The Intelligent Enterprise for Energy

by Alex Wright, Freelance Copywriter and Journalist

"The digital revolution is set to transform the oil and gas industry, fundamentally changing the way companies do business in the future"

And in order to keep pace firms need to be lean and agile, enabling them to move quickly and capitalize on new opportunities. That means using technology and innovation to drive change, optimize and build their operations and assets.

The biggest challenge facing the oil and gas industry is to meet the ever-increasing demand of customers while trying to reduce pollution such as CO_2 emissions. To achieve that companies must become more sustainable by being more efficient in their production and minimizing their waste.

"At the highest level, oil and gas companies are striving to deliver safe, reliable and sustainable energy to their customers" said Benjamin Beberness, global vice-president, oil and gas solutions, at SAP. "That is being driven by technological and digital innovation."

The march towards greater innovation is being driven by increasing demand from ever-expanding supply chains, volatile markets, a younger workforce and the move to more renewable fuels. As a result, firms are having to fundamentally change their business models and look for new revenue streams.

"Sustainability, today, has so many different meanings," said Beberness. "It means ensuring the company keeps moving forward and thriving, as well as providing the customer with a continual energy source that is the best for the planet."

The oil and gas sector is also a key component to Industry 4.0: the current trend of automation and data exchange in manufacturing technologies. In order to drive this, companies need to harness the use of digitalization to make their workforce and processes more efficient and safer.

One of the core areas where technology is being deployed is wearables. There has been a big uptake in the use of innovations such as smart helmets fitted with a device that provides the information needed by the worker to do their job properly and enables them to contact base immediately if there is a problem, as well as tracking their location. Another technology is a shirt that monitors an individual's current medical status such as their heartbeat.

Then there is the use of artificial intelligence (AI), machine learning and robotic process automation (RPA). SAP has been at the forefront of this, providing companies with a platform to automate their own systems and processes.

"A good example of this is SAP's public cloud offering where we are moving all our upstream solutions," said Beberness. "To support this we are leveraging AI, machine learning, RPA and blockchain to enable businesses to make their processes more efficient, by using a consortium of seven customers from around the world to help identify where automation needs to be implemented and agree upon an industry market-based set of solutions."

A key field where this has been adopted is in hydrocarbon revenue management, an area which is traditionally personnel heavy, looking at how RPA can reduce human input by as much as 75%. Thereby, it frees up staff to focus on other important parts of the business.

All of these technologies are, in turn, enabling companies to become smarter through greater transparency and the use of analytics. By implementing fully integrated systems such as digital boardrooms to align top floor to shop floor, firms can see how the different parts of their business are performing by looking at production and safety records.

Machine learning also builds up a system's intelligence by monitoring human responses, ultimately enabling it to take over the tasks of that person through RPA.

A key application for this is financial processes such as invoice exceptions.

"Both these two dynamics work in tandem: improving a human's intelligence and then using that to inform their technology to carry out the work for them," said Beberness. "By leveraging these technologies, companies can use meaningful data to interpret and identify key patterns that will enable them to improve their processes and the way they do business."

At the cutting edge of this is SAP S/4HANA enterprise management application which provides companies with access to the information they need in real time. By using machine learning and algorithms through SAP Leonardo, it enables them, for example, to more accurately predict when a piece of equipment will need replacing, or where its workers can be most effectively deployed. Such is the level of detail that it can identify how much has been spent on buying and maintaining that piece of equipment, and how long it would take and how much it would cost to repair, as well as the financial impact of that part being taken out of service. That allows the user to make an informed decision as when best to replace it.

SAP Model Company also enables firms to set up their new systems and get operational quickly, in line with industry standards and best practice. SAP Asset Intelligence Network supports all of this by allowing the original equipment manufacturer to feed all of the information about a new piece of equipment into the company's system such as annual maintenance plans and sensors needed to run the equipment more efficiently.

Companies will have the opportunity to see some of these technologies first hand at the International SAP Conference for Oil and Gas in Milan, Italy, which runs from April 2 to 4. They will also hear about SAP's latest strategy and advancements in the industry, as well as the chance to network and forge new business partnerships.

"In the future oil and gas companies will transform into long-term sustainable businesses that play a key role in the global economy," said Beberness. "In order to achieve this, though, they first have to have the right foundation in place, which is where SAP comes in, providing them with the tools to optimise their capabilities and perform to the best of their ability in this new digital age."