



## Laying the Foundations for Sustainability with Environmental Compliance

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A revival of environmental awareness, as seen in consumers' hunger for green products and public promotion of corporate sustainability initiatives, has reenergized spending on environmental health and safety (EH&S).

A panel on sustainability at our recent supply chain conference featured executives from **Alcoa**, **Dow Chemical**, and **Fluor**. The panelists, with clear consensus, agreed that companies need to define sustainability in the context of their business and the communities in which they operate, and then embed those initiatives in every aspect of their operations (see "Risk and Opportunity in a Green and Sustainable World" for more).

The vision of most comprehensive sustainability programs—integrating all aspects of product, process and supply chain design, and the supporting processes for manufacturing, packaging, transportation, and disposal of products—is highly commendable. However, most companies still struggle with the basic integration of foundational EH&S data into their everyday business processes. Still a large undertaking, implementing a consistent environmental framework doesn't have the standardized blueprint or implementation methodology that ERP or some supply chain facing projects have.

However, our ongoing EH&S research brings to light three steps companies can take to further integrate EH&S compliance efforts into their businesses:

- **Step one**—Consolidate disparate EH&S applications and systems to a single instance.
- **Step two**—Employ Enterprise 2.0 and Manufacturing 2.0 constructs into your environmental framework.
- **Step three**—Integrate your environmental framework with your firm's broader governance risk and compliance (GRC) framework.

### **Step one: consolidate disparate EH&S applications and systems to a single instance**

Companies with successful environmental compliance endeavors have embraced the concept of a standardized application or single global instance that can span across multiple regions. These cut across varied local, regional, and international policies, procedures, and distributed assets to ensure endless fluidity in environmental regulations.

Essential to the success of this strategy is having technology flexible enough to accommodate the high diversity of global and local requirements of the business. While the single instance strategy sounds eerily similar to an ERP approach, standardizing environmental compliance procedures is not as easy as implementing a global order-to-cash scenario, for example.

The broad spectrum of functionality that environmental compliance requires demands that an ERP application extend to support diverse, real-time environmental data models. And not all ERP providers offer sophisticated EH&S task and incident management, let alone specific EH&S offerings (see "EH&S Part II: It Ain't Easy Going Green: Incorporating EH&S Compliance Into Your Business").

A single instance of EH&S functionality helps create a common task and incident management framework with automatic escalations and a standardized auditing process, but ultimately it creates baseline data and procedures to enforce the following competencies:

- **Performance Management**—Mainly, this comprises EH&S-specific analytics, such as report templates, key performance indicators (KPIs), and metric calculators for tracking environmental performance. It helps identify specific trends such as emissions and waste outputs to model potential risks or even cost savings.
- **Risk management**—This is for modeling existing environmental data to depict potential risks and subsequent adverse events, simulating outputs and risks, and geographic simulation and modeling.

### **Step two: employ Enterprise 2.0 and Manufacturing 2.0 constructs into your environmental framework**

With many companies relying on loosely cobbled legacy application frameworks at their manufacturing and distribution sites, installing an EH&S platform slotted between these multiple systems is a potentially attractive approach. The platform acts as a conduit or information broker presenting high-level metrics to the corporate standardized systems and lets companies make use of productive and proven infrastructure.

That said, fitting EH&S applications into the actual operations environment where the current bulk of EH&S data resides can be a costly and risky proposition. These systems are the target of major upgrades in technology and architectural thinking. Harvesting the data from this moving tapestry and multiple systems of record (process automation, data historians, asset management, and batch execution applications, to name a few) into a single EH&S framework or application instance requires Enterprise 2.0 and Manufacturing 2.0 thinking.

Manufacturing 2.0 includes operations event and activity monitoring, operations process management (OPM), operations intelligence (OI), and something that few want to think about: manufacturing MDM (mMDM). For more on AMR Research's definition of Manufacturing 2.0, see "Manufacturing 2.0: Defining Next-Generation Manufacturing."

Meanwhile, Web 2.0 can harness the collective intelligence of users with blogs and wikis, and allow innovative assembly of small pieces of data and services in mashups. While the emerging Enterprise 2.0 can provide effective enterprise search and discovery, Web 2.0 uses links to connect information together and provides low-barrier social tools for public authorship of enterprise content. It also offers tags to let users model organizational structures, extensions to spontaneously provide intelligent content, and signals to let users know when enterprise information they care about has been published or updated.

Using the investments in Web 2.0 and Enterprise 2.0 technologies and business models for EH&S, like manufacturing operations, is vital if global manufacturers are to assuage the pain of the looming brain drain. Companies need to proliferate best practices and knowledge transfer so employees do not take valuable intellectual property out the door (in their heads) as they retire (see "Addressing the Manufacturing Backlog: It's Time for Manufacturing 2.0").

### **Step three: integrate your environmental framework with your firm's broader GRC framework**

The incorporation of EH&S efforts into an organization's active compliance architecture will also help to pull EH&S compliance into the realm of the higher profile scope and funding of the GRC strategy.

