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Time for oil and gas to face the music on data

The maxim that data is the new oil had been floated around the oil and gas sector for several years now and while that might be overly simplistic it will play a crucial role going forwards if it can be managed effectively. To do that the sector could do worse that take a look at how the music industry handles data.

Whether or not data is the indeed the new oil, we still need hydrocarbons. With supplies diminishing, and it becomes even more expensive to get hydrocarbons out of the ground, innovation should be top of the agenda for the oil and gas industry. To find new ways of boosting efficiency and cutting costs, innovating is the only path forward.

There is one significant obstacle that stands in the way of every innovation within the sector and, ironically, it is a mirror image of the traditional fear of oil and gas businesses. "It is not a shortage that threatens progress within the industry, it's a glut; not of crude

but of data," Simon Tucker, managing partner, energy & commodities at Infosys Consulting, says. "Until the industry can solve its data management challenges, it will be unable to deliver the new technologies that will help to keep down prices at the pump and also deliver on safety and energy efficiency. In their search for a solution, oil and gas businesses are looking to an unlikely source of inspiration."

Taking inspiration from unlikely places

Anyone from the oil and gas industry should have an instinctive feel for the challenges of data. Like information, crude oil sits in vast lakes far from sight; it needs to be extracted and refined before it's of any use to anyone.

But while the great oil and gas pipelines are constantly depleting reserves, data pipelines are always adding to the lakes, and therein lies the problem. "As these data lakes grow into oceans, businesses in every sector are struggling to cope," Tucker adds. "The sheer size and complexity of oil and gas projects mean that these businesses often have to deal in petabytes, with upwards of tens of thousands of new rows of data generated every day.

"New technologies such as IoT have contributed to data volumes exploding at a far faster rate than businesses' ability to manage and make sense of them. But, as is so often the case, technology provides answers to problems of its own making. One such answer lies in an app that will be familiar to many of the younger employees in the oil and gas industry: Spotify.

"As its users know, Spotify is much more than an online music repository. It's a place to find the latest tracks, to find suggestions for new songs or artists, and to listen to (and create) curated playlists.

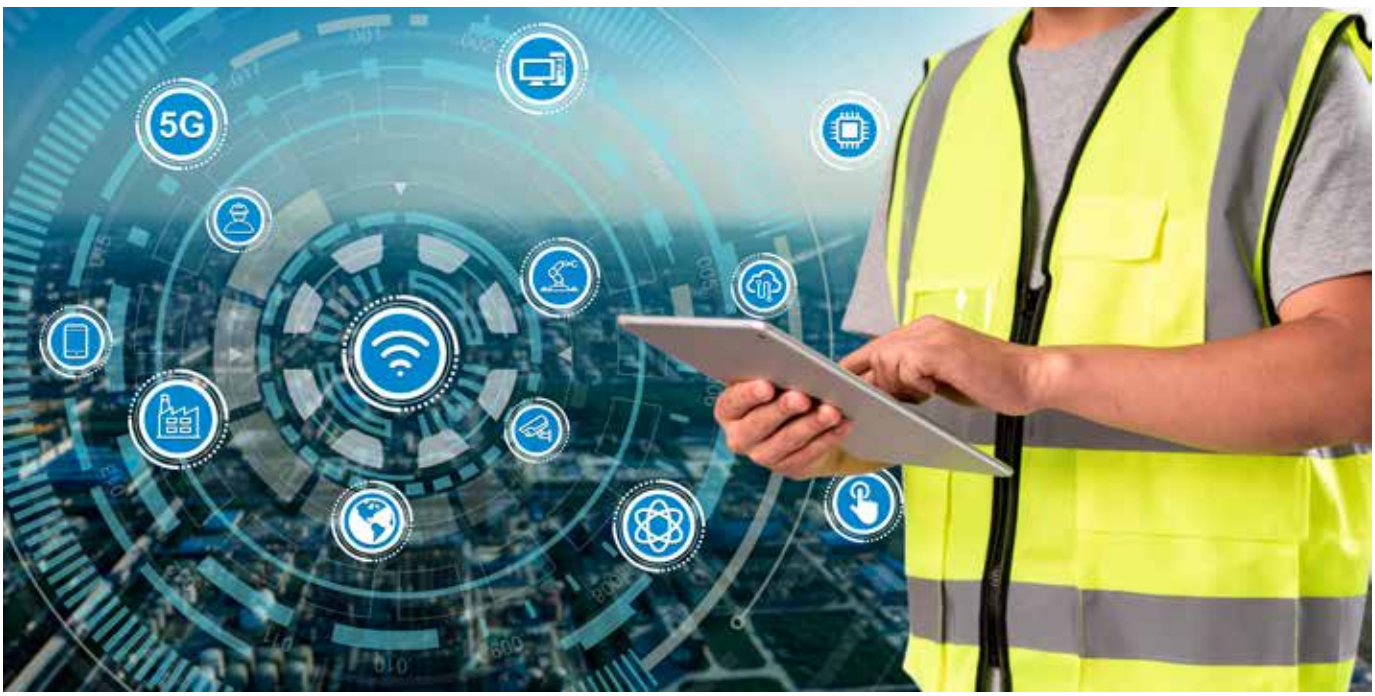
"Within a few years, we can envisage oil and gas companies using the same dashboard approach that has made the Swedish music service so popular. A Spotify-esque dashboard will enable oil and gas companies to visualise the data they work with, get suggestions, identify trends, discover new data sets, and pull all of this into one place to manipulate and report on it. This enables staff to examine real-time data, see if infrastructure such as drilling rigs, pipelines and production platforms are performing as they should, and try to maximise value based on real-time trends."

