

To ERP or Not to ERP

In Manufacturing, It Isn't Even a Question

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To ERP or Not to ERP: In Manufacturing, It Isn't Even a Question

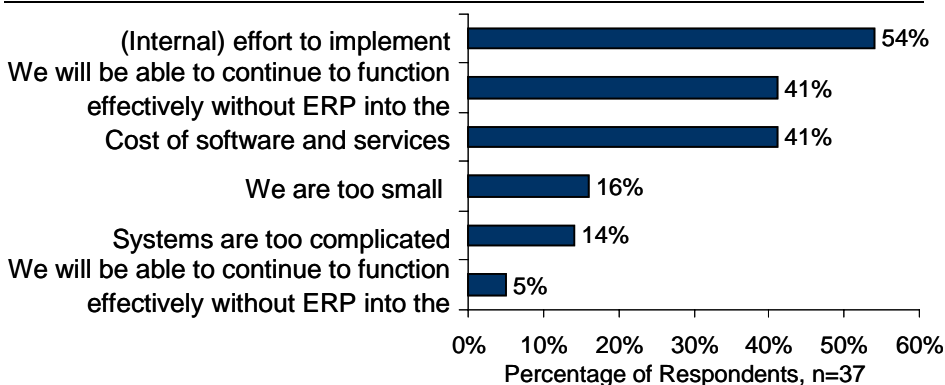
Enterprise Resource Planning (ERP) software is designed to be the system of record for operating and managing a business. Growing up out of the Manufacturing Resource Planning (MRP) world, ERP is also, by default, the primary tool manufacturing companies use to plan and schedule the resources needed for day-to-day operations. Over the last 20 years, ERP has gone from being a system that only the largest manufacturing companies had the capabilities to implement, to a system that has almost become the default for operating any size manufacturing company.

Despite the benefits that companies that have implemented ERP are seeing, Aberdeen's June 2010 report *ERP in Manufacturing 2010: Measuring Business Benefit and Time to Value*, found that 26% of manufacturers had yet to implement ERP. This Analyst Insight will look at the performance of companies that have implemented ERP versus the companies that have not. It will also examine the capabilities that companies with ERP have over non-ERP companies.

A non-ERP perspective on ERP

While the majority of manufacturing companies have already implemented ERP, there are still some factors that are holding some manufacturers back (Figure 1).

Figure 1: Why haven't you implemented ERP?



* Participants were asked to select all that apply

Source: Aberdeen Group, March 2011

The leading reason for this is because of the fear of the "burden" of the internal effort required to implement.

Analyst Insight

Aberdeen's Insights provide the analyst perspective of the research as drawn from an aggregated view of the research surveys, interviews, and data analysis

No ERP Implemented Company Size

Companies without ERP tended to be smaller companies.

- ✓ 50% were less than \$US 25M compared to 21% of companies with ERP
- ✓ About one third of companies without ERP were between \$US 25M and \$US 100M
- ✓ About one third of companies with ERP were over \$US 250M

While an ERP implementation can require some effort, it can be successful and payback whatever effort is expended. As we will see in this report, to be successful, an ERP implementation must adhere to certain criteria:

- Managed by a cross-functional team from operations, finance, and IT
- Implementation results are measured including ROI and operational impact
- Close collaboration with an implementation partner experienced in manufacturing ERP
- Closely aligned with the industry and able to grow as a company changes to meet demand

