

UPGRADING ENTERPRISE SYSTEMS FOR SUCCESS IN PROCESS MANUFACTURING

November, 2015

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Report Highlights

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The pressures that stand out among process manufacturers are the need to keep costs low and maintain compliance.

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Where the largest gap between Process Manufacturing Leaders and Followers occurs is when it comes to promoting visibility throughout the enterprise.

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Leaders understand the pitfalls of obsolete technology. Over 80% of Process Manufacturing Leaders are either on the latest release of ERP or only one behind.

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Process Manufacturing Leaders have started to turn to cloud ERP. Beyond lower TCO, the ability to upgrade and scale the solution easily are primary drivers.

This report identifies how top performing process manufacturers (food & beverage, chemicals, etc.) compete in an evolving landscape. Specifically, how Leaders within the industry have upgraded enterprise systems, like ERP, to take advantage of new functionality and outperform their peers.

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The combination of pressures around rising operational costs, production efficiency, and compliance form a complex operating environment for process manufacturers as a whole.

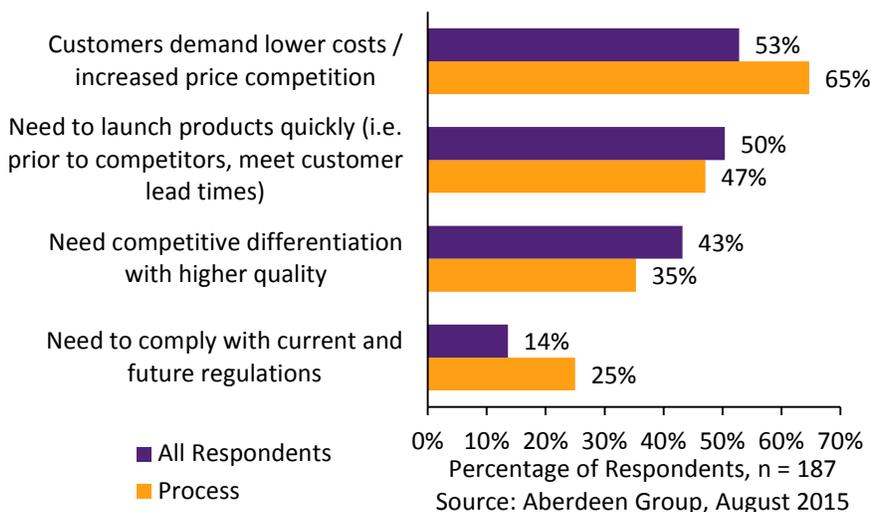
Enterprise Resource Planning (ERP) is the foundation of a successful manufacturing organization, responsible for promoting standards throughout the organization, discovering potential efficiencies, and managing front and back-end processes of the enterprise. As such, these solutions tend to have long lifecycles, which is not always a good thing, as change is the one constant in manufacturing. Businesses may expand, add new product lines, or any number of other organizational developments. Process manufacturers have the added challenge of increased competition and rising compliance concerns. Today's manufacturers are required to be increasingly innovative and agile in decision making to both stay ahead of, and provide greater value to, the customers.

Process Manufacturers Must Look for New Ways to Operate

Executives in the process industries are generally managing enterprises that are asset intensive, at the mercy of global commodity markets, and face both low margins and high-demand variability. Given these industry characteristics and the state of today's economy, still rife with uncertainty, companies must find new ways to reduce operational costs as a means to stay viable; while continuing to ensure that these cost cutting measures are not at the expense of gaining new market share or operational excellence. Keeping all of these factors in mind, it is no surprise to see the need to keep costs low as the top pressure that process manufacturers face (Figure 1). What also stands out among process respondents is the need to comply with regulations as a growing concern. When compared to all other industries, the need for compliance shows up at almost double the rate among process manufacturers.

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Figure 1: Top Pressures to Improve Operations



Every year it seems that compliance regulations increase in number and complexity. These regulations extend beyond just products being produced and across numerous regulatory bodies (EPA, FDA, EFSA, etc.). Companies that do not pay attention to compliance risk losing thousands, or even millions, in lost revenue and fines associated with violations. Tighter control, documentation, and tracking of every component and process used throughout operations is now required. Maintaining compliance to these mandates naturally results in a higher Cost of Quality (CoQ) for most process manufacturers, which highlights the fact that these pressures are linked. Combatting all of these pressures can be a challenge for those manufacturers that are not properly structured. While most consistently site reducing budgets and high costs as inhibiting factors to success, the top among process manufacturers is multiple / siloed datasets (see sidebar).