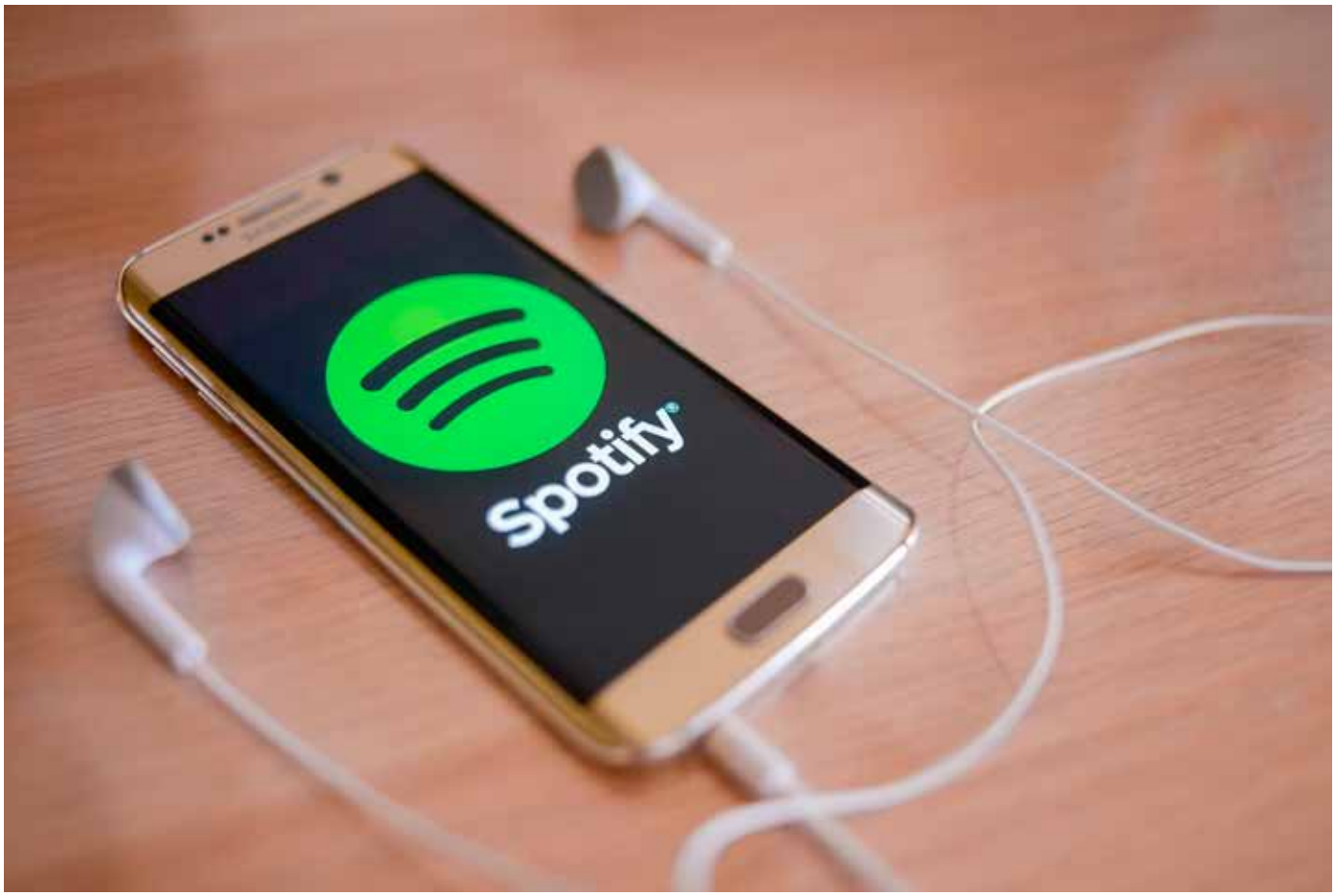
Drilling down into data platforms

Using a music streaming service as the model for the mind-boggling complexity of the oil and gas industry might sound like a bit of a pipedream, but the principles of good design are universal. With a dashboard-based approach, workers can easily find the data they need to work with, obtain and request information from colleagues, and discover new data sets from across their segment.

"Once they've got what they need, they can then pull it into one easily-managed workspace where they can analyse and manipulate the data, and report on it using advanced tools," Tucker continues. "There's no reason why the interface design can't mimic the same simplicity that Spotify (or other apps) have used to drive their popularity among users."

Tucker explains that the ability to access and visualise data is crucial for monitoring performance in real-time, as well as to match up engineering, maintenance and production data to provide an holistic view of operations. "This will have a hugely beneficial effect on the industry's first priority, safety, by enabling workers to access up-to-the-second information about everything from corrosion to structural strength to leaks – vital for preventive maintenance projects," he says. "Increasing the safety of operations is crucial





to the future of the sector. The more businesses can move to unmanned operations, the safer oil and gas becomes – simply put, there will be fewer people in harmful environments.

"Having the right data visualisation and management platform promises a far more efficient and timely way of maintaining equipment and infrastructure, enabling workers to spot issues in real-time, rather than spending six to nine months setting up a project to stitch together the data. In doing so, it could well prevent a major disaster – financial, environmental or both."

The technology enabling success

