CGG is developing the concept of an integrated geoscience company. Can you explain what this means?

This is a significant development in the evolution of the services a company can provide to the E&P industry worldwide. Up to now in the geophysical industry, companies have tended to focus on specific geophysical applications, optimising the value of seismic data through the cycle of data acquisition, processing and interpretation.

Seismic is fundamental to the exploration process, and is now also being increasingly used for reservoir monitoring and production optimisation. Oil companies have often singled out the advent of 3D seismic, along with horizontal drilling, as the most important technology developments for E&P operation in the last three decades.

The point has now been reached where these historic geophysical approaches have clear limitations. A major issue is that the geological settings of ‘future oil and gas’ are becoming increasingly complex and the tools and skills needed to realise this potential are not necessarily restricted to conventional approaches. Sub-salt in the Gulf of Mexico, the pre-salt offshore Brazil and West Africa, the mature carbonate fields of the Middle East, and shale oil and gas plays are all examples of how life is getting more complicated for the oil and gas industry. Also in deep water and other challenging environments such as the Arctic, the risks of making a capital investment are enormous and the geological settings of ‘future oil and gas’ are becoming increasingly complex.

The value of seismic in combination with other geoscience data is still largely unrealised in exploration, and even more so in field development and reservoir management. The aim is to leverage the scale and range of geoscience expertise now available to us to provide an enhanced portfolio of integrated products and services, covering the life cycle of the field from supporting prospect identification and exploration to optimising reserve recovery.

What are the company structure implications of the new strategy?

The company now has three divisions that more accurately reflect the way we operate and will also facilitate an integrated geoscience strategy in the future. Equipment is essentially our Sercel product line of systems for land, marine, transition zone and downhole seismic acquisition. Then Acquisition, which encompasses: our marine operations, with a large and advanced fleet; our onshore geophysical surveys, which are mainly focused on large-scale, high-channel count and high productivity seismic crews; and airborne activities. The third pillar of the structure is Geology, Geophysics & Reservoir (GGR), for which I am responsible. This division includes our major data processing capabilities, which span geological data analysis for basins, conventional and unconventional reservoirs, wellsite services, integrated geology and geophysics interpretation, satellite mapping and interpretation, reservoir engineering and economics, accompanied by training and education.

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Jason is a high-end seismic reservoir characterisation software developer which has long worked on the principle that to manage hydrocarbon reservoirs effectively, decisions have to be based on models which span geological data analysis for basins, conventional and unconventional reservoirs, wellsite services, integrated geology and geophysics interpretation, satellite mapping and interpretation, reservoir engineering and economics, accompanied by training and education.

Together with Robertson and Jason, CGG’s integrated geoscience approach will allow for the provision of more comprehensive solutions from initial exploration and field development planning to reservoir reserve estimates and production optimisation.
What is the evidence that oil companies are looking for an integrated geoscience partner?

We all understand these days that most future oil and gas production is likely to come from increasingly challenging prospects, known hydrocarbon provinces around the world and the improved recovery of existing reserves. As a result there is an increasing emphasis on bringing as many areas of geoscience knowledge together to ensure the best possible understanding of the subsurface so that risks are reduced and the opportunities for success are increased.

Some would say that this overall push towards integration is coming from the service sector because it offers the potential to increase the value of the products and services that we can offer. But, looking at it another way, oil companies are in fierce competition to identify the best prospects and then develop them as efficiently and safely as possible. They need a competitive edge. We can expect that the search for hydrocarbons will continue to move to increasingly complex geological environments, deep water, frontier areas, etc. Huge investments will be at stake, so it makes sense for companies to take all measures possible to reduce their exposure to risks, and that means integrating their own decision-making processes and inviting integrated answers from outside into their workflows. We still see silos in larger companies, with barriers between individual functions, so the stimulus of outside solutions based on more integrated approaches could be important.

Can you provide some examples of how a comprehensive portfolio of geoscience capabilities will help a client?

Individual clients will have different requirements in terms of the degree of integration they need or are willing to consider. If clients are not looking for a turnkey or fully integrated solution, they still want the most effective service. Even if we are only providing a service in one specific part of the workflow, an understanding of the wider workflow means that a more relevant solution can be provided.

Having said that, we have very quickly identified areas of synergy between the different parts of our capabilities that can be harnessed to benefit our clients across the E&P workflow. One of the most obvious is in the scope of our multi-client offerings. Robertson’s understanding of the world’s major basins from their own extensive geological studies can be leveraged as valuable input for identifying future multi-client studies around the world, as well as further analysing our existing libraries.

We also see the possibility of offering added value through the combined use of the advanced imaging, geophysical interpretation and seismic reservoir characterisation expertise residing in our Subsurface Imaging, Hampson-Russell and Jason units.

With the increasing focus on unconventional oil and gas exploration and production, the company is looking forward to being able to provide further information on the reservoir from strengthened seismic reservoir characterisation capability, and also by bringing into play much wider geoscience expertise including geology, geophysics, geochemistry and petrophysics. This ties in with our recent technology alliance with Baker Hughes to address optimising production from shale reservoirs. We will be able to complement Baker’s expertise in well services, drilling and stimulation/fracturing with our new portfolio of geoscience expertise. Of particular interest is the recently acquired automated mineralogy technology which provides real-time on wellsite petrophysical analysis of drill cuttings. Put together, this helps provide a complete solution to enable clients to understand their reservoirs and optimise their production strategies based on the lithological and geomechanical models we can present.

Another example is that in the future there looks to be an advantage behind leveraging the non-seismic multi-client data library available from our marine gravity and magnetics, onshore general geophysics and airborne operations. By combining this with seismic data a powerful exploration and basin prospecting package can be produced.

Finally, are there human resource challenges involved in getting personnel to embrace the new company culture?

As the company grows larger, there is the challenge for everyone to get used to a bigger entity and the need for more structure to accommodate the increase in scale. This can take time, however, we are working with inquiring minds, innovators and problem-solvers who are all eager to explore issues across disciplines, so the infusion of new knowledge and expertise is also stimulating and positive.

There is of course the more general issue that all companies face of recruitment, retention and training of employees. The prospect of a rewarding career plays a big part in ensuring staff see their future with the company, and the creation of GGR and its access to new career paths and opportunities should be an attraction.

Pump Up the Volume

Maximize your recovery with domain expertise

CGG offers a complete portfolio of geological and geophysical technology and services to ‘pump up the volume’ on your field development. A global network of experts in our subsurface imaging, Jason, Robertson, and Hampson-Russell software, services and consulting teams have unique technology and extensive knowledge in the basins where you work. Together we can provide you with a multi-disciplinary approach that enables a deeper understanding of your reservoir.

- Advanced subsurface imaging
- Solution-oriented reservoir characterization software and services
- Wellsite services providing real-time geological analysis
- Permanent reservoir monitoring and 4D seismic services
- Economic evaluation and recovery factor analysis consulting

We are CGG.