Many sectors in the Middle East – particularly oil and gas – currently stand at an interesting crossroads: rapid urbanisation and rising energy demands represent excellent growth opportunities but this is tempered by a wide range of geo-political challenges such as falling oil prices and environmental issues.

For the O&G sector in particular, in order to secure their long-term future companies need to achieve more with their existing assets by operating more efficiently, safely and economically. Research shows there are between 700 and 800 operable offshore fixed platforms and bridges in the Middle East region and the United Arab Emirates (UAE) alone accounts for about 450 structures. However, more than 70% of these are operating beyond their originally intended lifespan as many of them are more than 25-years-old and some are beyond 40 years. This is why the effective life extension of aging assets is quickly becoming a key priority for UAE companies, given the uncertainties of their current operational climate.

It’s vital for UAE oil and gas asset managers to fully understand the importance of Asset Integrity Management (AIM) in addressing their particular challenges. Its principles allow them to fully understand the options that are available when trying to decide how best to maintain value from their ongoing operations. By adhering to AIM principles, O&G companies can make an informed decision regarding their aging assets; whether it’s best to replace them, upgrade them or simply maintain them in a safer and more efficient manner.

Specific Challenges faced by O&G companies in the UAE

Reliability and Volatility: Inability to forecast future scenarios

“Current uncertainties create a scenario where IT and communications have an even greater strategic value because they can bring far greater efficiencies. But it’s a conservative industry; one that is over 150 years old, which has been tremendously successful in finding, developing, and producing hydrocarbons. There is a gap, however, between what IT can do and what is standard practice in the oilfield today.” – Warren Wilson, Ovum lead analyst for oil and gas

Cost is a defining issue for the global oil and gas industry and recent geo-political events have had a significant impact on the Middle East. In recent months, the price of oil has plummeted while US production levels have surged, leading to a market scenario where supply now massively outstrips demand. As the situation remains volatile, the ME O&G sector has been forced to make extremely difficult decisions such as postponing new exploration and production projects as well as cutting jobs.

In light of these volatile circumstances, UAE operators are keen to avoid taking unnecessary risks and are instead turning to AIM principles to extract maximum value.

1 Offshore, Offshore asset integrity a growing issue in the Middle East, 11/11/2015
and efficiency from their current operational setup:

“We are targeting operating costs to be more efficient to comply with the current prevailing prices,” said Ali Rashid Al Jarwan, chief executive officer (CEO) of Abu Dhabi Marine Operating Company or Adma-Opco. “This is not the first price cycle in the industry. I have seen it five times in my career. Our strategy at Adnoc is to manage resources over the long term, this is why Abu Dhabi is developing operational efficiency.”

While investments in AIM technologies and programmes is steadily rising in the UAE, some companies are going even further to optimise their operations. More national companies are working with 3rd party suppliers of inspection, expediting, quality assurance, and asset integrity management services like Intertek. The company has a well-established presence in the UAE and recently expanded its exploration and production services there by investing in a new $2.3 million facility in Abu Dhabi.4

Absorbing maintenance costs while securing optimal production levels

“The oilfield objective is to analyse in real time to optimise production, which is very important. Data in the oilfield is evolving.” – Asfar Zaidi, the principal consultant for Huawei, Enterprise, Middle East

The ME O&G sector has enjoyed a long history of easy access to abundant oil and gas resources. This has allowed operators to secure high productivity rates combined with low operational costs. While historically this has proved to be a profitable state of affairs, the same operators are now feeling the pinch as they are no longer able to absorb many of the business inefficiencies that may have resulted from previously poor asset integrity management.

So with rising maintenance costs combined with more difficult production circumstances, O&G companies need to work smarter in order to secure greater efficiency and subsequently reduce costs.

Currently, about 85 per cent of oil fields in the Middle East are running on systems using analogue technology for operations and communications. However, operators have been quick to grasp the importance of AIM and they are working with solution providers to bring their assets into the digital age by integrating smart technology that will help enhance recovery rates.5

In June 2014, Huawei—a leading global ICT solutions provider—announced a strategic partnership with Abu Dhabi National Oil Company (ADNOC). They previewed the

“...”

4 Huawei, Harnessing the Digital Oil and Gas Field
5 Khaleej Times, Abu Dhabi oil sector to see spending cuts, 11/11/2015
6 Oilfield Technology, Intertek invests in new oil and gas laboratory in Abu Dhabi, 20/03/2014
7 The National, Middle East in race for smarter way to run oilfields, 04/01/2015
benefits of creating new generation of digital oilfield and intelligent pipeline solutions at a first of its kind conference.

