

## **Mature Basins Exploration Strategy**

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### **ABSTRACT**

Exploring in a mature basin requires a different approach to unlock additional hydrocarbon potential. Many basins around the globe have gone through multiple exploration phases and realized significant additional hydrocarbon potential during the later phases of exploration. The Arabian Basin is the richest hydrocarbon basin on Earth, where trillions of barrels of oil and a quadrillion cubic feet of gas have been generated. The discoveries made during the first exploration phase over the past 100 years or so have mainly been found in high relief structural closures.

There is no doubt that hidden hydrocarbon traps are abundant but more “subtle,” and will require carefully designed exploration strategies to be discovered. These strategies are aligned with four elements. The first element is to develop better understanding of the regional geology by integrating tectonics with stratigraphy to de-risk exploration for stratigraphic traps. The second strategic element is to drill purposefully located wells to de-risk the geological understanding of a given play. The third element involves geophysics - to have better solutions for the near-surface seismic models to generate accurate maps for the subtle four-way closures. Also, subsurface imaging needs to be advanced to detect subtle facies and variations in rock properties. Finally, the fourth element is to bring new ideas and technology to bear on exploration and revitalizing a prospect portfolio, which requires collaboration of data management, regional exploration, geological and geophysical technology, prospect generation, and resource assessment groups in the organization to be successful. Exploration cycle workflows and processes need to be examined for efficiency and effectiveness, and we have to ensure that appropriate resources and team structure are available to execute this strategy at a time of demographic change in the workforce.