

I D C V E N D O R S P O T L I G H T

Pragmatic Yet Visionary ERP Requirements Driving Manufacturing Companies

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Among small to midsize (SMB) manufacturing and distribution companies, upgrading to an integrated technology solution often takes a back seat to daily business decisions deemed to be more pressing — immediate business fulfillment, optimization, and cost-cutting. This fly-by-wire business management approach seems to increase in reverse to business size: the smaller the business, the more typical for the company to forgo longer-term strategic planning decisions that might well alleviate daily pains and remove cost, configuration, or distribution pressures.

The back-office enterprise resource planning (ERP) function, with its assortment of accounting, human resources, logistics, purchasing and distribution applications, is often the last priority SMB executives have in mind when rushing to fill a multi-million-dollar order. The existing back-office applications frequently consist of a hodgepodge of customer databases, while unstructured data from loosely maintained spreadsheets to untraceable email correspondences, continues to interrupt workflow and employee productivity. Alternatively, some companies stick with legacy ERP systems that haven't evolved since their earlier efforts to be Y2K-ready.

Resolution is often left up to the business managers, with the help of an over-stretched IT staff, to attempt to reinvent internal systems that better anticipate customer demand, match timely financial data with supply chain efficiency, and adequately address any industry-specific compliance requirements. The tall order becomes more staggering with emerging requirements in areas such as lot traceability for food manufacturing, and the increasing blurring of manufacturing and distribution systems.

Most SMB manufacturers know they must implement change or risk limiting their growth and profitability. Yet, there are three main objectives that SMB manufacturing/distribution firms need to address if they are serious about revamping their IT and business management systems. These objectives are:

- *Business process control and standardization using centralized information for achieving greater financial/ operational efficiency, as well as more accurate forecasting*
- *Streamlined procurement, supply chain, and maintenance functions via improved supplier management*
- *Complete visibility into every business transaction, as well as underlying procedures, in order to ensure full compliance while meeting auditing and other regulatory requirements across different regions*

These pragmatic, but visionary, ERP requirements are driving the SMB buyer market forward.

Capturing Benefits of ERP Technology with Proven Solutions

To accomplish the above objectives, many SMB manufacturers are looking to proven ERP systems that have been specifically built to the specification of smaller pragmatic, visionary organizations. Their needs are to:

- Aggregate and analyze relevant data that allows the manufacturer/distributor to better understand market needs and future requirements
- Optimize planning, forecasting and inventory management, plus consider new distribution strategies
- Establish shorter, more cost-effective routes among product development, finished goods, and shipping

By investing in such a system, SMB enterprises can use the underlying architecture to start identifying and fixing their process weaknesses, turning their knowledge bases and people assets into strategic weapons. As an added benefit, once armed with such powerful means in one area, a diversified company can parlay the skills developed from one division to another.

Further, with increased globalization and outsourcing pressures, many SMB companies are finding it necessary to develop centers of excellence that place a high premium on manufacturing and distribution flexibility, service capabilities, and tight cost control.

Diversity of SMBs Amid Changing Market Dynamics

Given the fragmented nature of the SMB space, a cookie-cutter approach to implementing an ERP solution may not be the most effective way to solve industry-specific and unique organizational issues facing companies in need of varying degrees of business process overhaul.

For example, more than 46,000 companies are involved in the food and beverage industry in the U.S. alone, and 87% (40,900 total entities) have less than \$50 million in revenues. They all have diverse IT and business management needs depending on the roles they play in the industry, which include suppliers, brokers, distributors, packers, processors, growers, ranchers, retailers, or any of these overlapping operations.

In seeking advanced ERP solutions that meet their needs, SMB companies have often had to compromise between standard functional applications that may not exactly meet their needs, and more comprehensive customized solutions that take more time and money to implement and even more resources to manage, maintain, upgrade, or modify.

Fundamental shifts in the manufacturing industry are placing tremendous margin pressures for companies that need to differentiate themselves with product quality, marketing, and distribution capabilities, after-sale service potential — and most importantly, their ability to respond to fast-changing customer and market needs.

In many respects, developing a system capable of detecting these signals and triggering appropriate responses will become one of the priorities for manufacturing companies beginning to take a proactive approach to understanding customer insights, rather than being led astray by selling commodity or unprofitable products.

