

# The Role of Geographic Information Systems in the E & P Business

A Multi-Client Study

Section One – Strategy and Trends

August 2007

Exprodat Consulting Limited  
Integrating Information





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# 1 Executive Summary

## 1.1 Digested Read

Spatial information is a key element in any petroleum venture, from the initial opportunity analysis and exploration, through appraisal, production and the abandonment phase. It is generally estimated that over 80% of the data used in the Exploration and Production (E & P) upstream business has a spatial component, implying that it can be accessed through a map.

However, despite growing maturity in underlying GIS technology and increasing industry awareness, it is perceived that the spatial component of data is still under-utilised. Many E & P companies are struggling to define the role of GIS in their business. Most see GIS as a specialist role rather than an integrated part of their business and few companies are extracting maximum value from their investment in spatial data and analysis systems.

In addition, evidence shows that many E & P businesses are not using geospatial information technology standards. Advantages to using standards can include improved data and system interoperability, unlocking spatial data from isolated GIS applications and leveraging IT investments in unforeseen and effective ways.

In E & P, while it can be seen that many companies have committed to GIS technology (e.g. they receive many data sources direct in GIS format and have invested heavily in GIS technology, predominantly from ESRI), these companies (often by their own admission) lack both the competency and also the vision to fully leverage GIS analysis as a core part of their decision making.

This may well be because the companies in question have not developed a coherent GIS strategy. Without having a suitable GIS strategy in place it is difficult to build on past GIS projects and as a result many GIS initiatives stall at an early stage, either because the early efforts were not implemented or scoped in such a way as to meet true business needs or because the organisation lacked a clear road map as to how to take the initiatives forward.

This study proposes a strategy model that has been developed using Exprodat's years of experience of working with GIS technology in E & P companies of varied sizes and goals. The model can be applied in a technology independent, scalable way, able to meet the needs of any size of organisation.

In order to assist in the preparation of such a GIS strategy, this report also presents a host of examples of how GIS is used within the E & P business, along with a review of the most common GIS technologies, including desktop GIS, image processing, 3D visualisation, web-based GIS, mobile GIS, spatially enabled Relational Database Management Systems and globe GIS products and a review of Open Source GIS.

As can be seen within this report, there are significant benefits to be had in applying GIS technology to processes within the E & P lifecycle and as such there is a significant opportunity available for companies to get ahead of their competition through committing to move GIS on to the 'next level' within their organisations.

# The Role of Geographic Information Systems in the E & P Business

A Multi-Client Study

Section Two – Technology Review

August 2007

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# The Role of Geographic Information Systems in the E & P Business

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Section Three – E & P GIS Maturity Matrix

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