



Environmental Compliance Update: Initiatives Broaden and Budgets Increase, but Complete Applications Still Short in Number

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AMR Research published a Report last year on the landscape of available technology options for supporting environmental health and safety (EH&S) in which we made a series of predictions and prescriptions about why, when, and how more complex environmental regulations would be thrust upon the market. We also guessed at how the EH&S market would progress to support organizations as they assembled more complex and integrated information architectures to support environmental compliance across their globally dispersed operations.

Since then, we have fielded numerous inquiries on assembling environmental compliance architectures, available technology options, and best practices for environmental compliance. We also started an entire publication focused on environmental issues, with a supporting Sustainability Peer Forum.

In the past 12 months, initiatives have broadened and budgets are up. Demand for low-cost, easily deployable, modern technology has also increased, with the available technology landscape evolving in step. It's time for an update on the current health and direction of the environmental compliance market.

GRC isn't SOX alone

According to this year's governance, risk management, and compliance (GRC) spending report, environmental compliance is a top-five risk, with the following concerns broader than just tactical EH&S compliance:

- Energy consumption and asset management
- Greenhouse gas (GHG) emissions management
- Product stewardship initiatives

Energy consumption and asset management

Energy management touches nearly every aspect of the company, from data centers and fleets of mobile assets, to facilities and fixed production equipment. Enterprise asset management, in its broadest sense, must tie together these disparate islands of assets and their respective management processes into a cohesive framework that can, at a minimum, monitor the energy performance of the corporate grid, with an eye to conservation and efficiency.

Outside of the asset-intensive industries, the perceived expense associated with networking, instrumenting, and monitoring the health and performance of enterprise assets (save the most critical ones) has been a major roadblock for the deployment of such systems. As the cost of energy inefficiency skyrockets, these perceptions will change.

Furthermore, after decades of skimping on capital investments—namely manufacturing assets and their supporting infrastructures—finding opportunities to improve energy efficiency is like shooting fish in a barrel (see "Shifting the Maintenance Mindset: Greening Your Assets").

GHG emissions management

Kyoto Protocols and European Union (EU) legislation have led to the implementation of GHG and carbon management cap-and-trade scenarios. While these are largely opt-in for the U.S. market, the November election outcome could accelerate more formal legislation. For now, there are the Environmental Protection Agency's (EPA) Sara 313 fugitive emissions guidelines as well as other local requirements, such as California's GHG reduction plans, already in place.

Product stewardship initiatives

Product stewardship initiatives, like the EU's Registration, Evaluation, and Authorization of Chemicals (REACH) program, translate to the deconstruction of entire value chains (see "REACH, Part 2: Risks To Everyone Applying Chemicals"). While penned as a chemicals industry imperative, the ramifications and potential aftershocks ripple into any industry reliant on chemicals for profitability.

If anything, REACH elevates the role of material safety data sheets (MSDS) and regulatory content management, with companies needing to be disciplined in master data management (MDM), supply chain traceability, product development, and sourcing and procurement. Revisiting that design-for-environment (DfE) strategy might be a

timely option (see "How To Achieve Design for Environment in Discrete Manufacturing").

The increased focus on environmental compliance means GRC is no longer a term associated with just the Sarbanes-Oxley Act (SOX). AMR Research recently moderated a panel at SAPPHIRE that turned out to be a discussion on REACH and other environmental compliance initiatives, with participants including **NOVA Chemicals, DuPont, Rohm and Haas, and Dow Corning**. Few panelists could effectively connect the dots between their environmental initiatives and SOX.

At the same time, the vision of most comprehensive sustainability programs, which integrate all aspects of product, process, and supply chain design as well as the supporting processes for manufacturing, packaging, transportation, and disposal of products, presents a massive data management challenge. Many companies still struggle with the basic integration of foundational EH&S data into their everyday business processes. For those respondents in our annual GRC spending study that indicated the environment as their lead priority, the integration of financial and supply-chain-related data remains a battle as well.

When all is said and done, the visions of integrating all aspects of product, process, and supply chain design are commendable, much like the processes supporting the extended value chain that accompany most comprehensive sustainability programs. However, what our clients and Peer Forum members constantly remind us of is that, without the basic integration of core EH&S data into their everyday business processes, these projects will never have the necessary foundation for success.

Supply still not meeting demand for business process and IT-savvy consulting skills

While energy usage reduction, asset management, and other green IT initiatives are among several goals that are only now appearing on the radars of corporate IT departments (see "Environmental Business Initiatives: What Can IT Do Right Now?"), untangling cobbled architectures of homegrown and best-of-breed applications to achieve a common platform for environmental compliance management is an even loftier proposition. While corporate IT departments have built up significant business process understanding to support ERP and sometimes supply chain deployments, deployment of EH&S technologies often requires a specialized skillset that most IT shops simply don't possess.

For example, SAP customers ready to adopt comprehensive compliance platforms are pleasantly surprised at the depth of functionality relative to some standalone EH&S applications. However, the high degree of modular depth and interdependencies on other SAP ERP modules, such as Materials Management (MM), Plant Maintenance (PM), and Sales and Distribution (SD), requires a specialized set of deployment skills and resources to help connect the dots.