Manufacturing is an evolving landscape, one that requires informed and agile decision making to stay ahead of competitors. When managing multiple systems, it becomes difficult for IT staff to ensure that all technology is up-to-date.

Top Challenges When Managing Operations

Respondents were asked to select the top two challenges they encounter when managing operations – for process manufacturers it comes down to multiple datasets and high costs (Process manufacturing respondents):

- Managing Multiple Datasets – 36%**
- Operating Costs are too High – 35%**
- Rising Cost of Raw Materials – 29%**
- Reduced Budgets (Operational or Capital) – 25%**

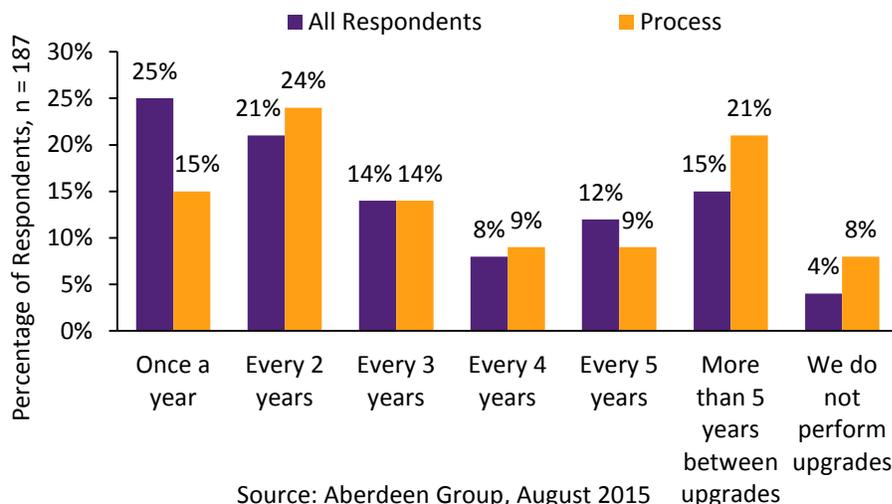
“Food safety and our consumer's experience is one of our organization's top priorities. This focus starts right from the top, with our CEO's constant message to the company on the subject, ‘We are all just one bad meal away from bankruptcy.’”

~ CFO, Large Food Processor

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Therefore, some enterprise systems may become obsolete, unsupported, inflexible, unsecure, and unable to mesh with other new technologies. Managing this type of landscape can be expensive as well. A lot of these hardships can be attributed to outdated enterprise systems, which a large portion of manufacturers still rely upon (Figure 2).

Figure 2: Average Length Between Upgrades to ERP



This is even more a concern for those manufacturers that operate in process industries, as the average time between upgrades is 3.4 years for process manufacturers, which is longer than all other manufacturing respondents. The real difference shows up when looking at the end of Figure 2; process manufacturers are two times more likely to not perform upgrades to their ERP system at all. This leads to a challenging environment for any manufacturer, especially those in the process industry. Why does it matter if your ERP is not current? It may mean you lose your competitive advantage.

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Defining Process Manufacturing Leaders

To identify best practices in process manufacturing, Aberdeen used metrics that measure an organization's ability to respond to pressures around compliance, operational efficiency, customer satisfaction, and traceability. Aberdeen categorized process manufacturing respondents into two groups: Leaders (Top 33%) and Followers (Bottom 67%). Table 1 summarizes the aggregate performance of each category.