Customer insights are inevitably linked to the industry-specific solutions that companies need to develop in order to aggregate, analyze, and finally profit from an integrated system that provides good visibility into historical sales, supply chain, returned merchandise, and other metrics.

In light of recent economic developments, the following four industries:

- Electronics
- Medical device manufacturing
- Industrial machinery
- Food and beverage production

all stand to have the biggest to gains if they're able to harness such insightful information to help them expand globally. Their challenge is to pick the ERP supplier that best meets the specific requirements of their industries.

The Rise of Virtual Manufacturers

A common denominator among all these industries is the drive toward virtual manufacturing, where companies need to manage interlocking partnerships and global supply chains, as well as constant changes to their product design, special handling of customer requests, and production flow processes.

Virtual manufacturers have been honing their skills in building a large number of products and serving a sizable base of customers and users with perhaps a couple hundred employees. Rather than relying on a general-purpose business management system, these virtual manufacturers are looking for solutions that enable them to compress time-to-market and scale operations dramatically by using a vast network of manufacturing partners, while seizing emerging market opportunities through careful analysis of customer trends. It's a careful balance between the pragmatic customer need versus the company's own corporate vision of growth and profitability.

Lean manufacturing is a model that these industries have been adopting with high expectations. In particular, virtual manufacturers have been developing systems that set a flow production plan after gathering demand signals from common touch points, to keep inventory within targets. By monitoring shipments, product, and demand, these systems help synchronize the movements of physical work centers.

The result: a series of autonomous planning groups that can respond to changing demands in a timely manner, with no need to detail or schedule every activity.

All these requirements are leading to a single, integrated system to keep track of organizational data, suppliers, and customers in order to enhance their collaboration capabilities. In a recent IDC survey of 302 IT managers, the majority of respondents cited ERP vendors as the solution providers they most associate with helping them achieve multi-enterprise collaboration.

Common Challenges of SMB Manufacturers

Even for the smallest of these pragmatic but visionary SMB manufacturers, mass customization is becoming increasingly common, forcing them to have greater segmentation of their customer data to handle special requests.

Globalization effects are pressuring these makers to pursue niche markets, such as highly specialized parts, by leveraging forecast, production data, and customer service information at a time when manufacturing nodes are being pushed out to distant locations leading to a loss of visibility and control.

While some manufacturers are investing in new design tools to accelerate time-to-market performance, others are focusing on build-to-order processes that require rigorous supply chain

planning for parts tracking, transportation evaluation, and delivery schedules, along with robust demand forecasting capabilities and real-time client order information.

Food Manufacturing Market Dynamics

As globalization of retailers becomes prevalent, food manufacturers are following suit and entering into uncharted territories in terms of brand risk, food safety and traceability, and relentless price pressures from customers and consumers alike.

Whereas food makers used to be able to muddle through with legacy systems to manage a limited number of customers and product selections, the growth in Asia and Eastern Europe has created a plethora of new opportunities. Brand extensions, as well as wider product ranges and shorter product lifecycles, have created mountains of data that need to be captured, sorted, and analyzed.

Food manufacturers face a spectrum of tasks ranging from effective management of raw materials and commodity items, to running some of the most sophisticated manufacturing and distribution operations in order to maximize yield and profitability. It starts with the desire of brand owners to develop a solution that supports repeatable and adaptive food manufacturing processes.

The goal of brand owners is to secure a steady and reliable supply chain; from the supply of materials, to meeting customer expectations with on-time deliveries. This is particularly important for food manufactures, since so much of their inventory is perishable and has a limited shelf-life. In order to meet these goals, food manufactures must have the tools that facilitate visibility, communication, and control over contracts.

Full visibility is more important than ever to establish and maintain lot quality by tracking attributes from source of supply to finished product to ensure compliance and to manage successful and timely recalls, if necessary.

Then there are the audit requirements from brand owners, retailers, consumers, and regulators demanding a slew of easily validated data for food safety, product labelling, and complete traceability requirements from national, regional, and local government agencies as well as other standards-making bodies.

Action Plans for Food Manufactures

Food makers need to better measure and manage daily performance, and plan business growth with operational metrics and key performance indicators from a holistic viewpoint to identify actual and potential weaknesses with their product line-ups, relationships with customers and suppliers, and finally pricing and discount levels.

In a crowded marketplace, key differentiating factors reside in food makers that can automate such functions as category management, trade promotion management, and brand equity management, all of which are critical to their ability to survive and succeed.

