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Managing Business Risk in Industrial Equipment and Supply

Prepared exclusively for Sage by Cambashi, Inc.
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Few industrial companies were prepared for the swift economic decline in 2001. The losses led to industrywide cost control measures including off-shore sourcing. Wise companies also implemented greater risk management oversight. As the economic cycle rebounds and customers once again invest heavily in capital equipment, industrial companies should continue to be careful of risks as they pursue expansion opportunities.

Prior to the global economic crisis, industrial companies had been expanding into new regions, industries, product lines, and services. At the same time, they had been dealing with industrywide changes that posed additional risks to their business. The challenging economic times put a spotlight on those companies not equipped to deal with these risks. The primary risks faced by industrial manufacturers and distributors are:

- Rapidly expanding into new areas to maximize growth opportunities while minimizing exposure to losses and write-offs
- Winning and maintaining business since the bar has been raised for product quality as well as delivery and service reliability
- Bidding profitability on complex product and service contracts that carry penalties for poor performance
- Ensuring full compliance to all environmental regulations around the globe

Companies that fully recognize the extent of the risks can put strategies, policies, and systems into place to manage them. Integrated enterprise systems that provide end-to-end functionality, visibility, and controls across expanded industrial operations can give companies the upper hand in risk management.

Multifaceted Business Expansion

When companies are preoccupied with growth, they are more easily exposed to risks taken to meet expansion goals. On one hand, there is the risk of not expanding fast enough to capture more of the market, and on the other of having idle capacity and excess assets from overexpansion.

The industrial supply chain has changed dramatically in the past 15 years and has become more complex. It has shifted from a supply chain that sells and services equipment to one focused on solving customer problems and offering full-service solutions based on traditional core capabilities and an eye towards higher margins.

Industrial OEMs, component suppliers, and distributors of maintenance, repair, and operations (MRO) items continue to expand on their vision to be full-service solution providers on a global basis. This doesn't just mean new services. The industry is expanding in four directions to open new doors to growth opportunity and maximize niche specialties. They are regional, vertical, product line, and service expansions (see Figure 1).

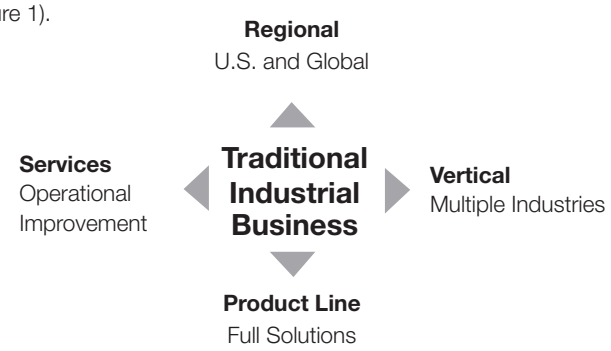

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Figure 1: Industrial equipment and supply companies are expanding their operational scope into new regions, industries, product lines, and services to diversify and take advantage of profitable opportunities, putting their businesses at risk of trying to do too much or too little.

Regional Expansion:

Companies are moving operations closer to their customers for improved collaboration on product designs and greater responsiveness. Regional proximity—whether in the U.S. or other countries—increases customer satisfaction and local competitiveness. While global growth is a vision for many midmarket companies, some are initially expanding operations into underserved regions of the U.S. Then they are slowly and carefully acquiring companies abroad to expand globally with local expertise and relationships. If there isn't enough business to sustain the operations, return on investment is at risk during regional expansion. This could occur during an unanticipated economic downturn, a change in political climate, or as the result of poor due diligence.

To minimize the risks associated with moves into new regions, successful companies are integrating all of their operational systems under one information infrastructure. To ensure new units perform well, they are also putting workflow management and performance measurement in place. Many are also developing more flexible processes that can respond quickly to changes in the market, often under a Lean initiative. Leaders are implementing collaborative demand and inventory planning solutions that support multisite visibility across their growing number of facilities and partners (see Figure 2).

Business Risk Management Requirements for Multifaceted Business Expansion
Scalable enterprise processes on flexible single platforrn
Market and customer trend analytics
Product mix management
Operations and financial performance management
Workflow monitoring and notification
Collaborative and event-driven demand planning
Multisite inventory visibility, planning and optimization
Demand-driven replenishment planning and VMI fulfillment
Demand-driven Lean scheduling and replenishment
Integrated project management
Internet-based collaborative document interchange
Product configuration and lifecycle management
Field service management
Service contract management
Enterprise asset management

Vertical Expansion:

Many industrial companies are expanding into new industry-specific applications that leverage niche areas of expertise. Diversifying hedges against an economic downturn in any one segment and can also provide fuller solution coverage to conglomerates. In addition to industrial customers, many companies now serve automotive, aerospace, utilities, commercial suppliers, and OEMs.