Table 1: Top Performers Earn Leader Status

Definition of Maturity Class	Mean Class Performance
Process Leaders: Top 33% of aggregate process manufacturing performance scorers	99% Production Compliance 88% Overall Equipment Effectiveness (OEE) 97% On Time and Complete Shipments 3.9 Hours Response Time to Non-Conforming Shipments
Process Followers: Bottom 67% of aggregate process manufacturing performance scorers	91% Production Compliance 75% Overall Equipment Effectiveness (OEE) 87% On Time and Complete Shipments 24.2 Hours Response Time to Nonconforming Shipments

Source: Aberdeen Group, August 2015

The metrics above clearly indicate the ability of Leaders to manufacture and deliver compliant products in an efficient manner. Also, if a non-conforming product has shipped, it takes, on average, less than four hours to locate and hold the product after detection. This is a stark difference from the Followers. Not only are Followers less efficient and less likely to meet delivery targets, but they also take almost a full day to respond to shipments with quality issues. This greatly limits their ability to minimize disruption and quickly identify a root cause. Without the ability to track and trace shipments quickly, the risk and impact of recalls can be substantial. All of this is refelected from

Additional Metric Performance

Leaders are also outperforming their peers from a financial perspective (over the past 12 months):

Operating Margin vs. Corporate Plan:

- *Process Leaders* – +9%
- *Process Followers* – -4%

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Building in Compliance and Traceability

Aberdeen views building in compliance and traceability as a two-fold strategy:

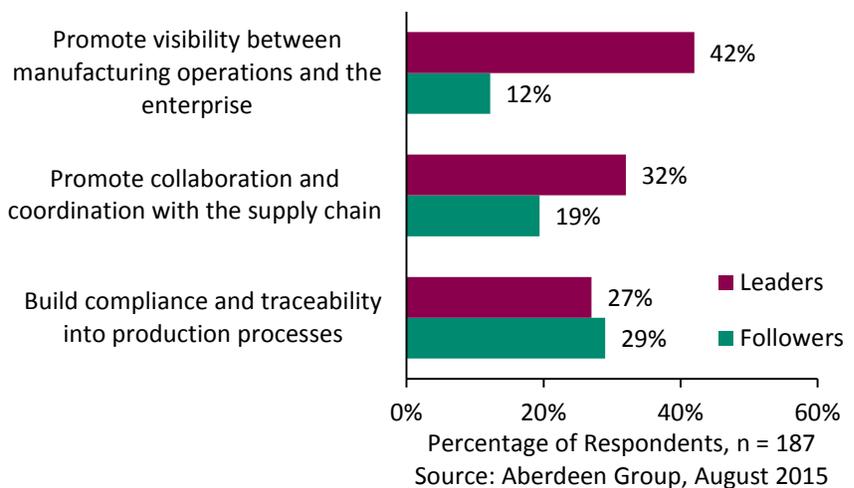
The first step to accomplishing this is in identifying those in critical control points that can be measured and are predictive in regards to final product quality. Then establish metrics and threshold levels for these critical control points. Finally, you must measure these critical control points in real or near real-time. This allows for in-process adjustments and, ultimately, the assurance of finished product quality and compliance.

The second part of building in compliance and traceability comes down to having the ability to recreate what happened to a product through the manufacturing process, from the initial raw material to distribution of the final product.

an overall financial perspective when looking at company margins, Leaders outperform corporate expectations by 9%. Followers cannot say the same, their poor performance on new products reflects itself in their overall business performance, as they ultimately miss corporate margin goals by 4%. This raises the question: what are the Leaders doing differently to enjoy such superior performance?

The first place to look for an answer about why Leaders perform so much better is the strategic goals they are focusing on. An important action, no matter the maturity group, is building in compliance and traceability into their production systems – which involves gaining understanding and control of production processes (see sidebar). There is significant value to this approach, primarily in the reduction on the dependence of testing to ensure final product quality. After the top action, however, there are differences in secondary goals between the Leaders and Followers (Figure 3).

Figure 3: Top Actions to Improve Performance



Leaders start by identifying their supplier base as an area that is crucial to performance, but often overlooked. By improving control over quality with suppliers, and treating them as

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strategic partners, both Leaders and their suppliers can strive to continuously improve. This focus allows Leaders to not only meet necessary compliance mandates, but offer their products at lower costs, greatly improving their chances for success in a highly competitive industry.

