Successful Decision-Making in Future Exploration: High Technology, Geological Model, Organization

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According to Industry benchmarking for the last decade, the Majors have discovered decreasing reserves per exploration dollar, from year to year over the period. The situation of increasing competition and the need to hunt for more difficult plays entails pushing away the limits of technology, while returning to the fundamentals of petroleum geology for better interpretation and possibly new concept generation. An improved recognition of play drivers and more accurate predictivity are expected, and in fact observed, in the practice of risk analysis and related decision-making. Those trends are illustrated with examples from the Gulf of Mexico, North Africa,the Gulf of Guinea and South America, focusing on improvements in seismic imaging combined with proper geological models, and a compulsory “return to the rocks”, still more notable when seismic is poorly conclusive.

The application of consistent risk management to a recent portfolio shows significant progress in forecasting, with respect to prospect reserves particularly, and illustrates the importance of observing a minimum level of chance factor and selecting acceptable target sizes, while avoiding the “high risk-high reward” illusion. Setting up an exploration organisation and culture is a must to ensure the most efficient use of technology, the basics of geology and related management tools. Some preferred avenues are presented in the fields of accountable technical lines and career development. In an increasingly mature reserve base, the modern explorationist is faced with a durable search for new frontiers in technology, accessibility and even politics, and a “wishing list” of challenging needs and future exploration grounds is proposed in conclusion.