



NDR8 Conference
National Data Repositories Conference
Cape Town, South Africa

February 2008

Business Models for National Data Centers

Schlumberger



Business Models for National Data Centers

Contributors:

Rick Johnston, Business Manager, Information Management for National Data Centers

Ana María López, Marketing Specialist, Information Management for National Data Centers

Copyright © 2008 Schlumberger. All rights reserved.

SUMMARY

Once the decision to implement a National Data Center (NDC) has been taken, multiple business models are available to support its development and long-term operation. The need for a business model to self-fund the NDC implementation, operations, and long-term evolution is clear. This paper sets forth those options and identifies important considerations during the planning process. Business and operating models can have differing impact on the scope, technical requirements, and cost of the National Data Center. Domain experts can be retained early in the planning of the NDC to evaluate the trade-offs among business and operating objectives and to support initiatives to obtain funding sources.

INTRODUCTION

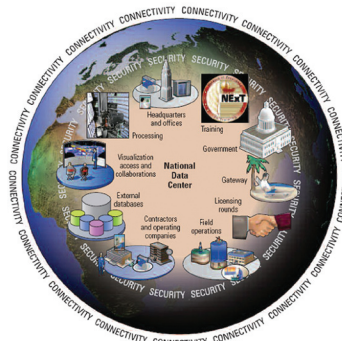
It is recognized that NDCs represent an important platform for managing a country's or region's subsurface resources and attracting investments. The core capability of the NDC is organizing and exploiting large volumes—multiple terabytes—of E&P data to serve a community of users and prospective investors. The decision to build an NDC to help manage high-value subsurface hydrocarbon and other natural resources is made by a nation, state, or regional government agency. To ensure a successful NDC it is important to have an adequate legal framework and financing to cover construction and ongoing operations. A sustainable business model that enables continued operation and advancement of the NDC

is essential. However, this paper focuses on the most important of these aspects, which is financing and creating a viable business model to sustain the NDC.

FINANCING THE NATIONAL DATA CENTER

Financing of the NDC must be planned in terms of the initial construction and ongoing maintenance and operations once construction is complete. The scope of the initial investment required to construct the NDC depends on the sector size, type, and volumes of information to include, data standards and security policies, and location and access options. For instance, technology providing complete Web-based access and data submission encourages use, but clearly it must be supportable by the local telecommunications infrastructure and legal operating framework of the NDC. Given the variety of technical and business options available, and their tradeoffs, a thorough and detailed plan for the NDC should be developed upon which effective investment decisions can be made. Competent and experienced domain experts, such as Schlumberger Information Solutions, can be retained to assist in the development of the NDC plan. Having the right implementation team that can address financial, legal, and technical requirements is critical. In fact, some 80 percent of the resources, time, and talent required to launch an NDC are associated with nontechnical issues as depicted in Fig. 1.

Typically, a government or agency provides initial funding and expects returns on investment from licensing rounds and/or user transactions involving the data. In some cases World Bank technical assistance credits have been obtained to fund the creation of the NDC and implement requisite legal reforms. Here again, a strong implementation partner such as Schlumberger Information Solutions can help assemble the information necessary to request World Bank funding.



BUSINESS MODELS FOR NDCS

There are currently several common business models for an NDC, all of which continue to evolve with new technology and business environments governing the NDC:

- Government-sponsored
- Industry-led consortium
- Government-licensed, privately owned

Government sponsored

This is the most prevalent and rapidly growing type of NDC. The transparency provided by the NDC encourages in-country investment, while lowering costs for producers and service companies operating in the region. The value proposition for the government-owner of the NDC is strong: enhancing the value of existing E&P data with modern geoscience and engineering applications, and incorporating applications into the user workflows. This fundamental capability afforded by the NDC saves millions of dollars and has demonstrated increased oil and gas investment. Other intangible sources of value from the NDC include the ability to

- perform better strategic planning
- exercise oversight of major international oil companies
- challenge oil companies on resource management.

Often the host government is legally entitled to all information the oil companies may generate from exploration and production activities in their region. While the host government grants permissions for seismic surveys and drilling activities, the actual data will be owned by the company that has paid for its acquisition, and retains the intellectual property rights for a certain period of time. Data may therefore be traded through the system and the entitlements to the data will be updated within the NDC accordingly. In this way the NDC becomes the trading hub for E&P data in the region, enabling secure access to data, preserving the nation’s subsurface knowledge, and encouraging field development.¹

The sponsoring government or agency may initially fund 100 percent of the NDC with the expectation of cost recovery through membership and/or transaction fees. Governance of the NDC is stipulated by the government with input from industry members. Fees for members are typically proportional to the size of the company and their extent of data and software usage.