XML messaging and electronic data interchange (EDI) can facilitate efficient communication with trading partners in order to accelerate decision-making and order-to-delivery cycles. For example, customers should be able to order goods directly from their ERP systems using inventory optimization and business analytics to optimize and automate the ordering process. The same automated setup should be available through the entire supply chain so that distributors, brokers, and others can take advantage of such order-promising capabilities, saving time and labor for everyone involved.

Medical Device Manufacturing Market Dynamics

The medical device manufacturing market is awash with rags-to-riches companies with their blockbuster products as well as high-octane growth trajectories that sometimes defy imagination. However, the industry also has a long history of massive product recalls and spectacular failures.

With common product development delays, expiring patent rights, and hard-to-come-by government approvals, medical device makers face stringent regulations that drive the need for quality products, genealogy tracking, and compliance capabilities — the latter a prerequisite to prevent incurring stiff fines and other liabilities.

But the need to drive down costs, especially among early-stage medical device makers, means that many have not set up the right system infrastructure to prepare for their future growth.

Even for makers that have already been shipping products, the temptation is to expand their sales force operations, rather than the underlying systems that enable the existing salespeople to sell more effectively or anticipate and meet customer requirements.

Data integrity is another challenge that medical device makers face. While scrambling for expansion opportunities through mergers and acquisitions and entering fast-growing markets in countries in Asia, Eastern Europe, and Latin America, meeting compliance requirements becomes a daunting task. Training requirements and customer service issues must also be properly recorded within the system to meet requirements from the International Standards Organization (ISO) and the U.S. Food and Drug Administration (FDA).

International expansion has come into focus as the extensive use of production partners and suppliers becomes commonplace among medical device makers engaging in virtual manufacturing.

On top of these expansion plans is the growing awareness of lean and Six Sigma manufacturing initiatives that have yet to produce the expected benefits for medical device and life sciences companies. In a recent IDC survey, fewer than 10% of respondents in the life sciences industry said the implementation of lean manufacturing systems has resulted in improved product quality and fewer defects. On the other hand, lean manufacturing has been cited by nearly half of the respondents as generating the benefits of reduced waste and reduced inventory.

What it amounts to is a lack of a consensus among the manufacturers on how to leverage the technology solutions available in order to help them improve the overall supply chain efficiency, while shoring up their compliance capabilities as well as overcoming mounting competition from government-funded medical device makers in a growing number of countries that could make the life of an independent medical device manufacturer much more difficult.

Action Plans for Medical Device Manufacturers

Because of the high stakes involved, medical device makers (especially pre-IPO companies) need to strengthen their infrastructure to meet such requirements as field-level security for HIPPA compliance and quality management for 21 CFR part 11 compliance. In addition, they should develop a common data repository so that employees can receive proper training and incentives to drive compliance activities regardless of how and where they do business in different parts of the world.

For example, medical device manufacturers should adopt integrated systems that enable traceability, including lot control and serial number tracking through seamless integration and accurate data, in a matter of seconds anywhere.

Another remedy is for medical device makers to eliminate manual procedures and paper processes for a sophisticated workforce that often places a premium on efficiency and time-saving techniques.

Having an integrated system that keeps track of development plans, complaint management processes, and supply chain efficiency will help boost productivity while improving customer satisfaction, as well as data integration for root-cause identification and the elimination of defects in finished goods.

Increasingly, medical device makers are revamping their complaint management processes to better detect the origins of the complaints and safety violations from device users, and thus execute appropriate plans to reduce replacement costs and analyze and predict device trends.

Electronics Manufacturing Market Dynamics

In the electronics industry particularly, not only must manufacturers brave accelerated product cycles, increased competition from those with significantly lower cost structures, and the fast-changing requirements of customers, but companies must also find better ways to run their operations, from product conception to order fulfillment.

Aligning their vision with virtual manufacturing, the new breed of electronics firms has no desire to own their fabs, assembly lines, or warehouses. Relying on a network of contract manufacturers (CMs), Original Design Manufacturers (ODMs), semiconductor foundries and logistics providers, any electronics company can grow its operations rapidly in order to attack a nascent market opportunity.

Therein lies the problem for these electronics manufacturers: they run the risk of losing touch with their suppliers, CMs, ODMs, foundries, logistics, partners and customers. That problem is even more acute among SMB electronics manufacturers that generate the majority of their revenues from a limited number of products. If demand for one of these products slackens, the manufacturer could face serious financial difficulty.

