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OIL AND GAS EXPLORATION *and* PRODUCTION

Today's workplace gives glimpse of efficiencies to come.

If you walk into the office of a major oil and gas company in Houston, Aberdeen or Stavanger you will see the difference – the difference in the way that people are working on a day-to-day basis to produce oil and gas in a more efficient way.

In many of these offices you will see:

- Real-time data and information displayed on screens on the walls;
- Multiple disciplines working together as a single team;
- Live “always on” video links from the office to the operational locations; and
- Vendor and service provider support in real time from remote locations.

This fundamental change in the way we support our operations has come about in the last five years and is set to continue. This is what Helge Lunde, the chief executive officer of StatoilHydro, has termed the “quiet revolution,” and it is variously known as the Digital Oil Field of the Future (DOFF), Integrated Operations (IO), i-Field or Smart Fields, among other names.

This change is enabled by the availability of data and information measured in our wells, on our facilities and pipelines that are made available within an organization to anyone who can add value. It allows us to run our core value adding processes, such as production optimization, in a “smarter” way, much faster and with higher quality. But this is not just about the technology as it requires us to think about the way we organize our companies to capture the value from having this real-time data and information. Many companies see this as technology-enabled *transformation programme*, where we take a fundamental look at the way we work from the technician offshore to the commercial analyst back at HQ. This requires us to update our core work processes, overcome the resistance to change our people to the new way of working and to align our organizational structures. This is commonly referred to as the integration of people, process, technology, and organization (PPTO) to deliver a *capability* to add value in our day-to-day operations.

Having the capability to add value from having this real-time information at our finger tips is allowing us to:

- Maximize the throughput of production systems;
- Reduce and recover from unplanned events;
- Balance short term production goals with long-term ultimate recovery;
- Optimize the planning of maintenance thereby reducing cost;
- Maximize the use of scarce resources; and
- Carry out remote operations and remove people from harms way.

There is clearly value from doing this. BP recently declared that they had attributed 100 mboed of production from their Field of the Future Programme at a cost of \$3 to \$6 per bbl. Where else can you buy oil that cheaply?

This article will highlight the data and information technologies that are enabling the changes to the way of working that are underway. They are being used to add value in both greenfield and brownfield locations in many companies across the globe.

Several topics included in this publication include:

- The use of “predictive intelligence” across the value chain to realize the future of oil and gas;
- The integration of surface and subsurface technology domains;
- Increasing plant performance from the application of smart engineering;
- Electronic marshalling and saving made on new projects;
- The application of WiFi technologies to oil and gas; and
- Human-centered design and the changing way of working.

As you will see, many of the real-time data and information technologies that enable this transformation to truly collaborative way of working are in place. This is only the beginning, the move to global real-time organizations has only just begun but many companies have embarked on the journey and are already realizing value. ✦

