficiency and, irrespective of where the oil price moves, this has been a necessary recalibration. The rewards will be even higher when the oil price recovers.”[Ⓜ]



www.ogic.co.uk

<https://hvm.catapult.org.uk>

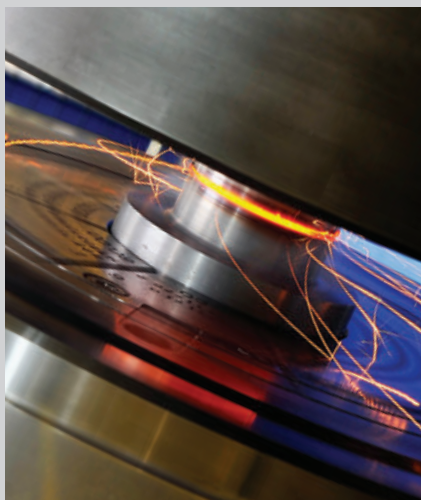
“ **It’s our experience that solutions that are tried and tested in one sector can often be adapted to boost performance in others by analysing the use of materials and identifying alternative routes to manufacture.** ”

FORM FOLLOWS FUNCTION

The High Value Manufacturing Catapult is a network of seven technology and innovation centres that aim to more than double the contribution of the manufacturing sector to the UK economy. Three of the centres are funding a post at the Oil & Gas Innovation Centre in Aberdeen to bring their know-how to the oil and gas sector.

The three facilities involved are:

- **The Advanced Forming Research Centre at the University of Strathclyde** – it has an extensive suite of forming and forging R&D capabilities, as well the ability to measure, model and manage residual stress to achieve improvements in component life with structural integrity and service reliability benefits.
- **The National Composites Centre at the University of Bristol** – it develops composite products where multiple materials are combined to give properties superior to the individual components. Such technology has been applied in the aerospace sector to produce airplanes that are lighter, more fuel efficient, have lower operating costs and still meet some of the most stringent safety regulations. Within the oil and gas sector, work is under way in the first instance to evaluate the performance of flexible pipes as part of a much wider opportunity to use composites in a range of associated structures.
- **The Manufacturing Technology Centre based in Coventry** – which houses some of the most advanced manufacturing equipment in the world. Alongside market leading expertise, this creates a high quality environment for the development and demonstration of new technologies on an industrial scale.



Images courtesy of the HVM Catapult



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