

DIGITALISATION OFFSHORE

Is it the secret to sustaining
lower operating costs?

EXECUTIVE SUMMARY

September 2017

AVEVA™



Westwood
Global Energy
Group







The offshore oil and gas production sector has been particularly impacted by the industry downturn

In an effort to optimise the economic recovery of hydrocarbons in a low oil price environment, E&P operators are increasingly evaluating the role of technology in sustainable long-term cost reduction initiatives.

AVEVA, in partnership with Westwood Global Energy Group ("Westwood"), a leading provider of information, subscription services and research led consultancy services to the global energy industry, has interviewed a wide variety of oil and gas industry stakeholders to ascertain whether digitalisation holds the key.

This Executive Report provides a summary of the key findings from these interviews. The full report will be made available during the AVEVA World Summit on 24-26 October 2017.



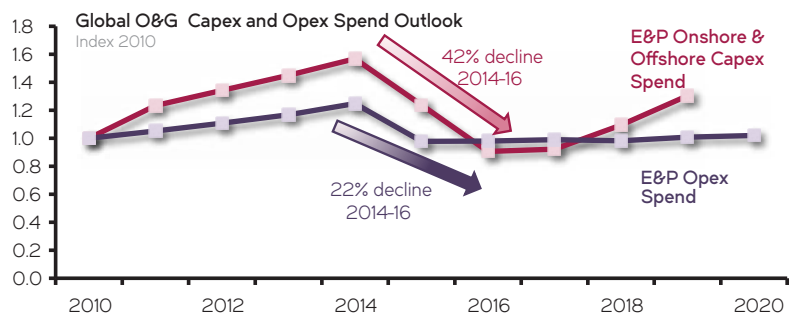
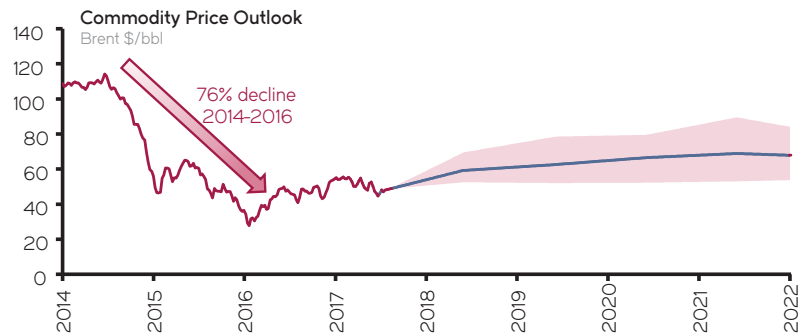
THE CURRENT OUTLOOK

