Is standardized software eroding your competitive edge?

Standard enterprise software packages provide a consistent structure for basic supply chain processes. But these generic applications may not accommodate the processes and policies that set your company apart from its competitors.

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IN TODAY'S GLOBALLY INTEGRATED BUSINESS ENVIRONMENT, standard software applications play an important role in helping companies achieve consistent performance wherever they do business. That's one of the main reasons why businesses of all types are utilizing integrated enterprise software packages to support the majority of their supply chain initiatives, simplifying everything from managing financials to shipping products.

These standard solutions, from big-name software suppliers like SAP, Oracle, Infor, Microsoft, and others, offer other advantages, and they usually are reliable. But as this article will demonstrate, there are several reasons why relying only on standard software solutions may not be a good choice for many companies. Most of those reasons have to do with operational considerations. But there's another concern associated with standardized software: If the majority of companies implement the same solutions, what will set one business apart from another? Could an over-reliance on standard solutions be eroding companies' competitive edge?

We believe that because supply chains are as distinctive as the companies that use them, getting ahead requires taking a risk, stepping outside the standard "box," and identifying where customized solutions can provide a strategic advantage. Companies that are willing to combine the best of both worlds—both standard and custom software—can best their competition.

[BY ALAN KOSANSKY AND TED SCHAEFER]

Benefits and drawbacks

It's easy to see why standardized supply chain software appeals to so many companies. Generic by nature, these solutions have been designed to encompass many different "standard" supply chain processes, ranging from the capture of a customer order to the payment for raw materials. Because they can be configured to accommodate processes from discrete manufacturing, process manufacturing, or engineer-to-order supply chains, these packages can be good choices for companies that are launching a new business or entering a new market, as well as for those looking for ready-made problem-solving software. In our experience, in fact, 80 to 90 percent of all supply chain problems can be adequately solved using these time-saving and (if properly specified and implemented) cost-effective solutions. For these and other reasons, many companies choose to replace their existing supply chain processes with the standard processes that can be easily configured using software from giants such as SAP and Oracle.

But standard solutions may not be the best choice for all businesses or all processes along the supply chain. In some cases, adherence to standard processes can cause a significant, sometimes strategic, disadvantage. For instance, although standardized methods can provide a sound structure for businesses that are still learning how to operate successfully, they may not be the right choice for mature companies with more sophisticated processes that provide a competitive advantage.

Standard solutions can also be too broad to address the specific concerns that often are critical to a company's success. For one thing, although their modules cover basic supply chain processes like planning, scheduling, order management, and warehouse planning, they frequently fail to address a company's unique needs within those spheres. For another, they often are inadequate or unavailable for niche and specialized industries or for companies that require individualized attention to customers.

Companies whose processes don't fit well with a given enterprise resource planning (ERP) package often end up managing those processes outside of the software, modifying the software, or changing their processes to fit the package. Unfortunately, when a company changes its processes to suit a standard software tool, reliance on that solution may actually restrict its ability to respond effectively to its customers.

The same applies when a company forces a standard solution onto a nonstandard process. A prime example is the situation that resulted in a 2008 court case brought by the waste hauler and recycler Waste Management (WM) against SAP. A standard solution, which had been tested only with some small European waste companies, was applied to a nonstandard process—the U.S. open-pricing system employed by WM, which is completely different than the European, government-controlled pricing model. The "standard" solution could not accommodate the waste company's pricing model, and things fell apart. WM's management characterized the SAP implementation pilot that was intended to automate its revenue management process as a "complete and utter failure."[1]

Nike suffered similar problems in 2000 when it attempted to substitute i2's forecasting and demand planning software for its existing supply/demand management process, which required retailers to commit to orders far in advance of sales. The giant athletic footwear and apparel maker lost US $100 million in sales and experienced a 20-percent drop in its stock price as a direct result of problems with the implementation. Fortunately for Nike, it was able to recover fairly quickly by returning to its tried-and-true process.[2]