¹Status for Norwegian National Data Bank and Future Plans, NDR7, Eric Toogood, DISKOS

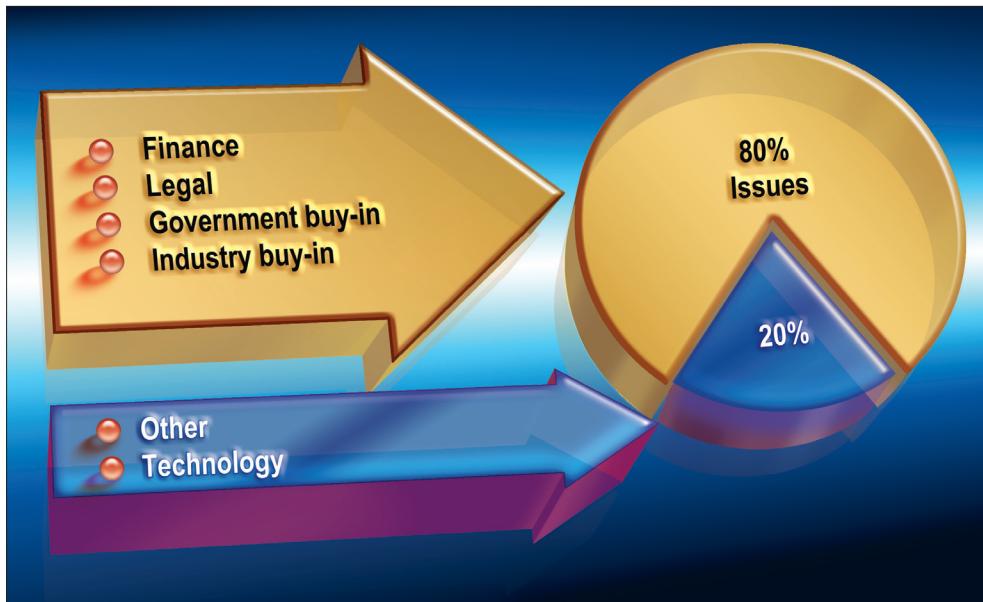


Figure 1 80 percent of the time and resources in developing a National Data Center are nontechnical.

In 2003, as part of Colombia's reorganization, the Banco de Información Petrolera, or BIP NDR, became known as EPIS (Exploration and Production Information Services). Working with Schlumberger as a partner, the EPIS National Data Repository (NDR) was upgraded to a National Data Center. The mission of this new organization included increasing hydrocarbon reserves by promoting investment in exploration projects. E&P activities would be accelerated through availability, transparency, and competitiveness, thereby increasing investor confidence. Further, investors would be served with accurate, timely, high-quality information, which would reduce exploration risk.²

The Schlumberger Information Management for National Data solution was implemented as part of the transition from the NDR to the NDC. The Schlumberger technologies offered increased transaction rates, higher levels of information security, improved delivery time, and an open architecture that enabled integration with various databases. Also key in the EPIS decision was the ability to set and reinforce business processes, policies, and standards. The system continued to improve as the business evolved. The worldwide expertise, support, and training capabilities offered by Schlumberger were also important factors.

The four main functions of the services provided by EPIS are

- technical data verification, data cataloging, loading, and integration
- quality assurance and EPIS client monitoring and support
- integrated data browsing
- online help and physical media technology service.

Users who have access rights can locate, select, visualize, and then extract the relevant data stored in different physical repositories in an integrated Web portal called My EPIS, enhancing self-service capabilities.

The benefits to EPIS have been both tangible and intangible. The quantity of signed contracts and increased revenues associated with data delivery packages are tangible benefits seen since EPIS replaced BIP. While intangible, other potentially strategic sources of value include making the best decision at the right time by having valid, up-to-date information. This quality of decision support has had a

The quantity of signed contracts and increased revenues associated with data delivery packages are tangible benefits seen since EPIS replaced BIP.

tremendous impact on project success, increasing the efficiency of resources and enabling more accurate budget planning. The investment process has been facilitated and risks have been made manageable.²

Industry-led consortium

Here operators and participants organize to fund an NDC to serve a given region. Like the government-sponsored NDC, the business model requires an initial membership fee plus shared cost in the form of an annual subscription for members. Nonmembers are charged transaction (download) fees based on data usage or other measures. Like the government-sponsored NDC, the industry-led consortium will require sanction from the local government to operate, and generally the government agency is a full member with one or more seats on the board.

