

Thinking Out of The Box: Key For Finding Additional Hydrocarbon In Mature Basin

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ABSTRACT

Wallace Pratt once stated “oil is first found in the human mind” and many people agree with this statement when they look at the history of frontiers or new exploration areas with limited data. Now, however, there are not many unexplored basins in the world. After a century of petroleum related activities a vast amount of data has been acquired from different parts of the world. The question is whether Pratt’s statement still applies to industry activity these days?

The industry needs new oil and gas to be brought to the surface, not only in the human mind. These commodities should be brought to the surface safely and economically, to make them useful as energy source and others. In mature basins, we know about the occurrence of the hydrocarbon. In many cases, the ‘easy oil and gas’ have been brought to the surface, and the industry has made them commercial. What’s left, often unseen, are those hydrocarbons which may be still in the ‘human mind’ but are unevaluated due to the economic cut off or due to the limitation of technology. In some cases, the ‘human mind’ can actually limit the new findings of petroleum.

Technology has developed significantly in identifying structures from the satellite, in imaging deep reservoirs, in drilling deep targets or in challenging terrain such as deep water area. Later the companies fight to reduce the costs of those technology. New hydrocarbon, however, still found in hidden place in mature basin. At the same time, we often stick to the old concept and difficult to find alternative model.

It is worth learning what has been developed in the North Sea and Brunei. These areas are perhaps the best examples of the most mature basin in the world, yet new hydrocarbon are continuously discovered. The play concept has been understood for decades or even a century ago but now new technology is applied to tap into ‘commercial hydrocarbon’. We will still say “economic hydrocarbon is first found in human mind”.

This talk will review a number of innovations, technology, and ways of thinking to find and bring more oil and gas to the surface economically. Multi-disciplinary approaches, collaboration, fresh-insigh, will be very powerful in bringing new efforts to success. A couple of examples from several mature basins, such as ‘fish-hook’ wells in Brunei, long horizontal wells in the UK and building an island instead of a platform in Caspian Sea, together with geological thinking, will create innovations that will anticipate the surfacing of hydrocarbons in large quantity.