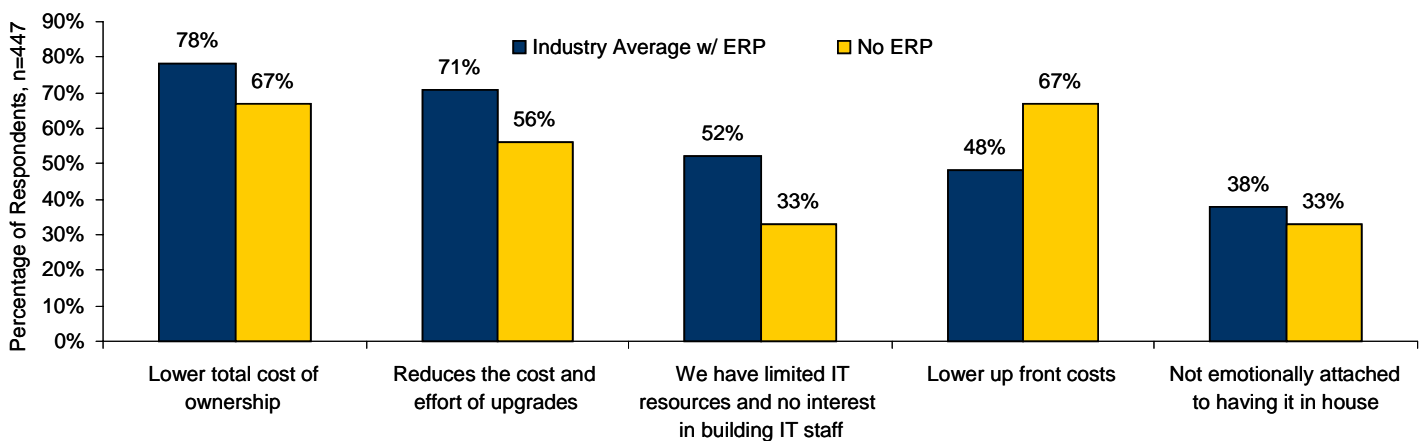
“The entire company relies on the data in the ERP system and could not survive without it.”

~ Steve Crow, Executive VP,
Life Tech, Inc.

Some businesses feel that they can continue to function effectively without ERP. Those companies' leadership typically feels that since they are relatively small and still growing, they can't take the time to slow down and implement an ERP system. ERP can help emerging companies track this growth, making sure that nothing gets lost in the cracks. There are many scalable ERP solutions that smaller businesses are implementing in order to fuel their growth. Aberdeen's [ERP in SME: Fueling Growth and Profits](#) explored the ways in which smaller businesses are employing ERP.

Also note from Figure 1 that 41% of those without ERP feel that the cost of software and services is too high. The increased abundance of ERP options deployed as Software as a Service (SaaS), has helped to make ERP affordable to even the smallest of businesses. Aberdeen's [SaaS ERP: Trends and Observations 2010](#) report found that 39% of respondents were willing to consider SaaS as a deployment model for their ERP, a 70% increase over the previous year. Seventy-nine percent (79%) of these respondents are willing to do so because of the lower total cost of ownership (Figure 2).

Figure 2: What factors into a SaaS decision?



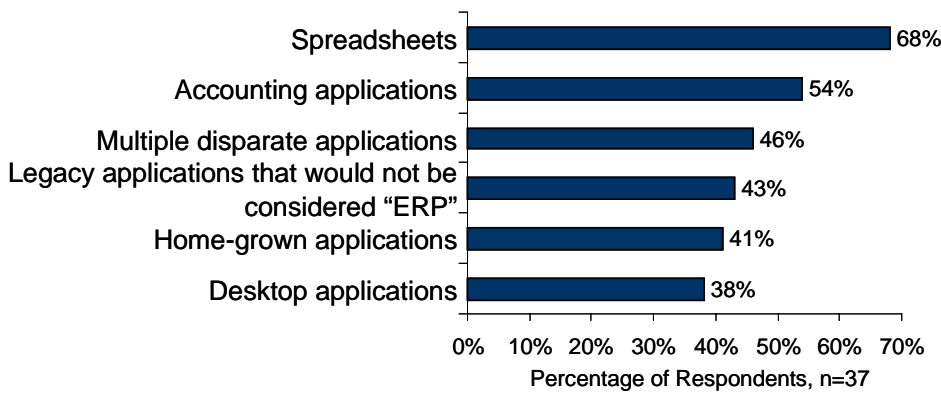
Source: Aberdeen Group, March 2011

In general, SaaS options are appealing to companies without ERP because they are perceived as being less expensive, but there are other reasons why