The risk is spreading the organization too thin without the infrastructure to support it. New applications require industry-specific skills and expertise in research and development (R&D), sales, customer service, materials management, logistics, and field support. Not only does this mean hiring enough of the right people and getting them indoctrinated in the organizations' processes, it also means ensuring everyone in the organization is fully in the loop and capable of supporting new business processes and expectations.

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Figure 2: Controlled and profitable expansion across multiple business fronts requires real-time operational monitoring and analysis, end-to-end integrated processes, and broader functionality.

This requires a scalable enterprise system that integrates every facet of the business into a single information platform with standardized and flexible processes as well as financial and operational performance monitoring (see Figure 2).

Product Line Expansion:

Many industrial companies are expanding their product lines into full-scale operational solutions. Others are also choosing to add complementary products to their flagship lines such as accessories for their machinery, which gives them an advantage of being a one-stop supplier for specific types of equipment or industrial environments.

Either strategy puts companies at risk of carrying high inventory volumes—much of it slow moving. The danger is ending up with excess inventory during economic declines. To minimize the risk of inventory shortages and write-offs, industrial companies can learn lessons from the consumer goods sector. These firms are accustomed to high volumes and large product lines, and have turned to event-driven demand and inventory planning functions as well as market analytics to determine profitable product mix (see Figure 2).

Services Expansion:

A solution provider stance nearly always entails offering services. Component manufacturers now offer consulting and design services to assist OEMs in developing new applications with their products and reaching their goals cost effectively. Many OEMs offer full product lifecycle support to end customers, from design to installation and service to removal. Some OEMs also offer field and depot services that extend beyond maintaining their own equipment to any type of equipment in a customer's plant.

Many MRO distributors now see themselves taking on the responsibility of guaranteed MRO supply chain replenishment and site maintenance. In these new roles, the risks are far higher. In taking responsibility for the performance in customer operations, there are high financial penalties and loss of multiyear contracts in the event of underperforming or missing agreed service levels.

To ensure that customers are fully satisfied, industrial companies need software with integrated functionality that supports their new business processes and collaborative business relationships. Component suppliers need R&D capabilities such as integrated project management, collaborative design, and product configuration management. OEMs need ways to beef up end-customer experiences through product lifecycle management and post-sales field service management. MRO distributors must oversee customer processes including service contracts, supply replenishment, and asset maintenance management (see Figure 2).

The pressure to innovate and expand beyond core competencies puts strain on an organization to put new processes, performance measures, and skill sets into place quickly and efficiently. In some cases this occurs through acquisitions, in others through rapid internal growth. Those companies that have scalable and distributed enterprise application infrastructures will have smoother transitions whether they are growing into new functions or new sites.

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Product and Service-Level Reliability for Customer Satisfaction

As with so many other industries, the industrial markets are dealing with rapidly changing technologies, evolving industry standards, and aggressive cost saving agreements with their customers. In addition, buyers now demand outstanding performance of their equipment, including higher up-times and lower total cost of ownership, and they are turning to equipment manufacturers and suppliers to deliver superior reliability or pay a penalty. This is the new standard of excellence.

Industrial companies pride themselves on their ability to innovate quickly and leverage their specialized expertise to deliver next-generation, customer-driven solutions. Many are expanding into specialty and high-performance product lines for greater competitive differentiation and higher margins. Most have built long-term relationships with their customers and are considered trusted partners. Therefore, they can't afford to deliver anything less than the highest quality products, parts, and services necessary to ensure their customers' operations run smoothly with minimal cost and down times. This creates tradeoffs that the industrial supplier must balance, as shown in Figure 3.

One of the largest challenges in all of that is doing it at an acceptable cost. One answer has been low-cost country sourcing for many high-volume parts. The challenge is that lead times have skyrocketed. This is a serious trade-off for companies to consider. In the solutions environment, the risk of missing a delivery of either spares or new products is high, and companies need good supplier visibility and communication to avoid problems.

