

Exploration Management in Oil and Gas

Exploration activity has to be done within the context of a company's overall business strategy and contribute to value creation. The explorer's task is to find commercial quantities of hydrocarbons. The annual challenge is to add reserves faster than production consumes them. New 'Resources' can only qualify as 'Reserves' when (a) discovered and (b) declared economically viable with a feasible development plan and realistic lifecycle costs and market assumptions. Explorers require a winning combination of the right geology, well-managed risk, properly applied new technology and the ability to learn quickly and adapt. Effective Exploration Management means evaluating and managing the various above-and below-ground factors ...many of which are listed below:

<p>Basin Characteristics</p> <p>Frontier</p> <ul style="list-style-type: none"> • Few wells & few direct indicators of hydrocarbons • New plays-first entrant has advantage • Needs reconnaissance and study • Opportunity to build new relationships • Chance of success unquantifiable <p>Partly Explored</p> <ul style="list-style-type: none"> • Plays are 'proven'-existing discoveries • Early years exploration generally reveals biggest fields • Growth shows up as a series of steps • New plays possible with new technology, fresh insights or increased activity <p>Mature</p> <ul style="list-style-type: none"> • Reserves growth slows • Years of basin knowledge • Play fairways are well defined • Historical data indicates future success 	<p>Below Ground Factors <i>(Technical, Volume and Cost)</i></p> <p>The Rocks: assessment of source, reservoir, seal traps and migration for hydrocarbons.</p> <p>Prospect volume: attractiveness of prospects.</p> <p>Feasibility: assessment of chance of technical and commercial success</p> <p>Yet to find: resource that could be found</p> <p>Reservoir productivity: the flow rates expected from the reservoir</p> <p>Cost of entry: the 'basin access cost' or the 'minimum cost' to the first point of exit.</p> <p>Full Cycle Exploration Cost: cost per barrel to find and appraise a commercial volume</p> <p>Development Cost: cost per barrel to develop commercial resources</p> <p>Operating Cost: cost per barrel to operate life of field</p> <p>Engineering Risk to Facilities: surface location (deep-water frontier or environmentally sensitive areas) or subsurface conditions (High temperature/ High Pressure, sour gas)</p>	<p>Above Ground Factors <i>(Strategic and Commercial)</i></p> <p>Asset Availability: the opportunities to secure assets</p> <p>Operating Environment: the physical, cultural and supply chain conditions of the venture operations</p> <p>Political and Fiscal Risk: factors in-country that affect the ownership rights or could erode value through changes to terms</p> <p>Monetisation Risk: risk to export, profit-availability, infrastructure access, interruption to product flow or demands to retain revenues in local currency</p> <p>Economics: assessment of economic return: net margin typically in US\$/barrel oil equivalent</p> <p>Time to Payback; first year of positive cumulative cash flow for prospect economics</p> <p>Strategic Upside: the overall upside that could arise from success in the exploration activity</p> <p>Competitive Advantage: how company stands out against the competition</p> <p>Materiality: the importance of the exploration opportunity relative to the company's overall strategy</p>	<p>Key Success Factors</p> <ul style="list-style-type: none"> • Choosing the right play fairways • Getting the geological model right • Recognizing the value of data and information • Commitment to building knowledge in targeted basins • Keeping abreast of play developments • Collaborating across functions (Technical and commercial) <p>Signs of Efficient Exploration</p> <ul style="list-style-type: none"> • Full participation of mainstream industry in exploration over time • Full access to global E&P expertise and technology • Sustained activity levels • Evidence of creaming over time (evident decline in discovery sizes with active industry) • Active deal flow <p>Signs of Inefficient Exploration</p> <ul style="list-style-type: none"> • Politics getting in the way of E&P investment and activity • Restrictions in asset availability (eg licence awards) • Lack of competition or over-large concessions; • Environmental barriers (water depth, remoteness, etc) • Lack of appropriate technology or new play ideas
<p>Types of Exploration Strategies</p> <ul style="list-style-type: none"> • Frontier Explorer - High Risk-taker • Technology Leader - clear technical leadership - 3D seismic, prioritized basins • Strategic Buyer - Building through strategic acquisitions • Incremental Producer; exploration around infrastructure hubs. • Political Player – exploiting local competitive advantage 	<p>Exploration activities</p> <ul style="list-style-type: none"> • Land acquisition through farm-in, licensing rounds or corporate M&A • Acquisition, processing, and interpretation of 2D and 3D seismic surveys • Geological Field work • Regional studies: geological and geophysical – stratigraphy, biostratigraphy, geochemistry, structural, • Prospect mapping, calculation of volume 	<p>About WBC</p> <p>We help develop management careers in E&P, with a range of courses and guides. Contact us for further details: info@warrenbusinessconsulting.com www.warrenbusinessconsulting.com</p> <p>Courses:</p> <ul style="list-style-type: none"> • 3 Day MBA in Oil & Gas • Contracts & Negotiations • Project Governance • Risk Management • ...and many others 	<p>Other WBC Guides</p> <ul style="list-style-type: none"> • Petroleum Economics • Shale vs Conventional • Portfolio Management • Production Sharing Contracts • E&P Business Case • E&P Business Writing