Where the largest gap between Leaders and Followers occurs is when it comes to promoting visibility throughout the enterprise. Continuous improvement methodologies, like Lean or six sigma, are based on the idea of cutting out waste and eliminating errors from your operations; the only way to actually do this is to know how you are performing. Aberdeen's recent report, [The Evolution of Modern Lean Manufacturing](#), covered this at length.

Successful manufacturers use visibility into their operations to take their continuous improvement efforts to the next level. In order to make effective decisions, it is essential that manufacturing executives have the necessary knowledge regarding how the enterprise is performing. Promoting visibility throughout the enterprise, and improving interactions with the supply chain, requires the proper tools in process manufacturing. It is no longer enough to have enterprise systems in place; to be successful in the evolving landscape of manufacturing, a company needs their enterprise systems to evolve as well.

Stay on Top of Things

Process Leaders understand the pitfalls of obsolete technology. As a result, the Leaders are more likely than their peers to take advantage of available upgrades to their business systems (Figure 4). Over 80% of process Leaders are either on the latest release or only one behind. The Followers on the other hand are more likely to be two or more releases behind. Implementing a new solution or upgrading an existing one is a way to ensure that technology is up-to-date and effective.

“Meat products are high value consumable products, so the more you manage the yield, the better you can optimize margins, which goes straight on the bottom line.”

~ Chief Information Officer,
FoodCap International Limited

Why Upgrade?

Leaders are 59% more likely than Followers to be on the latest release of ERP, the reasons for upgrading come down to two main benefits - functionality and performance is critical for the modern process manufacturer (Process Leaders):

Want to Take Advantage of New Functionality: 57%

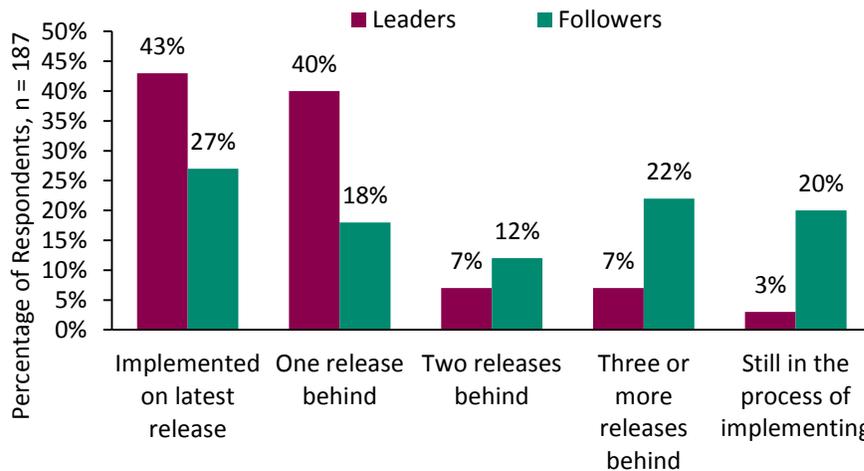
Performance of Old Version is Inadequate: 33%

Vendor no Longer Supports Old Version: 30%

New Version Offers Enhanced Ease of Use: 20%

New Version is More Flexible: 20%

Figure 4: Leaders are More Likely to be Upgraded



Source: Aberdeen Group, August 2015

So why would a process manufacturer choose to upgrade an existing solution like ERP? When polled, the number one reason Leading companies identified was the increased functionality new solutions bring (see sidebar). This could mean emerging technologies, such as social or mobile, new best practice workflows and processes, or even features related to maintaining compliance to new regulatory mandates. For example, a food and beverage manufacturer has to deal with complex and evolving regulations like the Food Modernization and Safety Act (FMSA). An outdated system may not be able to handle the new reporting and responsiveness requirements of these regulations, which can result in costly non-compliance. However, it's about more than just providing new features and functions, upgrading also brings more flexibility. This includes the ability to alter processes to maintain compliance.

But as always, it really comes down to the bottom line. If organizations are afraid that upgrades will disrupt the business, they should consider the positive side of the update path. Aberdeen's research shows that process manufacturers that are on the latest version of their ERP software report greater benefits

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as a result of their solution in a variety of key performance indicators when compared to manufacturers on older versions (Table 2).

