BUSINESS UPDATE

Information Technology Systems

Some IT systems cost millions. Are they worth it?

By Richard MacLean

Environmental, heath and safety IT (information technology) systems span the spectrum from simple, home-grown spreadsheets to complex, enterprise systems that promise to do just about anything and everything. Are they the potent relief for environmental, health and safety (EHS) professionals drowning in regulations and facing budget cutbacks? They could be. This month we examine the do's and don'ts of IT systems, literally turning the design process "outside-in" to extract the value that they promise but usually do not deliver.

The most consistent message I receive from EHS managers and professionals is that they are struggling just to maintain compliance obligations. Although the rate of regulatory growth has tapered off in most developed countries, they are now faced with the double hit of resource cutbacks plus an entire new generation of "non-regulatory" requirements. These new demands are being promoted by non-governmental organizations (NGOs) releasing standards and guidelines for (some say against) industry. Management systems (as defined by ISO 14001 and OHSAS 18001)[1] and sustainability reporting (as defined by the Global Reporting Initiative) are not U.S. Environmental Protection Agency (EPA) or Occupational Safety and Health Administration (OSHA) requirements, but they consume a heck of a lot of time in some companies. Added to this mix is the goal of some CEOs to "out-green" the competition and prove that their company is a responsible corporate citizen.

A colleague describes the convergence of all these pressures as "EHS professionals running around with their 'hair on fire.'" Not a pretty sight. Efforts to extinguish these fires have more often than not led to, at least initially, the building of a myriad of in-house spreadsheets — the salve on the scalp, as it were. In reality, this attempt at relief (and efficiency) has been ongoing since the 1980s by

industrious EHS professionals with computer skills.

IT folks are not dumb and they have seen from the get go the opportunity to sell systems to people that clearly need help. In the 1980s, only the largest corporations could afford the development of big mainframe EHS applications. The technology has changed dramatically over the last decade and there still are people — both inside IT departments and external vendors — who promise the world and sometimes deliver far too little, too late, and over budget.

The Current State

What I have seen in many companies are EHS IT systems that are, in reality, an odd collection of spreadsheets and point IT applications that do not "talk" to each other. Typically, they have grown up as a response to certain problems, regulations, or initiatives. Of course, there may be some real gems in an otherwise barren mineshaft (i.e., the pit down where the money flows). These are often the simple, home-grown spreadsheets that are trusted to "get the job done." They also may be stand-alone, commercial systems, such as the Bureau of National Affairs' (BNA) regulatory tracker that focuses on addressing a specific need. Larger, more complex corporate IT systems often are constrained severely or require heroic efforts to generate reports. They serve only the EHS workforce and not the business folks who should be the real end customer (remember it's also about the money). These IT systems often are created using obsolete or unsupported system languages, holdovers from the days of the mainframes.

Just like poorly performing EHS management systems (a subject of several previous Manager Notebook articles),[2] the problem often lies in (a) poor design, (b) little business management commitment (especially when there are crossover needs such as links to purchasing, human resources, or finance IT systems), and/or (c) overzealous IT marketing people selling products "before their time."

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The last point is critical. What I all too often have encountered are EHS IT systems that are bought literally before the EHS management systems or even strategic plans were completed. I call this the "cart-before- the-horse" syndrome. The systems guys have a term for it: "Package-Led Evaluation," a.k.a. buy before you plan. Software and hardware packages frequently are purchased before companies have defined thoroughly their EHS management system requirements. IT systems are supposed to be the tool to support the management system, not the other way around. But, EHS folks, desperate to put the fire out and pressured by slick IT sales people, easily fall into this trap of believing that a fancy software system will fix any problem.

The most powerful systems that offer the greatest rewards are enterprise-wide systems that have knowledge modules targeted to all relevant EHS tasks. These systems have emerged in the marketplace in recent years promising completely integrated data and sophisticated, modern EHS transaction systems. It seems so simple — install an enterprise-wide EHS software system replacing the existing set of ad-hoc applications and voila.

It seems simple, but it is not. The enterprise-wide EHS systems can be quite expensive and consume already oversubscribed EHS staff resources in order to implement. In addition, it is extremely difficult to clear the corporate hurdle rate for IT projects with the aim of replacing existing information systems.[3] Approval requires meticulous analysis and planning. And you must, to my earlier point, be joined at the hip with business objectives. So how do you go about this?

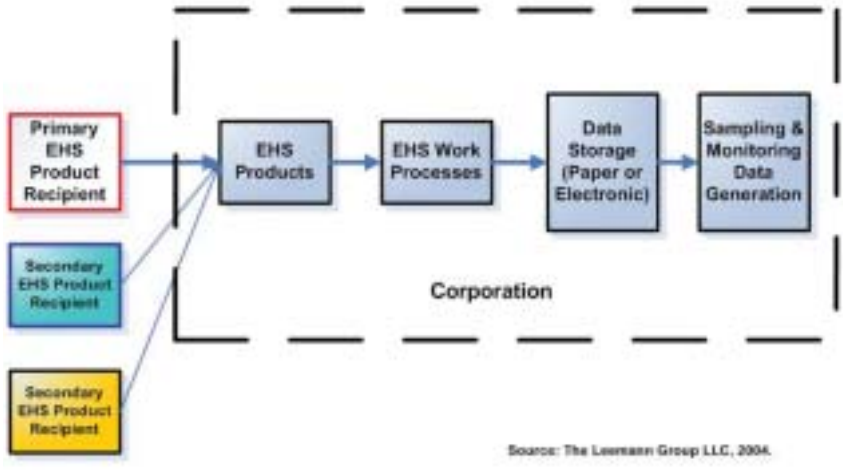
A Better Way

EHS professionals are beginning to recognize the criticality of aligning their IT needs with the business needs of the corporation. Sitting down with a business manager and discussing his or her business needs can be uncomfortable; you may be in for some criticism or requests that you will be hard pressed to fulfill. But, it is an essential step in aligning his or her view of the EHS function with your understanding of the business' needs and, thus, synchronizing expectations.