Key amongst the current upgrades of aging ADNOC fields are digital pipeline technologies – allowing a more holistic management of data and processes. Telepresence or video conferencing solutions are also vital in allowing engineers to work more safely and effectively offsite at plants, on rigs or at refinement stations. Virtualised resources of this nature reduce the need for unnecessary travel as well as eliminating unnecessary risks since engineers can remotely perform more dangerous tasks that otherwise would have to be done manually.6

AIM is a vital element of ADNOC’s $25 billion worth of investments in offshore oil projects planned for execution over the next five years. Ultimately ADNOC hopes that the combination of new production projects and optimisation of existing oil fields will boost its total oil output capacity to 3.5 million bpd by 2017-18 from the current 2.8 million bpd.7

Similarly, the UAE’s Abu Dhabi Marine Operating Company (ADMA-OPCO) has launched various life extension projects for its wide range of assets. The company is working with Atkins and various other solution providers to initiate structural integrity assessment of offshore facilities and integrity assessments of ageing wells.8 ADMA-OPCO plans to upgrade and replace all its ageing pipeline networks by 2030.

Operating aging assets safely and effectively

With so many assets having exceeded their originally intended lifespan already, UAE O&G companies view asset integrity as a top priority since failure to achieve it can jeopardise production, the safety of employees and cause environmental damage, all contributing to reputational losses. Now, as the industry enters a “post-easy” era of oil and gas production and embarks on more technically complex and challenging explorations, AIM is more important than ever before.9

A prime example is the collaboration between Honeywell and Al Hosn Gas, a joint venture between Adnoc and Occidental Petroleum for the UAE’s Shah Gas Development project. The onshore sour gasfield is expected to produce 1 billion cubic feet per day (Bcf/d) but sour gas contains a high amount of hydrogen sulphide (H2S) which is expensive and dangerous to process as it can prove fatal even in small amounts.10

“Sour gas can be lethal in small concentrations and therefore we need to bring the very best technologies and asset management techniques to make sure we don’t risk any workers.”

Andy Brown, the upstream international director at Royal Dutch Shell.

6 Samena Council, Huawei showcases importance of digital oilfield technology and Unified Communication Infrastructure, 03/06/2014
7 Khaleej Times, Abu Dhabi oil sector to see spending cuts, 11/11/2015
8 Atkins Global, Atkins wins contracts to support ADMA-OPCO, 27/10/2014
9 The National, How Middle East oil must adapt to new realities, 18/07/2013
10 "Sour gas can be lethal in small concentrations and therefore we need to bring the very best technologies"
and asset management techniques to make sure we don’t risk any workers,” says Andy Brown, the upstream international director at Royal Dutch Shell.

In order to avoid accidents and optimise production, Honeywell has supplied Al Hosn Gas with an integrated AIM solution that covers everything from automation to security to gas detection. Workers will be equipped with a gas detection unit which automatically detects and alerts them to gas leaks during maintenance work. Overall, their technology suit allows field operators to monitor everything in one holistic overview that is constantly being supplied with updated operational data.

Honeywell claims that this AIM enhanced setup will improve reliability, efficiency and safety as everyone working throughout the oil field is armed with the data they need to make the right operational decisions. They can even access said data from handheld technology like iPads, for greater flexibility in the workplace. Overall, the integration of smart equipment of this nature can secure performance improvements of 1-4% or even higher according to Honeywell.¹¹

Digital oil fields offer greater operational performance, safety and reliability levels

“The [GCC], of all regions, is often the first to uptake new technology and install it. Really old technology is still in use here and I see this area as one of the biggest tech uptakers globally.” – Norm Gilsdorf, president of Honeywell Russia, central Asia and the Middle East department

Faced with the difficulties of a volatile and uncertain future where resources become more difficult and dangerous to exploit with aging assets, the UAE’s oil and gas operators are keen to achieve more with their existing operational setup. In order to achieve this safely and successfully, hundreds of outdated platforms and assets that have outlived their intended lifespan need to be overhauled and brought into the digital age.

By adopting AIM strategies and investing in the relevant technologies, O&G operators in the UAE can overcome the wide range of existing and future challenges that affect the industry. As the GCC is one of the world’s leaders in adopting new technologies, the hundreds of outdated assets represent a vast commercial opportunity for the right AIM solution providers.

¹¹ The National, Middle East in race for smarter way to run oilfields, 04/01/2015
¹² Ibid
Sources:

http://www.thenational.ae/business/industry-insights/energy/how-middle-east-oil-must-adapt-to-new-realities
http://www.theengineer.co.uk/uae-is-spending-sufficiently-on-optimising-asset-integrity/
http://www.khaleejtimes.com/business/energy/abu-dhabi-oil-sector-to-see-spending-cuts
With dropping oil prices, Asset Integrity Management (AIM) is becoming an essential element of ongoing operations for oil and gas companies in the UAE.

Join us and leading asset integrity professionals from ADNOC Distribution, ADGAS, ZADCO, BGD Project, Al Hosn Gas at the Asset Integrity Management Abu Dhabi conference (17-20 April 2016) to gain insights into crucial integrity challenges such as the risk of running an ageing asset and low oil prices by participating in interactive roundtable discussions, Q&A sessions and industry-specific case studies on the latest initiatives taken by other operators in the region.

Visit www.assetintegrityabudhabi.com for more information.