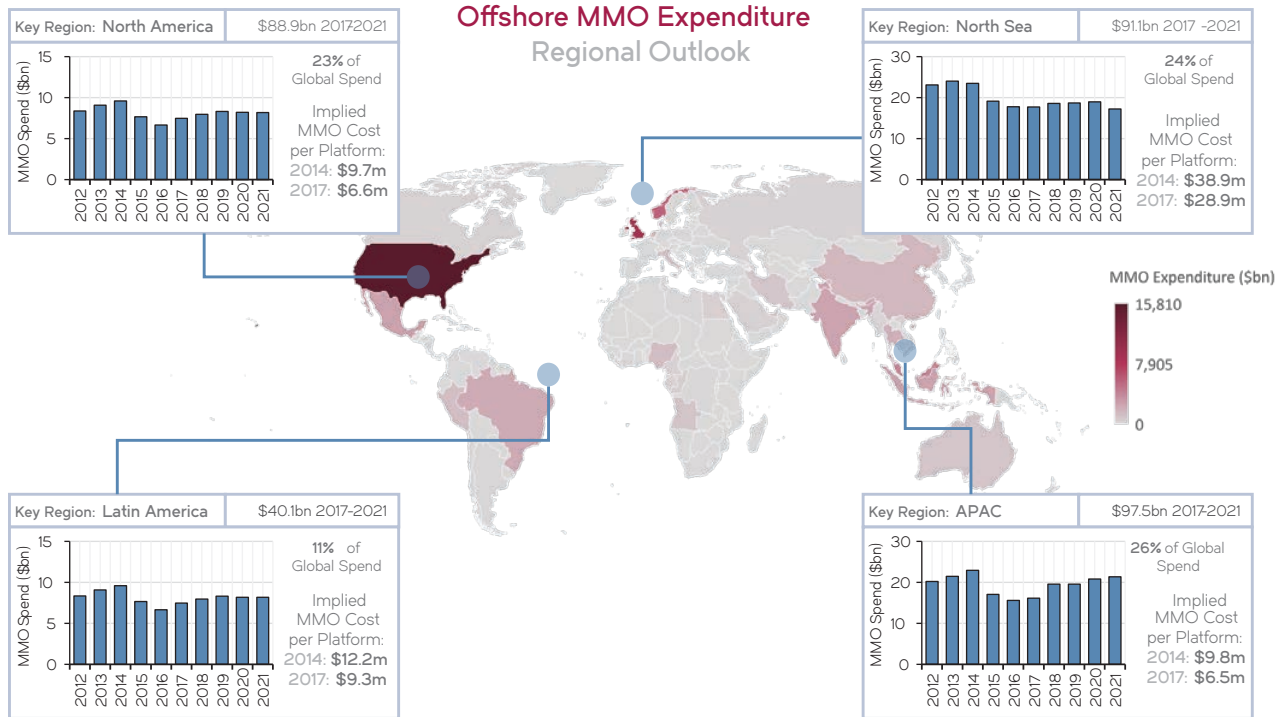
Since the highs of 2014, the price of Brent Crude has tumbled by c. 76%, from \$114/bbl to \$28/bbl in January 2016. As a consequence, global Capex and Opex investments also dropped sharply by c. 42% and c. 22% respectively between 2014 and 2016. Looking to the future, Westwood's Base Case scenario assumes average Brent spot prices will rise to c.\$70/ bbl by 2021 with overall E&P spend also recovering modestly.

Doing more with less

As the offshore oil and gas sector adjusts to a lower-for-longer oil price mindset, production optimisation (to maintain cash flows) and sustainable cost rationalisation via supply chain pricing compression, enhanced operational efficiencies and standardisation have become increasingly important.

Westwood's research estimates that since 2014, average upstream capital costs have fallen by 42%, with much of the initial savings due to immediate price reductions for offshore marine infrastructure (rigs, vessels etc.) and improved drilling efficiencies. Increased standardisation and simplified engineering has contributed to deepwater and shallow water costs per barrel to drop by 62% and 37% respectively since 2012.





Keeping it lean


Maintaining the sizeable global offshore production asset base is key to ensuring continuing offshore oil and gas production. While offshore production asset related maintenance, modification and operation (MMO) spend has been impacted by the downturn, Westwood's outlook suggests an industry-wide desire to maintain the cost rationalisation initiatives going forward.

In order to do this, teams need to work smarter. Poor usage and management of data, for example, is costing companies millions of dollars in hidden costs.

With multiple sources of data, incomplete or missing information, employees can spend hours in unnecessary downtime searching for and checking data before manually sharing it with relevant team members. There is a huge potential to vastly improve efficiencies by having clear, intelligent information frameworks in place supported by tools that not only improve data quality, but also streamline the data collection processes.

Does digitalisation hold the answer?

We spoke to a range of senior decision makers within international E&P operators and oilfield services companies to gain a better understanding of their perceptions on the role of digitalisation in delivering greater efficiencies.



"Data accuracy is a key benefit. 3D models allow you to identify all specifications of a particular equipment. The access to real time data is key. It's having a 'Single Source of the Truth'".

MMO Service Provider, UK



THE BENEFITS OF DIGITALISATION

Making the general case for digitalisation is not a hard sell. Overall, the oil and gas industry is aware of the benefits it offers.

Digitalisation initiatives, particularly in mid-life offshore production assets, can create cost savings across the rest of the asset's producing life. They enhance overall efficiencies by minimising manual tasks and streamlining various work processes.