a SaaS solution may be appealing beyond just cost savings. An ERP system can require IT resources that some companies just do not have. Not only do IT resources cost money, but when forced to maintain an ERP system these resources are not able to be allocated elsewhere. With a SaaS solution the company is able to let their ERP vendor handle most of the implementation, deployment and ongoing maintenance work for them. Upgrades are handled automatically by the vendor, greatly reducing the effort required from the business. Since SaaS is paid for on a subscription basis, and can be implemented more easily, a SaaS ERP solution can be a first step into the world of ERP for those businesses that have yet to get their feet wet.

So if a company doesn't have ERP, what are they using? Figure 3 shows what most people would assume; a combination of spreadsheets, accounting software, homegrown applications, and older business software. Spreadsheets are typically the internal reporting method of choice for most small companies and could be considered the biggest competitor that any ERP vendor faces. Spreadsheets are easy to use, almost universally available, and can be emailed to anyone with another spreadsheet application. In fact, most ERP applications assume that users will continue to use the data from the ERP system as exported spreadsheet files.

Figure 3: What are you using instead of ERP?



Source: Aberdeen Group, March 2011

Performance

Now let's look at how companies perform with and without ERP. Table 1 gives a quick overview that compares how Best-in-Class companies with ERP, Industry Average companies with ERP, and manufacturing companies with no ERP compare in specific operating Key Performance Indicators (KPI).

When comparing the performance of manufacturers that have already implemented ERP with those that have yet to, it is clear that ERP is helping these businesses to perform better. Manufacturers that have yet to implement ERP consistently perform below the Industry Average. Using

Best-in-Class criteria for ERP in Manufacturing

Aberdeen defined Best-In-Class as the top 20% of performers in the following operational metrics related to ERP:

- ✓ Time to close books
- ✓ Internal schedule compliance
- ✓ Complete and on-time shipments
- ✓ Inventory accuracy

ERP, manufacturers are improving their inventory accuracy, experiencing faster month-close completions, meeting internal manufacturing schedules, and shipping more orders complete and on-time. It is, of course, impossible to measure the reduction in inventory levels as a result of ERP in those businesses that have yet to implement ERP, but the Industry Average of those that have ERP are reducing their inventory by 11%.

Table 1: Performance of Those With ERP vs. Those Without

Definition of Maturity Class	Mean Class Performance
Best-in-Class: Top 20% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ 22% reduction in inventory levels ▪ 97% inventory accuracy ▪ 3.4 days to close a month ▪ 96% manufacturing schedule compliance ▪ 98% complete and on-time shipments
Industry Average: Middle 50% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ 11% reduction in inventory levels ▪ 94% inventory accuracy ▪ 5.3 days to close a month ▪ 88% manufacturing schedule compliance ▪ 93% complete and on-time shipments
No ERP	<ul style="list-style-type: none"> ▪ 90% inventory accuracy ▪ 6.5 days to close a month ▪ 88% manufacturing schedule compliance ▪ 89% complete and on-time shipments

Source: Aberdeen Group, March 2011

Aberdeen Insights — Research Methodology

Aberdeen applies a methodology to apply the performance benchmark defined above to the evaluation of the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:

Pressures — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)

Actions — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product / service strategy, target markets, financial strategy, go-to-market, and sales strategy)

Capabilities — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products / services, ecosystem partners, financing)

Enablers — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)

Aberdeen Insights — Research Methodology

The Aberdeen Maturity-Class Framework defines enterprises as falling into one of the following three levels of practices and performance:

Best-in-Class (20%) — Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance.

Industry Average (50%) — Practices that represent the average or norm, and result in average industry performance.

Laggards (30%) — Practices that are significantly behind the average of the industry, and result in below average performance.

