

# The next level of efficiency

Integrated projects in the offshore oil and gas industry are on the rise.

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The challenging oil price environment has resulted in an evolution of offshore oil and gas field planning and development. The industry is looking for ways to streamline everything that goes into a project, from feasibility and concept selection to the installation of subsea infrastructure and topside components. To do this, offshore operators are turning to supplier-led planning and development approaches that integrate everything from the reservoir to the topside along with life-of-field services. Their goal? Uncover opportunities to reduce capex and opex, generate cash flow faster, reduce emissions and improve field performance.

A comprehensive analysis conducted by Schlumberger, using data from Wood Mackenzie, Rystad Energy and Schlumberger's own sales information, revealed 28 projects where the subsea production system (SPS) and subsea umbilical, riser and flowline (SURF) portions were executed by an integrated provider, representing an estimated \$6 billion for the awarded contracts. While SPS and SURF alignment represents only a portion of an integrated project, the data signal a trend of operators adopting integrated project approaches.

## Engaging early

Traditional approaches to field infrastructure development include a FEED phase followed by tenders, often resulting in a very long, iterative process, which minimizes opportunities for optimizing field development early in the project. These projects are often very segmented and characterized by a misalignment of the technical disciplines starting from the reservoir and wells to the SPS and SURF teams.

With integrated projects, the focus is on collaboration between the operator and the supplier at the pre-FEED stage. On these projects, SPS and SURF specialists come into alignment and work closely together with reservoir, production and drilling engineers, resulting in early engineering opportunities that offer the best possibility to explore various scenarios and develop more robust cost estimates and execution schedules.

Because early planning stages are short, operators often leave many scenarios on the table when using

traditional evaluation methods and tools, especially for greenfield developments. With integrated projects, many more scenarios can be evaluated. In addition, more predictable outcomes are achieved for delivery of subsea and topside components. By shifting from a segmented to an integrated early engagement approach, the overall objective changes from delivering components to delivering a full system or field.

## Considering the reservoir and life of field

Most traditional field development projects are performed in two dimensions: defining the system architecture and functionality and determining the cost. Integrated approaches incorporate two more key aspects, including the reservoir and life of the field over time, so rather than providing input to the field development process, it provides an opportunity to drive the optimal solution at every stage of development. Such solutions include the use of subsea boosting and compression systems to help maximize the return on investment, enhance project economics and optimize the reservoir drainage strategy.

## Evaluating a supplier

OneSubsea's approach to integrated field development planning helps customers efficiently evaluate the technical feasibility and economic viability of hundreds of scenarios using a collaborative software environment. Additionally, the creation of the Subsea Integration Alliance in 2015 provides for strong alignment of the company's SPS, processing and reservoir domain expertise with the SURF and life-of-field capability and experience of Subsea 7. OneSubsea also has proven boosting and compression technologies to enhance ultimate recovery over the lifetime of the asset.

As the industry adopts integrated field development methods, operators will be increasingly reliant on suppliers to offer solutions that optimize overall cost of asset ownership. For integrated projects, suppliers that have the right combination of technologies, expertise and strategic partnerships will be able to achieve next-level field planning and development efficiencies that meet the business goals of their customers. 