SAP is actively working to broaden the services ecosystem to help fill this void. In the interim, **Linx/AS** provides a viable option, offering a unique blend of PLM, environmental compliance, and SAP process knowledge. In addition to partnering with **Atrion** to provide support for REACH and other product stewardship initiatives, it has also developed a product called WorkSafe, which is a series of role-based SAP portals and supporting workflows to act as the front end of the EH&S module for simplification of data entry and integration points with other SAP modules. Given the myriad environmental compliance initiatives with which SAP customers across all industries are tasked, perhaps it's time for SAP to consider an industry value network (IVN) for environmental compliance.

However, the skills gap is not confined to SAP environments. Any company seeking to use a best-of-breed approach for its EH&S architecture is not immune to the dearth of IT skills, and they must encounter high deployment and application support costs.

EH&S as a service is becoming an increasingly attractive option. On-demand approaches are not only attracting new customers, but also the cost-conscious, which, as part of their upgrades to newer product versions, are also porting their onsite deployments to more cloud-based computing scenarios. Several EH&S providers are offering hosted and managed services options, which include ongoing system configuration and maintenance and training programs. Additionally, some references we spoke with have chosen to port their current on-premises EH&S deployments to the cloud to capitalize on new functionality, while also alleviating the burden of applications management and high ownership costs.

Environmental compliance architectures: some assembly still required

Although budgets are up, organizations still struggle to identify software and service providers that can support environmental compliance projects in the manner to which they've become accustomed with other enterprise initiatives and COTS software, such as ERP, CRM, and supply chain management. Implementing a consistent environmental framework doesn't have the standardized blueprint or implementation methodology that ERP or some supply-chain-facing projects have. It's still a large undertaking.

Despite the revenue of EH&S vendors growing an average of 20% to 30% in the past year, no clear leader has emerged. The market is still fragmented, with no one vendor providing a full gamut of functionality that can link EH&S with supply chain and financial performance.

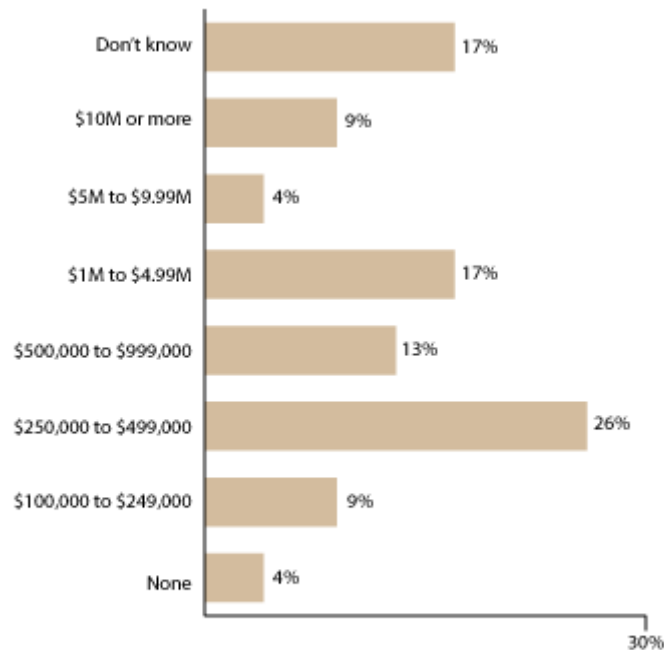
This makes identifying the software vendors needed to support all the required capabilities for a comprehensive EH&S compliance strategy a very different proposition from other software selections. In some cases, it means purchasing a complex tapestry of commercial software as well as the disciplined architecting of composite applications in order to create the multiple federated and high-fidelity frameworks to globally orchestrate and locally execute on environmental compliance initiatives.

Inside the evolving technology landscape

Over the past year, increased corporate social responsibility (CSR) and sustainability initiatives have driven environmental compliance into several organizations from all angles. Whether viewed as inside out, top down, or outside in, environmental compliance has bubbled to the top of the agenda for brand-conscious value chain orchestrators as well as the conscious brand owners with which they do business.

This revival of environmental awareness has translated into reenergized spending on technology support for EH&S, with investment on the rise (see Figure 1). This data, taken from respondents to the 2008-2009 GRC spending study that indicated the environment was a lead priority, represents a range of software and services, such as auditor support services, software and infrastructure technology, personnel time and materials, business process change, and other similar categories of EH&S spending.

Figure 1: Environmental spend on the rise



Note: Analysis includes auditor support services, software and infrastructure technology, personnel time and materials, and business process change.

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Source: AMR Research, 2008

Although the spending data does not strictly identify enterprise versus site-level decisions, the important takeaway is companies are planning to make investments. While most investments fall in the \$250,000 to \$500,000 range, slightly fewer than 10% of the respondents will spend \$10M or more, indicating that companies are now prepared to make sizable investments in their EH&S infrastructures.