Another risk in electronics manufacturing is that many companies are moving from a repetitive environment, or in some cases MTO (make -to-order) for specialized products, to a demand-driven world. The best-case scenario is that they can adjust form factors, parts and components, and even fundamental design points from user interface to power consumption based on the best data available from customers and distribution partners. However, sales data and crucial information is still residing, either in the heads of their salespeople or in disparate systems that cannot produce an accurate and up-to-date picture of the current state of the business.

The situation is worsened when the electronics manufacturer is many steps removed from the end users of its products. What's often lacking is a systematic method to trace numerous sales reports, user registration forms, and RMA (return materials authorization) records.

Without an integrated suite of applications that track organizational metrics from financials to environmental compliance, and from channel sell-through to product obsolescence, an electronics manufacturer can be seriously disadvantaged when important records are spreadsheet-based, manually kept, and quite possibly replete with errors. Otherwise, data is kept in a legacy system that fails to reflect the multi-faceted dimensions of a company — cost control, cash flow, personnel, product pricing, sales contracts, supplier base, and demand planning.

Action Plans for Electronics Manufacturers

With compressed product cycles, electronics manufacturers need to find ways to maximize their returns while minimizing their risks. Thus a seamless system is needed to enhance responsiveness to and the prioritization of customer orders through visibility into the entire manufacturing network.

Manufacturers also need the best available business management tools to compress the time needed to handle back-office supply-chain planning functions, while boosting margins by tapping into

new service revenue opportunities like selling extended warranties. Also, global inventory levels can be reduced through visibility into stocking positions throughout the supply chain, providing better management of inventory liability both in-house and at CMs, as well as reduced off-balance sheet inventory liability with CMs.

Industrial Machinery and Equipment Manufacturing Market Dynamics

Similar to discrete manufacturing, industrial machinery and equipment (IM&E) manufacturing companies have invested heavily to boost product quality and reliability with state-of-the-art production systems. But to excel on a global level, IM&E companies must look ahead. They must seek the right systems and the right data to serve the needs of both existing and potential customers.

IM&E companies are finding it necessary to develop centers of excellence that place a high premium on manufacturing flexibility, service capabilities, and tight cost control. Because of the growing need to share and reuse design specs, parts, and components, as well as production plants and facilities, IM&E companies that excel in the global marketplace will be those that master manufacturing flexibility.

In many cases these IM&E companies have gone through multiple mergers and acquisitions in order to dominate a specific product category and to compete at the global level.

After a number of ownership changes, the situation becomes unmanageable because none of these systems are integrated, and data is scattered without a common structure. These fast-growing equipment manufacturers may find themselves pulling information from different databases in an effort to compile a more coherent picture of their operations, customers, project history, and current status.

Compounding the problem is the tremendous volume of data that flows between development teams and suppliers, as well as between production managers and salespeople. What most IM&E companies need is a standardized and robust system to handle and harness the cascading data, which has to be both accurate and consistent.

Action Plans for IM&E Manufacturing Companies

A standard platform has become more critical than ever in the IM&E industry, where exchanges regarding product specifications flow freely between machine producers and their customers. In the past, such information often would not be disseminated simultaneously. A well-integrated ERP system connecting every project participant would have set the record straight even when designers changed the bill of materials (BOM) without first notifying the buyers responsible for procuring parts from suppliers.

Another way to sustain the business of IM&E companies is to improve their customer service capabilities by building a system that tracks the history of the entire customer life cycle. For instance, setting up a system that captures customer history details, and the products they've been running for an extended period of time, would enable an IM&E manufacturer to benefit tremendously, since such data is not typically found in a single system.

What the common system can do is to compare and contrast the technical specifications of customers' old equipment to those of existing products, so that the manufacturer can recommend functionally equivalent parts or replacements before they break down to maximize customer satisfaction.

Considering SYSPRO

SYSPRO, founded in 1978, is a privately held provider of enterprise business solutions for small to midsize companies. With its US headquarters in Costa Mesa, California, the company has regional offices in South Africa, Australia, Canada, and the UK, with approximately 350 employees worldwide. The company reportedly has more than 12,000 customers in over 60 countries, and markets through an extensive global network of more than 1,500 resellers.