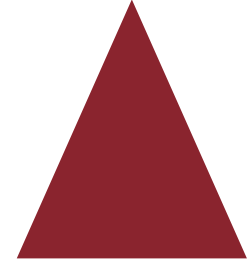
Improving the quality of data and augmenting the regular use of real-time information promotes asset life optimisation and longevity. It also assists in better commercial decision making, all the way from the Exploration and Appraisal phase to the production optimisation phase.

In particular, the creation of a Digital Asset (the collected information used to design, build, commission, operate, maintain, modify and decommission the physical asset to which it relates) sets the foundation for achieving the Digital Twin, which allows for real time assessment of an asset, enhanced MMO processes and a move from descriptive to prescriptive analytics.

The key digitalisation benefits highlighted during our interviews include:

- Better quality and ease of sharing data
- The ability to take a proactive rather than reactive approach to MMO requirements
- Projects are run more efficiently and accurately, requiring smaller teams
- Automation and remote monitoring
- Better reliability and improved safety
- Lower overall Opex spend

FIGHTING THE FEAR FACTOR, CHANGING PERCEPTIONS



While the benefits of digitalisation are broadly understood, the risk averse nature of the oil and gas industry has left a number of common misconceptions unchallenged. One of the key incorrect perceptions is that large up-front costs are required to implement a new data management infrastructure. There is also a need to improve the return on investment perception.

Technology providers need to work harder and collaborate with the oil and gas industry, to make the cost benefit case and dispel some of the misconceptions.

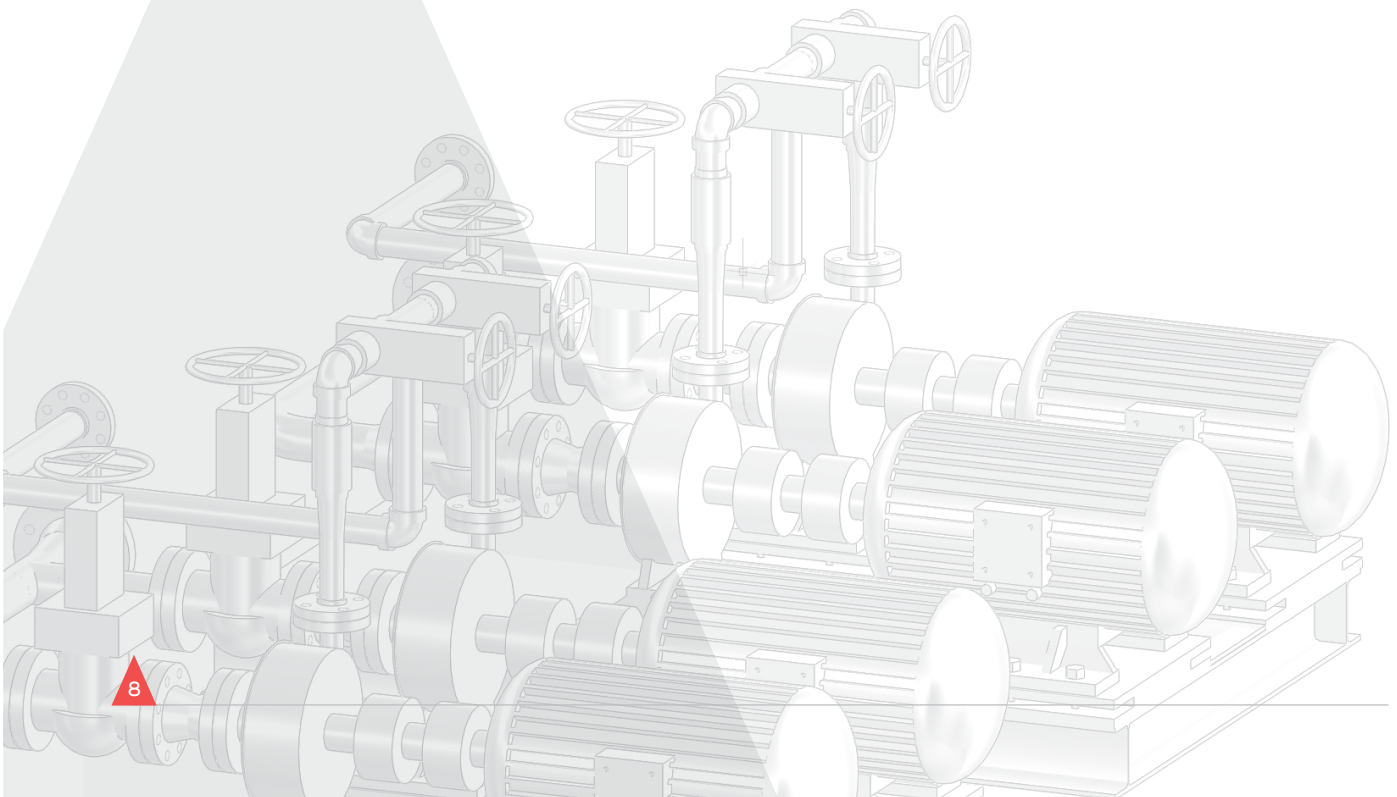
How digitally savvy is the oil and gas industry?