When to consider custom solutions

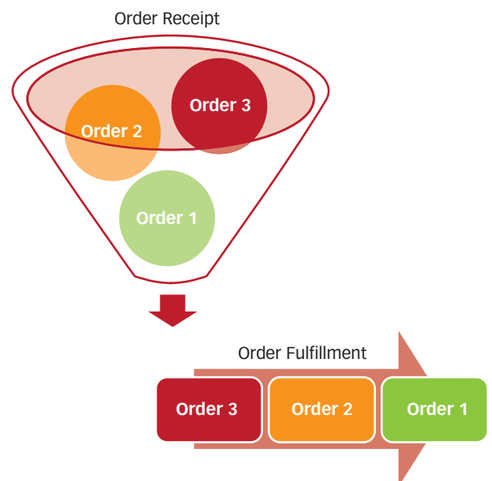
Custom solutions, ranging from a simple decision-support application embedded in a spreadsheet for a single user, to Web-enabled applications with global access that allow collaboration across many functions, provide an attractive alternative to the standard fare. In fact, for mission-critical and strategic business processes, custom solutions often are exactly what companies looking for a competitive edge

need. But the decision to embed custom solutions within a supply chain solution set must be made carefully, and it cannot be carried out overnight. Many times, these custom solutions can be implemented as a modification to a standard ERP software package by either the software vendor or an implementation consultant. In other cases, custom solutions are built as separate software applications and are integrated with the ERP software. Regardless of the type of custom solution, design, testing, and implementation take time, resources, and careful consideration to ensure added value.

How can a business determine whether a custom solution will provide a competitive advantage—and if it does, whether that advantage will be worth the risk and effort required for implementation? We recommend conducting a periodic review of the supply chain from end to end to determine, strategically, which supply chain processes offer opportunities for differentiation and therefore could provide a competitive advantage. If industry-standard business practices are sufficient, then standard enabling technology solutions will be sufficient. Where the business identifies opportunities for gaining a competitive advantage in supply chain operations, standard solutions will not do, and enabling technology that differentiates and supports creative, advantageous practices becomes critical.

In our experience, this analysis is best conducted by a group comprising the people who will be performing the process in question as well as the stakeholders situated both upstream and downstream from that process. If the analysis finds the gap between the "ideal" process and the process constrained to the standard solution is large, then the company should consider a custom solution. Performing this type of review on an ongoing basis is important to take advantage of changes in the business environment or of improvements in technology, particularly if the supply chain is viewed as a source of competitive advantage.

[FIGURE 1] STANDARD FIRST COME, FIRST SERVED ORDER FULFILLMENT



[SOURCE: PROFIT POINT INC.]

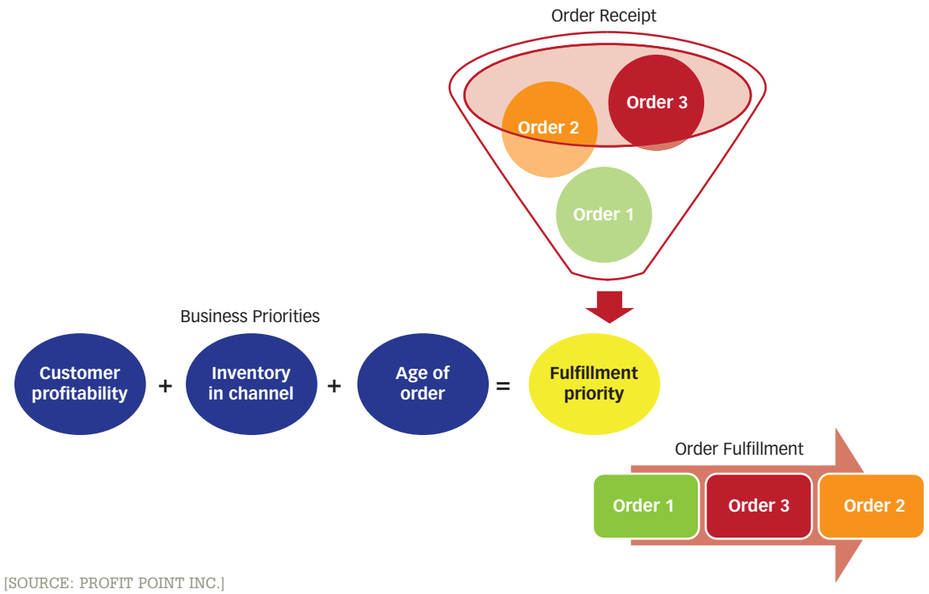
Over the years, we have found that many companies have differentiated themselves by implementing custom solutions in their planning and scheduling processes. They have been able to achieve higher asset utilizations or better allocate scarce products through the use of these solutions. Within the supply chain, many of the key decisions that determine a business's performance, from both a customer service and a cost perspective, are made on a monthly, weekly, or even daily basis in the planning and scheduling processes. In addition, the new wave of optimization-based solutions provides sophisticated decision-making capabilities that were not easily available just a few years ago. We therefore believe planning and scheduling merit special consideration when evaluating the potential for custom solutions.