Failing to meet customer expectations in products and services or to innovate or deliver faster than the competition puts companies at risk of lost revenues and lower competitive standing in the market. Unlike in the past, prospects and customers are more willing to end relationships and find new partners.

Business Risk Management Requirements for Product Quality and Service Level Reliability
Customer connectivity and design collaboration
Variant product configuration and BOM parts rationalization
Product configuration and lifestyle management
Multisite and supplier engineering change management
Global strategic sourcing and performance monitoring
Supplier connectivity, collaboration, and communication
Distributed, multisite inventory optimization
Adaptive supply chain planning and execution
VMI/Kanban-driven replenishment fulfillment
Lot and serial number track and trace
Lean and Six Sigma quality initiatives
Tightly integrated factory floor and maintenance systems
Integrated CRM, call centers, field services
Technical call center knowledge management

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Figure 3:

What product and service factors determine uptime and total cost of ownership?

Will low cost country sourcing jeopardize quality or response times?

Can I maintain reliability during new product and technology introductions?

Industrial equipment and supply companies must balance multiple conflicting customer desires to ensure customer satisfaction and solution reliability.

Figure 4: Greater systemic process standardization, integration, collaboration, tracking, and performance monitoring reduce the likelihood of disappointing customers and improve quality and reliability.

To avoid this fate, successful industrial manufacturers are beefing up their business strategies and systems to ensure higher product and service performance levels. Leading MRO suppliers have also invested in next-generation technologies to ensure greater operational cost savings, supply fulfillment reliability, and consistent parts quality. Both manufacturers and distributors are adding new system capabilities to standardize, integrate, track, and optimize business processes across their organizations and out to customers and suppliers (see Figure 4).

Due Diligence Bidding for Contract Profitability

For many companies the challenge isn't getting the opportunity to bid. It is to bid profitably. Most mid-market companies don't have the systems in place to determine if they are bidding with accurate information. As a result, companies are exposed to losing money on projects or long-term contracts. Bidding on capital contracts involving engineered-to-order equipment has always been complicated. It has become far more difficult due to the added service component of a solution, often based on specified Service Level Agreements (SLAs).

SLAs identify the performance levels that must be attained for specific tasks (such as, scheduled preventive maintenance) as well as outcomes (for example, asset uptime). At one time, SLA contracts were straightforward and paid on the basis of time and materials for the tasks, but that is no longer as common. Instead, asset owners now want service contractors to put some skin in the game.

Payment is often correlated with demonstrable savings from reduced cost of equipment ownership, asset utilization, higher production yields, lower operating margins, or reduced plant safety violations. If savings and output are improved as promised, the industrial service provider is fully paid. If they are not improved (or if any aspect of the SLA is missed), the customer partially or fully withholds payment—and sometimes imposes stiff penalty fees.

SLA contracts offer lucrative margins and profits. Noncompliance to terms can have the opposite effect: Lower margins and penalties. To minimize the risk of losses, successful companies conduct bidding analysis and due diligence up front to ensure they know every aspect of the customers' operations from the number of tasks required to the current costs and performance levels. Once it wins the bid, the company must maintain tight controls on resource efficiencies and costs by means of sourcing strategies and project management. Resources are the biggest cost in service contracts, so to maximize profits, companies must get the right resources to the right job on time and with minimal waste.

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Figure 5: To ensure each bid or quote is reasonable yet profitable, companies need input about many aspects of the product, service, agreement, and costs.

Engineer-to-order equipment contracts also pose considerable risks. Many companies don't know if they are missing valid sales opportunities, pursuing unprofitable ones, overbidding, or failing to deliver products that satisfy customer requirements. What it takes to reduce these risks are informed decision makers across the sales, engineering, manufacturing, and service organizations that can collaborate within an integrated infrastructure to develop a profitable solutions-oriented bid, as shown in Figure 5.

Industrial companies need accurate information from across the organization and actual costing from similar projects, variant product structures, rules-driven parametric product configurations, estimating, and proposal management. After the bid they also need contract management, strategic sourcing, engineering change management, and product lifecycle configuration management. Without these in place, manufacturers are at risk of pursuing and building equipment at a loss and diverting resources from profitable projects (see Figure 6).