However, when we surveyed the available landscape of technology options for support of EH&S efforts at the end of 2006, we discovered that, despite the presence of a few mature players in the vendor ecosystem, the EH&S compliance market was crying out for a leader. If anything, the market has been flooded with increased technology options, but still no complete application exists.

No one killer app exists

The EH&S compliance market demonstrates characteristics of an emerging market segment, despite the relative maturity of several vendors. Enterprise sales skills are just being cultured now, with strategic marketing and selling alliances starting to span beyond packaged integrations with other software applications. These youthful characteristics make the EH&S segment a logical target for consolidation by larger enterprise vendors seeking to expand their functional footprints and spreading their market presence.

The acquisition of **Pavilion Technologies** was a major step for **Rockwell Automation** (see "Rockwell Automation Boosts Process Portfolio With Pavilion Technologies Acquisition" for more on this). In addition to strengthening Rockwell's process industry positioning with advanced process control (APC) functionality, Pavilion brings credible functionality for real-time emissions monitoring and reporting as well as predictive modeling capabilities. Rockwell's existing automation, asset management, and operations intelligence combined with the acquired process safety offerings from **ICS Triplex** only bolster the company's profile for manufacturers seeking environmental compliance support from their automation providers. It's also a best-of-breed option for companies seeking an emissions management application.

Seeking to assert dominance in the environmental data management segment, **3E Company** acquired MSDS authoring functionality from **HSE Systems** and **MSDS Solutions**. The acquisitions augment the current Ariel

content provision and downstream MSDS management services.

Information services provider **IHS** acquired **Enviromax**, **ESP Software**, and **Dolphin Software** to mark its entrance into the environmental compliance market. Of course, the challenge is for IHS to continue to further the product roadmaps of ESP and Dolphin and maintain the presence of these software products in the market (see "IHS Sets Sights on EH&S With ESP and Dolphin Software Acquisitions").

If anything, the spate of merger and acquisition activity has had positive effects on incumbent providers, such as Atrion, **ESS** and **EtQ**, all of which continue to see growth not just in customer count, but in average deal size too. Moreover, the increasing scarcity of IT skills to support EH&S software deployments has ripened the opportunity for on-demand providers, such as **Enviance** and **ProcessMAP**.

Large enterprise providers looking green

Don't overlook the inroads being made by large enterprise providers. However, a quandary still persists: how green do these providers want to be?

- **Infor** continues to use its relationship with Atrion for product stewardship and chemical content compliance support for its Optiva PLM product. Additionally, Infor EAM Sustainability Edition provides functionality for supporting carbon and energy management and emissions monitoring. The company is also offering a product for modeling emissions outputs of an existing supply network to help companies evaluate alternatives for reduction and assess the effect on cost and service.
- **Microsoft** has launched a website specifically aimed at providing environmental compliance. Additionally, the Compliance Center that will be part of the latest release of the company's Dynamics AX ERP product shows promise for eventually morphing into a repository for environmental compliance business processes. Customers have also adapted the Dynamics NAV ERP product to support sustainability initiatives. **Seventh Generation**, a manufacturer of cleaning products, with help from Microsoft reseller **SCS Technology Solutions**, is using the NAV product to trace the usage of specific materials and their associated attributes in the company's products to ensure they are eco-friendly. Clearly, Microsoft's plan is to provide its target audience in the midmarket a way to manage environmental compliance.
- **SAP** remains the only ERP provider with a dedicated EH&S offering. The company also continues to evolve its relationship with EH&S development partner **TechniData**, enhancing the xEC product (for emissions management) as well as developing composite applications to support substance volume tracking (SVT) for REACH compliance. It's also working with **OSIsoft** to build out an energy management composite application. Best-of-breed EH&S providers like ESS, meanwhile, have been NetWeaver certified to integrate with SAP as well.

We were so correct, it's scary...

In retrospect, we were not far off in our predictions from just over a year ago: environmental compliance is now linked with GRC, budgets have increased, and the vendor landscape is still evolving. Additionally, plenty of opportunity exists for infrastructure providers to make entrances, and we still advise best-of-breed applications providers to consolidate or be consolidated.

While it's always rewarding to have predictions hold true, looking forward, the market cannot solve its current environmental conundrums under these conditions. Environmental compliance is no longer a checkbox item on the corporate agenda. It's a right-to-do business that is rapidly becoming a brand differentiator.

While Manufacturing 2.0, Enterprise 2.0, and service-oriented architectures provide alternatives and options to architecture assembly, regulations will only stiffen going forward. Packaged software options that link environment, supply chain, and financial data together and are easy to implement and manage need to emerge. Perhaps this is the opportunity for services firms like **Atos Origin**, **IBM Global Services**, or the many players from India, Inc. to move from one-off projects and finally make their marks on the environmental compliance market by establishing global practices to help their current clients.

Want to place bets on which company will emerge as the leader in the EH&S space? I'd love to hear your thoughts—sjacobson@amrresearch.com.