Table 2: The Benefits of Upgrading ERP

Metric	Latest Version	Not on Latest Version
On Time and Complete Shipments	94%	87%
Overall Equipment Effectiveness (OEE)	88%	82%
Production Compliance	97%	94%
Hours Response Time to Non-Conforming Shipments	11.8	19.6
Reduction in Operational Costs	13%	10%
Reduction in Inventory	17%	9%
Operating Margin vs. Corporate Plan	+5%	-2%

Source: Aberdeen Group, August 2015

These include operational metrics such as production compliance, OEE, response time, and complete and on-time shipments. These improvements are also recorded on the bottom line, as process manufacturers on the latest version of ERP software report a 13% decrease in operational costs and 17% reduction in inventory. This is ultimately reflected in the margins, as manufacturers on the latest release outperform corporate projects by 5%. Paired with the evidence above that organizations that update receive a solution that is functional, easy to use, flexible, and compatible with newer advances, and these improvements provide a compelling case for upgrading.

What about the Cloud?

Whether replacing, upgrading, or implementing a new ERP solution, an organization is going to end up with a solution that can change the way the organization works. This is a perfect opportunity to reassess how the technology is delivered and supported. For process manufacturers, solutions delivered in the

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Software-as-a-Service (SaaS) is Growing in Adoption

Respondents were also asked which factors influenced your willingness to consider SaaS (All Process Manufacturers).

Lower Total Cost of Ownership: 52%

Configuration Flexibility: 45%

Reduces the Cost and Effort of Upgrades: 38%

Ability to Scale Solution: 38%

Lower Upfront Costs: 31%

Ease of Use: 28%

Ease of Implementation: 24%

cloud can be an attractive option. While this is still an emerging approach within manufacturing, Process Leaders are 23% more likely to have implemented their solutions in the cloud. Why is that? There are many reasons that process manufacturers cite for implementing their solutions in the cloud (see sidebar).

Unsurprisingly, the top reason is the lower total cost of ownership. When faced with budget constraints and limited IT staffs, process manufacturers want to look to solutions that require lower capital investments and allow them to rely on the resources of the software vendor to manage the IT infrastructure and operations, as well as the application. But selecting a business solution should never rely simply on costs. For manufacturers, they want easy-to-use solutions that can support new and changing business models and regulations, can integrate with other organizations, and can help to improve quality and cost controls. This is accomplished through more robust solutions that can improve visibility into financials and spending, as well as operational needs and costs. Cloud solutions can continually provide the latest functionality and user experience trends.

This leads to one of the biggest benefits of cloud solutions for process manufacturers, the ability to be constantly updated with little disruption to the organization. No longer will the organization have to rely on a technology environment with varying components or disparate ages. The organization can simply focus on serving its customers, and letting the software vendor handle the hard parts of supporting the technology.

Key Takeaways

Executives face numerous challenges in effectively navigating the new normal in manufacturing. To help capture some of the opportunity that accompanies any change, process

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manufacturers must make sure that their company is set to adapt. Today's manufacturers know that ERP is an essential tool for success. But in the spirit of continuous improvement, those manufacturers that are most successful continually identify areas where their technology environment can better support processes and operational performance. Organizations looking to become a Leader in process manufacturing should keep in mind:

- **Increased price competition and evolving regulations are forcing process manufacturers to rethink the way they do business.**
- **Multiple operational data sets and outdated enterprise systems are a particular challenge among process manufacturers.**
- **Focus on creating visibility between operations and the enterprise - visibility is the cornerstone of improvement for process manufacturers.**
- **Process Leaders are 59% more likely than Followers to be on the latest ERP release, this is because of the increased functionality and performance it brings.**
- **The metrics back up the Leaders approach - an updated ERP system improves overall business performance.**
- **Consider cloud ERP - beyond lower TCO, the ability to upgrade and scale the solution easily can no longer be overlooked.**

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Related Research

[Putting the C in CPQ: Configuration Management in High Tech](#) (June 2015)

[As-Built vs. As-Designed: Untangling the Web of Inefficiency and Waste Around Product Verification](#) (July 2014)

[NPI Velocity in Discrete Manufacturing: The Hidden Cost of Late Products](#) (November 2014)

[Overcoming Aerospace and Defense Systems Design Complexity with Configuration Management](#) (March 2013)

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