The host government benefits from the industry-led consortium model in several ways:

- Lower cost of implementing and operating the NDC
- Increased investment in the region
- Tax revenue from operators

An excellent example of this consortium model is the UK's Common Data Access, Ltd. (CDA), a wholly owned subsidiary of Oil and Gas UK, the United Kingdom Offshore Oil and Gas Industry Association. CDA Limited was formed in 1995 as an initiative to create a single, centrally maintained well-log and seismic navigation database with the goal of reducing industry costs and duplication. The company has close links to the Department of Trade and Industry (DTI). Managing offshore well data for over 10 years, CDA sought an industry-facing, self-service model for well-based data in the North Sea. Some of the specific operational challenges included

- re-scanning over 160,000 log files containing over 8 million curves of digital well-log data
- cataloging over 350,000 images of well reports and well logs
- migrating entitlement and audit history.

Working with Schlumberger Information Solutions (SIS), CDA transitioned all their data from a traditional NDR to an interactive NDC with a full range of services employed by users. Most importantly, the self-service model offered by the NDC has enabled geoscientists to take full advantage of the data without the aid of information managers. CDA has provided an option to their member community to use CDA exclusively, eliminating redundant systems and cost.³

²Oilfield Review, Summer 2006

Government-licensed, privately owned

Here, as an outsourced solution, the NDC is operated as a for-profit company that is sanctioned by the governing authority. The owners of the NDC seek to recover their initial investment and fund the ongoing operation of the NDC through data usage fees of various kinds. Fees are paid by those using the data through access, downloads, and information products. While interesting, this model has not been widely adopted as (1) it has not proven financially viable for investors without government support; and (2) places what many governments feel is strategic information about the country's or region's resources with a private entity over which they may have little actual control. Access cost for government and universities also is high, at odds with the idea that public data is free.

A variant of this model has seen success in the U.S. and other countries where information managed by the government is available at the cost of distribution. Using this outlet, service providers purchase E&P data from various state and federal agencies and make data available through a value-adding process. The marketplace for such a data supply chain is sustainable in the U.S. where there are

hundreds of E&P companies and millions of wells. In these instances, the suppliers' database effectively provides part of the capability of an NDC.

CONCLUSION

The next revolution for NDCs is the opportunity to create collaborative portals for stimulating new investment methods and providing greater interactivity related to regulatory compliance. The NDC and associated business models will transition from a center of active data storage to an information center providing data-in-context, with Web-enabled software tools for interpretation and evaluation. The new face of these centers will boast Internet-accessible collaborative environments supported by Software as a Service (SaaS), data, and e-Government capabilities.

While data packages may still be sold as they have in the past, the potential bidder will now will be able to access data loaded in the application of their choice, where interpretation and other functions can be performed. Users will be charged fees on a pay-per-use model. The

³Malcolm Fleming, Chief Executive, CDA video on the National Data Center



Locations of National Data Centers and National Data Repositories developed and/or operated by Schlumberger.

cost of the data will be less than the cost of purchasing a traditional data package, and the user will pay fees for the software rental. Employing this business model, smaller independents can participate in lease-round processes from which they may have been previously excluded due to the cost of data packages. The nascent SaaS model also addresses the challenge presented by regulatory requirement that data remain within a country's or region's political boundaries. This new model enables the data and application to reside within the NDC, eliminating travel expense and the time required to physically access the data. This model will also allow the NDC to increase both the volume and sources of revenue. In addition to hosting fees, a portion of the software rental fees will also be realized by the NDC.

Supporting SaaS operations in the petroleum vertical will offer the majority of the data to be co-located with technical and, possibly, business applications. This new capability will compel the creation of new data uses, access methodologies, and processes. These new processes, supported by strong energy demand, will increase the levels of investment activity from the growing number of independents.

This new model enables the data and application to reside within the NDC, eliminating travel expense and the time required to physically access the data.

POINT OF CONTACT

For additional information, contact Rick Johnston, Business Manager of Information Management for National Data Centers, by e-mail at rjohnston4@houston.oilfield.slb.com or by phone at 1-713-513-2769. This new model enables the data and application to reside within the NDC, eliminating travel expense and the time required to physically access the data.

SCHLUMBERGER INFORMATION SOLUTIONS

Schlumberger Information Solutions (SIS) is an operating unit of Schlumberger that provides software, information management, IT infrastructure, and consulting services. SIS enables oil and gas companies to achieve breakthrough team performance, unlocking the potential of E&P teams to step-change their effectiveness and productivity. Through our technologies and services, oil and gas companies can drive business performance and realize the potential of the digital oil field.

E-mail sisinfo@slb.com or contact your local Schlumberger representative to learn more.

Schlumberger