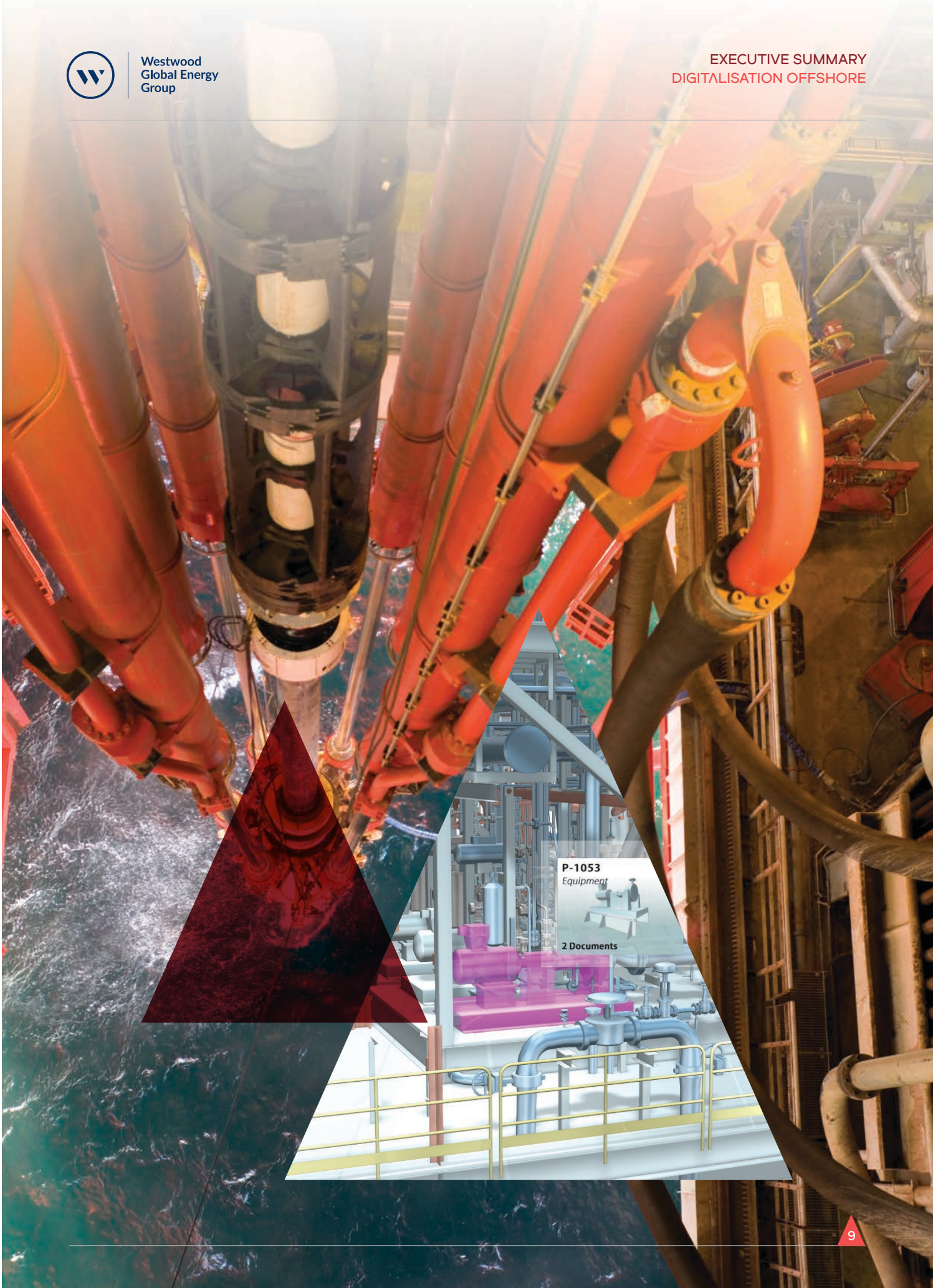
While the oil price downturn has helped to enhance the case for digitalisation, parts of the industry have been more open to change than others.