A colleague, Jim Leemann with The Leemann Group LLC, tackles this task for clients through a process they call *Outward-In Focus Methodology* ©.[4] The methodology uses a stakeholder perspective to identify all the "EHS IT system products" [e.g., material safety data sheets (MSDSs), discharge monitoring reports, waste and emissions reports, OSHA 300 Log, etc.] generated by EHS work processes that ultimately are tracked and managed by an EHS IT system. The collection of these EHS IT products serves as the minimum dataset that must be managed to ensure that compliance with all permits and regulations is achieved along with business management needs.

The first step in applying this methodology is to check stakeholder alignment by asking the following four questions.

Figure 1. Outward-In Focus Methodology



Is the EHS function:

1. Doing all that it should?
2. Working effectively (i.e., doing the right things)?
3. Working efficiently (i.e., doing things right)?
4. Doing what business leadership expects?

Although "stakeholders" may include customers, suppliers, community, government, EHS staff, and business management, the ultimate stakeholder is, of course, a shareholder. To this end, the review is focused primarily on how shareholders would view the answers to the preceding questions. In effect, this is the touchstone for EHS business value.

These straight-forward questions, from my own experience, rarely are explored systematically with business management. Assumptions rule. To get at the answers takes a series of interviews and forums with business and EHS leadership and staff. Once the answers to these four questions are gathered from the EHS staff, they are sorted into three EHS work streams: site, personnel, and material flow.

Site work streams encompass such activities as inspections, audits, emergency response, permit acquisition, and managing brownfield cleanup, including sampling and contractor management. Personnel work streams deal with employee and contractor personal safety, occupational health, and industrial hygiene. Material flow work streams focus on activities involving raw materials, intermediates, products, wastes, and emissions. Typically, there is very little reporting overlap from an EHS IT perspective with these three work streams (i.e., they provide a convenient division). Grouping these day-to-day EHS work streams provides a mechanism for a rigorous analysis of completeness, appropriateness, and cost distribution.

In addition to the proceeding grouping, the complexities of the EHS function can be organized into four primary activities:

1. Acquire and maintain operating permits,
2. Conduct day-to-day EHS work,
3. Comply with all permits and regulations, and
4. Provide management reports and alerts.

The first two activities are accessed using the information gleaned from EHS staff interviews. The assessment involves comparing the EHS work processes used to acquire and maintain operating permits and conduct the day-to-day EHS work to the Leemann Group's catalog of EHS best practices. The focus should be on EHS best practices, again concentrating on completeness, reliability, effectiveness, and efficiency. For all activities, best practice means having well-defined, efficient, and effective processes; knowledgeable workers skilled in the processes; and industrial-strength information systems to support the processes. Another component in obtaining alignment is to identify precisely the key metrics that define success.

The first step is to check stakeholder alignment.

Indeed, it is a tedious undertaking to work methodically through all the EHS products to get the set of necessary data elements for regulatory and management reporting, but it is absolutely essential (be it an enterprise-wide replacement, point solutions, or a well-designed set of databases with independent transaction engines). Answers gathered from the interviews with the business leaders also provide insight into EHS needs and wants along with the level of importance placed on EHS activities and, ultimately, the level of sophistication desired from a business standpoint.

Figure 1 is a summary of this approach and purposefully is drawn "backward" to reflect how a company shareholder might view the value to his or her stock in the business. Again, do these processes to produce "EHS product" really provide shareholder value in addition to satisfying mandated regulations? Leemann and his associates use this illustration to help EHS staffs focus on the importance of the needs of the end users versus the other way around.

For example, the shipping of a chemical requires inclusion of an MSDS to a recipient (in this case, the customer) outside the organization. The key question is: Is the MSDS sheet complete, consistent, and correct and actually accompanying the product? Looking from the outside-in allows for a much more straightforward approach to defining the "EHS product" all the way to identifying the data needed to create it.

Conclusions

Regardless of how you feel about downsizing or outsourcing, business managers will never stop looking for opportunities to reduce headcount and costs. Executives expect productivity gains, performance improvement, and cost reductions in EHS paralleling those occurring in other business areas, such as human resources, finance, public affairs, information technology, etc. The Leemann Group's Outward-In Focus Methodology provides one way to sort through the complexities of EHS in order to rapidly design or re-configure EHS software systems that will meet the needs of the EHS function, while at the same time meeting the needs and expectations of the business. EP

Richard MacLean is president of Competitive Environment Inc., a management consulting firm established in 1995 in Scottsdale, Ariz.; a principal at Independent Perspectives, a virtual consulting network supporting business management; and the executive director of the Center for Environmental Innovation (CEI), a university-based nonprofit research organization. He can be reached via e-mail at maclean@competitive-e.com. *For Adobe Acrobat® electronic files of this and his other writings, visit his Web site at* www.Competitive-E.com.

References

1. ISO 14001 and OHSAS 18001 are international standards for environmental management systems and occupational health and safety management systems, respectively.
2. See *Manager's Notebook* articles by Richard MacLean in the February, March, and September 2004 issues of *Environmental Protection*, available online at *www.eponline.com* in the Archives section.
3. Hurdle rates, the desired rate of return, for an information technology (IT) project to overcome the funding threshold can range from 15 to 50 percent as compared to non-IT project rates of 10 to 15 percent.
4. Additional information available at *www.LeemannGroup.com*.