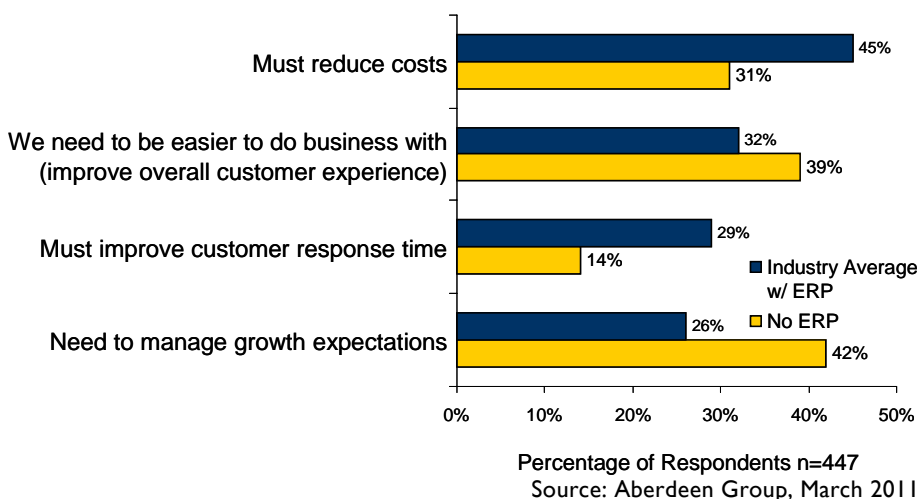
***No ERP** — For this report, we also have a category defined as no ERP.

Pressures

To get a better perspective on how ERP is used in manufacturing companies, Figure 4 shows the results from manufacturing companies being asked to list their top two business pressures. Because there was little statistical difference between the Best-in-Class, Industry Average, and Laggard ERP implementations, only Industry Average is used to compare to companies without ERP. As would be expected, cost management is a consistent top priority for all manufacturing companies, regardless if they have ERP or not.

Industry Average and Laggard companies with ERP were fairly consistent when compared to each other. But as we look for where companies with ERP deviate from companies without ERP, we see areas around customers and growth start to stand out. Overall, companies without ERP feel they need to be easier to do business with and they are concerned about managing their growth.

Figure 4: Top Two Business Pressures



“Since the recession, the ERP has given us the ability to write reports to analyze the data in new ways we wouldn’t have been able to.”

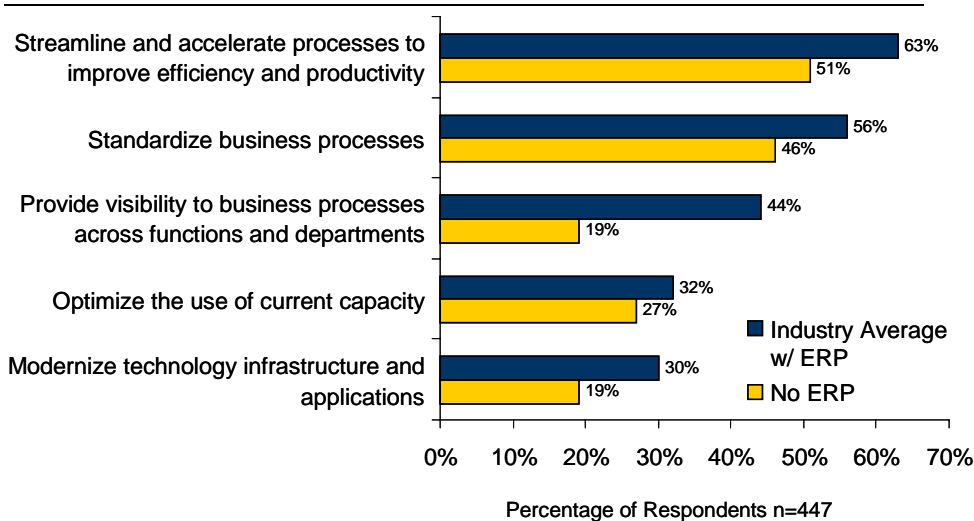
~ Leonard Hartka, IT Director,
Sun Automation Group

Actions

The top strategic actions companies are taking to address their pressures and challenges is not that much different, regardless of having ERP or not. One action that isn't listed on the chart because only companies without ERP responded to it is implementing ERP. Fifty-four percent (54%) of responding companies without ERP indicated that their top action is the intention to implement ERP.

