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#### 28 The floating production market: 2016 & beyond

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#### 32 First cut is the deepest

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#### 34 Top projects by expense in 2016

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#### 36 Offshore's opportunity?

Innovate, collaborate, standardize; lead with lean, suggests Hess' Rob Fast.

Photo from Aker Solutions



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#### **38 African FPSOs**

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#### 40 FPSOs: On the horizon

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#### 44 Model engineering for asset integrity

Aging assets and life extension are consuming ever more engineering hours in the offshore oil and gas industry. How can engineering tools help? Meg Chesshyre looks for answers.

#### 46 Assessing caisson inspection techniques

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#### 58 Digital gains

Global offshore market forecast

#### Middle Eastern ground

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#### ON THE COVER

In the cards. While times are uncertain, one thing is clear: the future is subsea. And, that's why OE chose this illustration from Aker Solutions, depicting their subsea power distribution systems, as part of our January cover art.

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Celebrating the new in the New Year.

#### 10 Opinion: The Barrel

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#### 18 Field of View: Giving ABK a boost

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#### 62 Spotlight: Laurent Decoret

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#### 66 Asset of the month

Voxels, submicrons and synchrotronic optics are coming to an oil and gas laboratory near you. Well, almost. Elaine Maslin reports on the University of Aberdeen's new high-spec scanner.

**Elmedia** 

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#### **40** For AUV eyes only

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#### 42 Making nodes fly

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#### **46** Every barrel matters

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Open water coiled tubing drilling has been used offshore Norway in an industry first. Elaine Maslin found out more.

#### 53 Tools of the trade

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#### 54 Automation: Extending assets' lifecycle

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Hardworking. This month's cover depicts a completion workover riser system (CWOR) from GE Oil & Gas, a riser play-

er in the well access and intervention market. GE is one of the firms *OE* spoke with in February's special report on well intervention. See pages 28-35 for more. *Image from GE Oil & Gas*.

#### 8 Undercurrents

2015 was the slowest year in a decade for merger and acquisition activity. What's the deal?

#### 10 The Barrel: Fighting for survival

Colin Welsh argues that only the fittest companies will survive this downturn.

#### 12 Global Briefs

News from the around the world, including discoveries, field starts, and contracts.

#### 23 In-Depth: Finding meaning in standardization, replication

To create meaningful cost reduction – or value creation – the industry will need to be more aligned in its understanding of what exactly terms like standardization and fit-for-purpose mean. Meg Chesshyre reports.

#### 18 Field of View: Ichthys LNG one step closer

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An overview of offshore products and services.

#### 62 Activity

Company updates from around the industry.

#### 64 Spotlight: Gerald Stone

Audrey Leon chats with Gerald Stone, senior vice president, Fluor Offshore Solutions, about his unlikely career in engineering, his take on the current market situation, and his work in harsh environments.

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#### **32** Fiscal focus

Today's flow metering systems for petroleum products must not only precisely monitor production and transfers; they also need to provide robust data to underpin digital intelligence for improved decision-making, says Honeywell Process Solutions' Tim Vogel.

#### SUBSEA

#### 51 All in the water

For subsea separation and produced water re-injection or discharge to really take hold, technology gaps in subsea water quality measurement must be closed. Progress is being made, says NEL's Ming Yang.

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#### **54** Clever composites

Sometimes, new materials and new manufacturing processes fortuitously emerge, just at the time they are needed. At least Magma Global hopes that's the case. Elaine Maslin reports.

#### 56 Embracing nanotechnology's potential

Elaine Maslin examines some of the potential uses for nano-scale manufacturing in the oil and gas industry.

#### 58 Popularizing polymers

Elaine Maslin visited with Nylacast to find out more about engineering polymers and their benefits to the offshore industry.

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#### 35 GCE Subsea

In partnership with GCE Subsea, **OE** reports on Norway's subsea sector's technology and trends.



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OE examines the Mexican oil and gas market after energy reforms were enacted.

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#### 83 Managing data as an asset

ABS is developing guidance for data analytics and data management, and setting standards for best practices, Henrique Paula sets the scene.

#### 84 Cyber shy

Efficiency gains could be made through better use of digital technologies, but the industry is still shy on the uptake. Nada Ahmed, senior consultant, DNV GL - Oil & Gas, looks at the opportunities and risks.

#### 86 Dawn of the data engineer?

Oil and gas has all the resources for a Big Data revolution – so what's holding us back? Robert Dickson, Director – field development project excellence at io sets out his view.

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#### 90 Great expectations

Brazil and Mexico are not the only games in town. The deepest well ever drilled is lined up for offshore Uruguay and Exxon is set to test Liza offshore Guyana. Elaine Maslin reports.

#### 93 FPSOs at the forefront

Despite the ongoing bribery investigations, Petrobras is ploughing ahead with new FPSOs. Pietro Ferreira, of the Energy Industries Council, outlines current contracting activity in Brazil and in Mexico.

#### ON THE COVER

Big & Bright. While surveying the offshore rig market may make one depressed, one bright spot is the contract secured by Transocean's new *Deepwater Thalassa* drillship, which graces the cover of this issue. Read more on page 22. *Photo courtesy of Transocean*.