SYSPRO develops a robust, full-scale line of manufacturing and distribution solutions that leverage an industry-standard platform and common Web-based components. The core system is highly configurable to changing customer requirements, is scalable, and can quickly accommodate the addition of new applications. The company currently offers 45 modules, including specific functionality designed for the food, medical device, electronics, and machinery/equipment vertical markets. Key examples are:

- Financial controls
- Sales
- Purchasing
- Inventory control
- Customer relationship management
- MRP/production control
- Distribution
- Inventory optimization
- Advanced planning and scheduling
- Business analytics
- Lean
- Compliance

The platform also features a system manager to help users optimize their installed solutions.

Other key differentiators include embedded electronic data interchange (EDI) for online collaboration, integrated forecasting and inventory optimization for cost analysis, material yield for price planning, trade promotions for channel marketing, and traceability and digital signatures for security and risk management.

SYSPRO's advanced Inventory Optimization solution, for example, is designed to improve business forecasting and leverage lean manufacturing principles. The Inventory Optimization suite is comprised of the Forecasting module, which forecasts at the stock code level, and the Families and Groupings module, which collects and aggregates common inventory stock codes into sophisticated categories designed to predict and forecast business inventory more accurately.

Another module, Projects and Contracts provides a variety of costing/profit tracking methodologies that enables medical device and electronics manufacturers to assign costs, monitor profits, and make necessary adjustments at various stages of their project and contract planning.

Also available is the SYSPRO Product Configurator, which enables complex electronic and other manufactured products and their components to be configured "on the fly" during order entry. The software allows companies to configure their labor and materials using rules-based question-and-answer screens, and is fully integrated into the SYSPRO ERP suite.

All modules are based on standard XML formats for information exchange, and Web service technologies for maximum interoperability between disparate systems. SYSPRO maintains technology partnerships with Microsoft, Micro Focus, and Business Objects, among others.

The company's ERP solutions are designed to appeal to C-level executives who are cost-conscious, but also results-oriented. These executives are visionary but practical, and want solutions that take a thoughtful approach to adopting new technology such as Web services and service-oriented architecture (SOA) — delivering real business value today while providing a bridge to future innovations.

Challenges

SYSPRO has had considerable success targeting pragmatic buyers in the food, medical device, electronics, and machinery/equipment micro verticals. However, the company faces competitive challenges from large ERP vendors moving downward into the midmarket. Despite its sizable installed base and history, SYSPRO's expansion plans will need to align with its core competency in strategic verticals to gain ample market share to defend against larger entrants.

Also, SYSPRO will need to aggressively promote and sell its vision of providing manufacturing and distribution companies with the pragmatic but visionary growth path they desire. As previously described in this paper, a large percentage of these SMB buyers realize they must change — but are reluctant to adopt any strategies they deem business-disruptive. If SYSPRO is to succeed with its accelerated growth plans, the company will need to invest in both operational and marketing strategies that convince the buyer market to take the visionary leap of faith, and cross the chasm to a new ERP solution.

Conclusion

As SMB manufacturers are inundated with technology options to help them expand, a clear-headed approach is needed to provide them with pragmatic solutions that are easy to install and manage, as well as embedded functionality that meets their industry-specific requirements and provides ample headroom to help them achieve their business vision.

SMB organizations should look for solutions with the following guidance:

- Analyze the costs and benefits of a system upgrade and replacement
- Identify proven solutions that can tackle immediate pain points while addressing evolving needs
- Partner with proven SMB technology providers that offer a stable and scalable platform, continuous innovation, as well as domain and business process expertise that can handle industry-specific requirements
- Start small but with a vision by deploying an ERP system to overhaul existing business processes from order to cash or supply chain management within a division, and aim for enterprisewide transformation
- Map out a change-management strategy beforehand by garnering commitments from project stakeholders while demanding local support from vendors and their business partners

- SMB companies should also insist on a proven implementation methodology, and implementation teams with proven understanding of both generic manufacturing/distribution needs as well as vertical industry insights

SMB firms should implement enterprise applications that offer the best match to their vertical business requirements, allow for customization unique to their organizations, and be able to demonstrate a proven track record of delivering new features/functions as their markets evolve. SYSPRO has demonstrated its ability to do this, has a 20-plus-year track record, and a highly satisfied customer base that has grown with the company.

A B O U T T H I S P U B L I C A T I O N

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