Supermajors are typically further ahead with digitalisation implementation initiatives relative to Independents, where there is seemingly less focus. FPSO Operators are already beginning to implement digitalisation on new and existing fleets. Where digitalisation initiatives are being implemented, predictive maintenance is a current focus area as the industry moves from descriptive to prescriptive analytics.

“The biggest hurdle with digitalisation is the quite large capital outlay before you can save money. This is a difficult challenge at the moment as it’s a case of how quickly will we see the investment be returned.”

MMO Service Provider, UK





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Equipment

2 Documents

WHAT DOES THE FUTURE HOLD?

The current oil price environment has led to significant Capex and Opex reductions within the oil and gas industry. Digitalisation is increasingly being perceived as a key contributor to reducing Opex.

Current market conditions and a risk averse culture has resulted in a slow realisation of the potential of digitalisation. However, this is expected to change as more technologically focused employees move into decision making roles going forward.

An important next step is to promote digitalisation considerably, including an industry wide concerted effort towards engineering data standardisation, overcoming cultural inertia and addressing misconceptions. Looking ahead, participants expected the emphasis to be on innovative and intelligent solutions. 3D models that integrate the complete data framework of enabling real time access to data. The Digital Twin was highlighted as allowing E&P operators to plan for the future and reduce unexpected downtime.

“Before the downturn, people were thinking ‘we don’t need to do it it’s \$100/ bbl ’. Now people are starting to think about it. The difficulty is that people don’t want to spend the money on implementing it – but they want the cost savings. Resistance is decreasing – I think eventually it will become an industry standard.”
FPSO Operator, Latin America



