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Taming Environmental Information Management Chaos 08/14/2008

By Neno Duplancic

The green business tsunami keeps rolling along. Sustainability. Carbon footprint. Climate change. The news is filled with eco-buzzwords and "green" is hot as public awareness of global environmental issues grows. But beyond the buzz are complex issues that must be addressed as investors, customers, government regulators and public interest groups pressure businesses to assume increased environmental responsibility.

Neno Duplancic

A major challenge for environmental industry globally is to organize the vast array of already collected environmental data and information and to integrate these, where desirable, with existing, regulatory, compliance, social and economic data. This data should be made available together with tools that allow experts to do their own analyses to consultants, but the ownership should reside with the clients.

At the same time, companies and institutions need an efficient and modern reporting system to fulfill their legal obligations under various regulatory environmental policies and legislation, thus avoiding double, overlapping, and redundant reporting efforts. Environmental data management is now a competitive and legal necessity and many companies are scrambling to track and manage their environmental performance data.

Environmental Data Explosion

The environmental industry is an information-generating juggernaut. The amount of environmental data has grown exponentially over the past decade and it will continue to rapidly increase with the emergence of real-time sensing and wireless transmission technologies. Domestically, environmental markets are driven by layers of air emissions, water, and other regulations that have existed since the 1980s. New and emerging regulations for carbon and renewables are creating new credit and asset classes. Clients should be concerned about the ownership, storage and management of environmental data.

How do companies generally handle and store their environmental information? Data is collected from a variety of sources - from consultants, contractors, labs, suppliers, customer's own field employees, or as is more increasingly true, by remote wireless sensors. It is stored in remote locations, such as the supplier's spreadsheets or other files on the desktop, laptop, or network server of suppliers. The customer usually has no access to, or ownership of, such data. Such large, dispersed volumes of information are difficult to track and very costly to audit without central relational databases software. If the customer does adopt environmental information management systems, the systems typically fall into one of two categories:

1. Stand-alone systems that project-level consultants, staff engineers and staff geologists love, but that do not enable owner's managers to perform corporate governance, data-mining, or forecasting tasks, or share information across a large organization or the web. These systems typically reside in the consulting offices and rarely are information in them well organized or easily retrieved.

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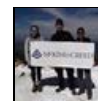
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2. High-end, all encompassing extensions of Enterprise Resource Planning (ERP) systems, such as SAP, that can scale to support the needs of hundreds or thousands of users but that environmental managers refuse to use because they are complex, expensive, and require costly additional programming to manage environmental data. Such enterprise systems are often characterized as being "a mile wide and inch deep" because they typically lack domain depth, are not offered over the web, are expensive and difficult to install and integrate, cannot be used by suppliers, and are not particularly user-friendly. These systems typically reside at owners' offices and are largely inaccessible to their consultants.

As a result, too many businesses and governmental agencies are "flying blind" when it comes to managing their environmental information.

Not adopting the latest technologies for storing, distributing and managing information increases costs and delays the cleanup of contaminated sites. Consultants play an unfortunate role in misinforming their clients about the data management options available to them. Consultants are the ultimate benefactors of the explosive profit growth the industry experienced over the last few years, but are they really helping their clients improve the bottom line, and more importantly, reduce environmental liability risk?

Most companies "own" their financial, human resource, customer relations and other data. This information typically resides on computers located in the company's facilities, or it may be housed off-site in data centers managed by an outside party. Regardless of which alternative is adopted, both are similar in that: 1) Information is stored in a consistent and organized manner in central databases, 2) Employees within the company have, to the extent that their privileges permit, continuous and unimpeded access to this data, and 3) Companies unquestionably own the data and are able to change support vendors at will.

However, the way companies with environmental liabilities manage and store their environmental information and data stands in marked contrast to the model they have adopted for all their other key data. Historically, environmental consultants have used narrowly focused applications built on spreadsheets and client/server databases to serve the complex software requirements of this market. Today's landscape of available technology options has consolidated and new and better options exist.

The Solution

Clients do not need to accept this chaos. The new technologies based on exciting Web 2.0 technologies provide low cost solution to this seemingly complicated set of problems. The web-based Environmental Information Management offered through Software as a Service (SaaS) platform provide collaborative software tools to organize and manage environmental data and information, gain ownership of data, and make databases consultant-independent. These systems tie in better all existing data gathering and information flows related to wide range of environmental data from soil, water, and air analytical data to compliance, sustainability and climate change data. The systems already exist that are based on Web 2.0 technologies such as Service Oriented Architecture (SOA), mashups and vertical searches and SaaS delivering method.

Owners of contaminated sites or emission sources need the equivalent of ERP system running on the Web to gain ownership and management of all environmental data.

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