Figure 5 shows that companies without ERP are less focused than others on standardizing and streamlining business processes. Once again, there was little statistical difference in maturity classes when compared to companies without ERP, so only Industry Average ERP implementations are compared. Note that companies without ERP are less concerned with providing wider visibility in those business processes. Much of this can be explained by the fact they don't have ERP. One of ERP's key benefits, almost by default, is to drive business process standardization and provide visibility into the company's processes.

Figure 5: Top Two Strategic Actions in Response to Pressures



Source: Aberdeen Group, March 2011

“Our new ERP system allowed us to reduce stock outs and admin costs while improving inventory accuracy and on time shipments.”

~ IT Director, small telecomm maker, southeast US

Benefits of ERP

Table 2, which is taken from Aberdeen's *ERP in Manufacturing 2010: Measuring Business Benefit and Time to Value* report, shows the significant impact that ERP has on operating performance of manufacturing companies. Best-in-Class companies see almost a 20% reduction in overall costs, not to mention the significant improvement in other operating parameters. Even Laggard companies that had ERP implementations at the bottom of the maturity model see about 5% improvements in cost along with improvement in other parameters.

So, between Table 1 and Table 2, it is clear that even a bad ERP implementation is better than no ERP implementation.

Table 2: Business Benefits Achieved from ERP

Benefit from ERP	Best-in-Class	Industry Average	Laggard
Reduction in operating costs	20%	13%	5%
Reduction in administrative costs	18%	10%	4%
Reduction in inventory	22%	11%	3%
Improvement in internal schedule compliance	18%	12%	7%
Improvement in complete and on-time shipments	17%	13%	5%

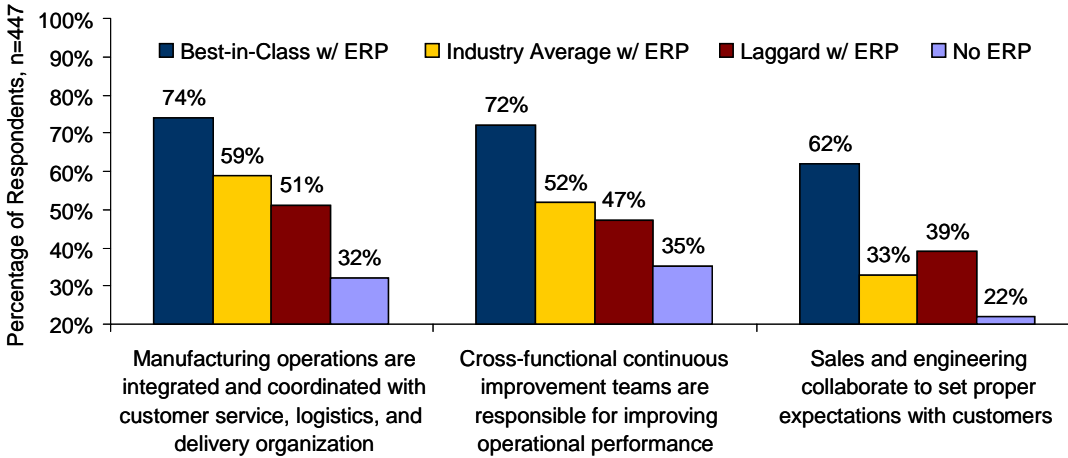
Source: Aberdeen Group, June 2010

Selected Capabilities Compared for ERP vs. no ERP

ERP as a system provides a foundation for managing resources and business processes. Figure 6, Figure 7 and Figure 8 show that ERP is the inherent enabler of collaboration and business processes. Companies that use ERP systems have a baseline from which to build standardized processes and provide visibility for information and processes to all users. The data to follow reveals some selected capabilities and compares companies with ERP to companies without ERP.