The benefits of data management and visualisation platforms are myriad, from enabling more unmanned operations that keep humans out of dangerous situations, to driving low-carbon operating models for the future of energy. But these platforms are only the 'front end', and there are several key developments on which they rely.

Not least of these is artificial intelligence, which is crucial for managing huge volumes of data 24 hours a day and extracting value from it. "It's not humanly possible to manually manage petabytes of data, and harder still to be smart with it," Tucker adds. "AI tools are developing to allow employees to suggest ways of using and analysing the data their business holds – and visualising the data on top of this will further improve the outcomes."

Equally important is 5G, which is especially vital given that so many oil and gas installations are located many miles from the nearest wired networks. Only 5G can cope with the vast volumes of information generated and transmitted from these locations. "Not only will the much lower latency of 5G increase the amount of data points available, and move this data into the system faster, but the major change will be around surveillance," Tucker concludes. "Without the latency of current networks, businesses can operate unmanned terminals using cameras and drones in real-time analysis. This means workers can remotely spot fires and leaks much faster and more safely than humans could, and they can transfer and react to this information much more quickly and efficiently.

"The oil and gas sector is undergoing a complete transformation as it moves from being focused on fossil fuels to prospecting in new fields such as mobility, battery power, electric vehicles and smarter fuels and lubricants. Data management and visualisation platforms will be central to their mission of becoming major players in creating a world that's no longer reliant on hydrocarbons." ■