Once a process has been identified as a viable candidate for a custom solution, the business then must determine the cost to develop, test, and implement such a solution, as well as consider the risks that such a solution might introduce to the supply chain. This evaluation will require collaboration with either internal or third-party experts who have a good track record of developing and implementing successful custom solutions. Here, too, the people who will be performing the process should be involved. In addition, we recommend a two-step gate process.

Step 1: The high-level review. This first step should produce a fairly high-level definition of the process inputs and outputs, the functionality of the custom solution, the way it will integrate into the rest of the processes and enabling information technology (IT) infrastructure, and the cost and risk of failure. Key deliverables from this evaluation should be:

- a high-level flowchart of the process that shows where the process inputs will originate, how the inputs will be used to generate the outputs, where the process outputs will be delivered, and the people involved in the process;
- a high-level estimate for the costs associated with the development, testing, training, implementation, and ongoing support (including both internal and third-party costs); and

[FIGURE 2] OPTIMIZED ORDER FULFILLMENT



[SOURCE: PROFIT POINT INC.]

- a high-level assessment of the risk that the process will not generate the expected value due to such potential issues as input data accuracy, system integration, depending on untested functionality, scale of the problem, or complexity of the solution.

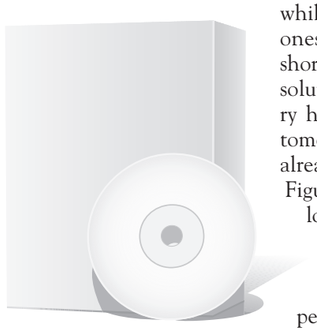
Step 2: Detailed design. If all of the findings of the high-level evaluation are acceptable, then it is time to determine, in detail, what will be required, and precisely how the new solution will enable the process in question and integrate into the rest of the supply chain. Key deliverables from this evaluation should be:

- a detailed functional specification for the custom solution, including the identification of each piece of input data, each piece of output data, the functions and transformations that will be performed on the inputs to create the outputs, and the way the user(s) will interact with the solution;
- a firm cost estimate and a formal proposal for the required development, testing, training, and implementation; and
- a risk-mitigation plan for all of the items addressed in Step 1.

During this two-step evaluation, a business should consider how the custom solutions would be developed. An increasingly popular option is to develop in the "cloud," where increased accessibility can benefit companies that share data across multiple IT organizations. For example, utilizing the cloud can facilitate faster delivery for warehouse management systems (WMS) or transportation management systems (TMS) that will operate across multiple locations and integrate with multiple third-party service providers. However, in our opinion, cloud development provides little to no advantage for most processes where all of the data are held internally. Also, using an application in the cloud means putting data on cloud servers, which typically requires adding an interface. That brings additional considerations, such as how data security will be resolved. Overall, companies should ask themselves whether the costs of developing in the cloud outweigh the benefits.

