



Legacy EH&S Software: (Re)Build or Buy?

Consider this: You have several environment, health, and safety (EH&S) management information systems. Ten years ago, your information technology (IT) department built a comprehensive environmental software application. The technology is outdated, difficult to maintain with limited EH&S and IT staff, and the system needs many enhancements to keep up with regulatory changes.

by Jill Gilbert

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Parts of your organization use a commercial health and safety software application. The software is two updates behind. In addition, you use hundreds of spreadsheets and one-off databases to manage EH&S information day-to-day. These disparate systems do not share data.

The existing EH&S management information systems are great assets, because of all the knowledge developed over the years. At the same time, they are a liability with respect to innovation, business agility, and cost of operation.¹

You completed a rigorous EH&S needs analysis process. Now you face a tough decision. Should you rebuild your internally developed system using modern technology, or buy commercial software to meet your growing needs?

Are You Equipped to Build Software?

Software most likely is not your core business, and development is only part of the picture. You need to be prepared to manage your internally-built software over its entire lifetime, from concept to

development to installation and long-term support. This requires focus and structure, and may require retooling IT governance.

Business needs drive development, not vice-versa. Your IT organization may have talented business analysts and programmers, but do they understand EH&S needs, and can they translate needs into clear and concise requirements? If you lack good EH&S business analysts, find a translator who understands EH&S, business, and IT issues. Otherwise, consider a commercial application from a vendor that has the combined skill sets. Remember to focus on what your organization does well!

Software Is Risky Business

Any software effort has inherent risks. These risks could cause loss or threaten the success of the project by increasing the cost of the system, delaying its delivery, affecting software quality, impacting project team morale, or reducing its benefits.

Identify and prioritize risks. Understand how these risks differ with “build” or “buy” options. Watch for opportunities to mitigate your risk by sharing it or shifting it to other parties. Before moving forward with your EH&S software initiative, know how you will address each risk and what contingencies you have in place.

Beware of Hidden Costs

Do the math. Gain a realistic understanding of your software project costs. If you buy commercial software, the total cost is greater than the license fees. If you build software in-house, then the total cost is much greater than salary, benefits, and overhead for the IT team.

Evaluate the total cost of ownership. Project management cost elements are very similar for build versus buy. Maintenance and support costs can be much lower for packaged rather than for custom

Figure 1. Build vs. Buy Matrix.

	Advantages	Disadvantages
Build	<ul style="list-style-type: none"> ✓ Software tailored to your needs ✓ Understand organization’s business processes and culture ✓ Designed with current and future needs in mind ✓ Control you own fate ✓ Leverage internal staff ✓ Fosters innovation 	<ul style="list-style-type: none"> ✗ Software is not “core business” ✗ Difficult to estimate total cost ✗ Incomplete skill sets, staff turnover ✗ New technology learning curve ✗ Systems requirements change as features develop ✗ Less credibility with the client ✗ Often not user-friendly ✗ Assume all of project risk
Buy	<ul style="list-style-type: none"> ✓ Software is “core business” ✓ Objective, independent third party ✓ Best practices built in ✓ Typically user-friendly ✓ Configurable, customizable, scalable ✓ Integrated modules ✓ Can integrate with other systems ✓ “Inside the firewall” or SaaS delivery ✓ Vendor-maintains IT infrastructure, software upgrades, help desk (SaaS) ✓ Vendor assumes much of project risk 	<ul style="list-style-type: none"> ✗ Software may lack key features ✗ Time to market for future features ✗ High cost of significant customization or integration ✗ IT infrastructure upgrades required as technology changes (“inside the firewall” installation) ✗ Software maintenance, upgrades, help desk (“inside the firewall”)

applications, especially with the SaaS (software-as-a-service) delivery model. Packaged software fees for licenses, maintenance, and implementation are a tradeoff for internally-built software development fees. Internally-built software adds cost elements for product management functions. Also beware of commercial packages that are priced very low, but require you to build out much of the basic functionality you need, resulting in a total cost of ownership far higher than expected. Both packaged and internally-built software have certain opportunity costs—lost business, employees that could have worked on other issues, and schedule delay costs.

Budget for the future. Allocate budget not only for the initial software build, but also for ongoing maintenance, upgrades, and support. Budget for technology upgrades to keep the application current. Otherwise, you risk shortening the usable life of the software, which is costly.

Change Happens

Most EH&S software initiatives span months or years. Over the project lifetime, people move on. Do not allow the project to rely too heavily on one or two individuals. Be sure that your team includes redundant expertise, whether on staff or outside the company. Regulatory-driven processes, especially EH&S, continually change. You should ensure that your EH&S software has frequent updates to ensure that regulatory information remains accurate. Look for software that links with a leading regulatory reference service and sends automatic updates that help you quickly adjust your business processes.

Ensure that you develop strategies for system upgrades and for system end-of life. If you plan to build a system, invest enough resources to handle not only the initial build, but also to keep the application current when technology changes.

Build vs. Buy

Companies recognize that commercial software has many advantages, among them, standardized solutions that incorporate best practices and vendor-maintained code. While “build” is a clear choice for many organizations, some prefer to custom-build software, and others prefer a hybrid approach with some commercial and some custom software.

Figure 1 summarizes advantages and disadvantages of “build” and “buy” options.²

To determine if a build, buy, or hybrid solution is best, conduct an honest assessment. Build and buy are appropriate for different organizations for different reasons—depending on the complexity of the user needs, the organization’s culture, skill sets, and so forth. Good arguments exist in both the “build” and “buy” camps.

In my experience, purchasing a commercial software package from a proven vendor—and configuring and customizing it as necessary—is the best option for most organizations. A commercial EH&S software application that truly meets the organization’s needs is usually preferable to a one-off, internally-built solution. Enterprise EH&S software has matured over the years, has a breadth and depth of features, and is more configurable than ever, limiting the need for customization. If you find that the solution you need does not exist at all, then custom software development may be your only option. **em**

References

1. IBM Corporation, *Software Group Extending the Value of Legacy Applications through Application Transformation*, 2010.
2. Gilbert, J.B. *Build vs. Buy, Ten Lessons Your CIO Should Share About Enterprise EHS & Crisis Management Software*, 2006.