The first group of capabilities we look at concern internal organization and collaboration (Figure 6). ERP can also be the foundation for organizational change and growth. Best-in-Class companies are three to four times more likely to have internal collaboration capabilities over both companies without ERP. But the data also shows that even Industry Average and Laggard companies with ERP far out-pace a company without an ERP system when it comes to internal collaboration. Collaboration between manufacturing, engineering, sales, and other key areas is enhanced by ERP just by the fact that all parts of the company are looking at the same information at the same time. Even Laggard companies are 59% more likely than those manufacturers without ERP to integrate and coordinate manufacturing operations with customer service, logistics and delivery organization.

Figure 6: Internal Collaboration and Organization

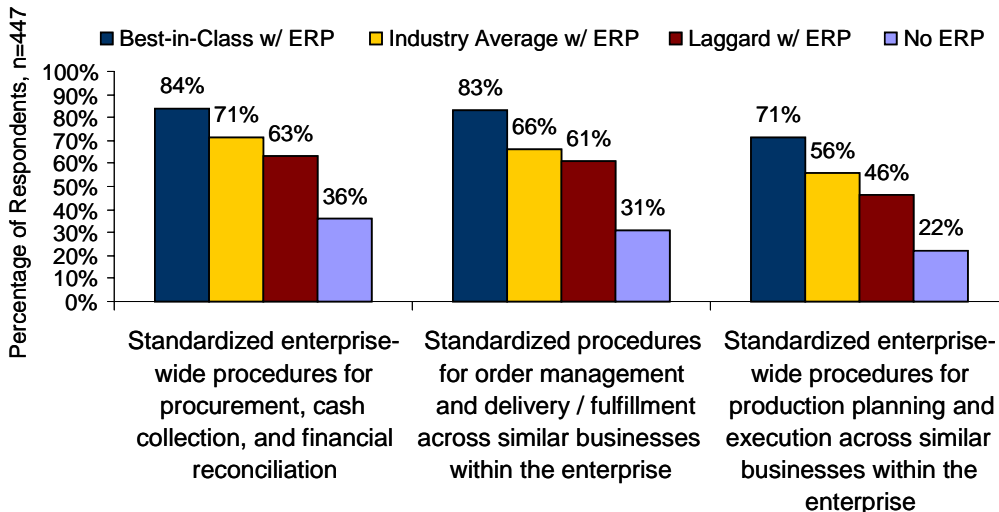


Source: Aberdeen Group, March 2011

As Figure 5 showed, standardizing and streamlining business processes was important to all manufacturing companies. Figure 7 shows that Best-in-Class companies are two to three times more likely to have standardized business processes than companies without ERP. And both Industry Average companies and Laggard companies have driven far more standardization into their organizations.

You could expect cash management processes to be standardized in a company, but just over a third of companies without ERP have established standards for those processes. Compare that to almost two-thirds of even Laggard companies having standard cash processes. And the same can be seen in other business process, albeit to a slightly lesser extent.