An equally important consideration is that custom solutions must operate in conjunction with and seamlessly integrate with standard solutions. Some companies, although dissatisfied with the available standard solutions, hesitate to incorporate custom ones due to concerns about integration. Those with sensitive data may also hesitate to bring in a third-party integrator, who would need access to the data. But those issues should be less of a concern these days. With the advent of data warehouses, for instance, integration is much simpler and gives the owner of the data options for protecting it from out-

siders. Both custom solutions and standard solutions, moreover, draw from the same data warehouses. Also, custom solutions can be minimally invasive when retrieving data and integrating it back into a wider system. For example, a typical custom solution might only write back to one or two tables within a massive ERP database. Since they have the option of having either a professional, respected custom solution company or their own IT departments write the data-accessing program, companies that are considering custom solutions can rest assured that their data will remain secure.



Where custom can make sense

Custom solutions can provide a significant advantage in several supply chain processes. Take order fulfillment in consumer electronics as an example. Products in this industry segment become obsolete very quickly. For this reason, electronics suppliers to "big box" retailers like Best Buy and Walmart often operate in a back-order situation to reduce the probability of getting stuck with returned goods and obsolete stock. The traditional first-in, first-out (FIFO) method of allocating inventory to orders (shown in Figure 1), which typically is incorporated into standard solutions, will not meet their needs. That's because consumer electronics companies have to determine how best to assign limited inventory to their customers. Since they cannot simply fill all the orders of their biggest customer at the expense of the rest of their customer portfolio, they apply sophisticated business rules to balance the needs of all customers while making sure the most important ones are least affected by inventory shortfalls. In this situation, a custom solution for deploying in-transit inventory helps to "score" orders based on customer priority as well as on inventory already in the channel, as shown in Figure 2. This approach, which uses logic and algorithms well beyond the capabilities of standard ERP solutions, reduces the seller's total supply chain costs and improves its performance scorecard relative to its most important customers.

Custom solutions are also suited to finite capacity scheduling. For example, batch-processing plants in the chemical industry often have large numbers of products that must be scheduled into a single reactor train, requiring them to properly time multiple processing steps. Some products are inventoried and move quickly; others, made to order, are slow movers. Here, too, customer prioritization may be an issue. In this situation, the scheduling solutions in standard ERP packages, such as those offered by SAP and Oracle, provide very simplistic solutions that cannot achieve the same throughput that customized scheduling solutions offer. They also tend to restrict the ability of the plant scheduler to quickly make changes, since they are time-consuming and cumbersome to use.

Sales and operations planning (S&OP) is another area where custom software can boost competitive advantage. Many companies struggle with balancing supply and inventory. Although standard solutions can be used to support these processes, they typically depend on a trial-and-error approach to balance supply and demand, as illustrated in Figure 3, and do not incorporate total profit optimization. Custom solutions can focus on the detailed trade-offs, optimize the total profit (see Figure 4), evaluate alternate scenarios, and predict how the supply chain will perform under different possible future scenarios. Using a custom solution, the S&OP process manager can spend the majority of the time evaluating the best solutions from a number of "what if" scenarios, as opposed to spending it developing the first feasible solution, as might be the case with a trial-and-error approach.

In the areas of transportation and distribution, standard solutions simply are not available in some cases, such as in smaller or niche markets. Consider the example of companies that lease equipment to farmers. The entire business model for this industry segment depends on nonstandard solutions. Farmers very frequently keep equipment too long or return it too early; as a result, leasing companies must deal with unpredictable, constantly changing pickup and delivery schedules. Custom solutions can eliminate this scheduling nightmare by providing flexible options for assigning leases and supplying equipment in the most efficient way.