Single-instance EH&S software can also centralize metrics collection and tracking, even at its most basic level, and facilitate simple examinations of open incidents and comparisons of detection-to-correction cycle times for adverse event detection. The ability to track performance to specific standards centrally can help firms migrate their overall GRC maturity by contributing to a structured, clearly defined set of protocols for managing risk across the entire organization.

The proliferation of a single environmental instance provides visibility into multiple priorities, where one group's hot risk exposure may pale in comparison to others. In turn, companies are better equipped to make the tough call of which risks to address and which to accept.

The connection to performance management is strong, with visibility into key performance and risk indicators fused into one cohesive management system (see "From Tactical to Strategic to Holistic: AMR Research's GRC Maturity Model").

### **Who is stepping up to support an enterprise approach to environmental compliance?**

Interestingly enough, it's by pure chance that a few of the panelists at our conference shared more than a commitment to sustainable supply chains; they also shared a common software provider. And it's not their ERP platform—all three use **ESS** to help them track the EH&S elements of their sustainability activities. AMR Research recently spoke with a series of ESS customers and their consensus is clear: using ESS as a single environmental instance helps centralize EH&S structures that originally comprised a potpourri of homegrown and manual systems.

- A multinational chemical manufacturer deployed ESS at over 200 sites and supports 600 users on a single instance. The instance interfaces to MES, the laboratory information management system (LIMS), and waste characterization tools for the standardization of work processes, procedures, and training. This new single version of the truth builds on a platform of standardized calculations.
- One metals manufacturer recently selected ESS and aims to consolidate its widespread duplicity that legacy incident management structures have created. It will standardize on Essential Suite across 300 sites worldwide as a broad environmental task management platform.
- A major oil producer deployed ESS in support of 941 sites, 5,470 users, and 80,000 different tasks—not to mention 5,000 different environmental permits.

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 (see "Technology Options To Support EH&S Compliance"). ESS is emerging as a strong candidate for companies seeking to centralize their EH&S processes to a single platform outside of their ERP instance. And it's an attractive partner, or even acquisition target, for vendors seeking to expand their environmental footprint.

While ESS and peers such as **Enviance**, **ESP**, and **Perillon** have all been capitalizing on the current market demand for enterprise-class applications to support environmental compliance practices across multiple sites on a single instance, ESS has distanced itself from the pack by strategically playing its partnership cards.

ESS and its competitors have established partnerships with plant-level automation, data collection, and asset management technology providers and often use standardized integrations to simplify the portrayal of third-party data within their applications. ESS, however, has embraced SOA to develop composite applications atop

partner-supplied data sources. It is currently working with partners like **OSIsoft** to productize and jointly market these composites. Also, we recommended in last year's Report that vendors partner with ERP providers for integration of environmental data into their compliance frameworks and add environmental performance data to their dashboards to help provide a more holistic view of compliance for an organization. ESS listened and is on a fast-track plan to obtain **SAP** NetWeaver certification. While SAP offers its own EH&S offering, not all SAP customers have chosen to use it as part of their GRC or environmental efforts. Incorporating ESS into that ecosystem can only help drive long-term customer value for both vendors.

### **REACHing the tipping point for SAP EH&S?**

Let's not discount SAP in the broader EH&S picture. First, SAP is a dominant player in the most challenging environmental compliance market of all, the chemical industry. Second, several SAP customers have already consolidated their ERP deployments to a single global or regional instance, which could ease the deployment of the EH&S module from SAP. With the REACH regulation gaining momentum, and SAP's new offering to support REACH compliance—specifically product registrations and substance volume tracking (SVT)—SAP shops are reaching (pun intended) a tipping point for using SAP EH&S functionality as their environmental platform. Furthermore, the challenge and scope of REACH is enticing SAP's traditional consulting partners to look beyond SOX compliance. However, in-depth knowledge and consulting skills for environmental compliance is not something the majority of traditional ERP consultants broadly offer. We'll take a closer look at SAP's emerging capabilities in REACH Part 2.

### **Conclusion**

The recent high-profile, multiple-site deals closed with companies such as Alcoa, Caterpillar, and **Duke Energy** in the first half of 2007 indicate that market demand is growing for enterprise-class applications to support common environmental compliance across distributed manufacturing, distribution and service sites. To lay the foundation for sustainability with environmental compliance, enterprises should consider the three-step process outlined here. Firms not willing to wait for promised environmental compliance support from their ERP provider, or companies that prefer a single environmental instance decoupled from their ERP instance(s), should take a close look at how companies like ESS and their peers can be blended into their enterprise architectures and the broader GRC strategies of their ERP provider.

Are you developing an environmental architecture currently and have a success story to share? Want to place bets on who will emerge as the leader in the EH&S space? I'd love to hear your thoughts at [sjacobson@amrresearch.com](mailto:sjacobson@amrresearch.com).