Figure 7: Standardized Process Capabilities



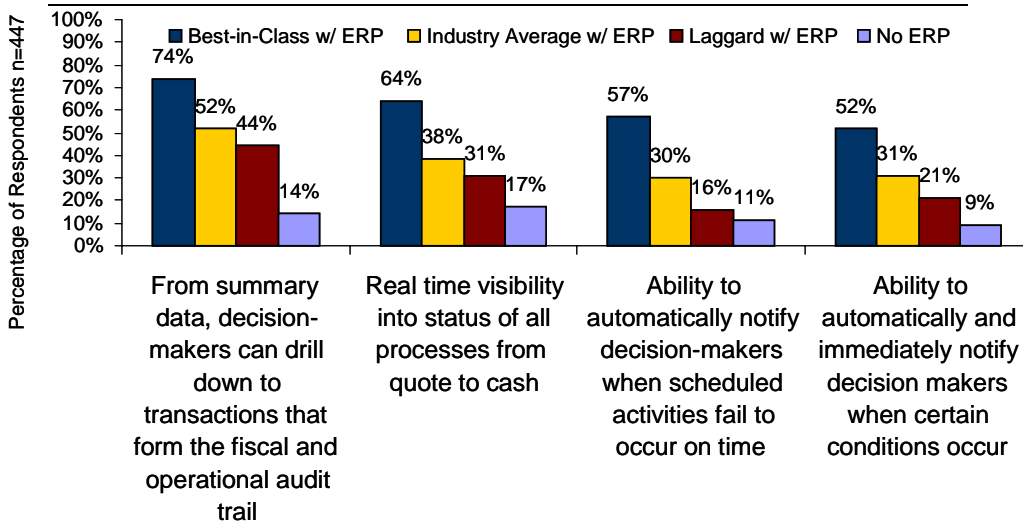
Source: Aberdeen Group, March 2011

“Without an ERP system we feel we are leaving money on the table because of the lack of coordination and visibility.”

~ IT Director, Materials Manufacturing company in Southeast US

Once again looking back at Figure 5, we see that visibility into business processes was a key strategic action for companies with ERP. And looking at Figure 8, we can see that companies with ERP were able to deliver it, especially Best-in-Class ERP implementations. From being able to quickly dig into details from reports to being able to automatically notify users of out of the ordinary operating conditions, companies with ERP far outranked companies without ERP.

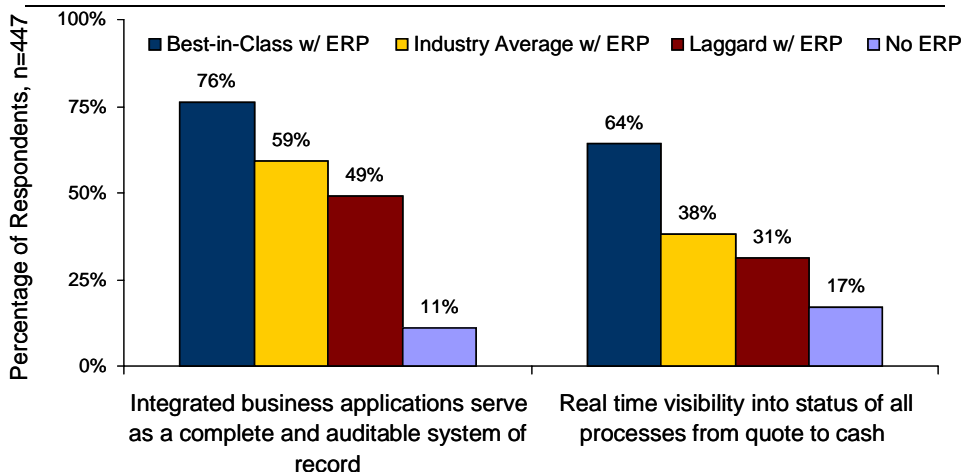
Figure 8: Information and Decision-making Capabilities



Source: Aberdeen Group, March 2011

A key reason many companies implement ERP is to provide the means to manage and report financial status. ERP has become the system of record for over three quarters of the Best-in-Class manufacturing companies and over half of the rest of companies with ERP. Compare that to just over 10% of companies without an ERP system having any single system of record whatsoever. The labor needed to respond to one audit could possibly justify the implementation of ERP by itself.

Figure 9: Managing the Money



Source: Aberdeen Group, March 2011

Case in Point

Rigaku Americas is the United States' arm of Rigaku Corporation, a manufacturer of x-ray products and complementary technologies. The company is considered to be one of the world leaders in technologies such as general X-ray diffraction, X-ray spectrometry, X-ray optics, and semiconductor metrology due to its numerous technological innovations. Most of all, the company prides itself on its collaboration with customers. Many of Rigaku's products are built to custom specifications. The company's products can be highly complex leading to an organization that has become highly complex itself.