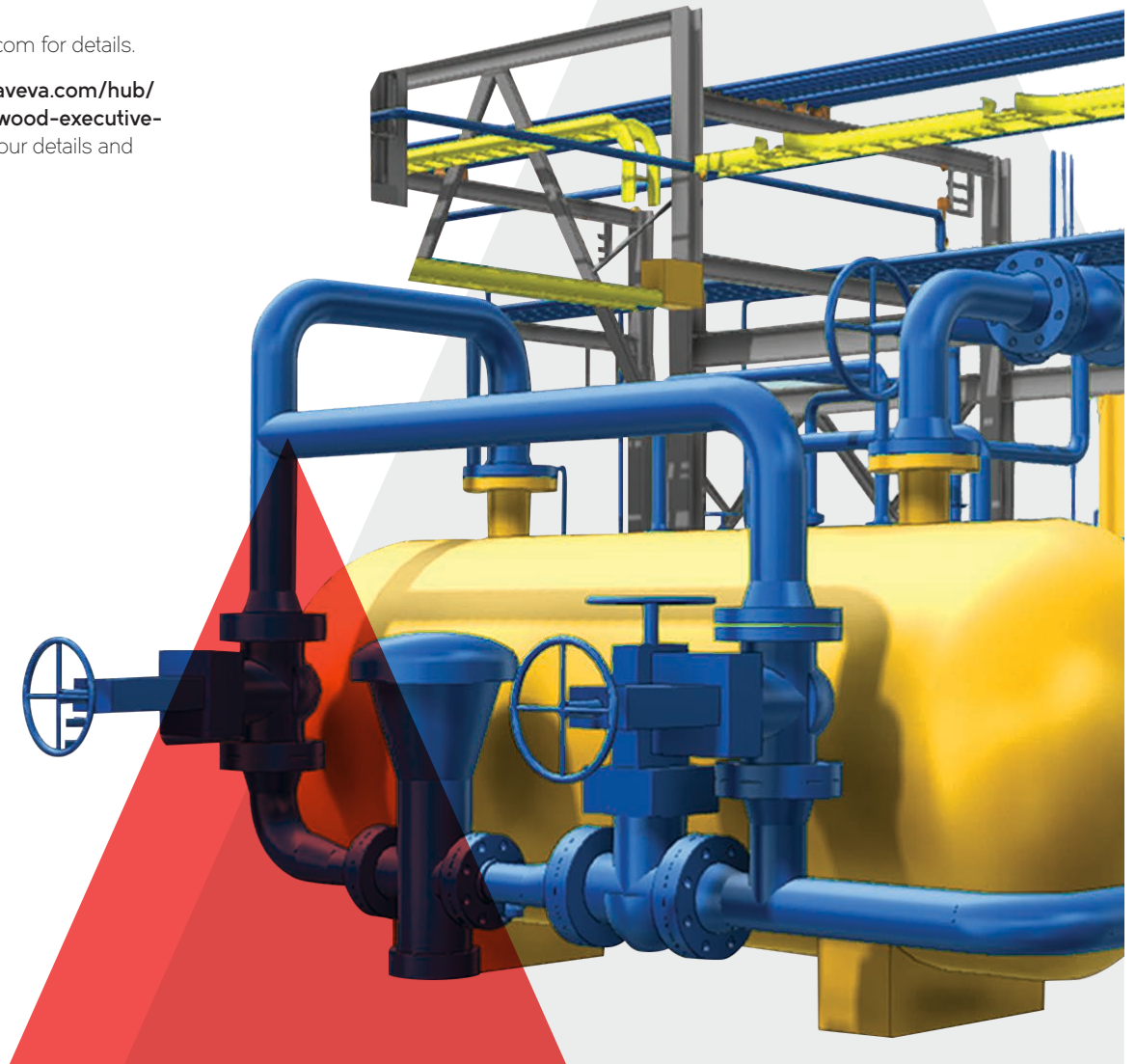
THE FULL REPORT

The full report will be published in October to coincide with the AVEVA World Summit on 24- 26 October at the Cambridge Corn Exchange.

AVEVA WORLD SUMMIT

Visit www.avevaworld.com for details.

Go to <http://discover.aveva.com/hub/aveva-research/westwood-executive-summary> to register your details and request your copy.

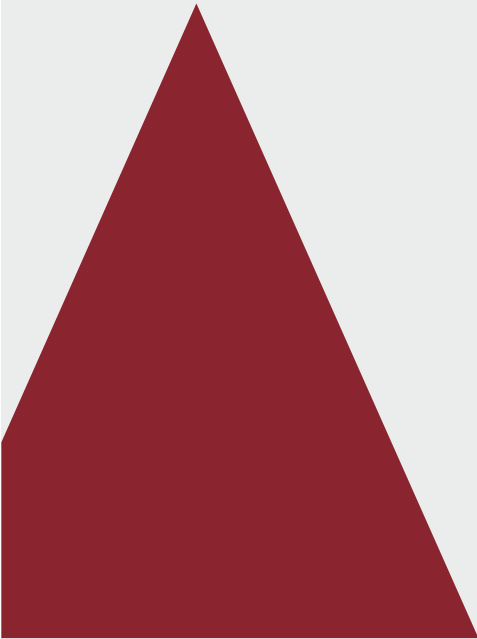




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