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Enabling the Cycle Time Frontier - Daily Satellite Transmission of Raw 3-D Seismic Data

E&P operations might be likened to factories, where materials, data, knowledge, labor and management converge to create hydrocarbon prospects and development locations. Ultimately, the number of prospects, the relative risk and the size of prospects determine the value added to the e&p enterprise. A key issue in any such production operations is the rate at which the primary, final produced units (drill locations) are completed.

Geoscience adds value by 1) creating an initial portfolio of e&p opportunities, 2) then culling out the least attractive opportunities (thereby reducing risk), and 3) by applying additional geoscience to add new, low risk, high return opportunities to the portfolio. Cycle time reduction impacts all three of these, increasing the number of business opportunities that an e&p operation has in its portfolio by reducing the time it takes for each e&p staff group to produce a prospect or location. For example, if an e&p operation is able to increase the number of high quality prospects it produces each year from 32 to 40, with a 25% drilled success rate, the number of discoveries can be increased from 8 to 10. Such an increase in a portfolio could be likened to e&p activities in a newly discovered basin or previously closed exploration frontier.

It can be shown that each month saved in producing an exploration prospect produces \$2-5 million of present value for the e&p enterprise. This paper will discuss these issues and explore how a new method, daily satellite transmission of 3-D seismic data from a vessel to a HQ onshore processing facility, saves over one month of process cycle time and sets into motion improvements in the seismic process that can produce over 5 months of cycle time reduction, as well as a better product than is currently achieved.