Scott Bendle, Chief Information Officer, knew that changes needed to be made in the Rigaku Americas organization. The company was running its operations on antiquated systems that were not connected to one another. This arrangement aided in placing many unnecessary pressures on the company. An added complication surfaced when the organization supporting the largest system within the company elected to discontinue offering support for that system's client base. Although the old system helped to combat some of the company's pressures, there was still much improvement to be made. The company wanted to lower costs and realized that it had not exposed and taken advantage of enough efficiencies. Bendle noted that communication between the company's eight plants of 330 total employees was not easy. Data was transferred with emails and faxes, and orders could not be easily transferred from plant to plant. There was very little visibility into finances and interactions with vendors. Since so many of the company's products are custom built, this made it difficult to quickly and accurately assess costs. The company knew that they were only planning by the seat of their pants. They were carrying too much inventory but also experiencing too many late orders to their customers. The organization could clearly operate more efficiently which would translate to increased customer satisfaction and increased profits. Bendle said, "Losing support was a good excuse, but we have known for a long time that we needed to do this."

Rigaku decided to hire business consultants. These consultants helped them to chart out problems in their processes and create some understanding of what was needed to improve their operation. They made charts illustrating the current state of the company and charts illustrating where the company wanted to be. It was clear that an ERP implementation was necessary. As with any major change in a company, it was important for Rigaku to tread carefully and carefully consider any changes. The company identified 28 ERP vendors. From there they allowed 13 companies to offer proposals. From the seven vendors submitting responses to the proposals, Rigaku brought in three for in-person demonstrations. The goals were to be able to take orders, buy materials, schedule and ship effectively. It was important to have better production control, engineering, purchasing, financing, and labor tracking functionality, among others. Finally, Rigaku made a choice and embarked on an ERP implementation.

Currently, Rigaku has fully implemented ERP in six of its eight United States plants, with implementation in a seventh plant in progress. Still, the company is already seeing benefits. They are starting to understand transfer orders better. Additionally, it has become much easier to assess costs. Bendle says, "We didn't have a good handle on costing before this. It used to take two to three weeks for finance to assess some product costs, now we can do it in 10 minutes." Bendle personally has gained a lot more visibility into the business. He has seen fewer late orders, improvement in inventory holding costs, and improved planning by decision makers. Bendle states, "The biggest benefit has been the opportunity to change how people work and to make this a better organization."

Key Takeaways

When looking at companies with ERP and without ERP, Aberdeen's research might make one scream out; why not implement ERP immediately? The answer is that companies without ERP feel they are moving too fast and don't have the internal resources. So what should a company that doesn't have ERP do?

- Look outside your own company for the change in operational performance that ERP will deliver. While Best-in-Class companies saw huge positive changes in operational performance, even Laggard companies saw 4% to 5% reductions in operating costs due to their ERP implementation.
- Use a cross-functional team with IT, sales, manufacturing, finance, and engineering to build the case for ERP. Ninety percent (90%) of Best-in-Class companies and 74% of companies used cross functional teams to select and manage the ERP implementation.
- Look at ERP as the means to standardize and streamline your business processes. As we have shown, 84% of Best-in-Class companies using ERP have standardized cash processes, while only a third of companies without ERP have done that.
- Use the effort to plan and report financial performance as a key justification for ERP. It takes a company with an ERP system twice as long to close its books as a Best-in-Class company with ERP. Over three-quarters of Best-in-Class companies with ERP have a single system of record while only around ten percent of companies without ERP have an auditable system of record.

Our research shows that even a lagging ERP implementation provides operational and organizational benefits for companies. By implementing ERP, these manufacturers will arm themselves with the first tool towards becoming Best-in-Class.

For more information on this or other research topics, please visit www.aberdeen.com.

Related Research

[ERP in Manufacturing 2010: Measuring Business Benefit and Time to Value](#); June 2010
[ERP in SME: Fueling Growth & Profits](#); August 2010

[ERP in Complex Manufacturing](#); February 2011
[SaaS ERP: Trends & Observations 2010](#); October 2010

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