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What's next for Mexico after Pemex appoints a new CEO?

#### 10 The Barrel: Mood swings

Colin Welsh discusses how speculators influence the oil price.

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News from the around the world, including discoveries, field starts, and contracts.

#### 16 Field of View: Taming a Sea Lion

Since its discovery in 2010, the Sea Lion field offshore the Falkland Islands has been subject to a string of development options. Elaine Maslin looks at Premier Oil's optimized final plan.

#### 19 In-Depth: Tug of war

BSEE has proposed a new well control rule that the agency says will make operating in the Gulf of Mexico safer. But, the industry disagrees, and now it has two studies to prove it. Audrey Leon sets out the detail.

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#### 95 Activity

Company updates from around the industry.

#### 96 Spotlight: Vidar Fondevik

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FEATURE FOCUS

#### Asset Integrity

#### 24 Let's get predictable

If topsides asset integrity management is a bane, imagine looking after subsea assets. Elaine Maslin reports on the challenges associated with keeping up with both older equipment and newer, more complex equipment.

#### 28 Cracking the code

Scot McNeill and Kenneth Bhalla, of Stress Engineering Services, show how measured data coupled with engineering analysis can increase asset utilization.

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#### 32 Life goes on

Elaine Maslin takes a look at the Dan Bravo complex offshore Denmark, which, at 44 years old, has a new lease on life thanks to some serious steel reinforcement.

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The race is on to create an autonomous, resident underwater vehicle capable of long-term inspection operations and eventually a level of intervention. Elaine Maslin takes a look at BG Group's version.

#### 36 Robots in disguise

Elaine Maslin talks to Oceaneering about its latest underwater technologies and its thoughts on the future of the ROV and AUV industry.

#### PRODUCTION

#### 40 Keeping it simple

Sometimes it's not all about throwing the latest bells and whistles at a production facility – its best to keep it simple. Elaine Maslin looks at how an eductor has kept a gas field going.

#### 42 Keeping a stiff upper lip

There's a lot of doom and gloom in the North Sea as operators battle to make operating costs profitable. Yet, it's not all bad on the UKCS. Meg Chesshyre reports.

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#### 44 Team work

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#### 46 X-ray vision

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#### 56 Bucking the trend

Chad Barnes, of Energy Industries Council, reports that contrary to industry norms, contracting activity in the Eastern Mediterranean and North Africa region is on the rise.

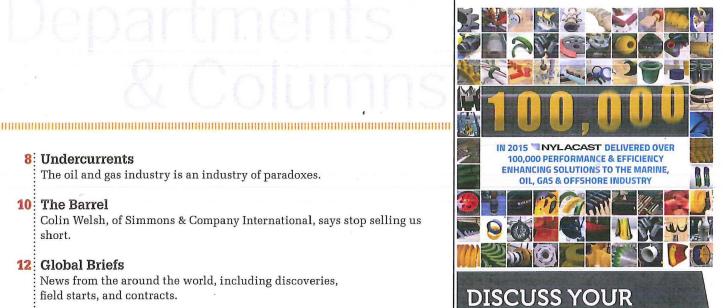


#### ON THE COVER

#### ROVs are just like us.

Oceaneering International provides *OE's* April cover, featuring the Magnum remotely operated vehicle (ROV) taking a "selfie". See more of Oceaneering's latest underwater technologies on page 36. *Image from Oceaneering*.





### PROJECTS TODAY

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#### 8: Undercurrents

The oil and gas industry is an industry of paradoxes.

#### 10: The Barrel

Colin Welsh, of Simmons & Company International, says stop selling us short.

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News from the around the world, including discoveries, field starts, and contracts.

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#### 19 In-Depth: Proof of concept

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#### 34 Let's get deep

Ultra-deepwater exploration on the Atlantic margin could be the opportunity the offshore industry is looking for, according to geoscience firm Spectrum. Elaine Maslin reports.

#### 38 How deep is your well?

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Tapping small fields and coming up with economic early production system solutions offers engineers an interesting challenge. Elaine Maslin reports.

#### 44 More than mini eyeballs

Meg Chesshyre reports on how mini ROV systems have advanced significantly and, thanks to their size, they can get up close and personal.

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#### 64 Worlds collide

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#### 70 A new lease on life

Scrap or refurbish and reuse? It's a question being asked on the UK Continental Shelf. Elaine Maslin reports.

# Global Deepwater Review

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Hard at work. OE's cover features
various deepwater projects from around
the globe. Included: ExxonMobil's
US\$4 billion Julia project in the Gulf
of Mexico (learn more on page 100),
LLOG's recently onstream Delta
House development, and Eni's Goliat
FPSO in the Barents Sea. Photos
courtesy of ExxonMobil, InterMoor
(Delta House), and Eni (Goliat).



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Installation work on the deepwater Julia field. Photo courtesy of ExxonMobil.

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#### 96 Deepwater Gulf of Mexico project primer

OE charts recent project start-ups (2014+). Data compiled by Quest Offshore.