Business Risk Management Requirements for Profitable Contracts
Rules-based parametric sales configurator
Variant product structures
Actual job-based costing
Estimating, quoting and proposal management
Service contracts with specified SLAs
Contract management with SLA performance tracking
Strategic sourcing
Multisite engineering change management
Product configuration and lifestyle management
Integrated CRM with field service management
Integrated enterprise asset management
Project and resource management

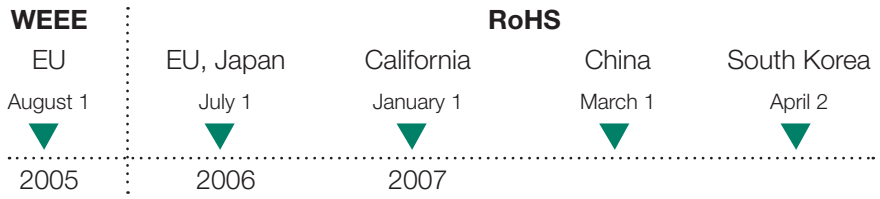
Figure 6: System enhancements for greater profit performance focus on tracking actual costs and performance levels, reducing engineering time and bidding errors, lowering costs, increasing resource efficiencies, and collaborative decision making.

Procedural Compliance for Environmental Regulations

Those in the industrial sector are quite familiar with environmental regulations, as they relate to the safety and health of workers and contamination to the environment. Companies have long been subject to federal, state, and local environmental laws and regulations including the use, discharge, and disposal of hazardous substances that affect air, ground, or water quality. They are always at risk for a violation due to an operational mishap, releasing hazardous waste at an existing or formerly owned site, or acquiring a business that is out of compliance.

New environmental regulations legislated by the European Union (EU) now impact industrial producers and distributors that sell products with electronic components. Those most affected are industrial suppliers and subassembly manufacturers. The directives include the 2005 Waste Electrical and Electronics Equipment (WEEE) law, which puts responsibility for equipment disposal on the manufacturers, and the Restriction of Hazardous Substances (RoHS). RoHS went into affect in 2006 and restricts the use of six hazardous materials in products produced and sold in the EU. Other countries are following suit, including China, South Korea, and Japan (see Figure 7).

In the U.S., California has been the first state to recognize the mandates and passed a law that restricts products according to the EU mandates as of January 2007.



To reduce exposure to a health, safety, or environmental lawsuit, most companies have put measures in place to monitor and improve their operations and to continually train employees on proper procedures. The risks are further reduced when compliance procedures are systematized, monitored, and documented as part of the enterprise solution. These include procedures for managing inventory, monitoring inbound parts, working with suppliers, tracking products through their lifecycle, process documentation, and full disclosure of the use or release of hazardous materials and substances (see Figure 8).

Business Risk Management Requirements for Regulatory Compliance
Inventory management with environmental certification
Track RoHS and REACH compliant and noncompliant parts
Compliance track and trace by lot and serial numbers across BOM
Supplier certificates of compliance by component
Product lifecycle management
Document management for compliance reporting
Proof of hazardous substances within allowed limits
Environmental compliance reporting
Material Safety Data Sheets

Minimizing Risks in a Solutions-Driven Industry

Industrial manufacturers and distributors are facing a number of risks as they expand their business scope and shift further into operational improvement services. Most companies are being careful not to grow too quickly or to take on contracts that stretch their capabilities beyond their core areas of competence. Yet problems and unforeseen situations are inevitable when pursuing new ventures, and customers are less forgiving than they were in the past.

Customers are demanding more from their equipment and service providers, continually pushing for lower operating costs. Industrial equipment manufacturers and MRO distributors cannot afford to miss bidding deadlines, delivery dates, product specifications, or service-level agreements. They also can't afford the penalties of being out of regulatory compliance. Those who don't put processes and controls in place to meet customer and regulatory requirements risk significant financial losses.

What the smart industrial equipment and supply businesses recognize is how to leverage an integrated enterprise infrastructure to maximize profits while minimizing exposure to risks. Leverage is possible with a system that offers operational scalability, process flexibility, deep functionality, real-time visibility, performance monitoring, and corrective action responsiveness.

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Figure 7: Environmental regulations for electronics have sprung up all over the world in the past few years.

Figure 8: Companies need an array of business enterprise functions to address the growing regulations for environmental compliance.

About Cambashi

Cambashi, based in Cambridge UK and Cummaquid, MA USA, provides independent research and analysis of the business reasons for use of IT in industry, world-wide. Its specialist fields include engineering and enterprise applications and the infrastructure to enable industrial firms to use IT effectively.
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