Finally, just because a standard solution exists for transportation and distribution, that doesn't mean it will adequately cover a company's needs and meet its expectations. This is particularly true for companies that make frequent deliveries, such as those that distribute water, deliver linens, or supply bread to supermarkets. Even though standard solutions can route trucks, they typically are too general to take into consideration any unique requirements. These might include store-specific delivery times, or multiple deliveries that dynamically change during the week based upon sell-through for specific items—situations that are beyond the scope of standard software solutions. Custom solutions, however, can be designed to concentrate on these critical supply chain processes and conditions. As a result, companies can treat all customers individually and focus on the special situations that are necessary to retain their business.

Minimize risks, maximize rewards

The very act of being in business involves risk. Whether launching a new product, developing a marketing campaign, being the first retailer in a new market, or acquiring another company, taking risks is necessary for growth and success. Because of this risk, some companies are hesitant about switching from standard enterprise software solutions to embedding company-specific, custom software solutions in their supply chains, even though supply chain operations may represent their biggest expense—and therefore offer the largest potential opportunity to reduce costs.

In most cases, the benefits of taking the custom software route—when and where appropriate—far outweigh the potential downside. A well-oiled supply chain enabled by the appropriate technology frees up labor and resources, establishes reliability with vendors, and moves product cost-efficiently. It also allows companies to provide differentiated services to their customers.

This is critical, because differentiating products and services is essential to retaining a competitive edge in today's business world. That is why, as we suggested at the beginning of this article, companies should be thinking about whether an over-reliance on standard solutions could be eroding their competitive edge. But the differentiation imperative doesn't mean that all supply chain processes require customized solutions. Making the right choice depends on knowing which supply chain processes require a custom solution and how to implement that solution. Then, by combining the best of both worlds—utilizing standard solutions where appropriate and employing custom solutions to showcase marketplace advantages—companies can gain an advantage over their competition, today and in the future. △

Notes:

1. Mary Hayes Weier, "SAP Software a 'Complete Failure,' Lawsuit Claims," *InformationWeek* (March 27, 2008) http://www.informationweek.com/sap-software-a-complete-failure-lawsuit/207000149.
2. Christopher Koch, "Nike Rebounds: How (and Why) Nike Recovered from Its Supply Chain Disaster," *CIO* (June 15, 2004), www.cio.com/article/32334/Nike_Rebounds_How_and_Why_Nike_Recovered_from_Its_Supply_Chain_Disaster?page=1&taxonomyId=3207.

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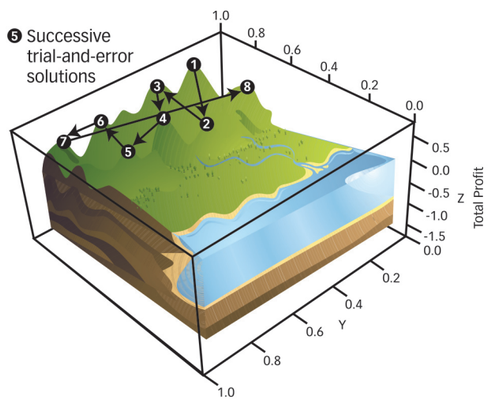
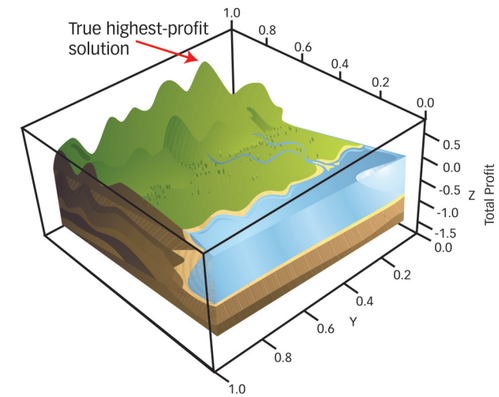
[FIGURE 3] TRIAL-AND-ERROR SUPPLY/DEMAND BALANCING IN THE S&OP PROCESS



[SOURCE: PROFIT POINT INC.]

[FIGURE 4] MATHEMATICAL OPTIMIZATION TO BALANCE SUPPLY/DEMAND IN THE S&OP PROCESS



[SOURCE: PROFIT POINT INC.]